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2022 JUNIOR COLLEGE ECONOMICS H2 TEST PAPERS

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ANGLO-CHINESE JUNIOR COLLEGE PRELIM PAPER

Question 1: Smartphone and Electronic Waste

Global smartphone market and operating profit share, 2019

Figure 1: Market share in units sales (%)

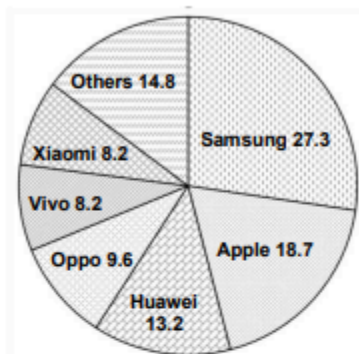
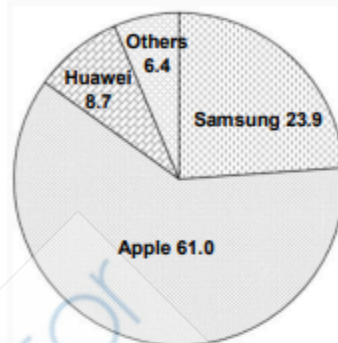


Figure 2: Operating profit share (%)



Source: <https://www.statista.com>

Extract 1: Apple shows the world it can push up price and still ensure demand

There is no other smartphone brand that plays only premium; the average selling price of Apple phones is over USD700. Over the years, Apple has been able to push up the price with this crowd.

If, over the next year or so, the price of flagship smartphones keeps going up, you can blame Apple. The tech giant has, over the past year or so, perfected the art of pushing up the price of its latest phones, but without any significant impact on demand. However, the best thing for Apple is that, with this strategy, even a drop in volumes will ensure good revenue.

Apple demonstrates it excels at extending the life-cycle of its product portfolio through incremental innovation, impressive technical specifications boosting performance of its devices, and smart marketing."

Source: Nandagopal Rajan, Financial Express, 17 September, 2018

Extract 2: Have flagship smartphone prices peaked?

Apple's announcement of the iPhone 11 at its annual product event last week largely centered on incremental improvements such as better camera and battery life, but the company's decision to lower the price of its base flagship smartphone caught our eyes.

Apple's decision to lower pricing can be seen as an acknowledgement that it has tested the upper limits of consumer acceptance. At a time when the company wants to expand its number of customers as it builds out its ecosystem of content and services, it's sensible that it slightly brought down the barriers for consumers to get their hands on the new device. The Apple

ecosystem is the special features of Apple devices (like iPad, iWatch, AirPods, AirTags) and services (like Apple Music, Apple TV+, Apple Arcade, iCloud) that take user experience to another level because of interaction between them.

In light of Apple's pricing announcement, there's little doubt that Samsung, along with Google, Huawei, LG and other flagship brands, will need to look at their numbers again, examining component prices and margins.

Google, as it prepares to launch its next-generation Pixel phones in October 2019, will be paying attention on device pricing just as much as specifications. And Samsung, which plans to bring out its Galaxy S11 series in March 2020, must also be evaluating its device pricing strategy.

Smartphone prices have reached levels few had predicted, but as much as people love their phones, fundamental economic rules do matter. Price elasticity seems to have kicked in and it will be interesting to see if prices have peaked indefinitely.

Source: Ben Wood, CCS Insight, 17 September 2019

Extract 3: Singapore's mountain of e-waste

Singapore generates more than 60,000 tonnes of electrical and electronic waste (e-waste) each year, and the rate of e-waste generation is expected to increase in tandem with economic growth and the prevalence of electrical and electronic equipment (EEE) among consumers and businesses.

Each person in Singapore generates 5.5kg of electrical and electronic waste every year - the equivalent of 36.5 smartphones.

Many people have no clue what to do with old and obsolete electrical and electronic equipment. The consumer survey had found that e-waste was generally given to deliverymen to cart away, or thrown down the chute, or leave them at rubbish bins and bin centres.

But such items often end up in the hands of scrap traders and rag-and-bone men, who lack the skills to recycle them safely and may unknowingly discharge chemical compounds which are harmful to both their health and the environment.

Long-term exposure to these compounds can affect the nervous system, kidneys, bones, hormonal balance and reproductive system. The chemicals are also not biodegradable and can persist in the environment for long periods of time. If e-waste is incinerated, it would add to carbon emissions and contaminate the ash at the Semakau landfill, NEA warned

To turn things around, the Government is looking to countries like Sweden - which has a sterling 52 per cent recycling rate for e-waste, and Denmark, where the figure is 43 per cent.

Both countries harness an "Extended Producer Responsibility" (EPR) strategy, where producers such as brand owners and manufacturers are required by law to ensure that their products are collected and recycled. Large retailers provide collection points at their stores and one-for-one take-back services upon the purchase of a product. They also have to pay an "environmental fee" to recycling companies to fund their services. The NEA said this will ensure that e-waste collected is recycled safely at proper recycling facilities.

Source: Straits Times, 19 January, 1 February 2018

Extract 4: E-waste mining could be big business - and good for the planet

At the University of New South Wales (UNSW), Professor Veena Sahajwalla's "urban mine" produces gold, silver and copper, it extracts these materials not from rock, but from electronic gadgets. "Research shows the cost of around USD360,000 for a micro-factory pays off in two to three years, and can generate revenue and create jobs," she says. "That means there are environmental, social and economic benefits."

In fact, research indicates that such facilities can actually be far more profitable than traditional mining. Academics examining data from eight recycling companies in China worked out the cost for extracting these metals from electronic waste. Expenses included the costs of waste collection, labour, energy, material and transportation, as well as capital costs for the recyclers' equipment and buildings. And when these costs - and the effects of Chinese government subsidies for recycling - were taken into account, the team found that mining from ore was 13 times more expensive than e-waste mining. The mining of e-waste, and production of pure metal ingots from it of copper or gold, promises to be a very profitable business.

Apple, meanwhile, is trying to counter criticisms that its phones are difficult to recycle with the recent demonstration of a robot - called Daisy - that can disassemble up to 200 iPhones an hour. Daisy can handle nine different models of the phone, separating parts and removing useful components.

Prof Mathews says more manufacturers should be making an effort to ensure their products can be mined at the end of their useful life. "One of the best policy supports for e-waste will be payment of a deposit to consumers who return their e-products like cell phones to central collection points," he says. "There could also be incentives paid to manufacturers to make their products more easily disassembled."

Source: Emma Woollacott, BBC News, 6 July 2018

- (a) With reference to Figure 1 and 2 and Extract 1,
- (i) Compare the market share in units sales and operating profit share for smartphone producers Apple and Samsung. [2]
 - (ii) Using economic analysis, suggest a possible reason for your observations in a(i) above. [4]
- (b) Using evidence from the data given, explain the likely market structure for the global smartphone market. [3]
- (c) (i) Explain the cross elasticity of demand between Apple's iPhone and Samsung's Galaxy and between iPhone and AirPods (wireless headphone). [3]
- (ii) Discuss whether Samsung should follow Apple's pricing strategy to increase its total revenue from smartphone sales. [8]
- (d) Extract 3 states that "the rate of e-waste generation is expected to increase in tandem with economic growth".

In the light of a looming e-waste crisis, discuss the measures the Singapore government can implement to raise society's welfare and whether there will be a trade-off in economic growth. [10]

[Total: 30]

Question 2: The Fourth Industrial Revolution

Extract 5: What is the fourth industrial revolution

The Fourth Industrial Revolution (FIR), also known as Industry 4.0, refers to how technologies like artificial intelligence (AI), virtual reality, augmented reality and the Internet of things (IoT) are merging with humans' physical lives. It focuses on the use of technology to provide increased automation, improved communication and monitoring, as well as smart machines that can analyse and diagnose issues without the need for human intervention.

Source: World Economic Forum, 14 January 2016

Table 1: Selected Indicators for the Indian Economy

	2014	2015	2016	2017	2018	2019
Annual real GDP growth (%)	7.4	8.0	8.2	6.8	6.5	4.0
Annual inflation (%)	6.7	4.8	4.9	3.9	3.7	3.3
Unemployment (%)	5.6	5.6	5.5	5.4	5.3	5.3
Youth unemployment (%)	21.7	22.3	22.6	22.7	22.9	23.0
Total labour force (millions)	473.3	477.3	481.2	484.5	487.6	494.7
Population growth (%)	1.2	1.1	1.1	1.2	1.0	1.0

Source: The World Bank, 15 June 2021

Table 2: Singapore and India literacy rate (% of people age 15 years and above)

Country	Literacy Rate (%)
India	74.3
Singapore	97.3
World	86.2

Source: The World Bank, 2018

Extract 6: Fourth Industrial Revolution in India

India is one of the fastest growing economies in the world and has acquired a global reputation for exporting services. FIR technologies has enabled India's structural transformation from agriculture to service-led growth without an expansion in manufacturing. It has given India the opportunity to improve its AI capabilities and digital communication to become not only just a leading sourcing destinations for global IT industry, but also one of the world's fastest growing e-commerce market.

To further increase its economic growth through FIR technology, the government has committed to build the infrastructure needed to support FIR, such as setting up of 5G network, with the aim to increase the manufacturing sectors' contribution to 25% of GDP by 2020. Investments in both physical and human infrastructure matter greatly in supporting the new drivers of growth in the various industries and job creation. Hence, the government has also planned to set up a countrywide workplace training-based vocational education system.

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Unfortunately, these government initiatives have not produced results. Its real GDP fell below 5% this year, lower than the annual 7% real GDP growth over a decade ago.

The reality is that government spending on infrastructure like roads and other agricultural infrastructure has remained insufficient. The existing vocational training programs are faced with outdated curriculum, shortage of qualified teachers and trainers and unavailability of proper infrastructure (building and equipment). India's overall literacy rate of almost 70% remains one of the highest in the world, and only 2% of its labor is skilled. Nearly 49% of its workers are still in the agricultural sector, engaging in traditional small-scale low-productivity agricultural methods due to lack of funds and capabilities to adopt the FIR technologies.

India has yet to take advantage of its large young working population. The adoption of FIR technology will lead to the creation of highly skilled and highly productive jobs that can provide higher per capita real income for the households. At the same time, FIR can also result in elimination of lower skilled jobs. Hence there is a need to increase training to increase labour productivity, both in manufacturing and agricultural sectors. And, with 70% of its population below 35 years old, 10 million additional jobs need to be created per year need to ensure adequate opportunities for the young population.

Source: Various, 2019

Extract 7: Impact of FIR on economic growth and distribution of income

The FIR technologies will provide an unprecedented boost to productivity and profit, and increase economic growth and job creation. However, it could also increase inequality between the low-skilled workers and the high-skilled workers.

In the era of the FIR, manufacturing will be developed in small quantity production systems of various kinds. Setting up factories in developing countries such as India are no longer attractive because low-wage workers can be replaced by automated robots. Rather, it is advantageous to relocate the production plant near the main market to quickly produce and distribute products to consumers. In order to retain those multinational firms in the economy, developing countries might see poorer and riskier working environment to secure cost competitiveness. In keeping with cost efficiencies, there has been a substantial increase in the hiring of contractual workers across manufacturing and other services. The increase in contract workers constituted for about 47 per cent of the total increase in employment in the manufacturing sector. As hiring contractual worker is cheaper and does not incur any extra cost such as insurance and employment benefits, this will further deteriorate the working conditions in the labour market.

While FIR provides opportunities, it could also pose threats to India's economic growth and distribution of income. Thus, India would have to manage the full extent of impact of the FIR.

Source: Mint, 4 November 2019

Extract 8: Singapore's approach to Industry 4.0

Driven by rising operational costs and a human resources crunch, the local industry in Singapore understands that it is imperative to adopt Industry 4.0. Its industries' technological advances, for example in Aerospace business, are driven by our longstanding goal to improve productivity and capture efficiencies.

Government support is not lacking for Industry 4.0. It has launched 6 clusters of 23 sector transformation maps covering 80% of Singapore's economy to provide opportunities for companies and the government as well as encourage partnerships between firms in related sectors, to work together to promote innovation and deepen capabilities. For example, firms in

hotel services and food services can use their own unique technological capabilities to work together to bring major events and conferences to Singapore, as well as improve experiences for tourists.

Singapore's approach to training and retraining of its workforce is multi-pronged. All workers from the top executives to the very low-skilled workers are to be trained in various aspects of Industry 4.0. Relevant training on Industry 4.0 technology such as data analytics and cyber security is made available for all workers from the engineers and even the lower skilled workers. Executive workshops are also provided for top managers to increase their awareness and possibly shift in mindset towards learning and the use FIR technology.

Even as the government invests time and resources to move the industry, the private business owners need to have the mindset to embrace FIR technology too. Managers and employees need to think more strategically and with a future-oriented view to consider the opportunities that Industry 4.0 can bring, and how best the business can harness these. They need to build the business and economic case, and not simply pursue technology for technology's sake.

Source: Business Times, 25 October 2018

- (a) Explain a possible reason for the trend in India's youth unemployment between 2014 and 2019. [3]
- (b) Using Table 1, explain how the data might be used to estimate changes in the standard of living in India over the period of 2014 – 2019. [3]
- (c) Explain one factor that determines the impact of an increase in investment on the change in national income. [2]
- (d) Using aggregate demand and aggregate supply analysis, explain how more young people joining the labour force would impact India's actual national output. [4]
- (e) Consider the possible impacts of the Fourth Industrial Revolution on India's economy and assess whether it is likely to be of overall benefit to India. [8]
- (f) Discuss whether India should adopt Singapore's approach to Industry 4.0 in order to achieve inclusive economic growth. [10]

[Total: 30]

End of paper

Answer **three** questions in total

Section A

One or two of your three chosen questions must be from this section

- 1** Recent wet weather conditions and COVID-19 movement restrictions in Malaysia have caused prices of vegetables in Singapore to double. In the midst of panic buying in supermarkets, the retail prices of fresh seafood, poultry and eggs have risen sharply even as the government assured the public that there are sufficient supplies of food.
Source: straitstimes.com, published Jun 12, 2021; accessed 20th July 2021
- (a) Explain the demand and supply factors that may cause the prices of fresh food items like vegetables and poultry to increase sharply. [10]
- (b) Discuss the policy measures that the Singapore government might take to keep prices of fresh food stable in the market. [15]
- 2** The companies behind Cathay Cineplexes and Golden Village have entered into an initial agreement for a possible merger that would create the largest cinema operator in Singapore. Data showed there were eight big and small cinema operators in 2020. Meanwhile, on-demand streaming services like Netflix and Disney+ have seen an increase in subscriptions since 2020.
Source: Channelnewsasia.com, 11th July 2021
- (a) Explain why firms like cinema operators choose to merge. [10]
- (b) In light of the rise of subscription-based streaming services, discuss if consumers or cinema operators are likely to benefit more from this merger. [15]
- 3** In Singapore, the most significant greenhouse gas emitted is carbon dioxide, primarily produced by the burning of fossil fuels such as oil and gas to meet our energy needs in the industry, building, household and transport sectors. Announced at Budget 2018, Singapore's carbon tax rate has been set at \$5 per tonne of greenhouse gas emission from 2019 to 2023.
- Discuss whether the introduction of a carbon tax by the Singapore government is sufficient to correct the market failure arising from carbon emissions. [25]

Section B

One or two of your three chosen questions must be from this section

- 4** In 2020, The World Economic Forum projected that by 2030 the ASEAN bloc will become world's fourth largest economy and third most populated. Domestic consumption, which makes up 60% of the bloc's GDP, will double with additional 140 million consumers, driven by expanding working-age population, rising number of middle-class households and digital adoption.

Source: The ASEAN POST, 4 Nov 2020

- (a) Explain the possible impacts of economic growth on standard of living. [10]
- (b) Discuss whether raising consumption is the most appropriate policy approach for countries to achieve sustainable and inclusive economic growth. [15]

- 5** The COVID-19 pandemic has caused both demand and supply shocks to economies all over the world, leading to negative economic growth, bursting unemployment and rising inflation.

- (a) Explain the causes that might have led countries to face the twin ills of recession and inflation. [10]
- (b) Discuss the considerations governments may have in their choice of policies when faced with these two macroeconomic problems. [15]

- 6** The U.S. trade deficit hit a fresh record high in March. The Commerce Department reported that the trade gap rose 57.6% from the same period a year ago to US\$74.4 billion. Massive fiscal stimulus and economic recovery from the pandemic recession are fuelling demand for goods and services.

Source: CNBC, 4 May 2021

- (a) Explain the possible causes of a deficit on the balance of trade of a country. [10]
- (b) Discuss whether achieving a favourable balance of trade should be the key macroeconomic priority for a government. [15]

End of paper

ANSWER SHEET

- 1 Recent wet weather conditions and COVID-19 movement restrictions in Malaysia have caused prices of vegetables in Singapore to double. In the midst of panic buying in supermarkets, the retail prices of fresh seafood, poultry and eggs have risen sharply even as the government assured the public that there are sufficient supplies of food.**

Source: straitstimes.com, published Jun 12, 2021; accessed 20th July 2021

- (a) **Explain the demand and supply factors that may cause the prices of fresh food items like vegetables and poultry to increase sharply.** [10]
- (b) **Discuss the policy measures that the Singapore government might take to keep prices of fresh food stable in the market.** [15]

Suggested Responses

- (a) **Explain the demand and supply factors that may cause the prices of fresh food items like vegetables and poultry to increase sharply.** [10]

Question Analysis:

	Key words from the question	Meaning of the key words
Command	“Explain”	Using economic ideas/concepts to identify the DD/SS factors and explain the processes that lead to higher prices of fresh food items.
Content	Factors affecting demand and supply; price mechanism process; PED, PES	<ul style="list-style-type: none"> Explaining the factors affecting demand and supply of fresh food, and how the prices have increased sharply (using PED/PES) Accurate explanation of price mechanism process
Context	Fresh food, for eg. vegetables, poultry market in Singapore	<ul style="list-style-type: none"> Wet weather, COVID-19 restrictions affecting SS and DD for fresh food in Singapore, and how these affect prices in wet markets and supermarkets

Introduction

- In any market, the price of the good is determined by the interaction of demand and supply forces. At the market equilibrium price, the quantity demanded is exactly the same as the quantity supplied, suggesting that there is neither surplus nor shortage in the market.
- The increase in fresh food prices can be explained by the large increase in demand that could be driven by panic situation, coupled with a decrease in supply of fresh foods. Given that most of these fresh foods are necessities for a lot of people, the demand would be price inelastic, and this could

cause fresh food prices to increase sharply when there is a decrease in its supply in the wet markets and supermarkets.

- In addition, with fresh food having a price inelastic supply due to its gestation period, any disruption to its supply sources may cause prices to increase sharply.

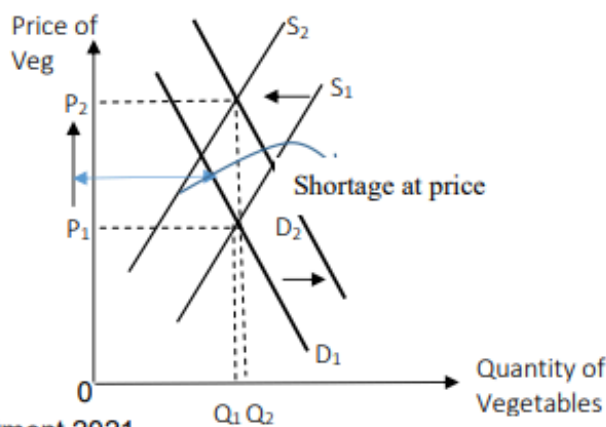
1. Explain supply factors contributing to the sharp increase in fresh food prices, eg., vegetables in Singapore. (→ supply shock)

- As mentioned in the preamble, there has been a **fall in crop yields** in Malaysia due to wet weather. As a major supplier of vegetables to Singapore, this caused supply of vegetables in Singapore market to fall.
- This fall in supply has been **compounded** by the movement restriction measures instituted by the Malaysian government, resulting in fewer transport and distribution network operating in the country.
- The delivery platforms provide ease of ordering but **includes additional delivery service charge**, which increases the overall cost of supplying these fresh food to homes.
- These factors also result in **supply being price inelastic**, with suppliers unable to increase stocks sufficiently in response to the rising prices seen in Singapore markets. This means that an increase in price will only cause quantity supplied to increase less than proportionately, ceteris paribus. Hence, local vegetable prices will end up rising sharply.

2. Explain demand factors contributing to the sharp increase in prices of fresh food in markets in Singapore. (demand shock)

- As mentioned in the preamble, the panic buying of fresh food products in supermarkets has spurred **greater demand** in the space of a few days during the circuit-breaker period. With more household members working from their homes during the pandemic, the demand for fresh food from supermarkets and wet markets have increased tremendously.
- Demand is also compounded by **the increased orders of fresh food through the delivery apps** during the pandemic.
- **Demand for fresh food is price inelastic as it is a necessity.** Any increase in price due to changes in supply will therefore only bring about a less than proportionate decrease in quantity demanded, ceteris paribus. To clear the shortage at the original equilibrium price, prices of fresh food will end up rising sharply.

Figure 1: Fresh Food Market (e.g vegetables)



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3. Explain the combined impact of supply and demand shocks on fresh food prices

- The increase in demand for fresh food (shown by the rightward shift of the demand curve from D_1 to D_2) coupled with price inelastic supply, as well as the decrease in supply (shown by the leftward shift of the supply curve from S_1 to S_2) coupled with price inelastic demand, will cause a **huge shortage** at P_1 , hence exerting strong upward pressure on price, eventually leading to a sharp increase in prices of fresh food like vegetables from P_1 to P_2 while equilibrium quantity rises minimally from Q_1 to Q_2 .

Knowledge, Understanding, Application and Analysis		
Level	Descriptors	Marks
L3	<ul style="list-style-type: none"> Addresses both demand and supply factors well, and attempts to use the context given Well-substantiated by examples that are contextualized to Singapore Good analysis of the role of PED and PES in determining the extent of increase of prices of fresh food. Explains and analyses the price mechanism well, with either PED or PES applied. 	8-10
L2	<ul style="list-style-type: none"> Addresses both demand and supply factors adequately, and attempt to explain the sharp increase in prices. Demand and supply analysis (may or may not include elasticity concepts) is used to explain the sharp rise in fresh food prices, but is not very clear or accurate at times Answer may not have addressed the role of PED or PES in explaining the sharp increase in prices of fresh food Price mechanism is explained adequately Answer may contain minor conceptual inaccuracies 	5-7
L1	<ul style="list-style-type: none"> Inadequately explained demand or supply factors A descriptive answer, and does not attempt to unpack the concepts of demand/supply/elasticity Answer may contain major conceptual errors, e.g incorrectly drawn diagrams, inaccurate explanation of demand/supply factors 	1-4

(b) Discuss the policy measures that the Singapore government might take to keep prices of fresh food stable in the market. [15]

Question Analysis:

	Key words from the question	Meaning of the key words

H2 Economics Post-Prelim Exam Revision Package

Command	“Discuss”	Analysis of the use of policy tools to keep prices of fresh food stable and evaluate their effectiveness.
Content	Policy measures to keep prices of fresh food stable	<ul style="list-style-type: none"> Analysing how policies work to ensure stable prices of fresh food Some policies expected to be discussed: <ul style="list-style-type: none"> Rationing and price controls (max price) Moral suasion to reduce panic buying Supply management (e.g sourcing from non-traditional sources of fresh food) Supporting local producers of vegetables, poultry or eggs through grants and subsidies
Context	Fresh food, for eg. vegetables, poultry market in Singapore	<ul style="list-style-type: none"> Wet weather, COVID-19 restrictions affecting SS and DD for fresh food in Singapore, and how these affect prices in wet markets and supermarkets

Introduction

- To keep domestic prices of fresh food stable during times of massive demand and supply shocks, the Singapore government can adopt a few of these policies:
 - Price control measures of price ceiling and rationing
 - Moral suasion to reduce panic buying
 - Expanding sources of supply
 - Innovation grants to local farmers
 - (Optional) To a certain extent, maintaining a modest and gradual appreciation of the Singapore dollar (if the price increase originated from the source countries)

*Note: Answers should show how the policies work to stabilize prices, ie. how they ensure that **prices do not fluctuate or increase sharply**, not just to keep them low.*

- Given panic buying the is driving the prices up, the **government may institute drastic measures like rationing and price ceiling** to prevent profiteering and maintain purchasing power of households.
 - Price ceiling is the maximum price that retailers can charge for fresh food. In this way, **prices are more stable**, and **would not go beyond** normal price increases and the affordability of households.

Evaluation:

- However, maximum price can be confusing, especially if there are hundreds or thousands of goods that needs to be protected.
 - On paper, price ceiling results in shortages in the market, with $Q_{dd} > Q_{ss}$. [Diagram, optional]
- The Singapore government could **reduce the sense of fear and uncertainty that result in panic buying by giving assurances on the availability of fresh food**

H2 Economics Post-Prelim Exam Revision Package

- Rising anxiety levels among households can lead to panic buying, which drastically increases prices of fresh food (explained in part a).
- Assurances can be given through announcements and press conferences in the mass and social media outlets on how the govt intends to tackle the shortage of fresh food resulting from demand and supply shocks.
- **This might reduce the panic buying** seen in the days before the circuit breaker period, and **thus lowers the pressure on prices**.
- The announcements can include information on:
 - The extent of stocks available for sale in the next few months
 - Where the sources of food are from
 - Extent the country is prepared for food production
 - Stockpiles of food that can supplement fresh food supplies.
- Announcements on the progress of the pandemic and its impact on the economy would also be useful for consumers and producers to gauge confidence and optimism.

Evaluation:

- Sometimes, such announcements come too late to prevent panic buying, which is driven more by fear of losing out.
 - This can lead to worsening of market sentiments if the govt is seen to be more reactionary rather than taking a more proactive approach to manage the crisis.
3. Dependence on only a limited source of supply of fresh food may result in Singapore's food supplies being affected badly the moment there are climatic, economic or political problems in the source market. Thus it is **prudent for the government to look beyond the traditional sources of food to ensure a continuous supply of fresh food and stable prices** for Singapore.
- With weather conditions expected to worsen in future, it is important for the country to establish alternative sources of vegetables like Indonesia, Vietnam and China.
 - Thus a strong relationship with these countries is critical so that when one source has a poor harvest, there will be other sources that we can depend on.

Evaluation:

- The ability to maintain a high standard of food and agricultural production could be a critical criteria in the choice of country where the food comes from.
4. In order to have more assurance on quality fresh food supplies, the Singapore govt can provide grants to firms willing to engage in innovative farming practices.
- a. Vertical farming has taken root in many areas in Singapore, notably on carpark rooftops in some housing estate to supplement fresh vegetable supplies in supermarkets.
 - b. This **keeps vegetables supplies more constant and hence may be an effective measure to reduce price fluctuations**.
 - c. This can be a good long-term strategy to attain the objective of 30% food self-sufficiency for Singapore.

Evaluation:

- The high cost of setting up such vertical farms means that they would need a high scale of production to lower average cost enough for the business to be profitable.
 - The grants would help in the short term, but if the scale of production is not drastically improved, firms would have no choice but to shutdown.
5. Using exchange rate appreciation to **lessen the impact of imported food price increases**.
- a. Being a small and import-dependent economy, Singapore is a price-taker in global markets of goods and services. This means that Singapore is not able to influence world prices and can only take world prices as given. Rising food prices will thus eventually pass through to domestic consumers via higher import prices paid by our importing firms.
 - b. Maintaining a modest and gradual **appreciation of the SGD can help to reduce the extent of rise of fresh food prices arising from climate catastrophes**.
 - c. Unlike a price ceiling policy, modest and gradual appreciation will not lead to shortages as the domestic fresh food market continues to operate without distortions.
 - d. While this does not necessarily reduce fluctuations of fresh food prices, it does help in ensuring that consumer prices remain affordable to Singaporeans despite rising inflation elsewhere.

Evaluation:

- However, if exporting countries were to significantly reduce their export quantity due to supply disruptions, the modest and gradual appreciation of the SGD might not be sufficient to act as a buffer against the sharply rising food prices.
- In addition, whether or not the SGD can be appreciated is dependent on the economic conditions and extent of inflationary pressures faced by the exporting country.
- If there are downside risks to the country's economic growth coupled with weakening inflationary pressures, the Monetary Authority of Singapore will choose to adopt zero appreciation, where the currency is allowed to depreciate, instead of a modest and gradual appreciation, despite rising fresh food prices. This is because continuation of the modest and gradual appreciation policy will decrease the country's export competitiveness.

Synthesis & Conclusion

- In conclusion, there are several policies that the Singapore government can undertake to stabilise fresh food prices. However, not all policies are equally feasible and effective.
- In the current context of demand and supply shocks happening simultaneously, **extreme price control measures can ensure stable prices but this may come with negative consequences of shortages that affect consumer confidence**.
- With poor weather conditions expected to worsen in the future, the vulnerabilities faced by farmers in vegetable and other food exporting countries suggest that continuous dependence on imports will only expose Singapore to greater price fluctuations in the future.

Evaluation:

- The high cost of setting up such vertical farms means that they would need a high scale of production to lower average cost enough for the business to be profitable.
 - The grants would help in the short term, but if the scale of production is not drastically improved, firms would have no choice but to shutdown.
5. Using exchange rate appreciation to **lessen the impact of imported food price increases**.
- a. Being a small and import-dependent economy, Singapore is a price-taker in global markets of goods and services. This means that Singapore is not able to influence world prices and can only take world prices as given. Rising food prices will thus eventually pass through to domestic consumers via higher import prices paid by our importing firms.
 - b. Maintaining a modest and gradual **appreciation of the SGD can help to reduce the extent of rise of fresh food prices arising from climate catastrophes**.
 - c. Unlike a price ceiling policy, modest and gradual appreciation will not lead to shortages as the domestic fresh food market continues to operate without distortions.
 - d. While this does not necessarily reduce fluctuations of fresh food prices, it does help in ensuring that consumer prices remain affordable to Singaporeans despite rising inflation elsewhere.

Evaluation:

- However, if exporting countries were to significantly reduce their export quantity due to supply disruptions, the modest and gradual appreciation of the SGD might not be sufficient to act as a buffer against the sharply rising food prices.
- In addition, whether or not the SGD can be appreciated is dependent on the economic conditions and extent of inflationary pressures faced by the exporting country.
- If there are downside risks to the country's economic growth coupled with weakening inflationary pressures, the Monetary Authority of Singapore will choose to adopt zero appreciation, where the currency is allowed to depreciate, instead of a modest and gradual appreciation, despite rising fresh food prices. This is because continuation of the modest and gradual appreciation policy will decrease the country's export competitiveness.

Synthesis & Conclusion

- In conclusion, there are several policies that the Singapore government can undertake to stabilise fresh food prices. However, not all policies are equally feasible and effective.
- In the current context of demand and supply shocks happening simultaneously, **extreme price control measures can ensure stable prices but this may come with negative consequences of shortages that affect consumer confidence**.
- With poor weather conditions expected to worsen in the future, the vulnerabilities faced by farmers in vegetable and other food exporting countries suggest that continuous dependence on imports will only expose Singapore to greater price fluctuations in the future.

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- 2 The companies behind Cathay Cineplexes and Golden Village have entered into an initial agreement for a possible merger that would create the largest cinema operator in Singapore. Data showed there were eight big and small cinema operators in 2020. Meanwhile, on-demand streaming services like Netflix and Disney+ have seen an increase in subscriptions since 2020.**

Source: Channelnewsasia.com, 11th July 2021

- (a) Explain why firms like cinema operators choose to merge. [10]
 (b) In light of the rise of subscription-based streaming services, [15]
 discuss if consumers or cinema operators are likely to benefit more from this merger.

Suggested Responses:

- (a) Explain why firms like cinema operators choose to merge. [10]

Question Analysis:

	Key words from the question	Meaning of the key words
Command	"Explain"	Using economic ideas/concepts to identify the reasons that influence the decision of firms to merge.
Content	Economic reasons for merger	Reasons for merger may include factors like: <ul style="list-style-type: none"> • Cost reasons (EOS) and hence Profitability • Competitiveness and hence market power/share • Market consolidation in view of new threats
Context	Cinema operators in Singapore	<ul style="list-style-type: none"> • The market for cinema screenings (Oligopolistic competition) • Competition between large firms, and between cinema operators with other forms of entertainment platforms (subscription-based streaming services)

Introduction:

- A merger refers to situation when two firms agree to be combined as a single firm.
- The merger of Cathay Cineplexes and Golden Village is a case of a horizontal integration – firms in the same stage of production in the same industry merges to become one.
- The decision to merge could be influenced by the need to pursue cost savings and / or increased market share and hence onwards to greater profitability.
- Note that since the two firms are already large firms earning EOS, the motive for merger should be less of EOS, but more of market consolidation → they may actually cut down no of cinema

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halls and cinemas that are nearby each other to maintain a leaner operation and keep profitability up.

- At the same time, the emergence of streaming services provide intense competition for viewership in the movie industry. Thus merging and being the largest firm allows it to harness resources to compete well.

1. Merging for the reason of cost (savings) i.e further EOS where possible

- Note that the **cinema operators are already large firms with some level of EOS**, which refers to fall in average cost arising from an increased scale of production of a firm (e.g. more seats in the hall, more screens at the same location, etc)
- The merged firm will be even larger, and amassed the largest market share in the country.
- Theoretically, increased scale of production from M&A leads to a greater scope for reaping more internal EOS
- **[Diagram is encouraged, but analysis could be done without them]**
- (Give examples of EOS relevant to the cinema screening industry → technical, administrative, commercial EOS)

2. Mergers lead to higher revenue earned by the firm:

- By merging, the expanded company is able to capture a larger share of the cinema-going market as the customer base from both firms are now combined, which leads to higher demand for the firm's cinemas.
- Demand for the firm's screenings also becomes more price inelastic as consumers now have fewer substitutes to switch to. As demand increases from DD to DD' (diagram below), the firm will adjust its output to where $MR' = MC$. Price and output sold increases to P' and q' respectively, leading to higher TR which is price multiplied by quantity sold. Profits therefore increase, assuming the rise in TR is greater than the rise in TC.
- Diagram below:

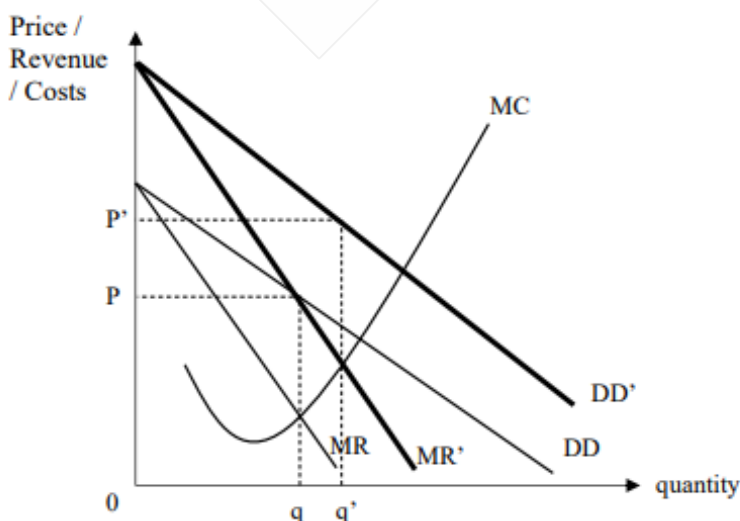


Fig. 1 – Effect of larger market share on firm's revenue

3. Firms merge to gather more resources to better prepare themselves to compete against newer platforms providing streaming services like Netflix

- New entertainment platforms like Netflix, Apple TV and Disney+ also shows movies in direct competition with cinema screenings.
- Disney+ launched the latest movie, Marvel's "Black Widow" simultaneously as box offices across the US at a price that is similar, proving that these services are a viable substitute for cinemas in these current times.
- Cinema operators need to engage in innovative practices to compete against these new platforms.
- With the merger, as the largest firm, it would have more resources to plan for new services or to obtain exclusive movies for screening to entice cinema goers back to the box office.
- The large firm may embark on a **market-consolidation exercise** to trim down excesses in no of halls and seats to keep cinemas from being empty.

Conclusion:

- Cinema operators merge for reasons associated with profitability and competitiveness.

Knowledge, Understanding, Application and Analysis		
Level	Descriptors	Marks
L3	<ul style="list-style-type: none"> • Analytical explanation of reasons of cost savings from EOS, increased demand from larger market share, recognizing that the underlying motive is to increase profits • Applying the context of new competition with subscriber-based streaming services, and to harness more resources to improve competitiveness 	8-10
L2	<ul style="list-style-type: none"> • Descriptive explanation of above reasons of cost savings from EOS and increased demand from larger market share. • Unbalanced analysis, answer based only on a range of EOS • Inaccurate analysis of either cost savings from EOS or increased demand from larger market share. 	5-7
L1	<ul style="list-style-type: none"> • Listing of EOS, not contextual to cinema industry. • Some knowledge of EOS and/or increased market share. 	1-4

(b) In light of the rise of subscription-based streaming services, discuss if consumers or cinema operators are likely to benefit more from this merger. [15]

Question Analysis

	Key words from the question	Meaning of the key words
Command	"Discuss"	Analysis and evaluation of extent of benefits of mergers to producer and consumers (compare these benefits)
Content	Benefits of mergers in terms of: Price, qty, revenue/profits, competitiveness	<ul style="list-style-type: none"> ○ Benefits to consumers and producers ○ Contestability of market (new streaming services) Strategies to be competitive and to gain profits: price & non-price ○ Post-merger combined market share may reduce costs (may not be significant savings though)
Context	Cinema industry vs streaming services	<ul style="list-style-type: none"> • Cinema industry now have to compete with new streaming services for viewership and be able to survive in the new market environment

Introduction

Mergers of firms such as that between cinema operators have the potential to benefit the consumers. In most cases, however, the firm would aim to protect their interest first and foremost, and that their main motivation for the decision to merge would thus be to maximize their profits. This is especially in the context of rising competition from subscriptions-based services like Netflix, Disney+ and Apple TV. They are seen as a threat by cinema operators to take away viewership from cinemas. This essay thus will touch on the extent that the merger would benefit the consumer and cinema operators in light of new competitors in the market.

1. Benefits of merger to consumers

- As mentioned in part (a), consumers may gain if the cost savings from large scale production is passed to consumers in the form of lower prices.
- As the largest firm in the market, the merged firm would have substantial EOS to engage in predatory pricing to keep new cinema operators, including streaming services, out of the market. This benefits consumers.

Evaluation:

- However, consumers may not enjoy lower prices if producers are not willing to pass the cost savings to consumers.

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- Producers also are not obliged to lower prices if it results in them not maximizing their profits, which is the main motivation of firms merging in the first place. This is especially so if the cost of acquiring new movies escalate to a large extent.
- Hence lowering of prices may not happen.

2. Benefits of merger to cinema operators

- For example, they may be able to procure retail services and merchandise that are tied to the characters in the movies currently being shown, at a cheaper rate owing to their large scale sales or wholesale licenses. This also raises their profit levels.
- With a large floor area, their rental cost would also be lower per unit than other shops in the mall. As an anchor tenant, the mall owners could offer them special rental rates that are lower than other retail outlets.
- With this lowered cost, they **may be able to engage in new ways of attracting more consumers** to their movie theatres. E.g better sound systems, 3D or 4D movies that consumers would not be able to experience elsewhere.
- As the largest oligopolist, it is expected that they take the lead in pricing and innovation, while others follow. For e.g, Golden Village started providing movie goers with restaurant-style dining options in the movie hall before others followed.
- These could not have been done effectively and profitably if they were competing with other similar-sized firms in an oligopolistic market structure.

Evaluation:

- Although there are substantial EOS, the marginal gain in EOS from the merger may not be that significant. For optimum cost, they may even have to scale back or close some cinemas in that case.
- For every innovation, firms should expect some level of failure, and this would be something that the merged firm have to be prepared for.

3. Benefits of merger to cinema operators and consumers (in light of new competition)

- In light of new competition from subscriber-based streaming services, the merged firm is poised to take up a set of strategies that may help them establish a strong foothold in the market, especially with the increased amount of resources that they have acquired.
- This is especially so if the firm has the perception that the new streaming services are a viable competitor for viewership.
- For example, they would be able to acquire licenses to brand new movies and blockbuster premieres that smaller theatres and streaming services have no access to until later. **This would enable them to have a competitive advantage over the streaming services**, which are unlikely to secure new releases at the immediate juncture.
- This would be one way that cinema operators can distinguish themselves from streaming services, which have begun to attract more subscribers.

- At the same time the price inelastic demand for blockbuster movies and new releases also mean that **cinema operators can set higher prices for these movies and yet gain more revenues.**
 - On the other hand, while consumers may be willing to pay more for new releases, they would also benefit from this competition as the new movies would improve variety and satisfaction levels.
 - **Evaluation and weighing of benefits**
 - The extent of benefits to consumer in terms of price seems to be reduced in the context of new releases, but the presence of these large cinema halls in the malls often provide a good opportunity for consumers to spend a good day out with family or friends.
 - The extent that cinema operator could gain from new releases depends on the decision made by the movie owners on how they would like to launch their movies. Disney, being the owner of the Marvel Movie franchise made the decision to launch the latest movie "Black Widow" simultaneously on Disney+ and at the cinemas in US. This has led to reduced earnings by cinema operators.
 - Cinema operators should carry out a study on how closely substitutable their service is as compared to the streaming services. The merged firm has the means to do this. Their strategies to differentiate themselves from streaming services may add on costs to their business, but if it could pull more cinema patrons into their halls, then the additional revenue collected should lead them to capture more profits.
- 4. Conclusion**
- In conclusion, there is an overall benefit that both consumers and cinema operators can gain with the larger merged firm, especially when cinema operators see the streaming services as a threat to their profitability.
 - Cinema operators would benefit more if they are able to provide consumers with an improved product, something that is different and distinguishable from streaming services.
 - Consumers would benefit more if cinema operators innovate and provide newer cinematic experiences for patrons.

Knowledge, Understanding, Application and Analysis		
<i>Level</i>	<i>Descriptors</i>	<i>Marks</i>
L3	<ul style="list-style-type: none"> • Discussion on costs and benefits of mergers is weaved around the context of competition between cinema operators and streaming services. • Answer is able to offer sound alternative scenarios of benefits and costs to consumers and cinema operators 	9 – 11
L2	<ul style="list-style-type: none"> • Analysis of competition is limited to the application of EOS and diseconomies of scale, with a superficial addressing of the context 	5 – 8

	<ul style="list-style-type: none"> Answer demonstrates some knowledge of oligopolistic behaviours in competition but with some inaccuracies or without context of the cinema industry. 	
L1	<ul style="list-style-type: none"> Scant knowledge of competitive behaviours associated with mergers Unable to demonstrate an accurate understanding of the question Points made are mostly incidental and do not address the question Answer contains significant conceptual errors 	1 – 4

Evaluation		
<i>Level</i>	<i>Descriptors</i>	<i>Marks</i>
E3	<ul style="list-style-type: none"> Sound use of valid evaluation criteria in examining the extent of benefits to consumers and cinema operators. Providing a considered overall judgement 	4 – 5
E2	<ul style="list-style-type: none"> Some attempts in examining the extent of benefits to consumers and cinema operators, with attempts of using valid evaluation criteria but may lack clarity May not provide a considered overall judgement 	2 – 3
E1	<ul style="list-style-type: none"> Simple evaluative statements are made, but they remain largely unsubstantiated 	1

3. In Singapore, the most significant greenhouse gas emitted is carbon dioxide, primarily produced by the burning of fossil fuels such as oil and gas to meet our energy needs in the industry, building, household and transport sectors. Announced at Budget 2018, Singapore's carbon tax rate has been set at \$5 per tonne of greenhouse gas emission from 2019 to 2023.

Discuss whether the introduction of a carbon tax by the Singapore government is sufficient to correct the market failure arising from carbon emissions. [25]

Introduction:

The burning of fossil fuels to meet our energy needs release large amount of carbon dioxide, a greenhouse gas, into the air. These negative externalities, which are not taken into account by firms and consumers in their decision making would result in a market failure. Market failure arises when the free market fails to allocate resources efficiently.

Development 1: Explain how market failure arises from carbon emissions

Firms and consumers make economic decisions based on the pursuit of self-interest, whereby external costs and benefits are disregarded. The production of energy will be up to the point when marginal

private benefit (MPB) = marginal private cost (MPC), as illustrated at the intersection of MPB and MPC curves at Q_m . At Q_m , the consumers' utility and producers' profits will be maximised.

[Typical Market Failure Diagram]

MPB is the benefit enjoyed by the producer for producing an additional unit of energy, while the MPC is the cost incurred by the producer for producing an additional unit of energy.

In the burning of fossil fuels to produce energy, negative externalities are generated. Negative externalities are costs incurred by third parties, who are not involved in the economic activity, and they are uncompensated for. In this case, carbon emissions results in pollution of clean air, and the population are exposed to toxic gases which may cause people to fall sick. They incur healthcare costs. The marginal cost (MEC) of producing energy is greater than 0. MEC is the costs incurred by third parties due to the consumption/production of an additional unit of good. This results in the marginal social cost (MSC) to be greater than MPC, illustrated by the divergence between MSC and MPC curves. Assuming that there are no positive externalities generated, marginal social benefit (MSB) = MPB.

The socially optimal level production, Q_s is determined at $MSB = MSC$. MSB is the benefit enjoyed by society due to the production of one more unit of good. MSC is the cost incurred by society due to the production of one more unit of good.

There is a market failure in the energy market whereby there is an overproduction of energy which results in an overly high carbon emissions illustrated by $Q_m - Q_s$. The overproduction of $Q_m - Q_s$ units would bring benefit to society of Area (ACQsQm), which is less than the cost to society denoted by Area (ABQmQs), hence there is a welfare loss illustrated by ABC.

Development 2: Explain how the carbon tax would work to reduce carbon emissions to correct the market failure

To deal with the above market failure, the Carbon Pricing Act came into operation in Singapore in Jan 2019, and a carbon tax of \$5 per tonne of carbon emissions was imposed on the largest carbon emitters such as power plants. This is a market-based measure, which creates financial incentives designed to elicit a specific behaviour from polluters. The criteria to assess the sufficiency of the above mentioned policy implementation would be the effectiveness in reducing carbon emissions to the socially optimal level ($MSB = MSC$), as well as the trade-offs that may arise.

When the carbon tax is imposed on power plants, cost of production increases, which reduces the supply of electricity. The MPC to produce and consume electricity would increase, illustrated by a leftward shift of the MPC curve from MPC_0 to $MPC+t$.

[Typical market failure diagram with carbon tax]

If the amount of tax = amount of MEC at socially optimal output, the production/consumption of energy may be reduced to socially optimal level at Q_s , as producers and consumers are forced to internalize the external costs, hence reducing carbon emissions to the socially optimal level. Social efficiency is achieved.

Development 3: Evaluate the limitations and trade offs

A carbon tax provides financial incentives for polluters to change behavior. But for the policy to be effective, the government has to accurately determine the external cost to derive the socially optimal level of pollution.

Due to imperfect information, the Singapore government may miscalculate the external costs as it will be difficult to accurately put a monetary value on the MEC, such as measuring the potential healthcare costs that may be incurred by third parties. (Provide a detailed explanation making reference to diagram of the outcome on output and welfare loss if \$5 is less than MEC)

EV: The current carbon tax rate of \$5/tonne of greenhouse gas emissions may be far too low, as compared to the rates imposed in some other industrialised economies. Hence it may not be sufficient to reduce carbon emissions to the socially optimal level. However, it might not be due to imperfect information. Rather, the Singapore government's key consideration to raise the carbon tax rate could be the trade-off that may arise

Imposing a carbon tax would increase the price of energy, making the cost of production higher for firms, such as those in the industry, transport and building sectors. As profitability falls, the short run aggregate supply decreases, hence real GDP decreases. Therefore, a higher carbon tax may impose a drag on the economy.

EV: To ensure a more efficient outcome, the Singapore government may need to use a more useful benchmark to determine the carbon tax rate and raise the rate further. This could be the average cost of carbon capture and sequestration activities. Nonetheless, by raising the carbon tax rate further, the Singapore government will have to accept the trade-off on competitiveness.

Carbon tax is a market-based measures, which means that it does not provide environmental certainty in terms of the amount of emissions reductions that will result. Hence other than the carbon tax, the Singapore government may need to implement other measures such as legislation or tradable permits, which will have a more certain outcome on environmental sustainability.

The Singapore government may begin a cap-and-trade program, just like in Tokyo. The Tokyo Cap-and-Trade Program, launched on April 1, 2010, is the world's first urban Cap-and-Trade Program requiring CO₂ reductions from large commercial and industrial buildings. Owners of these buildings are required to meet the allotted reduction targets through on-site energy efficiency measures or an emission trading scheme. The government will first determine the socially optimal level of pollution. Companies must have a permit to cover each unit of pollution they produce, and they can obtain these permits either through an initial allocation or auction, or through trading with other firms. Since some firms inevitably find it easier or cheaper to use pollution abatement technologies than others, trading takes place.

Tradable permits are intended to reduce the overall quantity of pollutants emitted, thus reducing size of negative externality. This will cause the MPC curve to shift close to MSC curve. i.e. the MPC is increased as firms need to pay a higher price to pollute either by purchasing a permit or by adopting green tech to reduce pollution

The Singapore government may also implement rules and regulation, following the example of US. The US Environmental Protection Agency is the government authority that enforces the Clean Air Act, that aims to formulate laws and regulation in relation to environmental sustainability. Eg: Standards are set for power plants to reduce mercury and other toxic air pollution by using certain green technology eg: carbon capture. With reduced levels of pollution, negative externalities will be reduced. MEC decreases. (i.e. the gap between MSC and MPC becomes smaller) Since the power plants will incur higher costs for adopting green technologies, the MPC of producing non-renewable energy increases (SS falls), as illustrated by a leftward shift of the MPC curve from MPC to MPC₁.

The production of non-renewable energy decreases from Q_m to Q_s , resulting in efficiency in resource allocation.

[Conclusion]

Knowledge, Application, Understanding, Analysis		
L3	<ul style="list-style-type: none"> - Excellent use of appropriate economic framework/concepts in analysis to address the market failure arising from carbon emissions, and explanation includes <ul style="list-style-type: none"> o How the market equilibrium output is determined o The presence of negative externalities resulting in $MSC > MPC$ o How the socially optimal level is determined o Determination of market failure and welfare loss - Detailed analysis (with economic framework) of the workings of carbon tax to address market failure - Detailed evaluation of the limitations and trade-offs of implementing a carbon tax to address the market failure in Singapore - Evaluation of whether the tax of \$5 per tonne of greenhouse gas emissions is sufficient, such as whether the tax coverage is extensive and covers most industrial facilities - Consideration of alternative measures - For an answer that provides an excellent explanation of the market failure, explanation and evaluation of the carbon tax, without any consideration of alternative measures – (max 17m) 	15-20
L2	<ul style="list-style-type: none"> - Cursory analysis of the market failure arising from carbon emissions, eg: <ul style="list-style-type: none"> o Inconsistent use of framework or economic terms (eg: negative externalities, MSC, MSB) o Lacking contextual references - Explanation of the workings of carbon tax may lack some rigour. Eg: <ul style="list-style-type: none"> o Lacking economic framework o Gaps in explanation – eg: increase in carbon tax, hence increase the price of energy. - Underdeveloped evaluation of carbon tax <ul style="list-style-type: none"> o Cursory explanation of the limitations and trade-offs - Some attempt to address the insufficiency of the carbon tax and suggest alternative measures - For an answer that provides a cursory explanation of the market failure and provides a good explanation of how the carbon tax works, with evaluation of the sufficiency of the carbon tax – (max 14 marks) 	9-14
L1	<ul style="list-style-type: none"> - Descriptive answer that lacks the use of economic framework/concepts - Superficial analysis/listing of policies (lacks depth) - Glaring conceptual errors - Did not address the question 	1-8

THE ECONOMICS PAPER 1 EXAMINATION QUESTION PAPER

Evaluation		
E1	- Unexplained and unsubstantiated statement or judgement	1
E2	- Judgement with inadequate justification	2 – 3
E3	- Well-reasoned judgement with a clear use of criteria and good application to context	4 – 5



- 4 In 2020, The World Economic Forum projected that by 2030 the ASEAN bloc will become world's fourth largest economy and third most populated. Domestic consumption, which makes up 60% of the bloc's GDP, will double with additional 140 million consumers, driven by expanding working-age population, rising number of middle-class households and digital adoption.**

Source: The ASEAN POST, 4 Nov 2020

- (a) Explain the possible impacts of economic growth on standard of living. [10]**
- (b) Discuss whether raising consumption is the most appropriate policy approach for countries to achieve sustainable and inclusive economic growth. [15]**

(a) Explain the possible impacts of economic growth on standard of living. [10]

Question analysis

- "Possible impacts" suggests the need for answer to explain that economic growth can have both positive and negative effects on standard of living.
- There is no need to weigh or evaluate the impacts as the command word in question is "explain" (e.g. not discuss).

Suggested answer

Unpacking the economic terms in question and framing answer

- Economic growth refers to the increase in output of goods and services produced by a country/an economy. It is usually measured in terms of Real Gross Domestic Product (Real GDP) which is output produced within a country during a given time period. This national income value is inflation adjusted using the consumer price index as economic growth (EG) measures the actual increase in output with the effect of inflation removed.
- Standard of living (SOL) is a qualitative measure of how well a population in a country live. It is complex and diverse concept, determined by a wide range of factors comprising income per capita of the population as well as other non-income factors such as housing conditions, health conditions, educational attainment, ownership of consumer durables, income distribution and quality of environment. SOL is broader than EG due to these qualitative dimensions it comprises.
- While EG is generally considered to be necessary to raise SOL, there can also be concerns with respect to the negative effects of EG on SOL.

Explaining how economic growth can positively impact standard of living

- **EG can improve SOL from higher consumption** due to households' purchasing power.
 - EG raises the per capita income of the population if Real GDP growth rate exceeds population growth rate.
 - Higher per capita income enables the population to enjoy more and better consumption goods and services, own assets such as housing, and consume services such as healthcare and education which enhance quality of life, leading to higher SOL.

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- Higher EG boosts confidence and optimism in the economy, which encourages further investment and job growth. Households can expect better job prospects and rising wages to support improvements in standards of living.
- **EG improves SOL from the increase in tax revenue**, enabling the government to spend on improving infrastructure and social services for the population.
 - EG can potentially raise tax revenue for the government as taxes which are ad valorem in nature (percentage of taxable values) such as goods and services tax (GST), corporate and personal income taxes will generate more tax revenue at same tax rates.
 - More tax revenue collected means that the government can commit to spending more on improving infrastructure such road system, and on areas which improve quality of life such as healthcare, education and uplifting the support for households in low income and poverty groups. The government can also spend more on improving the quality of environment in the long run, such as funding research and investment for renewable energy and emissions-reduction.

Explaining how economic growth can negatively impact standard of living

- **EG causes environmental degradation** due to greater resource use and the generation of more pollution, waste and destruction of natural environment. More production of goods and services requires more natural and agricultural resources, which cause deforestation and faster depletion of resources. Rising CO₂ and other forms of gas emissions from more production and consumption causes many negative effects from climate change.
- **Economic growth can worsen income distribution**. With more emphasis on technology, talents and higher skills to drive economic growth, there will be undesirable distributive effects, where the higher-income households and higher-skilled labour who own wealth, assets and higher education earn much more while those with low skills are left behind in poverty and lack of purchasing power. Unevenness in income changes has negative effects on distribution of goods and services which will be skewed towards the higher income.
- **Higher economic growth can lower SOL for some households** if the resultant higher inflation raises their cost of living and yet they do not gain higher wages from the growth, e.g. innovation-driven growth which lowers demand and wages for low skilled.

Conclusion: EG is needed to raise population's purchasing power and more tax revenue for SOL improvements. However, it is possible for EG to lower SOL from the negative effects on environment and income distribution. As to which direction the impact of EG will be in a country depends on many factors such as government policies put in place to minimize the negative impact of EG on SOL.

Level	Knowledge, Application, Understanding, Analysis	Marks
L3	<ul style="list-style-type: none"> • EG and SOL concepts accurately explained and linked. • Developed explanation of both positive and negative impacts of EG on SOL. 	8-10
L2	<ul style="list-style-type: none"> • Accurate EG-SOL links but does not provide sound breadth and depth in explanation. 	5-7

	<ul style="list-style-type: none"> Developed one direction of link, e.g. only positive or negative impact of EG on SOL. 	
L1	<ul style="list-style-type: none"> Insufficient clarity on even one direction of the EG-SOL links/impacts. Many conceptual errors in explanation. 	1-4

(b) Discuss whether raising consumption is the most appropriate policy approach for countries to achieve sustainable and inclusive economic growth. [15]

Question analysis

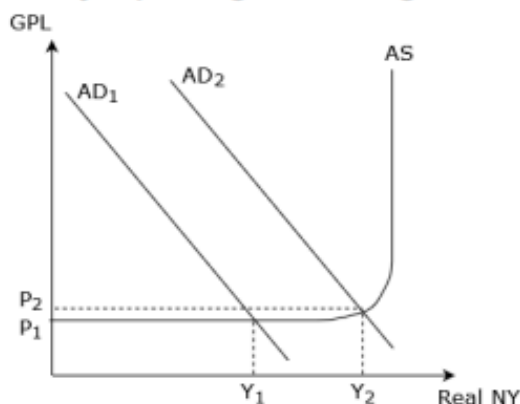
- It is necessary to make clear the meaning of the growth terms 'sustainable' and 'inclusive' as these are the reference points for examining whether raising consumption can enable countries to achieve these two objectives.
- Although sustainability refers to environmental impact of economic growth (EG), this question is macroeconomics in scope, which means answer should not go into the technicalities of market failure generated from rising consumption.
- A sound evaluation will need to recognize that while raising consumption raises aggregate demand (AD) and this creates the condition for EG, sustainability and inclusivity of EG requires several factors such as continued expansion of productive capacity, the moderation of the environmental effects of consumption and EG, and the distributional outcomes of the expansion in earnings from economic growth.
- The term 'most appropriate' requires a comparison with at least one other growth policy approach, such as that of raising investment or government expenditure. The focus of evaluation must be centered on achieving sustainable and inclusive growth.

Suggested answer

Introduction: Briefly explaining the terms in question and giving a preliminary insight on the issue posed.

- Consumption (C) refers to expenditure by households on goods and services, such as food, consumer durables and services. It usually forms a key component in a country's aggregate demand (AD), but C expenditure includes expenditure on imports. Imports must be removed from C for the true contribution to the country's AD.
- Sustainable economic growth (SEG) refers to a rate of growth of Real GDP which does not generate significant macroeconomic problems, for both current and future generations. SEG is about countries achieving healthy rate of expansion in domestic production without significant worsening of pollution and rapid depletion of reserves. SEG requires both the improvements in productive capacity and environment impacts.
- Inclusive economic growth (IEG) refer to growth which brings about broad-based benefits on the population in their standard of living. A growth rate that is healthy accompanied by lower Gini Coefficient indicates IEG as it means there is a better spread of the Real GDP among the household groups across the income spectrum.
- Raising consumption does create the expansion of AD but to make EG both sustainable and inclusive is not easily achievable as there are many conditions and policies needed.

Briefly explaining how raising consumption generates EG



- Raising consumption will increase AD leading to rising national income, as shown in diagram above.
- A government can attempt to raise C through expansionary fiscal policy measures such as providing consumption-linked payouts or expansionary monetary policy of lowering interest rate to induce consumption borrowing.
- The autonomous increase in C from government policies induces expansionary multiplier effect because the initial increase in AD due to this new C injection will create further C and investment (I) from the initial increase in national income. The Y1-Y2 increase in NY is therefore multiple times larger than the initial increase in C.

Examining whether raising C can bring about SEG

- **Evaluation:** Making the expansion of C the key growth strategy will not be an effective policy approach for SEG because continued EG requires a build-up of productive capacity.
 - To make growth sustainable, productive capacity must expand too so that firms can continue raising their output. Referring to the diagram above, the LRAS must shift to the right from improvements in the quality and volume of resources. Consumption is spending that enhances SOL but not on productive capacity. Taking the example of ASEAN, the expansion of middle class households will generate consumption demand but the entry of the young population into the labour force and the adoption of digital technology are needed too for countries in the bloc to be able to produce more to meet the C expansion. Without sufficient investment in machinery, technology and skills, growth will be stifled as demand-pull inflation will set in, raising production costs and limiting continuous growth.
- **Evaluation:** Raising C can compromise environmental sustainability because rising C creates many forms of negative environmental impacts.
 - Rising C generates negative environmental impacts, from the C activities and the production of goods and services. Higher consumption generates more waste by households and the production of more consumption goods and services generates various forms of gas emissions from rising energy use.

- SEG requires policy measures which manage the extent of resource depletion and pollution, e.g. promoting recycling or circular (zero waste) consumption, energy conservation, renewal energy sources.
- **Evaluation:** Whether raising C can improve inclusivity would depend on the focus of the policy measures. IEG can be better achieved if there are policies in place to improve the employability and raise wages of low income and poor households. However, this policy may still not be enough for effective growth impact due to the lower value of consumption of these household groups.

Offering an alternative or complementary policy approach to achieve sustainable and inclusive economic growth

- To achieve both growth objectives, both the environmental impact and distributive outcome of economic growth matter. Raising consumption is not promising for such outcomes because consumption does not raise productive capacity and does not directly work on reducing environmental damages.
- Raising investment which works on productive and energy efficiency (lower energy usage in production) offers more success possibility for SEG. Through such investment the government can grow the productive capacity and mitigate the environmental effects of economic growth.
- Inclusive growth through investment can be facilitated by policy measures which are broad-based in nature, covering wide spectrum of industries and which also include investment in labour skills.
- **Evaluation:** However, even through investment approach, the impact on inclusivity is not certain because it can be the higher income population benefiting more from investment-oriented measures. Hence the need to bring in the low income population into the investment-driven approach, e.g. investment support to level up industries where low income workers are employed and ensuring they are given justifiable wage rise by employers..

Note: Answer can offer alternative/complementary policy approach of raising government expenditure but the justification must point to how sustainability and inclusivity can be achieved.

Overall judgement:

- Raising consumption is not a sound policy approach to achieve both sustainability and inclusive economic growth. It can help as a short term approach to revive economic growth but not appropriate for a long term aims of sustainability and inclusivity. To make economic growth sustainable, governments will need to encourage investment in productive capacity, labour and environment. Policies which manage waste of resources and various forms of pollution are also needed.
- While raising consumption appears to improve standard of living, the consumption gains can be concentrated among the middle and higher income population only, hence the necessary conditions for inclusive growth are not fulfilled. To have broad-based consumption gains, governments will need to adopt growth policies throughout many industries, particularly those with high concentration of lower wage workers, and give attention to improving the skills, employability and wages of low income population.

Level	Knowledge, Application, Understanding, Analysis	Marks
L3	<ul style="list-style-type: none"> Provides both breadth and depth – reasoned explanation why the policy of raising consumption can fail/succeed in achieving sustainable and inclusive economic growth. Explaining why an alternative or complementary policy approach (such as raising investment) is needed to achieve both growth objectives. 	8-10
L2	<ul style="list-style-type: none"> Relevant, with sufficient scope but lacking in development of explanation - able to explain the growth effects of raising consumption in terms of sustainability and inclusivity. OR Developed but only one part of the growth aims - only sustainable or inclusive economic growth. 	5-7
L1	<ul style="list-style-type: none"> Large part of answer irrelevant to question. Offers some relevance but highly insufficient in content. Many conceptual errors in explanation. 	1-4
Evaluation		
E3	<ul style="list-style-type: none"> Both sustainability and inclusivity outcomes of the resultant economic growth from raising consumption are evaluated with sound reasoning. Examples of judgement: <ul style="list-style-type: none"> Raising consumption more appropriate for short term growth recovery but not for long term sustainability and inclusivity. Raising consumption can be appropriate for long term sustainability and inclusivity if there are effectively implemented policies to protect the environment and ensure wage gains for low income population. Ends with a considered judgement, whether the policy approach is most appropriate or not, in consideration of another policy approach (such as through raising investment). 	4-5
E2	<ul style="list-style-type: none"> Some attempt at evaluation, with limited support. Example: Raising consumption does not lead to sustainable economic growth because higher consumption creates more pollution and wastage of resources (without pointing out that this can be caused by the lack of necessary environmental policies). Incomplete scope of evaluation: on either sustainability or inclusivity only. 	2-3
E1	<ul style="list-style-type: none"> Incidental evaluative statement is made & without concrete support. 	1

	Example: Claiming that raising consumption will not lead to sustainable and inclusive economic growth but no reasoning is given why this outcome.	
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5 The COVID-19 pandemic has caused both demand and supply shocks to economies all over the world, leading to negative economic growth, bursting unemployment and rising inflation.

- (a) Explain the causes that might have led countries to face the twin ills of recession and inflation. [10]**
- (b) Discuss the considerations governments may have in their choice of policies when faced with these two macroeconomic problems. [15]**

(a) Explain the causes that might have led countries to face the twin ills of recession and inflation. [10]

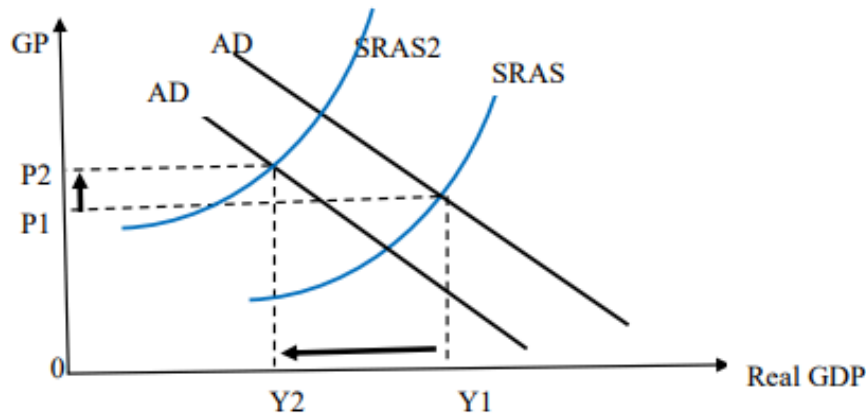
Question analysis

- Note these nuances in question:
 - 'Twin' suggests that both recession and inflation occur concurrently.
 - 'Causes' suggests the need to bring in both demand and supply side factors/shocks.
- Although rising short run costs generate pressures for national income to fall (recession) and general price level to rise (inflation), a comprehensive answer will bring in the decline in aggregate demand (AD) as another cause for the twin ills in question.
- A comprehensive answer will identify that since the fall in AD lowers general price level (deflation), the concurrence of both recession and inflation suggests that higher costs (leftward shift of SRAS curve) have stronger impact on the economy than fall in AD (leftwards shift of AD).

Suggested answer

Unpacking the economic terms in question and framing answer

- Define recession: a fall in real gross domestic product (GDP) over six months (2 quarters), Real GDP refers to the output of goods and services produced within a country.
- Define inflation: a rise in the general price level over a period, indicated by negative change in the consumer price index (CPI) which measures the change in the price of a basket of goods and services purchased by typical households in the country.
- The twin macroeconomic problems can be caused by the conditions of rising costs and falling AD. In the diagram below, rising cost condition is shown by the leftward shift of the short run aggregate supply curve (SRAS) and falling AD is shown by the leftward shift of AD curve.



Explaining possible reasons for rising short run costs

- Rising costs can be due to both domestic and foreign factors. Rising costs lead to inflation (rising GPL) and falling national income (recession). This is cost push inflation.
- Possible reasons:
 - Domestic wage levels rising to a larger extent than productivity increase \Rightarrow higher unit labour cost (per unit of output) \Rightarrow firms raising prices to protect their profit margins.
 - Depreciation of domestic currency \Rightarrow higher import prices in domestic currency \Rightarrow higher domestic costs \Rightarrow firms raising prices.
 - Shortages in input markets (domestic/foreign sources) \Rightarrow higher domestic costs.
 - For 2020-2021, COVID-19 pandemic has caused
 - shortages in markets for raw materials, agricultural produce, and other intermediate goods such as industrial components due to lockdowns and production shutdowns,
 - higher cross-border shipping and transportation costs due to delays and more health safety checks and regulations.

Explaining possible reasons for falling AD

- Falling AD has the effect of causing recession and negative inflation.
- Falling AD \Rightarrow surplus condition in markets for goods and services \Rightarrow firms adding on to inventories and begin to reduce production \Rightarrow at the macro level, country's domestic output (GDP) declines and economy goes into recession. General price level declines too.
- Possible reasons for falling AD:
 - Very weak consumption and investment sentiments due to weakening macroeconomic performance.
 - Falling exports due to weak growth performance in export markets.
 - COVID-19 has caused falling AD as lockdowns lower consumption and business losses and shutdowns have lowered investment.

Putting together effects of SRAS and AD changes to reason why recession co-exists with inflation (the twin ills)

- While falling AD lowers GPL, the leftward shift of SRAS raises GPL.
- The concurrence of recession and inflation suggests that the impact of higher costs on price level from the supply shock (leftwards shift of SRAS) is larger in extent than the fall in AD. Hence, inflation rate is still positive despite recession.

Level	Knowledge, Application, Understanding, Analysis	Marks
L3	<ul style="list-style-type: none"> • Developed explanation of both SRAS and AD changes. • Makes the inference that the occurrence of the twin ills comes about from cost increases having a larger impact on general price level than falling AD. 	8-10
L2	<ul style="list-style-type: none"> • Causes of both SRAS and AD changes conceptually and correctly explained but not well developed. OR • Well-developed explanation of SRAS or AD causes only. 	5-7
L1	<ul style="list-style-type: none"> • Insufficient clarity on even one side of the causes. • Many conceptual errors in explanation. 	1-4

(b) Discuss the considerations governments may have in their choice of policies when faced with these two macroeconomic problems. [15]

Question analysis

- Question is about the basis of decision making in policy design. Answers can pick on 2-3 factors/consideration and discuss with some depth how these factors influence policy choices.
- Note that this question is not about explaining and evaluating each possible policy per se, but giving the basis of decisions in choosing these policies. For example, if answer suggests expansionary fiscal policy, it must point out that this policy choice would mean that the government makes solving recession a priority instead of inflation (and justifying why).
- A sound evaluation will bring in the challenge of addressing both recession and inflation through demand management policies (expansionary demand policies will induce more inflation), before recommending that a mix of demand and supply side measures will be needed depending on the root causes of the problems.
- Answers can also select on factors such as the nature of the economy and the fiscal strength of the country for evaluation with respect to appropriate policy choices.

Suggested answer

Framing discussion: identifying a few factors which governments are likely to consider in their policy choices

- Both recession and inflation lower standard of living (SOL). Recession leads to falling material SOL due to falling purchasing power and rising unemployment. If recession exists concurrently with inflation, SOL falls more due to rising cost of living.
- The concurrence of recession and cost-push inflation poses tension and complexity to governments because while recession is a major macroeconomic problem, solving recession will worsen inflation.

- In addressing both problems, governments will consider many factors, such as which problem to be prioritized, which root causes of the problem/s to be addressed and what policy instruments to adopt.
- Countries differ in their economic characteristics and policy capacities, hence the differences in policy choices governments make.

Consideration 1: the root causes of the problems

- If the problem is mainly cost-push inflation and spending sentiments on the demand side are reasonably firm, the government can focus on dealing with the supply shocks and as costs improve, national income can gradually increase. For example: if inflation is caused by shortages of food supply or raw materials, the government can find more sources or beef up production → production goes back to more normal condition. Cost reductions will be shown by the rightward shift of SRAS curve in the diagram in part (a).
- **Evaluation:** However, if rising costs are also accompanied by weakening AD due to other factors such as falling exports and weak consumption and investment sentiments, solving the supply side problems will not be sufficient. The government will then need to adopt expansionary measures such as lower interest rate and deficit budget to stimulate AD and revive the economy. A delicate balance is needed between raising AD to revive the economy against preventing excessive inflation rate
- **Evaluation:** If rising costs are externally induced, e.g. due to higher energy prices, it will be even more difficult for the government to deal with the cost push inflation.

Consideration 2: Which of the two problems to be prioritised?

- Where a country is facing demand-induced inflation along with cost-induced inflation, the government may have to decide on which of these problems to be the primary policy focus and make do with the worsening of the other problem. For example, if the government feels that recession is of major concern to the population than inflation, it will adopt expansionary demand measures and accept higher rate of inflation.
- The choice of which policy to focus on can be guided by the severity of the two problems – the intensity of recession against rate of inflation. A country which has been facing high inflation may have higher tolerance to this problem and decides to solve recession first.
- **Evaluation:** However, the extent of stimulus or lowering of interest rate will still need to be considered against the projected rise in inflation because letting inflation to spiral higher will cause contractionary effects on AD, making growth recovery unsustainable.
- **Evaluation:** It will also be necessary for the government to adopts measures to improve the supply side conditions so that cost-sided inflationary pressures can be dampened, e.g. if costs have been rising due to high fuel prices, the government may have to adopt maximum price policy to prevent further rise in domestic energy price.

Consideration 3: Which policy instruments to adopt?

- Policy making also involves the choice of policy instruments to adopt, for example deciding between fiscal and monetary policy, or deciding between the use of interest rate or exchange rate instrument.

- Generally governments will adopt fiscal expansion through deficit budget to increase AD but the extent of this fiscal stimulus will depend on the country's fiscal reserves and existing fiscal condition. Singapore is an example of a country with healthy reserves position hence the government can adopt large fiscal stimulus to deal with the recession from COVID-19. Countries with many years of deficit budget will have weaker ability for fiscal stimulus and need to rely more on lowering interest rate to induce private spending.
- In the implementation of monetary policy, the central bank will need to decide between interest rate or exchange rate. Singapore, very reliant on external demand and imports, and with very open financial markets, adopts exchange-rate centred monetary policy. Many large economies on the other hand adopt interest-rate centred monetary policy as their domestic demand make up a large proportion of their AD.
- **Evaluation:** Whether the government is using expansionary fiscal or monetary policy, the concurrence of cost-push inflation should still guide the extent of AD expansion targeted. While some increase in inflation can be necessary for recovery from recession, measures to address the sources of cost increases should be adopted to reduce the extent of inflation.

Conclusion

- COVID-19 has induced both recession and inflation due to both demand and supply shocks. Although inflation hurts national income and SOL, it is recession that has more visible effects on SOL, particularly with rising unemployment. **Governments will tend to therefore make solving recession of greater policy priority and inevitably accepting rising inflation. This however does not mean that the government will let inflation reins in at any rate, supply-side measures tackling the causes of cost increases will still be needed.**
- Should be noted too that **it will be challenging to raise consumption and investment when costs/prices are rising.** In this situation, budget deficit will be needed to keep the economy going until supply conditions can gradually improve.
- There will be **less tension between the two macroeconomic problems if the root cause of the concurrent of both problems is primarily cost-sided.** Governments can then focus on tackling the supply-side reasons for inflation and with improving inflation conditions, AD will improve and recession is reduced.

Level	Knowledge, Application, Understanding, Analysis	Marks
L3	Provides both breadth and depth – reasoned explanation of at least two considerations/factors in governments' policy decisions in the context of countries facing both recession and inflation. Examples of the considerations: <ul style="list-style-type: none"> • Which problem given priority by the government. • What causes the inflation <ul style="list-style-type: none"> ○ if cost-push inflation, recession can be addressed with supply-side measures without the need for expansionary demand policies ○ if imported inflation, government may have to accept the inflation and focus more on recovery from recession from domestic policies 	8-10
L2	<ul style="list-style-type: none"> • Developed explanation of considerations for one problem only – recession or inflation. • Considerations refer to the twin ills context but insufficiently analysed. 	5-7

L1	<ul style="list-style-type: none"> Large part of answer not addressing question -narrating policies to deal with the problems without pointing out the factors/considerations in chosen, example: <ul style="list-style-type: none"> Explaining the use of expansionary fiscal and monetary policies without pointing out that such policies can be chosen when governments give priority to solving recession instead of inflation. Many conceptual errors in explanation. 	1-4
E3	<ul style="list-style-type: none"> Considerations are based on valid criteria such as severity of the problems, nature of economy and fiscal capacity. Ends with a considered judgement on which is most important policy consideration. 	4-5
E2	<p>Some attempt at evaluation, with limited support. Examples:</p> <ul style="list-style-type: none"> Solving inflation will help economy recover from recession <i>if it is cost-push inflation</i> (without supporting why this is so or giving examples of supply-side policies needed). Solving recession is a necessary policy priority because <i>it lowers standard of living</i> (without recognizing that not solving inflation will also lower standard of living). 	2-3
E1	<ul style="list-style-type: none"> Incidental evaluative statement is made, without concrete support. Example: <ul style="list-style-type: none"> All countries will adopt expansionary fiscal policy to deal with recession (without recognizing the factor that determines countries' capacity for fiscal stimulus). 	1

Q6. The U.S. trade deficit hit a fresh record high in March. The Commerce Department reported that the trade gap rose 57.6% from the same period a year ago to US\$74.4 billion. Massive fiscal stimulus and economic recovery from the pandemic recession are fuelling demand for goods and services.

Source: CNBC, 4 May 2021

(a) Explain the possible causes of a deficit on the balance of trade of a country. [10]

Introduction:

Balance of trade refers to the difference between the total value of exports (X) and the total value of imports of goods and services (M). A deficit on the balance of trade would imply that there is an excess of debits over credits, hence $M > X$.

D1: Relative national income growth

The U.S. trade deficit may be a result of economic growth. Economic growth is the increase in real gross domestic product (GDP) over a period of time. As the U.S. economy recovers from the pandemic recession, it implies that the real GDP is increasing. Furthermore, the U.S. government has adopted a massive fiscal stimulus. This is an expansionary fiscal policy where the U.S. government may have increased government expenditure on large infrastructure projects such as roads. Taxes may have been reduced to spur consumption and investment expenditure. The expansionary fiscal policy would cause aggregate demand to rise and hence increase the real GDP. This increases the ability and willingness of the US residents to import more goods and services, since economic growth is usually accompanied with higher employment and incomes. As import expenditure (M) increases, $(X-M)$ decreases. This may worsen the balance of trade position over time, and result in a trade deficit.

D2: Exchange rate policy of trading partners

In recent years, the US has been experiencing a large and persistent current account deficit. This is largely due to China's manipulation of the Chinese yuan in the foreign exchange market. In 2017, Donald Trump and his trade advisor accused China and Germany for being 'currency manipulators' which largely caused the large and persistent current account deficit in the US. China devalued her currency since the 2000s with the intention to maintain GDP growth rates. This makes US exports more expensive in foreign currencies while the price of imports from China and Germany in US\$ decreases. If the Marshall Lerner condition holds whereby the sum of PED of x and $m > 1$, the net exports decrease, which may cause a deficit on the balance of trade in goods and services.

D3: Industrialization

In 2016 through 2017, Pakistan's current account deficit widened 121% during the first 8 months of the fiscal year. This is largely due to the ongoing construction phase of the China-Pakistan Economic Corridor. This project requires large and sophisticated machinery. As Pakistan imports large machinery and raw materials, M increases. Assuming ceteris paribus, the balance of trade in goods worsens, and may contribute to a deficit in the balance of trade.

Knowledge, Application, Understanding and Analysis	
L3 (8 – 10)	For an answer that is able to analyse and explain in detail three causes of balance of trade deficit, with reference to real world context, including the context given in the preamble.
L2 (5 – 7)	For an answer that is able to analyse and explain two causes of balance of trade deficit.

	Max 7 – If no attempt to use context given in preamble. Max 7 – If answer comprises only two causes of balance of trade deficit
L1 (1 – 4)	For an answer that contains glaring conceptual errors in its explanation For an answer that is only able to analyse and explain one cause of balance of trade deficit.

(b) Discuss whether achieving a favourable balance of trade should be the key macroeconomic priority for a government. [15]

Introduction

Favourable balance of trade is one of the macroeconomic objectives of a government. It means that there should be a healthy trade surplus where $X > M$ and it should be achieved through fair trade practices.

Other than favourable balance of trade, a government may pursue other macroeconomic objectives which include economic growth, low unemployment and low inflation.

The basis to determine whether achieving a favourable balance of trade should be the key macroeconomic priority for a government is

- benefits on the internal stability and external stability of the economy
- trade-offs that may arise from pursuing favourable balance of trade
- benefits of other macroeconomic aims

Development 1: Achieving a favourable balance of trade can lead to both internal and external stabilities of an economy and hence should be the key macroeconomic priority of a government. (Benefits of a favourable balance of trade)

- Internal Stability

According to the preamble, the US has been experiencing a persistent and rising trade deficit. Achieving a favourable balance of trade by increasing X and reducing M would bring about internal stability. With a rise in X and a decrease in M , net exports would increase. Hence the AD would increase, as illustrated by a rightward shift of the AD curve from AD_0 to AD_1 .

[Insert AD/AS diagram here]

As firms' inventories decrease, firms would increase production of goods and services. Real GDP increases from Y_0 to Y_1 , contributing to actual growth. With an increase in production, the demand for factors of production increases, hence unemployment rate is likely to decrease. As US economy approaches near full employment, the rising demand of factors of production would bid up factor prices, resulting in higher consumer prices from GPL_0 to GPL_1 . If the rate is low and stable, it would lead to price stability.

- External stability.

A rise in X would also lead to an increase in demand of USD, and a fall in M would lead to a decrease in supply of USD. This would lead to a stable appreciation of the USD. Should the US trade deficit persist and widens, it may cause a rapid depreciation, and this can cause instability of the USD.

Anti-thesis - Development 2: However, the pursuit of a favourable balance of trade may lead to significant trade-off on other macroeconomic goals. If the trade-offs are significant, then achieving a favourable balance of trade should not be the key priority.

- Favourable balance of trade vs economic growth

To achieve a favourable balance of trade, the US government may adopt contractionary demand management policies to reduce AD and national income. This is to reduce purchasing power of households, and hence this may reduce M, reducing the trade deficit. However, this may cause macroeconomic problems such as negative growth and demand-deficient unemployment. According to the preamble, the US economy has just recovered from a pandemic recession. It is likely that there could be problems of demand deficiencies.

Anti-thesis 2 – Development 3: Hence achieving favourable balance of trade should not be the key macroeconomic objectives. It might be necessary for the US government to prioritise achieving economic growth and low unemployment. (Benefits of other macroeconomic goals)

- Benefits of economic growth

With economic growth, the increase in the production of goods and services would imply that there is an increase in the availability of goods and services for the Hong Kong population, hence material SOL worsens.

The pursuit of economic growth can also lead to other macroeconomic aims. The increase in production of goods and services would lead to an increase in demand for factors of production, reducing unemployment. With healthy rate of increase in the production of goods, it can lead to a low and stable rate of inflation.

EV: for large economies like US, private consumption is the main driver of growth. Achieving low unemployment may be a more important macroeconomic objective to achieve as compared to favourable balance of trade as high unemployment may cause more serious negative consequences on the economy, as high unemployment is likely to cause C to fall and hence AD to fall significantly. High unemployment would likely to cause other macroeconomic problems such negative growth for large economies.

- Benefits of low inflation

Some economies may be faced with price instabilities, and this would also be a cause of concern for the government. In 2008, due to oil supply shocks, Singapore experienced relatively higher inflation rates, where the rate of inflation was at 6.6%. This would pose many problems for Singapore especially since Singapore is a small and open economy. Hence, achieving price stability should be the key macroeconomic priority for the Singapore government.

With a lower rate of inflation, the increase in the prices of Singapore's exports would be slower than the price increase of other countries' exports. This would increase Singapore's export price competitiveness. This would lead to rising export demand and hence an increase in X. Assuming M constant, $(X-M)$ increases, AD increase, resulting in actual growth.

In addition, this increase in net exports may lead to an improvement in the balance of trade, contributing to a favourable balance of trade.

EV: Achieving price stability might be a more important objective, as it will help achieve other macroeconomic aims such as favourable balance of trade, economic growth and employment. This is especially for small and open economies, which are driven by exports.

[Conclusion]

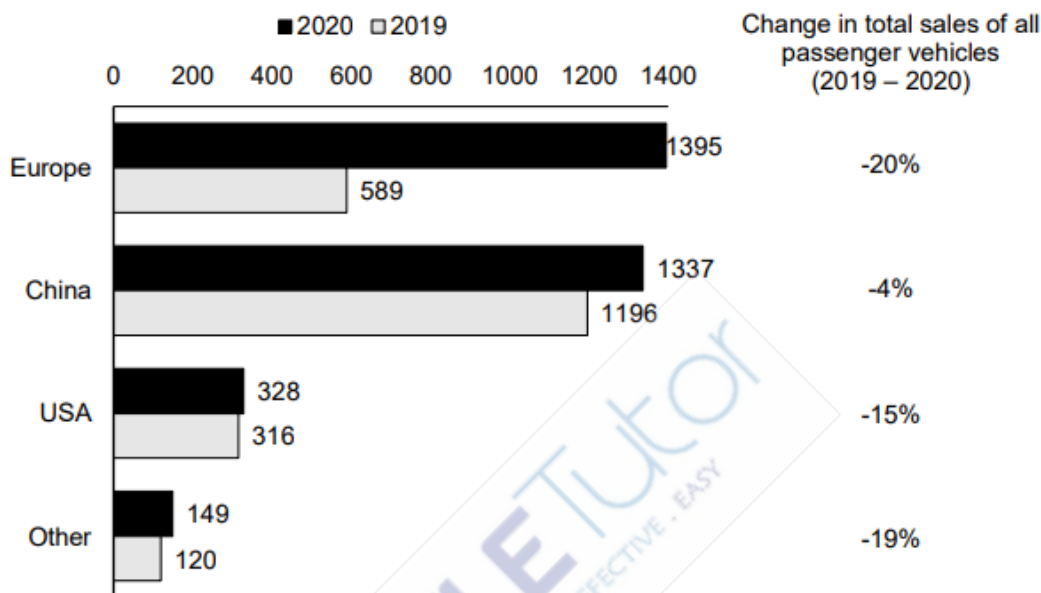
Knowledge, Application, Understanding and Analysis	
L3 (8 – 10)	<ul style="list-style-type: none"> For a well-developed answer and discussion on whether achieving favourable balance of trade should be the key macroeconomic priority for a government, with the considerations of <ul style="list-style-type: none"> the benefits of a favourable balance of trade (at least two benefits) the benefits of other macroeconomic objectives (at least one other macroeconomic objective) trade-offs that may arise from the pursuit of a favourable balance of trade For an answer that uses appropriate economic framework and real world context.
L2 (5 – 7)	<ul style="list-style-type: none"> For an under-developed answer on the benefits of a favourable balance of trade and other macroeconomic objectives. Answer does not make reference to real world context
L1 (1 – 4)	<ul style="list-style-type: none"> Answer contains glaring conceptual errors
Evaluation	
E3 (4 – 5)	<ul style="list-style-type: none"> Well-reasoned judgement on why achieving favourable balance of trade should be the key macroeconomic objective of a government, with clear use of criteria such as prevailing macroeconomic problems and conditions, nature of economy, stage of economic development etc.
E2 (2 – 3)	<ul style="list-style-type: none"> Judgement with inadequate justification
E1 (1)	<ul style="list-style-type: none"> Unexplained and unsubstantiated statement or judgement

ANDERSON SERANGOON JUNIOR COLLEGE

PRELIM PAPER

Question 1: The market for electric vehicles

Figure 1: Sales of Electric Vehicles ('000) and change in total sales of all passenger vehicles* (2019 – 2020)



* This category includes the sale of electric vehicles and conventional vehicles.

Source: *EV-volumes.com*, accessed 13 August 2021

Extract 1: Chinese and EU markets drive demand for EV sector

With more than two million electric vehicles (EVs) sold around the world, electric cars accounted for a record 2.5 percent of the total passenger vehicle market.

China is by far the largest EV market in the world, with 1.2 million EVs sold in 2019. This is largely due to government policies such as subsidies and tax exemptions for manufacturers. In several large Chinese cities, local governments are limiting new license-plate registrations to EVs.

European governments have also introduced new purchase subsidies and tax breaks to encourage EV adoption and promote green mobility. The incentives such as Germany's subsidies toward the purchase of an EV, combined with the increase in EV models, has led to soaring consumer demand.

The US EV market looks vastly different from that in China and Europe. The country's slowing economy during the Covid-19 pandemic and the subsequent decrease in consumer spending are contributing to a slow growth in EV sales, despite government subsidies. Moreover, falling oil prices make conventional, diesel-powered vehicles cheaper than EVs to operate in the United States. Furthermore, the slow adoption rate for EV is also due to the lack of charging infrastructure.

Extract 2: Nickel-rich Indonesia draws global suppliers of EV battery materials

From Germany-based Badische Anilin und Soda Fabrik (BASF) to Japan's Sumitomo Metal Mining, overseas companies are rushing to set up nickel-processing facilities in Indonesia as the country bans exports of raw nickel ore. Between 2014 and 2020, over US\$6.5 billion in foreign direct investments has flowed into the construction of nickel smelters and other downstream processing activities in Morowali, located in Sulawesi.

Nickel is a critical metal used to make electric-vehicle batteries. Indonesia, the world's largest producer of the metal, hopes to leverage its rich reserves to establish a domestic battery supply chain.

Companies are particularly interested in the country for its rich reserves. Indonesia produced an estimated 760,000 tons of nickel in 2020, with another 21 million tons in reserves, both the largest figure in the world, according to the U.S. Geological Survey. The country accounts for roughly 30% of the world's nickel production and about 22% of global reserves and is critical to ensuring a stable supply of battery materials.

Indonesia has suffered a persistent trade deficit in recent years amid surging imports of petroleum. The export bans are designed to encourage companies to process ore in Indonesia and export higher-value-added items to curb the trade imbalance, while attracting investment, creating jobs and acquiring technological know-how.

Adapted: Nikkei Asia, 23 April 2021

Extract 3: The electric-car lesson that China is serving up for America

China has made dominating the new era of cars a national priority. The government provided a wide range of supportive policies: Manufacturers received subsidies to reduce prices to encourage sales; the state spent on Research & Development (R&D), direct investments into electric vehicle companies and charging infrastructure. The Center for Strategic and International Studies (CSIS) estimated that the Chinese government has spent more than \$100 billion on the sector overall, mostly in subsidies.

The result is an industry built practically from scratch. In 2016, 336,000 electric passenger vehicles were sold in China, according to data from S&P Global Platts. Last year, the number topped 1.2 million, four times greater than in the U.S. The programme has spawned some start-ups, including XPeng, founded in 2014. Last year, the company's car sales more than doubled compared with the year before. It already owns one factory capable of churning out 150,000 cars a year, is building a second, and in April, agreed to a third.

There's more to success than size, though. The real test of Beijing's state programme is whether it is creating competitive companies that make cars the world wants to drive. It's early, but indications so far are discouraging. Despite the huge subsidies provided to Chinese electric vehicle companies, Tesla's Model 3 was the best-selling battery-powered passenger car in China last year. As the CSIS report noted, "at this stage it appears Chinese firms have not leapt ahead of their foreign rivals."

Part of the problem facing XPeng, one of the major Chinese EV companies, and other Chinese newcomers is poor brand recognition compared with Tesla and other established brands. A bigger hurdle, however, is that China's companies don't have clear technological advantages over their foreign rivals.

Beijing's industrial policies attracted more players – 119, by CSIS's count – than even the giant Chinese market can possibly sustain. In a more market-oriented economy, the inevitable consequence would be a loss-inducing shakeout, with many loss-making companies shutting down or being absorbed. However, many Chinese carmakers are state-owned enterprises, which are unlikely to be allowed to close. The result could be a kaleidoscope of small players fighting it out with one another and foreign brands to gain market share.

In theory, government support would help Chinese firms gain economies of scale and be profitable at home, which they can then leverage to gain market share in foreign markets. But in practice, although government policies helped give the industry the initial push it needs, they can't on their own generate the innovation that leads to ultimate commercial success. That's why China's industrial programme has resulted in a lot of production, but only questionable competitiveness.

Source: *The Atlantic*, 21 May 2021

Questions

- (a) (i) With reference to Figure 1, describe the change in the market share of electric vehicles to total sales of all passenger vehicles in the US. [1]
- (ii) With reference to Extract 1, explain how the fall in oil prices could have caused the change in sales of electric vehicles in the US. [3]
- (b) With the help of a diagram, explain whether consumers or producers will enjoy a greater share of the subsidy when the US government grants a subsidy to producers of electric vehicles. [4]
- (c) The Indonesian government banned exports of unprocessed nickel ore to encourage foreign and domestic companies to develop a complete nickel supply-chain in Indonesia. With reference to Extract 2, discuss the possible consequences of the above policy on Indonesia's economy. [8]
- (d) Explain, with the aid of a diagram, how the entry of new firms into the electric vehicle industry could result in many companies shutting down in the long run. [4]
- (e) With reference to a Chinese electric vehicle company, discuss the extent to which the size of the firm determines its profitability. [10]

[Total: 30]

Question 2: Macroeconomic issues and policies

Table 1: Selected Economic Indicators, 2019

Country	Real GDP Growth rate (%)	Unemployment rate (%)	Inflation rate (%)	HDI Rank	Gini Coefficient (2016)
Singapore	1.35	2.3	0.6	11	0.38
United States	2.16	3.7	1.8	17	0.42
Hong Kong	-1.68	2.9	2.9	4	0.47

Source: *Various*

Table 2: Key Macroeconomic Indicators of India from 2015 to 2018

Year	Real GDP Growth rate (%)	Unemployment rate (%)	Inflation rate (%)
2015	8.0	5.6	4.9
2016	8.3	5.5	4.5
2017	6.8	5.4	3.6
2018	6.5	5.3	3.4

Source: *Various*

Extract 4: Higher-income group most affected by inflation

Inflation slowed in the second half of last year compared with the first six months, with households at the top end of the income scale taking a slightly bigger hit than others. The overall consumer price index (CPI) for general households rose 0.5 per cent in the six months to Dec 31 over the same period in 2018. This inflation affected the highest 20 per cent income group the most, the Department of Statistics said, while those in the lowest 20 per cent found prices edging up 0.1 per cent.

The higher inflation for all groups was due to increases in the costs of food, tuition, medical, transport including car prices and holiday expenses. "These collectively outweighed a decline in electricity cost, clothing and footwear costs," noted the department.

It added that inflation rose at a slower pace for those in the lowest 20 per cent income group because they were less affected by the rise in car prices. Cheaper power also had a larger dampening effect on inflation for this group.

Source: *The Straits Times*, 24 Jan 2020

Extract 5: How rising inequality hurts everyone, even the rich

Over the past 40 or so years, the American economy has been funnelling wealth and income, reverse Robin Hood-style, from the pockets of the bottom 99 per cent to the coffers of the top one per cent. The total transfer, to the richest from everyone else, amounts to 10 per cent of national income and 15 percent of national wealth. The problem is commonly understood as an issue for those who have less, and it certainly is. But recent studies demonstrate that inequality is bad for everyone in society.

In 2014 the Organisation for Economic Co-operation and Development (OECD), a collective of the world's 35 wealthiest countries including the United States, found that rising inequality in the United States from 1990 to 2010 knocked about five percentage points off GDP per capita growth rate over that period. Similar effects were seen in other rich countries.

"The main mechanism through which inequality affects growth is by undermining education opportunities for children from poor socio-economic backgrounds, lowering social mobility and hampering skills development," the OECD found. Children from the bottom 40 per cent of households are missing out on educational opportunities. That makes them less productive employees, which means lower wages, which means lower overall participation in the economy. In extreme cases, income and wealth inequality may lead to political and social unrest that contributed to low business investment and harms growth.

Adapted: www.washingtonpost.com, 6 February 2018

Extract 6: The Human Development Index (HDI)

In order to try to streamline the many different measures that were being used to measure standard of living, the HDI was introduced to combine three measures – life expectancy (a social measure), education (average number of years of schooling and expected years of schooling – a social measure) and gross national income per capita (an economic measure).

Advantages of using the HDI

- HDI uses two types of social data (health and education) and one type of economic data which means that the measure uses a broad range of information and is not tied up with only one measure. This is a much more accurate measure.
- The information is updated annually and collected by a range of people who ensure that the data is as accurate as possible.

Disadvantages of using the HDI

- Some geographers are still concerned that wealth (GNI/GDP) still has too much importance within the HDI weighting and that this still means that rich countries can be artificially high in the rankings.
- Some still raise concerns that the HDI is still too simple and that for a real measure there should be a range of 10 – 15 different measures lumped together into one big composite measure of development.

Source: bbc.co.uk, accessed 15 Aug 2021

Extract 7: Improving India's competitiveness for inclusive growth and higher living standards

India has moved up one place to rank 43rd in the 2019 World Competitiveness Rankings on the back of its robust economic growth, a large labour force and its huge market size. Singapore has moved up to the top, from the third position last year, while the US has slipped to the third place. Hong Kong SAR has held onto its second place, helped by a favourable tax and business policy environment and access to business finance.

Speaking at the opening session of the World Economic Forum in January 2018 at Davos, the Prime Minister of India said "India is poised to become a US\$5 trillion economy by 2025". For many, the target appeared to be ambitious. For this to happen, India would require gross domestic product (GDP) to grow at 10 per cent per annum in real terms for each year over a period of the next five years. However, it will not be possible to achieve the above-stated target without a significant growth in exports at 7.5 per cent annually, increased participation in the global value chains and improvement in the competitiveness of Indian industries.

A higher degree of competitiveness drives greater productivity which, in turn, leads to inclusive growth. Given the significance of innovation, creation of new products, services and technologies for an economy to remain competitive and self-reliant, India must continue to incentivise R&D.

The impact of the Covid-19 pandemic has led to demand depression and high unemployment in the global economy. India was led into recession affecting the unorganised sector and semi-skilled jobholders losing their employment. According to Quartz India, the consequences of the second wave are being witnessed, which will have an overall major impact on the set goal of India becoming a US\$5tn economy by 2025. Therefore, improving competitiveness amidst these challenges is the only option left for the Indian economy to grow at a reasonably high rate so as to overcome poverty and persistent income inequality.

A study done by Credit Suisse in 2018 reported that the richest 10 per cent in India owns 77.4 percent of the national wealth whereas the poorest 60 per cent of the people own just 4.7 percent of the national wealth. One important indication of inadequate inclusion in India is that despite years of rising growth, millions continue to live on the margins, without safety nets, and fell back into poverty when the pandemic struck. Despite significant spending by the government, the quality of health and education infrastructure remains poor on average and reflects inadequate management and deployment of such spending.

Adapted: CUTS International, 27 Jan 2021

Questions

- (a) From Table 1, identify and explain one indicator that shows the United States economy is doing better than Hong Kong. [2]
- (b) With reference to Table 2, explain briefly the inverse relationship between inflation and unemployment and why this relationship does not seem to hold for India. [4]
- (c) Using Extract 4, explain why the inflation affected the high income group more than the low income group. [2]
- (d) Explain why a government is concerned with rising inequality. [4]
- (e) Discuss whether the data provided are sufficient to compare living standards across countries. [8]
- (f) To what extent does encouraging innovation to improve competitiveness achieve inclusive growth in a country such as India? [10]

[Total: 30]



Answer **three** questions in total.

Section A

One or two of your three chosen questions must be from this section.

- 1** Advancements in mobile gaming technology have made it easier to create new mobile games. Gamers also continue to have an interest in console games such as those created by Sony and Nintendo.
 - (a) Explain what might cause price elasticity of demand and cross elasticity of demand to be different for different products. [10]
 - (b) Discuss how advancements in mobile gaming technology might affect consumer expenditure on mobile games and its related goods. [15]

- 2** The Ministry of Education is stepping up its provision of MOE kindergartens and increasing subsidies to provide more affordable and quality early childhood education as research shows that it is crucial for a good start in life.
 - (a) Explain why some governments deem early childhood education as a merit good that is underconsumed in the market. [10]
 - (b) Discuss whether the Singapore government should increase its intervention in early childhood education. [15]

- 3** The Singapore authorities sought to shake up Singapore's telecommunications industry that was made up of three big firms, Singtel, StarHub and M1 by granting license to another new player, Australia's TPG Telecom in 2020. Mobile plans prices have fallen ever since, but there are signs that this era of cheap mobile plans may not last.

Source: *todayonline.com*, April 2021

- (a) Explain which market structure best describes the telecommunications industry in Singapore and how price and output are determined in such a market. [10]
- (b) Discuss the extent to which consumers and the society will benefit when there is greater competition in the telecommunications industry in Singapore. [15]

Section B

One or two of your three chosen questions must be from this section.

- 4** A government's main macroeconomic aims are price stability, full employment and economic growth.

Explain the main macroeconomic aims of a government and discuss whether a government should focus primarily on achieving price stability over other macroeconomic aims in a globalised world. [25]

- 5** The Covid-19 pandemic has severely disrupted global economic activity and led to both demand and supply shocks that resulted in falling incomes in Singapore. In response, the government rolled out four Budgets over four months, equivalent to almost 20% of its GDP.

(a) Explain how demand shocks arising from the pandemic will affect the circular flow of income in Singapore. [10]

(b) Discuss whether fiscal policy is the most appropriate policy to deal with the adverse impacts of the pandemic on the Singapore economy in the short and long run. [15]

- 6** (a) Explain the possible causes of a balance of trade deficit. [10]

(b) Discuss the policies that a government could adopt to reduce a balance of trade deficit. [15]

ANSWER SHEET

CSQ 1 Mark Scheme & Suggested Answers

(a)(i) With reference to Figure 1, describe the change in the market share of electric vehicles to total sales of all passenger vehicles in the US. [1]

For the US, total sales of passenger vehicles has fallen (-15%), while electric vehicle sales has increased (3.8%).

Hence, market share of electric vehicle sales to total sales of passenger vehicles in the US has increased. [1]

Mark scheme

If student stated the change in market share only, give 1m.

If student does not state the change in market share, 0m.

(ii) With reference to Extract 1, explain how the fall in oil prices could have caused the change in sales of electric vehicles in the US. [3]

With the fall in price of oil, it will result in an increase in quantity demanded for oil. According to Extract 1, it suggests that oil and diesel-powered vehicles are complements as "falling oil prices make conventional, diesel-powered vehicles cheaper than electric vehicles to operate". Hence, the increase in quantity demanded for oil will result in an increase in demand for diesel-powered vehicles. [1]

As a result, some consumers will switch away from electric vehicles to its substitute, diesel-powered vehicles because it is now relatively cheaper to drive diesel-powered vehicles than electric vehicles. [1] They are deemed as substitutes as both type of vehicles satisfy the same want of enabling one to travel from one location to another.

This will cause a fall in demand for electric vehicles causing a surplus and fall in price of EV. EV producers reduce production and this results in a fall in equilibrium quantity (or quantity traded) of electric vehicle, which means a fall in sales of electric vehicles in the US. [1]

Mark scheme

1m – oil and diesel-powered vehicles are complements → fall in price of oil → increase in DD for diesel-powered vehicles

1m – diesel-powered vehicles and electric vehicles are substitutes → fall in DD for electric vehicles

1m – price adjustment process → fall in sales of electric vehicles in the US

*for full mk, the answer must contain the economic term "complement" or "substitute".

*in summary, for full mk, the following understanding must be demonstrated:

Fall in oil price → relatively cheaper to drive conventional cars compared to EV (1) → fall in DD for EV (substitute) (1) → surplus → fall in price → fall in eqm qty (traded) of EV = decrease in EV sales (1).

(b) With the help of a diagram, explain whether consumers or producers will enjoy a greater share of the subsidy when the US government grants a subsidy to producers of electric vehicles. [4]

When the US government gives a subsidy is given to electric vehicle producers, it will result in a fall in cost of production of electric vehicles. Producers of electric vehicles would then be

more willing and able to produce more electric vehicles, resulting in an increase supply. This is represented by a rightward shift of the supply curve from S to $S + \text{subsidy}$. [1] This results in a fall in price from P_1 to P_2 and an increase in quantity traded from Q_1 to Q_2 .

To determine whether consumers or producers will enjoy a larger share of the subsidy, we need to examine the price elasticity of demand relative to price elasticity of supply of electric vehicles.

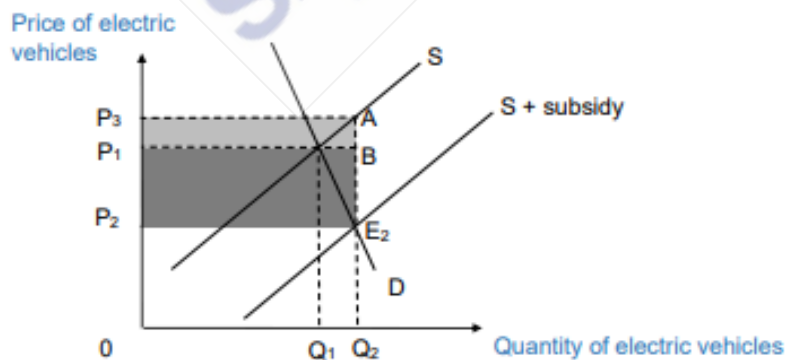
According to Extract 1, there is a "slow adoption rate for EV is also due to the lack of charging infrastructure". This suggests that electric vehicles are not close substitutes for diesel vehicles because the lack of charging infrastructure means that it is more inconvenient to drive an EV because there is limited facility to recharge the battery. As such when the price of EV falls, there will be a less than proportionate increase in its quantity demanded. Hence, the demand for electric vehicle is price inelastic ($PED < 1$).

Furthermore, it is likely that the supply for electric vehicle is price elastic ($PES > 1$) as electric vehicles are likely mass produced, and the production process is less complex. Furthermore, electric vehicles are non-perishable nature, so there can be high level of electric vehicle stocks available.

From the above analysis, demand for electric vehicle is relatively more price-inelastic than supply. [1]

The consumers thus benefit from the subsidy due to the lower price and increase in quantity consumed. The benefit they enjoyed from the subsidy is area $P_1P_2E_2B$. Producers also benefit because part of their costs are borne by the government. The benefit they enjoyed from the total subsidy is area P_3P_1BA .

Since the demand is less price elastic than supply, the consumers enjoy a larger share of the total subsidy than the producers. The reasoning is that since demand is price inelastic, a larger fall in price is needed to incentivise consumers to increase quantity demanded as compared to what is needed for producers to increase quantity supplied. [1]



Mark scheme

1m – PED determinant

1m – PES determinant

1m – Explain impact of subsidy on eqm P & Q

1m – Relative share of subsidy based on PED/PES + Diagram that correctly shows the benefit to both consumers and producers.

*do not award full mk if student does not compare PED with PES.

*if conclusion is incorrect i.e. consumers enjoy more because $PED > PES$, but other parts are correctly explained, then award 3m out of 4m.

Alternative explanation

Students could alternatively explain that PED for EV > 1 with good reasoning (not state value only). Can accept on equal merit if they assume $PED > PES$ followed by correct conclusion.

(c) The Indonesian government banned exports of unprocessed nickel ore to encourage foreign and domestic companies to develop a complete nickel supply-chain in Indonesia.

With reference to Extract 2, discuss the possible consequences of the above policy on Indonesia's economy. [8]

When the Indonesian government banned exports of unprocessed nickel ore, there are both positive and negative consequences on Indonesia's economy.

In the short run, due to the ban of nickel ore, foreign firms are not able to import this crucial factor of production from Indonesia to produce their nickel-related final goods & services. Hence this attracts FDI into Indonesia to set up their production as they are unable to produce nickel-related final goods such as lithium batteries in their home country. This is seen in Extract 2, where "over US\$6.5 billion in foreign direct investments has flowed into the construction of nickel smelters and other downstream processing activities". This inflow of FDI will **improve Indonesia's capital balance of the balance of payments**.

The increase in FDI will also result in **actual economic growth**. With an increase in FDI, there will be an increase in AD, since investment expenditure is a component of AD. The increase in AD will lead to depletion of stocks of goods such as capital goods. Assume that the economy is not near full employment. Firms will increase production and this will lead to an increase in national incomes for those who are in the mining industry. With an increase in incomes, there will be an increase in induced consumption which leads to a further increase in incomes. Hence, the multiplier process will result in a larger increase in national incomes and real GDP. Given that labour is a derived demand, the increase in production means that there is an increase in demand for labour. Certainly more labour is needed and it is not just in the mines as in the past but also in the downstream processing industries such as in the nickel smelters. Thus it **addresses the problem of demand deficient unemployment** as well.

In the long run, the ban on unprocessed nickel ore exports will result in an increase in production of nickel-related final goods & services such as batteries and eventually even the electric vehicles in Indonesia. As seen in Extract 2, the ban "encourage companies to process ore in Indonesia and export higher-value-added items". Hence, assuming that import expenditure remains constant, the replacement of low to high value-added exports means an increase in export revenue. This will lead to an **improvement in Indonesia's trade balance in goods and services**.

Furthermore, since export revenue is a component of AD, there will a further increase in AD, and hence having further multiplied increase in real national income and reduction in demand deficient unemployment.

With the rise in FDI into Indonesia, there will be "acquiring technological know-how" (Extract 2). There is an improvement in technology when technology transfer takes place between the foreigners and locals. The locals also gain new knowledge and skills e.g. technical, managerial skills when they are trained or when they work together with the foreign experts. This results in an improvement in quality of labour in Indonesia. With an improvement in technology and

more skilled labour force, there will be an increase in productive capacity as there is an increase in the maximum amount of goods and services an economy is able to produce by fully utilising the factors of production. This will lead to a rise in LRAS, resulting in **potential economic growth**, increasing full employment real GDP at the same time.

The policy was intended to increase the value add of Indonesia's exports while creating more jobs and increasing real GDP. "Indonesia depends on its large rich reserves to establish a domestic battery supply chain." However, the extent to which the policy will have a positive effect on the economy depends not just on its rich nickel reserves but also on the other factors such as well-educated skilled labour and infrastructure. Bottlenecks could arise when the foreign firms face constraints such as limited pool of skilled labour to adopt the advanced technology or inadequate and poor infrastructure. This will raise the production costs and hence foreign firms may not find it profitable to operate battery supply chain in Indonesia and they **move their investment elsewhere**. As a consequence, the country **may not realise the huge benefits**.

In the long term, with the continuous demand for nickel ore from foreign and domestic firms, there may be excessive depletion & extraction of nickel ore resources, **affecting sustainable growth negatively**. In addition, there will also likely be the transfer of foreign companies' profits out of Indonesia back to the home country. This would have a **negative impact on Indonesia's primary income balance**. So while trade balance in goods and services might improve with the higher value added exports, the primary income balance in the current account could worsen.

Conclusion

All in all, the consequences of the policy is largely beneficial to the Indonesian economy as it helps the economy to reduce dependence on one commodity exports and move to a more diversified manufacturing sector. In the long run, its trade balance will improve. More jobs are created and real GDP increases. But on the downside, intense mining could result in depletion of stocks of nickel and when the reserves run dry, the country would be unable to enjoy sustainable economic growth. Also being a mining industry, it is highly polluting and this adversely affects the health of the labour force which could lead to fall in potential growth. The industry also depends on FDI which thus makes the country vulnerable to external influences. To benefit most from the growth of this industry, the government should work closely with the foreign investors to ensure that there is not only growth of employment for the locals but also skills and education in addition to enforcing strict standards on production to minimise the harm to the environment. If these are in place, then Indonesian economy may benefit greatly from this policy.

Mark scheme

Level	Knowledge, Application, Understanding and Analysis	Marks
2	<ul style="list-style-type: none"> For an answer that gives a balanced discussion on the consequences of the export ban of unprocessed nickel ore on Indonesia's economy in terms of its impact on real GDP, employment, price stability and balance of payments. Use of appropriate tools of analysis includes AD/AS analysis and assumptions (Rigour and Depth) Considers both the impact of the ban and the development of the downstream industries and the impact of FDI Considers the SR and LR consequences 	4 – 6

1	For an answer that is mostly descriptive in the explanation of consequences of the export ban of unprocessed nickel ore on Indonesia's economy, undeveloped explanation and/or elaboration. Answer tend to be one-sided, on either positive consequences or negative consequences of the export ban on Indonesia's economy, or merely a description of the consequences of the export ban/development of smelting industry.	1 – 3
Evaluation	For an evaluative judgement on assessing the extent to which export ban of unprocessed nickel ore can be justified.	1 – 2

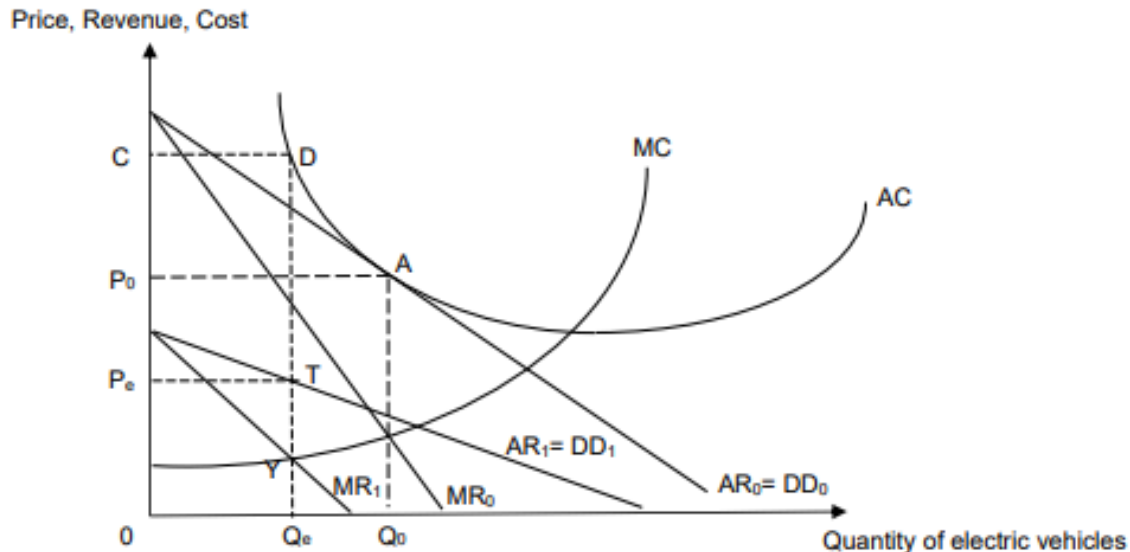
6m – 3 key points, including negative impact on CA's primary income balance due to outflow of FDI profits

(d) Explain, with the aid of a relevant diagram, how the entry of new firms into the electric vehicle industry could result in many companies shutting down in the long run. [4]

Before the entry of new firms into the electric vehicle industry, the profit maximising incumbent firms will produce at Q_0 , where $MR=MC$. After the firms decides on their profit-maximising level of output, the price will be determined by the demand curve which is at P_0 . With the determination of price and output, $TR = TC = \text{Area } OP_0AQ_0$. Hence, incumbent firms were making normal profit.

With the entry of new firms into the electric vehicle industry, the incumbent firms will experience a fall in AR and MR, from AR_0 to AR_1 and from MR_0 to MR_1 respectively, and the profit maximising price will fall from P_0 to P_e and the output will fall from Q_0 to Q_e .

With the entry of new firms into the electric vehicle industry, the incumbent firm's total revenue is represented by Area $OP_eT Q_e$ while total revenue is represented by Area $0CDQ_e$. Profit is determined by the difference between total revenue and total cost. Since total cost is greater than total revenue after the entry of new firms, this would mean that incumbent firms will make a sub-normal profit, represented by Area P_eCDT . In the long run, since price is less than average total cost, the incumbent firms will shut down.



Mark scheme

1m – Explanation for firm's initial profit level before the entry of new firms into the electric vehicle industry (P and Q determination, where $MR=MC$)

1m – Explanation for fall in AR and MR due to entry of new firms resulting in the profit maximising price and output to fall

1m – Explanation of incumbent firms making sub-normal profit, with diagrammatic reference, after entry of new firms

1m – Well-drawn and well-labelled diagram (show the shifts of AR & MR)

(e) With reference to a Chinese electric vehicle company, discuss the extent to which the size of the firm determines its profitability. [10]

The size of the firm does determine the profitability of a Chinese electric vehicle company to a certain extent. However, there are also other factors that may affect profitability such as the strategies undertaken by the firm as well as external circumstances.

P1: Size of the firm determines the profitability of a Chinese electric vehicle company

Large electric vehicle firms are able to enjoy **cost advantages**. The most significant cost advantages lie in the many sources of internal economies of scale that a firm can enjoy. Internal Economies of Scale refers to the fall in long run average cost (i.e. cost per unit of output) that accrues to a firm as it increases its own output level. This is supported by Extract 3 which states that with Chinese government support to grow larger, it would help Chinese firms gain economies of scale.

An example of economies of scale that Chinese electric vehicle firms would enjoy can include technical economies. With the electric vehicle firm's production output being sufficiently large, the firm becomes more efficient as it allows workers to specialise in their tasks as it saves time to repeat the same task rather than move from one task to another. Thus more electric vehicles can be produced in a given time because of the increase in workers' productivity. Division of labour thus increases the productivity of labour, resulting in lower unit cost of production of electric vehicles as output is increased. Also capital equipment used to produce electric vehicles are indivisible such that it is not possible to buy it in smaller units. Thus, only large electric vehicle firms are able to fully utilise the equipment and able to reap the economies of

scale from using the EV-related capital equipment. This is because the total cost of the indivisible equipment can be spread across a large number of electric vehicles sold.

Hence, as an electric vehicle firm expands its output, the economies of scale it enjoys would result in a decrease in its total cost. For such a firm, the fixed costs are often very high because of the capital-intensive nature of production. As such the minimum efficient scale of output where LRAC is minimum, occurs at a large output level. Thus, an increase in size could certainly help much to lower the unit costs of production and increase profit for the electric vehicle firm.

Large electric vehicle firms are also able to enjoy **revenue advantages**. Because of its large size, it has a visible presence in the market. This can increase its ability to capture and secure a bigger market share, allowing them to have more control over the price of the good. This market power enable the firm to raise its price, thus increasing its revenue and profits, *ceteris paribus*.

P2: Size of the firm may not determine the profitability of a Chinese electric vehicle company

Firms do not always enjoy economies of scale as they increase their level of output in the long run. There will be a point where cost savings diminish and firms start to incur a higher long run average cost as its output increases. When this happens, the firm is said to experience **internal diseconomies of scale**.

An example of diseconomies of scale that Chinese electric vehicle firms would enjoy can include complexity in management. When the electric vehicle firm expands beyond its optimum electric vehicle plant size, it may become too cumbersome to manage. The electric vehicle firm would then become more bureaucratic as more rules are laid and the decision-making process slows down due to excessive red tape. With that, a given output takes a longer time to be produced, resulting in an increase in long run average cost.

Therefore, when an electric vehicle firm experiences diseconomies of scale, it would result in an increase in its total cost and resulting in a fall in profits.

P3: Besides size of firm, there are other factors that determine the profitability of a Chinese electric vehicle company

One such factor is the **production process efficiency**. Assuming that there is contestability in the electric vehicle market and that the firm is making supernormal profits, the electric vehicle firm will be incentivised to **engage in process innovation** to increase its efficiency in production, thereby decreasing both the average and marginal cost of production. This may be in the form of new production processes of electric vehicles, or investment into new and improved electric vehicle technology. This would help to lower unit cost of production of electric vehicles, resulting in a decrease in its total cost. *Ceteris paribus*, this would then result in an increase in profit for the electric vehicle firm.

Another factor is the **quality of electric vehicle**. Assuming that there is contestability in the electric vehicle market and that the firm is making supernormal profits, the electric vehicle firm could also now have incentive to **engage in product innovation and R&D** in a bid to either appeal to the tastes and preferences of consumers through real differences, or to make its electric vehicle less substitutable, resulting the demand for its electric vehicle to become relatively more price inelastic. This is so that even if the potential entrant does enter, consumers may still pledge loyalty towards the electric vehicle firm and may not have the demand for their product threatened by the new firms entering the market. By appealing to consumer's tastes and preferences such as certain capabilities and features of EV, it would

result in an increase in demand for the firm's electric vehicle. This would then lead to an increase in its total revenue. *Ceteris paribus*, there would hence be an increase in profit for the electric vehicle firm.

Branding also determines the profitability of a Chinese electric vehicle company. Electric vehicle firms can **engage in product advertising** so as to increase perceived differences in a bid to promote brand loyalty amongst consumers. This can be done by promoting the electric vehicle's reliability, safety and comfort. By creating imaginary product differentiation, it would result in an increase in demand for the firm's electric vehicle. This would then lead to an increase in its total revenue. *Ceteris paribus*, there would hence be an increase in profit for the electric vehicle firm.

Lastly, **level of barriers to entry** can determine the profitability of a Chinese electric vehicle company. For example, assuming that there is low barriers to entry, for example, due to the government providing subsidies to lower cost barriers to entry. This will increase the number of electric vehicle firms in the industry as they are attracted by the supernormal profits and are now able to enter the market due to lower BTE. As a result, the incumbent electric vehicle firm will experience a fall in AR and MR and the profit maximising price and output will fall as well. In this case, it would lead to a decrease in the incumbent firm's total revenue. *Ceteris paribus*, there would be a decrease in its profit.

Other factors that can be considered:

- **Government policies** - e.g. subsidy or other support to help firms penetrate foreign mkt and expand
- **Market structure in which firm operates** - e.g. many firms → more competition → firms don't make much profit

Conclusion

Certainly for the EV industry, where MES is large (as mentioned earlier), it is important for the Chinese electric vehicle company to increase size in order to increase its profitability. However, the degree to which the size of the firm determines Chinese electric vehicle company's ability to increase its profits depends on certain criteria such as the consumer market that the firm is targeting. If the EV firm is catering towards a niche and specific EV market, eg. high end EV models, then in fact size of firm would not matter as much. What is more important in determining profitability would be the quality of the EV and branding that would play heavily influence the demand for these high end EV cars and hence profits. On the other hand, if the EV firm is catering towards the mass market, eg. standardised EV models, then in fact size of firm would matter significantly. This is because by producing a large quantity of standardised EV models, the firm is able to enjoy cost advantages. This would lower its cost and hence increase its profits.

Mark Scheme

Level	Knowledge, Application, Understanding and Analysis	Marks
2	For an answer that gives a balanced discussion on the extent to which the size of the firm determines the profitability of a Chinese electric vehicle company	5 – 7
1	For an answer that is mostly descriptive in the explanation of the extent to which the size of the firm determines the profitability of a Chinese electric vehicle company, without sufficient explanation and/or elaboration	1 – 4

	Answer tend to be one-sided, on the size of the firm may or may not determine the profitability of a Chinese electric vehicle company, or merely a description of the size of the firm determining the profitability	
Evaluation	For an evaluative judgement on assessing the extent to which the size of the firm determines the profitability of a Chinese electric vehicle company	1 – 3

CSQ 2 Suggested Answers

(a)	From Table 1, identify and explain one indicator that shows the United States economy is doing better than Hong Kong. [2]
<p>The United States has a stronger economic growth as compared to Hong Kong. With a growth rate of 2.16%, it shows that the United States economy is growing and thus there is more output of goods and services. However, the Hong Kong economy shrunk by 1.68% which shows that compared to the previous year, less goods and services are produced. Thus, the United States is doing better than Hong Kong in economic growth.</p> <p>OR</p> <p>The United States has a lower inflation rate as compared to Hong Kong. This means that prices are more stable in the United States and thus it provides a more conducive environment and greater confidence for firms to invest in as compared to Hong Kong.</p> <p><i>Mark Scheme:</i> <i>Identify – 1m</i> <i>Explain – 1m</i> <i>Can accept Gini Coefficient.</i></p>	
(b)	With reference to Table 2, explain briefly the inverse relationship between inflation and unemployment and why this relationship does not seem to hold for India. [4]
<p>An increase in AD in an economy will lead to an increase in the output of goods and services (assuming AS is constant). As such, there is an increase in derived demand for labour to produce the goods and services and this leads to a fall in unemployment [1]. As the economy reaches near full employment levels, the shortage of goods and services due to the increase in AD will result in a rise in general price levels which causes inflation rates to rise, thus accounting for the inverse relationship between inflation and unemployment. [1]</p> <p>This does not seem to hold for India because it is experiencing falling inflation rates along with falling unemployment rates in Table 2. This could be due to a fall in costs of production either due to lower wages paid to workers or greater productivity of workers which makes production processes more efficient and thus lowers cost. This means that any potential increase in general price levels due to an increase in AD is cushioned by the rising AS which slows the rise in general price level. Therefore, while unemployment is falling, inflation will also fall. [2]</p> <p><i>Mark Scheme:</i> <i>Explain theoretical fall in unemployment – 1m</i> <i>Explain associated fall in GPL – 1m</i> <i>Explain India why AS will rise – 1m</i> <i>Link to falling unemployment with falling inflation rate because AD also increasing – 1m</i></p>	

(c)	Using Extract 4, explain why the inflation affected the high income group more than the low income group. [2]
	<p>Inflation is calculated using the CPI which is the average price of a basket of goods and services consumed by the average household. However, this is not representative of the high and low income groups respectively. [1]</p> <p>The high income group is likely to spend a greater proportion of income on cars and holidays and a smaller proportion of income on electricity. The opposite will be true of the lower income group. Thus, the rise in prices of cars and holidays will lead to a greater impact on the higher income groups than the low income group. [1]</p> <p>Mark Scheme <i>Define CPI and/or explain that the CPI basket is not representative of high and low income groups – 1m</i> <i>Explain how electricity, cars and holidays are weighted differently for these groups and therefore the impact on high income group is higher.</i></p>
(d)	Explain why a government is concerned with rising inequality. [4]
	<p>Extract 2 mentioned that inequality can lead to lower social mobility and that skills development is hampered. This means that the low income groups are unable to afford education that could have increased their skills and become more productive workers. This limits the potential of the economy to grow because the quality of workers is increased only to a limited extent. Thus, any increase in LRAS that leads to potential growth is limited. This problem is worsened as inequality rises.</p> <p>Furthermore, rising income inequality could lead to social unrest (Extract 2). This makes a country less conducive for investments and thus limits the potential for AD to grow, which again limits the economic growth of the country. Thus, a government is concerned with rising inequality.</p> <p>Mark Scheme: <i>Explain worker quality impact on limiting growth – 2m</i> <i>Explain limited growth from limited I and thus AD increase – 2m</i> <i>Cap at 3m if purely theoretical.</i></p>
(e)	Discuss whether the data provided are sufficient to compare living standards across countries. [8]
	<p>Introduction: Standard of living is defined as the overall quality of life of the average citizen living in that economy. Standard of living encompasses both the material standard of living which measures the amount of consumption goods that the average citizen in the economy is able to enjoy and non-material standard of living which measures the quality of life enjoyed by the average citizen. Whether the data provided are sufficient to assess changes in the standard of living in the three economies depend on how useful they are in measuring both the material and non-material standard of living.</p> <p>Thesis Paragraph: The data does help to compare living standards across countries. The data contains HDI and the Gini Coefficient which are helpful indicators to compare living standards. The HDI</p>

is a composite figure that takes into account the 3 key dimensions of standard of living. They are life expectancy, knowledge and material standard of living. Thus, with this data, we can see from Table 1 that Hong Kong has the best standard of living among the 3 countries and the United States has the worst. This means that the people of Hong Kong could be having both the highest ability to consume goods and services and the best quality of life among the 3 countries in terms of a longer life expectancy and access to education.

Furthermore, the Gini Coefficient can help compare whether the material SOL is enjoyed only by a smaller, richer proportion of the country or if it is shared more equally across the country. Table 1 shows that Hong Kong has the greatest level of inequality among the 3 countries and Singapore has the least. Thus, we can conclude that Hong Kong had a larger proportion of the poor who did not benefit from any economic growth that she enjoyed and thus cannot increase their consumption of goods and services as much as the rich could and thus may not have enjoyed an increase in material standard of living. Singapore, on the other hand, has a smaller proportion of the poor who did not benefit from any economic growth.

Anti-thesis Paragraph :

However, there are limitations to what the data tells us in comparing living standards across countries. The HDI is a composite index and does not provide the precise picture of material and non-material living standards respectively. Since it does not have specific indicators, we are unable to tell if Hong Kong is doing better because all 3 dimensions are doing better than United States and Singapore, or if it is because it performs better in the non-material aspects only or vice versa.

This would also apply to the specific aspects of non-material living standards. We are unable to tell if Hong Kong is doing better in quality of life because of better health of her population or because they are more well-educated than Singapore and the United States. If we are to consider the dimensions of HDI, life expectancy is a broad measure and does not point to the specifics of what contributed to the longer life expectancy. It would be more helpful to have added measures like leisure hours, access to healthcare and pollution levels so that we can account for stress levels and exposures to health risks in the countries.

Real GDP growth rates also are insufficient in comparing living standards across the countries. They only tell us which country is able to consume more goods and services in 2019 as compared to 2018 but does not tell us the actual amount of goods and services that are consumed in that same time period. Thus, this also weakens the usefulness of the Gini Coefficient as we are able to gauge the distribution of income without a clear indicator of income itself.

This is the most precise measure of the purchasing power of citizens and thus the measure of their actual ability to consume goods and services.

Conclusion:

In conclusion, if one only requires a broad comparison of how countries' living standards compare with one another, the data provided is sufficient. However, as Extract 6 suggests, for the purposes of policy implementation and for research by academics, this is unlikely to be sufficient because the data is not specific enough to be able to move forward with. Policy makers are likely to want to have more specific data such as Real GDP per capita PPP to have the specific understanding of how income levels may differ across countries and then be able to take steps towards increasing the income levels of the population. Likewise, specific indicators like pollution levels and years of schooling provide precise data for aspects of non-material living standards so that policy makers can make the

necessary decisions to direct the government budget towards improving these aspects. All this would not be possible with only the available data as the basis of decision making.

Mark Scheme

Level	Knowledge, Application, Understanding and Analysis	Marks
2	<ul style="list-style-type: none"> For an answer that gives a balanced discussion on the usefulness of both the HDI and Gini Coefficient. Both HDI and Gini Coefficient are well-applied to the comparing living standards across space. 	4 – 6
1	<p>For an answer that is mostly descriptive in the explanation of HDI and Gini Coefficient, merely quoting from the extracts.</p> <p>Answer tend to be one-sided, only explains the HDI or Gini Coefficient, or poor choices made of indicators to compare living standards across space.</p>	1 – 3
Evaluation	For an evaluative judgement on assessing how sufficient the use of HDI and Gini Coefficient are.	1 – 2
(f)	To what extent does encouraging innovation to improve competitiveness achieve inclusive growth in a country such as India? [10]	

Introduction:

Inclusive growth indicates a rate of growth that is sustained over a period of time, is broad-based across economic sectors, and creates productive employment opportunities for the majority of the country's population. Encouraging innovation to improve competitiveness is a strategy that India can undertake to do achieve inclusive growth. However, the extent to which it should do so depends on...

Thesis Paragraph:

Encouraging innovation is helpful to achieving inclusive growth. The Indian government could encourage innovation by providing grants to firms that invest in technologies that either improve their production processes or that produces better quality products. It could use Singapore as a model where firms are provided up to 80% in grants under the Productivity Solutions Grant (PSG) for in areas that the firms invest in innovation. As Extract 7 states, the creation of new products, services and technologies can help improve the competitiveness of India either in terms of lower prices due to more efficient production processes leading to lower costs or better quality products. It can also lead to an increase in the India's productive capacity if innovation is able to lead to technological advancements.

The AS curve will shift right from AS₀ to AS₁ and this can be seen in the Figure 1 below.

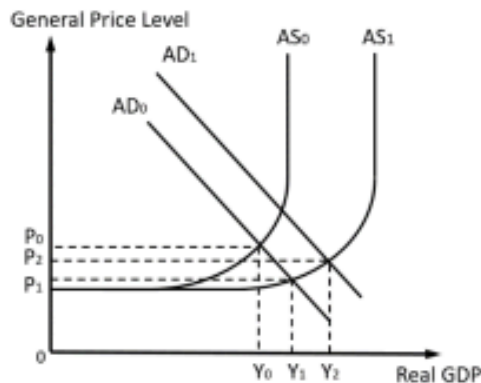


Figure 1: Increase in AS and AD

The increase AS will lead to a surplus and a downward pressure on general price level. This causes a rise in the level of AD and this leads to an increase in real GDP and thus actual economy growth. Furthermore, since the productive capacity of India has increased, it will lead to the rightward shift of the vertical portion of the AS curve and India will also experience potential growth. In addition, the improvement in the competitiveness of India can lead to greater investments in the country. Thus, an increase in investments can lead to an AD increase as seen in the rightward shift of the AD. This leads to an increase national income and thus an increase in induced consumption which further increases national income. This multiple rightward shift of the AD curve from AD0 to AD1 leads to a further increase in actual growth.

The benefits of this growth can be inclusive when the government receives higher tax revenues from the increase in national income and redistributes it through transfer payments in the form of unemployment and welfare benefits. This provides the low-income group greater ability to purchase basic necessities like food and utilities.

Anti-Thesis Paragraph:

However, encouraging innovation may not be helpful in achieving inclusive growth.

Innovation leads to advancement in technology and requires high-skilled workers to operate machinery that makes use of this advanced technology. Extract 7 states that the education infrastructure is poor in India. This points to the likelihood that not all Indian workers are well-trained or sufficiently equipped with the skills necessary to operate this high-end machinery. Thus, what would happen instead is that only the high-skilled workers are in demand and demand for such workers will continue to increase, leading to higher incomes for these workers. Low-skilled workers will experience a decrease in demand leading to a decrease in incomes. They are also likely to be retrenched if these new technologies result in firms turning to automation and replace labour to complete the same tasks. Thus, while growth may be enjoyed in India, it has become less inclusive in nature as the income divide will increase and the low-income group may find themselves worse off and more unable to afford basic goods and services.

Furthermore, Extract 7 points to poor deployment of spending which suggests that even the redistribution policies may not be helping to achieve inclusive growth. This further negates the possibility of growth trickling down to benefit the low-income group.

Conclusion:

Thus, while encouraging innovation to improve competitiveness is certainly helpful for India to achieve inclusive growth, this is likely to be achieved only to a limited extent. This is because the basic infrastructure for equipping workers with skills to take on higher skilled jobs and also in terms of healthcare to meet the basic health needs of the population is rather weak. Any growth that India experiences is less likely to benefit the poor. What first needs to happen is for the government to spend more on improving basic infrastructure of healthcare and education so that her entire population is able to have improved access and thus be able to improve their health and knowledge and/or skillsets. When this happens, the economy is immediately more inclusive and this also further spurs growth because a healthier and more educated workforce is likely to be more productive. Only then can encouraging innovation be very effective a policy to further enhance growth and make it inclusive as the environment is more conducive for the benefits of growth to be enjoyed by the poor as well.

Mark Scheme

Level	Knowledge, Application, Understanding and Analysis	Marks
2	For an answer that gives a balanced discussion on whether encouraging innovation to improve competitiveness leads to inclusive growth. Answer is well-applied to the Indian (or similar) context. Rigorous analysis.	5 – 7
1	Descriptive answer, or is largely incomplete in explaining the 3 aspects of inclusive growth (actual, potential, and inclusive). Answer tends to be one-sided. For answers that largely explains other policies instead of encouraging innovation.	1 – 4
Evaluation	For an evaluative judgement on whether encouraging innovation helps to achieve inclusive growth in India.	1 – 3

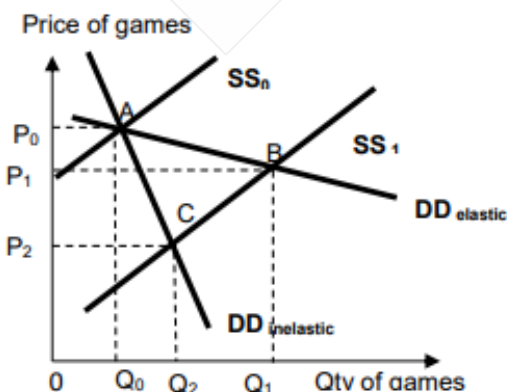
1	Advancements in mobile gaming technology have also made it easier to create new mobile games. Gamers also continue to have an interest in console games such as those created by Sony and Nintendo.
(a)	Explain what might cause price elasticity of demand and cross elasticity of demand to be different for different products. [10]
(b)	Discuss how advancements in mobile gaming technology might affect consumer expenditure on mobile gaming and its related goods. [15]

<p>Price elasticity of demand (PED) is the measure of the responsiveness of the quantity demanded for a good, in response to a change in prices of that good itself, ceteris paribus. PED values for most goods are negative. This is because of the inverse relationship between price and quantity demanded for the good. Cross elasticity of demand (XED) is the measure of the responsiveness of the demand for a good, in response to a change in price of a related good, ceteris paribus. For XED, if the value is positive, it means the relationship between 2 goods is positive and they are substitutes. However, if the value is negative, it means that the 2 goods are having a negative relationship and they are complements. There are various determinants that may affect the values of PED and XED.</p> <p>One determinant that may affect the magnitude of PED is the proportion of income spent on the good. The lower the proportion of income spent on the good, the more price inelastic the good will be. For example, demand for mobile games tends to be price inelastic (i.e. $PED < 1$) as expenditure on a mobile games is likely to take a small proportion of the consumers' income. Consumers would find little difficulty in paying for the increase in price and not bother looking for substitutes. Therefore, when price increases, there will be a less than proportionate decrease in quantity demanded. On the other hand, for gaming console such as PS5, expenditure on gaming console is likely to take up a large proportion of consumers' income. It is likely that the demand for gaming console would be price elastic (i.e. $PED > 1$). When price increases, there will be a more than proportionately decrease in quantity demanded.</p> <p>Another determinant that may affect both PED and XED would be the closeness of the substitutes.</p> <p>If a good has many close substitutes that are of comparable quality and within the same price range, then its demand is likely to be price elastic. This is because when the price of the good rises, consumers can easily find substitutes. Goods that are narrowly defined such as different genre of mobile games eg, Grand Theft Auto which is an action-adventure game. When there is a rise in price of Grand Theft Auto, there will be a more than proportionate fall in quantity demanded as consumers can switch to other genre games such as multiplayer online role-playing game as both serve for entertainment purposes. Conversely when the price of the good falls, its quantity demanded will increase by a larger extent as many consumers make the switch from other goods to this good whose price has fallen.</p>	<p><i>Introduction</i></p> <p><i>Definition of PED and XED</i></p> <p><i>Determinant affecting PED – proportion of income spent [Give two contrasting examples ($PED > 1$ and $PED < 1$)]</i></p> <p><i>2. Determinant affecting both XED and PED – closeness of substitutes due to consumers' perception</i></p> <p><i>Give examples</i></p>
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<p>At the same time, close substitutes have highly positive cross elasticities of demand ($XED > 1$). Mobile games and gaming console are deemed as close substitutes for casual gamers ($XED > 1$). With a decrease in the price of mobile games, there will be a more than proportionate decrease in demand for console games. However, for core gamers, mobile and gaming console are not deemed as close substitutes ($0 < XED < 1$) as gaming console provides a better gaming experience due to better graphic card. Even with a fall in the price of mobile games, there will be a less than proportionate decrease in demand for gaming consoles.</p> <p>One determinant affecting XED would be the closeness of the complements. For example, the demand for mobile games is likely to be negatively cross-price elastic (i.e. $XED > -1$) with respect to Wifi. This is because mobile games are usually used together with Wifi. In this regard, a fall in price of mobile phone games is thus likely to increase the demand for Wifi by more than proportionately.</p> <p>In conclusion, the different determinants of PED and XED assist us in accounting for the different values of PED and XED for different products.</p>	<p><i>Determinant affecting XED – closeness of complements</i></p>
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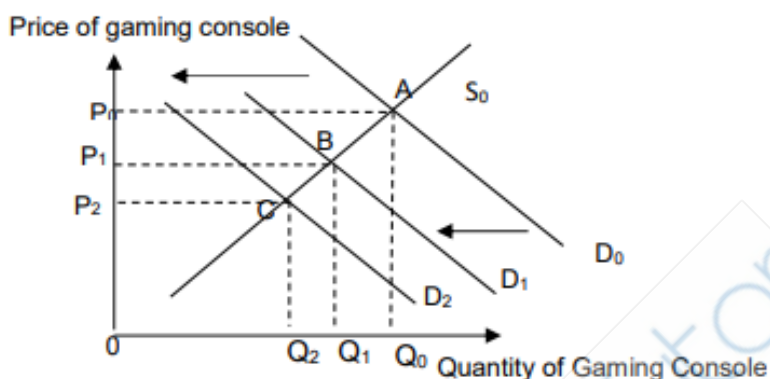
Level	Descriptor	Marks
L3	Well – developed explanation on how different determinants of PED and XED would affect the values of PED and XED. Comparisons are consistently made to show how the values will be different should determinants be altered.	8 – 10
L2	Under– developed explanation on how different determinants of PED and XED would affect the values of PED and XED. Inconsistent comparison/contrasts made to exemplify how the values will be different should determinants be altered.	5 – 7
L1	Mere definition of relevant concepts or mere listing of different determinants of PED and/or XED, without looking at different products. No contrast is made to show how when the determinant is varied, the PED or XED value will be changed.	1 – 4

(b) Discuss how advancements in mobile gaming technology might affect consumer expenditure on mobile gaming and its related goods. [15]

<p>Price elasticity of demand for mobile game plays an important role in determining the effect on consumer expenditure on mobile game due to advancement in technology. Whereas cross elasticity of demand plays a key role in determining the effect on consumer expenditure on its related goods.</p> <p>Advancements in mobile gaming technology could lead to more innovative and cost efficient production processes. These improvements in production methods is likely to lead to a fall in cost of production, resulting in an increase in supply as mobile game companies find it more profitable to produce games. Hence, mobile game firms are more willing to increase the supply of mobile games, causing a rightward shift of supply curve from SS_0 to SS_1. This will result in a surplus at the original price, leading to a decrease in price from P_0 to P_1.</p> <p>Whether there is an increase in consumer expenditure is dependent on the value of PED. The value of PED may differ based on the different types of gamers which will then affect consumer expenditure.</p> <p>Gamers are categorized between casual gamers and core gamers. For casual gamers, mobile games is seen as a form of entertainment. Hence, demand for mobile games is price elastic ($PED > 1$) for casual gamers as there are many substitutes such as other forms of entertainment eg, movies, board games. When there is a decrease in price of mobile games from P_0 to P_1, there will be a more than proportionate increase in quantity demanded as casual gamers would switch to mobile games because casual gamers do not perceive any much differences from other entertainment to mobile games. The decrease in consumers' expenditure due to the decrease in price (P_0 to P_1) is less than the increase in consumers' expenditure due to the more than proportionate increase in quantity demanded (Q_0 to Q_1). Overall, there will be an increase in total consumers' expenditure.</p> 	<p>Intro</p> <p>Advancements in mobile gaming technology increase supply of mobile games</p> <p>Explain Price elasticity of demand and link to consumers' expenditure.</p> <p>Explain $PED > 1$ and $PED, 1$</p>
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For core gamers, demand for mobile games is seen as the main source of entertainment. It is considered as a necessity to them. Hence, demand for mobile games is price inelastic ($PED < 1$) for core gamers as they do not deem other form of entertainment as close substitutes. When there is a decrease in price of mobile games from P_0 to P_2 , there will be a less than proportionate increase in quantity demanded as core gamers would find it difficult to switch to other substitutes. The decrease in consumers' expenditure due to the decrease in price is **more** than the increase in consumers' expenditure due to the less than proportionate increase in quantity demanded (Q_0 to Q_2). Thus, **total consumers' expenditure decrease**

Impact on the market for substitutes – Market for Gaming Console [Substitute]



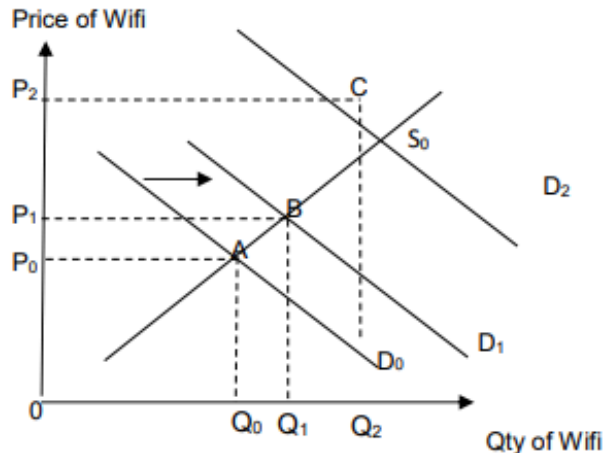
With a decrease in the price of mobile games, there will be a decrease in demand for gaming console depicted by a leftward shift of demand curve from D_0 to D_1 . At the original price P_0 , there will be a surplus, resulting in a fall in price from P_0 to P_1 and quantity of gaming console from Q_0 to Q_1 . Overall, there will be a decrease in the total consumer expenditure on gaming. The extent of decrease in total expenditure is dependent on the closeness of substitutes.

The larger the absolute value of the positive XED, the greater is the substitutability between the two goods. If XED is positive but less than one ($0 < XED < 1$), the two goods are not very close substitutes especially for the core gamers who prefer console games over mobile game. Console games have better graphics than console games and console games have more room to supply an immersive gaming experience compared to mobile games. Therefore, demand for gaming console does not respond very much to changes in the price of mobile games. Total consumer expenditure will decrease for gaming console only by a small extent, from $0P_0AQ_0$ to $0P_1BQ_1$.

However, If XED is positive and greater than one ($XED > 1$), then the two goods are close substitutes especially to casual gamers. Total expenditure will also decrease but by a larger extent from $0P_0AQ_0$ to $0P_2CQ_2$.

Explain XED concepts
[Substitutes]

Impacts on the market for complements – Market for Wifi



When XED is negative ($XED < 0$), it means that the two goods which are Mobile games and Wifi are complements. A decrease in the price of mobile game will lead to an increase in the demand for the complements such as Wifi. The demand curve for Wifi will thus shift to the right from D_0 to D_1 . At the original price P_0 , there will be a shortage, resulting in an increase in the price from P_0 to P_1 and quantity of Wifi from Q_0 to Q_1 . There will be an overall increase in consumer expenditure on Wifi.

The extent of an increase in total consumer expenditure depends on the good and the degree of complementarity. The larger the absolute value of the negative XED, the greater is the complementarity between the two goods. If $XED < -1$, the two goods are close complements. Due to a decrease in the price of mobile games, demand for Wifi will increase by more than proportionately. Thus, total expenditure will increase to a great extent from $0P_0AQ_0$ to $0P_1CQ_1$.

If $-1 < XED < 0$, then the two goods are not very close complements. Due to decrease in the price of mobile games, demand for Wifi will increase by less than proportionately. Thus, total expenditure will increase but by a smaller extent from $0P_0AQ_0$ to $0P_1BQ_1$.

Evaluation

Assumption

However, these analyses are made based on the assumption of *ceteris paribus*. In reality, there are many other factors that will cause a change in consumer expenditure.

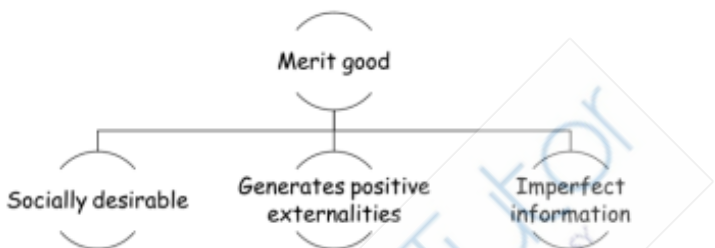
Whether gaming console and mobile games are close substitutes is dependent on the current technology. The key difference between mobile games and gaming console is the graphics cards and the complexity of the gaming story and choices. However, with improvement in mobile gaming technology, it is likely that in the long-run, mobile games will be deemed as a close substitute to gaming console. XED values will change according. Hence, elasticity data may not be accurately computed as these data may also change from time to time based on the existing technology. It makes it harder to rely upon and therefore less relevant to determine the changes in consumers' expenditure.

Explain XED concepts [Complements]

Level	Descriptor	Marks
L3	<p>Well-developed explanation which demonstrates good knowledge, understanding, application and analysis of demand, supply and elasticity concepts (PED and XED) to consumers' expenditure.</p> <p>Thorough knowledge and an excellent ability to explain facts and theory in a precise, logical and reasoned manner (an analytic explanation).</p> <p>Good range of markets selected to showcase different possible scenarios.</p>	8 – 10
L2	<p>Some explanation of relevant elasticity concepts (PED and XED), but answer demonstrates a lack of application to the different markets and the link to consumers' expenditure is lacking.</p> <p>Unbalanced/one-sided discussion</p>	5 – 7
L1	<p>Answers that have little relevance to the question.</p> <p>Incorrect identification of concepts, theories and principles to be used.</p> <p>Major and glaring conceptual inaccuracies or no conceptual support.</p>	1 – 4
Evaluation		
E3	Evaluative assessment supported by economic analysis and insightful comments based on situations found in the real world	4-5
E2	Evaluative assessment supported by economic analysis.	2-3
E1	Unexplained assessment.	1

	The Ministry of Education is stepping up its provision of more MOE kindergartens and increasing subsidies to provide more affordable and quality early childhood education as research shows that early intervention is crucial for a good start in life.	
a)	Explain why some governments deem early childhood education as a merit good that is under-consumed in the market.	[10]
b)	Discuss whether the Singapore government should increase its intervention in early childhood education.	[15]

Suggested answer

<p>Answer outline</p> 		
<p>Early childhood education constitutes a form of market failure caused by the presence of positive externalities and imperfect information. It is also deemed to be socially desirable by the government. By providing early childhood education, government can ensure that the children in the society can have “a good start in life” and in the long term help to improve job opportunities especially for the lower income group. This enable them to participate in productive economic activities that will increase their incomes and hence moving towards an inclusive economy.</p>		<p><i>Set the topic as market failure</i></p> <p><i>Explain why is early childhood education considered as socially desirable</i></p>
<p>Market failure occurs when the free market fails to allocate resources efficiently to achieve a socially optimal allocation. When positive externalities are present, there are benefits to third parties that are not taken into account by those who undertake the activity.</p>		<p><i>Private cost (producers' perspective) & benefits (consumers' perspective)</i></p>
<p>The private costs of providing the early childhood education includes the operational costs of running the kindergarten such as utilities bill, costs of resources such as toys and books etc. In early childhood education, parents is the consumer as they pay for the access to the services. When the child receives early childhood education, the child will learn better motor skills and interaction with others. The parents will benefit from less stress as their child is better able to interact with others.</p>		
<p>However, parents do not take into account external benefits, which is the future benefits that the citizens in the country may enjoy arising from an educated workforce when the children grows older. With a more holistic</p>		<p><i>External benefits (3rd parties and exact effects)</i></p>

development of the child, skill-level would rise and productivity would rise too in future. As such, the nation may derive greater output, national income and average individual would enjoy higher standard of living.

Due to the positive externalities in the consumption of early childhood education, the social benefits are higher than the private benefits ($MSB > MPB$). In the figure, There is a divergence between MSB and MPB by the amount of marginal external benefit (MEB). Assuming no negative externality in the consumption of early childhood education, the marginal private costs (MPC) is equal to marginal social costs (MSC).

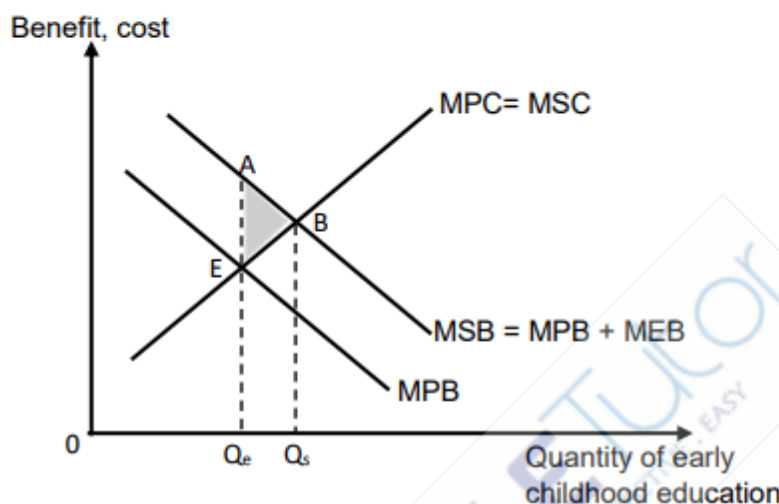


Fig: Positive externalities in the consumption of early childhood education

In the pursuit of self interest, parents will send their children for early childhood education at Q_e amount, where marginal private cost (MPC) is equivalent to private marginal private benefit (MPB). The parent does not consider the positive externalities arising from the child's consumption. The socially optimal level is Q_s , where $MSB = MSC$. There is **under-consumption of early childhood education, where $Q_e < Q_s$** . Between Q_e and Q_s , $MSB > MSC$, where society values an extra unit of early childhood education more than what it would cost society to produce it. However, these additional benefits are not accrued by the society due to under consumption, resulting in a deadweight loss as shown in the shaded area AEB above.

Imperfect information arises when economic agents lack critical information to make rational decisions on choices and resource allocation. This arises due to inaccurate and/or incomplete information.

For example, parents do not recognize the actual marginal private benefit to their child of getting a good quality head start with early childhood education. In particular, these actual benefits of better social skills and being more successful in life can only be realised in the long term. As a result, parents may under-estimate the actual marginal private benefit of

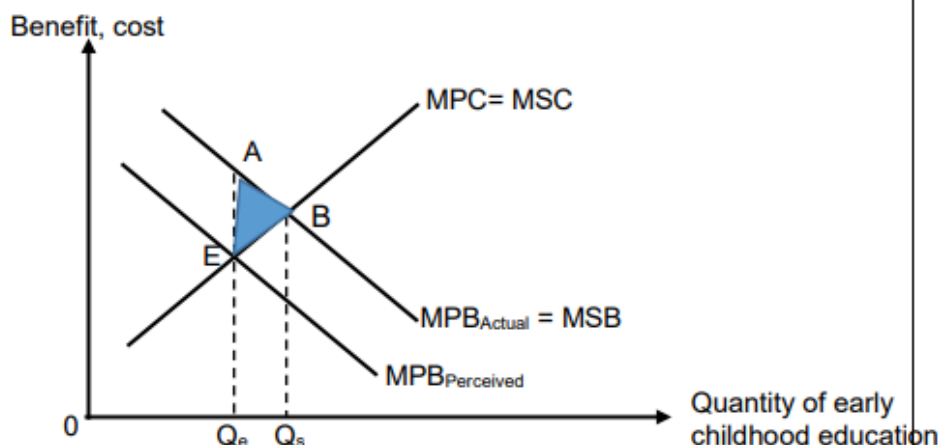
Theoretical explanation of how market failure arises from the consumption of education

Diagram explanation to show positive externalities

Explaining the under-consumption

Explaining the imperfect information
 - Actual and perceived benefits

the importance of early childhood education and the information gap causes the actual MPB to be higher than the perceived MPB.



Due to incomplete information, $MPB(\text{actual}) > MPB(\text{perceived})$. Rational parents will send their children for early childhood education up to Q_e where $MPB(\text{perceived}) = MPC$. However, the socially optimal amount is at Q_s where $MSB = MSC$.

If parents had full information of the private benefits of early childhood education and consume additional $Q_e - Q_s$ units, society's welfare would increase because for these units of output, $MSB > MSC$. Instead individuals consume only at Q_e . And so there is **deadweight loss** to society which is indicated by the shaded area ABE.

Marks scheme

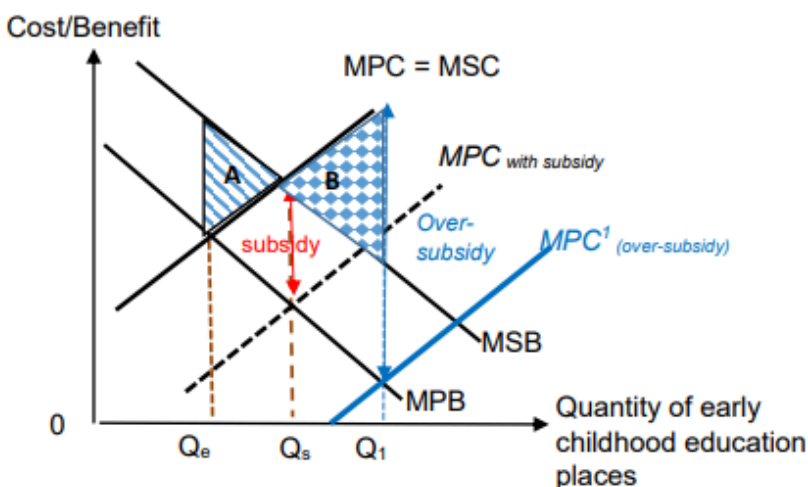
Knowledge, application, understanding and analysis		
L3	<ul style="list-style-type: none"> A well-developed answer that uses good economic analysis and examples to illustrate the positive externalities and imperfect information in the market for childcare. 	8 – 10
L2	<ul style="list-style-type: none"> Under-developed explanation of why market fails for merit goods due to imperfect information and positive externalities. Relevant but unexplained diagrams were used For answer that has only either explanation on positive externalities (max 6m). 	5 – 7
L1	<ul style="list-style-type: none"> Smattering of valid points. Did not use relevant economic framework. A superficial answer which describes why early childhood education is a merit good. For answer that has only either explanation on imperfect information (max 4m) 	1 – 4

b) Discuss whether the Singapore government should increase its intervention in early childhood education. [15]

Question interpretation								
Command word/phrase			Discuss whether			To provide a balanced response		
Content			<i>Government should increase intervention</i>			<ul style="list-style-type: none"> Explaining how the different types of intervention work Evaluate their effectiveness and limitations to make a judgment to increase intervention or not 		
Context			<i>Early childhood education in Singapore</i>			Apply with reference to Singapore context.		

Answer outline								
Government's intervention in the early childhood education market in Singapore								
Direct provision			Subsidies			Provision of information		
How does it address under-consumption	Effectiveness	Limitations	How does it address under-consumption	Effectiveness	Limitations	How does it address under-consumption	Effectiveness	Limitations
	Evaluate need to increase extent of intervention or not?			Evaluate need to increase extent of intervention or not?			Evaluate need to increase extent of intervention or not?	

Suggested answer	
<p>Singapore's economy as a whole could be made better off if the current level of early childhood education were increased to the socially efficient level of Q_s. Thus, government intervention such as direct provision and subsidies to improve societal welfare are clearly necessary as illustrated in part a). However, the government need to review its decision after taking into considerations changes to the demographics over time and go through the decision-making process again to decide whether to increase its intervention in the early childhood education industry accordingly.</p>	<p><i>Introduction</i></p>
<p>Currently, Singapore government provides subsidies for the producers who are the early childhood education service providers. By giving a subsidy to the education provider which is equivalent to the extent of MEB at Q_s level, it helps to lower the cost of production and increases MPC to MPC'. Assuming the education provider will pass on the cost savings to consumers by charging a lower price, there will be increase in consumption of early childhood education to Q_s where $MPC' = MPB$. As such, parents will internalise the positive externalities of early childhood education and increase the consumption to Q_s level as well as eliminating the deadweight loss area labelled A.</p>	<p>① <i>Explaining how subsidy works with diagram analysis</i></p>

 <p style="text-align: center;">Subsidy to achieve Q_s</p>	
<p>One benefit of increasing the amount of subsidy is such that when the government is able to calculate accurately the extent of the marginal external benefits, the subsidy can be adjusted more precisely in accordance to the different age group and levels of the child. In Singapore, Gini coefficient has been rising, suggesting widening of the income gap. Hence, by increasing the subsidies will also help with affordability issue, allowing the consumption to increase to Q_s level. This will then benefit the lower income families substantially and ensuring a more inclusive society. Also with the substantial positive externalities that early childhood education can bring along, Singapore government should increase the extent of subsidies provided.</p> <p>However, it is assumed that calculation of the MEB can be accurately done. These benefits can only be actualized in the long term and the reliability of the research mentioned in the extract needs to be verified. As such, it may be difficult for the government to precisely calculate the monetary value of the MEB despite having all the sophisticated accounting techniques available in Singapore. There could be possibility of government failure where they oversubsidise. For instance, as a result of giving too much subsidy as shown, it will increase consumption to Q_1 instead. This results in even greater deadweight loss (area B) due to over-subsidy which is bigger than the deadweight loss without government intervention (area A). In this case, government should not increase its intervention.</p> <p>While imperfect information will always exist and thus, government failure will occur, the chance of a larger deadweight loss due to Singapore government intervention is low. Singapore is small and thus easier to measure the benefits. Singapore government also adjust the subsidies provided according to mean testing (vary according to income level), and according to the type of preschool facilities. Thus, government intervention is likely to lead to a smaller deadweight loss as compared to without intervention.</p>	<p><i>Effectiveness – address positive externalities and inequity</i></p> <p><i>Limitations – difficulty in calculating the MEB accurately → possibility of over subsidy</i></p> <p><i>Intermediate EV: weigh the costs and benefits and evaluate whether need to adjust the extent of subsidy given.</i></p>

<p>In addition, the government may have recognized that current measures in the early childhood education sector might be insufficient such that there is still under-consumption of the merit good. Hence, they are intending to step up its intervention through directly providing more of the early childhood education facilities. Size of the industry increases and supply of early childhood education services will increase. This will ensure that the enrolment will increase as there will be more places for the child to sign up. Consumption will thus increase to the socially optimal level at Q_s level.</p>	<p>② Explain how direct provision work</p>
<p>Direct provision is an important intervention as government would have access to information on the locations of the kindergartens given the small physical space in Singapore context. The kindergartens will have to be strategically located in neighbourhood with more young families and children. The government is then able to address the under-consumption of early childhood education due to issues such as shortage and inequity.</p> <p>However, building kindergartens requires high government expenditure which may put a strain on a government's budget. For example, the construction fees and also the daily operational expenses of running the kindergarten will be substantial. Even Singapore has a strong budget position, there will still be competing needs in which the government has to decide how to allocate the resources. For example, allocating limited funds to the healthcare sector now during the pandemic will be crucial and the financial support provided for firms and households are also important, in addition to allocating resources to build and provide for the MOE kindergartens. Thus the government has to assess its economic conditions to weigh its priorities before deciding the extent of intervention.</p> <p>The Singapore government may also need to consider the effect of its different intervention on efficiency. For the case of direct provision, it may result in X-inefficiency or productive efficiency not being attained as the lack of profit motive suggests there is lack of incentive faced by the government to minimise unit costs. As a result, there may be wastage of resources when the government takes on provision of kindergartens directly, resulting in welfare loss to society.</p> <p>With such considerations in mind, the Singapore government can consider to build more facilities and provide early childhood education during good economic situation. When there are more important priorities for example during economic downturn or pandemic situation, it is not urgent for the government to step up its intervention.</p>	<p>Effectiveness- also address inequity</p> <p>Limitations – budget constraint, different priorities depending on the situation</p> <p>Limitations – inefficiency arising from government intervention</p> <p>Intermediate EV - situation</p>
<p>In addition, to address the under-consumption due to parent's imperfect information on the actual benefits of early childhood education, the government can also increase its intervention such as campaigns to raise awareness. This will help the parents to make a more informed decision with more available information. This will increase their MPB perceived closer to MPB actual and remove the information gap.</p>	<p>③ Provision of information – how it works</p>
<p>However, this may take a long time for parents to change their mindset to understand and appreciate the importance of early childhood education that brings along substantial benefits to both the child and society. Also,</p>	<p>Limitations – time lag, uncertainty</p>

<p>the outcome of such information campaigns is uncertain as it is difficult to change the mindset of parents, especially depending on their financial capability. Hence, using campaigns to increase consumption can only show results in the long run.</p> <p>Upon evaluation, one of the key root cause for underconsumption could be imperfect information due to parents' perspective of the importance of early childhood education. It might not seem to be essential as compared to higher levels such as primary and secondary education. Nonetheless, the young families in Singapore are generally affluent and parents are highly educated. It is thus relatively easy to educate and convince the parents to send their children to early childhood education and its consumption is likely to increase much faster and earlier.</p>	<p><i>Intermediate Evaluation – root cause and assumption</i></p>
<p>Finally, the Singapore government will weigh its benefits and costs carefully and choose to step up its intervention and allocate resources accordingly when the benefits outweigh the costs. Given that Singapore is a small and open economy, building a strong pool of human capital, starting from early childhood education, is of critical importance in order to stay relevant in the global economy. It is also a merit good deemed to be socially desirable by the government to reduce inequity in the long run. Hence, all these benefits significantly outweigh the costs discussed above and stepping up intervention is strongly encouraged.</p>	<p><i>Evaluation – weighing costs and benefits</i></p>

Marks scheme

Knowledge, application, understanding and analysis		
L3	For an answer that gives a detailed and analytic explanation of why more government intervention is needed in the market for early childhood education	8 - 10
L2	Underdeveloped descriptive explanation of why more government intervention is needed in the market for early childhood education	5 – 7
L1	Smattering of valid points. An answer that shows some knowledge of reasons why government intervention is needed in the market for early childhood education	1 – 4
E3	For an answer that arrives at an analytically well-reasoned judgement about whether government intervention will help to meet its microeconomic objectives	4 - 5
E2	For an answer that makes some attempt at a judgement about whether government intervention will help to meet its microeconomic objectives	2 - 3
E1	For an answer that gives an unsupported statement about whether government intervention will help to meet its microeconomic objectives	1

- (a) Explain which market structure best describes the telecommunications industry in Singapore and how price and output are determined in such a market. [10]
- (b) Discuss the extent to which consumers and the society will benefit when there is greater competition in the telecommunications industry in Singapore.

Mark Scheme for Part (a)

- 1) Explain the key features of oligopoly: few and dominant firms, high barriers to entry, mutual interdependence among firms as demonstrated by the falling plans which could suggest firms react to rivals' actions.
- 2) Apply the features above to the telecoms industry in Sg
- 3) Price and output determination with profit-maximisation as the objective.
 - a. Explain $MC=MR$ rule for profit max
 - b. Use diagram to identify profit level (can use kinked or downward sloping demand curve) as $AR=AC$ multiplied by total output.
 - c. Explain shut-down in SR and LR. In the SR, firms shut down when $P < AVC$ with reasoning. In LR, when $P < ATC$, firms shut down.

L3: 8 – 10	Clear analytical structure to the answer. Good understanding of market structure as applied to telecoms industry. Thorough explanation of price and output determination in an imperfect market. Well-explained diagram.
L2: 5 – 7	Demonstrates general understanding of features of oligopoly. Some rigour in analysis. Lack of ability to recognise unstated assumptions. Some application to telecoms industry.
L1: 1 – 4	Incomplete answer. Some knowledge of the content but the an

Mark Scheme for Part (b)

1. Benefit to consumers

a) Lower prices and increase in consumption

- Increased competition with the entry of new firms → ↓DD for existing firms → ↓AR, ↓MR → profit max Price and Output will fall → consumers benefit from lower prices and increase in consumption of services. Mobile prices have fallen ... Five years ago, mobile phone users pay more than \$5 for every gigabyte of mobile data a month. Today, the average person pays between 20 and 50 cents per gigabyte for the most basic plans.

b) Greater choices for consumers

- Singtel has built on its base by extending offerings beyond mobile, broadband and payTV into energy market in a partnership with Geneco.
- Meeting needs of consumers e.g. Singtel has Step Up, a platform that allows customers to earn local mobile data and lifestyle rewards.

2. Benefit to society

a) Productive Efficiency

Increase in competition → firms are incentivised to be more efficient to lower average costs → reduce wastage of scarce resources

Advertising & other exp to influence consumers → duplication of services → wastage

b) Allocative Efficiency

Increase in competition → reduce welfare loss to society. How? Wedge between Price and Marginal Cost is smaller where Price is the marginal benefit to society and MC is opportunity cost in terms of other goods/services forgone. Smaller divergence means that output is closer to optimal level.

c) Dynamic Efficiency

Increase in competition → innovations that improve quality of service, network investments to improve connectivity and network quality, extend coverage and content and data privacy – major concern especially among older people. Also includes the use of AI to continuously assess the quality of service and the network and better understand the consumer preferences without being intrusive, so that operators can provide a more personalized experience.

Process innovation → lowers costs

Discuss the extent of benefits .. Depends on

a) the market size or DD:

how many firms can the mkt support? Sg very small market → is 4 firms an optimal number? If too many firms then each firm cannot reap EOS → rise in AC → prices may not fall further. National network infrastructure costs very high.

Also too much competition may reduce supernormal profit → ability to engage in R&D is limited.

b) assumptions e.g. assume that consumers can easily switch from one service provider to another → gains from competition. Also assume that information is easily accessible such that consumers can efficiently compare prices etc. In reality, consumers could suffer from information overload → paralysis → decide not to switch → limited gains from increasing competition. Consumers are locked into contracts.

Conclusion: reasonable conclusion supported by reasoning.

L3: 8 – 10	Thorough analysis and discussion of the impact on consumers and society. Relevant examples are provided. Well-explained diagrams.
L2: 5 – 7	Accurate but undeveloped answer to the question. May not recognise unstated assumptions in the impact analysis. May provide a good analysis of impact on either consumers or society.
L1: 1 – 4	Incomplete and/or undeveloped answer. Some knowledge of the impact of increased competition in the industry but may not be directly relevant to the question.

Evaluation

L3: 4 – 5	For an answer that builds on economic analysis, synthesizes the economic arguments, evaluates the relevance of assumptions, to arrive at well-reasoned judgements about the extent of benefit of increased competition to consumers and society.
L2: 2 – 3	Some attempt at evaluation or a conclusion that answers the question. Some attempt to explain judgement. Reasonable basis for conclusion.
L1: 1	Evaluative statements with limited reasoning to support.

A government's main macroeconomic aims are price stability, low unemployment and economic growth.

Explain the main macroeconomic aims of a government and discuss whether a government should focus primarily on achieving price stability over other macroeconomic aims in a globalised world.

[25]

Introduction:

Price stability, low unemployment and economic growth are the macroeconomic aims that a government wants to achieve as it will bring about higher standard of living for its people. Should a government focus primarily on achieving price stability is dependent on various factors, such as current economic conditions.

Main Body/Development:

Benefits of price stability [Achieve other macro objectives]

Inflation is defined as a sustained increase in the general price level of goods and services. Price stability is when the economy achieves a 2-3% annual change in the CPI.

The benefits of achieving price stability allow the government to achieve other macro objectives. Price stability give rise to investors' confidence level when there is a mild increase in general price level. With greater predictability of price level, investor will have a better gauge of the expected future costs and their expected revenue. Hence, they will more likely to invest given that there is greater certainty on long run returns to investment, bringing about an increase in AD as $AD = C + I + G + (X - M)$. The rise in AD will lead to depletion of stocks and firms will increase production, thus a rise in real GDP, and increase in **actual economic growth**. Given that labour is a derived demand, there will be a **decrease in demand deficient unemployment**.

Furthermore, in the long run, an increase in investment means that there is a rise in quantity of capital goods. There is an increase in productive capacity for the economy as the maximum possible output increases, **increasing potential economic growth**. Hence, price stability helps a country to achieve sustained economic growth.

A mild increase in general price level (mild inflation) is better than persistent falling prices (deflation). Falling prices will mean that consumers delay their spending to the next time period as they expect future prices to fall. Firms will also cut their investment expenditure because of falling profitability. As a result, deflation will lead to a fall in AD as $AD = C + I + G + (X - M)$ and negative economic growth and higher unemployment.

Thus, price stability to achieve mild inflation is the aim of many governments.

Benefits of Economic Growth [Improvement in standard of living]

By achieving both actual and potential growth, the economy can experience sustained economic growth which translates into higher overall SOL of its citizen, now and in the future.

Actual economic growth refers to the annual percentage increase in national output and it is measured by a percentage increase in real national income. If economic growth exceeds population growth, higher average incomes may lead to improvements in standards of living.

Standard of living refers to the level of material and non-material well-being of an individual within the country. With actual economic growth, there will be a rise in real national income. With higher national income, there will be a rise in the purchasing power of citizens, leading to a rise in current material standard of living as there are more goods and services consumed by an average citizen in the country.

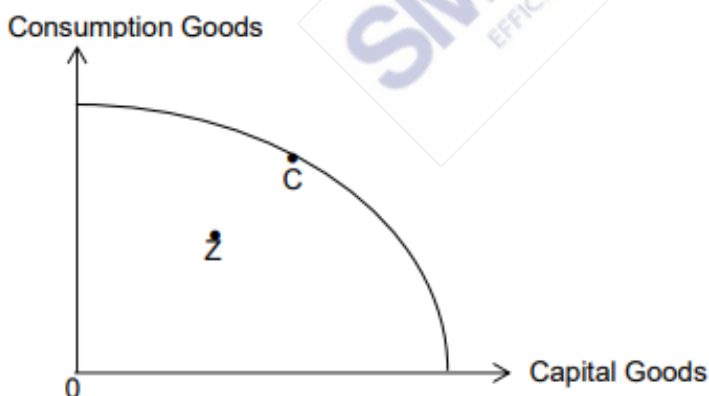
With actual economic growth, there will be a rise in incomes of households and profits of firms, leading to an increase in tax revenue collected by the government. With greater tax revenue, the government has greater ability to spend on merit goods such as education and healthcare. This will increase the citizen non-material standard of living.

Moreover, a sustained period of economic growth can generate boost consumer and investors' confidence and thus promote a rise in actual and potential growth, achieving sustained economic growth and full employment level.

Benefits of achieving low unemployment [Efficiency in resource allocation]

Unemployment rate is a measure of the extent of unemployment in an economy. The people who are unemployed are people who are part of the labour force, but currently without a job and actively looking for one. An unemployment rate between 3-4% can be considered as low unemployment.

It is important to achieve low unemployment because a large amount of unemployed labour represents idle resources, Point Z as shown in the diagram below. The unemployed could have produced something of value for society but they cannot. Society is thus deprived of a higher output and standard of living for as long as these people remain unemployed. Low level of unemployment will mean that labour is better utilised, at point C. There will be less wastage of resource and a higher level of output can thus be produced for the economy. Hence there is better efficiency in resource allocation and society's welfare is maximised.

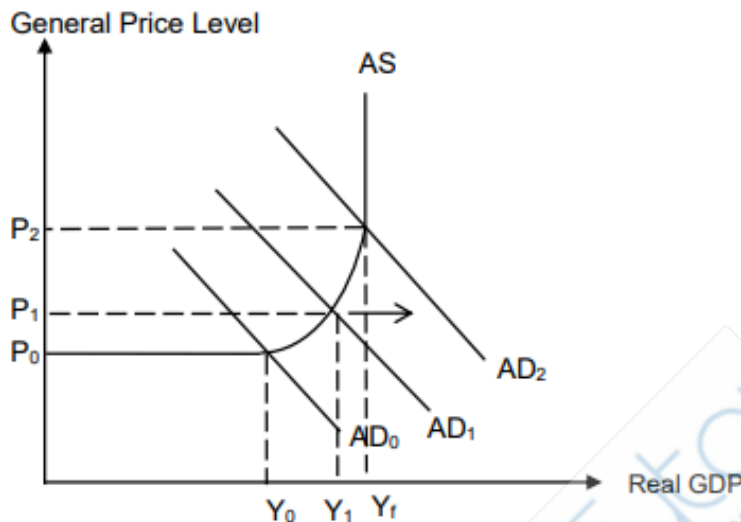


Conflict: Thus need to choose an aim

Since all three aims have economic benefits, a government will strive to achieve all 3 macroeconomic aims but it is often impossible to achieve all three economic aims. For example, a period of high economic growth, where there is a persistent and large increase in AD, is likely to result in demand-pull inflation. Assuming that the economy operates near full employment level, the rise in AD to AD1 will lead to shortages in the economy. Firms will respond by increasing production. However, they have to use less efficient factors of production and thus, incur higher

unit cost of production. The firms will pass on these higher costs of production to the consumers, via higher price level, P_0 to P_1 .

If this rise in general price level persists and the rise in AD to AD_2 continues, there may be high inflation rate to P_2 and that could lead to greater uncertainty among the firms about the costs and the prices. As a result, firms will start to reduce investment expenditure and this will lead to negative growth and unemployment, thus the growth rate cannot be sustained.



In view of this negative outcome, a government may choose to adopt contractionary demand management policies such as contractionary monetary policy, via a rise in interest rate. The rise in interest rate will lead to a fall in consumption as households cut back their expenditure on big ticket items. Firms will lower their investment expenditure as less projects are not profitable. These will lead to a fall in AD and results in a surplus of goods and services. This exerts a downward pressure on the general price level as firms reduce prices to clear excess stocks. Overall, the general price level will fall, reducing the inflationary pressure in the economy, achieving the aim of price stability.

However, this comes at a cost, there is a conflict, as the contractionary monetary policy will also lead to a fall in output level, resulting in slower economic growth. Unemployment may rise due to slower growth rate. Thus, government needs to prioritise depending on the severity of the problem and characteristics of the economy.

A government ought to focus on achieving economic growth and reduce unemployment during a period of worldwide recession, or severe recession. Considering the severe fall in economic growth and sharp rise in unemployment due to covid 19, a government ought to focus on achieving growth and reduce unemployment. The economic fallout from covid19 has led to severe economic hardship with many firms shutting down and workers unemployed, resulting in a drastic drop in standard of living. If the government does not intervene and focus on generation jobs and growth, these workers will remain poor and unemployed. Business and consumer confidence will remain poor, leading to further fall in AD and prolong the downturn. Prolonged unemployment will lead to deskilling of workers and reduce the quality of workers, reducing the potential growth of the economy, limiting the ability of the economy to achieve sustained economic growth. In view of this, many governments worldwide implemented expansionary fiscal and monetary policies to boost growth. As the economy recovers, there is a rise in inflation rate. For some countries, the

inflation rate increased sharply to over 4%. However, Government still ought to continue to focus on generating growth and jobs as the level of unemployment rate is still high and the expectation that the rise in inflation may not persist in the medium term.

Even if an economy is not in recession, it is important for a government to prioritise economic growth in a globalised world, to attract FDI and skilled workers. A strong and sustained period of economic growth will lead to higher expected rate of return and profitability. For example, China, Indonesia and Vietnam have been growing rapidly in the last decade and this had led to the emergence of the growing middle class, and higher profitability. As a result, there is a large inflow of FDI to tap onto the opportunities available. The inflow of FDI will lead to sustained economic growth due to rise in investment expenditure and AD in the short run, and rise in capital goods/technology transfer in the long run. Skilled workers are also attracted to these growing economies due to the opportunities present in a healthy and growing economy, improving skills transfer. This will lead to an improvement in quality of labour and potential growth, helping to achieve a sustained economic growth rate. In addition, high economic growth is the priority in view of the rising in size of labour force. For example, China and India have to grow rapidly such that the rise in output leads to a rise in derived demand for workers, generating sufficient jobs for the rising labour force. In these countries, they are willing to tolerate higher inflation rate for the benefits that economic growth can bring, thus, choosing to focus mainly on the aim of economic growth.

For some countries, focusing on employment and inclusive growth is a key priority due to the issue of structural unemployment and rising income inequality brought about by globalisation. Globalisation means that there is removal of trade barriers and greater trade of goods and services and countries may lose comparative advantage. Some may go through economic restructuring to develop new sources of comparative advantage. As such, there could be structural unemployment, as workers who are retrench could not find jobs in sunrise industries due to skills mismatch. These workers could not benefit from the opportunities presented by globalisation and could not experience a rise in income. If structural unemployment persists, it could result in further deskilling and worsen the potential growth of the economy. The lack of inclusive growth will could result in social unrest, affecting the confidence of foreign investors, and level of investment in the economy, reducing the AD and LRAS, hampering the ability of the economy to experience sustained economic growth. Thus in recent years, countries such as Singapore have been focusing on tackling on the problem of structural unemployment and inclusive growth through aggressive reskilling and upskilling programme. This is appropriate considering that quality of labour a key factor in attracting FDI inflow and generating innovative ideas to achieve sustainable economic growth.

Whether price stability should be the top priority of the government is dependent on the conflicts the choice of policies that brings about. Different policies brings about different conflicts. Therefore, it is important for the government to weigh the conflicts before deciding on the policy to achieve price stability. Different policies brings about different conflicts. Therefore, it is important for the government to weigh the conflicts before deciding on the policy to achieve price stability. Furthermore, rather than focusing on achieving price stability, the government should try to use a mix of policies in order to simultaneously achieve all the above macroeconomic objectives. This will help to reduce the conflicts in the choice of policies and also enable government to achieve the macroeconomic objectives.

For a small and open economies like Singapore, price stability has been the focus over other macroeconomics aims as it underpins expectations which influences growth. It helps the economies to maintain their export price competitiveness over time and to sustain their export-driven economic growth and achieve the other macro aims at the same time. However, for large and less open economies, the extent of imported inflation they are likely to experience is lesser compared to small and open economy. Therefore, for large and less open economies, achieving prices stability may be that pressing as they did not target inflation as an intermediate goal to achieve economic growth and low unemployment.

Knowledge, Application, Understanding, Analysis		
L3High	<p>Well-developed explanation on the benefits of price stability and other macroeconomic objectives</p> <p>Different perspectives on why government want to focus on different economic objectives. Eg, conflicts and severity</p> <p>Issues relating to globalised world is evident (inclusive growth, structural unemployment) and good use of examples.</p>	18-20
L3low	<p>Well-developed explanation on the benefits of price stability and other macroeconomic objectives</p> <p>Different perspectives on why government want to focus on different economic objectives. Eg, conflicts and severity</p> <p>Some links to globalised world but not fully developed.</p>	15-17
L2High	<p>Adequate explanation of the benefits of price stability and other macroeconomic objectives or the cost of not achieving price stability and other macroeconomic objectives.</p> <p>Balanced discussion but largely in theory, the answer does not attempt to use examples or consider the context of globalised world.</p>	12-14
L2low	<p>Adequate explanation on the benefits of some aims and the benefits may be limited in scope.</p> <p>Some discussion why a government may focus on price stability or other relevant goals but the discussion can be descriptive with limited economic analysis.</p>	9-11
L1high	<p>Answers that have little relevance to the question.</p> <p>Incorrect identification of concepts, theories and principles to be used.</p> <p>Major and glaring conceptual inaccuracies or no conceptual support.</p>	5-8
L1low	Descriptive Answers with no economic concepts	1-4
Evaluation		

E3	Evaluative assessment supported by economic analysis and insightful comments based on situations found in the real world	4–5
E2	Evaluative assessment supported by economic analysis.	2–3
E1	Unexplained assessment.	1

The Covid-19 pandemic has severely disrupted global economic activity and led to both demand and supply shocks that resulted in falling incomes in Singapore. In response, the government rolled out four Budgets over four months, equivalent to almost 20% of its GDP.

(a) Explain how demand shocks arising from the pandemic will affect the circular flow of income in Singapore. [10]

(b) Discuss whether fiscal policy is the most appropriate policy to deal with the adverse impacts of the pandemic on the Singapore economy in the short and long run. [15]

Mark scheme for Part (a)

- 1) Understanding of the circular flow of income: income and expenditure flows, the interactions between households, firms, government and foreign sector
- 2) Injections, Withdrawals, $\text{Income} = \text{Expenditure} = \text{Output}$ and Equilibrium in the economy occurs when $Y = C + I + G + X - M$.
- 3) Demand shocks refer to fall in AD e.g. export expenditure, investment expenditure, (autonomous) consumption expenditure
- 4) Explain some reasons for fall in C, I, G e.g. circuit breaker & SMM → fall in consumption exp (fewer meals outside) + fall in X due to fall in tourist arrivals + pessimism → fall in investment.
- 5) Fall in Injections (autonomous spending) → accumulation of stocks of unsold goods/services → firms reduce output level → fall in national incomes → fall in induced consumption & also fall in Withdrawals (savings, tax, imports) → further fall in national incomes. The multiplier process continues until total decrease in W = initial decrease in J that results from the pandemic.
- 6) Conclusion: Fall in Injections → multiplier effect → fall in national incomes.
- 7) Singapore economy contracted by 5.4% in 2020 due to the pandemic.
- 8) The larger the size of MPW, the smaller is the fall in national incomes that results from the fall in injections. \$100 fall in NY → \$50 fall in induced C → \$50 fall in incomes → \$150 fall in incomes. Compared with \$100 fall in NY → \$20 fall in induced C → \$20 fall in incomes → \$120 fall in NY. Thus it means when MPW is larger, the fall in NY is smaller (corresponds to smaller multiplier effect on NY).

L3: 8 – 10	Clear analytical structure to the answer. Good understanding of circular flow of income. Thorough and accurate explanation demand shocks and impact on circular flow of income.
L2: 5 – 7	Some understanding of the circular flow of national income: economic agents involved, injections, withdrawals and the flow of income and expenditure. Some explanation of how demand shocks affect the circular flow and the multiplier process.
L1: 1 – 4	Incomplete answer. Limited understanding of the circular flow of income or relevant concepts.

Mark Scheme for Part (b)

- 1) Explain (briefly) impact of demand and supply shocks on the economy.
 - a. Real GDP & NY fall
 - b. Derived DD for labour fall → rising unemployment (cyclical because it arose from fall in AD)
 - c. LR impact of scarring → economy does not recover fast and thus unemployed lose skills → may not be able to participate in the economy when it recovers → structural unemployment.
 - d. AS falls due to lockdown and limited access to inputs, factories shut down etc → fall in real GDP & rising prices.

- 2) Explain the use of fiscal policy to solve recession and rising unemployment.
 EFP → ↓ Tax rates & ↑ G (as in preamble) → ↑ AD → stock depletion → increase production → increase real GDP & NY
 → ↑ induced C → further increase in real GDP and NY
 → ↑ derived DD for labour → ↓ unemployment.

Since economy is not at full employment, there are idle resources → large increase in real GDP with small increase in price level.

- 3) In addition to stimulating AD, fiscal policy was used to support businesses that faced difficulty, hence preventing lay-offs and supporting jobs esp low-wage workers.

Discuss

- Root cause is fall in AD so boost G can mitigate fall in AD.
 - FP in Sg → small multiplier due to high MPS and MPM and support with reasons based on characteristics of economy → small impact on real GDP. Thus Sg govt spends a lot to have a greater impact on real GDP.
 - Crowding-out impact likely to be small because the financing of G is from reserves.
 - Consider SS bottlenecks due to pandemic, thus increase in AD will lead to inflation but small increase in real GDP.
 - Not sustainable in the LR but worthwhile when G spending has SS-side effects.
- 2) Currency depreciation → ↓ foreign currency price of exports → more than proportionate increase in qty dd for exports → ↑ export revenue.
 Currency depreciation → ↑ domestic currency price of imports → more than proportionate decrease in qty dd for imports → ↓ import expenditure.
 → ↑ net exports → ↑ AD → ↑ real GDP.

Discuss

- ERP may not have a big impact when other countries are suffering from declining incomes too.
 - SS bottlenecks exist during pandemic → even if AD increases, firms cannot get resources to increase production → benefits are not realized.
- 3) SSP e.g. skills training, subsidies for investment → ↑ AS → potential growth in LR.

Discuss

- Long term to take effect
- Willingness to invest and train

Evaluation (most appropriate is FP)

- FP solves root cause of problem which is fall in AD. Similar to currency depreciation.
- FP esp increase in G has direct effect on AD unlike currency depreciation which depends on PED.
- PED has SS-side effects as well to deal with structural unemployment. This is not the case of currency depreciation.
- But LR effect of covid on unemployment is best dealt with SSP.

L3: 8 – 10	Clear analytical structure to the answer. Thorough and accurate explanation of FP and how it deals with demand shocks as well as SR and LR effects of the pandemic. Rigorous discussion of the application of FP and other policies on Sg wrt context both domestic and international environment.
L2: 5 – 7	Adequate analysis of the working of fiscal policy and one other policy to deal with recession and unemployment. Limited discussion of the policies. Some application to Sg and reference to context.
L1: 1 – 4	Some understanding of the problems and/or the use of government policies.

Evaluation

L3: 4 – 5	For an answer that builds on economic analysis, synthesizes the economic arguments, evaluates the relevance of assumptions, to arrive at well-reasoned judgements about the most appropriate policy for SG.
L2: 2 – 3	Some attempt at evaluation or a conclusion that answers the question. Some attempt to explain judgement. Reasonable basis for conclusion.
L1: 1	Evaluative statements with limited reasoning to support.

<p>relatively higher compared to other countries, such as Malaysia. This would mean that the price of exports from Singapore is higher than other countries' exports. Hence, demand of Singapore's exports decrease as trading partners will buy the similar products from our competitors such as Malaysia instead. This will result in a worsening of the balance of trade for Singapore, <i>ceteris paribus</i>.</p>	- Differences in relative rates of inflation
<p>Loss of price competitiveness of exports can also be caused by structural changes in the economy. Structural changes can occur whereby cost advantages have been eroded due to emergence of low cost competitors. For example, Singapore's price competitiveness in labour intensive goods like textiles is lost due to low cost competitors from India where abundant labour resources led to lower opportunity cost in production of textiles. Hence, price of exports of textiles from India would be relatively cheaper compared to price of exports of textiles from Singapore. Hence, countries that previously imported textiles from Singapore would switch to imports from low-cost competitors like India and hence, Singapore's export revenue declines and cause the balance of trade to worsen.</p>	- Structural changes
<p>Similarly the loss of competitiveness in the country's export could also be due to a loss of non price competitiveness resulting from, for example, a slower rate of improvement in design of products or in the sales effort compared to the other countries. This enabled others to penetrate the local market because of better designs, delivery date, good after sales service, market research, salesmanship.</p>	Long-term current account deficit due to loss of non-price competitiveness
<p>An additional potential cause of a balance of trade deficit on the current account is change in income for trading partners. For instance, when our trading partners are experiencing economic growth prior to the pandemic, consumers enjoy higher purchasing power. For these Western economies such as US, marginal propensity to import maybe relatively higher due to their consumerism culture, thus $MPM > 1$. Given the increase in income level, there will be more than proportionate increase in demand for imports from Malaysia and Taiwan. Import expenditure increases and eventually result in balance of trade deficit for the US economy, <i>ceteris paribus</i>.</p>	Long-term current account deficit due to differences in relative incomes

Marks scheme

Knowledge, application, understanding and analysis		
L1	<ul style="list-style-type: none"> Answer that is mostly irrelevant in explaining the causes of balance of trade deficit, with basic concept errors and inaccurate economic analysis Mere listing of points relating to balance of trade deficit, statements are mostly unexplained. 	1 - 4
L2	<ul style="list-style-type: none"> Under-developed descriptive explanation of how the factors causes the trade deficit, with appropriate but incomplete economic analysis. 	5 - 7
L3	<ul style="list-style-type: none"> Well-developed explanation of how the trade deficit arises. Scope of answer should consider both exports and imports perspectives. Good application of real world examples and use of economic framework to support the analysis 	8 - 10

Question interpretation for b)															
Command word/phrase	<i>Discuss the policies</i>	To provide a balanced response to the policies discussed													
Content	<i>Reducing balance of trade deficit</i>	Knowledge on how to increase total revenue of exports and decrease total expenditure of imports													
Context	<i>A government</i>	No particular context specified by question but students are expected to consider real world countries examples to illustrate their explanations.													
Suggested answer for b)															
<table><tr><td colspan="3">[Problem] Balance of trade deficit $\rightarrow (X-M) < 0 \rightarrow X\downarrow$ and $M\uparrow$</td></tr><tr><td colspan="3">[Solution] Implement policies to $X\uparrow$ and $M\downarrow$</td></tr><tr><td colspan="2">$X\uparrow$</td><td>$M\downarrow$</td></tr><tr><td>ER policies – depreciation</td><td>Supply side policies – improve price and non-price competitiveness</td><td>Expenditure reducing policy – contractionary FP</td></tr></table>			[Problem] Balance of trade deficit $\rightarrow (X-M) < 0 \rightarrow X\downarrow$ and $M\uparrow$			[Solution] Implement policies to $X\uparrow$ and $M\downarrow$			$X\uparrow$		$M\downarrow$	ER policies – depreciation	Supply side policies – improve price and non-price competitiveness	Expenditure reducing policy – contractionary FP	
[Problem] Balance of trade deficit $\rightarrow (X-M) < 0 \rightarrow X\downarrow$ and $M\uparrow$															
[Solution] Implement policies to $X\uparrow$ and $M\downarrow$															
$X\uparrow$		$M\downarrow$													
ER policies – depreciation	Supply side policies – improve price and non-price competitiveness	Expenditure reducing policy – contractionary FP													
When confronted with a balance of trade deficit, a government can employ various measures targeted at increasing the export revenue of goods and services as well as decreasing import expenditure on goods and services.			Introduction – overview of framework												
<p>Firstly, to increase the export revenue, the government can attempt to improve the price competitiveness of the exports by depreciating its currency. When the currency weakens, price of exports in foreign currency will decrease while price of imports in domestic currency will increase. Assuming that Marshall Lerner Condition holds ($PED_x + PED_m > 1$), a fall in foreign price of exports will lead to a more than proportionate increase in quantity demanded in exports, while an increase in the domestic price of imports will lead to a more than proportionate decrease in quantity demanded for imports. Domestic consumers switch from imported goods and services to relatively cheaper domestically produced goods and services. This leads to an increase in net exports, correcting the balance of trade deficit.</p> <p>However, in the short run, MLC may not hold due to contractual agreements. Foreign producers may not switch to the country's imports immediately if they are still bounded by contractual obligations to purchase from other suppliers. As a result, net exports may decrease instead, worsening the balance of trade position, as shown by the J-curve effect.</p> <p>In addition, continuous appreciation is not a feasible and sustainable measure as it requires the use of BOP official reserves to manage the exchange rate.</p>			ER policy – expenditure switching: depreciation												
If the underlying cause of the trade deficit is due to high level of import expenditure, for example, the US government may consider the use of expenditure reducing			<i>Expenditure - reducing policy</i>												



<p>to decrease. The current account deficit position would increase as a result, on the condition that the foreign country does not retaliate.</p> <p>However, if the foreign country retaliates by imposing tariffs on the country's exports as well, then the current account deficit may not improve as the country's price of exports become relatively more expensive after the imposition of tariffs.</p>	<i>Limitations</i>
<p>In conclusion, a combination of expenditure reducing policy, expenditure switching policy and supply-side policies can be used to minimize the limitations that each policy possess. The exchange rate policy, can be used in the short-run, allowing sufficient time for measurable outcomes in R&D in productive techniques to be achieved. This is especially for countries which are relatively opened to international trade. Hence, when R&D is successful in improving the competitiveness in the production of exports, the role of exchange rate can be reduced.</p> <p>In addition, the expenditure reducing method also improves the balance of trade deficit in the short-run by reducing incomes that reduce demand for imports; but the problem can recur in the long-run as the expenditure reducing method does not address the underlying cause of a current account deficit, usually the lack of competitiveness of industries. Hence, expenditure reducing method can be combined with supply-side policies to allow R&D to reap its results in the long-run, hence, improving the balance of payment deficit position in the short-run and the long-run as well.</p>	<i>Evaluation</i>

Marks scheme

Knowledge, application, understanding and analysis		
L3	<ul style="list-style-type: none"> Well-developed explanation of effectiveness and limitations of <u>three</u> policies to address the balance of trade deficit. Appropriate diagrams are used to support economic analysis, where relevant. Good use of contextual examples to illustrate points. 	8 - 10
L2	<ul style="list-style-type: none"> Undeveloped explanation of effectiveness and limitations of <u>two</u> policies to address the some challenges of some pre-amble factors on unemployment rates. Appropriate diagrams are used but might not be explained or used to support economic analysis. 	5 - 7
L1	<ul style="list-style-type: none"> Question requirements are interpreted inaccurately. Inappropriate economic concepts, theories and principles are used. Inaccurate economic analysis. Inappropriate or wrong diagrams are used. 	1 - 4
E3	Evaluative comments are well explained and supported by economic analysis.	4 - 5

	<i>For an answer that builds on appropriate analysis to evaluate critically alternative theoretical explanations, contemporary issues, perspective and policy choices, that recognizes unstated assumptions and evaluate their relevance, and that synthesizes economic arguments to arrive at well-reasoned judgements and decisions.</i>	
E2	Evaluative comments are provided but the supporting reasoning are questionable or lacking in logical links.	2 - 3
E1	For an answer that gives an unsupported evaluative comments.	1



CATHOLIC JUNIOR COLLEGE PRELIM PAPER

Answer **all** questions

Question 1

The True Cost of Beauty Products

Table 1: Cost of Beauty around the World in 2019

Region	Asia - Pacific Region		North America Region	
Countries	China	Malaysia	USA	Canada
Price of a foreign cosmetic product bundle (USD)	427.00	263.32	244.43	240.06

Note: Price of a foreign cosmetic product bundle refers to sum of the prices of the following products: Chanel No. 5 Eau De Parfum; M.A.C Cosmetics Retro Matte Lipstick; Estée Lauder Double Wear Stay-in-Place Makeup SPF10; Anastasia Beverly Hills DipBrow Pomade; and NARS Sheer Glow Foundation

Source: *Retail In Asia*, 15 January 2021

Extract 1: Major Players in China's Cosmetic Industry

Presently, cosmetics have become an indispensable feature of the modern lifestyle of individuals. In addition, growth in consciousness about external beauty along with an individual's internal intellect has become one of the major driving factors for use of cosmetics in the global market. The global cosmetics market size was valued at \$380.2 billion in 2019, and is projected to reach \$463.5 billion by 2027. Based on region, Asia-Pacific, followed by North America, contributed to the highest share in 2019, holding more than one-third of the global cosmetics market, and will maintain its lead position by 2027.

Global cosmetic brands employ various strategies, such as new product launches to increase their customer bases and expand their operating areas across various countries, with the aim to further gain revenue and cost advantages. In China, foreign brands dominate the cosmetics market in China while domestic brands are catching up quickly. The competition of brands selling cosmetics in China is tightening as more domestic brands gain market share through rapid development of quality and innovation to match the dominant foreign brands. The Chinese government has played a role in the rise of the domestic cosmetics market. For foreign cosmetics brands that want to enter China's market, it is necessary to apply for safety certifications. Furthermore, taxes on imported goods are continuously adjusted and it is important for them to know the information of taxation as this can affect costs and revenue significantly.

Adapted from *Allied Market Research*, February 2021 and *Daxue Consulting*, 3 January 2020

Extract 2: The Ugly Face of Cosmetics

Mica is a natural-occurring silicate mineral dust often found in the mining grounds of India. The presence of Mica is especially prominent in cosmetics products, as it gives off a youthful and softer look when applied by reflecting light away from any wrinkles or lines in the skin. Since Mica is a natural mineral, it is safe to be used on majority skin types with little to no side effects. Therefore, it is well-loved by organic and natural beauty brands.

However, not all-natural ingredients come from a sustainable supply chain, especially Mica. While the Mica industry is worth over billions, the eastern rural states of India, where Mica is commonly found, is suffering without a voice. The majority of the Mica industry is linked to child labour and illegal mines in the rural states of India where there is less growth, democracy, and development. A cycle of poverty has resulted in children, as young as four, resorting to mining Mica illegally in hazardous conditions for money, although it only pays 30 rupees (S\$0.56) per day. Take the supply chain as a funnel. At every stage of the supply chain, any illegitimate activities or content is possibly filtered and concealed to continue the trade. No one but the operators of each stage of the supply chain will know what goes into the ingredients and the products.

Now the next question is: is Mica safe for the environment? In general, mining is an invasive process that damages far more than the mining site itself. The creation of open pits induces soil erosion, the formation of sinkholes, and could potentially contaminate surface water, groundwater, and soil. The mining also leads to deforestation, with trees gradually cleared to develop more land for mining Mica. As such, this extends to a loss of biodiversity. For instance, residents in Bangakhla village observed a decrease in spotting elephants, wild boars, rare birds in the village.

Beauty brands need to confront the true cost of their decisions. To ensure that responsible sourcing practices are happening, they might have to be legislated for, and organisations will need to build the cost of compliance into their value chains and improve transparency. While it is impossible to go Mica-free, synthetic Mica is said to offer the same or better benefits as natural Mica without harming the environment. This is the first step to gradually reduce the high global demand for natural Mica and correct misinformation about the superiority of natural Mica over synthetic alternatives. Beauty brands, like Lush, have removed all traces of natural Mica from their supply chains over child labour concerns and switched over to synthetic Mica. In addition, L'Oréal has also committed itself to source sustainable Mica in India. By supporting beauty brands with a traceable supply chain, we are telling the suppliers that we want Mica from sustainable sources.

Source: *The Sustainability Project*, 27 September 2020

Extract 3: The Responsible Mica Initiative (RMI)

In 2019, India exported more than US\$37 million (S\$49 million) worth of Mica powder. The region and the Mica industry, however, does not have a mechanism to incentivise the adoption of workplace and labour standards or to prevent illegally mined Mica from entering the global Mica supply chain. There is a need for government enforcement of laws and regulations to provide enforceable oversight of the industry.

The Responsible Mica Initiative (RMI) is a global coalition for action – putting policy into practice – comprised of multiple organizations committed to establishing a fair, responsible and sustainable Mica supply chain in the states of Jharkhand and Bihar in India that will eliminate unacceptable working conditions and eradicate child labour by 2022.

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The RMI consists of:

1. **Mica Supply Chain Mapping and Workplace Standards for Mica Collection and Processing** – RMI members must map the source of Mica in their products to exporters, processors and mines in India. Each member's supply chain participant must then adopt workplace standards that encompass environmental, health, safety, legal and fair labour practices that include a prohibition on the use of child labour.
2. **Community Empowerment in Villages that Provide the Mica Workforce** – This programme helps to transform these communities in the Mica region with initiatives that provide long-term and self-sustainable remedies to the underlying causes of child labour and poor working conditions. Villages that provide the workforce for Mica mines and processors are empowered to access improved educational resources for children, better nutrition and health care, provision of training and resources to learn or improve skills. These support alternative means of livelihood, such as farming to reduce economic dependency on Mica.
3. **Legal Frameworks for the Mica Sector** – RMI encourages the creation of laws and regulations to establish a responsible and sustainable Mica supply chain. RMI works collaboratively with various stakeholders including, local Mica businesses, various government agencies, and sector experts. A multi-stakeholder approach was chosen to ensure that components of a legal framework would protect the rights of workers and prohibit child labour.

Adapted from *Channel News Asia*, 22 May 2021 and <https://responsible-mica-initiative.com/>, accessed on 29 June 2021

Questions

- (a) (i) Using Table 1, compare the price of a foreign cosmetic product bundle across the stated countries. [2]
- (ii) With reference to the given data, explain whether price discrimination could be the reason behind the observed price differences. [5]
- (b) Using a relevant elasticity concept, explain how the imposition of import taxes on foreign cosmetics in China may affect the revenue of domestic cosmetic brands. [3]
- (c) Explain the economic relationship between cosmetic products and natural Mica. [2]
- (d) Discuss how far the misallocation of resources in the natural Mica market in India is a result of firms not building "cost of compliance into their value chains". [8]
- (e) Discuss whether the measures proposed by the Responsible Mica Initiative (RMI) are likely to be better than other government policies in achieving economic efficiency in the global market for natural Mica. [10]

[Total: 30]

Question 2

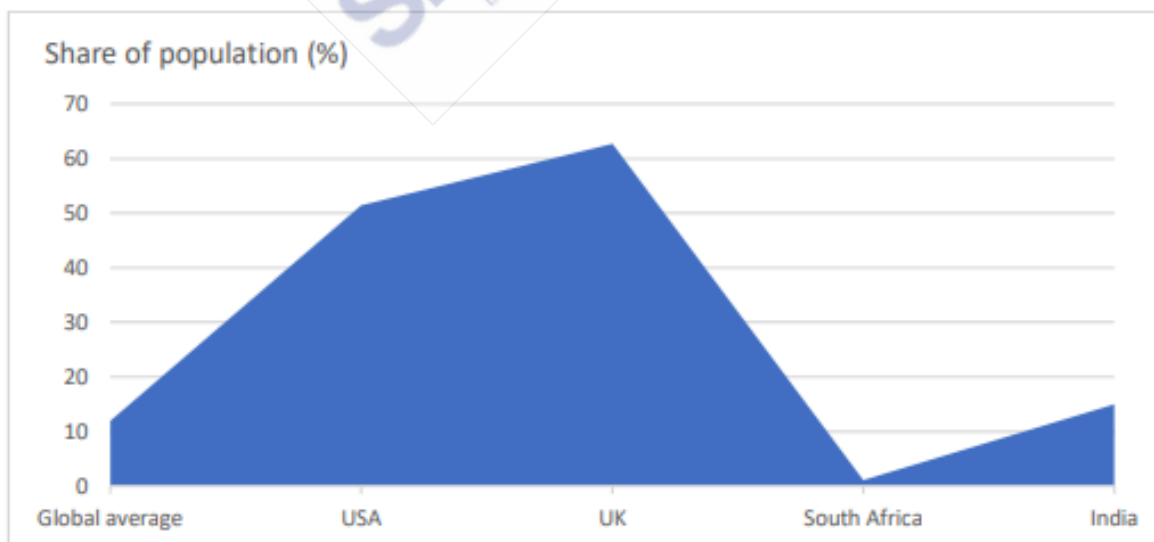
Government Responses to the COVID-19 Pandemic Around the World

Extract 4: Global Economic Outlook during the Covid-19 Pandemic

The COVID-19 pandemic has claimed more than 3.2 million lives worldwide since it first emerged in late 2019 due to its highly infectious nature. Every region is subject to substantial growth downgrades. There will be economic headwinds on various economies: pressure on health care systems, loss of trade and tourism, dwindling remittances, subdued capital flows, and tight financial conditions amid mounting debt. Even this bleak outlook is subject to great uncertainty and significant downside risks. Should COVID-19 outbreaks persist, economic inactivity will be prolonged, the recession could be deeper. Businesses might find it hard to service debt, heightened risk aversion could lead to climbing borrowing costs, and bankruptcies and government defaults could result in financial crises in many countries. Advanced economies are projected to shrink 7 percent in nominal terms but 4.5 percent in real terms. That weakness will spill over to the outlook for developing economies, who are forecast to contract by 2.5 percent in nominal terms as they cope with their own domestic outbreaks of the virus. This would represent the weakest showing by this group of economies in at least sixty years.

Source: The World Bank, 2021

Figure 1: Share of Population who has at least received one dose of COVID-19 vaccine in developed and developing countries (as of June 2021)



Source: Fortune, 2021

Extract 5: Pandemic in Singapore – An Opportunity or Challenge?

Singapore is a country that has long had the reputation as a safe haven for foreign investors. A few factors, such as economic stability, political stability, well-regulated property markets, and the success in attracting foreign investment, have earned the country the status as a sanctuary even during unprecedented economic events. Currently, Singapore has brought its local virus situation under control and is on a gradual recovery path. However, external demand and the reopening of international borders remain key to growth despite domestic demand recovery being much stronger than expected. Singapore's central bank continues to keep monetary policy settings at zero percent change per annum due to a benign inflation outlook and global economic uncertainties caused by the pandemic.

Due to the growing regional concerns over the economic impact brought by the COVID-19 outbreak, a record jump in money flowing into Singapore bank accounts from abroad continues to underline the country's safe haven appeal during the COVID-19 pandemic and political uncertainty in rival financial centre Hong Kong. Deposits have risen in all but one month over the past year, a period marked by escalating political unrest in Hong Kong, a Sino-US trade row and the outbreak of the coronavirus pandemic. The pandemic and pressure on regional currencies had also fed fears of a currency crisis and capital flight. The Monetary Authority of Singapore said in a statement that since mid-2019, there has been a broad-based increase of inflows into Singapore. "These flows have become more volatile in recent months due to the COVID-19 pandemic and resulting market fluctuations," the central bank said.

Source: Various

Extract 6: Asia's responses to COVID-19

In the face of this disquieting outlook, the immediate priority for policymakers is to address the health crisis and contain the short-term economic damage. Over the longer term, authorities need to undertake comprehensive reform programs to improve the fundamental drivers of economic growth once the crisis lifts.

In terms of policy response to the pandemic, Asian governments have introduced various economic stimulus packages. Common measures are tax incentives/breaks for affected businesses, particularly for those in the most hard-hit sector; subsidies, such as cash assistance and discounts on electricity bills, to households and workers, including additional incentives for those in the healthcare sector; deferred tax or loan payments; and exemptions from or lower government fees and charges. Central banks have also lowered policy rates and reserve requirements, and bought government securities/bonds. Some countries have introduced distinct measures targeting key sectors of society. For example, Brunei allowed the deferment of contributions to the trust/pension funds, while Malaysia allowed reduced pension contributions. Meanwhile in Vietnam, the banking sector created a credit package worth VND285 trillion (USD12.3 billion) for businesses.

However, efforts to contain COVID-19 in emerging and developing economies, including low-income economies with limited health care capacity, could precipitate deeper and longer recessions—exacerbating a multi-decade trend of slowing potential growth and productivity growth.

Source: Association of Southeast Asian Nations, 2021

Extract 7: Greater urgency to produce 30% of Singapore's nutritional needs locally by 2030

With global panic buying, some countries moving towards food protectionism and more nations going into lockdown during the coronavirus pandemic, food security has been thrust into the spotlight. Singapore, which saw several bouts of panic buying after the move to orange in the Disease Outbreak Response System Condition alert last month, is working closely with six nations to tackle disruptions to trade and supply chains that could impede the delivery of vital goods, including food and medicine. In his Resilience Budget speech last Thursday, Deputy Prime Minister Heng Swee Keat reassured Singaporeans that there is an "adequate supply of safe food" and the Government is "strengthening our food resilience for the long term".

One way is through the "30 by 30" goal to produce 30 per cent of Singapore's nutritional needs locally - a figure that currently stands at less than 10 per cent - by 2030. On the importance of local production, an official spokesman tells *The Sunday Times*: "It helps mitigate our reliance on imports and serves as a buffer during supply disruptions to import sources, which contributes to our food security." The "30 by 30" vision requires the agri-food industry to transform into one that is "highly productive and employs climate-resilient and sustainable technologies that will enable us to overcome our land, water, energy and manpower constraints", adds the spokesman.

Source: *The Straits Times*, 29 March 2020

Questions

- (a) (i) With reference to Figure 1, compare the share of vaccinations across the given countries. [2]
- (ii) With reference to Extract 4, explain one internal and one external factor contributing to greater risk of "government defaults" in various countries. [4]
- (b) Explain how the data given in Extract 4 can be used to project inflation rates in advanced economies. [2]
- (c) ~~With reference to Extract 7, comment on whether Singapore should raise domestic production of food and reduce import of food.~~ [4]
- (d) Discuss whether the government should be concerned with a "record jump in money flowing into Singapore bank accounts from abroad"? [8]
- (e) Assess whether Singapore is in a better position to recover from the economic effects of COVID-19 than the other Asian economies. [10]

[Total: 30]

Answer **three** questions in total.

Section A

One or two of your three chosen questions must be from this section.

- 1** A box of 50 disposable surgical masks cost \$6.00 in 2019, but rose sharply to \$50.00 a box in 2020. Yet when the Singapore Government recommended the use of bacterial filtration efficiency (BFE) >95% disposable surgical mask in early 2021, prices averaged at \$12.00 per box. Retailers shared that they have "sufficient stocks" and have "placed orders by container loads" in anticipation of further demand. Local face mask manufacturers are also monitoring demand and are ready to adjust production accordingly.

Adapted from: The Business Times, 25 May 2021

- (a) Using supply and demand analysis, explain the possible reasons for the changes in price of disposable surgical masks from 2019 to 2021. [10]
- (b) Discuss whether government intervention in the markets is always necessary to reduce the price of essential goods in Singapore. [15]
- 2** Research has shown that a healthy eating lifestyle has resulted in fewer diseases and extension of life expectancy among individuals, hence highlighting the need to modify human behavior through government interventions in the market for healthy food.
- (a) Explain why a government may wish to intervene in the market for healthy food. [10]
- (b) Discuss the extent to which government policy measures are likely to address the above sources of market failure. [15]
- 3** Dyson, the technology company best known for its vacuum cleaners, has scrapped a project to build electric cars. Sales of electric cars are climbing rapidly. Yet they still cost more to make than conventional cars that are significantly more polluting. Major manufacturers, like Volkswagen, can afford to plough tens of billions into the electric vehicle (EV) industry - on the basis that economies of scale will ultimately make the technology cheaper and generate returns. Dyson has concluded it simply can't afford to play with the big boys.

Source: BBC, 11 October 2019

- (a) Explain the factors that Dyson may have considered before deciding against entering the electric vehicle (EV) market. [10]
- (b) Discuss the extent to which a firm's behaviour is dependent on the threat of competition. [15]

Section B

One or two of your three chosen questions must be from this section.

- 4** Between 2008 and 2019, the United States went through the longest period of economic expansion, as measured by GDP, in its history. Despite this growth, the country is now experiencing its highest levels of income inequality in 50 years, worsening high-school graduation rates, and increasing prevalence of mental health conditions.

Adapted from: Channel News Asia, 29 November 2019

- (a) Explain whether growth in a country's Gross Domestic Product is an appropriate measure of how its standard of living has changed over time. [10]
- (b) Discuss whether the policies that a government may use to promote higher living standards would result in conflicts with its other economic goals. [15]
- 5** In 2016, China's government allowed married couples to have a second child, after decades of a one child policy rule. On May 31st 2021, the government declared a further relaxation and implemented a three-child policy to help the country deal with a rapidly ageing population.
- (a) Explain why the Chinese government would be concerned with the impact of an ageing population. [10]
- (b) In light of the above concerns, discuss whether the three-child policy is the most appropriate measure in enabling China to improve her economic competitiveness. [15]
- 6** Deflationary pressures were evident in the major economies in 2015–2016 due to the hesitant and uneven recovery in the global economy following the financial crisis. This was significantly exacerbated by the sharp declines in global oil prices. Singapore's inflation was negative for a total of seven consecutive quarters, the longest stretch of negative inflation recorded in its history.

Source: Economics Explorer Series, Monetary Authority of Singapore, 2018

- (a) Explain **two** main factors that cause deflation in Singapore. [10]
- (b) Discuss whether exchange rate policy should remain the most important policy instrument in maintaining price stability in Singapore. [15]

DUNMAN HIGH SCHOOL PRELIM PAPER

Answer **all** questions.

Question 1: Developments in the Food Retail Industry

Table 1: Estimates of income elasticity of demand for selected grocery items in U.S.

	Income elasticity of demand
Cereals and bakery	1.31
Fruits and vegetables	1.60
Meat and eggs	1.81

Table 2: Estimates of price elasticity of demand for selected grocery items in U.S.

	Price elasticity of demand
Eggs	-0.24
Beef	-0.70
Fresh vegetables	-0.94
Frozen foods	-1.05

Source: United States Department of Agriculture, 2019

Extract 1: Egg industry in Canada

Perishable staple food products with long planning cycles but relatively short shelf lives, such as eggs, are inherently unstable markets if they are not managed. In the 1960s and 70s, Canada's egg industry was plagued by chronic overproduction and unstable prices.

The egg industry in Canada currently operates under a national supply management system which aims to provide efficient producers with fair returns and to provide Canadian consumers with an adequate supply of eggs at reasonable prices. The amount of eggs that is produced is controlled through a quota system. There are disciplines in place to ensure that producers do not produce excess of their quotas.

Sources: Ontario Ministry of Agriculture, Food and Rural Affairs, last modified 13 February 2021, and Egg Farmers of Ontario, last accessed 31 August 2021

Extract 2: How U.S. small regional grocers are competing with mega-players

In the U.S. grocery industry, mega-players like Walmart are creating unprecedented competition through technology and consolidation. Their low prices have benefited consumers but decimated small regional grocers. However, there's still a place for regional grocers, if they take the right steps to be competitive.

While large grocers have created replicable store experiences that appeal to the masses, regional grocers thrive by offering hyper-customised experiences in a way that big grocers have not been able to. Regional grocers have the advantage of offering a small selection of the niche food options, giving a taste-of-home feel that cannot be paralleled. With smaller stores and fewer selections, regional grocers attract time-pressed buyers who value last-minute in-store shopping and being able to get in and out quickly.

Mega-players have focused on urban areas with high population density. This leaves an opening for regional grocers to serve smaller or less-dense markets. Regional grocers must manage their inventories well, while still investing in new trends and appealing shopping experiences. For those with a strong handle on these factors, there is no brighter spot in retail.

Source: Progressive Grocer, 9 August 2019

Extract 3: How Amazon's Whole Foods acquisition changed U.S. grocery industry

Online sales represented just 5.5% of total U.S. grocery sales in 2018. Analysts expect online grocery sales to capture as much as 20% of total grocery retail by 2025, as more customers get comfortable with it.

Amazon is currently the most popular choice for online grocery shoppers. Since acquiring grocery store chain Whole Foods in mid-2017, Amazon has been offering Amazon Fresh at US\$14.99 per month, which delivers online orders at Whole Foods stores to homes in two hours, as well as pickup of online orders at its Whole Foods stores. Amazon is also bolstering its Prime loyalty programme by providing discounts to Prime members who shop at Whole Foods, increasing visibility of the Prime membership programme.

In the first few months of 2018, Amazon captured 30% of online grocery spending in the U.S.—as much as all grocery chains combined. However, for the overall grocery market, Amazon/Whole Foods only captures 3.7% of grocery sales and Walmart is still the largest grocer. Nonetheless, Amazon's acquisition markedly expanded its reach offline, striking terror in the hearts of grocers around the world. That fear has motivated some of the largest grocers to ramp up their grocery services.

Walmart is testing a number of innovations and defining a new frontier for competition with its impressive delivery infrastructure. It has 3,100 stores serving customers who want to order their groceries online and pick them up in person, and 1,400 other stores delivering online orders to shoppers' homes. Walmart rolled out a "Delivery Unlimited" membership option, where customers can pay US\$12.95 monthly, for unlimited grocery deliveries. Walmart is also trying an in-home delivery option, which costs US\$19.95 a month, an innovation where groceries will be delivered to a customer's refrigerator. These services integrate the online and physical stores, and are building customer loyalty that continues to drive positive growth at Walmart.

Sources: Digital Commerce 360, 21 June 2019, and CNBC, 14 November 2019

Extract 4: Singapore aims to produce 30% of its nutritional needs by 2030

The Singapore Food Agency (SFA) has set the target of producing 30 per cent of Singapore's nutritional needs by 2030. Known as "30by30", it is a move targeted at improving food security. Singapore currently imports over 90 per cent of its food supply and is exposed to the volatilities of the global food market. These volatilities include sudden disruptions to transport routes, export bans and the impacts of climate change.

SFA's ambitious "30by30" goal is to be met within Singapore's land constraints, with less than 1% being designated for agricultural use. There are four ways the target can be achieved: using technology to grow more with less, unlocking physical spaces for farming, developing local talent and getting consumers to support local. The use of technology in farming allows the development of resource-efficient, climate-resilient and high-yield agricultural solutions. High-tech, controlled environment local production will be expanded further, and environmental sustainability of food production will be prioritised.

SFA will continue to support farmers through building capability, providing technical support and encouraging technology transfer. Farms can continue to tap the S\$63 million Agriculture Productivity Fund (APF) to co-fund systems that better control environmental variables and boost production capabilities. These include systems that shade crops and minimise the negative impact of high temperatures on crop growth.

Singapore-farmed fish, eggs and vegetables could appear in more shopping carts here next year, as a campaign on the 'Singapore Food Story' to encourage Singaporeans to grow and eat local produce kicks off. The campaign to boost the profile of locally grown produce was timely, to ensure that the increase in supply of food grown here had a market. There were multi-fold benefits to eating food grown locally. Produce may be fresher with shorter time from farm to table. Certain items such as fruit may also be more nutritious when harvested ripe. Buying vegetables grown locally would have a lower carbon footprint than vegetables grown in Malaysia, for example.

Sources: Various

Questions

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- (e) Discuss the ways in which Singapore might improve its food security. [10]
- [Total: 30]**

Question 2: Opportunities and Threats in India

Table 3: India, selected economic indicators (2005 – 2019)

	2005	2010	2015	2019
GDP (constant 2010 US \$trillion)	1.19	1.68	2.30	2.94
Population (billion)	1.15	1.24	1.31	1.37
Unemployment (% of total labour force)	2.42	2.44	Not available	5.27
Net trade in goods and services (current US \$billion)	-27.28	-91.02	-63.25	-73.45
Central government debt, total (% of GDP)	62.22	51.59	Not available	Not available
CO2 emissions (kiloton)	1,137,740	1,665,310	2,150,220	Not available

Source: World Bank, 2019

Extract 5: Domestic demand to lift India's growth in 2019 and 2020

Recent policy measures by the government to improve the investment climate and boost private consumption and investment will help India to lift economic growth in the next two fiscal years, according to a new report from the Asian Development Bank (ADB).

ADB projects gross domestic product (GDP) growth in India to rise to 7.2% in 2019 and reach 7.3% in 2020, reversing two years of declining growth as reforms to improve the business and investment climate take effect.

"India will remain one of the fastest-growing major economies in the world this year given strong household spending and corporate fundamentals," said ADB Chief Economist Mr. Yasuyuki Sawada. "India has a golden opportunity to cement recent economic gains by becoming more integrated in global value chains (GVCs). The country's young workforce, an improving business climate, and a renewed focus on export expansion all support this."

Income support to farmers, hikes in procurement prices for food grains, and tax relief to tax payers earning less than INR500,000¹ (US\$7,212) will boost household income. Downside risks to growth include a higher-than-expected moderation in global demand and a potential escalation of trade tensions between India and the United States. Consumer price inflation is expected to rise to 4.3% in 2019 and 4.6% in 2020 as food costs increase slightly and domestic demand strengthens. With a 2% to 6% inflation target

¹ INR refers to Indian rupee, the official currency of India

and current inflation averaging around 4.0% in the first half of 2019, the central bank would have some room for lowering interest rates.

Imports are expected to rise mainly due to stronger domestic demand while a growth slowdown in India's key export destinations would dent export growth. The current account deficit is expected to widen a bit to 2.4% of GDP in 2019 and 2.5% of GDP in 2020. A key factor driving India's persistent current account deficit is its tepid export performance compared to other East and Southeast Asian economies. India's export performance could benefit from greater participation in GVCs. Lower trade costs, improved infrastructure quality, and enhanced worker skills could help India integrate more with GVCs.

Source: Asian Development Bank, 3 April 2019

Extract 6: Participating in global value chains

GVCs refer to the breaking down of the production process, where a single finished product often results from manufacturing and assembly in multiple countries, with each step in the process adding value to the finished product. GVCs have been critical for development and jobs in many countries, particularly in developing economies such as India. India's GVC exports are dominated by sectors like agriculture, textiles, petroleum, chemicals, and electrical and optical equipment, which have grown at rates that are more than double their global growth rates.

Source: Asian Development Bank, December 2020

Extract 7: Air pollution in India

Pollution accounted for nearly 1.7m premature deaths in India in 2019, or 18% of all deaths, according to a study that lays bare the human cost of the country's toxic urban air. The report states in no uncertain terms that pollution in India has directly contributed to an increase in diseases such as lung cancer, heart disease, stroke, diabetes, neonatal disorders and respiratory diseases, resulting in millions more deaths. Six of India's cities are among the top 10 most polluted in the world, according to a recent World Air Quality report. The economic cost of the contaminated air led to a total loss of \$36.8bn, or 1.36% of India's gross domestic product, with the poor and populous states of Uttar Pradesh and Bihar hit worst. "The high burden of death and disease due to air pollution and its associated substantial adverse economic impact from loss of output could impede India's aspiration to be a \$5 trillion economy by 2024," the report says. Conversely, it was estimated that if India had achieved safe air quality levels in 2019, its GDP would have increased by \$95 billion, or 3%, as Indian businesses would face lower costs and higher revenues.

Source: The Guardian, 23 December 2020 and World Economic Forum, 17 June 2021

Extract 8: The three biggest challenges for India's future

Unlocking India's massive implied economic potential in the future depends on accelerating and sustaining its upward trajectory on key human development indicators and aiming for progress.

The future presents an opportunity for India to tackle the following three big challenges.

1. **Skill development and employment for the future workforce**
More than half of Indian workers will require reskilling by 2022 to meet the talent demands of the future. They will each require an extra 100 days of learning, on average. There are two main dimensions to the challenge of employment skills. First, there are state-level and regional disparities within India in terms of employment opportunities. Secondly, India has one of the lowest participation rates of working age women in the labour force - about 25%.
2. **Socioeconomic inclusion of rural India**
Three critical "access" barriers currently constrain the aspirations of those living in rural areas in India. First, constrained physical connectivity (e.g. access to all-weather roads and electricity); second, lack of digital connectivity (e.g. access to the internet); and third, limited financial inclusion (e.g. access to commercial banks and bank accounts).

While incomes may have begun to rise in rural India, this may not translate into commensurate growth of productivity and inclusion, unless the urban-rural divides are reduced. Given the approximately 60% share of rural population in 2030, this is a critical imperative not only for the government, which serves its people, but also for businesses which are looking for new opportunities and new growth markets in India.
3. **A healthy and sustainable future**
As India marches forward, it faces new challenges in health and sustainable living, even as it has achieved key health targets such as polio eradication. Cities grappling with alarming rates of congestion and pollution, together with an unhealthy population, could significantly dampen the benefits of India's demographic dividend and urban growth, and lead to a fast deterioration in the quality of life of its citizens.

Source: Mayuri Ghosh, World Economic Forum, 07 January 2019

Questions

- (a) (i) Using a diagram, explain the likely impact of air pollution on India's economic growth. [4]
- (ii) Explain whether this impact is evident in Table 3. [2]
- (b) Discuss whether the demand-management measures proposed in Extract 5 is likely to be successful in lifting India's economic growth rate. [8]
- (c) Explain how participating in global value chains is likely to affect India's
- (i) current account balance, and [4]
- (ii) labour market. [2]
- (d) In view of India's challenges, assess the supply-side options available to the Indian government to achieve inclusive and sustainable progress. [10]

[Total: 30]

Answer **three** questions in total.

Section A

One or two of your three chosen questions must be from this section.

1. Demand for fish is outstripping supply in China causing prices to skyrocket. Consumers are not only becoming more affluent, they are also more health conscious and choosing fish over red meat such as pork and beef. Environmental protections on sustainable fishing, extremely erratic weather have greatly affected seafood suppliers.

Source: seafood.com, 2021

- (a) Explain possible reasons contributing to the soaring fish prices. [10]
 - (b) Discuss how the soaring fish prices would affect producer revenue on fish and its related markets. [15]
2. Big Data analytics is the process of examining big data to uncover information to make informed decisions. Beyond setting different prices for the same product based on consumers differing purchasing and travel patterns, hotel operators like Hilton Hotels & Resorts have also used Big Data to improve their marketing campaigns, offering packages sorted to consumer's interests, and to improve on inventory planning, and even staffing.
 - (a) Explain how the use of Big Data analytics is likely to change the cost to a hotel operator and whether this change in cost will affect its price and output. [10]
 - (b) Discuss whether the use of Big Data analytics by hotel operators are desirable to society. [15]
 3. Smokers are mostly not aware of the true health risk of smoking nor concerned about its impact on others; and second-hand car buyers are often not informed by the sellers on the defects of their cars on sale.

Explain how the above situations lead to market failure and discuss the policies that governments can adopt to correct these market failures. [25]

Section B

One or two of your three chosen questions must be from this section.

4. The world is in for a prolonged period of zero or low inflation and interest rates are losing their relevance as a policy tool. Even negative interest rates, a radical step when imposed a few years ago in Japan, Switzerland and the euro zone, have been largely ineffective. The recommendation for Switzerland's central bank is to steer its economy through the exchange rate instead.

Source: Adapted from Bloomberg Opinion, 25 Feb 2021

- (a) Explain possible causes of falling inflation rates for an economy. [10]
- (b) Discuss whether exchange rate is more effective than interest rate in steering an economy. [15]
5. Macroeconomic goals include maintaining short-term economic stability and sustaining long-term economic growth.
- (a) Explain the benefits of achieving these goals. [10]
- (b) Discuss the factors that a government should consider when deciding whether or not to adopt fiscal policy as a demand-management tool. [15]
6. Singapore might be ranked as the top city in Asia in terms of standard of living, yet it is not without challenges. For instance, technological disruptions and global issues such as the US-China trade war had led to our unemployment rates inching upwards since the start of 2018. In addition, the expansion of our progressive wage model to include more sectors may potentially lead to higher unemployment due to higher cost to employers.
- (a) Explain how economists can conclude that Singapore's standard of living is ranked top in Asia. [10]
- (b) Assess which cause of unemployment is likely to pose the greatest threat to Singapore's unemployment situation in the next few years. [15]

ANSWER SHEET

Answer **all** questions.

Question 1: Developments in the Food Retail Industry

Table 1: Estimates of income elasticity of demand for selected grocery items in U.S.

	Income elasticity of demand
Cereals and bakery	1.31
Fruits and vegetables	1.60
Meat and eggs	1.81

Table 2: Estimates of price elasticity of demand for selected grocery items in U.S.

	Price elasticity of demand
Eggs	-0.24
Beef	-0.70
Fresh vegetables	-0.94
Frozen foods	-1.05

Source: United States Department of Agriculture, 2019

Extract 1: Egg industry in Canada

Perishable staple food products with long planning cycles but relatively short shelf lives, such as eggs, are inherently unstable markets if they are not managed. In the 1960s and 70s, Canada's egg industry was plagued by chronic overproduction and unstable prices.

The egg industry in Canada currently operates under a national supply management system which aims to provide efficient producers with fair returns and to provide Canadian consumers with an adequate supply of eggs at reasonable prices. The amount of eggs that is produced is controlled through a quota system. There are disciplines in place to ensure that producers do not produce excess of their quotas.

Sources: Ontario Ministry of Agriculture, Food and Rural Affairs, last modified 13 February 2021, and Egg Farmers of Ontario, last accessed 31 August 2021

Extract 2: How U.S. small regional grocers are competing with mega-players

In the U.S. grocery industry, mega-players like Walmart are creating unprecedented competition through technology and consolidation. Their low prices have benefited consumers but decimated small regional grocers. However, there's still a place for regional grocers, if they take the right steps to be competitive.

While large grocers have created replicable store experiences that appeal to the masses, regional grocers thrive by offering hyper-customised experiences in a way that big grocers have not been able to. Regional grocers have the advantage of offering a small selection of the niche food options, giving a taste-of-home feel that cannot be paralleled. With smaller stores and fewer selections, regional grocers attract time-pressed buyers who value last-minute in-store shopping and being able to get in and out quickly.

Mega-players have focused on urban areas with high population density. This leaves an opening for regional grocers to serve smaller or less-dense markets. Regional grocers must manage their inventories well, while still investing in new trends and appealing shopping experiences. For those with a strong handle on these factors, there is no brighter spot in retail.

Source: Progressive Grocer, 9 August 2019

Extract 3: How Amazon's Whole Foods acquisition changed U.S. grocery industry

Online sales represented just 5.5% of total U.S. grocery sales in 2018. Analysts expect online grocery sales to capture as much as 20% of total grocery retail by 2025, as more customers get comfortable with it.

Amazon is currently the most popular choice for online grocery shoppers. Since acquiring grocery store chain Whole Foods in mid-2017, Amazon has been offering Amazon Fresh at US\$14.99 per month, which delivers online orders at Whole Foods stores to homes in two hours, as well as pickup of online orders at its Whole Foods stores. Amazon is also bolstering its Prime loyalty programme by providing discounts to Prime members who shop at Whole Foods, increasing visibility of the Prime membership programme.

In the first few months of 2018, Amazon captured 30% of online grocery spending in the U.S.—as much as all grocery chains combined. However, for the overall grocery market, Amazon/Whole Foods only captures 3.7% of grocery sales and Walmart is still the largest grocer. Nonetheless, Amazon's acquisition markedly expanded its reach offline, striking terror in the hearts of grocers around the world. That fear has motivated some of the largest grocers to ramp up their grocery services.

Walmart is testing a number of innovations and defining a new frontier for competition with its impressive delivery infrastructure. It has 3,100 stores serving customers who want to order their groceries online and pick them up in person, and 1,400 other stores delivering online orders to shoppers' homes. Walmart rolled out a "Delivery Unlimited" membership option, where customers can pay US\$12.95 monthly, for unlimited grocery deliveries. Walmart is also trying an in-home delivery option, which costs US\$19.95 a month, an innovation where groceries will be delivered to a customer's refrigerator. These services integrate the online and physical stores, and are building customer loyalty that continues to drive positive growth at Walmart.

Sources: Digital Commerce 360, 21 June 2019, and CNBC, 14 November 2019

Extract 4: Singapore aims to produce 30% of its nutritional needs by 2030

The Singapore Food Agency (SFA) has set the target of producing 30 per cent of Singapore's nutritional needs by 2030. Known as "30by30", it is a move targeted at improving food security. Singapore currently imports over 90 per cent of its food supply and is exposed to the volatilities of the global food market. These volatilities include sudden disruptions to transport routes, export bans and the impacts of climate change.

SFA's ambitious "30by30" goal is to be met within Singapore's land constraints, with less than 1% being designated for agricultural use. There are four ways the target can be achieved: using technology to grow more with less, unlocking physical spaces for farming, developing local talent and getting consumers to support local. The use of technology in farming allows the development of resource-efficient, climate-resilient and high-yield agricultural solutions. High-tech, controlled environment local production will be expanded further, and environmental sustainability of food production will be prioritised.

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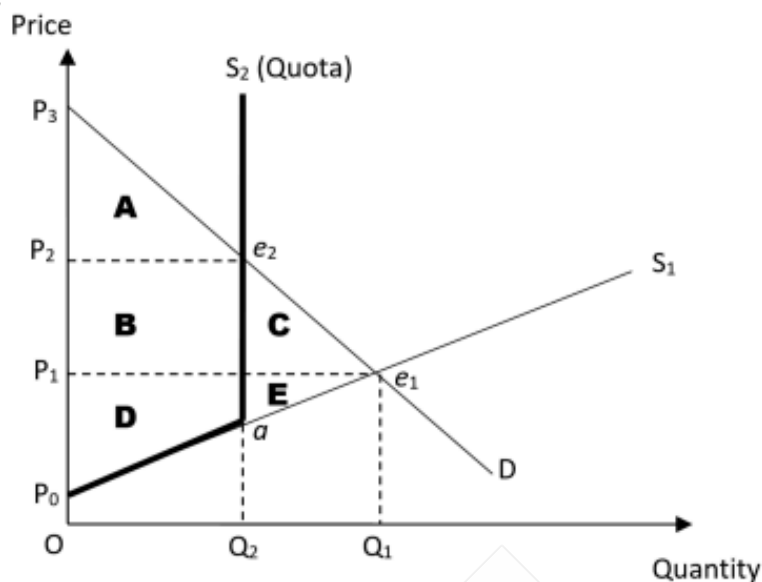
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Suggested Answers for Question 1

(a)		With reference to the data in Tables 1 and 2, explain the effect on total revenue received by food retailers	
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	(ii)	of frozen foods from a fall in its price.	[2]
		<p>(i) Income elastic demand → rise in income leads to a more than proportionate increase in demand, ceteris paribus (eg, 1% increase in income leads to 1.6 times increase in demand) → more than proportionate increase in total revenue from fruits and vegetables.</p> <p>(ii) Price elastic demand → fall in price leads to a more than proportionate increase in quantity demanded (eg, 1% increase in price leads to 1.05 times fall in quantity demanded) → fall in revenue due to fall in price < increase in revenue from increase in quantity demanded → total revenue increases</p>	
(b)		Using a diagram, explain the impact on producer surplus and consumer surplus of a quota on the amount of eggs produced in Canada.	[4]
		<ul style="list-style-type: none"> • Market for eggs is initially at equilibrium at point e_1. • Quota set at OQ_2. • Original supply curve P_0S_1 now becomes P_0aS_2. • New equilibrium point at e_2. • Quantity exchanged falls from Q_1 to Q_2, the maximum level allowable under the quota. Price rises from P_1 to P_2. • Consumer surplus fall ($A+B+C$ to A) • Producer surplus uncertain ($D+E$ to $D+B$), depends on PED relative to PES. 	



(c)	Explain two likely reasons why small firms can co-exist with larger firms in the same industry such as grocery retailing.	[4]
	Any two likely reasons with explanation: <ul style="list-style-type: none"> • Demand-side <ul style="list-style-type: none"> ◦ Unique offerings, ◦ proximity/ speed, freshness ◦ Agility, quick to adapt (Find extract) • Supply-side <ul style="list-style-type: none"> ◦ Banding together; Cost-sharing 	
(d)	Using the evidence in the data, discuss the impact of growing preference for online grocery shopping on the profits of large firms such as Walmart in the US grocery industry.	[8]
	<ul style="list-style-type: none"> • Firms are profit motivated → maximise profit (maximise the difference between TR and TC) • Profits increase <ul style="list-style-type: none"> ◦ Costs may increase (due to new features to meet consumers' preference for online shopping/ greater convenience), but increase in revenue due to increase in consumer spending may be greater ◦ Ability to reach more consumers to increase revenue – in addition to its curbside pickup service of fresh groceries and online delivery service, eg, Walmart's Delivery Unlimited, in-home delivery 	

	<ul style="list-style-type: none"> • Profits may fall <ul style="list-style-type: none"> ◦ Increase in costs may be greater than increase in revenue (eg, cost of setting up online platform/ delivery services, while keeping prices competitive) ◦ Threat of potential competition (eg, entrance of Amazon) will keep existing grocery firms operating at lower prices and higher output levels, lowering profitability. • Overall <ul style="list-style-type: none"> ◦ May incur higher cost from non-price strategies which could erode profits (SR) ◦ Eg, implement non-price strategies → if effective will lead to higher demand/able to capture a larger market share and demand will become more price inelastic as it helps differentiate the firm's service to make it less substitutable (LR) ◦ Ability to gather information about the taste and preferences of their consumers so firms can employ non-price strategies to cater to tastes and preferences of their customers. ◦ Depends on level of supernormal profits or resources that a firm has to adapt to consumers' preference → greater preference/ need for online grocery shopping due to COVID. ◦ Firms may benefit from higher profits over the long term with successful R&D (eg, implement new technologies) → have a greater incentive to channel supernormal profits into R&D. <table border="1"> <tr> <td>L2</td><td>Two-sided answer with good use of economic reasoning and given context.</td><td>4 – 6</td></tr> <tr> <td>L1</td><td>Two-sided answer with limited economic analysis or one-sided answer</td><td>1 – 3</td></tr> <tr> <td>E</td><td>2: Substantiated judgment 1: Unsubstantiated judgment</td><td>1 – 2</td></tr> </table>	L2	Two-sided answer with good use of economic reasoning and given context.	4 – 6	L1	Two-sided answer with limited economic analysis or one-sided answer	1 – 3	E	2: Substantiated judgment 1: Unsubstantiated judgment	1 – 2	
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(e)	<u>Proposed replacement question</u> Discuss the ways in which Singapore might improve its food security.	[10]									
	Make clear what is meant by 'improving food security' before discussing possible ways in which Singapore might improve its food security, with reference to data from extracts.										

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	<p><i>"Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life". (World Food Summit, 1996)</i></p> <p>Rationale for Singapore to improve its food security – import 90% of its food supply -> exposed to volatilities of the global food market such as sudden disruptions to transport routes, export bans and the impact of climate change.</p> <p>Discuss the ways to improve its food securities include</p> <ol style="list-style-type: none"> 1. Increasing domestic SS of and DD <ul style="list-style-type: none"> • Increasing SS through technology – by subsidising (providing funds) firms to engage in process innovation -> increased productivity -> decreased unit COP -> increase in domestic SS + more stable supply given the new climate-resilient technology + more price elastic supply (eg, more producers of local food). Limitations/constraints/ trade-offs due to resource and land constraints. • Increasing SS through optimising land usage and improving quality of labour (building talents) • Increase demand by changing taste and preference of consumers (through campaigns that switch away from imported food) + more price elastic demand (through creating greater availability of local food as substitutes of imported food and hence less susceptible to volatilities in global food market that leads to price increase); Limitations includes the time needed to increase 2. Reducing demand for imports 3. Diversifying – importing from more countries <p>Evaluation:</p> <ul style="list-style-type: none"> • Combination of ways needed for SG to improve food security overtime, with both short term and long term measures in place. Aim is to ensure sufficient quantity for consumption and stable prices. • Depends on success of R&D, changing consumers' mindset, government's ability to limit trade-offs (eg. obtain accurate information on optimal level of food production). • Will need to continue to diversify food sources even if 30by30 target is met. Might need to review "30by30" target given the changing circumstances – eg, trade tensions, climate change, COVID (eg, need to accelerate). A sustainable approach is to reduce DD (by reducing food wastage) rather than continuous increase SS bearing in bear the trade-off. . 	
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		<p>L1 A descriptive approach on ways in which Singapore might improve its food security.</p> <p>A one-sided explanation / weak discussion on way(s) in which Singapore might improve its food security but lacking in either depth (one-sided explanation of at least two ways) or scope (only discussed one way).</p> <p>Might not have properly grasped the understanding of improving food security and interpreting it as increasing domestic production and hence suggested import restrictions that lead to food shortages.</p>	1 – 4
		<p>L2 An answer that showed a balanced discussion of at least two ways in which Singapore might improve its food security, with sufficient depth of economic reasoning.</p> <p>Have a good grasp of the meaning of improving food security.</p>	5 – 7
		<p>E 1: Unsubstantiated judgment 2-3: Substantiated judgment</p>	1 – 3

Suggested Answers for Question 2

(a) i	Using a diagram, explain the likely impact of air pollution on India's economic growth.	[4]
	<p>AD/AS diagram [1]</p> <p>Impact on AD [1]</p> <ul style="list-style-type: none"> When pollution levels spike, consumers are more likely to stay indoors to preserve their health, leading to lesser consumer footfall in commercial zones in Indian cities → fall in C_d → fall in AD (or any other relevant and valid reason to explain the impact on AD, e.g. hazardous pollution levels may deter investors) 	

	<p>Impact on AS [1]</p> <ul style="list-style-type: none">• Prolonged exposure to hazardous pollution levels lead to premature deaths and a loss in worker productivity due to poor health (Extract 7) → fall/smaller rise in quantity and quality of FOPs → fall/smaller rise in AS <p>Impact on economic growth [1] Negative growth and a rise in unemployment rate as the economy produces further away from Y_f.</p>	
(a) ii	<p>Explain whether this impact is evident in Table 3.</p>	<p>[2]</p>
	<p>This impact is not evident in Table 3 [1]; as CO2 emissions increased, real GDP still increased. [1]</p>	
(b)	<p>Discuss whether the demand-management measures proposed in Extract 5 is likely to be successful in lifting India's economic growth rate.</p>	<p>[8]</p>
	<p>T: Fiscal and monetary policies are successful in generating economic growth</p> <ul style="list-style-type: none">- Expansionary FP: "income support to farmers... tax relief to tax payers earning less than INR500,000" (Extract 5) → increase in disposable income → increase C_d → increase AD → increase r_{NY} via k process- Expansionary MP: "central bank has room for lowering policy rates" (Extract 5) → assuming that central bank reduces i/r → increase C_d and I → increase AD → increase r_{NY} via k process <p>AT: Limitations of FP and MP, may not lead to increased r_{NY}</p> <ul style="list-style-type: none">- FP: Government has sizable central government debt as % of GDP (Table 3), may have to borrow to fund its spending → crowding out effect; increased income received may be saved rather than spent due to bleak economic outlook (due to global slowdown and escalating trade tensions (Extract 5))- MP: depends on interest elasticity of consumption and investment, expectations of consumers and firms- FP & MP: Only targets domestic demand, slowdown in external demand and India's tepid export performance may result in a substantial fall in $X-M$, reducing the effectiveness of FP and MP to increase r_{NY} via the other AD components. <p>Synthesis: Depends on relative importance of domestic vs external demand, size of K, government's countervailing measures to further integrate into GVCs.</p>	
L2	<p>Answer is two sided, well-explained (both FP and MP) and supported with thorough economic analysis and use of diagrams</p>	<p>4 – 6</p>

	L1	Answer is one-sided or there are severe errors or omissions in analysis; may have only considered 1 policy (FP/MP) – max 4m	1 – 3		
	E	2: Substantiated judgment 1: Unsubstantiated judgment	1 – 2		
(c)	Explain how participating in global value chains is likely to affect India's (i) current account balance and (ii) labour market				[4] [2]
<p>(i) Participating in GVCs is likely to <u>improve</u> India's current account balance. [1]</p> <ul style="list-style-type: none"> - Being integrated in GVCs increases export destinations → Increase DD for X [1] → Increase X - Being integrated in GVCs increases availability of sourcing for cheaper FOPs → reduce unit COP and increase price competitiveness of exports [1] → demand for India's exports is likely to be highly price elastic due to the availability of close substitutes in the world market; hence a fall in price will lead to a more than proportionate increase in quantity demanded for exports [1] → Increase X <ul style="list-style-type: none"> o <i>Alternatively: Any point that shows a consideration of (i) the impact of participating in GVCs on imports and import expenditure, e.g. Participating in GVCs may also mean an increase in demand for imports (and hence import expenditure) since India is likely to import raw materials or semi-finished products so as to engage in value-added production [1] and (ii) why the increase in X is still expected to be larger than the increase in M, e.g. very fast growth in GVC export sectors (Extract 6) [1]</i> - Ceteris paribus, there is a rise in X-M → improvement in balance of trade → improvement in current account since BOT is likely to be its largest component <p><i>Note: It is possible to explain that participating in GVCs might worsen India's current account given its tepid export performance as compared to its rivals.</i></p> <p>(ii) Participating in GVCs is likely to increase demand for workers [1] in sectors such as agriculture, textiles, petroleum, chemicals, and electrical and optical equipment, which increases wage rate and employment levels [1]</p>					

	<i>Note: It is possible to explain that participating in GVCs might lead to structural unemployment as the structure of the economy changes with the growth of certain industries (Extract 6: agriculture, textiles, petroleum, chemicals, electrical and optical equipment) and workers are occupationally immobile across sectors.</i>	
(d)	In view of India's challenges, assess the supply-side options available to the Indian government to achieve inclusive and sustainable progress.	[10]
	<p>Supply-side policy: Human capital development</p> <ul style="list-style-type: none">• Education and retraining (Extract 8)<ul style="list-style-type: none">◦ Besides explaining how it promotes non-inflationary sustained growth, also explain how it ensures that growth is inclusive:<ul style="list-style-type: none">▪ Education and retraining → reduces structural unemployment, increases labour productivity → increases wage rate• Limitations (uncertainty of effect) <p>Supply-side policy: Promoting innovation</p> <ul style="list-style-type: none">• R&D into green technology<ul style="list-style-type: none">◦ Govt can provide grants or subsidies to support research and development into green technology → sustainable growth• Limitations (uncertainty of effect) <p>Supply-side policy: Infrastructure development</p> <ul style="list-style-type: none">• Transport and communication (Extract 8)<ul style="list-style-type: none">◦ Infrastructure within rural regions and connecting rural regions with urban city centres must be build up over time to improve access to education and job opportunities, ensuring growth is inclusive.• Limitations (huge initial expenditure outlay) <p>Overall evaluation: [Stand] The proposed measures are more likely to be effective in ensuring sustainable and inclusive growth in the long-term. [Substantiation - <i>FRESH</i>] This is because all these measures take time to have an effect, and their limitations also require time and deliberate effort from the government to resolve + explain how limitations may be overcome with time.</p>	
L2	Answer is balanced and considers both the advantages and disadvantages of at least two policies suggested, with detailed	5 – 7

		economic analysis. Response is contextualised and well-directed towards sustainable and inclusive growth.			
	L1	Answer has limited economic analysis and is not well-directed towards sustainable and inclusive growth (e.g. answer does not explain how growth is made more inclusive or sustainable through the use of policies) OR Answer is one-sided (only advantages/disadvantages of each policy) OR Only one policy is suggested	1 – 4		
	E	2 – 3: Substantiated judgment 1: Unsubstantiated judgment	1 – 3		



Answer **three** questions in total.

Section A

One or two of your three chosen questions must be from this section.

1. Demand for fish is outstripping supply in China causing prices to skyrocket. Consumers are not only becoming more affluent, they are also more health conscious and choosing fish over red meat such as pork and beef. Environmental protections on sustainable fishing, extremely erratic weather have greatly affected seafood suppliers.

Source: seafood.com, 2021

- (a) Explain possible reasons contributing to the soaring fish prices. [10]
 - (b) Discuss how the soaring fish prices would affect producer revenue on fish and its related markets. [15]
2. Big Data analytics is the process of examining big data to uncover information to make informed decisions. Beyond setting different prices for the same product based on consumers differing purchasing and travel patterns, hotel operators like Hilton Hotels & Resorts have also used Big Data to improve their marketing campaigns, offering packages sorted to consumer's interests, and to improve on inventory planning, and even staffing.
 - (a) Explain how the use of Big Data analytics is likely to change the cost to a hotel operator and whether this change in cost will affect its price and output. [10]
 - (b) Discuss whether the use of Big Data analytics by hotel operators are desirable to society. [15]
 3. Smokers are mostly not aware of the true health risk of smoking nor concerned about its impact on others; and second-hand car buyers are often not informed by the sellers on the defects of their cars on sale.

Explain how the above situations lead to market failure and discuss the policies that governments can adopt to correct these market failures. [25]

Section B

One or two of your three chosen questions must be from this section.

4. The world is in for a prolonged period of zero or low inflation and interest rates are losing their relevance as a policy tool. Even negative interest rates, a radical step when imposed a few years ago in Japan, Switzerland and the euro zone, have been largely ineffective. The recommendation for Switzerland's central bank is to steer its economy through the exchange rate instead.

Source: Adapted from Bloomberg Opinion, 25 Feb 2021

- (a) Explain possible causes of falling inflation rates for an economy. [10]
- (b) Discuss whether exchange rate is more effective than interest rate in steering an economy. [15]
5. Macroeconomic goals include maintaining short-term economic stability and sustaining long-term economic growth.
- (a) Explain the benefits of achieving these goals. [10]
- (b) Discuss the factors that a government should consider when deciding whether or not to adopt fiscal policy as a demand-management tool. [15]
6. Singapore might be ranked as the top city in Asia in terms of standard of living, yet it is not without challenges. For instance, technological disruptions and global issues such as the US-China trade war had led to our unemployment rates inching upwards since the start of 2018. In addition, the expansion of our progressive wage model to include more sectors may potentially lead to higher unemployment due to higher cost to employers.
- (a) Explain how economists can conclude that Singapore's standard of living is ranked top in Asia. [10]
- (b) Assess which cause of unemployment is likely to pose the greatest threat to Singapore's unemployment situation in the next few years. [15]

Suggested Essay Outlines / Mark Scheme

1. Demand for fish is outstripping supply in China causing prices to skyrocket. Consumers are not only becoming more affluent, they are also more health conscious and choosing fish over red meat such as pork and beef. Environmental protections on sustainable fishing, extremely erratic weather and Covid-19 interruptions have greatly affected seafood suppliers.

Source: seafood.com, 2021

- Explain the possible reasons contributing to the soaring fish prices. [10]
- Discuss how the soaring fish prices would affect producer revenue on fish and its related markets. [15]

Suggested ans for part (a)

- Dd factors: rising income & PP leading to consumption of more normal goods; deriving higher utility for stronger substitutes (fish) over weaker substitutes (red meat)
- $PED < 1$: lacking strong & close substitutes
- Ss factors: erratic weather & environmental protection has led to higher cost incurred by fishermen when fishing → using more equipment to weather through tough weather, differentiating small from big fish (suitable to be caught & sold vs released back to ensure sustainable supply)
- $PES < 1$: perishable
- Large shortage is created due to Dd rising & Ss falling simultaneously (has to include shortage explanation)
- $PED < 1$ & $PES < 1$ implies the change in Q_{dd} & Q_{ss} are not responsive to the change in price → more dependent on prices to increase to remove the current large shortage at current price level

Level	Marks	Descriptors
L3	8-10	<ul style="list-style-type: none"> Good exemplifications Uses a good economics framework with well explained diagrams Points raised are well-elaborated & based on the different relevant elasticities concepts
L2	5-7	<ul style="list-style-type: none"> Points raised lack elaboration/ exemplification Explain the different elasticities concepts but did not link to how the different elasticities concepts will affect the equilibrium soaring prices of fish
L1	1-4	<ul style="list-style-type: none"> Attempted analysis is limited Conceptual misunderstandings of the different elasticities concepts tested are evident lack of understanding on the question requirements.

Suggested ans for part (b)

Market for fish

- The rise in D_d , regardless of PES, ceteris paribus will lead to higher prices & output and consequently TR earned
 - The extent of increase in TR is even higher if $YED > 1$: fish is deemed a luxury normal good
- The fall in S_s , assuming $PED < 1$, ceteris paribus will see the rise in price cause a less than proportionate fall in Q_{dd} , and thus higher TR earned
 - The revenue gained from the rise in price outweighs the revenue lost from fall in Q_{dd}
- All in all, the soaring fish prices will lead to higher TR
- **However, this may not be true if the following happens:**
- $0 < YED < 1$: a less than proportionate increase in D_d , thus the rise in TR due to the increase in fish prices is small
- The fall in S_s coupled with $PED > 1$: not all consumers are able to consume fish on a daily basis as it takes up a larger proportion of their income (especially true for the low-Y HH)
 - TR will instead fall as the rise in price leads to a more than proportionate fall in Q_{dd}
- Assuming the fall in TR from the fall in S_s outweighs the rise in TR from the rise in $D_d \rightarrow$ overall producer revenue will fall
- **Evaluation:** the growing affluence in China has saw millions being lifted out of poverty \rightarrow it is more likely for producer to be earning more than less TR
- More likely to happen in Tier 1 to 3 cities than other lower tiered cities \rightarrow Y is growing much faster in the higher tiered cities

Market for red meat

- The rise in fish prices will see consumers turning towards red meat because both provides similar level of utility (source of proteins) \rightarrow application of XED has to be used to deepen analysis of answer
- The preamble has stated growing preference for fish over red meats due to growing health concerns \rightarrow XED is likely to be inelastic where the rise in fish prices leads to a less than proportionate increase in D_d for red meat, ceteris paribus \rightarrow consumers are price sensitive & will seek to consume red meat to maximise their utility (limited budget)
 - The rise in D_d for red meat will also lead to higher prices & output, and consequently TR of red meat market
- **However, this may not be true if the following happens:**

- If the soaring fish prices is a one-off event → more likely to lead to a less than proportionate rise in Dd for red meat than if the soaring fish prices have been happening for a prolonged period of time
 - If soaring fish prices persists into the LR → the rise in Dd for red meat is expected to be larger because more and more consumers would be unable to afford fish given their limited budget as they have less income leftover for consumption of other G&S → consequently the rise in TR of red meat market in LR is expected to be larger
- **Evaluation:** the growing affluence in China has been happening for a long period of time, and also the magnitude of growth in affluence has been very significant → implies consumers of fish, even in LR, are likely to remain price insensitive, willingness to switch to a cheaper substitutes is smaller
 - Overall the increase in Dd for red meat due to the rise in fish prices is less than proportionate, the rise in producer TR is small

Market which demand is derived from the fish market (e.g fishing supplies)

- The rise in fish prices & consequently producer revenue in fish market will lead to a rise in derived Dd for FOPs such as fish supplies (fishing nets, trawlers etc)
- The rise in producer revenue in fish market will see fishermen increasing their catch, and to do so, they need more FOPs to help them catch the fish → producer of fishing supplies will thus see a rise in TR, ceteris paribus
- **However, this may not be true if the following happens:**
- If the soaring fish prices is a one-off event → producers might instead choose to use their existing fishing supplies more often than to increase and purchase more fishing supplies to protect profits
 - This leads to much smaller increase in Dd for fishing supplies, and consequently a much smaller increase in TR, ceteris paribus
- **Evaluation:** the growing affluence in China has been happening for a long period of time, and also the magnitude of growth in affluence has been very significant → implies consumers expenditure (which is the same as producer revenue) of fish has been increasing for a long time → overall an increase in producer revenue of fishing supplies due to soaring fish prices

Market which uses fish as a FOP (e.g F&B, health supplements):

- The rise in fish prices will lead to higher production for fast food restaurants which sells fish burgers/ fish & chips/ fish nuggets etc, ceteris paribus
- The Dd for fast food restaurant is $PED > 1$ due to availability of substitutes (hawker/ fine-dining/ home-cooked etc) → producer revenue will fall as the fall in Ss will lead to a rise in prices of food charged, and consequently will lead to a more than proportionate fall in Qdd for food sold in fast food restaurants
- **However, this may not be true if the following happens:**

- Fish can be used to produce health supplements → omega fish oil, collagen powder etc
- The rise in fish prices will lead to higher production cost for these health supplements, however, since demand for such health supplements are deemed to be $PED < 1$ (lack of close substitutes → such as for omega 3 fish oil)
 - Producer revenue will instead rise as compared to other markets (like fast food)
- **Evaluation:** the use of fish oil to produce what type of food is very important → food for consumption of energy (fast food) or food for consumption to improve our health (health supplements)

Level	Marks	Descriptors
L3	8-10	<ul style="list-style-type: none"> • Good discussion of how the soaring fish prices affect the revenue earned in the fish market and 2 other related markets • Points raised are well-elaborated & based on economics concepts. • Good exemplifications • Uses a good economics framework with well explained diagrams
L2	5-7	<ul style="list-style-type: none"> • Attempted at discussing how the soaring fish prices can affect the revenue earned in the fish market and its related markets differently • Points raised were insufficiently elaborated or lack economic analysis • There were attempts to exemplify
L1	1-4	<ul style="list-style-type: none"> • Attempted analysis is limited, conceptual misunderstandings are evident and there is lack of understanding of the question requirements.
E	1	For unexplained judgment without supporting analysis
E1	2-3	Evaluative assessment supported by economic analysis.
E2	4-5	Evaluative assessment supported by economic analysis and insightful comments.

Question 2

Big Data analytics is the process of examining big data to uncover information to make informed decision. Beyond setting different prices for the same product based on consumers differing purchasing and travel patterns, hotel operators, like Hilton Hotels & Resorts have also used big data to improve their marketing campaigns, offering packages sorted to consumers' interest, and to improve on its inventory planning, and even staffing.

- a) Explain how the use of Big Data analytics is likely to change the cost of hotel operators and whether this change in cost will affect its price and output. [10]
- b) Discuss whether the use of Big Data analytics by hotel operators are desirable to society. [15]

Suggested ans for part (a)

1. Big data analytics is going to increase the total cost of hotel operators → was previously not using big data to help itself better market its product and plan its inventory

2. Factors increasing total cost: spending more on marketing campaigns (sunk cost), providing tailored advertising campaigns to suit the taste & preference of each consumers will lead to higher variable cost (more cost to mine and interpret data than using a single standardized campaign) → increasing MC and AC as the cost to produce an additional output is higher

- Likewise, improving staffing needs can lower AC & MC as less workers are employed to produce the same output in non-peak periods (Another acceptable explanation of how big data can affect AC & MC of hotel operators. Students are not expected to explain how the use of big data can increase and decrease AC & MC respectively)

3. Firms are rational profit-max: uses $MC=MR$, MC cuts MR from below to determine its price & output level

4. The increase in sunk cost will not affect the price and output decisions of hotel operators, because sunk cost only affects the total cost and not the MC

5. The increase in AC & MC due to the tailoring advertising to suit the taste & preference of each internet user (increasing MC & AC as more time, data and utilities spent to mine & interpret the different data of different consumers)

- In this case, the AC & MC has increased, and a new & higher profit-max price and lower profit-max output will be determined
- At the original output, the $MC > MR$, thus hotel operator will reduce the output to the new profit-max intersection → at the new intersection $MC=MR$

6. However, hotel operators are operating in an oligopolistic market because:

- Entry cost is high → cost of rental, building the hotel doesn't allow for firms to easily enter even if they see existing firms are earning supernormal profits
- Able to retain its supernormal earned in LR
- Mutually inter-dependent and thus might be subjected to the concept of price rigidity → even if cost has changed (increased as explained earlier), the price will remain for fear of losing their customers to their competitors (providing similar products: an overnight accommodation)
 - Will even when they are enjoying cost-savings, they will not lower prices to avoid the ill effects of triggering a price war → all the firms will end up with a lower profits, benefitting only the consumers
 - Diag isn't needed for this part of the ans

L3 (8-10m)	Comments to markers Answers must be consistently focused on the question set (i) <i>How Big Data analytics can change (either increasing or decreasing total cost of production)</i> (ii) <i>Whether the change in cost explained can affect the price & output</i> Answers must <ul style="list-style-type: none"> • <i>include accurate diagrams for the change in profit-max price & output charged, which includes explaining the adjustment process from one profit-maximising output to another profit-maximising output, i.e. the marginalist principle of rational decision making is well-applied.</i> • <i>awareness of hotel operators are operating in an oligopolistic market, thus the presence of mutually inter-dependent characteristic limits hotel operators' ability to change its price & output</i>
L2 (5-7 m)	Comments to markers <ul style="list-style-type: none"> • <i>Analyse both situations</i> • <i>Accurate and rigorous analysis for one, some gaps in the other</i> • <i>Profit-maximisation decision making not made explicit</i> Expect answers in low L2 (5-6) to have only depth or scope <ul style="list-style-type: none"> • <i>One situation, analytical in approach</i> • <i>Both situations but both largely undeveloped</i>
High L1 (3 – 4 m)	For an answer that <ul style="list-style-type: none"> • <i>shows some knowledge but inadequately explained and lacks economic analysis</i> • <i>shows that the meaning of the question is not properly grasped, i.e. is not answering the question</i> • <i>shows basic errors of theory, i.e. filled with multiple and serious conceptual errors</i>
Low L1 (1 – 2 m)	For an answer that

	<ul style="list-style-type: none"> • has only few valid points • is mostly irrelevant or inaccurate
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Suggested ans for part (b)

Issue to discuss: Big Data analytics is desirable, and why it might not be

Thesis: The use of big data by hotel operators is *desirable* to society

1. The use of big data by hotel operators has led to lowering of profit-max prices charged (reference to part a) → with the same amount of income, consumers can buy more of other G&S
 - Likewise, another benefit to society is that more people in the society are able to consume hotel stays (given the fall in profit-max price) → larger profit-max output
2. Likewise, the increase in total cost leads to hotel operators earning less supernormal profits (Dd & MR constant) → reducing the extent of inequity
 - Has to be explained and illustrated with diagram
3. The use of big data has allowed for less wastages of resources → improving resource planning → easier to adhere to its aim of being productive from its own POV (as long as it is on the AC curve, it is productive efficient)
 - Productive efficiency is using the least costly combination of inputs to produce a given level of output → for each firm, it wants to be on the AC curve
4. The use of big data has allowed for dynamic efficiency because taste & preferences of consumer can be better met, consumers deriving more utility from their consumption of hotel accommodation → illustrated as the increase in Dd and Dd is more price inelastic because of fewer closer substitutes available
 - Hotel operators, as a result, can earn more supernormal profits → it can be channelled back as product innovation → improving quality of G&S produced
 - Process innovation can also happen → discovery of better production techniques where the entire AC & MC curves shift downwards in the LR → further lowering of profit-max prices

Anti-thesis: use of big data by hotel operators is *undesirable* to society

1. The use of big data will lead to a higher demand (MR as well) → earns more supernormal profits → could lack the incentive to invest in process & product innovation → new competitors are unable to enter and compete away its supernormal profit
 - Worsening the redistribution of income from consumers to hotel operators → illustrated with the bigger area of supernormal profits earned
2. Likewise, it will lead to greater price setting power (larger distance between price & MC at profit-max output), thus society incurs a larger DWL → the level of output restricted away from the socially optimal (Q_s) is much larger than before → illustrated with diag

- The net DWL loss area is larger as the loss in additional benefit to society relative to the loss in cost incurred is much larger than before

Evaluation: overall judgment on the impact felt by the society as hotel operators use big data

- Criteria to consider:
1. What does society value more? If it values choices & variety more, it has to accept the trade-off of greater allocative inefficiency & inequity
 - Especially true for a society which is getting more and more affluent → seeks to maximise their own utility above the problems of inefficiency & inequity getting worse
 2. What is the difference in the level of impact on different groups of consumers
 - Consumers who are less educated and tech savvy → might be worse off as they have to spend more time to sieve through the increased in “choices” offered to maximise their self-interest → less able to see through the tricks of hotel operators as they employ the use of big data to further their own profit-max objective
 3. What are some possible unintended impact it can bring to hotel operators themselves
 - Big data could enable the growth of disruptive tech → unmet needs & wants of consumers can be better identified → allowing competitors which are currently not a threat to become a viable threat → keeps incumbent hotel operators on their toes and they strive to be efficient, and more likely to use supernormal profits for innovation

Knowledge, Understanding, Application & Analysis	
L3 (8 -10 m)	Comments to markers <i>Answers should</i> <ul style="list-style-type: none"> • <u>in the main</u>, address both aspects of efficiency (allocative & productive) and equity • include both thesis and antithesis arguments • include accurate diagrams • include real-world examples <i>To be in high L3 (9-10m), answers must</i> <ul style="list-style-type: none"> • consistently focus on the how society has benefitted from Big Data analytics, thus explaining its desirability, and also areas society will be subjected to more harms of market dominance
L2 (5-7 m)	Comments to markers <i>Answers</i> <ul style="list-style-type: none"> • should make some, though inconsistent, attempt to address the 3 aspects (allocative efficiency, productive efficiency, and equity) • include both thesis and antithesis arguments • include accurate diagrams • some attempt to include real-world examples <i>Expect answers in low L2 (5-6) to</i> <ul style="list-style-type: none"> • be lacking in either depth or scope

	<ul style="list-style-type: none"> ○ <i>thesis or antithesis only, analytical in approach</i> ○ <i>two sides but both largely undeveloped</i> • <i>make little attempt to address all 3 aspects of the question e.g. analysed the generic case of pricing of large firms unrelated to technological changes</i>
L1 (3 – 4 m)	<p>For an answer that</p> <ul style="list-style-type: none"> • shows some knowledge but inadequately explained and lacks economic analysis • shows that the meaning of the question is not properly grasped, i.e. is not answering the question • shows basic errors of theory, i.e. filled with multiple and serious conceptual errors <p>Expect answers in the low L1 (1-2) to</p> <ul style="list-style-type: none"> • have only few valid points • be mostly irrelevant

E	1	For unexplained judgment without supporting analysis
E1	2-3	Evaluative assessment supported by economic analysis.
E2	4-5	Evaluative assessment supported by economic analysis and insightful comments.

Question 3

Smokers are mostly not aware of the true health risk of smoking nor concerned about its impact on others; and second-hand car buyers are often not informed by the sellers on the defects of their cars on sale.

Explain how the above situations lead to market failure and discuss the policies that governments can adopt to correct these market failures. [25]

Question Interpretation

Students are expected to explain the market failure associated with the given situations in the preamble. Economic models and exemplifications are necessary to gain good marks. Once the market failure is explained, students should refer to the given situations and offer various forms of government intervention that will help correct these market failures.

Introduction

Define market failure: where markets are not allocative efficient and that social welfare is not maximised.

Body

Explain market failure in the consumption of cigarettes

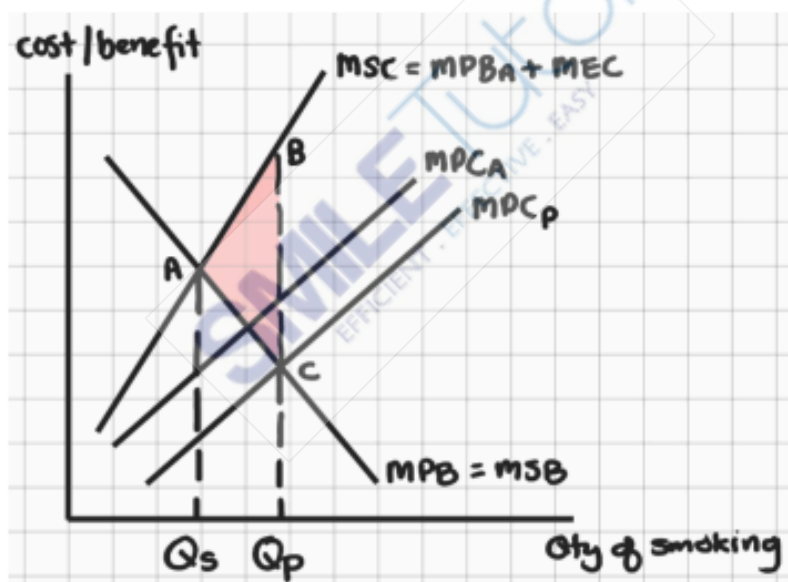
Market failure associated with smoking is a common example of demerit good. A demerit good comprises of two types of market failure (i) imperfect information, and (ii) negative externality in consumption. The presence of these causes result in deadweight loss to be present in smoking.

Firstly, smokers (especially the younger smokers) may not be fully aware of the detriments of smoking, such that they are not fully informed of the potential health hazards arising from the chemicals used to produce cigarettes. As a result, the marginal private cost of smoking is underestimated. Smokers are unable to effectively discount the future costs of smoking into present value. This is especially the case for young smokers, where the health hazards in the later years of their lives seem remote at present time.

Marginal private cost refers to the cost incurred by the consumption of an additional unit of cigarette. This includes increased healthcare cost from smoking and the cost to purchase cigarettes. The underestimated MPC is denoted by MPC_p , while the actual cost of smoking is MPC_a . MPC_p lies below MPC_a . The marginal private benefit refers to the satisfaction derived from consuming an additional unit of cigarette, which could be the monetised value of relaxation or fitting in to a social setting. Consumers are assumed to be maximise utility, thus will consume up to where $MPC_p = MPB$, as their judgment is clouded by the presence of imperfect information.

In addition, smoking poses negative externalities on third parties. Second-hand smoke inhaled by non-smokers will cause irritation to their noses and prolonged exposure will take a toll on their health as well. The additional healthcare costs imposed on third parties are known as negative externality, where a third party bears a cost of an economic transaction/decision not conducted by themselves, and they are not compensated for the cost incurred. The presence of negative externality results in the presence of marginal external cost, MEC. The total cost upon society for very additional unit of cigarette consumed is thus marginal social cost ($MSC = MPC + MEC$). Assuming that there is no external benefit, the marginal social benefit ($MSB = MPB$).

While consumers maximise utility at $MPB = MPC_p$, society's welfare is maximised when consumption is at $MSC = MSB$. Referring to the graph below, consumers will consume up to Q_p units when left to free market forces, which is more than socially optimal quantity of Q_s units. There will be a deadweight loss present in the market due to the over-consumption of smoking at Q_p units. Between Q_s to Q_p units, the social benefit is given by the area Q_sACQ_p while the social benefit is area Q_sABQ_p . There is a net loss of welfare by area ABC . When left to private market forces, the over-consumption of cigarettes led to inefficiency in the market.



Discuss solutions to correct market failure in the consumption of cigarettes

1. **Raise awareness to close the gap between perceived and actual MPB**
 The government can take on the paternalistic role by rolling out campaigns and educational programmes to inform people of the actual detriments of smoking.
 Examples:
India – “When You Quit” Campaign
 India launched the campaign, “When You Quit” on national radio stations and on digital television platforms; and disseminated a communications toolkit with social media resources to communicate the harms of tobacco use.
China – Promotion of Smoke-Free Policies

China implemented smoke-free policies with two public service announcements, "Cigarettes are Eating Your Baby Alive" and "Smoke-Free Family", reaching more than one million people through an online event organized with the National Health Commission.

Vital also worked with the Yunnan Health Education Centre and Health Education Association to provide posters on the importance of smoke-free policies for 200,000 posters bulletin boards across the province. Other cities in China also launched social and mass-media campaigns.

This will shift the MPBp closer to MPBa such that smokers are more aware of the detriments of smoking upon themselves (and their immediate families).

Limitations

Bounded rationality -> ineffective

2. Impose a tax to internalise the MEC present in the consumption of cigarettes
A tax that is equivalent to the MEC can be imposed such that it will force the smokers to 'pay' for the third-party costs inflicted on others as a result of their actions. Referring to the diagram below, the tax will raise the price of cigarettes, thus reducing the quantity of smoking. In the ideal case where $MEC = \text{tax per unit}$ and that imperfect information no longer exists, the external cost is fully internalised, and consumption is reduced to Q_s .

Limitations

Imperfect information on the part of the government and might set the tax rate at too low a level; Demand for cigarettes is likely to be price inelastic; Political resistance

3. Set laws and regulations
Many countries set a restriction on the age group eligible to consume cigarettes and ban the consumption of cigarettes in enclosed areas. This will reduce Q_p nearer to Q_s . Others make it illegal to advertise cigarettes or cigarette companies are also required by law to display health warnings on cigarette packets. This will shift the MPCp closer to MPCa such that smokers are either less misinformed or more informed of the detriments of smoking upon themselves.

Limitations

Might be difficult to monitor and enforce in certain countries; political resistance -> ineffective

Market failure in the purchase of second-hand cars

The second-hand car market is a common example where asymmetric information exists and market failure occurs. In this market, sellers have greater knowledge about the condition and quality of their cars than buyers. For example, a seller is likely to know about engine or transmission problems, the maintenance history, and any defective

equipment. In other words, the seller is likely to know whether the car is a “lemon” (a car with defects). The buyer, however, is at a disadvantage.

Consider a buyer looking for a particular car make and model such as the Mazda 3. The buyer is willing to pay up to \$74,000 for a high-quality second-hand car (a “cherry”) but only \$60,000 for a low-quality second-hand car (a lemon). Potential sellers of their Mazda 3s know the history of their cars for sale—they have good information and know whether it is a cherry or a lemon. The buyer, however, cannot tell whether the car is a cherry or a lemon. Since the potential buyer is unsure, the buyer assumes that neither car is of high quality, thus chooses to offer a price below that of a high-quality second-hand car: e.g. \$67,000. Other buyers behave in similar ways because they cannot distinguish between lemons and cherries, they offer prices somewhere in the middle.

Some sellers who really do have high-quality used cars are unwilling to sell them below their true value, so they keep the cars instead. Sellers of low-quality cars, however, gladly sell their lemons since \$67,000 is more than the worth of their low-quality cars. Low prices, then, reduce the overall quality of used cars on the market, leading to a market dominated by lemons. The chances of a potential buyer getting a poor-quality car will be higher than a car of better condition. At the extreme, there will be a missing market for high-quality cars on the market. This leads to market inefficiency because transactions that would have benefited both buyers and sellers fail to take place. That is, although sellers are willing to sell high-quality used cars to buyers at a fair price, the transactions do not occur because the buyers are unsure about the condition of the car. The market for used cars might even fail completely because buyers will not want to buy cars from the used car market for fear of purchasing a car that is of poor quality. The maximisation of consumer and producer welfare did not take place.

Solutions to correct market failure in the purchase of second-hand cars

The govt can set legislation for sellers to mandate information disclosure. The govt can also introduce laws to guard against sellers exploiting the situation, e.g lemon law that gives consumers protection against inherently defective products, colloquially known as lemons. The law requires sellers to make good the defects found within six months of sales of the product. If the fault is deemed irreparable, the seller has to replace it or provide a full refund. Given the legislation and the law that protects the buyer, the sellers are more likely to disclose the necessary information and the buyers will be more and will offer a price based on their assessment on the quality of the car. The problem of adverse selection and missing market can be resolved

Limitations

Hard to eliminate adverse selection issues as even with lemon laws, claims can be tedious and laborious, causing people to still shun the second-hand car market; also means sellers can get away with not properly maintaining their cars

Evaluation

Need for government intervention depends on level of impact.

- Cigarettes – affects the society at large and extent of cost is high due to negative externalities. Need Govt intervention. Used cars – affects only the buyers and sellers. Minimal impact on the society. Can be resolved privately without Govt intervention through signals / screening.

Choice of measures depends on

- severity of the situation. Cigarettes – Given that market-based solutions such as indirect taxation and public education are ineffective given bounded rationality, there is a need for laws to be put in place. Likewise for the used cars, if it is assessed that the sellers (i.e. the used car markets have monopoly power and the buyers have no bargaining power, the Govt may set laws to protect the buyers too.
- cause of the market failure. In most instance, there are several sources of market failure and hence the need for several measures to complement one another. The choice of measure also differs across countries too depending on consumer profile, efficiency of Govt, budgetary constraints.

Knowledge, Application, Understanding, Analysis		
L1	<ul style="list-style-type: none"> • A few valid points • Answer mostly irrelevant or inaccurate 	1 – 4
	<ul style="list-style-type: none"> • Shows some knowledge of market failure in the given context • Basic errors of theory where CBA with diagram was not presented • Concepts presented were inadequately explained 	5 – 8
L2	<ul style="list-style-type: none"> • Answer did not address fully (answer is not comprehensive) either <ul style="list-style-type: none"> ◦ the causes of market failure OR ◦ the policies that governments adopt • Answer considers <u>both</u> the market failures and the policies the governments can adopt but is limited in scope or depth. E.g.: <ul style="list-style-type: none"> ◦ Limited in scope: Not all facets of market failures are targeted by suggested policies ◦ Limited in depth: Answer does not provide the limitations of suggested policies 	9 – 14
L3	<ul style="list-style-type: none"> • Answer considers <u>both</u> the market failures in the given context and the policies governments can adopt <ul style="list-style-type: none"> ◦ Scope in policies suggested ◦ Sufficient rigour and depth in analysis ◦ Sufficient explanation of policy limitations 	15 – 20
Evaluation		
E1	<ul style="list-style-type: none"> • An unexplained conclusion /judgment 	1
E2	<ul style="list-style-type: none"> • Substantiated judgment about overall effectiveness of policies or the most appropriate policies to use 	2 – 3
E3	<ul style="list-style-type: none"> • Insightful and perceptive evaluation/synthesis 	4 – 5

4. The world is in for a prolonged period of zero or low inflation and interest rates are losing their relevance as a policy tool. Even negative interest rates, a radical step when imposed a few years ago in Japan, Switzerland and the euro zone, have been largely ineffective. The recommendation for Switzerland's central bank is to steer its economy through the exchange rate instead.

Source: Adapted from Bloomberg Opinion, 25 Feb 2021

- a) Explain possible causes of falling inflation rates for an economy. [10]
 b) Discuss whether exchange rate is more effective than interest rate in steering the economy. [15]

a) Explain possible causes of falling inflation rates for an economy. [10]

Falling inflation rate -> Disinflation, a slowdown in the rate of increase of the general price level of goods and services over time.

Falling inflation rate could be due to slowing increase in AD or increase in AD partially matched by increase in AS

- i) Increase in AD -> inflation. Hence slower increase in AD -> slower inflation (i.e. inflation rate falls)
- AD could have increased due to expansionary FP or MP (-> increase in G or I), increase in consumer and investors' confidence (-> increase in C and I) or positive external economic conditions or weakening exchange rate (-> increase in X).
 - Increase in AD -> depletion of inventories -> signal firms to expand production -> increase in demand for fops. If SS of fops remains constant -> increase in competition for fops -> bid up input prices. As unit COP rises, firms will pass on part of the unit COP to the consumers by increasing prices of g&s to protect their profit margin.
 - Slower increase in AD -> fall in inflation rate. This could be due to the govt adopting contractionary FP/MP policy -e.g austerity measures to reduce budget deficit, loss of consumer and investors' confidence, adverse external economic conditions (i/e trading partners experiencing recession) or appreciation of currency -> any of these factors will reduce AD -> smaller net increase in AD -> slower increase in AD -> fall in inflation rate.
- ii) Alternatively, AD could be increasing as per normal but AS is increasing too. If the increase in AS can partially match the increase in AD to ease the shortage in price of fop rising from the increase in dd -> slower increase in inflation rate.
- Increase in AS could be caused by:
 - Decrease in the prices of fop -> fall in unit COP. When unit COP falls, independently of AD -> firms are willing and able to produce the same output at a lower price -> AS increases, represented as a **downward**

shift of AS curve (holding productive capacity constant). Firms respond by partially increasing production and partly by reducing prices. The increase in AS partially offsets the increase in prices due to increase in AD -> slower inflation rate.

○ Increase in Qty and Qlty of fops.

- When there is an increase in quantity of FOPs, more output can be produced since there are more resources available.
- When there is an increase in quality of FOPs, each unit of input is now more productive and can produce more output.
- Both leads to an increase in AS, represented as a **rightward** shift of the AS curve as productive capacity expands -> the expansion of the productive capacity enables the economy to expand output to meet increase in AD, ameliorating the situation of shortages bidding up prices, allowing for inflation rate to fall, whilst sustaining further increase in real output.

Level	Marks	Descriptors
L3	8-10	<ul style="list-style-type: none"> • Good exemplifications • Uses AD-AS framework with at least one well explained diagram on why inflation rate falls (i.e disinflation). • Points raised are well-elaborated & based on the different reasons for changes in AD and AS.
L2	5-7	<ul style="list-style-type: none"> • Points raised may lack elaboration/ exemplification • Nevertheless able to use AD-AS framework to explain reasons for disinflation. • May lack scope – explain how AD or AS factors leads to disinflation but not both • May lack depth – Did not explain why AD or AS will change • If student misinterpreted falling inflation rates as falling prices – max 5m (with good elaboration on how prices adjust as a result of both changes in AD and AS).
L1	1-4	<ul style="list-style-type: none"> • Attempted analysis is limited • Did not use AD-AS framework • Lacks both depth and scope • lack of understanding on the question requirements.

b) Discuss whether exchange rate is more effective than interest rate in steering the economy.

1. Explain how expansionary MP via fall in interest rate can steer the economy. Fall in i/r -> fall in COB -> rise $C + I$ -> Rise in AD -> Rise in Real NY. Include the explanation of the k effect.

- Limitations: However, the low or zero inflation (or fear of deflation) would have undermined the effectiveness of expansionary MP as stated in the preamble. Even if nominal interest rates falls to negative, if ROR is expected to fall more -> net ROR is still negative. But in this case, the fall in COB did not increase C and I , prob due to (1) C & I are interest inelastic (2) low C & I confidence.

2. Explain how expansionary MP via fall in exchange rate can steer the economy instead. Fall in exchange rate \rightarrow fall in P_x in foreign terms \rightarrow rise in Q_x in foreign terms \rightarrow Increase in X in local terms (since P_x did not change in local terms). The higher the PED_x , the greater the increase in X . P_m will rise in local terms \rightarrow fall in $Q_m \rightarrow$ increase in DD for domestic goods. The closer the degree of substitutability, the larger the XED , the greater the increase in C . Increase in $C + X \rightarrow$ increase in $AD \rightarrow$ rise in real NY
 - Limitations: However, the impending deflation would undermine the effectiveness of falling exchange rate too. C may not increase due to loss of consumer confidence. X may not increase if there is a global economic downturn (e.g global financial crisis, current covid-19 situation, trade war)

3. Evaluation (Comparing between interest rate and exchange rate)
 Whether interest rate or exchange rate is more effective in steering an economy depends on
 - Nature of the economy:
 - If the economy is large and relatively less open, domestic demand is likely to take up a larger proportion of overall demand, i.e. $C + I$ constitutes a larger % of AD compared to $X \rightarrow$ i/r more effective. Conversely, if the economy is small and very open, external demand may be more important in stimulating AD and therefore steering the economy, since X might take up a very large proportion of $AD \rightarrow$ e/r more effective.
 - If the economy is resource-scarce and very reliant on imported resources, this reduces the effectiveness of lowering e/r to increase X competitiveness \rightarrow increase unit COP which offset the intended effect of depreciating currency \rightarrow imported inflation as an unintended consequence \rightarrow contractionary effect on the economy (fall in rNY) as AS falls and shift upwards \rightarrow reduce effectiveness of exchange rate policy to steer the economy \rightarrow i/r may be more effective.
 - Current economic conditions:
 - If domestic economy is weaker relative to the external economy \rightarrow i/r less effective to steer economy since there would be a loss in investors' confidence in the economy which would lead to a liquidity trap as mentioned in the preamble \rightarrow fall in i/r does not increase I & $C \rightarrow$ excess inventories \rightarrow e/r is more effective
 - If external economy is weaker relative to domestic economy \rightarrow e/r less effective to steer economy since lower exchange rate will not substantially stimulate external demand (if incomes have generally fallen globally) \rightarrow i/r more effective
 - Important to note that for small and open economies, given their exposure to external fluctuations, it is likely that if the external economy is weak, their domestic economy would be similarly weak. Conversely,

for large and less open economies, a weak external economy may not necessarily mean a weak domestic economy. Hence using i/r as a tool to steer the economy is more effective for these countries, while small and open economies might still opt for e/r despite the weak external environment.

Implicit assumption in the question is that the economy has the ability to influence i/r , i.e. is **not** an i/r taker. For economies which are interest-rate takers, they do not have the option of choosing between i/r and e/r .

Note 1: Comparison between the policies can be done throughout the analysis or at the end of the analysis.

*Note 2: Some of the points mentioned under 'Evaluation' may serve as limitations, e.g. 'The use of interest rate may not be effective in steering the economy if X constitutes a larger % of AD compared to C and I'. However, this would **not** be considered as evaluation (i.e. judgment) unless there is an explicit attempt to compare between the policies (i.e. i/r with e/r).*

Level	Marks	Descriptors
L3	8-10	<ul style="list-style-type: none"> Good discussion of the effectiveness and limitations of both using the interest rates and exchange rate as the policy to steer an economy Points raised are well-elaborated & based on economics concepts. Good exemplifications Uses a good economics framework with well explained diagrams
L2	5-7	<ul style="list-style-type: none"> One sided explanation (max 5m) Points raised were insufficiently elaborated or lack economic analysis There were attempts to exemplify
L1	1-4	<ul style="list-style-type: none"> Attempted analysis is limited, conceptual misunderstandings are evident and there is lack of understanding of the question requirements.
E	1	For unexplained judgment without supporting analysis
E1	2-3	Evaluative assessment supported by economic analysis.
E2	4-5	Evaluative assessment supported by economic analysis and insightful comments.

5. Macroeconomic goals include maintaining short-term economic stability and sustaining long-term economic growth.

- a. Explain the benefits of achieving these goals.
- b. Discuss the factors that a government would consider when deciding whether or not to adopt fiscal policy as a demand-management tool.

a) Maintaining short-term economic stability includes achieving full employment, price stability and healthy balance of payment position.

Benefits of maintaining short term economic stability

Benefits of full employment

- Produced close to boundary of PPC, fully and efficiently utilising all its available resources (achieving productive efficiency) and hence maximising the satisfaction of consumption possibilities and hence standard of living. Healthier budget position can be achieved through avoidance of high spending on welfare payment and higher tax revenue too.

Benefits of price stability

- Price signals better able to perform resource allocation functions -> allocative efficiency
- Conducive environment for investment -> Increase AD in the SR and AS in the LR -> sustained EG and hence high SOL in the future.
- Ensured cost competitiveness -> maintained healthy BOP (both current and capital accounts)

Benefits of a healthy BOP position

- Implied strong X and FDI -> maintained high X competitiveness and investor confidence -> ensured high AD and hence low unemployment and high EG too -> higher SOL
- ER stability. Reduced risk of exchange losses faced by foreign investors -> Increased I -> Increase AD in the SR and AS in the LR -> sustained EG and hence high SOL in the future.

Sustaining long-term growth includes not only achieving a sustained but a sustainable growth

Benefits of achieving a sustainable economic growth

Implied long-term expansion of the economy's productive capacity matches increase in AD

- Potential growth is estimated by measuring the % change in factor quantity and % change in factor quality. Expansion of a country's productive capacity through increase in AS -> increase its ability to accommodate increase in AD which avoiding development of SS bottlenecks -> sustained, non-inflationary growth -> improvement of SOL
- It also means that the govt is able to maintain a growth rate without accumulating fiscal debts nor deleting resources and damaging the environment

that would cause significant problems for the future generation. This in turn implies the government is able to achieve inter-generation equity to maintain growth potential. This in turn means having a high economic growth -> improvement in both material and non-material SOL are enjoyed by the present generation and yet not at the expense of the SOL of future generation.		
Level	Marks	Descriptors
L3	8-10	<ul style="list-style-type: none"> • Good exemplifications • Has both depth (using relevant economic framework when giving the economic reasons on the benefits) and scope (include the benefits of both maintaining economic stability and sustaining economic growth)
L2	5-7	<ul style="list-style-type: none"> • Points raised may lack elaboration/ exemplification • Nevertheless able to use AD-AS framework to explain reasons for disinflation. • May lack scope – explain only benefits of short term stability or long term growth • May lack depth – Explanation may lack rigour. Might be brief and lack economic reasoning
L1	1-4	<ul style="list-style-type: none"> • Attempted analysis is limited • Did not use economic framework. Descriptive answer • Lacks both depth and scope • lack of understanding on the question requirements.
<p>b) Factors that a government would consider in deciding whether or not to adopt fiscal policy as a demand management tool.</p> <p>The government could adopt expansionary FP to increase in AD.</p> <ul style="list-style-type: none"> • Rise in G -> Rise in AD directly • Fall in income tax -> rise in Y_d -> Rise in C • Fall in corporate tax -> rise in expected ROR -> Rise in I • As AD rises -> fall in inventories -> rise in o/p -> rise in dd for fop including labour -> increase in f/r Y -> increase in AD -> multiplied increase in real NY. <p>Factors to consider when deciding whether or not to implement expansionary FP to increase AD.</p> <ol style="list-style-type: none"> 1. Size of multiplier – if k is small, increase in AD and hence real NY will increase by a smaller extent. Size of K in turn depends on several (characteristics of economy, availability/mobility of resources) 2. Possibility of crowding out effect if Govt needs to finance higher level of spending through borrowing -> compete with private funds -> pushes up i/r -> increase in COB relative to expected ROR -> fall in I may cancel the increase in G -> expansionary FP less effective. 3. The extent of budget deficit it incurs – Raising spending and cutting tax -> budget deficit if it has a balanced budget initially -> rise in public sector debt. If it is a cyclical budget deficit -> not a serious problem. But if it is persistent -> accumulated debt (both domestic and external) -> increase risk of default -> fall in investors' confidence -> fall in I -> undermine potential growth. Could lead to increase in tax rate in the future 4. The ability to redistribute income and address the income gap. Low Y groups have higher MPCd since they spend a larger % of the distributed Y on 		

domestically-produced g&s -> greater effect on AD, the more effective it is as a stimulus measure

The government could adopt contractionary FP to moderate the increase in AD.

- Fall in G -> Fall in AD directly
- Rise in income tax -> Fall in Y_d -> Fall in C
- Rise in corporate tax -> Fall in expected ROR -> Fall in I
- As AD falls -> moderate the extent of increase in AD -> less intensive competition for fops -> small extent of increase in factor prices -> less pressure on firms to raise prices of final g&s to protect their profits -> relief dd-pull inflation

Factors to consider when deciding whether or not to implement contractionary FP to moderate the rise in AD.

1. Depending on where the govt cut its spending (e.g. CET, R&D) and the type of taxes (e.g. Corporate Tax) that are increased, there is a possibility of creating disincentive to work and investment (due to rise in income and corporate tax) -> slower increase in AS in the future -> slower rate of EG and smaller increase in future SOL
2. Fall in subsidies (on healthcare, childcare, targeted at the lower-income households -> affect the lower income households more -> widen disparity. Fall in subsidies on education (pre-school, CET) -> reduce social + factor mobility -> widen disparity.

Evaluation – FRESH criteria

- Feasibility – Expansionary (availability of past reserves); Contractionary (politically unpopular)
- Root cause – Due to domestic or external factors. If it is due to external factors, may use alternative measure (exchange rate, trade policy etc). If it is due to speculation (use interest rate policy)
- Effectiveness – Depends on characteristics of economy. If dependent on external market (i.e. X constitutes a large % of GDP, use exchange rate instead)
- Side effects – trade-off with other macroeconomic goals as mentioned in the preamble. Smoothing Aggregate DD -> to reduce its fluctuation. But if it is too excessive -> dis-stabilise the economy instead.
- Time horizon – Urgency and priority of the govt. Time lag (recognition, implementation and impact lag) -> dis-stabilise the economy instead

Level	Marks	Descriptors
L3	8-10	<ul style="list-style-type: none"> • Good discussion of the factors that a government would consider in deciding whether or not to adopt both expansionary and contractionary fiscal policy as a demand management tool. • Points raised are well-elaborated & based on economics concepts. • Good exemplifications • Uses a good economics framework with well explained diagrams
L2	5-7	<ul style="list-style-type: none"> • One sided explanation (either focused on expansionary or contractionary) • Points raised were insufficiently elaborated or lack economic analysis • There were attempts to exemplify

L1	1-4	• Attempted analysis is limited, conceptual misunderstandings are evident and there is lack of understanding of the question requirements.	
E	1	For unexplained judgment without supporting analysis	
E1	2-3	Evaluative assessment supported by economic analysis.	
E2	4-5	Evaluative assessment supported by economic analysis and insightful comments.	



6. Singapore might be ranked as the top city in Asia in terms of standard of living, yet it is not without challenges. For instance, technological disruptions and global issues such as the US-China trade war had led to our unemployment rates inching upwards since the start of 2018. In addition, the expansion of our progressive wage model to include more sectors may potentially lead to higher unemployment due to higher cost to employers.

- a) Explain how economists can conclude that Singapore's standard of living is ranked top in Asia. [10]
- b) Assess which cause of unemployment is likely to pose the greatest threat to Singapore's unemployment situation in the next few years. [15]

- a) SOL is concerned about the whole state of well-being. Thus it is not only concerned with the tangible aspect of welfare (i.e. more economic goods for consumption and enjoyment but also with the intangible aspect like the state of public health, hours of work, law and order, arts and culture, political and religious freedom.
 - Hence for economists to conclude that Singapore's standard of living is ranked top in Asia, it is important to use data that depicts higher SOL both in the material and the non-material aspects.
 - Use GDP per capita converted to the same currency using PPP ER as an indicator
 - o Using PPP ER for conversion calculates the relative purchasing power of the different countries' GDP in view of the differences in the cost of living.
 - o Per capita figures is better as the larger the population size, the smaller the consumption available per person, given the same GDP figure
 - o Hence a higher GDP per capita using PPP rate → more goods and services available per person → more needs and wants satisfied → higher material SOL. Also a proxy for non-material SOL since higher GDP per capita → more tax revenue collected, govt has greater ability to spend on merit goods (education, healthcare, museums etc) and public goods (proper street lighting) per member of the population
 - Use Gini Coefficient as a supporting data
 - o The per capita figure only gives the simple mean. It does not indicate the actual distribution of income between individuals.
 - o A lower Gini Coefficient shows that income disparity is smaller than another country → the income (and hence SOL) is more equitably distributed to the masses.
 - Use the composition of GDP as another supporting data
 - o GDP figures only give the value of g&s produced and does not indicate the type of g&s produced. If the output produced is mainly for exports or for investments in capital or infrastructure or for military goods, there could actually be fewer g&s available for domestic consumption. SOL may not increase. Hence need to show that consumption constitutes a significant proportion of the country's GDP.

- A higher Cd as a % of GDP → A greater emphasis on production of consumption goods → Higher SOL
- Can also consider the Human Development Index that considers GDP per capita (PPP), mean school years and life expectancy
- Use Mean Years of School Index
- Use Life Expectancy Index

<https://www.guidemesingapore.com/business-guides/immigration/get-to-know-singapore/quality-of-life-in-singapore>

Level	Marks	Descriptors
L3	8-10	<ul style="list-style-type: none"> • Good exemplifications in Singapore context • Has both depth (using economic reasoning when explaining how the various indicators affects SOL) and scope (include the benefits of material and non-material)
L2	5-7	<ul style="list-style-type: none"> • Points raised may lack elaboration/ exemplification • Nevertheless provide economic reasoning • May lack scope – explain only material SOL • May lack depth – Explanation may lack rigour. Might be brief and lack economic reasoning
L1	1-4	<ul style="list-style-type: none"> • Attempted analysis is limited • Did not use economic framework. Descriptive answer • Lacks both depth and scope • lack of understanding on the question requirements.

- b) Assess which cause of unemployment is likely to pose the greatest threat to Singapore's unemployment situation in the next few years

Causes of Unemployment in Singapore.

From the preamble

Structural Unemployment

- Due to Technological Disruption since SG is an export-oriented country where X have to cater to changes in taste and preferences of foreign consumers in aspects of price and quality. Advancement in technology → Greater automation and mechanization → substitute capital for labour → redundancy / displacement of workers. In addition, there will be a mismatch of the skills of the redundant workers and new job opportunities due to factor immobility. Generally known as structural unemployment.

Besides structural changes that occur due to change in technology, there are other instances of structural unemployment such as

- Globalisation / Foreign competition → loss of competitiveness → some industries will contract in the face of foreign competition or relocate out of SG to take advantage of lower cost abroad

- Changes in world demand (obsolete goods sold by Singapore → shutting down of related industries. It reflects the time taken to acquire human capital (occupational immobility) and the cost of relocation (geographical immobility)

In addition, Singapore faces demand-deficient unemployment due to falling AD. Closely associated with the short-run ups and downs of economic activities. Instances of falling AD includes

- G: Govt's contractionary FP and MP → Falling G, C, I
- E: Weakening consumer and investor confidence → fall in C & I
- E: Trading partners experiencing economic disruptions due to US-China trade war (explain how the changes in NY in China and US led to fall in X for SG) → fall in X

In periods of falling AD → firms experience an increase in inventories and will respond by cutting back production and laying off workers, reinforced by the reverse k effect → demand deficient unemployment. [insert AD/AS analysis graph]

Real wage unemployment due to wage rate set above the market clearing level → create excess of labour supply (e.g. progressive wage model) → this will increase the UCOP of firms in SG → causing the AS to decrease (shift upwards) → resultant increase in unemployment as some previously employed workers are now no longer employed.

In addition, the progressive wage model may hasten the rate at which firms take up labour-saving technologies, thus some low skilled jobs may be destroyed permanently, causing structural unemployment, where these low skilled workers suffer occupational immobility.

Evaluation

Structural unemployment might pose the greatest threat Singapore's unemployment rate in the next few years

- Contribute most significantly to the unemployment rate in the country and its duration is the longest as it leads to a greatest loss of potential output and requires the greatest outlay in terms of unemployment benefits.
- Anticipate fast pace of structural change – need to advance its technology to remain global competitiveness + Fast change in demography – aging population → more difficult to retrain → greater occupational immobility
- Most difficult to resolve as structural problems are permanent. Need SS-side policy.

In comparison

- Demand-deficient unemployment is cyclical and ST. Can be resolved through DD-management, trade policy → expand economy → increase employment
- Progressive wage model – may not increase unemployment if employers can pass on the increase in unit COP by increasing prices of final g&s; if it only impact a very

small % of the labour force and the increment is not significant; and implemented progressive overtime and with measures to increase the productivity of these workers to increase the MPB of employing them

Level	Marks	Descriptors
L3	8-10	<ul style="list-style-type: none"> • Good discussion of three different causes of unemployment in Singapore with reference from preamble • Points raised are well-elaborated & based on economics concepts. • Good exemplifications in Singapore context. • Uses a good economics framework with well explained diagrams
L2	5-7	<ul style="list-style-type: none"> • Lack scope (Only explained one or two causes of unemployment) • Points raised were insufficiently elaborated or lack economic analysis • There were attempts to exemplify in Singapore context.
L1	1-4	<ul style="list-style-type: none"> • Attempted analysis is limited, conceptual misunderstandings are evident and there is lack of understanding of the question requirements.
E	1	For unexplained judgment without supporting analysis
E1	2-3	Evaluative assessment supported by economic analysis.
E2	4-5	Evaluative assessment supported by economic analysis and insightful comments.



EUNOIA JUNIOR COLLEGE

Question 1: The battery is ready to power the world

Extract 1: Strong growth expected in Electric Vehicle (EV) charging stations

The number of EV charging stations continue to surge. ChargePoint, which manages a network of EV charging locations worldwide, has pledged to build out 2½ million public charging stations by 2025, with roughly half of those in North America and half in Europe.

"This is the biggest commitment we've ever made," ChargePoint CEO Pasquale Romano said during a conference call with reporters. "I think we're at a huge tipping point here. This growth in EVs and charging infrastructure is going to continue." This expansion in provision of charging stations has contributed significantly to the increased adoption of EVs.

ChargePoint has raised some \$300 million to move forward with the plan to expand the charging network, both in North America and in Europe, according to Romano. Business owners would pay ChargePoint for installing charging stations in their parking lots and would recoup their costs by charging drivers a fee for use of the service.

Source: *Transport Topics*, 18 September 2018

Extract 2: The Electric Vehicle revolution

The EV revolution is well under way. Norway ambitiously heads toward having all new cars sold as zero-emission by 2025. China continues to be one of the major drivers of EV boom. The United States market experiences strong growth, driven by models from Tesla, Chevrolet and Nissan. The United Kingdom and France have announced they would ban the sale of new petrol-powered vehicle by 2040.

Globally, the growth of the EV market is mainly attributed to factors such as supportive government policies and regulations promoting the adoption of EV, increasing investments by leading automobile firms, rising environmental concerns regarding automotive emissions, and the decreasing prices of batteries.

EVs are generally well-regarded by governments, as seen from the range of different government initiatives to stimulate consumer demand. Switching to EV means less air pollution-related illness, and therefore substantial savings in health care costs.

A stellar example of a country that's fully charged to go electric is Norway. It has the highest number of EVs per person in the world, with close to 300,000 registered units in its EV fleet in 2018. According to the European Alternative Fuel Observatory, almost 50% of the cars purchased in Norway in 2018 are electric.

What lies behind such impressive result that puts Norway ahead of others? The answer seems clear: change of consumer habits through comprehensive incentive package introduced gradually since the 1990s. One of the key policies is Norwegian car-taxation system, based on the principle that the more you pollute, the more you pay. Tax for a new car is calculated in a way that makes big cars with high emissions very expensive. This results in most EVs becoming cheaper compared to similar petrol models.

In addition, other incentives are in place such as 25% tax exemption for new EV purchases, road toll exemption, low annual road tax, free access to municipal parking and ferries, access to bus lanes and good network of public charging stations.

However, once government incentives are phased out, it remains to be seen whether consumers will perceive EVs as an economically viable option. A lot will depend on the ability of car manufacturers to cut production costs, and also how much countries have advanced in installing related infrastructure such as charging stations.

Source: *Various*

Extract 3: The battery decade: How energy storage could revolutionise industries in the next 10 years

What a difference a decade can make. In 2010, batteries powered our phones and computers. By the end of the decade, they are starting to power our cars and houses too. Two major developments have characterised the battery decade: increasing lithium-ion battery production and the search for alternatives to lithium-ion batteries.

Over the last ten years, massive investments in battery manufacturing led to a surge in lithium-ion battery production. This drove down prices to the point that — for the first time in history — EVs became commercially viable from the standpoint of both cost and performance. The next step, and what will define the next decade, is utility-scale storage.

As the immediacy of the climate crisis becomes ever more apparent, batteries hold the key to transitioning to a renewable-fueled world. Solar and wind are playing a greater role in power generation, but without effective energy storage techniques, natural gas and coal are needed for times when the sun isn't shining, or the wind isn't howling. And so large-scale storage is instrumental if society is to shift away from a world dependent on fossil fuels.

Costs that remain high are among the reasons preventing a surge in lithium-ion battery grid integration. Another factor is that this specific type of battery may not necessarily prove to be the best suited to storing energy for longer periods of time. They've also been known to catch fire, and there are issues with some of the required components like cobalt, almost half of which comes from Congo. Recycling and the spillover environmental impact of metals extraction are other issues to watch.

Billions of dollars are being spent to find alternatives. Solid-state batteries — which use sodium, for example, instead of liquid electrolytes — is one possible option, as are flow batteries, which use tanks of electrolytes to store energy. But neither of these are viable options just yet as costs remain high and performance remains low.

While the exact type of battery that will win out is unknown, what's certain is that batteries will play an even larger role in powering our lives going forward. Industry observers postulate that evolving mindsets, and steady advances in technology, have set in motion a seismic shift in how we will power our lives and organise energy systems as early as 2030.

Source: *Pippa Stevens, CNBC, 30 December 2019*

Questions

- (a) Explain how scarcity leads to the inevitability of choices by producers and consumers of electric vehicles (EVs). [3]
- (b) (i) Define the concept of cross elasticity of demand. [1]
- (ii) Using evidence in Extract 1, explain the possible value of cross elasticity of demand between charging stations and EVs. [3]
- (c) With reference to Extract 2 and the use of a diagram, explain why there could be allocative inefficiency in the consumption of EVs. [5]
- (d) The increase in number of EVs is due to free market forces rather than government intervention.
Using demand and supply analysis, discuss the validity of this view. [8]
- (e) Discuss how developments in the battery industry will impact sustainable growth. [10]

[Total: 30]



Question 2: Problems in India's Economy

Table 1: Economic statistics for India from 2017-2020

	2017	2018	2019	2020
Inflation Rate (%)	3.6	3.4	4.8	6.2
Real GDP growth rate (%)	6.8	6.5	4.0	-8.0
Balance of Trade (billion US\$)	-150.68	-189.69	-161.72	-95.69

Source: *Statista*, 2020

Extract 4: Inflation is a 'tax' on the poor

India's annual inflation has accelerated to its highest level in more than five years. This has led to a reduction in the standard of living for the people in India, especially for the poor. The rising inflation means consumers are now paying more for essential food items, which is the main source of expenditure for poor and middle-income groups.

Experts explain that persistently high levels of inflation could drag economic growth as rising prices for items make saving harder, forcing individuals to either cut down on expenses or find ways to increase income. But in a period of recession, when employment opportunities are limited, the prospect of increasing income is tricky. Since employment opportunities are limited and many from the services sector are living on lower incomes, the high costs for food, energy and other essential goods and services could become a major threat for long-term growth. Lower household savings could create a demand void for non-food commodities, resulting in lower business in key sectors like real estate and consumer goods.

Adapted: *India Today*, 10 December 2020

Extract 5: Indian economy will continue to face inflationary pressures in the near term

A key source of inflation uncertainty comes from food price pressures. The most significant near-term risks to India's inflation outlook stem from the impact of the monsoon season on food prices, said Rajiv Biswas, an economist. The immediate cause of rising prices has been the setback to agricultural production from an unusual combination of delayed onset of the southwest monsoon, which has led to reduced sowings. Additionally, prolonged unseasonal rains have also damaged the crops at the time of harvesting.

Moreover, India is particularly vulnerable to rising world oil prices as it is heavily reliant on imported oil and gas for its domestic energy requirements, Biswas added, citing the Organization of the Petroleum Exporting Countries (OPEC) cuts in crude oil production and unfolding conflict in Libya.

There has also been sustained growth in exports, which demonstrated the strength and resilience of the exports sector. There is also sign that global trade is recovering fast. Global demand during this period has also remained buoyant as the order booking positions of the exporters have still been impressive. Textiles and apparels, chemicals and electronic goods were the other dominant export drivers.

Source: *Various*

Extract 6: Trade friction heats up between India and US

Bilateral trade between India and the United States has grown to about US\$115 billion in 2016 from US\$20 billion in 2001. The United States buys close to a fifth of India's goods and services exports and its trade deficit has widened from US\$13 billion in 2006 to US\$31 billion in 2016.

India announced higher import tax on electronics products such as mobile phones and television sets in December. India says the move is aimed at giving local industry the chance to grow and create the tens of thousands of jobs needed for a young workforce.

U.S. businesses and diplomats are pressing India to cut tariffs, industry and government sources say, after New Delhi's move to increase customs duties on dozens of products to help its flagship Make-in-India drive aggravated differences over trade. Ford, which has two car manufacturing plants in India, has sought a reversal of the new tariffs on auto components, while Apple Inc. is concerned its iPhones have become even more expensive in the price-conscious US\$10 billion smartphone market.

"It is important that India make greater efforts to lower barriers to trade, including tariff and non-tariff barriers, which will lower prices to consumers, promote development of value chains in India," said a U.S. State Department spokesperson

The US Congress has been pushing over the past year for greater pressure on India to dismantle economic barriers, and now House Republicans have raised the issue of the new round of duties with New Delhi.

Source: *The Straits Times*, 23 February 2018

Extract 7: What is the way out for India?

India entered a technical recession last week — it was the first time in decades that South Asia's largest economy saw two consecutive quarters of contraction. Economists are divided on what needs to be done for India to recover from its current economic problems. Some economists suggest that policymakers should stop worrying about inflation and instead focus exclusively on boosting demand in the economy. They consider the Reserve Bank of India (RBI)'s target of keeping inflation from rising above 6 per cent as an arbitrary one and believe that the central bank should further ease its policy stance and the government should spend more on infrastructure and other sectors to boost the economy.

Economists who believe that the current slowdown is due to the lack of sufficient consumer demand, prescribe greater spending by the government to resuscitate the economy. As per RBI data, less than 40 per cent was for private consumption spending. In addition, the power sector is facing an existential crisis which has led to the scaling down or even closure of many power plants, a fact that could explain the fall in power generation. Likewise, the stagnation in private investment, even after reduction in interest rates and tax rates, points to other issues such as a preference for short-term profit or weak sentiments over the prevailing conditions in the economy.

RBI's targeted range of inflation is between 2 and 6 per cent. If the central bank decides to inject fresh money into the economy by cutting its interest rate, it could lead to a further rise in prices and make things worse. A similar rise in inflation could result if the government engages in deficit spending.

Adapted: *The Hindu*, 19 January 2020

Questions

- (a) Explain how inflation rate is measured and state what happened to prices of goods and services in India from 2017 to 2018. [3]
- (b) Explain why inflation has 'led to a reduction in the standard of living, especially for the poor' (Extract 4). [5]
- (c) With reference to Extract 5, discuss whether setback to agricultural production is the main reason why '(India) will continue to face inflationary pressures in the near term.' [8]
- ~~(d) Using Extract 6, explain whether India's tariffs on imports is justified. [4]~~
- (e) In view of its inflationary situation, discuss the appropriateness of using monetary policy in India to tackle its recession. [10]

[Total: 30]



Answer **three** questions in total.

Section A

One or two of your three chosen questions must be from this section.

- 1** Honey's increasing popularity as a natural and healthier sweetener has led to a booming honey market. In the pursuit of supernormal profits, many new beekeepers have subsequently entered the market for honey.

- (a)** Explain how the above events can first lead to a rise, and subsequently a sharp fall in the price of honey. [10]

New Zealand-produced honey is viewed by consumers to be of high quality. Income is rising in China and many New Zealand beekeepers are choosing to export honey to China instead of selling them domestically.

- (b)** Discuss the likely effects of these changes on consumer expenditure for New Zealand-produced honey in both countries. [15]

- 2** Sports equipment retailer Adidas announced a new shoe, Futurecraft.Loop, which is made of thermoplastic that can be reused. This will allow Adidas to appeal to consumers who are concerned about their environment and establish a readily available source of production material, especially if Adidas can secure unwanted old sneakers to harvest the thermoplastic.

Discuss whether the development of the new technology by Adidas is always aligned with the profit-maximisation objective. [25]

- 3 (a)** Explain why governments intervene in the provision of public goods and when monopoly power is present. [10]

- (b)** Discuss the factors that a government should consider when deciding whether to impose price control or pro-competition policy in markets with monopoly power. [15]

Section B

One or two of your three chosen questions must be from this section.

- 4** Prime Minister Lee Hsien Loong highlighted that Singapore must prepare for the impact of climate change, which can bring about food shortages and forced migration of displaced populations. As a low-lying island, Singapore is vulnerable to the destructive effects of rising sea levels, which may divert trade to other nations' ports.

Source: National Day Rally PM Speech 2019

Explain the macroeconomic aims of the Singapore government and discuss the impact of climate change on these aims. [25]

- 5** In its December 2019 Recent Economic Developments Statement, the Monetary Authority of Singapore noted that unemployment was set to rise. This was mainly due to factors such as weaknesses in external demand and the acceleration in developing and deploying artificial intelligence (AI) solutions in Singapore.

Adapted from: Recent Economic Developments in Singapore, MAS, 6 Dec 2019

- (a) Explain how the above-mentioned factors may cause the rate of unemployment to rise in Singapore. [10]
- (b) Discuss the effectiveness of existing macroeconomic policies designed to tackle unemployment in Singapore. [15]
- 6** (a) Explain the causes of a balance of trade deficit and a government budget deficit. [10]
- (b) Discuss whether a balance of trade deficit or a government budget deficit is more detrimental to households and firms. [15]

ANSWER SHEET

Question 1

1 Honey's increasing popularity as a natural and healthier sweetener has led to a booming honey market. In the pursuit of supernormal profits, many new beekeepers have subsequently entered the market for honey.

- (a) Explain how the above events can first lead to a rise, and subsequently a sharp fall in the price of honey. [10]

New Zealand-produced honey is viewed by consumers to be of high quality. Income is rising in China and many New Zealand beekeepers are choosing to export honey to China instead of selling them domestically.

- (b) Discuss the likely effects of these changes on consumer expenditure for New Zealand-produced honey in both countries. [15]

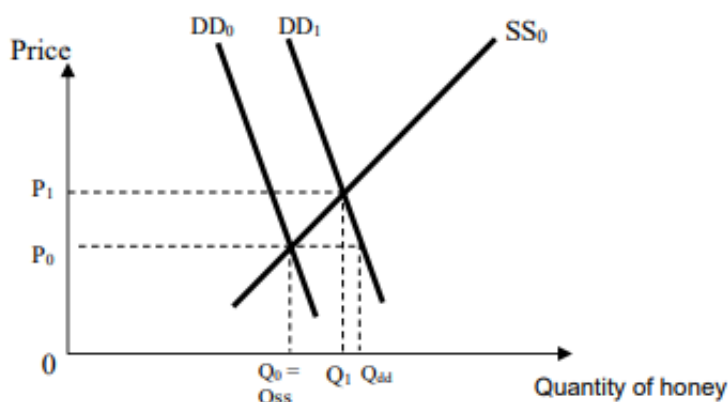
Suggested Answer for Part (a)

Approach	Command Word	Explain how
	Start Point	Above events: - Increasing popularity of honey - Increase in number of firms
	End Point	1. Rise in price 2. Sharp fall in price
Content and Context	Content	Demand and supply changes PED, PES
	Context	Honey

Point 1: Increase in demand has led to a rise in the price of honey

Honey's increasing popularity as a natural and healthier sweetener has influenced the taste and preferences of consumers and resulted in many consumers switching away from the use of traditional sweeteners, such as sugar, and towards consuming honey. This has led to an increase in demand for honey, as shown by a rightward shift in the demand curve from DD_0 to DD_1 . At the current price level, P_0 , there is a shortage as quantity demanded (Q_{dd}) is more than quantity supplied (Q_{ss}). The shortage will result in an upward pressure on prices, resulting in a fall in quantity demanded (upward movement along the demand curve) and an increase in quantity supplied (upward movement along the supply curve). Prices will continue to increase to P_1 where quantity demand is equal to quantity supplied and the shortage is eliminated. Thus, the increase in price of honey was caused by the increasing popularity of honey.

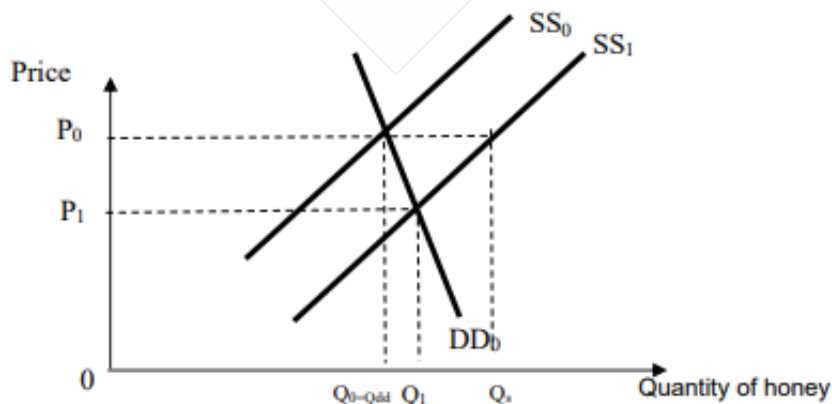
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Point 2: Increase in supply + price inelastic demand for honey has led to a subsequent sharp fall in the price of honey

The increase in demand for honey has led to a booming honey market, marked by greater revenue and profits earned by beekeepers. The presence of supernormal profits will attract new beekeepers (larger number of firms) to join the honey industry, and this is represented by a right ward shift of the supply curve from S_0 to S_1 . At the current price level, P_0 , there is a surplus as quantity demanded (Q_{dd}) is less than quantity supplied (Q_{ss}). The surplus will result in a downward pressure on the prices of honey. With the raised popularity of honey, and the health benefits associated with consumption of honey, honey may be increasingly seen as a sweetener with a high degree of necessity, resulting in its **demand being price inelastic ($PED < 1$)**. Thus the increase in supply will lead to a more than proportionate fall in price relative to the increase in quantity demanded. Thus, this results in a subsequent sharp fall in price of honey.

(Note: if students explain that "an increase in SS leads to a fall in price and a less than proportionate increase in quantity demanded", this is not incorrect, but it is not angled towards answering the question.)



Marking Scheme for Part (a)

Level	Knowledge, Application/Understanding and Analysis	Marks
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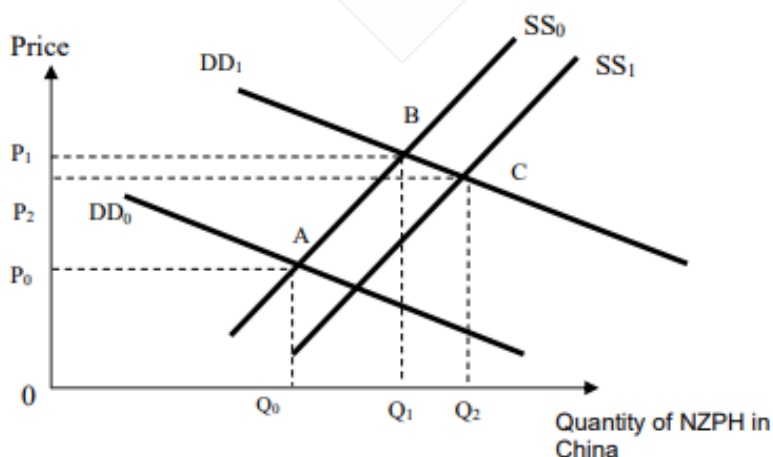
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L3	<ul style="list-style-type: none"> For a well elaborated answer that provides 2 reasons (one supply and one demand) for the changes in price of honey Good application of price elasticity of demand to explain how the increase in supply led to a sharp fall in price Good use of and reference to demand and supply diagrams as an analytical tool. 	8 – 10
L2	<ul style="list-style-type: none"> For an under-elaborated answer that provides 2 reasons (one supply and one demand) for the changes in price of honey Use of and reference to demand and supply diagrams as an analytical tool. 	5 – 7
L1	For an answer that has a smattering of points or with major conceptual errors. Poor/lacks application of demand/supply analysis	1 – 4

Suggested Answer for Part (b)

Approach	Command Word	Discuss: Balanced + EV
	Start Point	Rising income in China Increasing export of honey to China
	End Point	Consumer Expenditure ($P \times Q$)
Content and Context	Content	Demand and supply changes PED, YED
	Context	Honey market in China and NZ

Rising income in China has led to an increase in purchasing power. Since New Zealand-produced honey (NZPH) is viewed to be of higher quality, they are likely to be luxury goods in the eyes of the Chinese consumer i.e. income elastic demand ($YED > 1$). Thus, the rise in income in China will lead to a more than proportionate increase in demand from DD_0 to DD_1 . This will lead to a shortage and prices will rise until a new equilibrium is reached at B. This will result in a rise in equilibrium price of NZPH from P_0 to P_1 and equilibrium quantity from Q_0 to Q_1 . Consumer expenditure on NZPH in China will thus increase from $0P_0AQ_0$ to $0P_1BQ_1$.



With rising income in China, this might have improved the NZ beekeepers expectations of future profits in the Chinese market. As such, they have diverted some of the NZPH to China, which is shown by increase in the supply of NZPH from SS_0 to SS_1 in the above diagram. As NZPH is seen of higher quality, it is likely to command a price premium as compared to honey from other countries

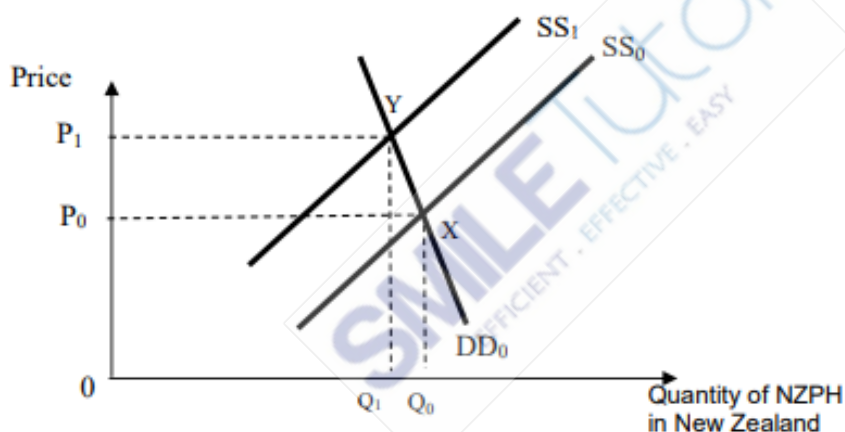
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and thus, its price would take up a larger proportion of income i.e. the demand for NZPH is likely to be price elastic ($PED > 1$). This increase in supply will lead to a fall in price from P_1 to P_2 and a more than proportionate increase in quantity demanded from Q_1 to Q_2 . Thus, the increase in supply of NZPH in China will lead to an increase in consumption expenditure of NZPH from OP_1Q_1B to OP_2Q_2B .

Rising income in China has led to an increase in purchasing power. Since New Zealand-produced honey (NZPH) is viewed to be of higher quality, they are linked to luxury goods in the eyes of the Chinese consumer i.e. with income elastic demand ($YED > 1$). Thus, the rise in income in China will lead to more than proportionate increase in demand from DD_0 to DD_1 . This will lead to a shortage and prices will rise until a new equilibrium is reached at B. This will result in a rise in equilibrium price of NZPH from P_0 to P_1 and equilibrium quantity from Q_0 to Q_1 . Consumer expenditure on NZPH in China will thus increase from OP_0AQ_0 to OP_1BQ_1 .

Overall, there will be increase in consumer expenditure on NZPH in the Chinese market from OP_0AQ_0 to OP_2Q_2B .

As NZ beekeepers increase the supply of NZPH to China, this would mean that the supply of NZPH that is being sold in the New Zealand market would decrease, as shown by a leftward shift of the supply curve from SS_0 to SS_1 in the diagram below.



NZPH is likely to be a staple in New Zealand with a higher degree of necessity, this would mean that the demand for NZPH in New Zealand is likely to be price inelastic. Thus the fall in supply will lead to an increase in equilibrium price from P_0 to P_1 and a less than proportionate fall in quantity demanded for NZPH from Q_0 to Q_1 . This will lead to an increase in consumer expenditure from OP_0XQ_0 to OP_1YQ_1 in the market for NZPH in New Zealand.

In conclusion, consumer expenditure on NZPH is likely to increase in both China and New Zealand. However it is important to also note that the actual impact could depend on the type of honey that is being produced. For example, New Zealand produces both Manuka and Clover honey (generally seen as inferior with $YED < 0$). Thus the increase in income in China is likely to lead to a fall in demand for clover honey, leading to a fall in consumer expenditure for this type of honey instead.

In addition, even though income is rising in China, the economic growth rate has been slowing in recent years. Thus, if consumers expect the rise income to continue slowing and subsequently fall, they might hold back consumption of normal goods (such as NZPH), resulting in a fall in demand instead. Thus, consumption expenditure for NZPH in China might fall instead of increase.

Marking Scheme for Part (b)

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Level	Knowledge, Understanding, Application, Analysis	Marks
L3	For a well elaborated answer that provides explains the impact of the given changes on consumer expenditure on honey in both China and New Zealand Good application of both price elasticity of demand and income elasticity of demand to explain the impacts on the given changes on consumer expenditure on honey. Good use of and reference to demand and supply diagrams as an analytical tool.	8-10
L2	For an answer that provides explains the impact of the given changes on consumer expenditure on honey in China and/or New Zealand Application of Price elasticity of demand and/or income elasticity of demand to explain the impacts on the given changes on consumer expenditure on honey.	5-7
L1	For an answer that has a smattering of points or with major conceptual errors. Poor/lacks application of demand/supply analysis	1-4
Level	Evaluation	Marks
E3	Insightful judgment substantiated with analyses, including but not limited to the following considerations: <ul style="list-style-type: none"> • long vs short term • different contexts • underlying assumptions 	4-5
E2	Judgment substantiated with analyses that were explained mostly in the body	2-3
E1	Unsubstantiated judgment	1

H2 Economics Post-Prelim Exam Revision Package

2 Sports equipment retailer Adidas announced a new shoe, Futurecraft.Loop, which is made of thermoplastic that can be reused. This will allow Adidas to appeal to consumers who are concerned about their environment and establish a readily available source of production material, especially if Adidas can secure unwanted old sneakers to harvest the thermoplastic.

Discuss whether the development of the new technology by Adidas is always aligned with the profit-maximisation objective. [25]

Suggested Answer

Approach	Command Word [Discuss whether]	Balanced argument + EV
	Start point [new technology]	<ul style="list-style-type: none"> R&D as a non-price strategy
	End Point	<ul style="list-style-type: none"> Profit maximising objective Other objectives
Content and Context	Content	Firms and decisions Revenues , Costs
	Context	Alignment of firm's objective to its strategies

Introduction

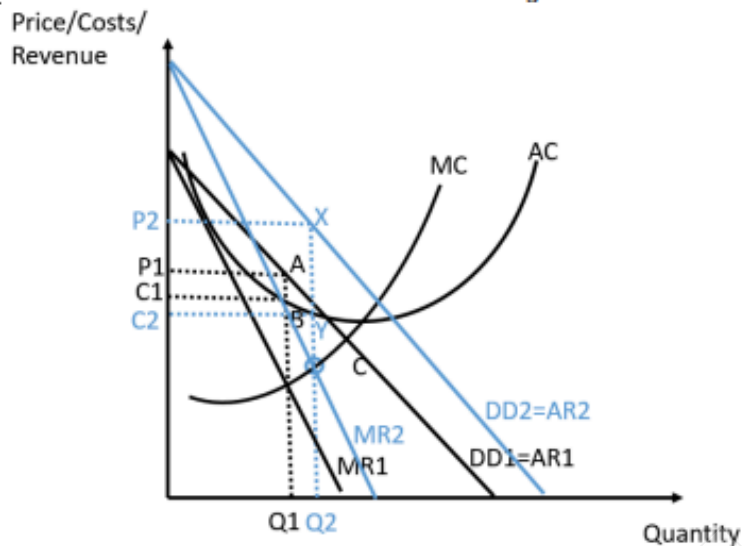
Adidas is a firm in a dominant position in its market. While the overarching objective will remain to be maximising profits, Adidas which is enjoying supernormal profits, may in reality be profit satisficer and choose to pursue alternative objectives in the short run. As such, Adidas may engage in different strategies that lend to these alternative objectives.

Thesis: Adidas developed the new technology to achieve objective of profit maximisation

P1: Increase in $DD=AR$

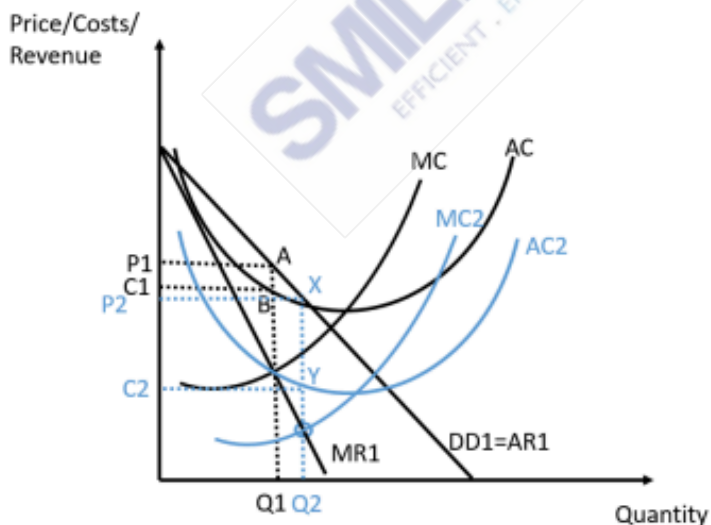
In developing the new technology, Adidas launched a new footwear that is entirely made of recyclable materials. This suggests the footwear has effectively minimised its carbon foot prints, who caters to the tastes and preferences of consumers who are environmentally conscious. This leads to an increase in demand for the footwear leading to an increase in $DD=AR$ to AR_2 . In a corresponding manner, MR will increase to MR_2 as well. At $MC=MR_2$, the equilibrium price and output will increase to P_2 and Q_2 , with profits increasing to P_2XYC_2 . As such, development of new technology is aligned to maximising profits.

H2 Economics Post-Prelim Exam Revision Package



P1: Fall in AC

Since the material is fully recyclable, the new technology allows Adidas to have a reliable and stable source of factors of production. This reduces the need for procuring team to source for alternative sources of factors of production. Furthermore, since the material can be reused and reshaped, it further minimises wastage that may occur during production. As such, costs of production for Adidas may fall, leading to a fall in both AC and MC to AC_2 and MC_2 . At $MR = MC_2$, the equilibrium price and output will change to P_2 and Q_2 , with profits increasing to P_2XYC_2 . This aligns to the objective to maximise profits.

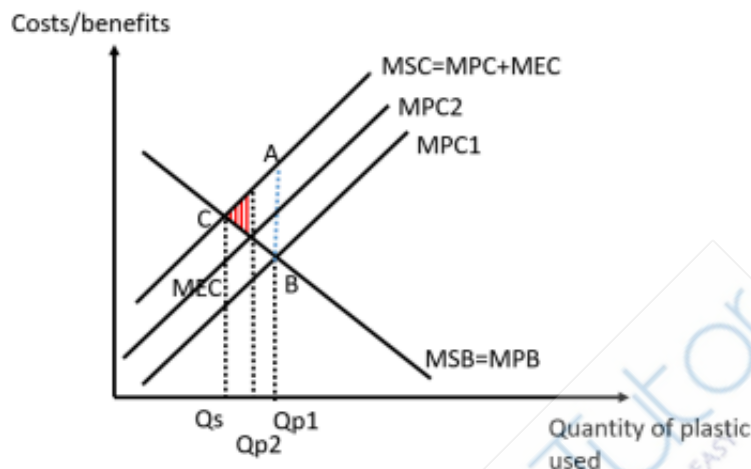


Anti-thesis: Adidas developed the technology for other purposes

P3: Environmental concern

H2 Economics Post-Prelim Exam Revision Package

New technology allows Adidas to reduce plastic waste. This helps to clean up our environment, particularly the oceans and landfills. Plastic waste takes a very long time period to break down. These wastes will continue to pollute our environment and threaten food and water sources. In developing the new technology, Adidas could achieve an alternative objective to improve its social responsibility as a large corporation. Hence, this new technology could reduce negative externality, benefiting third party who do not consume Adidas' product since the reduction in plastic wastage will reduce external costs. The fall in external costs will to a smaller divergence between MSC and MPC, generating a smaller welfare loss to society, indicated by shaded area below, which is smaller than initial welfare loss of ABC. This serves to improve allocation of resources in the society.



P4: Market dominance/Entry deterrence/reduce contestability

Adidas can file for patent for new technology which will grant the firm exclusive right to use the technology for 15 years. This will allow Adidas to consolidate market share and dominate the market. This is particularly true in current time period as improvement in technology has led to contestability of many markets. This serves to reduce degree of substitutability of other sport retailers to Adidas, and reinforces barriers to entry to deter potential entrants to the market. As $DD=AR$ increases and becomes more price inelastic, Adidas will be able to set a higher price with greater output with its new market position.

Conclusion

While the technology may indeed lead to higher costs of production in the short run, it is more likely to achieve profit maximisation in the long run. No matter which alternative objective Adidas pursued, these alternatives will, most likely, align to profit maximisation in the long run. The competitive nature of sports equipment market coupled with development in technology, means that Adidas cannot be complacent that it is one of the market leaders today. It has to continue to engage R&D efforts to develop new technology/products to reinforce its market position. Furthermore, R&D is only one of many means available to the firm. Adidas has to explore various strategies and consider how these strategies can synergise together to further its position as the market leader. Hence, it is highly likely that Adidas is launching the product as a mean to reinforce product recognition and brand loyalty amongst the consumers, to prevent a fall in its market share.

Marking Scheme

Level	Knowledge, Understanding, Application, Analysis	Marks
L3	Displays full slew of skills across AO1, AO2 and AO3: <ul style="list-style-type: none"> A balanced and well-developed answer with different strategies firm may undertake depending on its objectives. Correct application of strategies to context 	15-20

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	<ul style="list-style-type: none"> Use good examples to support analysis 	
L2	Displays AO1 and AO2 skills: <ul style="list-style-type: none"> An under-developed answer Some application of price/non-price/cost reducing strategies but limited in its explanation to address the question. 	9-14
L1	Uneven display of AO1 and AO2 skills: <ul style="list-style-type: none"> Smattering of points – Lack of clarity, accuracy, and relevance. Many conceptual errors No economic framework in analysis Question requirement is not addressed 	1-8
Level	Evaluation	Marks
E3	Well-reasoned judgement <ul style="list-style-type: none"> A well-reasoned judgement regarding strategies of firms and the alignment to profit maximisation Question any unstated assumptions to arrive at this well-reasoned judgement. 	4-5
E2	Largely unexplained judgement <ul style="list-style-type: none"> Some attempt to explain judgement 	2-3
E1	An unsupported judgement <ul style="list-style-type: none"> Most evaluative statements or judgements that are neither supported nor relevant to the specific context of the question 	1

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3 (a) Explain why governments intervene in the provision of public goods and when monopoly power is present. [10]

(b) Discuss the factors that a government should consider when deciding whether to impose price control or pro-competition policy in markets with monopoly power. [15]

Suggested Answer for Part (a)

Approach	Command word	Explain why
	Question Type	Causes of Market Failure
	Start point	Sources of Market Failure
	End point	Inefficient allocation of resources
	Context	No context given – candidates to use appropriate contexts
Content	Content (Scope of coverage)	Public Good, Market Dominance

Why govts intervene in the provision of public goods:

(i) Non-excludability characteristic, leading to missing market

- A public good is non-excludable in nature, where it is impossible or very costly to exclude non-payers from consuming the good when the good is provided. One example is that of a water dam that can prevent the flooding of a city when water levels rise with global warming. This water dam will protect all individuals, regardless of whether they pay for it. Since those who do not pay will not be excluded (and everyone knows this), **no one has the incentive to pay for the public good.**
- This leads to the **free-rider problem** where everyone will wait for someone else to pay, in the hopes of enjoying the marginal benefit from the water dam without having to pay for it.
- As a result, while a water dam is necessary to protect the city, there will be **no effective demand** for the good, i.e. all consumers will not be willing to pay for the good even if they are able to pay.
- Since there is no effective demand for the good in the market, profit-maximising **firms will make the rational decision to not even enter the market to supply the public good** at all.
- Therefore, if public goods were **left to private firms (free market)**, there would be **no resources allocated to the production of such goods** i.e. $Q_p = 0$.
 - ⇒ The free market fails to use price signal to represent consumer's satisfaction of consuming the good
 - ⇒ This is why governments take on the role to build water dams, essential for its citizens in low-lying areas.

(ii) Non-rivalrous characteristic, leading to non-provision by free market and hence complete market failure

- A public good is also **non-rivalrous** in nature whereby the consumption by one person does not reduce the amount available to another. In this example, the enjoyment of the protection

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from the water dam by an individual does not reduce the amount of protection that another individual enjoys.

- The **marginal cost of providing this public good for an additional user is zero.** In other words, the total cost of supplying the good is the same regardless of the number of beneficiaries.
- **For the market to be allocative efficient, the price must equate to the marginal cost of consumption ($P=MC$).** Hence the price which consumers should pay is \$0.
- As established too under the earlier explanation, rational profit-maximising firms will not produce goods at a price of \$0. If left to the free market, no public goods will be produced, and there is *complete market failure*.

Hence, the two characteristics of a public good accounts for why there is complete market failure, necessitating government intervention.

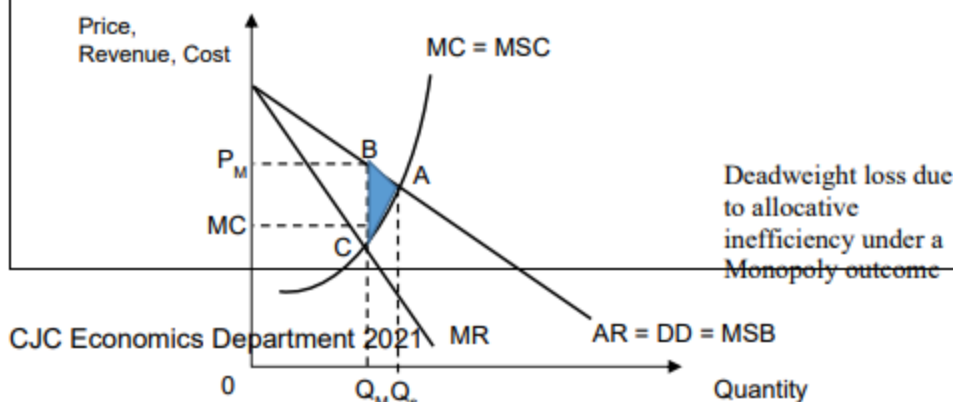
Why govts intervene in a market with monopoly power:

A monopoly refers to a market with a single dominant firm. In a pure monopoly case, there is only a single producer of a good with no close substitutes; enjoying substantially high barriers to entry and imperfect information.

The government intervenes due to the inefficient allocation of resources in the free market.

- A monopoly seeks to maximise profits. In line with the Marginalist Principle, the monopoly will produce where $MC = MR$. It will not produce where $MR > MC$ since profits can increase with greater output. On the other hand, it will also not produce where $MC > MR$ since doing so would incur more costs than revenue gained. Consequently, the monopoly produces at Q_M (with price at P_M).

SISTIC, a ticketing service provider is a middleman between event promoters and the ticket buyers by providing a platform to buy and sell tickets. Exclusive agreements with event promoters for events at key venues such as the Esplanade and Singapore Indoor Stadium had no choice but to sell their tickets through SISTIC. Event attendees too had no choice but to book through SISTIC. SISTIC's market share was estimated to be between 85% to 95% of the market in 2009.



- However, this outcome is allocatively inefficient as the **equilibrium price is higher than its marginal cost i.e. $P_M > MC$** . In other words, society values the good at a higher price than what it costs the monopolist (society) to produce it in terms of the opportunity costs of the resources required to produce it.
- The allocative efficient output is achieved at Q_s where $P = MC$ i.e. where society's valuation equates the opportunity costs involved in the production.
- There is **underproduction** by the amount $Q_s - Q_M$, with **under-allocation of resources** to the production of the good, resulting in **deadweight loss** (shaded area).

[The gain in benefits to society by producing units $Q_M Q_s$ is $Q_M B A Q_s$. The cost to society of producing these units is $Q_M C A Q_s$. Hence the deadweight loss (shaded area) is ABC.]

Marking Scheme for Part (a)

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For an answer that shows well-developed explanation of the 2 sources of market failure <ul style="list-style-type: none"> • clear and logical explanation of why the market fails. where public goods and monopoly power exist, leading to allocative inefficiency • that is well-grounded by economic concepts • applied to suitable context 	8 – 10
L2	For an answer that shows under-developed explanation <ul style="list-style-type: none"> • lacking clarity and accuracy at times • not applied to suitable context • Lop-sided coverage of only 1 source: max 5m 	5 – 7
L1	For an answer that shows limited knowledge <ul style="list-style-type: none"> • with listing of points, unexplained statements or descriptive response • many conceptual errors (confusion between NR and NE characteristics, confusion between Q_p and Q_s, wrong DWL) • irrelevant response such as on government policies 	1 – 4

Suggested Answer for Part (b)

Approach	Command word	Discuss
	Question Type	Decision-making
	Start point	Policies to mitigate monopoly power
	End point	To achieve efficient allocation of resources
	Context	Monopoly market
Content	Content	Benefits, Costs, Constraints wrt Price Control and

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(Scope of coverage)	Pro-Competition Policy
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The main factors of consideration in the decision-making process are Benefits and Costs.

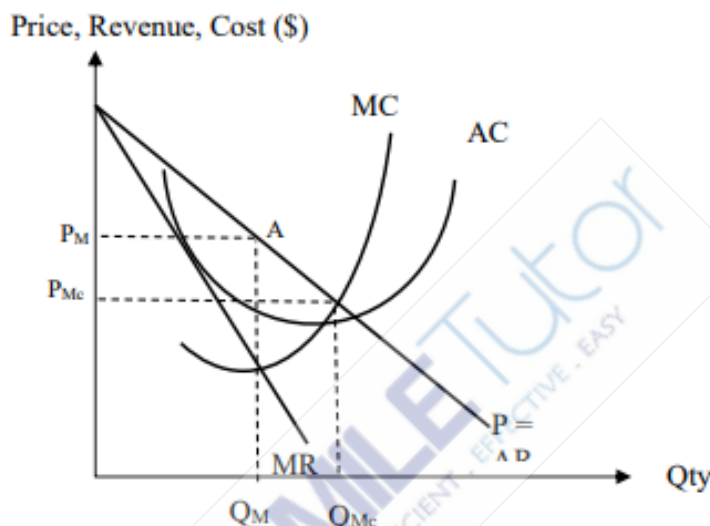
Price control – MC pricing

Explaining **Benefit** by establishing **How** the policy works:

Under MC pricing, the government-regulated price is set equal to the marginal cost of producing the last unit of the output (i.e. $P = MC$). By regulating the price to be set at P_{mc} , firms will increase output to Q_{mc} in order to maximise profits. In so doing, allocative efficiency is attained since the optimal amount of resources are used to produce the socially-optimal amount of goods. Evidently, deadweight loss is eliminated, achieving the policy intent of addressing market dominance.

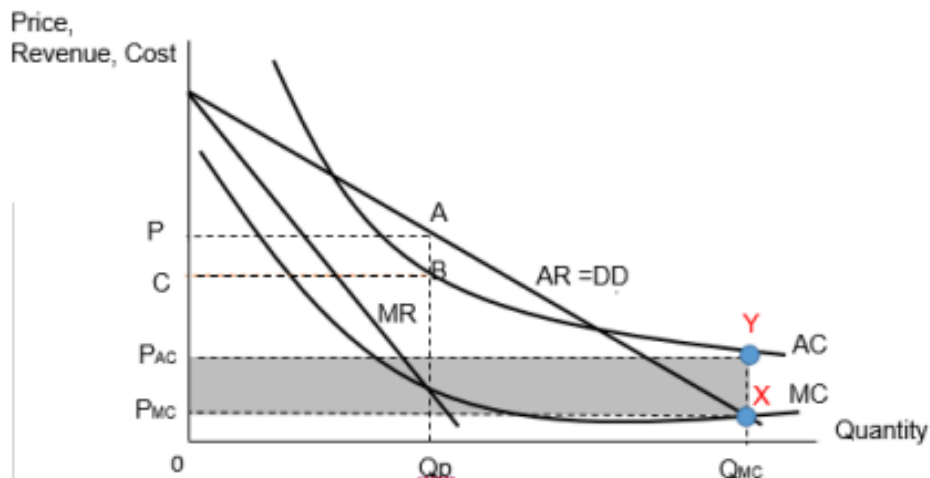
Note: Candidates could analyse using either context/diagram:

- Case of a conventional monopoly:



OR

- Case of a natural monopoly:



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The **Benefit/Advantage** of MC pricing as the choice of price control is that the price can be flexibly adjusted by the government in line with the dynamic changes in revenue and costs conditions in the free market. This will ensure that $P = MC$ condition is met, achieving allocative efficiency.

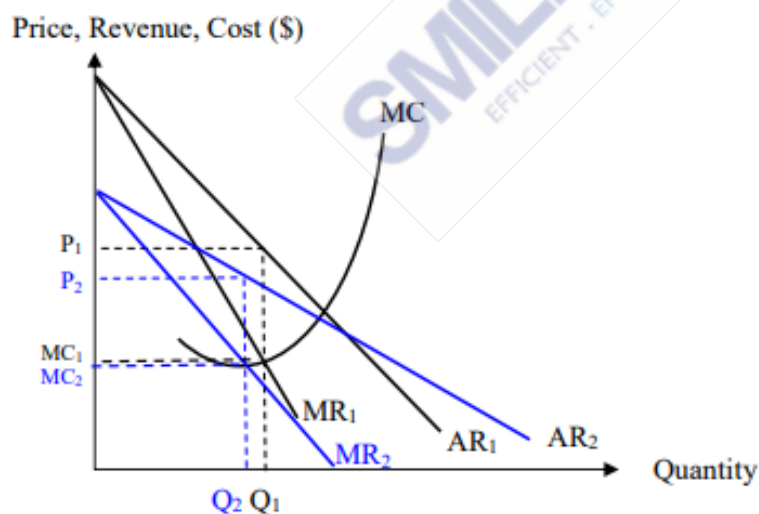
The **Cost/Limitation** of MC pricing is that the monopoly will now make subnormal profits $P_{AC}P_{MC}XY$. While its monopoly power is now mitigated, it is done so at the expense of its survival. If there is no government support, it will have to shut down. Instead of the intended Q_{MC} amount, zero output would result instead, denying consumers of any satisfaction. This is particularly of great concern if the good involved is an essential one like a transport service. To sustain this price control, government subsidy (at least the quantum of the subnormal profit) is of paramount importance.

Pro-competition policy

Explain **Benefit** by establishing **How** the Policy works:

Pro-Competition policy aim to prohibit monopolisation of a market by any firm. For example, any mergers / acquisitions of firms will have to be approved by the regulatory authority. In Singapore, the Competition & Consumer Commission Singapore (CCCS) plays this regulatory watchdog role to ensure that dominant firms do not abuse their power, at the expense of consumers. These laws prevent certain monopolistic behaviour, such as price-fixing practices (collusion) and territorial arrangements between firms in the same industry. In recent times, Grab and Uber proposal to merge was dismissed by CCCS due to the projected overbearing extent of market dominance on the ride-hailing industry.

With more competition, the AR and MR shifts left, with a higher PED value. The profit maximising output falls from Q_1 to Q_2 , resulting in price from P_1 to P_2 . As a result, the gap between P_2 and MC_2 will now be smaller (as compared to the gap between P_1 and MC_1), reducing the extent of allocative inefficiency issue in society.



Benefit/Advantage:

This policy directly addresses the root cause of the issue – both by curbing the power of existing monopolies or by proactively rejecting any merger request by dominant firms. The policy directly reduces the gap between P and MC . The hefty fines imposed on guilty firms as well as monetary awards given to whistle-blowers are strong deterrents.

Cost/Limitation:

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However, it takes considerable amount of time for the government to investigate the lodged cases to prove that indeed the firm(s) involved are abusing market power by price-fixing, etc. The firms in question would naturally withhold crucial information (such as emails and texts), leading to further delays. A case in point is that the case of poultry (a necessity good) sellers in Singapore took 4 years of investigation before they were proven guilty and fined. Meanwhile, consumers continued to be charged a higher price which they assumed to be reflecting the prevailing market conditions. This time lag resulted in the society persistently incurring DWL.

Evaluation – which factor is of greater importance

Possible responses include:

Criterion 1: Likelihood of government failure

Price control is the preferred policy as it is a decisive policy that can be enacted almost immediately. This is especially important for a market concerning necessities. In the case of the poultry market in Singapore, the government could have considered imposing MC pricing in the short run while investigations were ongoing and then impose the Competition Act to the guilty firms in the longer term. This will better look after the interests of low income households who are currently feeling the effects of the economic disruption due to the Covid-19 pandemic.

Criterion 2: Budget constraints (apart from comparing net benefits)

Pro-competition policy is the preferred policy since it involves little expenditure. In fact, the fines collected from non-compliant firms can add on to its budget. Conversely, the government has to incur a long-term expenditure to support the regulated monopoly to ensure that it continues producing at Q_{MC} while still earning at least normal profit. Thus governments that are in a poor budgetary position would likely prefer pro-competition policy and free up the use of its budget to other pressing issues such as funding supply-side policies to reduce structural unemployment.

Marking Scheme for Part (b)

Level	Knowledge, Understanding, Application, Analysis	Marks
L3	For an answer that shows well-developed analysis of the 2 policies, <ul style="list-style-type: none"> comprising the benefits and costs with clarity that is well-grounded by economic concepts applied to suitable context 	8-10
L2	For an answer that shows under-developed explanation <ul style="list-style-type: none"> lacking clarity and accuracy at times not applied to suitable context 	5-7
L1	For an answer that shows limited knowledge <ul style="list-style-type: none"> with listing of points, unexplained statements or descriptive response many conceptual errors (such as confusion between AC and MC pricing) irrelevant response 	1-4
Level	Evaluation	Marks
E3	<ul style="list-style-type: none"> Synthesises the points raised to arrive at well-reasoned judgments and decisions 	4-5
E2	<ul style="list-style-type: none"> Some attempt at an evaluation or summative conclusion with elaboration/justification (clear criterion) Relevant insights which lack supporting analysis 	2-3
E1	<ul style="list-style-type: none"> Unsupported evaluative statement/judgment e.g. on which policy is preferable by a government 	1

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- 4 Prime Minister Lee Hsien Loong highlighted that Singapore must prepare for the impact of climate change, which can bring about food shortages and forced migration of displaced populations. As a low-lying island, Singapore is vulnerable to the destructive effects of rising sea levels, which may divert trade to other nations' ports.**

Source: National Day Rally PM Speech 2019

Explain the macroeconomic aims of the Singapore government and discuss the impact of climate change on these aims. [25]

Suggested Answer

Approach	Command Word • [Explain] and [Discuss]	Explain the different macroeconomic aims. Discuss: positive and negative impacts of climate change on BUGP.
	Start point [climate change]	<ul style="list-style-type: none"> • Rising sea levels (-ve impact) <ul style="list-style-type: none"> ◦ Fall in $(X-M)_{SG}$ and fall in FDI and hence fall in I_{SG} due to damaged infrastructure and ponding, fall in AD • Food shortages (-ve impact) <ul style="list-style-type: none"> ◦ rise in P_{food}, rise in COP, fall in SRAS • Forced migration of displaced populations from other nations (+ve impact) (could be -ve also) <ul style="list-style-type: none"> - Rise in SS_L, fall in wage and COP, SRAS rise - Rise in quality and quantity of resources, rise in LRAS
	End Point [Singapore economy in future]	Outcomes on BUGP <ul style="list-style-type: none"> • Economic Growth • Unemployment • Price stability • BOT position
Content and Context	Content	Macroeconomic aims
	Context	Singapore

In Singapore, we aim to achieve the following macroeconomic aims of:

1. Sustainable and inclusive and economic growth

- Define: Singapore aims for economic growth to be sustained over an extended period of time without inflationary pressures. This will require both **actual and potential growth** to occur. Sustainable growth involves achieving actual and potential growth using renewable resources in ways that do not reduce the quantity or quality of resources over time. Economic growth should also be inclusive so that economic growth increased in **broad-based** across economic sectors and creates productive employment opportunities for the majority of the country's population.

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- How to measure: Economic growth can be measured using real GDP growth rate. The use of Gini coefficient helps to measure the income inequality in the economy and the pollution index allows Singapore to see if the economic growth achieved is attained in a sustainable manner.
- Why achieve it: Should Singapore experience continuous both sustainable and inclusive economic growth, there will be an increase in the quantity and quality of goods and services enjoyed, which translates to a higher material and non-material standard of living of its citizens.

2. Low unemployment

- Define: The unemployment rate reflects how fully an economy's **resources are being utilised**. Unemployment refers to the situation where people are unable to find employment, even though they are of legal working age and are both capable and willing to work at the current wage rates. The natural rate of unemployment comprises of both structural unemployment and frictional unemployment

- How to measure: The unemployment rate is the percentage of the labour force that is without a job although they are capable and willing to work at the current wage rates.

$$\text{Unemployment rate} = \frac{\text{No. of unemployed}}{\text{Labour force}} \times 100\%$$

- Why achieve it: Low unemployment rates are typically desired, as they reflect vibrancy in an economy with high levels of economic activity and hence healthy economic growth. Low unemployment rates also suggest that labour resources are more fully utilised (economy is producing at a point closer to the PPC) and there is fewer idle resource, leading to productive efficiency and the ability to achieve allocative efficiency.

3. Price stability

- Define: Price stability is concerned about the general price level of goods and services in an economy.
- How to measure: Economists typically consider price stability to be a situation of **low and stable inflation** i.e. a low and sustained rise in the general price level of goods and services in an economy over time, usually a year. Singapore considers price stability to be in the range of 0 – 3%. The inflation rate indicates the percentage change in the general price level in an economy and it is calculated using the following formula:

$$\text{Inflation rate} = \frac{\text{CPI year } x - \text{CPI year } (x - 1)}{\text{CPI year } (x - 1)} \times$$

- Why achieve it: Low inflation rate is generally considered healthy since it could be indicative of actual economic growth. Low inflation rate also increases business confidence. Firms become more confident about making future plans due to certainty about future price levels and are able to make accurate predictions of costs and revenues.

4. Favourable balance of trade position

- Define: The Balance of Trade (BOT) of a country is a statement of receipts for all economic transactions **concerning trade of all goods and services** between residents of a country with the rest of the world over a period of time, usually a year. BOT shows the overall position of the country for all receipts from the sale of exported goods and

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services net the expenditure of all imported goods and services i.e. how a country performs in the area of **international trade**.

- How to measure: The Balance of Trade = **Export revenue (X) – Import expenditure (M)**. A **surplus** position occurs when the total value of receipts exceed the total value of payments, resulting in a net inflow of money. A **deficit** position occurs when the total value of payments exceed the total value of receipts, resulting in a net outflow of money.
- Why achieve it: A higher net exports (X – M) boosts economic growth with higher real national output and hence lower unemployment rate (greater need to hire more workers to produce). If Singapore become too dependent on export-driven growth, its growth will be vulnerable to the changing landscape of the global economy especially when there is a global downturn. Hence, Singapore aims to achieve a healthy balance of trade position without too much surplus.

Climate change can bring about both positive and negative impacts on the macroeconomic aims of Singapore. We will first look at the negative impacts.

Negative impacts of climate change on Singapore

- **Rising sea levels** leads to **lower actual economic growth and higher demand-deficient unemployment**
 - As stated in the preamble, climate change might bring about rising sea levels for a low-lying island like Singapore. Businesses (FDIs) may lose confidence in investing in Singapore, especially since the city-state is prone to flooding. Businesses along Orchard Road have had their merchandise destroyed in the past by abrupt ponding during a series of downpours in Singapore. This would result in a reduction in investment spending (I) by firms.
 - Furthermore, as the Arctic ice cover thaws due to global warming, **countries such as Russia, are promoting an alternative commerce route (Northern Sea Route)** in the wake of the recent closure of one of the world's most strategic waterways, the Suze Cana, which connects Europe and Asia.
 - This would have diverted a significant amount of trade away from Singapore (as we are located along the Suze Canal Route) and reduce demand for Singapore's exported goods and services. Assuming everything else remains constant, our net exports (X-M) may decrease. The combined fall in I and (X-M) would lead to a fall in Singapore's aggregate demand (AD) from AD_0 to AD_1 as shown on Figure 1 below.

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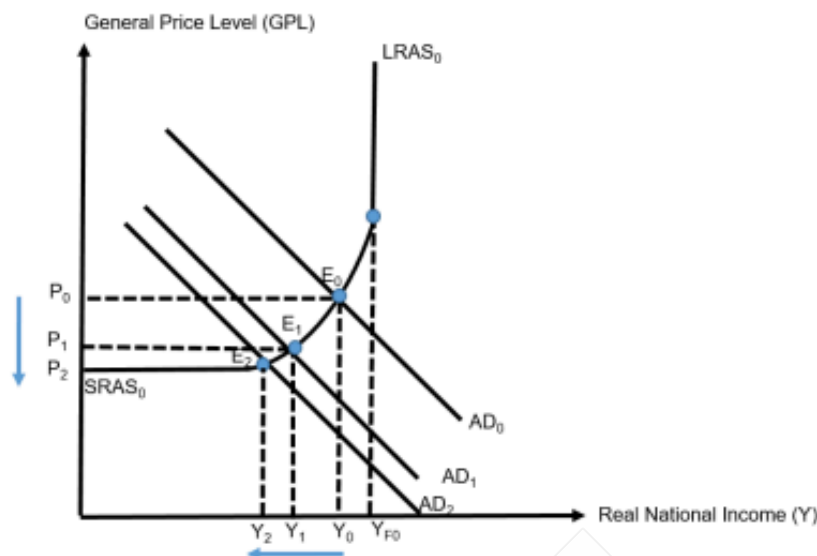


Figure 1: Fall in AD in Singapore due to rising sea levels caused by climate change

- With a fall in AD from AD_0 to AD_1 , firms are unable to sell their current level of output, hence stocks of unsold goods will build up. Firms will then reduce production and decrease their demand for factors of production, including labour. As less labour is employed, less national income is earned from Y_0 to Y_1 . The initial fall in national income will lead to a further fall in income and induced consumption due to the reverse multiplier effect. As the economy moves into recession represented by a further fall in AD from AD_1 to AD_2 , it is now at a lower level of equilibrium national income or national output, Y_2 , if the fall in national income is sustained for two consecutive quarters in Singapore economy, this would mean **recession and negative actual economic growth** in Singapore.
- With fall in AD and the cutting back of production, firms will also cut back on the amount of labour used (i.e. fall in demand for labour) since the demand for labour is a derived demand. Hence, climate change will lead to **rise in demand-deficient unemployment** in Singapore.
- The fall in net exports might also **worsen Singapore's balance of trade position** of Singapore as we are highly dependent on external sector for survival. If the balance of trade falls to a deficit and is a persistent one, it might lead to a depletion of our foreign reserves and jeopardise our external stability.
- **Food shortages** lead to **lower/negative actual economic growth and rise in cost-push inflation**
 - As stated in the preamble, climate change might bring about food shortages. This is because irregular climatic conditions may harm crops or make food/agricultural product harvesting even more difficult. As illustrated in Figure 3, this would result in an increase in the economy's overall cost of production as food is an essential component in many food and beverages outlets in

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Singapore, which would cause a decrease in Singapore's short-run aggregate supply (SRAS).

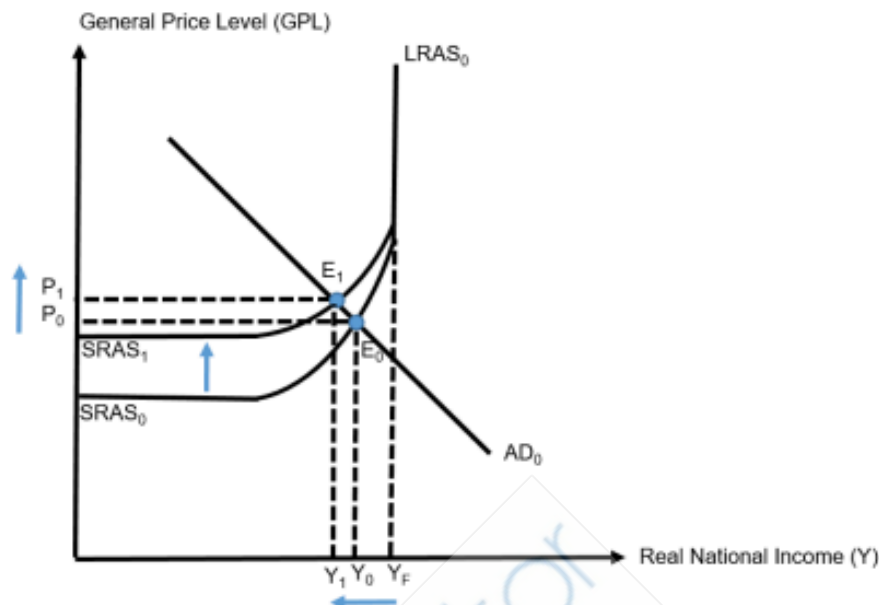


Figure 3: Food shortage leading to cost-push inflation

- The economy is initially at equilibrium with general price level at P_0 and national income/output level at Y_0 . If there is an increase in the costs of production at all levels of output, the $SRAS_0$ curve shifts upwards (i.e. to the left) to $SRAS_1$, thereby resulting to inflationary pressure with a higher general price level, P_1 . If the increase in price is sustained, **cost-push inflation might set in**. The fall in SRAS also leads to lower equilibrium national income/output at Y_1 . If the fall in national output is persistent for two consecutive quarters, this will bring about **negative actual growth in the economy**.

Positive impacts of climate change on Singapore

- Displaced population might enter Singapore which can cause a **lower inflationary pressure and greater potential growth**
 - As a result of climate change, more migrant workers may choose to work in Singapore. Because the melting Arctic ice may result in a colder environment in the northern areas and cooler temperatures in Singapore. As a result, more workers may consider Singapore to be a more favourable place to live and work. The increase in quantity of resources (human capital) will lead to an increase in LRAS in Singapore from $LRAS_0$ to $LRAS_1$ as shown on Figure 4 below.

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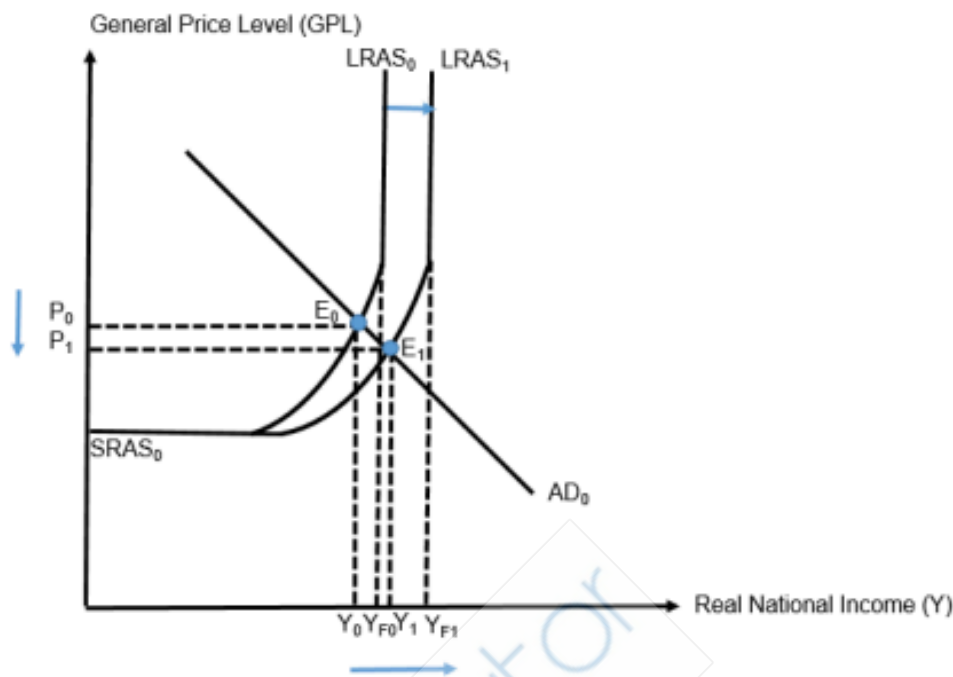


Figure 4: Higher potential growth due to displaced population entering Singapore

- Should the displaced population choose to migrate to Singapore, our quantity of labor resources is expected to increase. With more factor inputs available, the productive capacity of the Singapore will increase, resulting in lesser **inflationary pressure** from P_0 to P_1 and a likelihood of **higher potential growth** from Y_{F0} to Y_{F1} as shown on Figure 4 above.
- Climate change has heightened Singapore's need to enact a number of **measures aimed at mitigating the effects of climate change** and instilling more investor confidence in order to **spur actual economic growth**.
 - Singapore's Public Utilities Board (PUB) has been researching the construction of a deep sea tunnel sewage system and actively engaging with property owners to adopt improved flood defenses. To protect their basement floors against flooding, structural measures such as humps and flood barriers were built. Such proactive efforts by the Singapore government would increase investor trust and encourage additional FDI from nations that may not have similar flood-prevention measures in place. The continuous inflow of FDI means that multi-national corporations (MNCs) will set up more factories and purchase more capital equipment in Singapore. This capital accumulation will lead to increase in investment expenditure and lead to increase in AD from AD_0 to AD_1 as shown on Figure 5 below.

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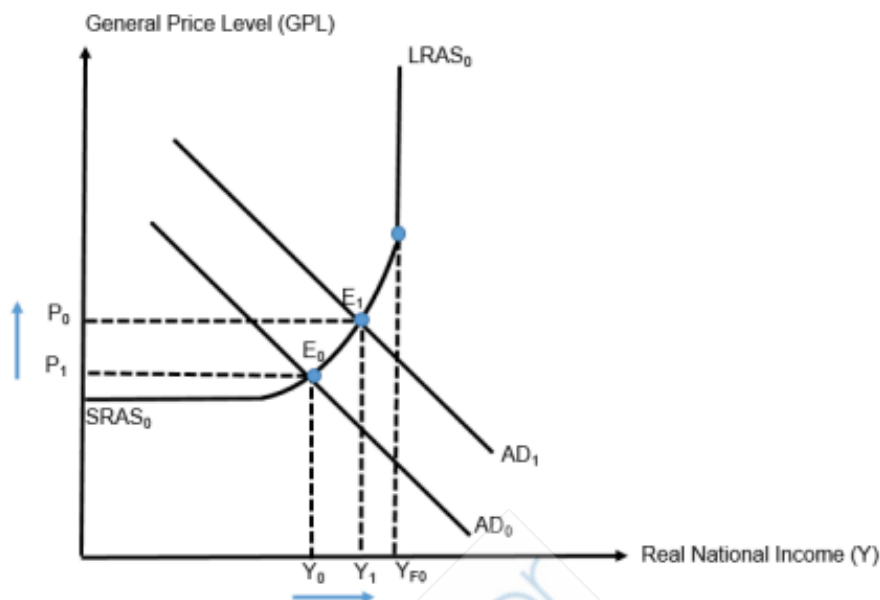


Figure 5: Higher actual growth due to SG's flood-proof measures

- Hence, Singapore's flood-prevention measures, implemented in anticipation of deteriorating climatic circumstances, will assist in maintaining/increasing greater actual economic growth from Y_0 to Y_1 .

Evaluation

Stand: Climate change will almost certainly have a detrimental impact on Singapore's macroeconomic goals.

Reasons (comparison): Because of the nature of our economy and the fact that we are a low-lying island, it is quite probable that concerns such as flooding and infrastructure damage will occur. We will lose our competitive edge as a trade hub for nations unless newer and better flood-proof technology is created, and we will see a large drop in net exports and FDI when compared to a bigger, stronger, and resource-rich nation like China.

Context: Because Singapore is a tiny country with limited space, it is doubtful that displaced employees will want to relocate here. Singapore is not an appealing choice for displaced employees as a sanctuary from unstable climate circumstances due to recent tightening of foreign worker regulations and increased unfavourable feelings with foreign workers. As a result, the chances of a favourable influence of migrated workers on our potential growth are slim.

Marking Scheme

Level	Knowledge, Understanding, Application, Analysis	Marks
L3	<ul style="list-style-type: none"> Explains at least 3 macroeconomics aims 2-sided discussion linking the climate change to a range of macroeconomic aims Accurate and conceptually sound using ADAS framework Coherent flow and organisation 	15-20
L2	<ul style="list-style-type: none"> Explains at least 2 macroeconomics aims 2-sided discussion (both positive and negative impacts) Used ADAS framework, but with some inadequacy and/or inaccuracy 	9-14

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L1	<ul style="list-style-type: none"> No, or conceptually inaccurate, use of ADAS framework Lack of clarity, coherent flow and organisation 	1-8
Level	Evaluation	Marks
E3	Insightful judgment substantiated with analyses, including but not limited to the following considerations: <ul style="list-style-type: none"> long vs short term intended vs unintended consequences other policies different contexts underlying assumptions 	4-5
E2	Judgment substantiated with analyses that were explained mostly in the body	2-3
E1	Unsubstantiated judgment	1



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5 In its December 2019 Recent Economic Developments Statement, the Monetary Authority of Singapore noted that unemployment was set to rise. This was mainly due to factors such as weaknesses in external demand and the acceleration in developing and deploying artificial intelligence (AI) solutions in Singapore.

Adapted from: Recent Economic Developments in Singapore, MAS, 6 Dec 2019

- (a) Explain how the above-mentioned factors may cause the rate of unemployment to rise in Singapore. [10]
- (b) Discuss the effectiveness of existing macroeconomic policies designed to tackle unemployment in Singapore. [15]

Suggested Answer for Part (a)

Approach	Command word	Explain how: well-developed analysis of how the events/triggers in the preamble caused unemployment rate to rise
	Question type	Causes of unemployment
	Start point	Above-mentioned factors: <ul style="list-style-type: none"> Weaknesses in external demand Acceleration in developing and deploying artificial intelligence (AI) solutions
	End point	Rise in unemployment rate
Content and Context	Content	AD/AS analysis
	Context	Singapore

Introduction

Define unemployment – Unemployment refers to the situation in which people are unable to find employment even though they are of legal working age and are both capable and willing to work at current wage levels.

Using the factors in the preamble, identify the different types of unemployment in Singapore – demand-deficient/cyclical unemployment and structural unemployment.

Body Paragraph 1: Explain how weaknesses in external demand caused the rate of unemployment to rise in Singapore

As a small and open economy, Singapore is highly dependent on trade and investment flows. The growing tensions between the United States and China/US-China trade war and uncertainty of Brexit caused a fall in global trade flows. This meant that export revenue will decrease triggering a sharp and sustained fall in global business and consumer confidence that led to FDI outflow/reduced FDI inflow into Singapore.

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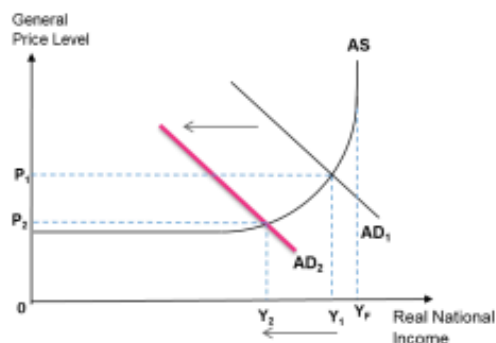
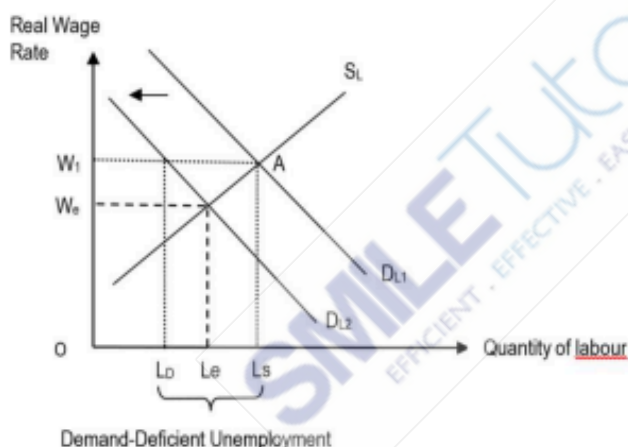


Figure 1: Demand-deficient unemployment due to weaknesses in external demand

With reference to Figure 1, the initial equilibrium national income is at Y_1 , where AD_1 is equal to AS . Weaknesses in external demand \rightarrow demand for Singapore's exports; fall in FDI inflow/FDI outflow \rightarrow net exports ($X-M$) and investment expenditure (I) fall \rightarrow fall in AD from AD_1 to AD_2 \rightarrow trigger reverse multiplier effect \rightarrow larger fall in AD \rightarrow unplanned accumulation of stocks \rightarrow firms reduce production and reduce their demand for factors of production, including labour



SL: Supply of Labour in the economy
 [shows the total number of people who are able and willing to work at each wage rate]

DL: Demand for Labour in the economy
 [shows the total number of workers that firms are willing and able to employ at each wage rate]

Figure 2: Demand-deficient unemployment in the labour market

The labour market is initially in equilibrium at point A, where demand for labour (D_{L1}) is equal to the supply of labour (S_L) at the current wage level of W_1 .

As explained, as firms cut back on production as a result of the fall in AD , they also cut back on the amount of labour used (i.e. fall in demand for labour) since labour is a derived demand. This is shown by a leftward shift of the labour demand curve from D_{L1} to D_{L2} .

At the current wage W_1 , there is a surplus of workers. Some of the L_S number of workers who are willing and able to take on jobs at the prevailing wage rate W_1 , are now unable to find jobs as firms are only willing and able to employ L_0 . Hence, there is unemployment at the current wage where the horizontal distance of L_0L_S **represents the level of demand-deficient unemployment**.

Body Paragraph 2: Explain how acceleration in developing and deploying artificial intelligence (AI) solutions in caused the rate of unemployment to rise in Singapore

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Advancement in technology drives a relentless change in industries, jobs and skills. As new industries develop around emerging technologies, they give rise to jobs requiring new skills, while making other jobs obsolete. For instance, in Singapore's financial services industry, AI-based automated chat systems that can interact with customers on personal finance queries in real time are now common in several local banking platforms in Singapore. As these labour-saving technological advancements allows for the same level of output to be produced with fewer workers, capital is increasingly being used to substitute labour. Workers who are less proficient in handling the more advanced equipment may become unemployed. At the same time, with the development and deployment of AI solutions, old skills are no longer required and those retrenched do not possess the skills that are in demand. Thus, structural unemployment results because of the mismatch of skills of the unemployed and the existing job vacancies. Hence, labour made redundant in one sector of the economy cannot immediately take up jobs elsewhere, even though there are vacancies there. As a result, some workers become unemployed for a long period of time.

Conclusion

The above-mentioned factors are most likely to result in greater demand-deficient unemployment and structural unemployment, thereby causing the rate of unemployment to rise in Singapore.

Marking Scheme for Part (a)

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed explanation of how the above factors caused unemployment to rise in Singapore. Both types of unemployment (demand-deficient/cyclical unemployment and structural unemployment) should be considered, with good application of real-world examples and appropriate use of economic framework to support the analysis with accurate and well-explained diagrams.	8 – 10
L2	For an underdeveloped answer that attempts to explain both causes of unemployment with appropriate but incomplete economic analysis	5 – 7
L1	For an undeveloped answer that has limited/no application of relevant economic concepts, and/or contains conceptual errors.	1 – 4

Suggested Answer for Part (b)

Approach	Command word	Discuss: 2-sided, balanced answer + Evaluation
	Start point	Existing macroeconomic policies designed to tackle unemployment
	End point	Reduce unemployment
Content and Context	Content	<ul style="list-style-type: none"> AD/AS analysis HAL framework
	Context	Singapore

Introduction

Reiterate the different root causes of unemployment in Singapore.

State existing macroeconomic policies designed to tackle unemployment in Singapore:

Exchange rate policy – Either reduce the pace of appreciation of Singdollar OR zero appreciation policy

Fiscal policy – cut corporate tax rates, income tax rates and increase government expenditure

Supply-side policies – Spending on infrastructure; investment in human capital

Explain how exchange rate policy works to tackle demand-deficient/cyclical unemployment in Singapore

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How exchange rate policy works

The Monetary Authority of Singapore (MAS) operates a managed float regime for the Singapore dollar. The trade weighted exchange rate is allowed to fluctuate within a policy band. In 2019, MAS reduced the pace of appreciation of Singapore dollar, it essentially allows more room for the currency to depreciate to maintain export competitiveness. This results in a fall in the price of Singapore's exports in foreign currencies, assuming $PED_x > 1$ due to the availability of close substitutes \rightarrow more than proportionate rise in quantity demanded for exports \rightarrow rise in export revenue (X) \rightarrow rise in net exports (X-M)

Explain how fiscal policy works to tackle demand-deficient/cyclical unemployment in Singapore

How expansionary fiscal policy works

Additionally, Singapore maintains low tax rates such as attractive corporate tax rate capped at 17% and provides tax relief. By keeping corporate tax rates competitive, together with a skilled and multilingual workforce and a conducive environment with highly developed infrastructure, Singapore will continue to attract FDI inflows \rightarrow rise in I

With a lowered income tax rate \rightarrow disposable income increases \rightarrow increase in consumption expenditure

Singapore government has also increased government expenditure to raise unemployment rates.

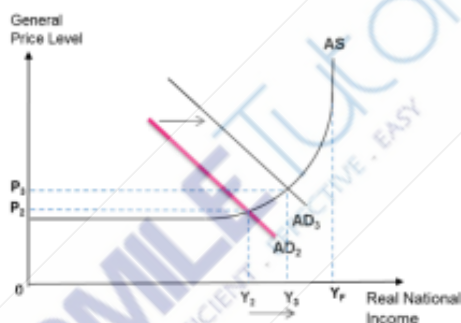


Figure 3: How demand-management policies work to tackle demand-deficient/cyclical unemployment

Rise in (X-M) - E/R policy + I, C & G - fiscal policy \rightarrow rightward shift of AD from AD_2 to AD_3 \rightarrow unplanned running down of stocks \rightarrow firms increase production of goods and services, hire more factors of production, such as labour since labour is derived demand \rightarrow reduce demand-deficient/cyclical unemployment arising from weaknesses in external demand.

With a rise in RNY \rightarrow rise in income will lead to rise in income induced consumption via the multiplier effect \rightarrow AD will rise further \rightarrow reducing demand-deficient/cyclical unemployment further.

Limitations of exchange rate policy and fiscal policy

However, for a small and open economy like Singapore, these policies may be less effective.

Firstly, reducing the pace of appreciation would lead to a rise in the cost of production due to higher price of imported raw materials. This reduces the effectiveness of the policy to reduce demand-deficient/cyclical unemployment as the rise in AD is dampened by the fall in SRAS and is an impediment especially for countries like Singapore that rely heavily on imported factor inputs.

Furthermore, as Singapore has a small domestic consumer base and a heavy reliance on imports, her MPM and MPS (due to compulsory savings via CPF) are large, making Singapore's size of multiplier small, hence limiting the effectiveness of fiscal policy to tackle demand-deficient/cyclical unemployment in Singapore.

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Explain how supply-side policies work to tackle unemployment in Singapore

How supply-side policies work

To tackle demand-deficient/cyclical unemployment

Government spending on improving infrastructure → (increase G) E.g. Development of Cross Island Line (CRL) – Punggol extension - intention to redistribute the travel load from other rail network for efficiency. Improving the infrastructure in a country encourages greater I and greater FDI. Also, an improvement in transport infrastructure will redistribute the labour force better to reduce geographical immobility.

Measures to lower costs of production or improve export competitiveness:

- Investment in human capital E.g. SkillsFuture
- use of better technology through tax incentives E.g. R&D tax benefits

boost productivity of FOPs causing cost of production to fall, improving both the price and non-price competitiveness of exports, resulting in a rise in demand for Singapore's exports and (X-M) rises and AD, as seen in Figure 3.

These measures directly address the root cause of weakness in external demand, thereby tackling demand-deficient/cyclical unemployment in Singapore.

To tackle structural unemployment

Investment in human capital through education and training – Provision of subsidies for retraining and education such as the Continuing Education and Training scheme and SkillsFuture. SkillsFuture is a government initiative that provides \$500 credit for all eligible Singapore citizens to acquire new skills or enhance existing ones. It aims to equip workers with the relevant skills, i.e., reduce the mismatch of skills to become employed in industries where labour is in demand. There are SkillsFuture courses such as training to adopt AI and machine learning to increase productivity and AI related skills. Improving education and training will raise workers' productivity as well as increase their job flexibility and occupational mobility. This tackles root cause of the structural unemployment in Singapore arising from the development and deployment of AI solutions.

Limitations of supply-side policies

A key determinant of the effectiveness of supply-side policies like education and training is the attitude and aptitude of the unemployed (or in-employment workers) towards learning new skills and knowledge. Employers' attitude towards these skills upgrading and reskilling opportunities also matter, as some employers may be resistant to investing time to train their employees, to co-funding such training, and/or letting their employees use work hours to engage in training. Response time lag is huge as it takes time to equip people with skills. It may take several years before the workforce is equipped with the right skills, for them to be effectively employed in the growing industries.

Intermediate Evaluation

Given the nature of Singapore economy, human capital is one of her most important resource. Therefore, investment in human capital is crucial, especially so as Singapore constantly undergoes economic restructuring and structural unemployment would be the main type of unemployment.

Conclusion/Evaluation

The existing macroeconomic policies designed to tackle unemployment in Singapore are effective as they address the main causes of unemployment in Singapore identified in the preamble which are structural and demand deficient unemployment from the weaknesses in external demand and the acceleration in developing and deploying artificial intelligence (AI) solutions

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As Singapore sets sight to be a global hub for developing AI solutions on her Smart Nation journey, skills mismatch is likely to continue to be the main cause of unemployment. Coupled with uncertainties in the global economy, supply-side policies are better than fiscal/monetary policies as it is an effective and sustainable long-term policy to tackle both demand-deficient/cyclical and structural unemployment in Singapore.

Marking Scheme for Part (b)

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For a well-developed answer that: <ul style="list-style-type: none"> Provide thorough discussion of at least 2 policies (a combination of ERP/FP + SSP) to tackle both demand-deficient/cyclical and structural unemployment Has a strong application of economic concepts and use of AD/AS analysis, relevant to the Singapore context 	8 – 10
L2	For an underdeveloped answer that: <ul style="list-style-type: none"> Attempts to explain how ERP or FP works to tackle demand-deficient/cyclical unemployment Application of relevant economic concepts and AD/AS analysis.	5 – 7
L1	For an undeveloped answer that has limited/no application of relevant economic concepts, and/or contains conceptual errors and misinterpretations of the given context	1 – 4
Evaluation		
E3	For a well-reasoned attempt at substantiating the final stand with a clear criterion for weighing the policies designed to tackle unemployment in Singapore.	4 – 5
E2	For a limited attempt at substantiating the final stand with a clear criterion for weighing the policies designed to tackle unemployment in Singapore.	2 – 3
E1	For unsubstantiated evaluation comments	1

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- 6 (a) Explain the causes of a balance of trade deficit and a government budget deficit. [10]**
- (b) Discuss whether a balance of trade deficit or a government budget deficit is more detrimental to households and firms. [15]**

Suggested Answer for Part (a)

Approach	Command Word	Explain
	Question Type	Causes
	Start Point	Possible causes
	End Point	Trade deficit ($M > X$) Government budget deficit ($G > T$)
Content and Context	Content	Trade deficit Government budget deficit
	Context	Provide your own examples

Introduction: Define concepts

- A balance of trade (BOT) deficit occurs when Export revenue (X) < Import expenditure (M).
- A government budget deficit / fiscal deficit occurs when Tax revenue (T) < Government expenditure (G)

The analysis seeks to uncover the possible underlying causes.

Explain one possible cause for a BOT deficit

- Recession in trading partners:** Let's say Singapore's key trading partners, Malaysia, the European Union, the US and China are in recession i.e. negative growth where their real national incomes as measured by their real GDP (gross domestic product) are falling → translate to falling ↓ real incomes and thus ↓ purchasing power of foreign consumers in these countries → given that Singapore's exports (such as electrical machinery and equipment and pharmaceutical goods) are normal goods with positive income elasticity of demand → ↓ demand for SG's exports → ↓ export revenue, assume import expenditure constant → ↓ net exports ($X - M$) in value → leads to BOT deficit.
- An appreciation of the country's exchange rate,** say the US dollar (US\$) means that the price of US\$ has increased in terms of another country's currency. The effects of an appreciation of the US\$ on the price of its exports (P_x) and the price of its imports (P_m) are as follow: ↑ P_x in foreign currency → ↓ Quantity demanded for its exports ↓ more than proportionately, assuming value of $PED_x > 1$ → so ↓ exports revenue. Meanwhile, ↓ P_m in domestic currency (US\$) → ↑ Quantity demanded for its imports ↑ more than proportionately, assuming value of $PED_m > 1$ → so ↑ import expenditure. As long as the Marshall-Lerner condition is met, where the sum of price elasticity of demand for exports and imports is greater than 1, i.e. $(PED_x + PED_m) > 1$ so ↓ net exports ($X - M$) in value → leads to BOT deficit.

Explain one possible cause for a government budget deficit

- Government decisions about government expenditure (G) and tax rates (personal income tax and corporate income tax) are dependent on two possible causes - which are the fiscal stance (could be fiscal prudence) and the state of the economy.
- If the economy is in recession (negative growth where real NY falls for two quarters consecutively), the government will use its budget as an enable to implement expansionary fiscal policy.

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- So in a recession, govt decides to implement an expansionary FP stance → entails ↑G (such as defence and security, education, infrastructure) and ↓PIT and ↓CIT to boost ↑aggregate demand (AD), via the multiplier process, NY will ↑more than proportionately → ↑actual growth, helping cushion the recession in the economy. When ↑G while ↓PIT and ↓CIT, this would lead to $G > T$ collected, and hence government budget deficit.
- Moreover, the state of the economy is also another possible cause of the government budget deficit → With a recession → as incomes are falling and people earn low incomes, ↓tax revenue (T) collected from PIT and CIT, as well as when people buy less goods and services, ↓T collected from value-added tax or goods and services tax (GST in Singapore) → Furthermore, in other countries like the US, as the level of unemployment increases, the amount paid out in unemployment benefits ↑ → the combined effect of ↓tax revenues and ↑amount paid to unemployment benefits would lead to a government budget deficit.

Marking Scheme for Part (a)

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	<ul style="list-style-type: none"> • At least one possible cause for BOT deficit <u>and</u> one possible cause for government budget deficit with application to context. • For a good and thorough analytical explanation of the causes of the two deficits. • Good application to the context in terms of the two deficits. 	8 – 10
L2	<ul style="list-style-type: none"> • At least one possible cause for BOT deficit <u>and/or</u> one possible cause for government budget deficit with some application to context. • An under-developed explanation of the causes of the deficits, i.e. Inaccurate/gaps in analysis 	5 – 7
L1	<ul style="list-style-type: none"> • For an answer which shows some knowledge/stating of the causes of either deficit, but largely unexplained, OR an answer that is mostly irrelevant and contains a few valid points made incidentally. • Meaning of the question not properly grasped • Shows some knowledge but there are basic errors of theory or inadequate development of analysis 	1 – 4

Suggested Answer for Part (b)

Approach	Command Word	Discuss
	Question Type	Consequences
	Start Point	BOT deficit, government budget deficit
	End Point	Households, firms
Content and Context	Content	Households (consumption, purchasing power, savings, employment, SOL) Firms (investment, production, profits)
	Context	An economy, can use Singapore

Introduction

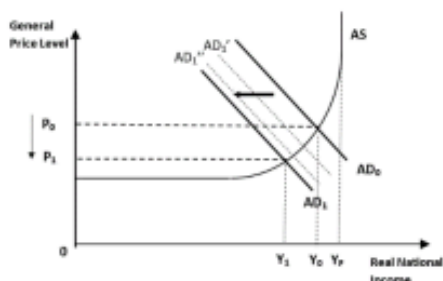
A BOT deficit and a government budget deficit has negative consequences on households (in terms of their consumption, purchasing power, savings, employment and SOL) and on firms (in terms of profits, investment and production).

A BOT deficit is detrimental to households and firms

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- BOT deficit \rightarrow \downarrow Net exports (X-M) \rightarrow \downarrow AD \rightarrow via the reverse multiplier effect \rightarrow leads to a fall in induced consumption expenditure and hence further falls in AD from AD_0 to AD_1' , AD_1'' and AD_1 as seen in Figure 1 \rightarrow this explains the multiplied \downarrow real national income assuming that the economy is not operating at full employment level.
- As unplanned inventories accumulated and firms cut down on the production of output, firms reduce their derived demand for factors of production including labor \rightarrow firms will employ less factor inputs to decrease production \rightarrow \uparrow demand-deficient unemployment among households \rightarrow hence detrimental to household in terms of employment.
- As unemployment unfolds, firms also pay households less factor income \rightarrow when households' income falls, their purchasing power \downarrow \rightarrow households \downarrow consumption expenditure and \downarrow savings \rightarrow \downarrow material SOL now and in the future \rightarrow hence detrimental to household in terms of consumption, savings, purchasing power and material SOL today and in the near future.

- Figure 1: The effect of a BOT deficit



- As firms (particularly firms in the export industries) cut down the production of output, $\downarrow Q \rightarrow \downarrow TR$ (where $TR = \text{Price} \times \text{Quantity}$) \rightarrow assume costs unchanged, \downarrow profits. With lower business confidence, firms revise downwards the expected rate of returns to investment, so $\downarrow I$.
- In the longer term, a BOT deficit reflects the country's worsening export competitiveness relative to other countries \rightarrow exporting industries decline so detrimental to the firms' in terms of falling profits and even the decision to shut down when $P < AC$ in the long run. Moreover, \uparrow structural unemployment as low-skilled workers in the declining industries do not have the relevant skills to be re-employed in other industries due to skills mismatch \rightarrow detrimental to consumers in terms of employment and SOL.

A government budget deficit is detrimental to households and firms

- Government budget deficit can erode business confidence significantly when the size of the deficit is big relative to the country's GDP and when the deficit is prolonged and becomes persistent \rightarrow \downarrow confidence leads to $\downarrow I \rightarrow \downarrow AD$ and $\downarrow LRAS \rightarrow \downarrow$ actual growth + \uparrow cyclical unemployment in the short run, while \downarrow productive capacity and hence \downarrow potential growth in the long run.
 - \downarrow material SOL and non-material SOL now and in the future so detrimental to households.
 - \downarrow real incomes \rightarrow \downarrow demand for firms' goods & services with $YED > 0 \rightarrow \downarrow TR \rightarrow \downarrow$ profits, assume costs constant.
- When a government incurs a budget deficit, the government has to finance the deficit through borrowing. Borrowing would lead to two consequences:
 - Crowding out effect occurs when government competes for private funds with households and firms \rightarrow \uparrow interest rate which means \uparrow costs of borrowing \rightarrow crowds out consumption (C) and investment (I) \rightarrow It is more expensive for household to buy big-ticket items such as

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housing, cars and electronic gadgets so $\downarrow C$ leads to \downarrow material SOL. It is also more expensive for firms to borrow for investment with less investment projects being profitable so $\downarrow I$.

- To reduce its government budget deficit, the government eventually has to \uparrow PIT and \uparrow CIT \rightarrow as explain in the analysis in part (a) $\rightarrow \uparrow$ PIT leads to $\downarrow C$ and hence household's \downarrow material SOL while \uparrow CIT leads to $\downarrow I$ which would affect firms' profits negatively.
- A government budget deficit is detrimental during a recession / economic downturn because it reduces government's ability to implement expansionary FP (or fiscal stimulus) to stave off recession. Using expansionary FP would worsen its budget deficit \rightarrow the consequences are a soaring government debt for years to come and significant crowding out effect \rightarrow Limited \uparrow AD \rightarrow government will then have limited demand-management policies to undertake in the short run i.e. expansionary monetary policy centred on interest rate \rightarrow Both households and firms are worse off during a recession without fiscal stimulus.

Evaluation

Whether a balance of trade deficit or a government budget deficit is more detrimental to households and firms depends on the following factors:

- Nature of the economy: For bigger economies which are relatively less dependent on trade such as the US, a BOT deficit is less detrimental than a government budget deficit to households and firms \rightarrow because the net exports component (X-M) accounts for a much smaller percentage of the country's GDP than its domestic demand (C and I) \rightarrow so then a BOT deficit leads to smaller \downarrow real GDP and hence smaller \downarrow material SOL for households.
- Cause and effects of the government budget deficit vs those of BOT deficit:
 - A budget deficit might arise from expansionary fiscal policy where \uparrow govt spending and/or \downarrow tax revenues \rightarrow effect of a net injection of income into the circular flow \rightarrow so a hefty budget deficit can boost / stimulate the country's AD and hence real NY and actual growth. This is opposed to a BOT deficit which leads to \downarrow AD. But then again, in previous analysis, it is question how effective a budget deficit is in stabilising AD during recession and the effectiveness depends on whether \uparrow govt spending can crowd-out spending by the private sector, reducing the effect of C and I and hence AD.

Marking Scheme for Part (b)

Level	Knowledge, Understanding, Application, Analysis	Marks
L3	<ul style="list-style-type: none"> • Thorough knowledge of the facts and theory of the question. Essay focuses on the negative consequences of BOT deficit and government budget deficit on households and firms. • Analysis is well-developed (for example, with the use of ADAS diagrams) • Illustrations and examples are appropriate to a relevant context. 	8-10
L2	<ul style="list-style-type: none"> • Good knowledge of the facts and theory of the question. Essay focuses on negative consequences of BOT deficit and/or government budget deficit on households and firms. • Incomplete analysis or analytical gaps of the negative consequences. • Lacks/No application to context of either deficit or to an economy. 	5-7
L1	<ul style="list-style-type: none"> • Meaning of the question not properly grasped. For example, answers did not establish the negative consequences of BOT deficit and/or government budget deficit on households and firms. 	1-4

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	<ul style="list-style-type: none"> Analysis is largely undeveloped and contains inaccuracies in content, or is one-sided without scope. 	
Level	Evaluation	Marks
E3	For an answer that (so far as required by the question) builds on appropriate analysis to evaluate critically alternative theoretical explanations, contemporary issues, perspectives and policy choices, that recognises unstated assumption and evaluates their relevance, and that synthesises prior economic arguments to arrive at well-reasoned judgements and decisions.	4-5
E2	For an answer that makes some attempt at evaluation or a conclusion on whether BOT deficit or a government budget deficit is more detrimental to households and firms.	2-3
E1	For an answer that gives an unsupported evaluative statement(s).	1



HWA CHONG INSTITUTION PRELIM PAPER

Answer all questions

Question 1: E-commerce giants and their impact on our planet

Extract 1: The rise of e-commerce

Global e-commerce firms operate marketplaces that connect buyers and sellers, enabling transactions between buyers and sellers for products that the retailers may never physically touch, or if they do, may never actually own. E-commerce is forecast to almost double by 2024, growing to US\$6.5 trillion globally from last year's US\$3.4 trillion. Interestingly, while e-commerce will outpace physical retail in growth rate, physical retail will also grow, and will still dwarf e-commerce.

Table 1: Global e-commerce market share of top 4 firms, 2019

Taobao.com	15%
TMall.com	14%
Amazon	13%
JD.com	9%

Source: *Forbes*, 21 October 2020

Extract 2: Alibaba undercuts Amazon in Europe to woo wary brands

Chinese e-commerce giant Alibaba Group, who owns Taobao and TMall, is finally making its move on Europe. It is undercutting Amazon sellers' membership fees to attract vendors (their customers) but has had mixed results. A flood of small businesses have joined its European platform, AliExpress, in recent months but some larger brands are holding back as they did not feel the site was the right showcase for their products. AliExpress has waived monthly rates for sellers in Spain to attract their business while commissions for goods sold are set at 5% to 8%. By comparison, it costs 39 euros per month plus sales tax to sell on the US company, Amazon, plus a commission for every object sold of 7% to 15%, with items like jewelry and Amazon device accessories commanding higher rates.

Amazon is the largest online shopping marketplace in its five main European markets: Britain, France, Germany, Italy and Spain, according to e-commerce analyst Marketplace Pulse. Thousands of small businesses have signed up to register on AliExpress in Spain since it was opened up to local sellers in 2019. That would compare favorably with established Amazon, which said more than 8,000 small Spanish businesses sold on its platform in 2018.

Source: *Reuters*, 8 January 2020

Extract 3: Amazon is facing increased regulatory scrutiny around the world

The e-commerce giant Amazon has bet big on India, even boasting on a company website last year about its ability to deliver to a remote Himalayan village 11,500 feet above sea level. Yet whether India continues to welcome Amazon is an open question. The country's policymakers recently raised alarm bells about what they describe as a "handful of companies" that "dominate the digital economy" and earlier this year instituted a rule change that forced Amazon to scale back aspects of its business in India. The country of more than 1.3 billion people is not the only place where Amazon is experiencing challenges. Three sets of regulators in Europe over the past year have opened investigations into whether Amazon is a threat to open competition, underscoring how foreign markets are demonstrating the type of concern about the company's power that is only beginning to draw attention in the United States. If policymakers in these countries end up moving to limit Amazon, in effect protecting homegrown businesses, that would present a barrier to continuing the company's record of unbridled growth.

Amazon has become a powerful marketplace alongside its role as an online retailer, with more than 2.5 million third-party sellers who have become global businesses on its platform. Early on, Amazon compelled sellers to use its warehouses to guarantee speedy Prime shipping, in addition to other programs that largely benefited shoppers. They include charging sellers thousands of dollars to speak to account managers, as well as making it necessary to purchase ads to guarantee the top spot on a search page. As much as a third of every dollar merchants make goes back to Amazon. That helped Amazon generate \$42.7 billion in revenue from seller services such as fees and commissions last year, a number that has nearly doubled in two years.

Sellers are a crucial piece of Amazon's business, and the company invests billions of dollars in digital tools and physical infrastructure to help them thrive, said spokesman Jack Evans. Evans disputes the company has prioritized profits over serving consumers, noting that it invests heavily in driving traffic to its site and improving its infrastructure, which benefits third-party sellers, too. Many of the company's fees are for optional services, and it has recently lowered some. Still, many third-party sellers say they worry about Amazon's dual role: a massive open marketplace and a giant competitor in that marketplace. Those sellers complain that Amazon's ever-increasing power has resulted in a system in which only a few can succeed, and only through paying up.

Source: *The Washington Post*, 28 May and 1 October 2019

Extract 4: Online shopping is polluting the planet

A growing consumer appetite for convenience – getting anything you want delivered to your front door by tomorrow in just one click – is taking its toll on the environment. By 2030, the demand for last-mile delivery (final leg of the journey to get a product to the consumer) is expected to grow 78% with online stores, e-grocers and food delivery services competing to offer faster home deliveries and urban last-mile delivery emissions are set to increase by more than 30% in 100 cities globally, according to a new study by the World Economic Forum. Not only that, but commutes could increase by 21%, taking up to 11 minutes longer due to the extra traffic on the road.

Paris Mayor Anne Hidalgo wants the e-commerce company, Amazon, to pay for the carbon emissions and traffic congestion that online shopping generates in the French capital. Amazon, she wrote in her proposal, was a “creator of precarity, congestion and pollution” and “an ecological disaster”; along with other services such as UberEats, the company should be charged a fee for its urban deliveries to offset the problems it causes. If Amazon and other companies decide to pass this burden on to their customers—and it would be hard to prevent them from doing so — city leaders could be blamed for making shopping less affordable in what is already one of the worlds’ costliest cities.

While Amazon did not directly refute the criticism of their emissions record, it nonetheless highlights its Climate Pledge, which aims for carbon neutral deliveries by 2030 and carbon neutral operations by 2040. Amazon also says that its current global order of 100,000 of electric delivery vehicles is the largest yet made by any company. Such progress still lags behind that of some more-proactive companies currently working in France. The French postal service, for example, is already in the process of switching to electric and natural gas vehicles and bikes for the final mile of its deliveries, and by 2024, La Poste promises that its deliveries within Greater Paris will be entirely carbon neutral.

Given Amazon's global market share, Paris' plans hardly pose an existential threat. But in a climate where the environmental and economic effects of e-commerce are coming under increasing scrutiny from both legislators and the public, the city could be a trailblazer in the movement to rein it in.

Source: *World Economic Forum*, January 2020; *Bloomberg*, 28 November 2019

Extract 5: Why haven't e-commerce firms started carbon labeling yet?

E-commerce firms have made it easy to purchase more items online, but one large omission has been the lack of carbon labeling associated with each product sold online. Carbon labeling is the amount of carbon that has been emitted to produce a particular item. By having full transparency of the carbon emissions associated with products sold online, consumers would be truly empowered to adjust their purchasing preferences, in the same way that online purchases are currently driven by price comparisons, customer ratings and a variety of other factors.

One of the challenges mentioned by companies until recently has been the lack of investment in consistent data collection. Using Machine Learning algorithms, calculating the carbon footprint from raw materials to a factory's manufacturing and packaging processes, to warehousing and eventually transportation to a customer doorstep is data intensive. If trillions of data points are being collected on customer preferences and how to optimize websites, having a serious effort for product carbon labeling should be feasible, with the right leadership. With Amazon now pledging \$2 billion toward a climate change fund, using some of these funds to invest in the capabilities of the Amazon platform to create an open source manufacturing carbon labeling program, could have a disproportionate impact on all e-commerce platforms and global consumption patterns.

Just as we saw with Microsoft making the first bold, public climate commitment, and other tech giants vying for climate leadership, can we also see a positive race with e-commerce firms publicly committing toward implementing carbon labeling for products sold on their platforms. The question is, which one will be the first?

Source: *Forbes*, 23 July 2020

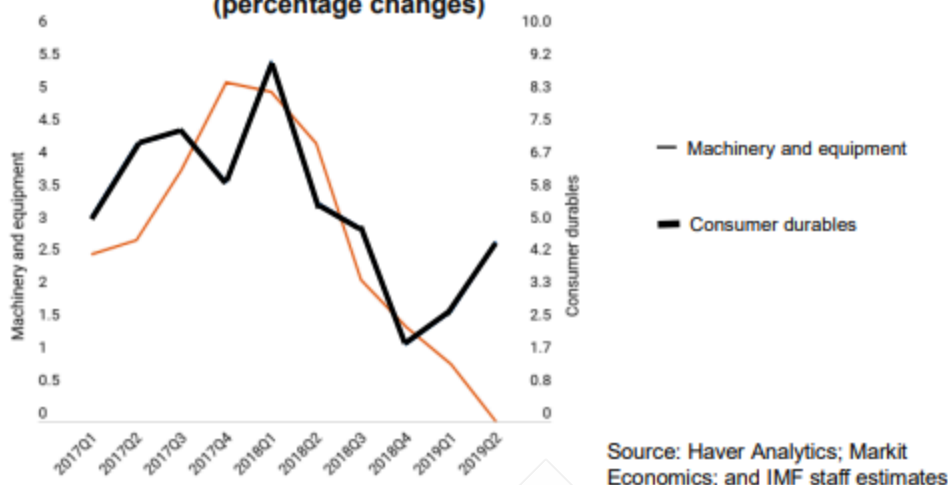
Questions

- (a) Explain the likely value of cross elasticity of demand between goods sold on e-commerce platforms and those sold in physical retail shops. [2]
- (b) (i) Identify and explain the type of market structure that the global e-commerce industry is operating in. [2]
(ii) Using a diagram, explain how 'undercutting Amazon sellers' membership fees to attract vendors' by Alibaba (Extract 2) is likely to affect Amazon's profit in the European market. [4]
- (c) Using a diagram, explain how 'urban last-mile delivery' could lead to market failure. [4]
- (d) Discuss whether the switch to carbon neutral deliveries by companies is better than the proposed policy of charging them a fee for urban deliveries in reducing carbon emissions in Paris. [8]
- (e) With reference to the data, discuss whether the move to limit Amazon's growth by policymakers (Extract 3) is necessary. [10]

[Total: 30]

Question 2: The Global Economic Slowdown

Figure 1: Spending on machinery, equipment and consumer durables, 2017 – 2019
 (percentage changes)



Extract 6: Nations must unite to halt global economic slowdown, says new IMF head

The new International Monetary Fund head said low inflation and weak growth meant it was right for central banks to keep interest rates low, but stressed that real interest rates were already near zero or negative in many advanced countries, leaving limited scope for further cuts.

"In some countries, firms are using low rates and building up debt to fund mergers and acquisitions instead of investing. Our new analysis shows that if a major downturn occurs, corporate debt at risk of default would rise to \$19 trillion, or nearly 40% of the total debt in eight major economies. This is above the levels seen during the financial crisis. Low interest rates are also prompting investors to search for higher yields in emerging markets."

Source: *The Guardian*, 8 October 2019

Extract 7: New IMF chief calls for Germany to spend on infrastructure

In her first speech as head of the IMF, Kristalina Georgieva said Germany and other economies with balanced budgets need to spend more domestically. "Now is the time for countries with room in their budgets to deploy — or get ready to deploy — fiscal firepower," she said.

Georgieva called out by name Germany, the Netherlands, and South Korea as examples of countries where "an increase in spending — especially in infrastructure and R&D — will help boost demand and growth potential." The German government has in recent years pursued a balanced budget. It has also written into law a so-called "debt brake," requiring the federal as well state governments to limit their expenditures.

For countries that maintain high levels of debt-to-GDP, she encouraged them to continue to exercise fiscal restraint, but not at the expense of education, health, and jobs.

The call for spending came packaged in a speech highlighting the sorry state of the greater global economy and a need for a "synchronized" effort to revitalize economic growth. Global economic growth has fallen to its lowest rate in a decade and trade growth is at a near standstill. Weaker spending on machinery, equipment and consumer durable goods has been an important contributor to the global slowdown. Despite low unemployment rates, both the German and US economy are showing signs of trouble ahead. China, after years of rapid economic gains, is also experiencing a slowdown.

Source: *Deutsche Welle*, 8 October 2019

Extract 8: China's economic slowdown: How bad is it?

China's Premier Li Keqiang has said it would not be easy for the country to sustain growth rates of above 6%. "The slowdown in China is becoming quite significant," says Tommy Wu, senior Asia economist at Oxford Economics. "Both the weakening in the domestic economy and deteriorating external environment, including both a global slowdown, and the US-China trade tensions, have a role to play in China's slowdown."

The official data paints an increasingly cloudy outlook. Industrial output is growing at its weakest pace since 2002, and retail sales are slowing. Chinese exports fell in August by 1% from a year earlier, and by a sharp 16% to the US - a clear sign that the dispute with the US is hurting bilateral trade. China's economy grew 6.2% year-on-year in the second quarter, easing from 6.6% in 2018. "It's not as if Chinese growth has completely fallen off a cliff," says Frederic Neumann, co-head of Asian economics research at HSBC. "On the contrary, there are still many pockets of growth," he adds, pointing to housing construction and spending in the services sector.

China's government has sought to support the economy this year through tax cuts, and by taking measures to boost liquidity in the financial system. But Mr Neumann says that this time around, the government was being "fairly restrained" when providing credit to firms and individuals, and administering stimulus. That's because the government believes China needs to curb the risk in its financial system, and cool the rapid credit growth of recent years, he adds. Having relied heavily on infrastructure spending to stimulate the economy over the years, analysts say Beijing had limited room to do much more on that front. Instead they have opted for tax cuts, which tend to be less effective in boosting growth than infrastructure spending, says Mr Wu.

Mr Wu expected Beijing to do more to stimulate the economy going forward - both through fiscal and monetary policy - but worried this would not be enough. "We do expect more to come to help stabilise growth by next year. But the key downside risk is that the authorities do not step up policy support enough to stabilise growth."

The US and China have been fighting a trade war for more than a year, and more tariffs are expected. China has also sought to bypass the taxes by exporting to the US via other Asian countries. He says that China's share of global exports has actually grown over the past year, showing that the fall in Chinese exports has been less pronounced than those from other countries.

Western businesses are finding it increasingly hard to navigate the uncertainty. Some have been shifting production out of China, even though the numbers have not been large enough to show up in the economic data, says Mr Evans-Pritchard. "The longer these tariffs remain in place, the longer this drags on, the higher the chance we are going to see more firms shifting out of China, and it also makes the country a less attractive place to invest in the first place," he says. According to a 2019 survey by the American Chamber of Commerce in China, nearly a fourth of all respondents are delaying China investments.

Source: *BBC News*, 26 September 2019

Extract 9: The new decade: Why productivity growth won't save Europe

As a new decade dawns, expectations for growth in the eurozone are meagre at best. In the next 10 years, demographic and structural headwinds, and a limited appetite for reform, could push the bloc's potential growth rate to less than 1%, down from the annual average pace of 1.4% of the previous decade.

Europe is now confronted with a slowdown in labour force growth at a time when productivity growth has been dwindling, leading to a decline in potential economic growth. In the eurozone the growth of the working age population has been decelerating over the last decade and will fall by 3.8% in the next 10 years. Various studies have pointed to a positive relationship between a large group of "prime age workers" and productivity growth. As the share of prime age workers has been declining (for which we use a ratio of 30-49 to 50+), this has, in part, explained the declining productivity growth.

To compensate for the ageing effect, a very flexible labour and capital market is needed, constantly shifting resources to the most productive sectors or firms. Europe is definitely not there yet and more structural reform is likely needed. Moreover, in an ageing society the pattern of consumption tends to shift towards services, a sector where productivity growth is lower on average. This phenomenon might drag the average productivity growth of the whole economy down further.

Nonetheless, while economic growth in the eurozone will likely slow over the coming decade, some regional job markets are set to thrive. Brussels, Copenhagen, Helsinki, London and Vienna have something in common. Aside from being large, northern European metropolitan areas, they are also pockets of opportunity in an environment of slowing economic growth. With good digital infrastructure, moderately high spending on research and development and highly educated workforces, employment prospects in these cities are among the best in Europe over the coming decade, while strong high-tech industrial areas such as Stuttgart, Braunschweig, West Sweden and Brabant Wallon are also set to outperform.

This means rural areas that have fallen behind in terms of digital infrastructure and investment and those which also have older populations are set for weaker than average growth, while the more innovative regions with better digital infrastructure and younger, more educated populations are set to thrive. Interestingly, countries that have seen the weakest aggregate growth rates have also experienced the mildest divergence between regions.

Source: *ING Think*, 4 March 2020

Questions:

- (a) With reference to Figure 1, explain how the falling trend in spending on machinery and equipment over the period 2017–2019 could have contributed to the global slowdown. [2]
- (b) With reference to Extract 6, explain how real interest rates could become negative. [2]
- (c) Explain the external consequences to emerging economies arising from investors searching for higher yields (Extract 6). [4]
- (d) Use the concept of opportunity cost to explain **one** effect on governments arising from spending on infrastructure and R&D. [2]
- (e) Explain why countries with high levels of debt-to-GDP should 'exercise fiscal restraint'. [2]
- (f) To what extent will the slowdown in potential economic growth limit the future standard of living of Europe? [8]
- (g) Discuss whether you agree with the view that supply side policies are most appropriate to reverse China's economic slowdown. [10]

[Total: 30]

(a)	Explain the likely value of cross elasticity of demand between goods sold on e-commerce platforms and those sold in physical retail shops. [2]
	<p><u>Explain sign</u> $XED > 0$; +ve because substitutes + (price of one good & demand for the other change in same direction) [1m]</p> <p><u>Explain magnitude</u> $XED > 1$ (high) strong substitutes + > proportionate change in demand when price of the other changes. [1m]</p> <p>OR $XED < 1$ (low) weak substitutes + < proportionate change in demand when price of the other changes. [1m]</p>
(b)	(i) Identify and explain the type of market structure that the global e-commerce industry is operating in. [2]
	<p><u>Identify market structure:</u> The global e-commerce industry operates in an <u>oligopoly</u> market structure. [1m]</p> <p><u>Explain</u> MCR4, 4-firm concentration ratio of 51% [1m] MCR3, 3-firm concentration ratio of 42% [1m] A few dominant firms + some attempt to explain why so using case evidence (i.e. no MCR used). [1m]</p>
	(ii) Using a diagram, explain how ‘undercutting Amazon sellers’ membership fees to attract vendors’ by Alibaba (Extract 2) is likely to affect Amazon’s profit in the European market. [4]
	<p><u>Explain why demand for Amazon ↓ [1m]</u> Substitutes - Alibaba undercut, DD / AR for Amazon fall</p> <p><u>Explain why profit of Amazon ↓ [1m]</u></p> <p>$P \downarrow$ but $AC \uparrow$, profit per unit \downarrow AND $Q \downarrow$, total profit \downarrow from area ABCD to area EFGH [1m] OR $P \downarrow$ & $AC \downarrow$ (but \downarrow in $P > \downarrow$ in AC) profit per unit \downarrow AND $Q \downarrow$ total profit \downarrow from area ABCD to area EFGH [1m]</p> <p><u>Diagrammatically</u> Leftward shift of AR/MR. Vertical intercept must be lower. [1m] Drop in profit [1m]</p> <p>Note:</p> <ul style="list-style-type: none"> - no deduction if student shade profit area instead of label - If student use DD-SS, cap at one mark one mark for correct change in demand - Referring to profit area using $(P-C) \times (Q)$ is accepted also, but student needs to mention fall in price or quantity or revenue too to be awarded the full credit for this point.
(c)	Using a diagram, explain how ‘urban last-mile delivery’ could lead to market failure. [4]
	<p>Extract 4: Urban last-mile delivery leads to more emissions, pollution and congestion – negative externality of consumption/production</p> <p>Explain/ Exemplify external costs [1m]</p>

	<p>Identify 3rd parties [1m]</p> <p><u>Explain how it leads to MF [1m]</u> Free market quantity is Q_m (as consumers & producers ignore such external costs) Socially efficient quantity is Q_s Hence overconsumption/overproduction as $Q_m > Q_s$ overallocation of resources (as from Q_s to Q_m, total costs to society exceeds total benefits) MF</p> <p><u>Diagram [1m]</u> $MSC > MPC$ + correct Q_s & Q_m If DWL area shaded wrong, no mark penalised due to only 1m for diagram.</p>
(d)	<p>Discuss whether the switch to carbon neutral deliveries by companies is better than the proposed policy of charging them a fee for urban deliveries in reducing carbon emissions in Paris. [8]</p>
	<p>1. Explain how a switch to carbon neutral deliveries reduces carbon emissions Extract 4: switch to carbon neutral deliveries by companies - use electric and natural gas vehicles and bikes for the final mile deliveries would reduce carbon emissions of urban last mile deliveries, reduce MEC at Q_m</p> <p><u>Limitations/ Concerns:</u></p> <ul style="list-style-type: none"> • Takes time and commitment – ‘such progress still lags behind that of some more-proactive companies currently working in France...’, ‘by 2024, La Poste promises that its deliveries within Greater Paris will be entirely carbon neutral...’, ‘Amazon aims for carbon neutral deliveries by 2030...’ • Costly – ‘global order of 100,000 of electric delivery vehicles is the largest yet made by any company...’ <p>2. Explain how a policy of charging companies a fee for urban deliveries reduces carbon emissions Extract 4: Fee for urban deliveries – tax to solve negative externality (c), if accurately measured to = MEC at Q_m, \uparrow MPC to coincide MSC at Q_s, \downarrow Q_m to Q_s, hence carbon emissions</p> <p><u>Limitations/ Concerns:</u></p> <ul style="list-style-type: none"> • Tax may not be punitive enough - ‘Paris’ plans hardly pose an existential threat given Amazon’s size’... • Tax is an unpopular move - ‘if Amazon and other companies decide to pass this burden on to their customers—and it would be hard to prevent them from doing so—city leaders could be blamed for making shopping less affordable in what is already one of the worlds’ costliest cities’.. <p>STAND Both can reduce carbon emission just in different ways but 1 is likely to be better than 2 – it is a more sustainable way in the LR to encourage companies to seek and invest in alternative greener modes of deliveries rather than imposing a tax on them which would likely be passed on to consumers and cause public dissent since demand for last-mile delivery is expected to grow 78% with online stores, e-grocers and food delivery services competing to offer faster home deliveries (Extract 4), MPB will rise and Q_m will rise with higher MEC ‘urban last-mile delivery emissions are set to increase by more than 30% in 100 cities globally’, only way forward is to lower MEC and close the gap between MSC & MPC to cater to the rising demand.</p> <p>Alternatively: Explain how the measures work with their respective merits, then examine which is better by considering their costs/ limitations</p>

	<p>MARK SCHEME</p> <table border="1"> <tr> <td>L2: (4-6)</td><td> <ul style="list-style-type: none"> Explains how a switch to carbon neutral deliveries can reduce carbon emission with limitations/ concerns Explain how a fee for urban deliveries (tax) can reduce carbon emission with limitations/ concerns Applies case evidence to support answers Applies economic concepts or theories Demonstrates sufficient depth and rigour in the analysis </td></tr> <tr> <td>L1: (1-3)</td><td> <ul style="list-style-type: none"> Lacking in any of the L2 criteria </td></tr> <tr> <td>E (+2)</td><td> <ul style="list-style-type: none"> Provide a substantiated stand on whether a fee for urban deliveries or carbon neutral deliveries is a better way to reduce carbon emission in Paris </td></tr> </table>	L2: (4-6)	<ul style="list-style-type: none"> Explains how a switch to carbon neutral deliveries can reduce carbon emission with limitations/ concerns Explain how a fee for urban deliveries (tax) can reduce carbon emission with limitations/ concerns Applies case evidence to support answers Applies economic concepts or theories Demonstrates sufficient depth and rigour in the analysis 	L1: (1-3)	<ul style="list-style-type: none"> Lacking in any of the L2 criteria 	E (+2)	<ul style="list-style-type: none"> Provide a substantiated stand on whether a fee for urban deliveries or carbon neutral deliveries is a better way to reduce carbon emission in Paris
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L1: (1-3)	<ul style="list-style-type: none"> Lacking in any of the L2 criteria 						
E (+2)	<ul style="list-style-type: none"> Provide a substantiated stand on whether a fee for urban deliveries or carbon neutral deliveries is a better way to reduce carbon emission in Paris 						
(e)	<p>With reference to the data, discuss whether the move to limit Amazon's growth by policymakers (Extract 3) is necessary. [10]</p>						
	<p>INTRODUCTION</p> <p>'move to limit Amazon's growth' stems from Extract 3. This move will prevent Amazon from dominating the digital/ e-commerce industry and force it to scale back its business in the respective countries (India and Europe).</p> <p>THESIS: Yes, the move to limit Amazon's growth is necessary <u>Reduces allocative inefficiency</u></p> <p><Diagram of fall in AR/MR & rise in PED to reduce $P > MC$></p> <p>by protecting homegrown businesses and reducing threat to open competition Regulators in Europe opened investigations into whether Amazon is a threat to open competition (Extract 3)</p> <p>Evidence of Allocative Inefficiency 'charging sellers thousands of dollars to speak to account managers, as well as making it necessary to purchase ads to guarantee the top spot on a search page. As much as a third of every dollar merchants make goes back to Amazon, according to consultants and sellers. That helped Amazon generate \$42.7 billion in revenue from seller services such as fees and commissions last year, a number that has nearly doubled in two years.'</p> <p>ANTI-THESIS: No, it is not necessary to limit its growth <u>Needs to grow large to reap iEOS to achieve PE</u> (Extract 3) company invests billions of dollars in digital tools and physical infrastructure – reduce unit COP charge lower fees to sellers using their platform</p> <p>Needs supernormal profits to engage in DE 'invests heavily in driving traffic to its site and improving its infrastructure, which benefits third-party sellers' (Extract 3)</p> <p>With growth and higher profits earned, Amazon can contribute to the reduction of carbon emissions in the e-commerce industry parts c&d With growth and higher profits earned – (Extract 5) they are able to spend on 'investment in consistent data collection. Using Machine Learning algorithms, calculating the carbon footprint from raw materials to a factory's manufacturing and packaging processes, to warehousing and eventually transportation to a customer doorstep is data intensive', 'Amazon now pledging \$2 billion toward a climate change fund', 'Using some of these funds to invest in the capabilities of the Amazon platform to create an open source manufacturing carbon labeling program, could have a disproportionate impact on all e-commerce platforms and global consumption patterns' (carbon labelling aims to solve imperfect info part (d))</p>						

and lead other ecommerce firms to do the same 'having a serious effort for product carbon labeling should be feasible, with the right leadership'

CONCLUSION

To justify MOVE IS NECESSARY:

The move helps to prevent exploitation of its customers and shoppers in the long term due to its dual role as a massive open marketplace and a giant competitor in that marketplace. The fact that 'many of the company's fees are for optional services, and it has recently lowered some' according to Extract 3 suggests that such '**regulatory scrutiny**' helps to keep its anti-competitive behaviour in check.

Growth and supernormal profits are necessary for investments in infrastructure, digital tools and even data collection to reduce carbon footprints which would be beneficial to all parties in the society in general. Given that Amazon is also a seller in its marketplace (a consumer too), it would be committed to invest in the former for its own benefits **but commitment to climate pledge remains to be seen as relevant progress still lags behind** that of some more-proactive companies currently working in France according to Extract 4, suggesting that it might take some time for this to materialise and improve social welfare.

To justify MOVE IS NOT NECESSARY:

According to Extract 3, 'many of the company's fees are for optional services, and it has recently lowered some' suggests that there may be **no evidence of allocative inefficiency or exploitation of consumers**.

Growth and supernormal profits are necessary for investments in infrastructure, digital tools and even data collection to reduce carbon footprints which would be beneficial to all parties in the society in general. **Given that Amazon is also a seller in its marketplace (a consumer too), it would be committed to invest in the former for its own benefits.** Amazon is operating in an oligopolistic market structure with strong global competitors e.g. Alibaba. Theory of **contestable market** e.g. in the European market (Extract 2) **would ensure that it stays competitive** to defend its monopoly position to retain supernormal profits (b)(ii).

Even though commitment to climate pledge remains to be seen with slow progress (Extract 5), in a climate where the environmental and economic effects of e-commerce are coming under increasing scrutiny from both legislators and the public, Amazon could possibly **face pressure** to speed up in this aspect or even **vie for climate leadership** like the Tech giants as suggested by the extract.

MARK SCHEME

L2: (5-7)	<ul style="list-style-type: none"> Explain why it is necessary to limit growth of Amazon (to reduce allocative inefficiency) Explain why it is not necessary to limit growth of Amazon Analyses with depth and rigour Supports answers with case evidence Applies economic concept and theories
L1: (1-4)	<ul style="list-style-type: none"> Lacking in any one of the L2 criteria
E: (+3)	<ul style="list-style-type: none"> Provide clear judgment and justification on whether the move to limit growth of Amazon is necessary

HCI Prelim 2021 Case Study 2 Suggested Answers

(a) With reference to Figure 1, explain how the falling trend in spending on machinery and equipment over the period 2017–2019 could have contributed to the global slowdown. [2]

- Figure 1 shows a falling trend in spending on capital goods. This would result in a limited increase in Investments (I) since I captures firms' spending on capital goods. [1]
- I, and thus AD, would increase at a slower rate. This will result in slower actual growth. [1]
- Or
- A fall in the rate of increase in AD would imply that the demand for imports, and hence exports from a trading partner, would increase at a slower rate as well, thus resulting in lower actual growth. [1]

(b) With reference to Extract 6, explain how real interest rates could turn negative. [2]

- Real interest rates is given by the difference between nominal interest rates and inflation rate. [1]
- Since inflation is positive and low (i.e. 'low inflation' in Extract 6), it could mean that nominal interest rate is possibly close to zero or below the given inflation rate [1].

(c) Explain the external consequences to emerging economies arising from investors searching for higher yields (Extract 6). [4]

- Lower interest rate in some countries will prompt investors to seek for higher returns in emerging economies (Extract 6) and this will result in short term capital inflow into these countries. [1]
- This raises the demand for the local currency which creates an upward pressure on the exchange rate resulting in currency appreciation. [1]
- Currency appreciation may result in a decrease in export price competitiveness and/or make imports cheaper [1].
- Assuming $PED_x > 1$, export revenue falls and assuming $PED_m > 1$, import expenditure increases. BOT worsens. [1]

2m for consequences on exchange rate and 2m for consequences on BOT

(d) Use the concept of opportunity cost to explain one effect on governments arising from spending on infrastructure and R&D. [2]

- In Extract 7, when governments spend on infrastructure, given a limited budget, the opportunity cost would be having to forego spending [1] on education* which is the next best alternative. [1]

* Students can also provide other examples such as healthcare stated in Extract 7.

(e) Explain why countries with high levels of debt-to-GDP should 'exercise fiscal restraint'. [2]

High levels of debt-to GDP means that the government has financed their spending by borrowing.

- Government could decide to repay its debt by raising revenue in the form of higher (personal and corporate) income taxes in the future. [1]
- This will dissuade both domestic and foreign investment, and reduce the desire to work, hence could be a contractionary impact on the economy and potential growth will be limited. [1]

OR

- This could result in the crowding out effect where government borrowing reduces the funds available for consumers and firms to borrow. [1]
- This reduces consumption and investment which can offset any expansion in AD due to increase in government spending, especially in the midst of the global slowdown [1]

(f) To what extent will the slowdown in potential economic growth limit future standard of living of Europe? [8]

Slowdown in economic growth in Europe limits future SOL

1. Source of slowdown in labour force growth: Declining growth of working age population that results in a decline in productivity growth.
 - Labour productivity refers to real output per worker. Therefore decline in productivity growth will reduce COP at a slower rate since relatively more input is required to produce the same output. SRAS increase at a slower rate, generating limited short term growth

OR

 - Declining growth of working age population will slow down the fall in wages due to limited supply of labour 'share of prime age workers are declining' and hence COP falls less and SRAS rises slowly.
 - At the same time, productive capacity increase is limited / slower, LRAS increase is limited, potential growth is limited. Hence future increase in actual growth is limited and Material SOL.
2. Greater focus on consumption of services:
 - This could reinforce the slowdown in the increase in SRAS since services is 'a sector where productivity growth is lower on average'
 - Perhaps this might shift resources towards providing services and away from capital goods resulting in less resources available for consumption in the future, reducing future material SOL.
3. Europe does not have a flexible labour and capital market to shift resources to the most productive sectors to compensate for the aging effect. Labour may not be sufficiently skilled to match job requirements in the most productive sectors resulting in structural unemployment, accounting for the limited increase in LRAS, hence limited actual growth and hence material SOL in the future.

However, mitigating factors cushion the extent future SOL limits in Europe

- 'Good digital infrastructure, moderately high spending on R&D' contribute to an increase in quality and quantity of capital.
- 'Highly educated workforce' contributes to higher quality of labour.
- Together, these factors result in an increase in LRAS and hence productive capacity.
- Hence this helps support actual growth in the future due to either increased labour productivity in these regions or ability to attract investments thus increasing AD in the future, which would in turn generate growth and hence higher incomes and consumption of goods and services in the future. Material SOL improves
- Evidence: 'employments are the best in these regions'

In fact, European countries with aging populations face mild disparity in growth rates between regions, smaller income gap, hence reduce extent of fall in future material SOL

Rural vs metropolitan high-tech industrial areas:

- When the growth rates is highly disparate between the different regions, it could result in widening income inequality gap between people living in these regions.
- Rural areas experience weak growth and hence falling incomes and material SOL while the people living in the more prosperous regions are able to find employment easily and enjoy higher growth rates, resulting in higher incomes and hence greater consumption of goods and services – material SOL improves.
- This disparity can worsen material SOL however for countries with aging populations, this is not so much a problem hence the income gap may not be so wide. Hence they might be better off in terms of future material SOL relative to countries which have a smaller aging population and a larger share of prime age workers.

Conclusion:

- The lower labour productivity due to Europe's aging population is highly likely to limit future material SOL, especially for countries with a higher proportion of elderly relative to prime age workers.
- The ability of the governments to put in place structural reforms (Extract 9) and continue high spending in areas such as R&D (e.g. Germany in Extract 1) & educating the workforce will help reduce the limited impact on future standard of living.

Or

- The lack of infrastructure and a less educated workforce is likely to contribute to future SOL being limited.

L2	<ul style="list-style-type: none"> Analyses how the slowdown in growth might cause the future SOL in Europe to be limited Analyses reasons why long term SOL might improve Applies case evidence to support answers Applies economic concepts and theories Demonstrates sufficient depth and rigour in the analysis 	4 – 6
L1	<ul style="list-style-type: none"> Lacking in any of the L2 criteria 	1 – 3
E	<ul style="list-style-type: none"> Evaluates arguments and makes overall judgment impact on long term SOL 	1 – 2

(g) Discuss whether you agree with the view that supply side policies are the most appropriate policies to reverse China's economic slowdown. [10]

Introduction

Supply-side policies are policies designed to influence the production costs, productive capacity, factor mobility and efficiency of an economy. Whether they are the most appropriate policies will depend on several factors, including the causes of the economic slowdown and the characteristics of China's economy. Furthermore, SSPs need to be analysed in comparison to demand-side policies in order to evaluate which policies are the most appropriate in this context.

Thesis: SSPs may be more appropriate to reverse China's economic slowdown

- If the primary aim of the SSP is to influence production costs → SRAS shifts; if the primary aim is to influence productive capacity → LRAS shifts. Also includes policies to facilitate factor mobility, reduce structural unemployment and changes to legislation to improve the efficiency of resource allocation
- Since China's exports to the US have fallen by 16% due to the US-China trade tensions (Extract 8), China's government could help Chinese firms reduce their cost of production. These measures could include subsidies for wages as wages are usually a significant proportion of firms' costs. With lower costs, SRAS would shift right and the general price level would decrease. Hence, China's exports would be more price competitive in terms of foreign currency (e.g. USD), which would improve China's NX with the US.
- Public investment in infrastructure as well as support for R&D boosts the quantity and quality of capital respectively
 - G component increases → AD shifts right via multiplier effect → actual growth and a fall in DD-deficient unemployment
 - R&D increases the productivity of firms → reduces production costs → SRAS shifts right → actual growth and a fall in DD-deficient unemployment
 - R&D also increases the quality of capital → LRAS shifts right → increase in China's productive capacity → this creates a wider output gap and greater economic slack in the economy, which provides the economy room for non-inflationary economic growth

Limitations:

- Even as the government works to boost productivity in firms, firms are shifting production out of the country amidst economic uncertainty (Ext 8), reducing their reliance on the Chinese market as their primary sourcing market for manufacturing supplies in the global supply chain. This may have a mitigating effect on the government's drive to boost productivity as firms may bring with them their technology and expertise when they shift production out.

Anti-thesis: Demand-side policies may be more appropriate to reverse China's economic slowdown

- Expansionary monetary policy → China's central bank lowers the interest rate → lowers cost of credit → C & I increase; increase in outflow of hot money → increased SS & reduced DD of RMB → RMB depreciates → increased DD for X & decreased DD for M → (X-M) increases → AD increases via multiplier effect due to increases in C, I & X
- Expansionary Fiscal Policy → increase in G and/or decrease in T → decrease in direct taxes increases disposable income for both households and firms → C & I increase → AD increase via multiplier effect due to increases in G, C and I
- According to **Figure 1**, weaker spending on machinery, equipment and consumer durable goods was an important contributor to the global slowdown. Hence, government investment in capital goods as well as lower borrowing costs would help to mitigate, and even reverse, this slowdown in spending.

Limitations:

- However, with interest rates near or at zero in several advanced economies (**Ext 8 Para 1**), China's central bank may not have much room to cut nominal rates further to boost growth. Exacerbating the problem is that many firms are at risk of corporate debt default if a major downturn occurs (**Ext 8 Para 2**). This was due to access to easy credit which incentivised China's firms to take on more debt. A default would have significant ramifications on China's economy, in particular the impact on FDI if investor confidence takes a hit. Hence, the Chinese government is moving to curb the risk in its financial system and slow the rapid build-up of debt in recent years (**Ext 8 Para 3**). This would imply that the central bank would be reluctant to lower rates, even if it could.

Evaluative comment: if firms default on their debt, it would come at a very bad juncture for China's economy as it tries to attract FDIs, in part to stem the tide of firms shifting production out of the country. This apparent weakness in the economy would cause firms to think twice about investing in infrastructure and production in China.

- In a severe downturn, especially when there is weakness in consumption and investment due to poor economic outlook and pessimism, government spending is required to kick-start the multiplier effect, in turn boosting C and I. However, the government opted for lowering taxes instead, which is less effective in boosting growth (**Ext 8 Para 3**). With higher disposable incomes, household and firms may still opt to hold their money instead of spending due to the economic uncertainty.

Evaluative conclusion:

SSP in terms of reducing production cost, improving factor mobility and investing in infrastructure is more appropriate to boost export competitiveness to help with the sharp 16% fall in exports and enhance its attractiveness as a viable choice for investment to counter the bleak investment outlook due to the ongoing trade war with the US.

While demand management policies may help in the short run to address the weak domestic economy, there is less need for such policies since there is evidence that the housing construction sector and spending on services show promise of boosting the economy (Extract 8) via an increase in C & I. Moreover, Extract 8 does throw caution to the use of expansionary fiscal policy via government spending on infrastructure to stimulate the economy as it notes that the government has limited room to use this tool and that the alternative of tax cuts will be less effective.

Admittedly SSP will take some time to see results. However, China has had 'years of rapid economic gains' (Extract 7) which it could use to help the economy in the shorter term while waiting for SSP to take effect.

Suggested marking scheme:

L2	<ul style="list-style-type: none"> • Analyses how supply-side policies might be more appropriate to reverse the slowdown in growth in China – analyses both SR and LR growth • Analyses alternative policies to reverse the slowdown in growth in China • Analyses the limitations of the policies • Applies case evidence to support answers • Applies economic concepts and theories • Demonstrates sufficient depth and rigour in the analysis 	5 – 7
L1	<ul style="list-style-type: none"> • Lacking analysis in either SR or LR growth • Does not analyse alternative policies and/or limitations of both SSP and alternative policies • Analytical rigour and a clear framework (e.g. AD/AS) lacking • Insufficient case evidence to support arguments 	1 – 4
E2	<ul style="list-style-type: none"> • Evaluates arguments and makes overall judgment on appropriateness of supply-side policies on reversing China's slowdown in growth 	2 – 3
E1	<ul style="list-style-type: none"> • Makes a stand on the appropriateness of supply-side policies with no or minimal substantiation/justification 	1

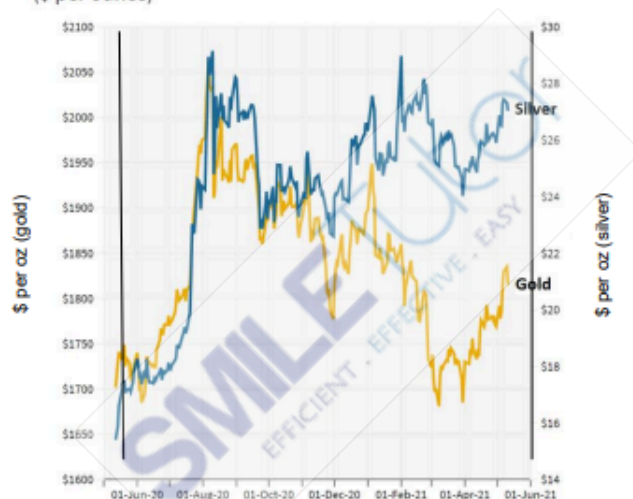
MILLENNIA INSTITUTE

Extract 1: Price of silver is up over 70% in a year

It is often overlooked in favour of its lustrous cousin gold, but the price of silver has jumped over 70% in the last year. Demand for the precious metal has shot up in the past 12 months. From electronics to photography, jewelry and coins, silver is integral to numerous everyday products. Its high electrical conductivity and durability gives it industrial and technological applications, with almost every computer, mobile phone, automobile and appliance containing silver.

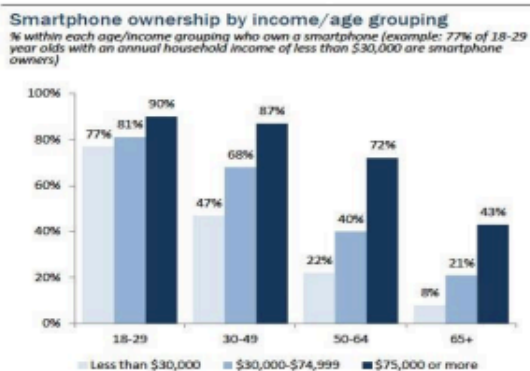
About 50% of the demand for silver is industrial and the rest comes from investors. Still, its uses in industry is one of the main reasons driving its recent rise in value. The recent shift towards green technologies have spurred a rise in demand for industrial metals such as silver which are used in solar panel production.

Figure 1: Silver and gold prices Jun 2020 – May 2021
 Silver and gold daily closing price
 (\$ per ounce)



Source: CNBC, 13 May 2021

Figure 2: Smartphone ownership by income & age group in the United States in 2013



Source: Pew Research Center

Extract 2: The global growth of e-waste is not letting up

Each year, the total amount of electric and electronic equipment the world uses grows by 2.5 million tonnes. Phones, radios, toys, laptops – if it has a power or battery supply, it is likely to join a growing mountain of “e-waste” after use.

People are buying electronic products with shorter life cycles and fewer options for repair. This “planned obsolescence”, where manufacturers design new tech products with limited useful lifespans leads to products becoming obsolete — either unfashionable or no longer functional — after a certain period of time. Consumers are compelled to fork out more money on even newer products. The current stream of e-waste could turn into a flood, as people are expected to start dumping smartphones, modems and other gadgets incompatible with 5G networks, once these go live.

All e-waste contains small amounts of hazardous materials, ranging from heavy metals such as lead found in TVs and mercury in batteries, to ozone-depleting chlorofluorocarbons and hydrochlorofluorocarbons found in refrigerators. Many people simply throw these items down the chute, or leave them at rubbish bins and bin centres. Such items often end up in the hands of scrap traders and rag-and-bone men, who lack the skills to recycle them safely and may unknowingly discharge the chemical compounds which are harmful to both their health and the environment.

Aside from toxins, e-waste also contains precious metals and useful raw materials, such as gold, silver, copper and platinum. The total value of all this discarded as e-waste in 2019 has been conservatively valued at US\$57 billion – a sum greater than the GDP of most countries.

Source: Vanessa Forti, Channelnewsasia, 19 August 2020

Extract 3: E-waste offers an economic opportunity

The idea of “mining” e-waste has tantalized the recycling and electronics industries for decades. Until recently, most methods to extract value from e-waste have been costly, inefficient and hazardous. Over the last few years, however, innovators have devised safer techniques in the lab that would wrest value from e-waste. As the extraction of metals becomes more efficient and eco-friendly, tech manufacturers may feel compelled to get raw materials from their own end-of-life products rather than from the earth. Some of these metals and rare-earth elements are scarce, and some, like cobalt, are found mostly in conflict zones. By mining the ever-expanding mountains of e-waste, countries could steel themselves against the volatility in prices and supplies of the global market. In addition, consumerism seems to be making a critical shift from rapidly buying more new products to supporting eco-friendly products.

Source: The New York Times magazine, 5 July 2018 & Financial Times, 7 October 2019

Extract 4: Mandating recycling of e-waste in Singapore

In March, the Ministry of the Environment and Water Resources (MEWR) made it mandatory for manufacturers of large household appliances to collect at least 60 per cent (in weight) of the appliances they supply to the market each year for recycling. The collection target is 20 per cent for smaller consumer electronics such as lamps, portable batteries, and information technology (ICT) equipment (printers, laptops, tablets, mobile phones and routers).

Some companies have formed partnerships with recycling facilities to make it easier for their consumers to recycle their old products, such as the one between telco M1 and recycling firm Virogreen to set up e-waste collection bins in malls. Some of the awareness-raising and corporate initiatives are bearing fruit.

Still, there are challenges in the way of a proper e-waste recycling infrastructure here. The informal sector of scrap traders and rag-and-bone men, for example, creates disorganisation in collecting e-waste, said Mr Sharul Annuar, Marketing Manager for Virogreen Singapore. Rag-and-bone men do not necessarily recycle the e-waste they receive, Mr Annuar noted. He added: "Singaporeans have this ingrained mindset that you can actually sell e-waste to the karung guni men, so it's a challenge for us to convince them that there is a fee to recycling and it's not free."

Singapore can develop its "local capacity" for repair, reusing and recycling by integrating the numerous, easily accessible and often inexpensive electronics repair and resale shops islandwide, said Ms Amita Baecker, a project manager and business development manager at GA Circular. Such a move would formalise the existing repair and reuse industry towards safer and more environmentally friendly practices, she noted. "If purely profit-driven, these business are not encouraged to handle the less valuable components found in e-waste, so larger volumes will bring economies of scale to them," she said. Regulation should not only push manufacturers to collect and recycle e-waste, but also nudge them to think about how to reuse or turn materials into new products, experts said.

There is profit to be made in the e-waste business. The potential value of e-waste in Singapore is an estimated S\$234 million. Developing cutting-edge competence in the field of e-waste recycling technologies will also allow local businesses to lead the Asian e-waste industry, which accounts for 40 per cent of global e-waste generation.

Source: Cynthia Choo, Todayonline, 3 September, 2019

Questions:

- (a) With reference to Figure 1 and Extract 1, explain one possible reason for the change in price of silver **relative** to the change in price of gold on 1 Jun 2020 with that on 1 May 2021. [3]
- (b) With reference to Figure 2, explain the likely values of income elasticity of demand for smartphones for the age groups of 18 – 29 and 65+ in the US. [3]
- (c) With the aid of a diagram, explain how the increase in demand for tech products due to "planned obsolescence" is likely to affect Singapore's social welfare. [4]
- (d) Explain how the recycling of e-waste could alleviate the problem of scarcity. [2]
- (e) Discuss the factors that a profit-maximising tech producer would consider in making a decision regarding the mining of e-waste to manufacture its new products. [8]
- (f) Assess the extent to which mandating the manufacturers of electronic goods to collect and recycle e-waste is effective in ensuring allocative efficiency. [10]

Question 2: India's Economic Woes

Extract 5: Modi's big tax cut unlikely to spur job bonanza in India

India cut tax on local businesses to one of the lowest rates in Asia, while providing a more than US\$20 billion boost to revive economic growth from a six-year low. Tax on domestic companies will be lowered to 22 per cent from a base rate of 30 per cent currently. The reduction in corporate tax rates follows a series of steps to boost demand and investments after growth slowed to 5 per cent in the quarter ended June.

Economists and finance ministry officials expect India's spending plans and tax cut to mean it will miss its fiscal deficit target of 3.3 per cent of gross domestic product this year and be pushed to borrow. That will pile stress on state finances and make any boost in infrastructure spending, which can be a source of quick employment for rural migrants, unlikely. Although broadly welcomed by businesses, electronics manufacturers are so far among the few to indicate the tax cuts would be enough to trigger investment as they look for alternative destinations to sidestep supply chain disruptions from the US-China trade war.

With an estimated 1.2 million youth entering India's labour market each month, Prime Minister Narendra Modi has made job creation a priority in his 'Make in India' plan, but manufacturing has been sluggish. India's auto sector has laid off about 350,000 workers this year, while Parle Products, a major Indian biscuit maker, recently warned it may shed some 10,000 workers. "Further structural reforms to the labour market, land acquisition and regulatory environment," would help generate sustainable growth, said Amab Das, global market strategist at Invesco in London.

Economists and business leaders who see low wages and depressed crop prices as playing big parts in India's economic slowdown would have preferred measures to stimulate consumption. The tax cut "is a welcome move by the government," said Mayank Shah, category head at biscuit maker Parle, but he added that a goods and services tax (GST) cut to reduce prices for consumers would have had a more significant impact.

Source: Bloomberg, 20 September 2019 & Reuters, 25 September 2019

Extract 6: In India, job creation the biggest issue on voters' minds

From the makeup of its population, India should be reaping demographic dividends, a condition where a country can catapult its economic growth by having more people in the working-age group than dependent population (children and senior citizens). By next year, India is expected to overtake China as the world's most populous country. In the span of three decades, India is estimated to have added 400 million extra people to its population, taking it to 1.73 billion by 2050. Most of these people will be of working age (15 to 59). If these people can find productive employment, with decent incomes, this can propel India's economic development. But OECD data indicate that more than 30 per cent of India's 15 to 29-year-olds are neither in schools nor in jobs. India is thus facing an employment crisis, the magnitude and complexity of which has never been witnessed.

India has many structural problems to solve before good-paying and long-lasting jobs can be created. There is a mismatch of jobs available and the skills of job-seekers. The formal sector does not contribute much to employment opportunities. The sectors which are growing are modern services - telecom, education, health, banking. This requires a much higher level of education than what is available to youth today. Instead, 90 per cent of India's labour demand comes from informal sectors like day labouring for agriculture, construction, tourism and other low-paid services and trades. Almost half the workforce toils in agriculture, and although

workers are moving to manufacturing and services as the economy modernises, the rate is slower than elsewhere in Asia.

India's 789 universities and 37,204 colleges churn out mostly unemployable graduates. Many of them do not have the skills required by employers. Even after graduation, they lack basic work and communication skills. Furthermore, 38 per cent of students in India do not even complete their primary education. Meanwhile, many entry-level jobs are being automated with robots and artificial intelligence. This is also the case for repetitive manufacturing jobs. Such trends are likely to accelerate in the future, reducing the country's capacity to generate employment.

Another factor is a sharp fall in private investment, resulting in "very little" job creation in the private sector, said Professor Santosh Mehrotra of Jawaharlal Nehru University. This lack of investment is caused in part by the "huge crisis" of bad debts at India's state-owned banks, making them reluctant to lend, Prof Mehrotra told AFP. Red tape and corruption also make buying land for factories difficult, and infrastructure is often poor.

To solve the unemployment problem, India must increase effective investment in education, improve capacity building at all levels and sectors. The country must also improve health and public services. The government should enhance connectivity across the country by investing in infrastructure. It is a rather tall order for the country to fulfil over the medium term. But, unless all these enabling conditions are met, jobs creation is likely to remain anaemic.

Source: Asit K Biswas, Channelnewsasia, 13 April 2019

Extract 7: India passes 'historic' minimum wage law amid activist worries

India's parliament on Friday passed a "historic" law to guarantee a minimum wage to hundreds of millions of workers, but labour activists said it did not go far enough to protect those in the informal sector. Labour minister Santosh Gangwar said the "historic" bill would for the first time ensure about 500 million Indian workers received minimum pay.

This law mandates a minimum payment of 176 Indian rupees (about S\$3) for an eight-hour work day, but local authorities can set their own lower rate and at least six states do so. There is some excitement and lots of disappointment all around. For one, the wage prescribed is less than half the 375 Indian rupees a day recommended by a high-powered labour ministry panel. It is also miles away from the 700 Indian rupees fair wage that the 7th Central Pay Commission (set up by the Government of India to review and make recommendations on the work and pay structure of all civil and military divisions of the Government of India).

Labour activists said many workers would remain vulnerable to exploitation, particularly those hired through contractors, which is often the case for brick kilns and tea plantations. Opposition politicians criticised a provision allowing employers to make deductions for staff benefits such as housing, food and travel payments, a practice that has for decades driven workers into debt bondage. "India is legitimising modern-day slavery. The struggle for bonded labour just got more difficult," said Chandan Kumar, coordinator of labour rights organisation Working People's Charter.

Source: Roli Srivastava, Reuters, 6 August 2019

Table 1: Selected Economic Indicators of India, 2015-2019

	2015	2016	2017	2018	2019
GDP Growth Rate (%)	8.0	8.3	6.8	6.5	4.0
Unemployment Rate (%)	5.6	5.5	5.4	5.3	5.4
Fiscal Balance (% of GDP)	-4.1	-3.9	-3.5	-3.5	-3.4
Inflation Rate (CPI) (%)	5.0	4.9	3.3	3.9	3.7

Source: Various

Questions

- (a) With reference to Table 1, state what happened to consumer prices between 2015 and 2019. [2]
- (b) Explain whether a GST cut (Extract 5) will lead to an increase in consumer expenditure on different types of goods. [4]
- (c) Explain how "depressed crop prices" (Extract 5) might play a big role in India's economic slowdown. [4]
- (d) With reference to Extract 6, identify two causes of youth unemployment in India. [2]
- (e) Using the case material and your own knowledge, assess whether a minimum wage law will improve living standards in India. [8]
- (f) In light of the unemployment problem in India, discuss whether a cut in corporate taxes or increase in government spending is a better approach for India to achieve sustained and inclusive growth. [10]

[Total: 30]

Answer **three** questions in total.

Section A

One or two of your three questions must be from this section.

- 1** GDP growth in Singapore fell drastically from 1.35 % in 2019 to -5.39% in 2020. The recent price war between Russia and Saudi Arabia in March 2020 has led to fall in prices of crude oil which is the main source of energy used in production.

Using economic analysis, discuss the likely effects of the above events on high-end coffee machines that brews gourmet coffee and its related markets in Singapore. [25]

- 2**
 - (a)** Explain the difference between public goods and merit goods. [10]

 - (b)** Discuss whether direct provision is the best solution to correct the above sources of market failure. [15]

- 3** Singapore's supermarket landscape is dominated by three big players: NTUC, Dairy Farm Holdings, and Sheng Siong.
 - (a)** Explain how firms in the market structure in which supermarkets operate are likely to compete. [10]

 - (b)** Discuss whether increasing competition in this market structure is likely to be beneficial or costly to society. [15]

Section B

One or two of your three questions must be from this section.

4 Table 1: Selected Key Economic Indicators of Singapore

Year	2018	2019
Gross Domestic Product (GDP) (in US\$ billion)	US\$373B	US\$372.1B
Balance of Trade (in US\$ billion)	US\$108.21B	US\$105.83B
Unemployment rate (%)	3.65%	3.1%

- (a) Explain the factors that will lead to sustainable growth in a country. [10]
- (b) Assess whether the economic indicators provided in **Table 1** are the best measure of changes in standard of living in Singapore. [15]
- 5 The COVID-19 pandemic has severely disrupted global economic activity, and led to both demand-side and supply-side shocks to the Singapore economy. International travel and the retail sectors have been severely affected. At the same time, supply chain disruptions have impacted businesses negatively. This resulted in the Singapore economy contracting by 5.4% in 2020.
- (a) Explain possible demand-side and supply-side shocks to the Singapore economy as a result of the COVID-19 pandemic. [10]
- (b) Assess the extent to which policies aimed at increasing the economic growth rate might cause difficulties for the economy. [15]
- 6 In its latest monetary policy statement, the Monetary Authority of Singapore (MAS) stated that it will maintain its policy stance of zero appreciation and concluded that this accommodative stance remains appropriate.

Source: MAS Monetary Policy Statement, April 2021

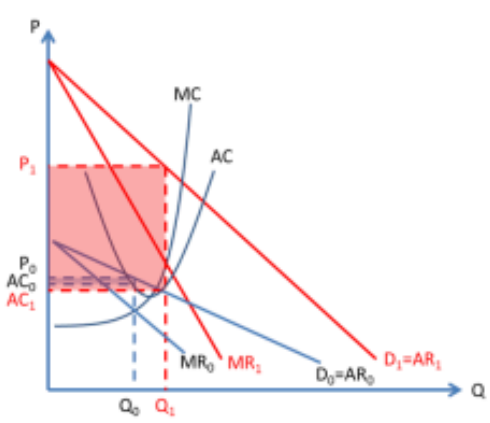
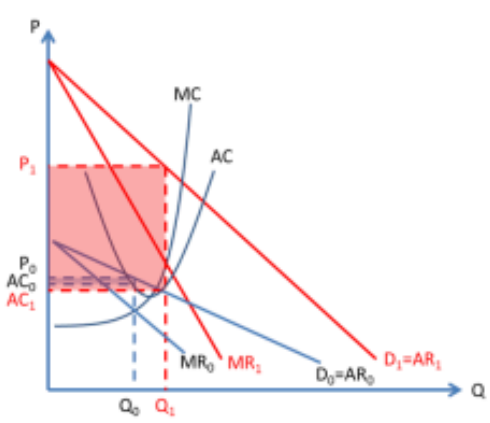
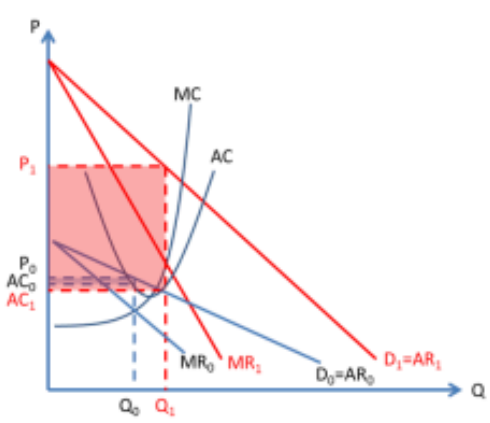
- (a) Explain why MAS's preferred choice as the instrument of monetary policy in Singapore is exchange rates rather than interest rates. [10]
- (b) Discuss whether exchange rate policy remains the best policy to maintain price stability in Singapore for the next few years. [15]

ANSWER SHEET

Question 1: The Growth of E-Waste

(a)	With reference to Figure 1 and Extract 1, explain one possible reason for the change in price of silver relative to the change in price of gold on 1 Jun 2020 with that on 1 May 2021.	[3]
	<p><u>Explain the difference in the price of silver relative to that of gold – 1m</u> Both silver & gold prices increase, but the price of silver increased at a faster rate than price of gold.</p> <p><u>Explain one possible reason – 2m</u> This could be due to the demand for silver rising faster than the demand for gold as demand for silver is a derived demand for many industrial uses, mentioned in Extract 1 "recent shift towards green technologies have spurred a rise in demand for industrial metals such as silver which are used in solar panel production".</p>	
(b)	With reference to Figure 2, explain the likely values of income elasticity of demand for smartphones for the age groups of 18 – 29 and 65+ in the US.	[3]
	<p><u>Explain the sign of YED for the 2 age groups – 1m</u> Smartphones are likely to have positive YED values for both age groups since smartphones are normal goods, where the demand increases with income levels.</p> <p><u>Explain the magnitude of YED for 18-29 age group – 1m</u> However, the value of YED is different for the 2 groups. According to Fig. 2, the demand for smartphones increases less than proportionately (19%) as income level increases from less than \$30000 to \$75000 or more (about 150%) for the 18-29 year olds. Hence the YED for the younger group is likely to be more than zero but less than 1 and smartphones are necessities to them.</p> <p><u>Explain the magnitude of YED for 65+ age group – 1m</u> For the same change in income for the 65+, the ownership increases more than proportionately (more than 400%) implying that YED is likely to be more than one and smartphones are more of a luxury good to them.</p>	
(c)	With the aid of a diagram, explain how the increase in demand for tech products due to "planned obsolescence" is likely to affect Singapore's social welfare.	[4]
	<p><u>Explain the impact of increase in demand for tech products – 1m</u> The increase in demand for tech products leads an increase in e-waste which generates negative externalities which gives rise to external cost. Herein, since toxic chemicals may be unknowingly released, harming the environment and the people handling the e-waste. Due to the presence of such external costs, there is a divergence between marginal social cost (MSC) and marginal private cost (MPC) in the market for tech products.</p> <p><u>Explain (with diagram) how consumption of tech products may result in market failure – 2m</u> Referring to the diagram below, private efficient level of output is at Q where $MPC = MPB$ but the socially efficient level of output should be at Q_s where MSC</p>	

	<p>= MSB. At Q, $MSC > MSB$ where every additional unit of tech product consumed adds more cost than benefit to the society, hence there is an overconsumption of tech products which leads to over-allocation of resources, hence allocative inefficiency. This results in deadweight loss of area ABC.</p> <p><u>Explain the impact of increased tech product consumption on welfare loss – 1m</u> Increase demand for tech products → more tech products consumed (at Q') → increase the overconsumption of tech products → increase in welfare loss.</p> <p><i>[Optional for students to draw DD-SS diagram]</i></p> <p><i>[1m for diagram]</i></p> <p><i>Note: Also accept diagram that shows further overconsumption by increasing market equilibrium from Qe to Qe' while holding the social optimum at Qs. (It's not as technically accurate but should be sufficient for the A levels)</i></p>	
(d)	Explain how the recycling of e-waste could alleviate the problem of scarcity.	[2]
	<p><u>Define scarcity</u> Scarcity is the situation of limited resources and unlimited wants.</p> <p><u>Explain how recycling of e-waste increases resources thereby alleviating scarcity – 2m</u> Recycling of e-waste will increase the quantity of resources, which leads to an increase in a country's productive capacity. As a result, more wants can then be satisfied, alleviating scarcity.</p> <p><i>1m for explaining how recycling of e-waste will lead to an increase in qty of resources / productive capacity</i> <i>1m for explaining linking the increase in qty of resources / productive capacity to the ability to satisfy more wants</i></p>	

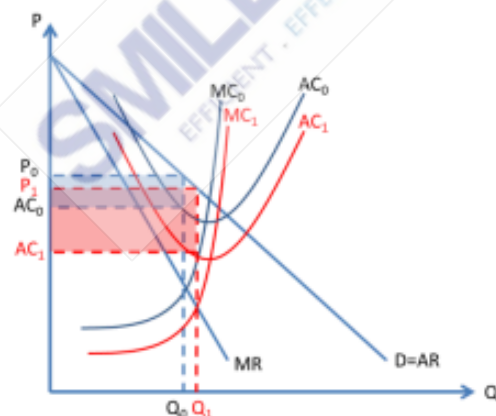
(e)	Discuss the factors that a profit-maximising tech producer would consider in making a decision regarding the mining of e-waste to manufacture its new products.	[8]						
<div>Question Analysis Command word: "Discuss the factors" → explain factors and evaluate which is most significant Content: "factors that a profit-maximising tech producer would consider in making a decision regarding the mining of e-waste to manufacture its new products" → decision-making question<ul style="list-style-type: none">• Who is the decision maker? → <i>Tech producer</i>• What is his main aim? → <i>max profits</i>• What are some of the factors affecting his decision? → <i>Costs, Benefits, Constraints</i>Context: e-waste mining in tech market</div>								
<table><tr><th>Requirement</th><th>Suggested Answer</th></tr><tr><td>Introduction: Definition and overview</td><td>A profit-maximising tech producer would seek to maximise total revenue and minimise total costs as profits = TR – TC. The producer would thus consider the benefits and costs of its decision regarding the mining of e-waste to manufacture its new products, as well as the constraints faced.</td></tr><tr><td>Factor 1: Benefits of mining e-waste</td><td><p><u>Possible revenue advantages</u></p><p>A shift in taste and preferences for eco-friendly products (Extract 3) may increase the demand for products that use recycled materials, allowing the tech producer to capture a larger market share. Demand for such tech products may also become more price inelastic as it helps differentiate the firm's products from its rivals and make them less substitutable. This will shift demand curve to the right from D_0 to D_1 as shown in the figure below. Also, as the demand is more price-inelastic, it will result in a steeper curve D_1.</p></td></tr></table>			Requirement	Suggested Answer	Introduction: Definition and overview	A profit-maximising tech producer would seek to maximise total revenue and minimise total costs as profits = TR – TC. The producer would thus consider the benefits and costs of its decision regarding the mining of e-waste to manufacture its new products, as well as the constraints faced.	Factor 1: Benefits of mining e-waste	<p><u>Possible revenue advantages</u></p> <p>A shift in taste and preferences for eco-friendly products (Extract 3) may increase the demand for products that use recycled materials, allowing the tech producer to capture a larger market share. Demand for such tech products may also become more price inelastic as it helps differentiate the firm's products from its rivals and make them less substitutable. This will shift demand curve to the right from D_0 to D_1 as shown in the figure below. Also, as the demand is more price-inelastic, it will result in a steeper curve D_1.</p> 
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A profit-maximising tech producer would produce at an output where $MC = MR$. This is because if $MC > MR$, producing an additional unit adds more cost than revenue. Thus, the firm should not produce the additional unit. If $MC < MR$, producing an additional unit adds more revenue than cost. Thus, the firm should produce the additional unit. Hence, profit is maximised when $MC = MR$.

With reference to figure above, the original equilibrium was at output Q_0 and price P_0 . The supernormal profit was the small shaded area $((P_0 - AC_0) \times Q_0)$. With the higher and steeper D_1 , the profit maximisation output and price where $MC = MR_1$ then becomes Q_1 and P_1 respectively and the supernormal profit is now the larger shaded area $((P_1 - AC_1) \times Q_1)$. This increase in profit is mainly due to an increase in TR (from $P_0 \times Q_0$ to $P_1 \times Q_1$).

Possible cost advantages

The possibility of using existing technological knowhow to mine e-waste efficiently (Extract 3) and the ability to reap internal economies of scale (EOS) (Extract 4) like technical EOS due to factor indivisibility will lead to lower average cost (AC) and marginal cost (MC) of production. Mining materials from e-waste will also allow the firm to avoid the volatile prices of materials mined from the ground. (Extract 3) This will again lower the average cost of production for the firm.



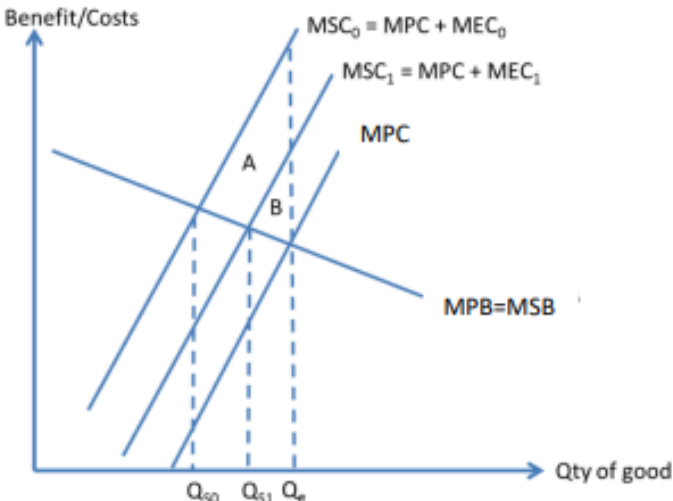
With reference to the above figure, the original equilibrium was at output Q_0 and price P_0 . The supernormal profit was the small shaded area $((P_0 - AC_0) \times Q_0)$. With the fall in AC and MC from MC_0 and AC_0 to MC_1 and AC_1 , the profit maximisation output is now at Q_1 and price at P_1 . The supernormal profit is now the larger shaded area $((P_1 - AC_1) \times Q_1)$. This increase in profit is mainly due to a fall in TC (from $AC_0 \times Q_0$ to $AC_1 \times Q_1$).

Factor 2: Cost of mining e-waste	Mining e-waste would incur huge costs as it may involve setting up a recycling plant and conducting R&D to find more efficient ways of mining and using e-waste and hiring more labour for the production. This would increase both the AC and MC, shifting the AC and MC curves upwards. Profits from using e-waste will be reduced if the increase in cost of production from setting up the mining facilities is more than the increase in profit.
Factor 3: Constraints faced by the firm	<p>The firm also faces financial constraints when deciding whether to mine the e-waste. The limited amount of the firm's past profit savings would restrict its ability to mine e-waste. They are also constrained by the amount and quality of factors of production within the country when trying to hire more factors in order to produce more.</p> <p>Additionally, tech firms are likely to operate in an oligopolistic market structure with the market dominance of a few large firms. Such firms are mutually interdependent which results in price rigidity. If an oligopolist considers reducing his price, he knows that his rivals will also react by reducing their prices. Thus, his reduction in price will only lead to a less than proportionate increase in quantity demanded of his product as few customers would switch over from his rivals. This would cause his TR to decrease. Hence, he would not decide to decrease his price. If he considers increasing his price, he knows that his rivals will maintain their prices in response. Thus, his increase in price will lead to a more than proportionate decrease in quantity demanded of his product as many of his customers would switch over to his rivals. This would also cause his TR to decrease. Hence, he would also not decide to increase his price. Hence, a tech producer would face the constraint of not being able to use pricing strategies and therefore there is a need to employ non-price strategies.</p>
Evaluative Conclusion: Which is the most significant factor?	In conclusion, there are many factors that a profit-maximising tech producer should consider when making a decision regarding mining and using e-waste. The benefits of e-mining will most likely outweigh the costs in the long run given the scarcity of the resources (Extract 3) and firms should undertake the decision. However, the constraints of the producer will determine whether e-mining is even plausible in the first place. In addition, the inability to compete using price strategies would also compel the oligopolist to adopt non-price strategies like mining e-waste to differentiate their products and cut costs in order to increase their profits. Hence, the most important consideration should be the constraints of the producer.

Level	Description	Marks
L2	Answer covers at least 2 groups of well-explained factors (e.g. benefits and costs) with thorough economic analysis and use of appropriate economic framework. Reference to case material were made in the answer. Max 4m – No reference to case material	4–6
L1	Answer lacks balance or scope or reference to case material or details.	1-3
E	Makes a substantiated judgement that answers the question.	1-2

(f)	Assess the extent to which mandating the manufacturers of electronic goods to collect and recycle e-waste is effective in ensuring allocative efficiency.	[10]
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Question Analysis Command word: "Assess" → explain both sides and give an evaluative conclusion Content: "extent to which mandating the manufacturers of electronic goods to collect and recycle e-waste is effective in ensuring allocative efficiency" <ul style="list-style-type: none">• Thesis: Mandating manufacturers of electronic goods to collect and recycle e-waste is effective to ensure allocative efficiency• Anti-thesis: Mandating manufacturers of electronic goods to collect and recycle e-waste is ineffective to ensure allocative efficiency Context: Electronic goods market	
Requirement	Suggested Answer
Introduction: Define allocative efficiency & give overview of the problem	<Define> Allocative efficiency is defined as the state in which social welfare is maximised and every market in the economy produces at the optimal output level where $MSB=MSC$. <Overview of the problem> As explained in part (c), there is an overconsumption of electronic goods due to the negative externalities generated from its e-waste.
Thesis: Mandate to collect and recycle e-waste is effective to ensure allocative efficiency → What it is, How it works, How well it works (effectiveness: strength)	How it works Mandating the manufacturers of electronic goods to collect and recycle e-waste will reduce the likelihood of toxins from the e-waste being released into the environment (Extract 2). Hence, lesser toxins discharged will lead to lesser harm to the ecosystem. When this happens, the marginal external cost of consuming electronic goods is decreased. As such, there would be a smaller divergence between MSC and MPC (the MSC shifts towards the MPC). In such cases, the degree of market failure would also decrease. This is illustrated in the diagram below.

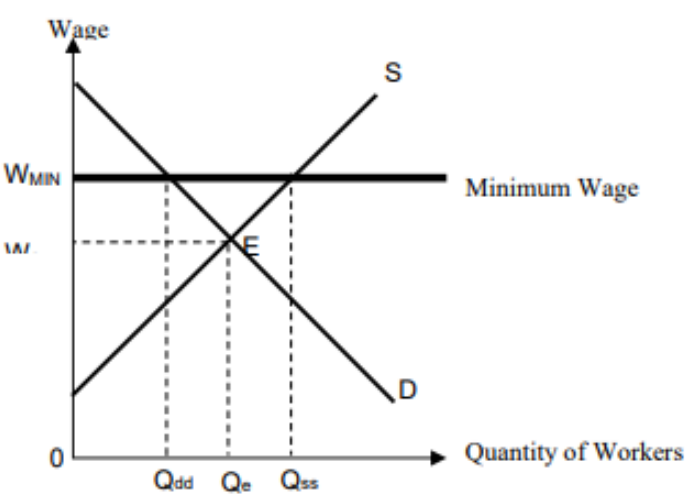
		 <p>Referring to the diagram above, the original private equilibrium is at Q_e where $MPB = MPC$. The original social optimum is at Q_{s0} where $MSB = MSC_0$. The original deadweight loss is area A + B. As the R&D reduces the external cost, the MSC will decrease from MSC_0 ($MPC + MEC_0$) to MSC_1 ($MPC + MEC_1$). This causes the social optimum to shift from Q_{s0} to Q_{s1} where $MSB = MSC_1$. The deadweight loss is thus decreased to the area B.</p> <p>How well it works <Certainty in outcome>: Mandating to collect and recycle e-waste will definitely reduce the extent of MEC generated which in turn reduces the welfare loss. If the mandate can reduce external costs to zero, it would be the ideal solution as there would be no need to reduce production or consumption of electronic goods.</p> <p>Anti-thesis: Mandate to collect and recycle e-waste is ineffective to ensure allocative efficiency → How well it works (ineffectiveness: limitations; any 2)</p> <p>High Opportunity Cost However, the mandate is limited in its effectiveness in ensuring allocative efficiency. While the mandate reduces the deadweight loss through targeting the root of the problem by removing the negative externality, it still involves high monitoring and enforcement costs. Hence, there is a huge opportunity cost incurred as the money could have been allocated to other critical national needs such as healthcare and education. Therefore, the mandate may not ensure allocative efficiency in the economy.</p> <p>Negative externalities cannot be fully removed with the existence of the informal recycling sector Additionally, unless the negative externality can be completely removed (i.e., MEC decreased to zero), there will still be some market failure. The mandate does not require the manufacturers to collect back all the electronic goods sold. The collection target for smaller consumer electronics like laptops and mobile phones is only 20% (Extract 4). Furthermore, consumers, being self-interested, would rather sell their unwanted electronics to rag-</p>
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		<p>and-bone men, than deposit them into collection bins. (Extract 4). Most of the electronic wastes, not collected through the proper channels, however, are not properly handled and recycled. Thus negative externality still exists and the mandate would not be effective in ensuring allocative efficiency.</p> <p><u>Increasing demand for electronic goods may worsen AE</u></p> <p>According to Extract 2, there is 'planned obsolescence' in the design of electronic goods. For example, consumers are compelled to buy new smart phones ever so often as their old ones become obsolete or non-functional. This demand for new electronic goods is also set to rise with the 5G network kicking in. Hence, as explained in part (c), the allocative inefficiency may worsen instead of improve and the mandate would not be effective.</p>																
	<p>Evaluative Conclusion</p> <ul style="list-style-type: none">- To what extent is the policy effective? Why?- Suggestions?	<p>In conclusion, making it mandatory for manufacturers to collect and recycle e-waste may not be significantly effective in ensuring allocative efficiency, in both SR and LR. In the electronics industry where dynamic efficiency is valued, products become obsolete rapidly and the amount of e-waste generated will increase. The mandate, though limited in its effectiveness, forces firms to take steps to reduce wastage. On their own, firms, being profit maximisers, would not have engaged in mining e-waste as it is not profitable on a small scale (Extract 4). For the policy to be more effective, the government should complement it with the use of other policies as the problem involves many stakeholders and a circular economy can only be created with the cooperation of everyone. One measure which the government could undertake would be to change the mindsets of consumers through moral suasion or education. They need to convince consumers to deposit their unwanted electronic goods to the designated collection bins in the malls. With economies of scale, firms would then find recycling more profitable and a mandate may not be necessary at the time.</p>																
	<table border="1"><thead><tr><th>Level</th><th>Description</th><th>Marks</th></tr></thead><tbody><tr><td>L2</td><td>Explains how the policy works and its limitations in achieving allocative efficiency. Explanations make use of economic analysis and case material.</td><td>5-7</td></tr><tr><td>L1</td><td>Discussion of policies lack either :<ul style="list-style-type: none">• Balance (no limitations of policies) or• Depth (lacks economic analysis) or• Use of case material</td><td>1-4</td></tr><tr><td>E2</td><td>Makes a substantiated judgement of the effectiveness of policy</td><td>2-3</td></tr><tr><td>E1</td><td>Makes an unsubstantiated judgement of the effectiveness of policy</td><td>1</td></tr></tbody></table>			Level	Description	Marks	L2	Explains how the policy works and its limitations in achieving allocative efficiency. Explanations make use of economic analysis and case material.	5-7	L1	Discussion of policies lack either : <ul style="list-style-type: none">• Balance (no limitations of policies) or• Depth (lacks economic analysis) or• Use of case material	1-4	E2	Makes a substantiated judgement of the effectiveness of policy	2-3	E1	Makes an unsubstantiated judgement of the effectiveness of policy	1
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	[Total: 30]																	

Question 2: India's Economic Woes

(a)	With reference to Table 1, state what happened to consumer prices between 2015 and 2019.	[2]
	<p><u>Interpret the sign and magnitude of inflation rate in Table 1</u> Consumer prices increased at a decreasing rate between 2015 and 2019.</p>	
(b)	Explain whether a GST cut (Extract 5) will lead to an increase in consumer expenditure on different types of goods.	[4]
	<p><u>Explain the impact of a GST cut on price – 2m</u> A GST cut reduces the cost of production which increase the profit margin to producers thereby result in an increase in the supply of a good. This in turn results in a surplus at the original price and puts a downward pressure on the price.</p> <p><u>Thesis: GST cut will increase consumer expenditure – 1m</u> For goods where demand is price elastic due to many close substitutes available in the market, for a given fall in price there will be more than proportionate rise in quantity demanded and thus consumer expenditure will rise, ceteris paribus.</p> <p><u>Anti-Thesis: GST cut will not increase consumer expenditure – 1m</u> However, if demand for the good is price inelastic due to high degree of necessity, for a given fall in price, the quantity demanded will rise less than proportionately, resulting in a fall in the consumer expenditure.</p>	
(c)	Explain how “depressed crop prices” (Extract 5) might play a big role in India's economic slowdown.	[4]
	<p>‘Depressed crop prices’ refers to a sustained period of falling agricultural prices. As profit margins fall, agricultural producers lose confidence in the economy and hence investment spending (I) falls. [1]</p> <p>In addition, farm workers, in anticipation of lower wages and the higher prospect of losing their jobs, reduce consumption expenditure (C). [1]</p> <p>The fall in I and C leads to a fall in AD and hence a fall in national income via the multiplier effect. [1]</p> <p>Since half of India's population works in the agricultural sector (Extract 6), the fall in C would be significantly large and hence play a big role in dragging down the growth rate leading to India's economic slowdown. [1]</p> <p>OR</p> <p>Size of multiplier ($1 / MPW$) is likely to be large since the majority of Indians are likely to have low marginal propensity to withdraw as they spend most of their additional incomes on locally produced necessities. Hence NY falls to a</p>	

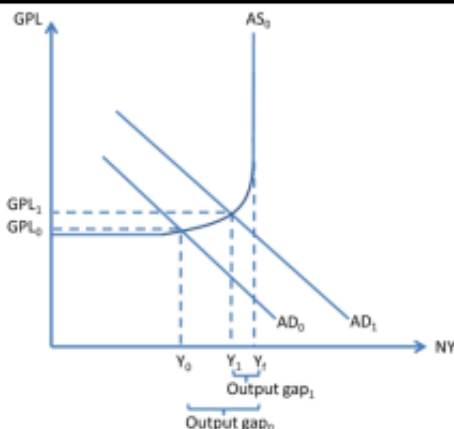
	large extent with the depressed crop prices, leading to an economic slowdown. [1] 1m for explaining impact on I 1m for explaining impact on C 1m for explaining how the fall in I & C leads to a fall in NY 1m for explaining 'big role' of depressed crop prices					
(d)	With reference to Extract 6, identify two causes of youth unemployment in India.	[2]				
	Identify with evidence cause #1 – 1m Extract 6 mentioned a 'mismatch of jobs available and the skills of job-seekers' indicating structural unemployment. Identify with evidence cause #2 – 1m Also in Extract 6, it mentioned 'a sharp fall in private investment' leads to a fall in AD which in turn results in demand-deficient / cyclical unemployment, assuming wages are sticky downwards.					
(e)	Using the case material and your own knowledge, assess whether a minimum wage law will improve living standards in India.	[8]				
<div><div>Question Analysis Command word: "Assess" → explain both sides and give an evaluative conclusion Content: "whether a minimum wage law will improve living standards"<ul style="list-style-type: none">• Thesis: A minimum wage law will improve living standards → Living standards comprise of material and non-material aspects• Anti-thesis: A minimum wage law will not improve living standardsContext: India</div><table><tr><th>Requirement</th><th>Suggested Answer</th></tr><tr><td>Introduction - Define minimum wage & SOL</td><td>A minimum wage is a price floor in the market for labour that is set above the market equilibrium wage. Living standards refers to the welfare of the people and has both material and non-material aspects. The material aspect refers to the quantities of goods and services that the average residents can consume and the non-material aspect refers to the intangibles that affect quality of life such as the quality of the environment, the level of stress, etc. A minimum wage has both positive and negative effects on living standards in India.</td></tr></table></div>			Requirement	Suggested Answer	Introduction - Define minimum wage & SOL	A minimum wage is a price floor in the market for labour that is set above the market equilibrium wage. Living standards refers to the welfare of the people and has both material and non-material aspects. The material aspect refers to the quantities of goods and services that the average residents can consume and the non-material aspect refers to the intangibles that affect quality of life such as the quality of the environment, the level of stress, etc. A minimum wage has both positive and negative effects on living standards in India.
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	<p>Thesis: Minimum wage improves material & non-material SOL</p>	<p>A minimum wage would increase the incomes of low wage workers and raise their living standards. It is usually imposed as the market equilibrium wage is deemed as too low. With higher wages, households would now have higher purchasing power. Thus, they are able to consume more goods and services, assuming cost of living remains unchanged, and material living standards improve.</p> <p>Additionally, with higher incomes, households could improve their own non-material SOL by consuming goods and services that do that. For example, with higher purchasing power, they could have consumed food of better quality, which contributes to better health and hence, longer life expectancies. The increase in purchasing power could also increase the ability of Indian families to send their children to school, causing an increase in school enrolment rates. Since health and education are both aspects of non-material SOL, minimum wage also helps to improve non-material SOL.</p>	
	<p>Anti-thesis: Minimum wage may not improve SOL</p>	<p>However, not all workers benefit from the minimum wage and SOL may not improve for these workers. As seen from the diagram below, the equilibrium wage is at W_e, where the demand for and supply of labour intersects. Minimum wage is set above the equilibrium wage at W_{min}. A minimum wage would decrease the quantity demanded of labour from Q_e to Q_{dd} (as firms want to hire fewer workers when the wage rate is higher) and increase the quantity supplied of labour from Q_e to Q_{ss} (as people are more willing to work when the wage rate is higher). The resultant surplus of labour ($Q_{ss}Q_{dd}$) represents unemployed labour. Those who are unemployed as a result of the minimum wage may see their earnings drop to zero and their living standards worsen.</p>  <p>The diagram illustrates the labour market with Wage on the vertical axis and Quantity of Workers on the horizontal axis. A downward-sloping demand curve (D) and an upward-sloping supply curve (S) intersect at equilibrium point E, corresponding to wage W_e and quantity Q_e. A horizontal line represents the Minimum Wage at W_{min}, which is above W_e. At this higher wage, the quantity demanded (Q_{dd}) is less than the quantity supplied (Q_{ss}), creating a surplus of labour between Q_{dd} and Q_{ss}. The origin is marked 0.</p>	

	<p>Even for those who are able to retain their jobs, SOL may not improve. Their higher incomes may not translate into higher real purchasing power as the cost of living might be increasing faster. This can be inferred from the much lower minimum wage of 176 Indian rupees compared to the recommended rate of 375 Indian rupees which would likely have taken into consideration the cost of living in India. (Extract 7) In addition, a minimum wage would increase the cost of production of producers who may then pass on this higher cost to the consumers in terms of higher prices of goods and services. Hence, the minimum wage may not lead to an improvement in SOL.</p> <p>Furthermore, workers who earn a wage above the minimum wage may also be adversely affected. There would be a lack of incentive for firms to pay a wage that is higher than the minimum wage as firms seek to minimise costs. This could mean that workers who are previously earning a wage higher than the minimum wage could see a drop in their earnings and a worsening of their SOL.</p>	
Conclusion - Take a stand on whether minimum wage will improve living standards in India	<p>In conclusion, a minimum wage law may bring about improvement in the living standards of some workers in India in the short run. However, over time, as producers adjust to the higher cost of living and if the minimum wage is not adjusted accordingly, real incomes will fall and Indian households will be worse off. Also, as mentioned in Extract 7, a minimum wage law may not offer protection to those employed in the informal sector. If the government does not monitor the labour markets and prevent exploitation of the workers, the living standard in India is unlikely to improve with the minimum wage law.</p>	

Level	Description	Marks
L2	Answer is balanced (has both thesis and anti-thesis), sufficiently scoped (includes effect of on both material and non-material SOL), and makes adequate use of the case material. Explanations are accurate and sufficiently detailed.	4-6
L1	Answer lacks balance or scope or reference to case material or details.	1-3
E	Makes a substantiated judgement that answers the question.	1-2

(f)	In light of the unemployment problem in India, discuss whether a cut in corporate taxes or increase in government spending is a better approach for India to achieve sustained and inclusive growth.	[10]						
	<div>Question Analysis Command word: "Discuss" → explain both sides and give an evaluative conclusion Content: "whether a cut in corporate tax or increase in government spending is a better approach for India to achieve sustained and inclusive growth" <ul style="list-style-type: none">• Thesis #1: A cut in corporate tax leads to sustained & inclusive growth• Anti-thesis #1: A cut in corporate tax may not lead to sustained & inclusive growth• Thesis #2: A rise in government spending leads to sustained & inclusive growth• Anti-thesis #2: A rise in government spending may not lead to sustained & inclusive growthContext: "In light of the unemployment problem in India"</div> <table><tr><th>Requirement</th><th>Suggested Answer</th></tr><tr><td>Introduction - Define sustained & inclusive growth</td><td><p>Sustained growth refers to higher real output (economic growth) accompanied by lower price level. This would require both actual and potential growth.</p><p>Inclusive growth refers to a rate of growth that is sustained over a period of time, is broad-based across economic sectors and creates productive employment opportunities for the majority of the country's population. It is economic growth that takes income distribution into consideration and does not contribute to worsening income inequality.</p><p>To determine which policy is better, we would have to examine the effectiveness of each policy, the limitations, constraints and unintended consequences in achieving sustained and inclusive growth for India.</p></td></tr><tr><td>Thesis 1: Explain how a cut in corporate tax leads to sustained and inclusive growth</td><td>A cut in corporate tax may bring about sustained growth for India. It would result in firms having higher post-tax profits, thus higher expected rate of returns on their investment for firms. As such, firms' MEI will increase and thus the volume of investment will rise, resulting in an increase in investment expenditure (I). Since the Indian economy is not at full employment, the increase in I would then lead to an increase in AD and a multiplied increase in national income via the multiplier effect, bringing about actual growth.</td></tr></table>	Requirement	Suggested Answer	Introduction - Define sustained & inclusive growth	<p>Sustained growth refers to higher real output (economic growth) accompanied by lower price level. This would require both actual and potential growth.</p> <p>Inclusive growth refers to a rate of growth that is sustained over a period of time, is broad-based across economic sectors and creates productive employment opportunities for the majority of the country's population. It is economic growth that takes income distribution into consideration and does not contribute to worsening income inequality.</p> <p>To determine which policy is better, we would have to examine the effectiveness of each policy, the limitations, constraints and unintended consequences in achieving sustained and inclusive growth for India.</p>	Thesis 1: Explain how a cut in corporate tax leads to sustained and inclusive growth	A cut in corporate tax may bring about sustained growth for India. It would result in firms having higher post-tax profits, thus higher expected rate of returns on their investment for firms. As such, firms' MEI will increase and thus the volume of investment will rise, resulting in an increase in investment expenditure (I). Since the Indian economy is not at full employment, the increase in I would then lead to an increase in AD and a multiplied increase in national income via the multiplier effect, bringing about actual growth.	
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As shown in the diagram above, an increase in I would lead to an increase in AD , shifting the AD curve to the right from AD_0 to AD_1 . This results in shortage at original GPL_0 where total spending exceeds total output. This shortage will cause a decrease in inventories, incentivising producers to increase production to increase output so as to meet the rising demand for goods and services. Via the multiplier effect, there will be multiple increase in production, output and national income. Therefore, real NY would increase from Y_0 to Y_1 .

Furthermore, with an increase in investment, capital stock accumulation would increase factor quantity, leading to an increase in productive capacity and thus $LRAS$. This results in potential growth.

Thus, a cut in corporate tax would address the economic slowdown and cyclical unemployment that India is facing. Since demand for labour is a derived demand, an increase in real NY implies more production activities and greater employment opportunities for Indian citizens. Hence, a cut in corporate tax would bring about sustained and inclusive economic growth.

Anti-thesis 1:

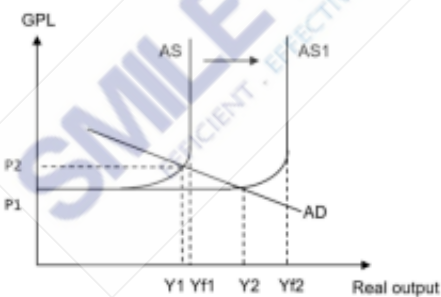
Limitations of a cut in corporate tax

Limitations in achieving sustained growth

However, low corporate tax might not lead to an increase in investment and hence growth. Banks are reluctant to lend because of the "huge crisis" of bad debts (Extract 6). This may result in high interest rate and hence cost of borrowing and investments may fall instead. Also, low corporate tax may not be sufficient to attract FDIs as India is lacking in terms of a well-developed infrastructure and corruption and red tapes make it difficult to conduct business in India. Hence, sustained growth may not materialise.

Limitations in achieving inclusive growth

In terms of inclusive growth, a corporate tax cut may attract investments that benefit only a small portion of the economy. For example, the sectors which are growing are modern services like telecom, education, health, banking which create jobs for workers who are more educated and highly skilled. There is little job creation for the large majority of the population who lacked skills as

		entry-level jobs are automated with robots and artificial intelligence. Hence, growth brought about by low corporate tax may not be inclusive.	
	Thesis 2: Explain how an increase in government spending leads to sustained and inclusive growth	<p>An increase in government spending could refer to government spending on infrastructure, education as well as healthcare and public services (Extract 6). It leads to either an increase in government expenditure (G) or investment (I), increasing AD and RNY in the short run via the multiplier effect. This actual growth would be inclusive if the increase in government spending is targeted at the poorer households.</p> <p>In the long run, government spending with supply-side effects would bring about sustained growth. For example, building more infrastructure such as telecommunication and transportation networks to ensure greater connectivity could result in sustained growth because such infrastructure are capital goods that help increase the productive capacity of the economy both through an increase in quantity of factors of production (i.e., capital) and also through increasing productivity. Similarly, subsidising education and training could result in improved labour productivity and an increase in productive capacity.</p> <p>The increase in productive capacity would cause a rightward shift of the LRAS curve to AS1. Assuming that AD is high enough, there will be actual growth (from Y1 to Y2) and potential growth (from Yf1 to Yf2) as shown in the diagram below.</p>  <p>This growth could be inclusive because improved infrastructure would improve accessibility of necessities like healthcare and education to poorer households. Additionally, this growth can be inclusive since training and education helps to reduce occupational immobility of the workers in the sunset industries, who tend to be low wage workers. With the retraining, they can now take up jobs in other sectors where wages are higher. Therefore, attending retraining courses will also help low-wage workers receive higher income in future, narrow the income gap between the rich and the poor, thus achieving inclusive growth.</p>	
	Anti-thesis 2: Limitations of an increase in government spending	<p><u>Limitations in achieving sustained growth</u></p> <p>However, the Indian government may be limited in carrying out these increases in government spending. This is because huge government spending would be required for infrastructure development and the Indian government may be unable to afford</p>	

	<p>it given their budget deficits (Table 1). If the government borrows to finance its increase in spending (Extract 5), it will result in an increase in demand for loans, causing interest rates to rise. Cost of borrowing for households and firms rises and consumption and investment may fall. This is known as the crowding out effect which limits the increase in NY.</p> <p><u>Limitations in achieving inclusive growth</u></p> <p>In the long run, higher government borrowing today may mean that taxes will have to rise in the future. This raises inequity issues as the welfare (from higher government spending) of the current generation was enhanced at the expense of the future generations who will experience the rise in tax rates.</p> <p>Subsidies for education and training may also not bring about inclusive growth if low-wage workers are unable or unwilling to pick up new skills. As such, they would not be able to move into higher-paying jobs. Also, retraining takes time and may not be successful as it is difficult to forecast the future economic needs and hence come up with appropriate and relevant courses.</p>																
<p>Evaluative Conclusion: Which policy is better?</p>	<p>In conclusion, given that the investors are unable or unwilling to invest in India because of structural factors, a cut in corporate tax would be unable to bring about a sustained and inclusive growth. With a young and growing workforce (Extract 6), government spending with supply-side effects would be a better approach for India to achieve sustained and inclusive growth in the LR as only better infrastructure and a more educated workforce will create a conducive business environment and attract the right kind of industries which can create productive jobs for the people. Additionally, since fiscal deficit rises slower than GDP growth, the government's ability to raise tax revenue is still rising faster than the national debt, indicating that the government can still service the debt and hence can afford to borrow money to finance its expenditures.</p>																
<table border="1"> <thead> <tr> <th>Level</th><th>Description</th><th>Marks</th></tr> </thead> <tbody> <tr> <td>L2</td><td>Explains both policies and their limitations in achieving sustained and inclusive growth. Explanations make use of economic analysis (primarily AD-AS).</td><td>5-7</td></tr> <tr> <td>L1</td><td>Discussion of policies lack either : <ul style="list-style-type: none"> • Balance (no limitations of policies) or • Scope (only discusses one policy) or • Depth (lacks economic analysis) </td><td>1-4</td></tr> <tr> <td>E2</td><td>Makes a substantiated judgement of which policy is a better approach to achieve sustained and inclusive growth in India</td><td>2-3</td></tr> <tr> <td>E1</td><td>Makes an unsubstantiated judgement of which policy is a better approach to achieve sustained and inclusive growth in India</td><td>1</td></tr> </tbody> </table>			Level	Description	Marks	L2	Explains both policies and their limitations in achieving sustained and inclusive growth. Explanations make use of economic analysis (primarily AD-AS).	5-7	L1	Discussion of policies lack either : <ul style="list-style-type: none"> • Balance (no limitations of policies) or • Scope (only discusses one policy) or • Depth (lacks economic analysis) 	1-4	E2	Makes a substantiated judgement of which policy is a better approach to achieve sustained and inclusive growth in India	2-3	E1	Makes an unsubstantiated judgement of which policy is a better approach to achieve sustained and inclusive growth in India	1
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		[Total: 30]															

Question 1

GDP growth in Singapore fell drastically from 1.35% in 2019 to -5.39% in 2020. The recent price war between Russia and Saudi Arabia in March 2020 has led to fall in prices of crude oil which is the main source of energy used in production.

Using economic analysis, discuss the likely effects of the above events on high-end coffee machines that brews gourmet coffee and its related markets in Singapore. [25]

Planning Table

		Either Market	
	Market 1: Market on coffee machine	Market 2: Related Market 1: Complementary Good – coffee capsules	Market 3: Related Market 2: Substitute Good- other cheaper alternatives
Event 1: Falling income	Effect on P & Q With YED & PES	Relate to Market 1 and explain effect on P & Q With XED & PES	Relate to Market 1 and explain effect on P & Q With XED and PES
Event 2: Falling oil price	Effect on P & Q With PED	Effect on P & Q With PED	Effect on P & Q With PED
Combined effect	Overall effect on P&Q Extent of shifts in DD & SS	Overall effect on P&Q Extent of shifts in DD & SS	Overall effect on P&Q Extent of shifts in DD & SS

Requirement	Suggested answer
Introduction	How the above events may impact the market for high-end coffee machines and its related markets in Singapore can be explained using the concepts of demand, supply, price, income and cross elasticity of demand as well as price elasticity of supply.
Body I: Effect of decrease in income on demand (shift in DD) using YED & PES on the coffee machine market.	<p>Demand, or effective demand, for a product refers to the quantity of a good or service which consumers are willing and able to buy at different price levels, over a specific time period, ceteris paribus.</p> <p>A fall in Gross Domestic Product in Singapore will lead to a decrease in the demand for coffee machines. A fall in Gross Domestic Product occurs when there is falling production in the country. When this happens, firms will employ less factor inputs from households and hence will pay them less factor income which will lead to a fall in national income.</p> <p>As consumers' incomes change, their demand for a product will change too. The direction of the change in demand will depend on whether the good is a normal or inferior good. A normal good is a good which people will buy more when their income rises and vice versa. On the other hand, an inferior good is a good which people will buy more when their income falls since its substitutes are costlier.</p>

When consumers' income decreases due to the drastic fall in GDP growth in Singapore from 1.35% in 2019 to -5.39% in 2020, their purchasing power decreases. Hence, the demand for normal goods will decrease, shifting the demand curve for normal goods to the left.

The extent of the shift in demand for a good will depend on the income elasticity of demand. Income elasticity of demand (YED) measures the degree of responsiveness of demand for a good to a change in income, *ceteris paribus*.

Normal goods are further subdivided into necessities and luxurious goods. In this context, the high-end coffee machines are normal luxury goods. Hence the income elasticity of demand is positive and income elastic. The YED value is greater than 1 which means that a proportionate change in income will lead to a more than proportionate change in demand, *ceteris paribus*. If the income decreases by 10%, demand will decrease by more than 10%. There is a larger extent in the fall in demand for coffee machines when income falls.

When demand falls, there is a surplus of high-end coffee machines at the original price P_0 . As a result, there is tendency for the price of high-end coffee machines to fall. The fall in price of coffee machines will cause quantity demanded to rise and quantity supplied of coffee machines to fall until a new equilibrium is reached. When this happens, the equilibrium price and quantity will fall. When the demand for high-end coffee machines falls, whether the price or the quantity will fall to a larger extent will depend on the price elasticity of supply.

Price elasticity of supply (PES) measures the degree of responsiveness of quantity supplied of a good to a change in the price of the good itself, *ceteris paribus*. It involves a movement along the supply curve due to a change in price. The supply of high-end coffee machines is likely to be price elastic as the production time is likely to be short given that they are mass produced on assembly lines which are highly automated.

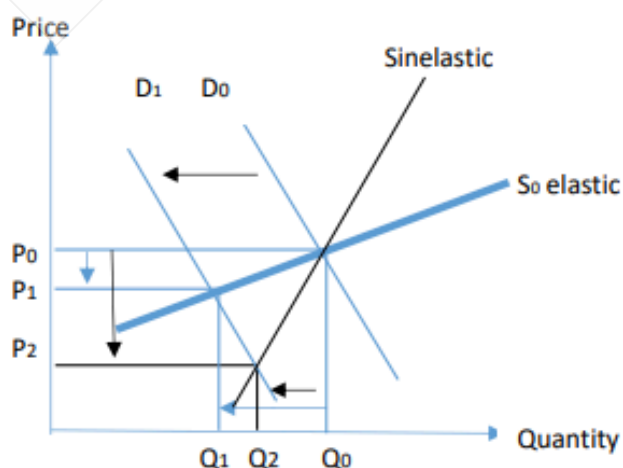
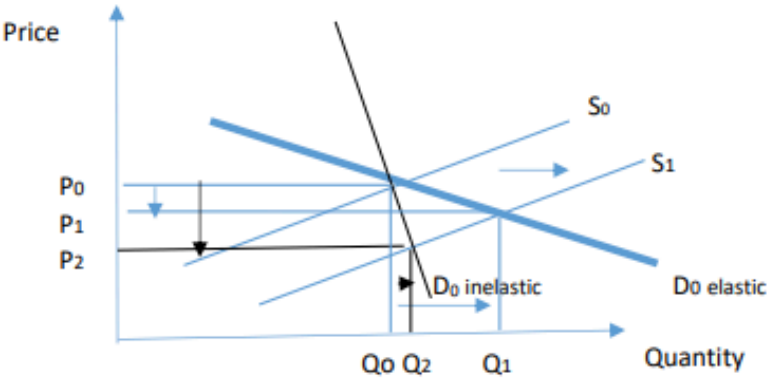
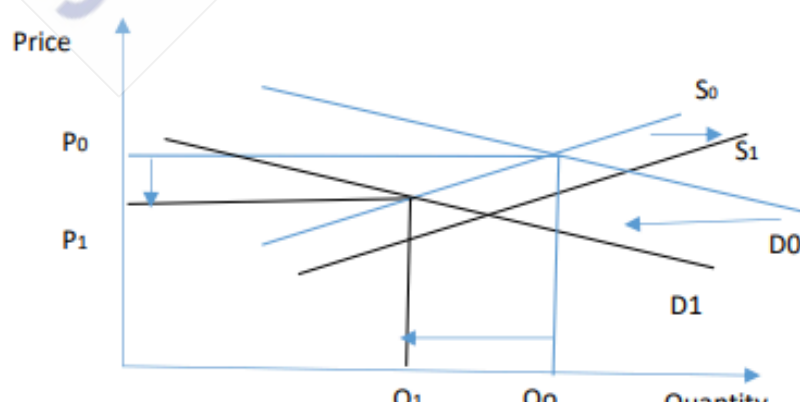
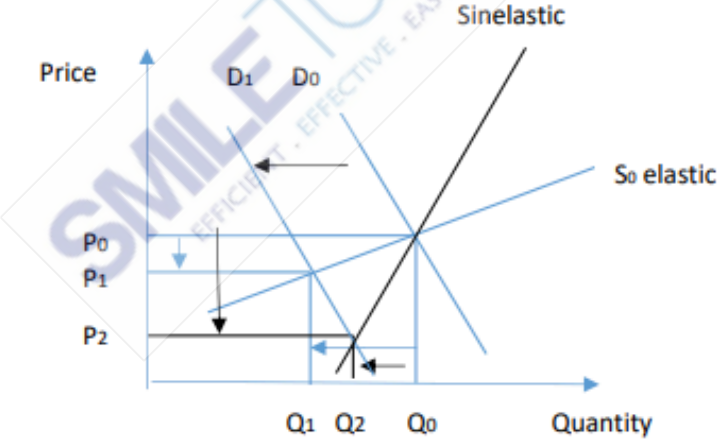


Fig 1 : Market for coffee machines

	<p>Due to the price elastic supply S_0, a fall in the demand from D_0 to D_1 leads to a large fall in the quantity of high-end coffee machines from Q_0 to Q_1 and a smaller fall in the price of high-end coffee machines from P_0 to P_1 compared to a supply curve that is price inelastic, where the fall in price will be of a larger extent from P_0 to P_2 and a smaller fall in quantity from Q_0 to Q_2 in the high-end coffee machine market.</p> <p>Therefore, the quantity of high-end coffee machines is likely to fall by a larger proportion than the fall in price as seen in Figure 1 above.</p>
<p>Body II: Effect of fall in oil prices on supply (shift in SS) and price elasticity of demand on high-end coffee machine market.</p>	<p>Supply, or effective supply, of a product refers to the quantity of a good or service which sellers are willing and able to offer for sale at different price levels, over a specific time period, <i>ceteris paribus</i>.</p> <p>A fall in crude oil prices will lead to a rise in the supply of high-end coffee machines in Singapore as crude oil is the main source of energy used in production and transportation. Lower cost of production will increase the supply of high-end coffee machines. When supply increases, there is a surplus of high-end coffee machines at the original price P_0. As a result, there is tendency for the price of coffee machines to fall. The fall in price of high-end coffee machines will cause quantity demanded to rise and quantity supplied of high-end coffee machines to fall until a new equilibrium is reached. When this happens, equilibrium price will fall and the quantity will rise.</p> <p>When the supply of high-end coffee machines increases, whether the price or the quantity will change by a larger proportion will depend on the price elasticity of demand. The price elasticity of demand (PED) measures the degree of responsiveness of quantity demanded of a good to a change in the price of the good itself, <i>ceteris paribus</i>. It involves a movement along the demand curve due to a change in the price of the good.</p> <p>The demand for high-end coffee machines is likely to be price elastic due to the large proportion of income spent on the good as coffee machines are generally expensive.</p>  <p style="text-align: center;">Fig 2 : Market for coffee machines</p>

	<p>In the above diagram, due to the price elastic demand for high-end coffee machines D_0 elastic, an increase in the supply from S_0 to S_1 leads to a large rise in the quantity from Q_0 to Q_1 and a small fall in the price from P_0 to P_1 compared to a demand curve that is price inelastic in demand, where the fall in price will be of a larger extent from P_0 to P_2 and a smaller rise in quantity from Q_0 to Q_2 in the high-end coffee machines market.</p> <p>Therefore, the quantity for high-end coffee machines is likely to increase by a larger proportion than the fall in the price as seen in Figure 2 above.</p>
<p>Combined effect of both events on high-end coffee machine market</p>	<p>The decrease in the demand and the increase in the supply of high-end coffee machines in Singapore will both lead to a definite fall in the price of coffee machines.</p> <p>Although the decrease in the demand will lead to a fall in the equilibrium quantity, the increase in the supply will lead to a rise in the equilibrium quantity. Therefore, the overall effect on the quantity will depend on the relative shifts in the demand and the supply.</p> <p>As the decrease in national income is drastic which is stated in the preamble, and the income elasticity of demand for coffee machines is likely to be greater than one which means that the demand is likely to be income elastic as high-end coffee machines is a luxury good. The decrease in the demand is likely to be a larger extent.</p> <p>Furthermore, the decrease in crude oil prices is likely to be small given that they have only started falling recently, hence the increase in supply of high-end coffee machines is likely to be small as fall in cost of production will usually take some time to kick in. Therefore, the decrease in the demand is likely to be greater than the increase in the supply and hence the overall quantity of high-end coffee machines is likely to fall, ceteris paribus.</p> <div>  <p>The diagram is a standard supply and demand graph. The vertical axis is labeled 'Price' and the horizontal axis is labeled 'Quantity'. There are two downward-sloping demand curves, D_0 and D_1, with D_1 to the left of D_0. There are two upward-sloping supply curves, S_0 and S_1, with S_1 to the right of S_0. The initial equilibrium is at the intersection of D_0 and S_0, corresponding to price P_0 and quantity Q_0. The new equilibrium is at the intersection of D_1 and S_1, corresponding to price P_1 and quantity Q_1. Arrows indicate the shifts: a leftward arrow from D_0 to D_1 and a rightward arrow from S_0 to S_1. The price falls from P_0 to P_1, and the quantity falls from Q_0 to Q_1.</p> </div> <p style="text-align: center;">Fig 3 : Market for coffee machines</p> <p>In the above diagram, a larger decrease in the demand from D_0 to D_1 and a smaller decrease in the supply from S_0 to S_1 leads to a fall in the price from P_0 to P_1 and a fall in the quantity from Q_0 to Q_1.</p>

	Overall, we will see a smaller extent in the fall of high-end coffee machines prices and a larger extent in the fall in quantity.
Body III: Related market 1: Impact of the above events on the market for coffee capsules which is a complementary good to high-end coffee machines.	<p>The above events will also affect the market for coffee capsules which is related to coffee machines. Coffee machines and coffee capsules are complements.</p> <p>Cross elasticity of demand (XED) measures the responsiveness of demand for a good A to a change in the price of another good B, <i>ceteris paribus</i>. It involves a shift of the demand curve of one good in response to a change in the price of another good, <i>ceteris paribus</i>. As coffee machines and capsules are complements, the cross elasticity of demand is negative. The fall in the price of coffee machines will lead to an increase in the demand for coffee capsules.</p> <p>However, given that there is an overall fall in the equilibrium quantity for high-end coffee machines, the overall demand for coffee capsules is likely to fall. The extent of the fall in price and quantity of coffee capsules will depend on the price elasticity of supply coffee capsules.</p> <p>The supply of coffee capsules is price elastic due to the short processing and production time of coffee capsules. Therefore, the price of coffee capsules is likely to fall by a smaller proportion and the quantity will fall by a larger extent compared to if the PES is inelastic where the fall in price will be of a larger extent and quantity will fall by a smaller extent as seen in Figure 4 below:</p>  <p>Fig 4 : Market for coffee capsules</p> <p>The coffee capsules market will likely also be affected by the falling prices of crude oil as crude oil is the main source of energy used in production and transportation, hence there will be a fall in the cost of production for coffee capsules which will cause an increase the supply of coffee capsules. When this happens, the price of coffee capsules will fall and the quantity will increase. The extent of the change in price and quantity will depend on the PED of coffee capsules.</p>

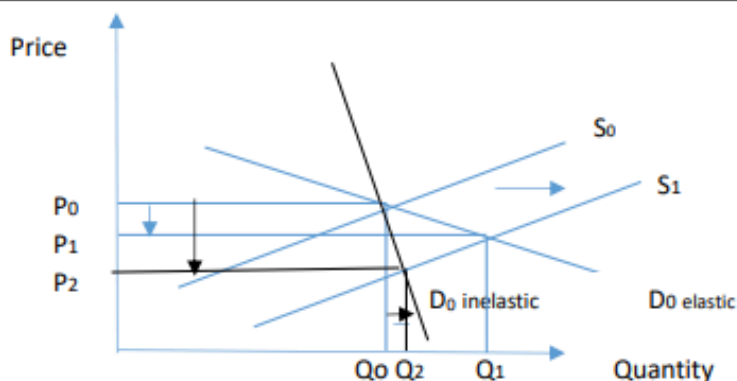


Fig 2 : Market for coffee capsules

The demand for coffee capsules is likely to be price elastic due to the availability of substitutes such as instant coffee. Therefore, the price is likely to fall by a small proportion and the quantity will increase by a larger extent compared to if the PED is inelastic where there will be a larger extent in the fall of price and smaller fall in quantity.

The decrease in the demand and the increase in the supply of coffee capsules will both lead to a fall in the equilibrium price.

Although the decrease in the demand will lead to a fall in the quantity, the increase in the supply of coffee capsules will lead to a rise in the quantity. Therefore, the effect on the overall quantity will depend to a large extent on the relative changes in the demand and the supply.

As the decrease in oil prices is likely to be small given that they have only started rising, the increase in the supply is likely to be small. Therefore, the decrease in the demand is likely to be greater than the increase in the supply and hence the quantity is likely to fall as seen in figure 5 below:

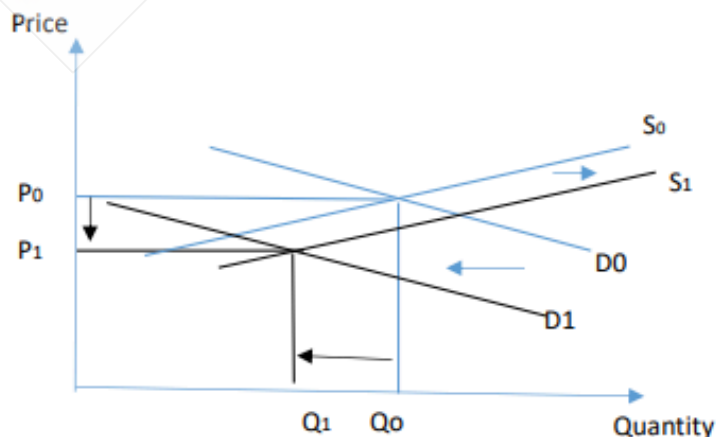


Fig 5 : Market for coffee capsules

Overall, we will see a smaller extent in the fall in price of coffee capsules and a larger extent in the fall in quantity.

Body IV:
Related market 2:
Impact of the above events on the market for instant coffee

The above events will also affect the market for instant coffee which is related to the coffee machine market. Instant coffee are readily available in supermarkets and they are cheaper coffee alternatives and a competitor that does not require coffee machine at all.

Given that the overall quantity of coffee machines is likely to fall, the demand for such instant coffee is likely to increase.

If this happens, the price and the quantity will rise. The extent of the rise in price and quantity of instant coffee will depend on the price elasticity of supply instant coffee.

The supply of instant coffee is likely to be price elastic as the production time of instant coffee is likely to be short and instant coffee can be stocked in large quantities due to their small sizes. Therefore, the price is likely to rise by a smaller extent and the increase in quantity to a larger extent compared to if PES is elastic.

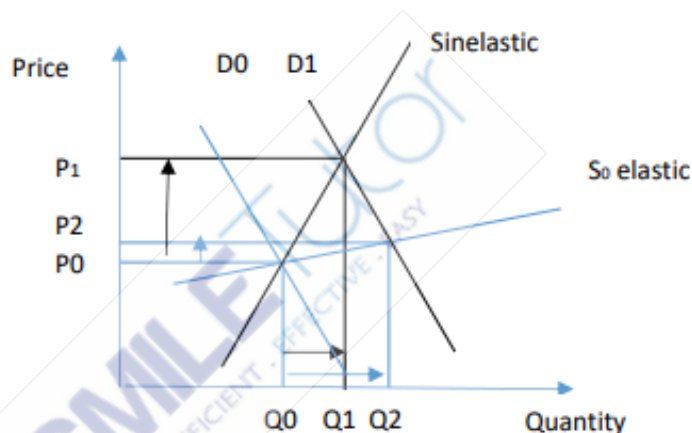


Fig 6 : Market for instant coffee

When oil prices fall, the cost of production of instant coffee falls which will increase the supply for instant coffee. When this happens, the price will fall and the quantity will rise. The extent of the fall in price and the rise in quantity of instant coffee will depend on the price elasticity of demand for instant coffee.

The demand for instant coffee is likely to be price elastic due to the availability of substitutes such as different brands and other beverages available. Therefore, the price is likely to fall by a smaller extent than the rise in the quantity.

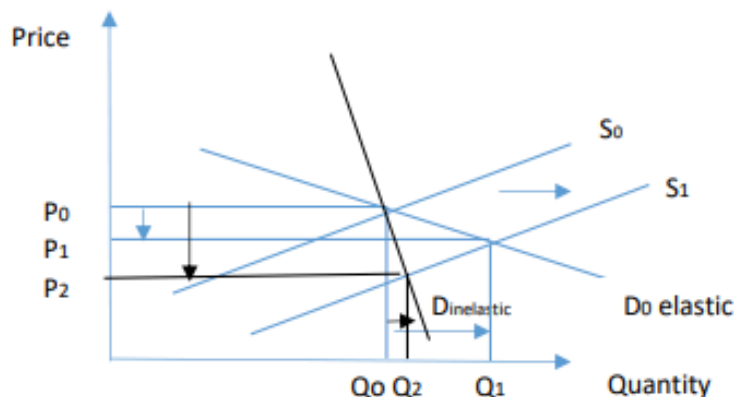


Fig 2 : Market for instant coffee

The increase in the demand and the increase in the supply will both lead to a rise in the quantity for instant coffee.

Although the increase in the demand will lead to a rise in the price, the increase in the supply will lead to a fall in the price for instant coffee.

As the increase in oil prices is likely to be small given that they have only started rising and it usually lags behind, the increase in the supply is likely to be small. Therefore, the increase in the demand is likely to be greater than the increase in the supply and hence the price is likely to rise for instant coffee.

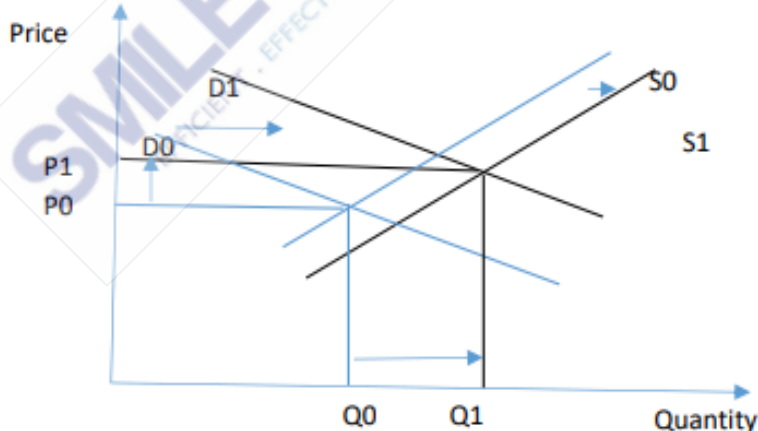


Fig 6 : Market for Instant Coffee

In the above diagram, a larger increase in the demand from D_0 to D_1 and a smaller increase in the supply from S_0 to S_1 lead to a rise in the price from P_0 to P_1 and a rise in the quantity from Q_0 to Q_1 .

Note:

Accept any other reasonable answers.

Conclusion

In the final analysis, although a decrease in national income in Singapore will lead to a decrease in the demand for coffee machines that brew gourmet coffee, the effects will be different on different types of coffee machines. A fall in national income is likely to lead to a large decrease in the demand for high-

	<p>end coffee machines as high-end coffee machines are likely to be a luxury good and hence the demand is likely to be more income elastic while the demand for mid-range machines might fall by a smaller extent. In the case of low-end coffee machines, the demand may rise instead as low-end coffee machines may be an inferior good and coffee drinkers may switch to lower-end coffee machines when income is falling.</p> <p>Although a fall in oil prices will lead to a fall in the cost of production of coffee machines, the cost of production may not stay at the low level in the long run as such low prices of oil may be temporary. If oil prices remain low, coffee machine manufacturers can always increase production now so that they have stock available to sell to consumers once the economy recovers so as to increase profitability.</p> <p>However, this conclusion is based on the ceteris paribus assumption. If ceteris paribus condition does not hold, other factors affecting any of the markets discussed here may cause the demand or supply curves to shift differently and these changes could have a different impact on the price and quantity.</p> <p>In addition, the strength of the elasticities may differ over time and this change would impact the coffee machines and its related markets differently.</p>
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Marking scheme

Level	Descriptor	Marks
L3	<p><u>High L3 (18-20)</u> Explains the effect of both events on the demand & supply of the coffee machines and ONE market related to the coffee machine market accurately. Application of elasticity concept for each of the explanations is accurate and well-developed. Good use of at least 3 elasticity concepts are applied.</p> <p><u>Low L3 (15-17)</u> Explains the effect of both events on the demand & supply of the coffee machine market and ONE market related to the coffee machine market accurately. Application of elasticity concept for each of the explanations is accurate and well-developed. Good use of at least 3 elasticity concepts are applied, however, there are <u>some gaps</u> in the application of the elasticities.</p>	15-20
L2	<p><u>High L2 (12-14)</u> Explains the effect of both events on the demand & supply of the coffee machine market and ONE market related to the coffee machine market accurately. Only two elasticity concept is applied accurately.</p> <p><u>Low L2 (9-11)</u> Explains the effect of both events on the demand & supply of the coffee machine market and ONE market related to the coffee machine market accurately with some attempt at application of elasticity concepts.</p> <p>OR Explains the effect of both events on the demand & supply of the coffee machine market accurately BUT NO explanation of a market that is related to the coffee machine market. Only one elasticity concept is applied accurately in this market.</p>	9-14

L1	<p><u>High L1 (5-8)</u> Explains the effect of both events on the demand & supply of the coffee machine market accurately with no correct application of elasticity concepts.</p> <p>OR</p> <p>Explains the effect of ONE event on the demand & supply of the coffee machine market accurately. Only one elasticity concept is applied accurately in this market.</p> <p><u>Low L1 (1-4)</u> Shows some understanding of basic definitions but answer contains major conceptual errors about demand and supply analysis.</p>	1-8
E3	Provides judgement about the overall effect on P & Q in both markets, with well-explained justifications for the judgement in both markets AND recognition that assumptions underlying the judgements may not hold.	4-5
E2	Provides judgement about the overall effect on P & Q in both markets, with well-explained justifications for the judgement in both markets OR recognition that assumptions underlying the judgements may not hold.	2-3
E1	Provides judgement about the overall effect on P & Q in both markets/just one market with no justification for the judgement.	1

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Question 2

(a) Explain the difference between public goods and merit goods. [10]

(b) Discuss whether direct provision is the best solution to correct the above sources of market failure. [15]

Suggested Answer for Part (a)

CCCA	
Command	Explain
Content	Public Good, Merit Goods
Context	Any appropriate example would be acceptable.
Approach: Students are to elaborate on the key differences between public goods and demerit goods. Appropriate examples are to be used to illustrate these differences.	

Introduction

<Explain what is a merit good and a public good briefly>

A merit good, such as higher education, is a good that is intrinsically desirable to individuals as deemed by the paternalistic government. However, they are under-consumed due to imperfect information in which consumers tend to underestimate the true benefits of the good to themselves as well as it generates positive externalities in consumption. Similarly, a public good such as national defence, exhibits characteristics of non-excludability and non-rivalry also tends to generate immense amount of positive externalities in consumption. Non-rivalry in consumption means that when one person consumes a good, no less of the benefits of consumption are available to other people; while non-excludability in consumption is when it is impossible (or prohibitively costly) for producers to prevent non-payers from consuming the good/service they produce.

<Exemplify public vs merit good>

A public good, such as national defence, is both non-rivalrous and non-excludable, while a merit good is a private good, indicating that it is both rivalrous and excludable.

Model of framework:

Using national defence and higher education as examples of public and merit goods throughout, this essay seeks to differentiate between public good and merit good.

Body

➤ **Difference #1: Unlike Public goods, Merit goods are private goods and hence rivalrous and excludable**

- Public goods such as national defence are non-excludable. This is because when there are armed forces in a country that deters other countries from attacking it, everyone in the country enjoys the same level of safety from invasion. It is not possible for the Singapore Armed Forces (SAF) for example, to exclude non-taxpayers specifically from protection. In contrast, merit goods such as higher education are excludable since

universities can mandate that students pay fees before being allowed into the programme.

- Public goods such as national defence are non-rivalrous. This is because one more person being in the country and enjoying the protection by the army does not reduce the safety enjoyed by others. The presence of the army creates the same deterrence to other countries from invasion regardless of whether there are 5000 or 10000 people. In contrast, merit goods such as higher education are rivalrous. If there are 200 vacancies in the university programme, the acceptance of 1 student into the programme would mean that there are 199 vacancies left for others, and hence this shows that the consumption by 1 person deprive others from consuming it.

➤ **Difference #2: Unlike Public goods, the marginal cost of providing merit goods is not equal to zero.**

- Due to the characteristic of non-excludability, public goods would suffer from the free rider problem, where it is possible for a person to consume a good without having to pay for it. For example, even if you do not pay taxes, the SAF cannot exclude you from its protection. So, you would still enjoy the protection without having to pay for it. Hence, this weakens the incentive for consumers to offer to pay for the good. Since demand for a good is the ability and willingness to pay for a good, when there is no willingness to pay for the good, there would be no expression of demand for the good. Since there is no effective demand, it is impossible to charge a market price for the good. The good would not be produced at all. Due to the characteristic of non-rivalry, it also means that the marginal cost (MC) of extending national defence to additional people is zero. It does not cost any extra to protect the 5001st person (or the 5002nd and 5003rd person). Since $MC = 0$, the efficient price to charge should be zero ($P = MC$). If a price were to be charged, there would be a welfare loss to society. But no private firms whom are assumed to be profit-motivated would be willing to supply the good if the price is zero, resulting in zero supply of public goods. Hence, we say that there is a missing market for the good if left to the market. Due to these reasons, pure public goods are normally funded and provided by the government.
- In contrast, merit goods do not suffer from the free-rider problem (since it is excludable) and the marginal cost of providing it is not equal to zero, a seat taken up by one student means the same seat cannot be used by another student at the same time. Likewise, attention given to answering one student's question means that the lecturer will not be able to answer another student's question at the same time.

➤ **Difference #3: Extent of market failure is different → Reason for government intervention is therefore different.**

- Public goods result in complete market failure where there will be *no/ zero* resources allocated to their production. As a result, consumers in the society will not get to consume the goods at all. As a result, such goods must be provided by the government to eliminate the welfare loss.

- *In contrast*, merit goods result in **partial market failure** if left to the provision by the market whereby the price mechanism still under-allocate resources to the provision of such goods, leading to under-consumption of these merit goods. Thus, there is still a need for the government to intervene to provide for the merit goods to eliminate the welfare loss. In actual fact, merit goods can be provided by either government or the private sector.

➤ **Difference #4: Unlike Public goods, Merit goods are rejectable.**

- Lastly, the collective supply of the public good by the government, which is funded by tax payers means that it is non-rejectable. Hence, a person in Singapore will be protected by SAF if war arises, regardless of whether he wants it or not. *In contrast*, Merit goods are rejectable. If the individual is not willing or able to pay for the good, they do not have to consume it. Hence, individuals who are not willing or able to pay for higher education will not be forced to attend classes.

Conclusion

Due to the implications from these 2 sources of market failure, it is important for the government to intervene. Hence, in the next part, I will be discussing if direct provision is the best approach.

L3	<ul style="list-style-type: none"> • Analysis displays sufficient breadth and depth <ul style="list-style-type: none"> ▪ At least 3 differences between public good and merit good. [Allow up to 8m if 2 well-explained differences.] ▪ Rigorous, and accurate economic analysis of the 3 differences. • Application makes use of appropriate examples to support the analysis. 	8–10
L2	<ul style="list-style-type: none"> • Analysis displays insufficient breadth or depth of analysis <ul style="list-style-type: none"> ▪ Inadequate points of differences are brought up. (i.e. 1-2) ▪ Economic analysis is relevant but may contain minor inaccuracies. • Application makes use of examples, but these may not be explained or accurately applied. (If no examples are used, cap at 5m) 	5–7
L1	<ul style="list-style-type: none"> • Analysis is irrelevant and/or contains gross inaccuracies <ul style="list-style-type: none"> ▪ Answer is irrelevant to question requirements (i.e. Answer merely explains characteristics of public good and merit goods without comparison.) ▪ Economic analysis contains glaring misconceptions and/or is vague. 	1–4

(b) Discuss whether direct provision is the best solution to correct the above sources of market failure. [15]

Suggested Answer for Part (b)

CCCA	
Command	Discuss whether
Content	Public Good, Merit Goods, Direct Provision, Market Failure
Context	Any appropriate example would be acceptable.
<p>Approach:</p> <p>Students are to provide an argument on how direct provision is the best policy to solve market failure due to merit goods and public goods; and a counter-argument on how other policies might be better at solving the 2 forms of market failure. This is to be followed by an overall judgement supported by appropriate insight.</p>	

Introduction

Direct Provision is when the government directly provides the good at the socially optimal output, Q_s . They can do so by becoming the producer or by paying private firms to produce the good. Some reasons why the government might carry out direct provision at a low cost or in most cases for free is due to social justice or when the good generates large positive externalities. In this essay, I will consider if direct provision is the best way to solve market failure due to merit goods or public goods, or if other policies are better.

Body

➤ **Thesis #1: Direct Provision addresses market failure due to public goods.**

As explained in part (a), the characteristics of non-rivalry and non-excludability has resulted in no supply and no expression of demand for public goods respectively. As such, there is complete market failure as no profit-maximising private firm is willing to provide the good. However since public goods such as national defence tends to be essential services to the economy and yield valuable benefits to society, government would need to provide directly.

<How it works> Free direct provision is a situation where the government directly controls the supply of the good/service and makes it available free of charge. In the case of public goods, government supplies them at the socially optimal level at zero market price. The government may either produce these goods itself or contract the production of these goods to the private sector. The government then finances the production of these goods from tax revenue. **Link back to Qn:** With direct provision, it helps to ensure production and consumption of public goods at the socially optimal level of output, thereby eliminating welfare loss, achieving allocative efficiency.

<How well it works – strength> Direct provision by the government ensures efficiency in the market by solving the shortfall directly. Moreover, state provision allows the government greater control over the quality and quantity of the good. This makes it easier to intervene in the market to achieve their goals.

➤ **Anti-thesis #1: Direct Provision cannot address market failure due to public goods.**

<How well it works – limitation (can be ineffectiveness / inappropriateness)> However, reliance on government as sole provider could bring about unintended consequences in the form of dynamic inefficiency and productive inefficiency. As there is no threat of competition from other producers, this reduces the desire and incentive to innovate and drive progressive changes on technology used or product/service offered, creating a situation of dynamic inefficiency. Society's overall welfare reduces. In the same way, the absence of competition is likely to result in a sense of complacency to keep costs low. This would result in productive inefficiency whereby the government would incur higher average costs than the lowest possible average cost for a given output level.

➤ **Evaluation**

However, despite the above limitations, direct provision is the only method to address market failure due to public goods. Hence, it would still remain the best method. However, the government can consider out-sourcing some components of the work to private sectors. The expertise of private firms may help the government in reducing dynamic and productive inefficiency. For example, the outsourcing of the washing of armored vehicles, setting up and dismantling of communication equipment as well as store management of combat equipment is out-sourced to civilian private companies by the SAF.

➤ **Thesis #2: Direct Provision can address market failure due to merit goods.**

As explained in Part (a), merit goods are considered to be socially desirable by the government, but are under-consumed as they generate positive externalities and suffer from imperfect information where consumers tend to underestimate the true benefits of the good to themselves.

Childhood immunisation is a merit good that generates tremendous positive externalities as it prevents the spread of infectious diseases such as smallpox and tuberculosis (TB) to third parties, once an individual is vaccinated, thereby preventing death. However, this may not be taken into account by the individual (or their parents). Additionally, they may not be aware of the benefits (i.e. preventing severe illness or death) of these childhood vaccinations to themselves (or their children). These reasons would render childhood immunisation under-consumed if there is no government intervention.

As the external benefits to others are large in the case of childhood immunisations, direct provision can help to ensure the right amount of childhood immunisations are consumed. When the external benefit is large, the government should provide the good for free if a 100% subsidy is given by the government. Such will result in $MPC=0$. Since consumers would consume until $MPC=MPB$, they would maximise their private benefit and consume up to $MPB=0$ (i.e. up to Q_c). This would increase society's consumption to be in alignment with the socially efficient outcome where $MSB=MSC$.

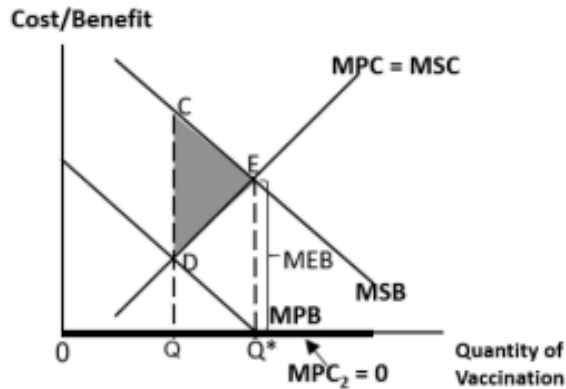


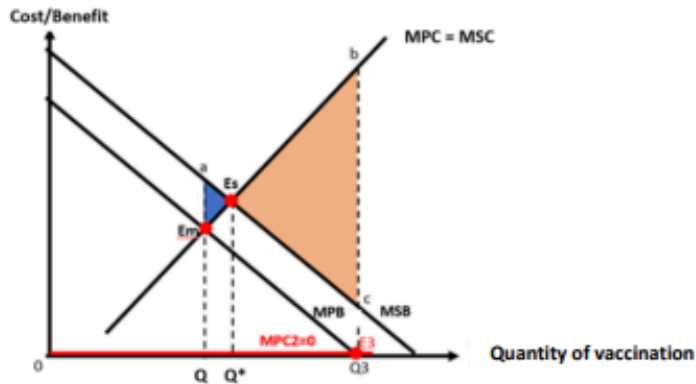
Diagram explanation

Referring to the diagram above, assume that the extent of positive externality and information failure generated is extremely large at EQ^* . Free government provision of education results in the marginal private cost incurred to all consumers to be at 0 (MPC_2). With free provision of primary education ($P=0$), the new private equilibrium is now at $MPB = MPC_2$ and consumption is at the socially optimum level of Q^* . **Link back to Qn:** With direct provision, deadweight loss will be eliminated and the right amount of the right goods is being consumed thereby achieving allocative efficiency.

<How well it works – strength> In this instance, providing vaccination for free leads to an efficient and equitable allocation of an economy's resources. Moreover, it helps the lower-income households to gain access to healthcare by making the vaccinations affordable, improving equity.

➤ Anti-thesis #2: Direct Provision cannot address market failure due to merit goods

- a) **<How well it works – limitations (may create even greater welfare loss)>** However, it is not always justifiable for the government to provide other goods besides public goods. This is because governments may not necessarily have perfect information to the amount of vaccinations to provide. This is because external benefits may be hard to quantify as it is an 'unpriced effect'. For example, if the government overestimates the external benefit, it can lead to over-subsidisation of healthcare. If merit goods such as vaccination for all ailments are provided for free, the costs of consumption incurred by consumer will immediately fall by a great extent as explicit costs incurred falls. As a result, with a lower cost of consumption, consumers may over-consume the vaccinations, leading to Q_3 as shown in the diagram below. As a result, there could be greater welfare losses as the consumption level is not at the socially optimal level Q^* .



Link back to Qn: Thus, this indicates that private sector provision can be desirable too, and hence reduces the need for the government to step in to provide healthcare entirely. Hence, it is undesirable for healthcare in a country to be supplied entirely by direct provision.

- b) **<How well it works – limitation (does not tackle the root cause of the problem)>** Although society's consumption level is increased, direct provision does not address the root cause of the problem, especially in the case of imperfect information where consumers underestimate the true benefits of the childhood immunisation to themselves.

Hence, public education is a better policy. Thus, the Ministry of Health (MOH) in Singapore has set up the National Immunisation Registry (NIR) which collects and maintains accurate, complete and current vaccination records of all who reside in Singapore. The website not only allows parents to track their children's vaccination schedules but also offers useful information to parents on the benefits of childhood vaccinations. This will help parents to be aware that the actual private benefits of vaccination are higher than the perceived private benefits of vaccination. Hence, socially optimum quantity would be consumed. This directly addresses the root cause of both sources of market failure and is a longer term solution.

- c) **<How well it works – limitation (create a huge burden on the government)>** Direct provision requires a large government expenditure. Therefore, in most countries higher education is subsidised rather than provided for free. The government would provide a per unit subsidy of $MEB = Q_s$. This would lower the cost of consumption of higher educational institutions, and individual consumers' MPC would shift rightwards to MPC' , such that the consumption of education would be at $MPC' = MPB$ which would coincide with Q^* , $MSB = MSC$ (i.e. the socially optimum level of output).

Additionally, the provision of a subsidy is likely to be more sustainable than direct provision as it creates less of a burden in terms of government funding.

Overall Evaluation/Insight

In the case of public goods, direct provision would be the best solution since the good would not be provided by any private entity. However, governments should explore sub-areas where partnership with private entities would be possible so as to increase the efficiency and effectiveness of government provision.

However, in the case of merit goods, direct provision may not be the only way, or the best way. Direct Provision would be most useful where positive externalities are large, nevertheless, it can only be used as a short run strategy, since it does not address the root cause of the problem in helping society to understand why there should be higher consumption levels of the good. In situations where positive externalities are not large, it is clear that other policies should be adopted so as to avoid government failure.

Additionally, the stress on the government budget would be a real concern. Hence, governments should carefully assess the need for direct provision and move towards public education which would help address the problem at its root.

L3	<ul style="list-style-type: none"> Analysis displays sufficient breadth and depth <ul style="list-style-type: none"> Balanced discussion addressing benefits and costs of whether direct provision is the best policy in the case of public goods and merit goods. At least 2 alternative policies are considered. Application makes use of appropriate examples to support the analysis. 	8–10
L2	<ul style="list-style-type: none"> Analysis displays insufficient breadth or depth of analysis <ul style="list-style-type: none"> Balanced discussion addressing benefits and costs of whether direct provision is the best policy in the case of public goods and merit goods, but with minor inaccuracies. At least 1 alternative policies is considered. Application makes use of examples, but these may not be explained or accurately applied. <p>(If no examples are used/ no alternative policies are provided <u>or</u> only public or merit goods are addressed - cap at 5m)</p>	5–7
L1	<ul style="list-style-type: none"> Analysis is irrelevant and/or contains gross inaccuracies <ul style="list-style-type: none"> Answer is irrelevant to question requirements (i.e. Answer merely explains direct provision.) Economic analysis contains glaring misconceptions and/or is vague. 	1–4
E3	Overall stand is provided, with strong economic justification based on the arguments offered and meaningful insight is provided.	4–5
E2	Overall stand is provided, but some attempt at an economic justification.	2–3
E1	Overall stand is provided, but without justification.	1

Question 3

Singapore's supermarket landscape is dominated by three big players: NTUC, Dairy Farm Holdings, and Sheng Siong.

- (a) Explain how firms in the market structure in which supermarkets operate are likely to compete. [10]
- (b) Discuss whether increasing competition in this market structure is likely to be beneficial or costly to society. [15]

Suggested Answer for Part (a)

Question Requirement

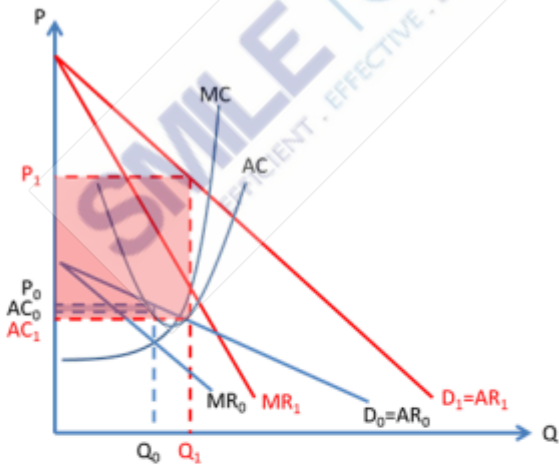
Command: Explain

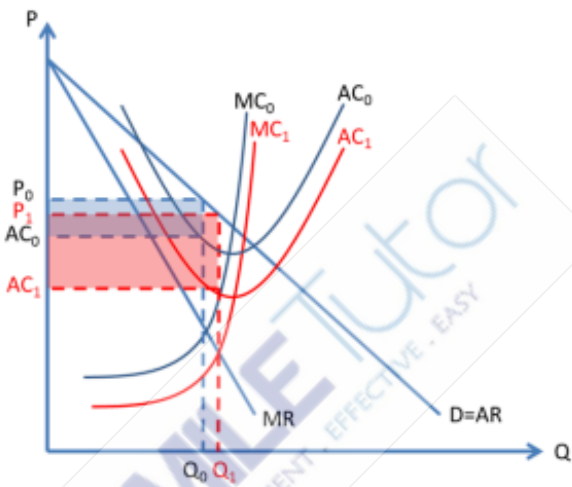
Content: how firms (supermarkets) compete: price vs non-price strategies

Context: oligopolistic market structure (preamble mentioned 'dominated by three big players')

Approach: This question aims to explain how the key characteristics of an oligopoly guides its use of price and non-price strategies in order to maximise profit.

Requirement	Suggested Answer
Introduction: Identify the market structure	The market structure the supermarkets are operating in is the oligopolistic market which is dominated by a few large firms. Since the preamble mentioned that the supermarket landscape is 'dominated by three big players', they must then be operating in an oligopolistic market. The assumption is that the firms are profit-maximising.
Body 1: How they are likely to compete: Why they are <u>not</u> likely to use price strategy	<p>Firms in the competitive oligopolistic market are mutually inter-dependent on each other because the action of any firm will have a large effect on the others. Hence, the supermarkets take into account how rivals will respond when making decisions.</p> <p>Once a price is set, the firms do not change the prices. While the rivals would match a fall in price, they would not likely match a price rise. This is because if an oligopolist considers reducing his price, he knows that his rivals will also react by reducing their prices. Thus, his reduction in price will only lead to a less than proportionate increase in quantity demanded of his product as few customers would switch over from his rivals. This would cause his TR to decrease. Hence, he would not decide to decrease his price. If he considers increasing his price, he knows that his rivals will maintain their prices in response. Thus, his increase in price will lead to a more than proportionate decrease in quantity demanded of his product as many of</p>

	<p>his customers would switch over to his rivals. This would also cause his TR to decrease. Hence, he would also not decide to increase his price.</p> <p>Hence there is price rigidity. Since the firms in this oligopoly do not change their prices to compete with their rivals, they would have to compete using non-price strategies.</p>
<p>Body 2: How they are likely to compete: The non-price strategies they might use: product differentiation via produce innovation</p>	<p>Since profits is the difference between total revenue and total cost, the firm could try to maximise its total revenue and minimise its total cost.</p> <p>The first non-price strategy firms could adopt to compete is to practice product differentiation or innovation. This could be done through R&D (product innovation) or creating perceived differences through advertisements. For e.g., supermarkets like NTUC and Dairy Farm Holdings both have their own housebrands of household items while carrying other brands common to each other. Sheng Siong tries to differentiate its brand by hosting the Sheng Siong show regularly which rewards its customers with attractive cash and other prizes. The differentiation of its brand will increase brand loyalty and hence increase the demand for the product and make it more price inelastic as seen in the diagram below.</p>  <p>Figure 1: <u>Effects of product differentiation/innovation</u></p> <p><u>Diagram explanation</u></p> <p>At the original demand D_0, the profit maximisation price and output where $MC = MR_0$ were P_0 and Q_0 respectively. At P_0 and Q_0, the supernormal profit was the small shaded area $((P_0 - AC_0) \times Q_0)$. With successful product differentiation/innovation causing an increase in demand and reducing the PED, the demand curve shifts right and becomes steeper from D_0 to D_1. The profit maximisation price and output where $MC = MR_1$ then becomes P_1 and Q_1 respectively. At P_1 and Q_1, the supernormal profit is now the larger</p>

	<p>shaded area $((P_1 - AC_1) \times Q_1)$. This increase in profit is mainly due to an increase in TR (from $P_0 \times Q_0$ to $P_1 \times Q_1$).</p> <p>Hence, product differentiation helps firms increase their profits.</p>
<p>Body 3: How they are likely to compete: The non-price strategies they might use: process innovation</p>	<p>Another way in which the supermarkets compete is by directing its R&D towards finding more efficient ways to produce its products, e.g. using automated process in different parts of the production process. Examples include the introduction of self-service check-out stations, and offering online purchases. This process innovation reduce both the average cost of production and the marginal cost of production.</p>  <p>Figure 2: Effects of process innovation</p> <p>Diagram explanation</p> <p>With the original MC_0 and AC_0, the profit maximisation price and output where $MC_0 = MR$ were P_0 and Q_0 respectively. At P_0 and Q_0, the supernormal profit was the small shaded area $((P_0 - AC_0) \times Q_0)$. With process innovation, the MC and AC decrease from MC_0 and AC_0 to MC_1 and AC_1. The profit maximisation price and output where $MC_1 = MR$ then becomes P_1 and Q_1 respectively. At P_1 and Q_1, the supernormal profit is now the larger shaded area $((P_1 - AC_1) \times Q_1)$. This increase in profit is mainly due to a fall in TC (from $AC_0 \times Q_0$ to $AC_1 \times Q_1$).</p> <p>Hence process innovation has caused a decrease in price, an increase in output, and an increase in profit.</p>
<p>Conclusion:</p>	<p>Therefore supermarkets, being a competitive oligopoly will compete using non-pricing strategies, rather than pricing strategies due to price rigidity in this type of market structure.</p>

Mark Scheme for (a)

Level	Mark	Knowledge, Application/Understanding and Analysis
L3	8-10	<p>Thorough economic analysis of how supermarkets in the oligopolistic market compete by non-price strategies (product differentiation and innovation) rather than price strategies. There is explanation of price rigidity.</p> <p>Diagrams are accurately drawn and explained.</p> <p>Application is made to supermarkets using appropriate examples.</p> <p>(If no application is made to supermarkets using appropriate examples max L2 - 7m.)</p>
L2	5-7	<p>Sufficient economic analysis (diagrams are not accurately drawn/missing) of how supermarkets in the oligopolistic market compete by the non-price strategies (product differentiation and innovation) rather than price strategies. There is mention of price rigidity.</p> <p>Sufficient explanation of the 2 non-price strategies but no mention of price rigidity: max 6m</p> <p>Sufficient explanation of only 1 non-price strategy and price rigidity: max 6m</p>
L1	1-4	<p>For a descriptive answer with glaring conceptual errors.</p> <p>Mere listing of non-pricing strategies (max 2 m)</p>

(b) Discuss whether increasing competition in this market structure is likely to be beneficial or costly to society. [15]

Suggested Answer for Part (b)

Question Requirement

Command word: Discuss

Content: Thesis: Increasing competition is likely to be beneficial to society

Antithesis: Increasing competition is likely to be costly to society.

Context: from oligopolistic market structure to 'monopolistic competitive' market structure

Requirement	Suggested Answer
Introduction: Explain terms: Increasing competition, Beneficial/ Costly To society	<p>Increasing competition in this market structure would mean allowing or making it easier for more firms to enter this industry. It could mean moving from an oligopolistic market structure where there is domination by the three supermarkets to one where other firms can enter the industry and compete with these three. If the entry to this industry becomes increasingly easy, the industry could become monopolistically competitive in the long run.</p> <p>Whether this is likely to be beneficial or costly to society would be discussed in terms of whether society would be better off or worse off in terms of prices they pay for the goods due to improvement in efficiency, the choices/variety of goods they have and whether there is reduction in inequity.</p>
Body 1: Thesis: Increasing competition is beneficial to society: Increase in allocative efficiency → lower prices, higher output	<p>This essay will first discuss how increasing competition is beneficial to society.</p> <p>Firstly, when there is increasing competition in this market structure, there will be an increase in allocative efficiency. Allocative efficiency is achieved when the value that consumers place on the good or service (reflected in the price they are willing and able to pay) equals the marginal cost of the scarce factor resources used up in production. Hence, it occurs when $P=MC$.</p> <p>The nature of oligopolies means that with the downward sloping demand curve that each firm faces, they would not be allocatively efficient.</p>

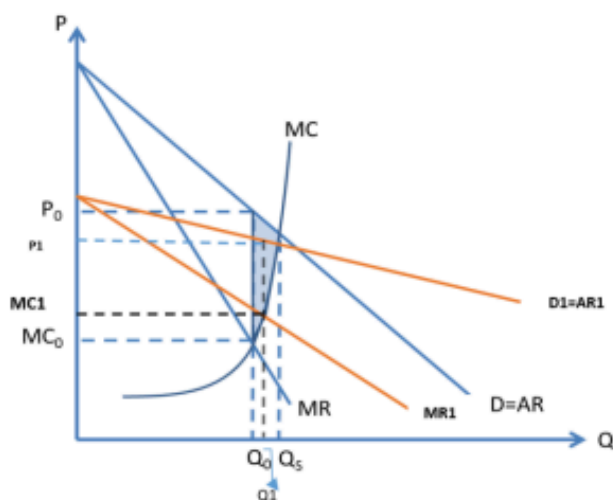


Fig 3: Equilibrium price and output of an oligopolist

With reference to Figure 3, initially with $D=AR$ and MR , profit is maximised when $MC = MR$ where price and output are at P_0 and Q_0 . At the profit-maximising level of output, the price is always above the MC ($P > MC$) whereby the value consumers place on the last unit of the good (measured by price) is greater than the costs to produce it (measured by marginal cost), implying that there is under-production of the good. Hence, the blue shaded triangle shows the deadweight loss which is caused by under-production of the good. Therefore, increasing the output can increase the welfare of the consumers.

$P=MC$ occurs at Q_s level of output but only Q_0 is produced by the oligopolist. When there is increasing competition into the market, the demand (D_1) and MR (MR_1) of the firm becomes more elastic as their share of the market decreases. Profit is now maximized when $MC=MR_1$ at P_1 and Q_1 . Price (P_1) is lower than P_0 and output (Q_1) higher than Q_0 when there is more competition. Q_1 is nearer Q_s , the output that society desires. The allocative inefficiency of the oligopolist ($P > MC$) is reduced with increasing competition, showing a reduction in the deadweight loss.

Hence, increasing competition is beneficial to society as consumers now pay a lower price and enjoy a larger output. Although allocative efficiency is still not achieved, the inefficiency and deadweight loss has been reduced. With an increase in output, there is less under-production in the society. Hence, increasing competition into the supermarket industry is likely to allow consumers to enjoy lower prices and greater output.

Body 2: Thesis: Increasing competition is beneficial to society: Reduction in inequity	<p>Secondly, increasing competition is beneficial to society as it reduces inequity in the society. Inequity occurs when there is a lack of fairness in the distribution of economic welfare.</p> <p>Oligopolists can earn supernormal profits even in the long run because of high barriers to entry. As firm owners were profiting at the expense of consumers, there is inequity. With increasing competition, firms are less able to earn supernormal profits in the long run. They are less likely to profit at the expense of consumers. This will improve the income distribution in the economy. Hence, increasing competition can reduce inequity and therefore this is beneficial to society.</p>
Body 3: Thesis: Increasing competition is beneficial to society: Increase in Productive efficiency → lower cost → lower price	<p>Lastly, increasing competition may help to eliminate X-inefficiency and bring about productive efficiency in the market. X-inefficiency is the situation when firms produce above the lowest possible cost at a given level of output i.e. above the LRAC. Productive efficiency occurs when firms are producing on the LRAC, indicating that they are producing at the lowest possible cost.</p> <p>The lax cost controls (e.g. overstaffing and spending on unnecessary equipment) in oligopolies could happen because of the lack of competitive pressure resulting in complacency since Oligopolists are able to earn supernormal profits in the long run.</p> <p>Hence, increasing competition into this market would mean that firms will be more focused on cost controls as that could affect their profit margins. Higher level of competition forces firms to be productive and cut out wasteful spending. This is beneficial to society as productive efficiency implies lowest a possible cost of production which may bring about a lower price for consumers.</p>
Body 4: Thesis: Increasing competition is beneficial to society: More choice	<p>Moreover, increasing competition gives society more choice and variety of the product. Choice is beneficial for society as they are not 'forced' to buy from a few sellers. This improves society's welfare.</p>
Body 5 Antithesis: Increasing competition is costly to society	<p>On the other hand, increasing competition in this market structure may also be costly to the society.</p> <p>Firstly, increasing competition may result in higher prices of goods for the consumers as it limits the amount of internal economies of scale that could be reaped.</p>

<p>: Increase in cost of production : inability to reap economies of scale → higher cost of production → higher price of good</p>	<p>As there are only a few firms producing a product, each oligopolist operates on a large scale and is able to reap internal economies of scale (cost savings). However, with increasing competition, the market is now shared with more firms, each of which would have a smaller share of the market. The smaller scale of production means that the firms may not be able to reap internal economies of scale (cost savings). Hence, firms may produce at a higher cost of production than the oligopolists. This may therefore result in higher prices of goods as internal economies of scale are not reaped.</p> <p>Moreover, it could also be argued that since oligopolists do not engage in price competition, it is in their own interests to keep their costs low so as to maximize their profits. They would have a strong incentive to cut out wasteful spending, making them productively efficient.</p>
<p>Body 6: Antithesis: Increasing competition is costly to society : no funds to engage in dynamic efficiency → less chance of development of goods → less product variety</p>	<p>Secondly, increasing competition may mean that dynamic efficiency has to be forgone. Dynamic efficiency is affected by whether firms have the ability and incentive to conduct R&D to develop and innovate products and or process, leading to better products/lower costs for consumers.</p> <p>Increasing competition may lead to more but smaller firms which would not be able to earn as much profits in the long run, as the oligopolist. This would limit the amount of funds (as well as lower the incentive) each firm has to engage in R&D.</p> <p>This inability or lack of incentive for development or innovation of products can be seen as 'costly' to society as there is lack of development/innovation of products or lower costs of goods that could have happened in the case of process innovation. The firms which enter the market because of increasing competition may provide more variety of goods but not necessary innovative or better quality products because they do not have that resources to pursue R&D.</p>
<p>Conclusion: Evaluative conclusion</p>	<p>While increasing competition in this market structure can be beneficial to society in increasing output and lowering price and reducing inequity and therefore income distribution, it can be costly to society in increasing cost of production (as internal economies of scale may not be achieved), reducing variety and development /innovation of goods.</p> <p>Whether increasing competition is likely to be beneficial or costly to society depends on the nature of the industry and the context in which it operates. In the case of supermarkets in Singapore, while it is dominated by the three big players, there are also many other firms co-existing with the big players. While their offer may not be as varied as the products offered by the big players, they do cater to a section of the society, for e.g. those who prefer</p>

	<p>the personalized service of neighborhood shops, those who prefer 'boutique' grocery stores. Hence, increasing competition further opens up choices for the consumers. Increasing competition is not likely to threaten the performance of the big three supermarkets due to their current market share. Increasing competition is therefore likely to be beneficial rather than costly to the society.</p>
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Mark Scheme for (b)

Level	Mark	Knowledge, Application/Understanding and Analysis
L3	8-10	<p>Thorough and balanced economic analysis of how increasing competition to the oligopolistic supermarket sector could be beneficial or costly to society in terms of allocative efficiency, productive efficiency (X-inefficiency), (presence of) internal economies of scale, choice and inequity. There is excellent ability to use the diagram(s) to explain the result of increasing competition in the oligopolistic market.</p> <p>Good use of examples appropriate to the context presented in both preamble and the question set</p>
L2	5-7	<p>Sufficient economic analysis of how increasing competition to the oligopolistic sector could be beneficial for costly to society. The analysis for the points are not always thorough although accurate.</p> <p>Answer is mainly one-sided (i.e. explanation of either beneficial/costly) but well-explained- max 5 m</p>
L1	1-4	<p>Shows smattering knowledge of the result of increasing competition on the industry. The meaning of the question is not fully grasped. There are some errors in concepts.</p> <p>Mere listing of points of benefits/costs to society. (max 2 m)</p>
E3	4-5	Well-explained judgment on whether increasing competition is likely to be beneficial or costly to society. The judgement is supported by good relevant examples and economic analysis.
E2	2-3	Attempt to explain evaluative comments is incomplete or inaccurate at times. No attempt to evaluate using the context of the supermarket.
E1	1	Evaluative comments are unexplained or unsupported by economic analysis.

Question 4

Table 1: Selected Key Economic Indicators of Singapore

Year	2018	2019
Gross Domestic Product (GDP) (in US\$ billion)	US\$373B	US\$372.1B
Balance of Trade (in US\$ billion)	US\$108.21B	US\$105.83B
Unemployment rate (%)	3.65%	3.1%

- (a) Explain the factors that will lead to sustainable growth in a country. [10]
- (b) Assess whether the economic indicators provided in **Table 1** are the best measure of changes in standard of living in Singapore. [15]

Suggested Answer for Part (a)

Question Requirement:

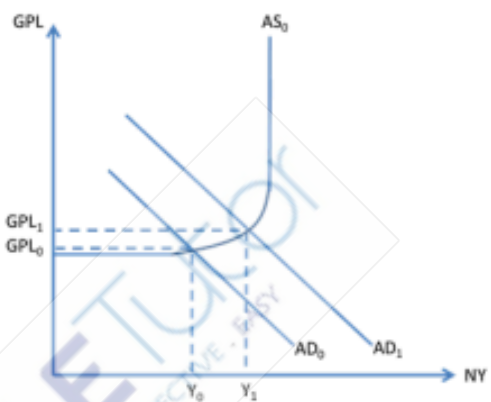
Command: Explain (cause and effects)

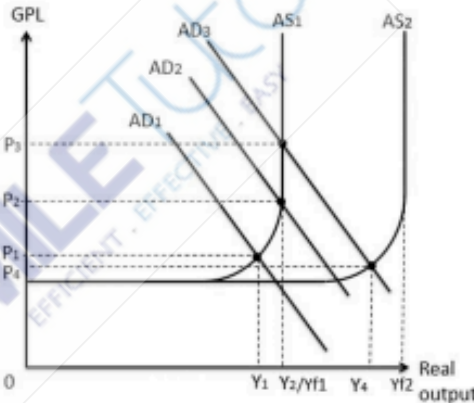
Content: Sustainable economic growth: Sustained growth with rise in both AS and AD, the sustained growth must be done in a way that conserves the environment.

Context: Singapore

Approach: This answer requires an explanation of the factors that would lead to actual and potential growth, in order to achieve sustained growth. It also requires an acknowledgement of the importance of sustainable growth and the factors that would lead to it.

Requirement	Suggested Answer
Introduction: - Define sustainable growth and indicate the factors that will lead to it	Sustainable economic growth refers to a rise in real GDP into the long run, at a rate which can be maintained without creating other significant economic problems such as price instability, environmental and resource depletion, particularly for future generations.
Body 1: Rise in AD	$AD = C + I + G + (X - M)$, therefore any rise in any of the components of AD would see a rise in AD, ceteris paribus. For example when there is a strong global economic growth where trading partners experience an increase in real national income thus purchasing power, this would result in a rise in demand for a country's exports, assuming exports are

Requirement	Suggested Answer
	<p>normal goods. This in turn would result in a rise in net exports (X-M). This has been true for trade dependent countries like Singapore where world economic growth brought about a rise in global purchasing power and hence witnessed increased demand for Singapore exports such as high-end electronic, pharmaceutical and petrochemical products. The government can also increase aggregate demand by encouraging more spending through an expansionary fiscal policy (increase in G) by increasing its own capital expenditure such as building physical infrastructure and/or reducing taxes to increase the level of AD in the country.</p>  <p>Diagram explanation</p> <p>Assuming that the economy is operating with spare capacity, the rise in AD would shift the AD curve to the right from AD₀ to AD₁, giving rise to shortage at GPL₀ where total spending exceeds total output. This draws down on the firms' inventories which incentivises producers to step up production to increase output so as to meet rising demand. As there are limited idle resources available, the rise in production would cause factor prices to bid upwards, hence there will be an upward pressure on GPL, movement along AS. The new equilibrium is reached at GPL₁ and Y₁. Real output has increased from Y₀ to Y₁, where actual growth is achieved.</p>
Body 2: Rise in AS	<p>However, a rise in aggregate demand alone will not ensure sustained economic growth. This is because an economy will overheat and raise the general price level to OP₁ when it reaches full employment of resources. Real GDP remains stagnant whilst the country struggles with rising prices. Hence another key factor to ensure real GDP continues into the long run would involve increasing the quantity and quality of resources and the level of technology, which would allow potential economic growth to occur.</p>

Requirement	Suggested Answer
	<p>Countries with challenges of ageing population like Singapore has seen government's continued investment in human capital to improve the quality of their workforce of both young and old through skills deepening and lifelong learning to sustain a rise in aggregate supply. Shortage of skilled labour would constrain economic growth in the long run due to a limit to the rise in its potential growth.</p> <p>Singapore labour productivity drive can be seen in Enhanced Continuing Education and Training (CET) Masterplan in 2014. This includes online training courses that adult learners can access. In addition, the 2015 SkillsFuture aims to develop an integrated system of education, training and career progression for Singaporeans, promote industry support for workers to advance based on skills, and to foster a culture of lifelong learning. This will increase the factor quality which increases the productive capacity of the country, and thus increases AS to the right from AS_0 to AS_1.</p>  <p>Diagram explanation</p> <p>As AS shifts to the right, the full employment of resources increases from Y_{f1} to Y_{f2}, achieving potential growth. Combining rise in LRAS and AD (i.e. actual with potential growth), GPL actually falls from GPL_3 to GPL_4 and real output rises from Y_2 to Y_4. Hence, there is non-inflationary growth, i.e. sustained economic growth.</p>
<p>Body 3:</p> <p>Having sustained growth is not enough – need to consider the</p>	<p>However, having sustained growth is not enough. It is also important for growth to be sustainable. This depends on whether factors of production will be depleted in the long run e.g. non-renewable resources such as oil. Similarly, environmental issues like pollution arising from greater production can affect sustainability. Hence, it is important for governments to ensure that sustainability is encouraged via investment and adoption of new technology that harnesses</p>

Requirement	Suggested Answer
depletion of resources	environmental friendly and efficient methods of production. This can be achieved with the supply-side policies where government invest in R&D to bring about innovation and green technologies
Conclusion Summarise the factors	Hence, factors influencing the rate of growth of aggregate demand and aggregate supply can determine whether a country's economic growth is sustained. Sustainable growth requires both actual and potential growth as well as a sustainable environment and resources pool in the long run.

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	Thorough explanation of factors affecting AD and AS and hence real GDP. At least 3 clear factors. Well labelled Diagram included. Concept of sustainable economic growth is clear: actual, potential, price stability and environmental and resource depletion issue	8-10
L2	Sufficient explanation of factors affecting AD and AS and hence GDP. At least one factor of AD and AS <u>or</u> one factor that could affect AD and AS. Lack of diagrammatic analysis – Cap at 6m One-sided answer i.e. either AD or AS- Cap at 6m	5-7
L1	Splattering of points. Some mention of relevant concepts, but explanation is vague and/or with gross inaccuracies.	1-4

(b) Assess whether the economic indicators provided in Table 1 are the best measure of changes in standard of living in Singapore. [15]

Suggested Answer for Part (b)

Question Requirement:

Command: Assess

Content: Thesis: Economic Indicators are good measures of changes in SOL (material and non-material SOL) vs Anti-Thesis: There are limitations to these indicators. Other indicators that may be needed.

Context: Singapore

Approach: This answer requires an argument on how the economic indicators provided are good measures of changes in SOL (both material and non-material), as well as a counter-argument on how other factors are need to measure changes in SOL.

Requirement	Suggested Answer
Introduction: Define SOL and provide an overview	<p>Standard of living (SOL) refers to the welfare of the people and has both material and non-material aspects. The material aspect refers to the amount of goods and services that the average residents can consume and the non-material aspect refers to the intangibles that affect welfare such as the quality of the environment, the level of stress, etc.</p> <p>GDP, employment rate and Balance of Trade (BOT) help to measure the economic performance and SOL in Singapore. This essay seeks to discuss if the indicators referred to in Table 1 are the best measure of changes in SOL in Singapore.</p>
Thesis #1: GDP indicator is a measure of changes in SOL in Singapore.	<p>From Table 1, we can see that there is a fall in GDP from 2018 to 2019. The fall in RNY in Singapore would result in lower material SOL for Singapore.</p> <p>Assuming that there is no change in price levels, a fall in GDP would also indicate a fall in real GDP and hence real national income (i.e. Real NY). Assuming Singapore's population remains constant, real GDP per capita would have fallen. This implies that average incomes in Singapore would fall, causing average purchasing power to fall. This would mean that Singapore residents would be able to consume less goods and services thereby reducing their material aspect of SOL.</p> <p>Additionally, the fall in purchasing power explained above may have resulted in less Singaporeans consuming higher quality food and healthcare, which contributes to worsening health. Since access to</p>

Requirement	Suggested Answer
	<p>healthcare facilities is also an aspect of non-material SOL, the fall in RNY would also lead to worsening in non-material SOL.</p> <p><i>(Note: Also accept other plausible links from fall in NY to increase in non-material SOL if it can be explained in a sensible way)</i></p>
Thesis #2: BOT is a measure of changes in SOL in Singapore.	<p>A favourable BOP is one where the balance of trade is in surplus. Governments aim to avoid large and persistent BOT deficits because such deficits have negative consequences. If a country's balance of trade position worsens such that it has a balance of trade deficit, then the reduction in X-M would have caused AD to fall, causing a fall in RNY via the reverse multiplier, and also a rise in demand-deficient unemployment since labour is a derived demand, assuming that wages are sticky downwards.</p> <p>From the table, there is BOT surplus in 2018 and 2019, which means that X (export revenue) exceeds M (import expenditure).</p> <p>Since M is a form of consumption (imports are consumed) while X is a form of production (exports are produced to be sold abroad), X exceeding M means that the country is actually producing more than it is consuming. A BOT surplus would lead to an increase in AD and hence an increase in RNY, which would lead to an increase in material SOL as elaborated above. As the economy experiences actual growth and rise in employment, tax revenue collected by the government would increase since the tax base widens. With more revenue collected, the government would now have more funding to set aside for healthcare facilities development, bringing about a rise in quality of life and hence non-material SOL.</p>
Thesis #3: Unemployment rate is a measure of changes in SOL in Singapore.	<p>Unemployment rate, which refers to the percentage of unemployed persons to the total labour force, plays an important role in determining the economic performance.</p> <p>From the table, there is a fall in unemployment rate, this indicates that more people are employed and thus able to earn higher income levels. Hence, they will experience a higher purchasing power and therefore able to enjoy greater consumption and of more and better quality goods and services, leading to rise in material and non-material aspect of SOL.</p> <p>Additionally, severe hardships can be caused by prolonged periods of unemployment. Social research has shown that crime, mental illness</p>

Requirement	Suggested Answer
	and general social unrest tend to be positively associated with unemployment. All these social issues would have a harmful impact on non-material SOL. Hence, falling unemployment rates suggests that these have been reduced.
Anti-Thesis #1: Limitations of the measures	<p><u>GDP</u></p> <p>In my analysis above, population and price levels were assumed to be constant. However, if there a sharp increase in price levels between 2018 and 2019, this would imply that real GDP would have been more drastically affected than previously assumed. Hence, purchasing powers and consumption levels (in terms of quantity and quality of goods) would be affected more, resulting in a worse outcome for material SOL and non-material SOL.</p> <p>Likewise, if population had increased at a faster rate than GDP, this would also imply that material SOL and non-material SOL would have been worse.</p> <p>Another factor to take into consideration is the goods and services that have contributed to the fall in GDP. This is because the GDP has many components. So, if the fall in real GDP was due to a fall in the production of the production of defence goods, then even though real GDP per capita has fallen, there may not have been an actual impact on household consumption and so material SOL may not have fallen.</p> <p><u>Unemployment rate</u></p> <p>For unemployment rate, it may be limited in assessing the change in SOL because we may not know the types of jobs being generated. There could be more jobs created than lost but the jobs created may be low-paying ones while the jobs lost could be high paying ones. In this scenario, even though the unemployment rate falls, SOL may not improve. And income gaps between the rich and poor could worsen implying greater inequity.</p> <p><u>Other aspects</u></p> <p>Moreover, there are other aspects of non-material SOL such as mental wellness, leisure hours, crime, and political unrest. For example, Singapore has been high the ranks of many global surveys of having poor work-life balance. Thus, if increases in GDP is as a result of people</p>

Requirement	Suggested Answer
	<p>putting in longer hours, this would actually be a undesirable impact on non-material SOL.</p> <p>Another thing to look at is air quality, due to economic production and industrialisation, Singapore failed to meet its air quality targets for 2020 for certain air particles. Thankfully, Singapore is putting in place several measure to improve this, since worsening air quality would contribute to a worsening non-material SOL.</p>
Anti- Thesis #2: Other indicators may be needed	HDI <p>Other than the indicators as mentioned above, it is good to also include HDI. The Human Development Index (HDI) is a composite indicator of SOL, measuring 3 basic dimensions of human development, i.e. health, education and standard of living. The health dimension is assessed by life expectancy index. The education dimension is assessed using the education index, calculated using the mean years of schooling and expected years of schooling. Lastly, the standard of living dimension is assessed using the Gross National Income (GNI) per capita. This indicators takes into consideration the material and non-material aspects of SOL.</p>
Evaluative Conclusion	<p>To conclude, there are no best measures of economic performance to reflect changes in SOL. Each indicator has its pros and cons. The commonly used main indicators are GDP, growth rate, inflation rate, unemployment rate and BOP current account.</p> <p>To improve the reliability of the main economic indicators, it would be ideal to complement them with other indicators such as HDI and Gini Coefficient to give a more accurate insight change in SOL in Singapore. Gini coefficient provided a more assessment of welfare as it provides how the real national income is distributed among members of the population.</p>

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	Well-developed 2-sided answer in explaining the use of the indicators in assessing the change in the standard of living (covering both material and non-material) in the Singapore economy over time and suggest at least one more indicator.	8-10
L2	Undeveloped 2-sided answer in explaining the use of the indicators in assessing the change in the standard of living in the Singapore economy over time. If only material SOL is covered-Cap at 5m	5-7
L1	For answer that shows some knowledge of how the statistics can be used to measure either material or non-material standard of living over time.	1-4
Evaluation		
E3	A well-reasoned conclusion that clearly addressed the question.	4-5
E2	Some attempt to make conclusive judgements about the economic indicators in reflecting changes in SOL.	2-3
E1	A judgement that is unsupported.	1

Question 5

The COVID-19 pandemic has severely disrupted global economic activity, and led to both demand-side and supply-side shocks to the Singapore economy. International travel and the retail sectors have been severely affected. At the same time, supply chain disruptions have impacted businesses negatively. This resulted in the Singapore economy contracting by 5.4% in 2020.

- (a) Explain possible demand-side and supply-side shocks to the Singapore economy as a result of the COVID-19 pandemic. [10]
- (b) Assess the extent to which policies aimed at increasing the economic growth rate might cause difficulties for the economy. [15]

Suggested Answer Scheme for Part (a)

Question Analysis

Command Word: Explain

Concepts: Demand and Supply-side impact on macroeconomic objectives, using AD-AS analysis

Context: Singapore economy

Approach: The answer would seek to provide an explanation of possible demand-side and supply-side shocks to the Singapore economy as a result of the COVID-19 pandemic, with reference to the preamble.

Introduction	<p>The COVID-19 pandemic has significantly reduced international travel and human traffic in shopping malls which led to a fall in retail trade. These are the demand-side shocks to the Singapore economy. Supply-side shocks led to a rise in cost of production due to supply chain disruptions e.g. stringent regulations regarding import of raw materials and restriction of foreign worker entry into Singapore.</p> <p>The impact on the Singapore economy would refer to the possible effects on the macroeconomic goals of economic growth, employment, price stability and balance of payment position.</p>
Explain how AD factors will affect RNY, employment, GPL, BOP	<p>Demand-side shocks e.g. fall in retail trade and food trade will mean consumption expenditure (C) will fall. International travel curtailment further reduces international transactions in which export revenue would decrease with less tourists traveling into the country. With the pessimistic outlook domestically and internationally, business confidence would fall and investments (I) in Singapore will fall. With the reduction in global activity, Singapore's exports (X) would fall too. Aggregate demand (AD) shows the</p>

total value of goods and services demanded in the economy at a given price level. AD would fall as $AD = C + I + G + X - M$. When AD decreases, AD curve shifts left to AD₁.

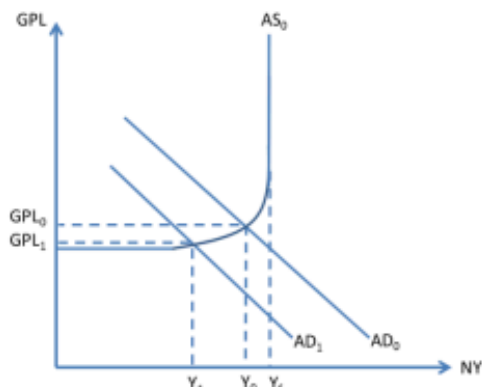


Diagram explanation

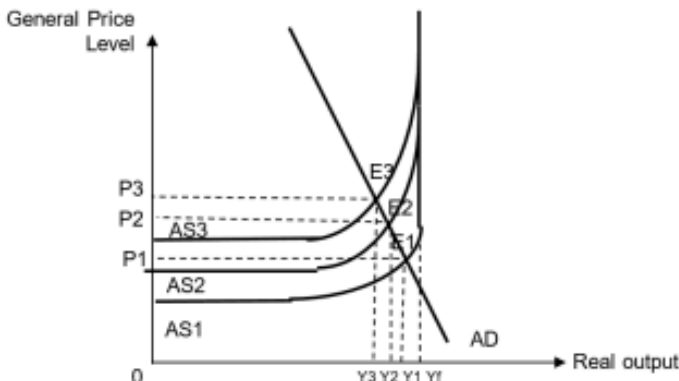
Assuming that Singapore economy operates with spare capacity, a fall in AD would lead to a surplus at original GPL₀, as total spending falls short of total output. A surplus would result in a rise in firms' inventories, incentivising firms to reduce production to reduce output. Via the reverse multiplier, there will be multiple fall in production, output and eventually national income, where real output reduces from Y₀ to Y₁. As a result, Singapore economy experiences negative growth. Since there is multiple fall in production, derived demand for labour would also decrease, resulting in a fall in ADL. Assuming wages are sticky downwards, at that prevailing wage rate, there will be excess supply of labour, giving rise to demand-deficient unemployment.

Furthermore, as seen in the diagram, if the fall in AD is significant, there will be a fall in GPL. This is because with the surplus, firms will clear excess stocks by lowering prices. Given that the economy is experiencing negative growth, pessimistic economic outlook will result in further fall in C & I and hence AD which further depresses the GPL. If the fall in GPL is sustained, there will be deflation in the economy.

As exports fall, the balance of trade (BOT) will be negatively affected.

Explain how AS factors will affect NY, employment, GPL, BOP

Supply-side shocks which causes supply chain disruptions e.g. stringent regulations regarding import of raw materials and restriction of foreign worker entry into Singapore will increase cost of production (COP) and doing business in Singapore. The increase in unit COP will cause the profitability to firms to decrease thus market supply will decrease. If sufficient market supply decreases, SRAS will shift left from AS₁ to AS₂.

	 <p>Diagram explanation</p> <p>Using AD AS analysis, the increase cost of production will cause a decrease in SRAS, represented by a leftward shift from $SRAS_1$ to $SRAS_2$, this causes a rise in the GPL from P_1 to P_2 and a fall in real output from Y_1 to Y_2. As prices of factor input increases, unit cost of production rises again. AS curve shifts further from AS_2 to AS_3. The higher unit cost is passed onto the consumers and price increases from P_2 to P_3. Hence, a persistent rise in unit COP will lead to the AS curves shifting leftwards continuously, generating a sustained rise in the general price level hence causing cost-push inflation.</p>
Conclusion: Combined impact of demand and supply shocks	<p>Given the fall in AD & AS, RNY will fall drastically meaning a recession is likely to result with demand-deficient unemployment. The impact on GPL may not be as significant as the economy's AD falls. As Singapore is highly dependent on international trade, BOT will likely fall too.</p>

Marking scheme

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	For an answer that gives a detailed and analytic explanation of possible demand-side and supply-side shocks to the Singapore economy as a result of the COVID-19 pandemic, with close reference to the preamble.	8 – 10
L2	<p>For an answer that describes possible demand-side and supply-side shocks to the Singapore economy as a result of the COVID-19 pandemic, without close reference to the preamble.</p> <p>An answer that gives a detailed and analytic one-sided explanation i.e. AD/AS.- Max 6</p>	5 – 7
L1	For an answer that shows some knowledge of possible demand-side and supply-side shocks to the Singapore economy as a result of the COVID-19 pandemic.	1 – 4

(b) Assess the extent to which policies aimed at increasing the economic growth rate might cause difficulties for the economy. [15]

Suggested Answer for Part (b)

Question Analysis

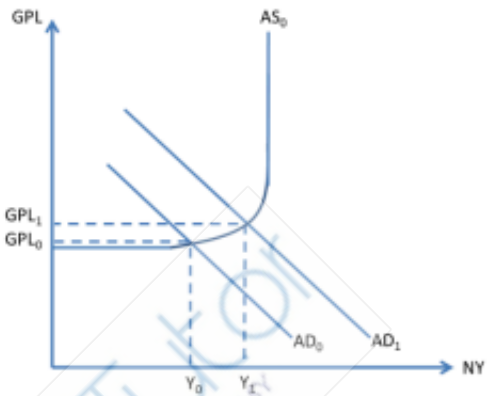
Command Word: Assess the extent

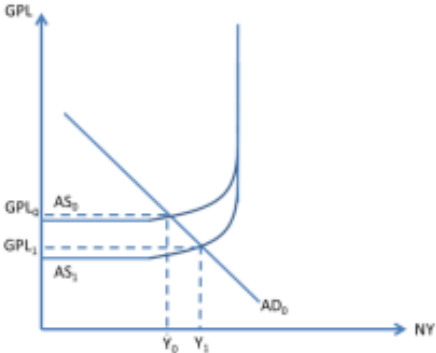
Concepts: Demand & supply-side policies aimed at increasing the economic growth rate and possible conflicts/difficulties for the economy – one demand and one supply-side policy.

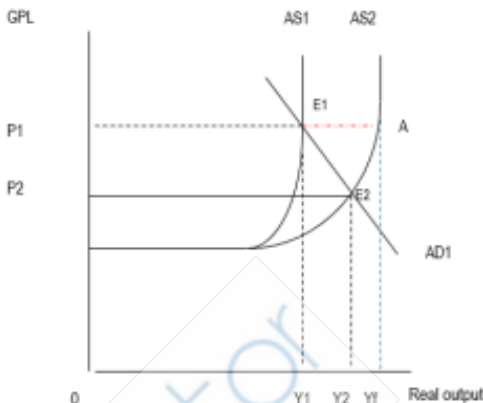
Context: Singapore economy

Approach: The answers seeks to provide an argument on how demand and supply side policies (at least 1 each) would help to achieve actual and potential growth; followed by a counter-argument that provides the possible conflicts/ difficulties for the Singapore Economy.

Introduction	<p>Policies aimed at increasing the economic growth rate includes demand management policies and supply-side policies. Demand management policies include expansionary monetary policy and fiscal policy. These policies aim at increasing AD to generate growth for the economy. Supply-side policies must aim at reducing COP to increase SRAS so that growth can be at lower COP or to increase factor quantity or quality so that GPL decreases.</p> <p>However, these polices have their limitations and might cause difficulties for the economy. Herein my essay, I will be assessing the different policies government can use to achieve economic growth, and the difficulties the policies may cause for the economy.</p>
Policy 1 Thesis: Explain how expansionary FP can increase EG	<p>To increase AD, fiscal policy can be used. It refers to the use of government spending (G) and taxes (T) to influence the economy. Discretionary fiscal policy refers to the deliberate change in G and T to achieve macroeconomic aims. Expansionary fiscal policy is used to increase national income (achieve growth) and reduce unemployment i.e. it is used to get the economy out of a recession. It involves increasing its government spending (G) and/or reduces its taxes (T).</p> <p>An increase in G raises aggregate demand (AD) directly since $AD = C + I + G + (X-M)$.</p> <p>On the other hand, reductions in income taxes and corporate taxes raise AD indirectly. A reduction in personal income taxes would increase the disposable income of households. Thus, with the greater purchasing</p>

	<p>power, households can consume more, leading to a rise in consumption expenditure (C). A reduction in corporate taxes would increase the post-tax profit of investments. Hence, with higher profitability of investments, investments (I) increases. Together, the increase in C and I would raise AD, ceteris paribus.</p> <p>The rise in AD due to the expansionary fiscal policy would increase national income via the multiplier process, achieving economic growth. This is illustrated below.</p>  <p>With the increase in AD from AD_0 to AD_1 due to expansionary FP & the resultant increase of G, C, and I, national output increases from Y_0 to Y_1 through the multiplier process. As such, there will be actual growth for the economy.</p>
<p>Policy 1 Anti-thesis: Explain how expansionary FP may create difficulties for the economy while trying to increase EG → focus on inappropriateness of the policy</p>	<p><u>Opportunity cost of too high a G</u></p> <p>As the multiplier effect in Singapore is small, to generate economic growth, a high G increase is needed which will put a strain on government resources which may lead to the government having to borrow to fund its spending which may lead to crowding-out effect i.e. it may raise interest rate which will conflict with private sector borrowing. [EV] However, as the Singapore government has past savings, it needs not resort to borrowing. It can also dip into reserves as Singapore has savings in the National Treasury. But too high a G in helping the economy grow now will have opportunity cost on future infrastructure spending and development for future generations.</p> <p><u>Conflict with price stability</u></p> <p>If there is a lack of spare capacity or structural rigidities in the economy, an expansionary fiscal policy will lead to AD increasing, causing GPL to increase with no corresponding increase in real output level. Thus, expansionary fiscal policy would not be effective in stimulating economic</p>

	<p>growth. In fact, it would conflict with the aim of price stability. [EV] However, this is unlikely to be the case during the Covid-19 pandemic.</p> <p><u>Conflict with external aim of achieving a BOT surplus</u></p> <p>An expansionary fiscal policy may conflict with the aim of achieving a BOT surplus. There are two ways that this can happen. First, the increase in national income would cause an increase in purchasing power. As purchasing power increase, households would not only increase consumption of domestically produced goods. They would also increase the consumption of imports. This increase in import expenditure would result in balance of trade deficit, assuming that the BOT is in equilibrium initially.</p> <p>Second, if the GPL increase (due to demand-pull inflation), this reduces the export price competitiveness and also make imports appear relatively cheaper compared to domestically produced goods. Assuming the demand for exports is price elastic (as there are many substitutes from other countries), the quantity demanded of exports would fall more than proportionately. Thus, export revenue would fall. Coupled with the increase in import expenditure, the BOT would result in balance of trade deficit, assuming that the BOT is in equilibrium initially.</p>
<p>Policy 2 Thesis: Explain how SS-side policies can increase EG</p>	<p>The government can implement supply-side policies to reduce COP eg encouraging businesses to use technology to improve productivity. To encourage firms to adopt newer and more technology-intensive methods of production, the government subsidises firms in technological improvement. With better methods of production, productivity and efficiency will increase thereby reducing unit COP and hence SRAS will increase.</p>  <p>Diagram explanation</p> <p>As illustrated in the Figure above, for given fall in unit COP, SRAS will shift rightwards from AS0 to AS1. This increases RNY from Y0 to Y1 and decreases GPL from GPL0 to GPL1, thereby enabling economy to achieve actual growth.</p>

	<p>Moreover, Singapore government can also encourage businesses to send workers for training to ensure that they are adept to changes in this new economy by increasing productivity. This can be done so via interventionist policy where government invests in education and training. An example would be the SkillsFuture. Assuming that the education and training were successful, there will be increased in labour productivity and as such, factor quality which increases. This will in turn increase the productive capacity of the economy which increases LRAS.</p>  <p>Diagram explanation</p> <p>The increase in LRAS will shift AS curve to the right from AS1 to AS2, achieving potential growth where the full employment level increases from Y1 to Yf. Assuming that the AD is high enough, real output increases from Y1 to Y2, hence there can be actual growth.</p>
<p>Policy 2 Antithesis: Explain how SS-side policies may create difficulties for the economy while trying to increase EG → focus on inappropriateness of the policy</p>	<p>However, subsidising R&D may create problems for the government as R&D requires large amounts of funding and thus places a strain on the government budget. This would reduce the government's ability to help out the households in such difficult times. Additionally, there is no guarantee that the R&D efforts will be successful. Finally, even successful R&D efforts often take a long time to bear fruit. This makes the policy ineffective in the short run.</p> <p>Likewise, subsidising education and training will also incur heavy government expenditure is required in education and training. Hence, there is a huge opportunity cost incurred as the money could have been allocated to other critical national needs such as healthcare and national defence. Additionally, adults are often reluctant to attend training for various reasons such as disinterest and time constraints. This reduces the effectiveness of the policy.</p> <p>Furthermore, use of technology production methods may worsen income inequality as technology favours skilled workers and puts lower-skilled</p>

	workers out of job. That is why the government also subsidises skills training under the SkillsFuture programme which allows structurally unemployed workers to pick up new skills, reducing the skills mismatch between what workers can do and what employers want.
Evaluative Conclusion	<p>Whether policies aimed to increase economic growth rate cause difficulties for Singapore's economy depends on the type of policy adopted as well as the current economic situation. Currently, Singapore is facing recession which suggests that priority is adopting an expansionary fiscal policy to increase actual growth is necessary and probably a quick way. But given that expansionary FP may be inflationary in impact, Singapore should adopt supply side policies as not only can it help to attain both actual and potential growth, it can also help to ease inflationary pressures.</p> <p>Additionally, whether policies to pursue economic growth cause difficulties for the economy depend on whether complementary mitigating policies are adopted. For example, in Singapore, there has been a conscious effort to increase the progressiveness of the government budget by raising the top income tax rate and increasing wage subsidies to the poor through the Workfare Income Supplement. Such policies would reduce the income inequality caused by the economic growth.</p>

Note: Students can use other policies e.g. i.e. Exchange Rate Policy for Singapore

Marking scheme

Level	Knowledge, Application/Understanding and Analysis	Mark
L3	For an answer that gives a detailed and well-explained assessment of how at least 2 policies aimed at increasing the economic growth rate (both actual and potential) might cause difficulties for the Singapore economy – one demand and one supply-side policy.	8 – 10
L2	<p>For an answer that assesses at least 2 measures without detailed analysis OR</p> <p>Ans only assesses 1 measure – Cap at 6m Ans refers to traditional MP i.e. does not apply to Singapore – Cap at 6m Ans looks at actual but not potential growth – Cap at 7m</p>	5 – 7
L1	For an answer that shows superficial discussion of some measures.	1 – 4

	Evaluation	
E3	For an answer that arrives at an analytically well-reasoned judgement about the extent to which policies aimed at increasing the economic growth rate might cause difficulties for the economy.	4 – 5
E2	For an answer that makes some attempt at evaluating the measures.	2 – 3
E1	For an answer that gives an unsupported statement about the measures.	1



Question 6

In its latest monetary policy statement, the Monetary Authority of Singapore stated that it will maintain its policy stance of zero appreciation and concluded that this accommodative stance remains appropriate.

Source: MAS Monetary Policy Statement, April 2021

- (a) Explain why the Monetary Authority of Singapore's preferred choice as the instrument of monetary policy in Singapore is exchange rates rather than interest rates. **[10]**
- (b) Discuss whether exchange rate policy remains the best policy to maintain price stability in Singapore for the next few years. **[15]**

Suggested Answer for Part (a)

Question Analysis

Command: 'explain'; one sided straightforward explanation.

Content: 'why exchange rates rather than interest rates is chosen as a main tool of monetary policy'

- Briefly explain how the two policies work
- Describe the key characteristics of the Singapore economy;
 - small and open economy
 - lacking natural resources and dependent on trade
- Explain how the above characteristics determine exchange rates as the preferred choice

Context: Singapore

Approach: Student needs to briefly explain how the 2 policies work and how Singapore's characteristics help determine exchange rates as its preferred choice, in particular its size and openness.

Requirement	Suggested answer
Introduction: Define monetary policy	Monetary policy is a demand-management policy which involves altering money supply, interest rates or exchange rate to influence aggregate demand to achieve the macroeconomic objectives of high and sustained economic growth, low and stable inflation, low unemployment and healthy balance of payments.
Define SG context	Monetary Policy is typically carried out by a country's central bank which in the case of Singapore is the Monetary Authority of Singapore. Singapore is

	<p>a small and open economy and its characteristics are the underlying reasons for its choice of tool of monetary policy.</p> <ul style="list-style-type: none"> • Small: Limited natural resources, small domestic demand • Open: Dependent on imported raw materials, external demand is relatively larger than domestic demand
<p>Body 1: Briefly explain how monetary policy is carried out using interest rates.</p> <p>Briefly explain how monetary policy is carried out using exchange rates.</p>	<p>In the case of monetary policy using interest rates, central banks may change the interest rates through influencing money supply in the economy through its interactions with commercial banks. As there is an inverse relationship between money supply and interest rates, a country pursuing an expansionary monetary policy will increase domestic money supply to bring about a fall in interest rates.</p> <p>On the other hand, a rise in interest rates happens when there is a contraction in domestic money supply. These changes in interest rates will affect consumption (C) and investments (I) and hence the aggregate demand (AD).</p> <p>The Monetary Authority of Singapore (MAS) uses exchange rates instead as the tool for monetary policy. MAS adjusts the exchange rate through intervention in the forex markets to influence the demand or supply of the domestic currency in the forex markets. MAS can cause the currency to depreciate by selling the domestic currency and increasing its supply.</p> <p>Similarly, MAS can also cause the currency to appreciate by buying the domestic currency and increasing its demand. Whether MAS chooses to appreciate or depreciate the currency will depend on the economic conditions in Singapore. The change in the exchange rate then impacts and causes a change in the net exports (X-M) and hence AD.</p>
<p>Body 2: Explain why MAS uses exchange rates over interest rates → benefits of using Exchange rate (ER)</p> <p>1. ER policy is able to curb imported inflation</p>	<p>MAS uses exchange rates instead of interest rates for the following 3 reasons.</p> <p>Firstly, imported inflation is one of the main sources of cost-push inflation in SG. As a resource poor country, SG is very dependent on imported factors of production e.g. oil and other raw materials. If import prices were to rise, it would significantly affect the cost of production of domestic firms, raising the GPL to a large extent which is a concern to the government as it affects both export competitiveness and the cost of living. In such a case, MAS can strengthen (revalue) the currency to reduce the price of imports (measured in domestic currency), thus reducing cost of production for firms, and thus the GPL as well. In comparison, interest rate policy is unable to directly address imported inflation.</p>

<p>2. ER policy has a bigger impact on the economy than interest rates.</p> <ul style="list-style-type: none"> ○ small and open economy ○ small domestic C & I 	<p>Secondly, Singapore uses exchange rate as this tool has a bigger impact on the economy. This is because not only can exchange rate be used to influence net exports, the exchange rate is also an important tool used to manage inflation.</p> <p>As an open economy, trade is an important engine of growth for SG and thus a policy such as exchange rate policy that can influence net export revenue would be more effective.</p> <p>In the event of slowing growth or a recession, the government can use exchange rate policy to raise the growth rate. MAS can lower the external value of the currency (devalue). This would lower export prices (in foreign currency) and raise import price (in SGD). Assuming $PED_x > 0$, this will lead to a rise in quantity demanded for exports in foreign markets. Given that there is no change in price of exports in domestic currency, a rise in quantities sold overseas hence raises export revenue.</p> <p>With the higher import prices, and given that SG's demand for imports is price inelastic since we are import reliant (i.e. $PED_m < 1$), the increase in price of imports leads to a less than proportionate decrease in quantity of imports and import expenditure will rise.</p> <p>Assuming that the Marshall-Lerner condition holds, where the sum of price elasticity of demand for exports and imports is greater than 1, a depreciation of the Singapore dollar will then lead to a rise in the value of net exports (i.e. $(X-M)$ rises).</p> <p>Since net export revenue makes up a very large proportion of the total demand in SG due to SG's high trade dependence, the impact of an increase in $(X-M)$ will result in a substantial rise in AD resulting in higher rates of growth. In comparison, interest rate policy tends to only impact C and I, which make up a smaller proportion of total demand. The impact on AD would be smaller than the impact that exchange rate policy brings about.</p>
<p>Body 3: Explain why MAS not use interest rates → costs of using interest rates (i/r)</p> <p>1. Changing i/r result in instability in</p>	<p>If SG were to vary its interest rate, this would cause a significant impact on the exchange rate. This is because hot money, which is short term capital in search of higher returns and monetary stability, would flow out of a SG if its interest rates were to be lowered. This would cause an increase in supply of SGD in the foreign exchange market, thus causing the exchange rate to depreciate, which worsens imported inflation. Changes in the interest rates could therefore lead to large capital movements into or out of the country, causing instability in the external value of the currency, creating uncertainty and affects the cost of business decisions.</p>

exchange rates	
2. Singapore's small and open economy means that it is an interest rate taker	Firstly, Singapore has no control over the money supply in the economy due to its small and open economy. Singapore is an interest rate taker. As SG is a financial centre, it has open capital markets which makes it difficult to target interest rates. If the MAS were to raise interest rates, a significant amount of hot money would enter SG. This would increase the supply of loanable funds which would reduce interest rates. Thus, it would be difficult to vary the interest rates away from that of foreign interest rates as any change would be thwarted by the inflow or outflow of hot money in the economy.
3. Demand for investment is interest rate inelastic in SG	The interest rate inelasticity for the demand for investment makes interest policy less effective. Even if SG were able to change its interest rates, the extent of the impact on AD would be small as the MEI tends to be interest rate inelastic. A fall in interest rates would mean that the cost of borrowing is lower and thus previously unprofitable investment project may now be profitable. The volume of investment thus increases, leading to greater investment expenditure. However, since MEI is interest inelastic as majority of investment in SG is due to FDI and foreign firms may not necessarily need to borrow locally, this leads to a less than proportionate rise in the volume of investment. Thus investment expenditure would increase to a small extent only. Therefore impacts on AD would not be significant.
Conclusion: Sum up reasons for the choice of exchange rate policy	Hence, Singapore chooses exchange rate over interest rates as its main tool of monetary policy because it is an interest rate taker, and also because the exchange rate policy yields a bigger impact on its economy.

Suggested Marks Scheme

Level	Descriptor	Marks
L3	Explanation of both interest rate and exchange rate as tools of monetary policy. Clear explanation of at least 2 reasons why Singapore uses exchange rate over interest rates. (One of the reasons must be that Singapore is an interest-rate taker as this is the most important reason why interest rate-centred monetary policy is not used in Singapore.) Application of points must be linked to the smallness and openness of the Singapore economy.	8-10
L2	Sufficient explanation of both interest rate and exchange rate policy. Good explanation of only one reason for Singapore's use of exchange rate.	5-7

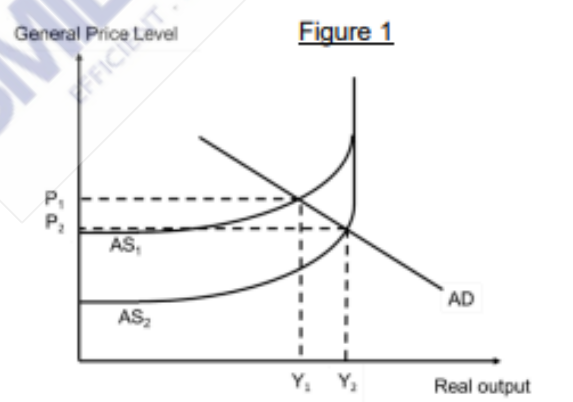
	OR Sufficient explanation of 2 reasons why Singapore uses exchange rate over interest rates, with some gaps.	
L1	Inaccurate/unclear/scanty understanding of monetary policy. Mere listing of points or no reason given for choice of exchange rate over interest rate.	1-4

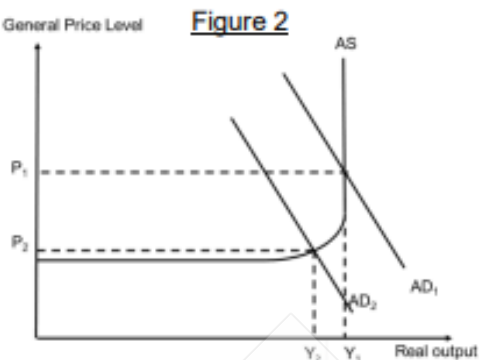
(b) Discuss whether exchange rate policy remains the best policy to maintain price stability in Singapore for the next few years. [15]

Suggested Answer for Part (b)

<p>Question Requirement</p> <p>Command: “Discuss whether”, two sided, needs an evaluative conclusion Content: “exchange rate policy remains the best policy to maintain price stability in Singapore for the next few years”</p> <ul style="list-style-type: none"> • Thesis: Yes. • Anti-thesis: No. Other policy instruments, such as supply side policy or contractionary fiscal policy may be better • Address price stability, chief causes of inflation, exchange rate policy, other policies, best policy, next few years <p>Context: Singapore</p> <p>Approach: Students should start by briefly explaining the main causes of inflation in Singapore (demand-pull and cost-push (including imported inflation); and the important role that Exchange rate policy plays in managing them. Next, the answer should explain the limitations of Exchange rate policy in addressing certain causes of inflation and how fiscal and supply side policy are needed too.</p>	
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Requirement	Suggested Answer
Introduction:	<p>The macroeconomic goal of price stability is achieved when inflation rates are kept low and stable in an economy, meeting the target of 2-3% inflation rate set by the central bank.</p> <p>Inflation in Singapore is primarily caused by demand pull factors and / or cost push factors, respectively known as demand pull inflation and cost push inflation. Imported inflation which also afflicts Singapore is subsumed under cost push inflation. As the Singapore economy is often operating close to full employment the inflationary pressures are immense.</p> <p>As a small and open economy, internal causes of inflation in Singapore are contributed by wages rising faster than productivity growth (cost push</p>

	<p>inflation) coupled with rising private consumption expenditure (demand pull inflation) during periods of strong positive economic growth. The external causes of inflation for Singapore comprise both imported inflation (cost push inflation) and rising external demand (demand pull inflation).</p> <p>Singapore has used the exchange rate policy of 'modest and gradual appreciation' as its primary approach for maintaining domestic price stability and sustaining economic growth. The MAS maintains the SGD within an undisclosed policy band.</p> <p>While the exchange rate appreciation policy is effective in curbing both imported inflation and externally led demand-pull inflation, there have been doubts over the relevance of this policy in situations when either domestic or global economic conditions weaken and/or inflationary pressures are being induced more by domestic factors such as rising unit labour cost and other supply-side constraints.</p> <p>Therefore, other policies may be needed to maintain price stability in Singapore, depending on the strength of the economic growth as well as the root causes of inflation faced.</p>
<p>Thesis 1: Explain how exchange rate policy helps achieve price stability</p>	<p>A modest and gradual appreciation of the SGD is highly effective in mitigating <u>imported inflation</u>.</p> <div> <p>Figure 1</p>  </div> <p>In SG, a modest and gradual appreciation is used by the Monetary Authority of Singapore (MAS) to reduce imported cost-push inflation. A stronger SGD will reduce the price of imported raw materials in terms of domestic currency. This lowers the unit cost of production and increases supply of goods and services. If many individual market supply curves increase, then SRAS increases from AS₁ to AS₂ as shown in Figure 1, causing GPL to fall, thus tackling the problem of imported cost-push inflation.</p>

	<p>Additionally, appreciation of SGD would help to curb demand-pull inflation. With an appreciation of the SGD, price of exports in foreign currency rises and price of imports in domestic currency (SGD) falls. Assuming the Marshall-Lerner Condition holds, where $PED_x + PED_m > 1$, this will decrease net export revenue (X-M) and thus aggregate demand (AD), ceteris paribus.</p> <div> <p style="text-align: center;">Figure 2</p>  </div> <p>Diagram explanation</p> <p>Assuming that the economy is initially operating near full employment, with a fall in AD, total output will exceed total spending, resulting in a surplus of goods and services produced. This leads to a built-up of inventories which would incentivize producers to cut back on production. As utilised resources are returned back to the economy, factor prices will start to fall as weaker demand for factor inputs such as manpower, factory space, and machines are observed, resulting in an eventual downward pressure in GPL. This will reduce demand pull inflationary pressure in the economy by reducing GPL from P1 to P2, as shown in Figure 2.</p>
<p>Anti-thesis 1: Limitations of exchange rate policy in addressing certain causes of inflation and transition to other policies</p>	<p>However, exchange rate appreciation does not address supply-side constraints and inflationary pressures caused by domestic factors such as rising unit labour cost or rising domestic demand. Thus while exchange rate appreciation works well in the short term to reduce inflation, long term issues such as raising the productive capacity of the economy to relieve the full employment will require different policy prescriptions.</p> <p>In addition, with Singapore moving towards a services-driven economy, exchange rate appreciation becomes less useful to services industries that do not benefit significantly from lower imported cost due to their higher dependence on labour for production. For these service industries, rising rental and unit labour costs are key factors causing higher production costs.</p> <p>These justifications reflect the need for other policies such as supply-side measures and contractionary fiscal policy to be implemented alongside exchange rate appreciation in maintaining price stability in Singapore.</p>

Anti-Thesis 2:
 Explain why
 supply-side
 policy should be
 used

To address inflation caused by, supply-side policies instead of exchange rate appreciation are needed to increase the country's productive capacity at a faster rate.

Government may Productive capacity can be increased through encouraging private investment, skills upgrading, education and R&D. For example, the Productivity Solutions Grant is available for smaller firms that require subsidies to pursue innovation and productivity-enhancing activities. In the long run, an increase in LRAS due to an increase in quantity and quality of capital will increase the productive capacity of the economy. LRAS shifts rightwards from AS_1 to AS_2 . As a result, national income increased from Y_1 to Y_2 but GPL decreases from GPL_1 to GPL_2 . The development will be similar if the supply side policies are directed towards infrastructure building and improving the skills of workers through retraining and education.

Overall, real GDP increases and inflation rate is moderated as GPL increased by a smaller extent from GPL_1 to GPL_2 , thus achieving price stability. Employment improves. In addition, sustained economic growth is achieved since there is an increase in both actual and potential growth, assuming that there is high enough AD.

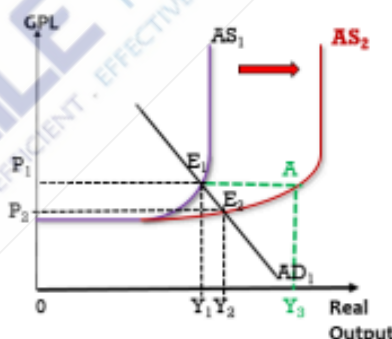
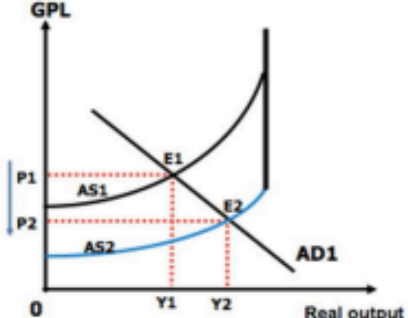


Figure 3: Impact of SS policies on Inflation

Additionally, the government can also use other supply side policies such as education & training subsidies to reduce cost push inflation due to structural rigidities arising from tight labour market. For example, the SkillsFuture Credit provides an initial \$500 subsidy for eligible Singaporeans to take ownership of their skills development.

Development of new comparative advantage can result in skills mismatch across industries, resulting in cost push inflation. With training and education, the productivity of labour increases, increasing output per man hour, resulting in a fall in unit cost of labour.

	 <p>Diagram explanation</p> <p>Falling unit COP will result in a rise in profitability and thus increase individual market supply. If sufficient individual market supply curves shift rightwards, the SRAS curve will shift rightwards, as shown in Figure above. GPL falls from P_1 to P_2, thereby relieving the inflationary pressure arising from a tight labour market.</p>
<p>Limitation of supply-side policy</p>	<p>However, productivity growth in Singapore has remained low despite the implementation of these measures. Therefore, perhaps a modification of current supply-side measures is needed rather than constant rolling out of new measures. For instance, the government can increase the Skills Future Credit given to each Singaporean since training costs are often more than the initial \$500 subsidy provided.</p> <p>Yet, on the other hand, workers may not be keen to take up such training to improve productivity due to disinterests and time constraints. In addition if the labour force is already tight, employers may not be willing to let their workers take time off to go for retraining and furthering their education. Time is also needed for supply-side policies to take effect.</p> <p>R&D requires large funding and is a long term investment which may not be suitable to curb rising inflation in the short term. In addition, outcomes may be uncertain in improving the productivity of the economy.</p>
<p>Anti-Thesis 3: Contractionary fiscal policy should be used</p>	<p>To address inflation caused by strong domestic demand, the Singapore government will need to run a budget surplus instead of depending entirely on exchange rate appreciation policy.</p> <p>In recent years, Singapore's economic growth has been slowing down due to the gloomy global economic conditions and greater competition from other economies. Throughout the period, Singapore has been adopting a budget surplus which is in line with the government's principle of accumulating reserves when economic growth is still positive despite being low or decreasing.</p>

	<p>By reducing government expenditure while keeping tax rates constant, a contractionary fiscal policy will help to dampen the growth in AD caused by strong domestic demand, hence reducing inflationary pressures given the decrease in competition of resources among firms. With a contractionary fiscal policy already implemented and in light of the economic slowdown, there are strong justifications for the MAS to abandon the appreciation policy and switch to a zero appreciation policy as a way to boost external demand, as suggested in the preamble. This policy may be the mainstay for the next few years as deglobalisation and the covid-19 pandemic has complicated and intensified competition.</p>
Limitation of contractionary fiscal policy	<p>However, implementing a contractionary fiscal policy can trigger unintended consequences such as reducing economic growth and increasing unemployment rate.</p>
Evaluative conclusion:	<p>While exchange rate appreciation is still effective in buffering Singapore against excessive price fluctuations in the short run, its limitations however clearly suggest that it cannot be the sole policy instrument used. Therefore, it cannot be the best policy instrument.</p> <p>It is also not desirable to concurrently adopt a contractionary monetary policy via the appreciation policy and a contractionary fiscal policy via the budget surplus in times of weak / negative economic growth such as the present. The damaging effects especially on employment and exports can be severe. A zero appreciation policy, therefore may yield better results in maintaining export competitiveness.</p> <p>The tightness of the domestic labour market and greater competition among economies calls for a greater emphasis on a range of supply-side measures to improve productive capacity and quality of the labour force. Such long run measures will enable the economy to increase the national output without imposing inflationary pressures caused by operating the economy at full employment.</p> <p>All in all, the government should exercise flexibility in adjusting the policy instrument used based on the more dominant cause of inflation in Singapore at any point in time. Given the recent falling global demand for many raw materials and persistence of labour shortages coupled with low productivity growth, the Singapore government should combine an exchange rate policy with relevant supply-side policies to ease the inflationary pressures caused by these factors.</p>

Suggested Marks Scheme

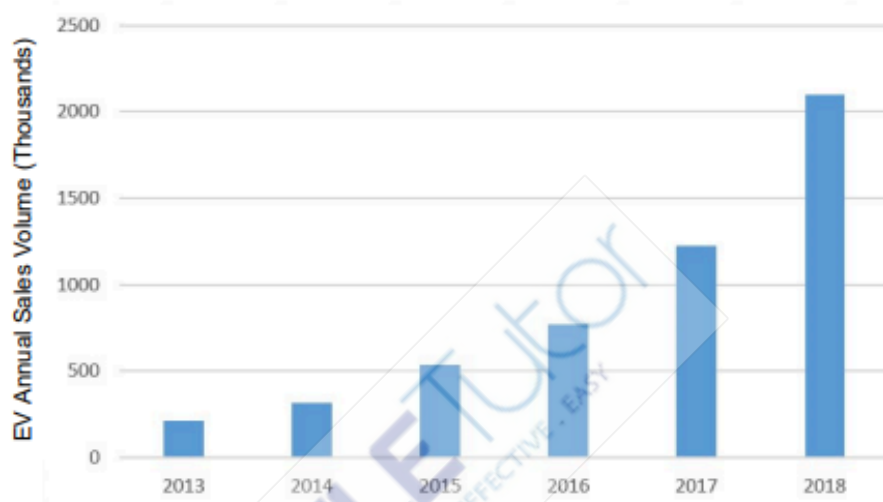
Level	Descriptors	Marks
L3	<p>Conceptually accurate, well-developed and balanced analysis in examining whether exchange rate appreciation should remain the best policy to maintain price stability</p> <p>Both Demand-pull and cost-push (including imported) inflation causes should be addressed.</p> <p>Comparison with at least one other policy, such as fiscal or supply-side policies should be brought in.</p> <p>Answer considers the characteristics and nature of Singapore's economy in discussion.</p>	8-10
L2	<p>Conceptually sound, balanced but under-developed analysis in examining whether exchange rate appreciation should remain the best policy to maintain price stability</p> <p>Both Demand-pull and cost-push (including imported) inflation causes should be addressed. (Cap at 6m if only demand or supply-side inflation is addressed)</p> <p>At least one other policy, such as fiscal or supply-side policies should be brought in. However, answer may not fully address the question of 'best policy.' (Cap at 6m if no other policies are brought in.)</p> <p>Lacking applications to the Singapore's economy.</p>	5-7
L1	Lacking economic analysis and with major conceptual errors.	1-4
E3	Evaluation considers the sources of domestic inflation in recent years and the economic structure of Singapore to determine the overall approach.	4-5
E2	Attempts to evaluate but mostly without sound conceptual or factual support about sources of domestic inflation.	2-3
E1	Unsupported evaluative judgments.	1

RIVER VALLEY HIGH SCHOOL PRELIM PAPER

Answer all questions.

Question 1: The Growing Market for Electric Vehicles

Figure 1: Global Electric Vehicles (EV) Annual Sales Volume (2013-2018)



Source: CleanTechnica, 19 May 2019

Extract 1: Electric vehicles are replacing petrol vehicles

An electric vehicle (EV) is a vehicle that is capable of running on electricity along at least part of the miles that the vehicle is driven. The government has adopted several policies to support the EV industry including providing grants for EV purchases and R&D support for battery development. The total budgetary cost for these policies is estimated to be about \$7.5 billion through the decade. The grants for EV buyers account for about one-fourth of the budget, and are expected to produce more additional EV sales as it covers a larger portion of the upfront cost, and more average households who are more price responsive would be attracted to purchase EVs.

Assuming each EV replaces a conventional petrol vehicle, the total lifetime petrol saved would become 0.65 billion gallons, with an emissions reduction of 12.8 billion pounds of carbon emissions. The increased EV sales translate to \$73.8 million of environmental benefits due to reduced emissions of major air pollutants.

The cost effectiveness of the policy is hindered by the fact that about 70% of consumers would purchase EVs in the absence of the grants, and the grants mainly attracted consumers who would have otherwise purchased fuel-efficient petrol vehicles.

Source: National Bureau of Economic Research, Apr 2019

Extract 2: Challenges in the electric vehicle industry

Even though sales are growing in China, they still constitute less than 4% of the global car market sales. So even as manufacturers push forward, many industry officials fear they could be at risk of wasting billions. Many of the EV carmakers are destined to be unprofitable due to high systems costs, low volumes and intense competition.

Range anxiety, the fear that the car will run out of power before reaching a charging station, is the most commonly cited response to why people are not buying EVs. Also, part of the problem is that charging times are still lengthy as it can require nearly a day plugged in if the battery is fully drained.

Cost is the other obstacle. EVs traditionally cost thousands of dollars more than petrol vehicles. The gap has been shrinking, in part due to an increase in competition that has forced manufacturers to lower the price on their cars.

Source: CNBC, 31 Jan 2019

Extract 3: The key to electric vehicles is batteries

China accounted for 60 percent of the 2.1 million electric vehicles sold worldwide last year. By 2030, global plug-in car sales are expected to be between 23 million and 43 million annually, according to the International Energy Agency. In its highest estimate, EVs will comprise 57% of vehicle sales in China, 26% in Europe and 8% in the US.

To meet demand, carmakers will need millions of lithium-ion batteries, by far the most lucrative part of an EV. Leading the charge is CATL, the world's biggest EV battery producer measured by the number of factories and their combined scale of operations. CATL modelled itself after Huawei Technologies by mimicking their practice of prioritising research and development to deliver frequent technology improvements.

In Europe, policymakers are providing R&D support to help develop the vehicle battery industry, with several plants now under development and at least £1billion in public money flowing into the sector. However, not all R&D efforts are successful. One promising battery start-up in US went bankrupt and was acquired by a Chinese car parts company.

As the EV market took off in 2015, the Chinese government told carmakers they would only qualify for subsidies if they used batteries from a list of approved suppliers, which included dozens of Chinese firms but excluded foreign ones.

Source: Wall Street Journal, 3 Nov 2019

Extract 4: Tesla to start making electric vehicles in China

The company told investors that Tesla's new Gigafactory in Shanghai started trial production ahead of schedule this month and is building full vehicles, from body to paint to general assembly. A couple of international production plants will likely be critical to Tesla's future. Easier access to major global car markets, China, which is the world's largest, could give the company tens of millions of potential new customers.

The Shanghai factory is also notable for how quickly it came together. It was only 10 months ago that Tesla broke ground on the plant. Tesla did not get there without any help. The company has gotten significant support from the Chinese government in the last year. It was the first foreign carmaker to be allowed to open a factory in the country without a Chinese partner, and it recently won a tax break for some of its cars. In a letter to shareholders, the company said the facility was about 65% cheaper to build and operate than its production plant in the US.

While the company has built momentum in China, success may not come easy. China's car market has been in a slump, and that decline has been made worse this year by a slowing global economy. And while Tesla has strong international brand recognition, it faces fierce competition from local and international players. The company has in the past refused to advertise, spending the money instead on developing the product and letting the cars speak for themselves.

Source: CNN, 25 Oct 2019

Questions

- (a) Describe the trend of global EV sales volume between 2013 and 2018. [1]
- (b) (i) Explain what determines the extent of impact that an increase in competition has on the sales volume of EV. [3]
(ii) Explain how this impact on sales volume might differ in the long run. [2]
- (c) Explain whether cross elasticity of demand between EV and petrol vehicles is positive or negative. [2]
- (d) Explain how R&D support for battery development might affect the different types of costs for an EV battery maker. [4]
- (e) Discuss whether the new Gigafactory in Shanghai is likely to increase profits for Tesla. [8]
- (f) Discuss whether grants for EV purchases or R&D support for battery development is likely to be a more effective policy to improve allocative efficiency in the market for petrol vehicles. [10]

[Total:30]

Question 2: Drive towards competitiveness in Vietnam and Indonesia

Figure 2: Productivity Index (GDP per unit of labour)

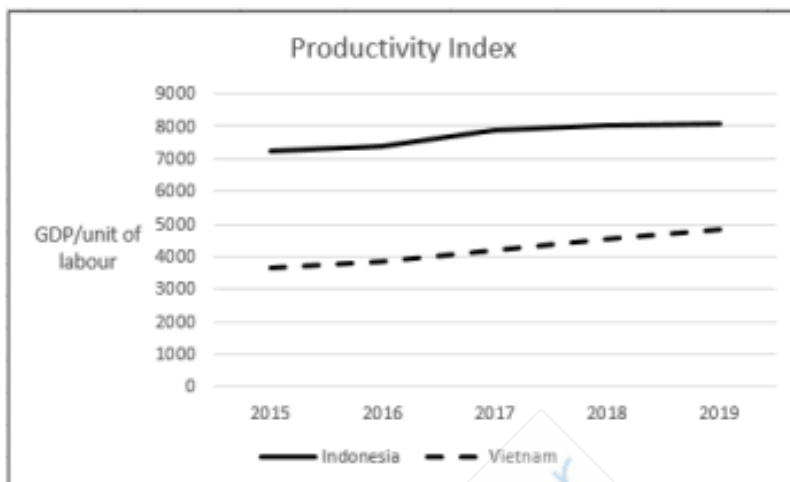
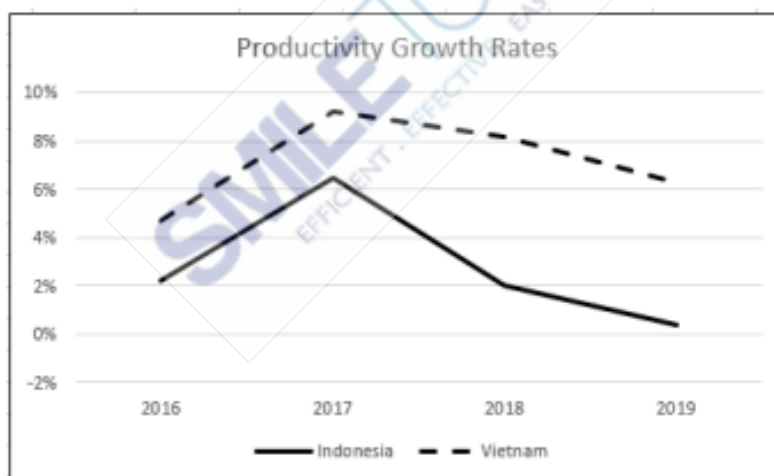


Figure 3: Productivity growth rates



Source: Statista

Table 1: Global Competitiveness Index: 2018 and 2019

Country	Rank 2018	Rank 2019
Indonesia	45	50
Vietnam	77	67

Source: Global Competitiveness Report 2019, World Economic Forum

Extract 5: Vietnam is entering its 'golden period'

Vietnam's economic growth momentum will continue in 2020 on the back of strong macroeconomic forecast, a growing middle class and a surging export-oriented manufacturing industry.

"Over the next 5 to 10 years, Vietnam will be in the golden period," said McKinsey & Company Vietnam's managing partner Marco Breu. "The middle class in Vietnam will grow from 20% of the population to 50%, and this will be the time when it's very interesting for consumer goods companies, retailers, banks to be in Vietnam." He added: "Consumption is the main economic engine for Vietnam, it's about 68% to 70% of the GDP, so many companies and businesses are looking into new consumption patterns, product innovation and so on."

Real GDP growth peaked at 7.1% in 2018 but is projected to decelerate slightly in 2019 and 2020, remaining nevertheless robust at around 6.8% and 6.9%, according to data from the Asian Development Bank.

With trade tensions between the US and China still ongoing, Vietnam will remain a favoured destination for shifts in trade flows and supply chains, said analysts. "The Trump-China trade war has been the tipping point for companies to look at an alternative product base outside of China," said Claudio Karjalainen, co-founder and head of regional operations for FinnSEA in Vietnam. "With it, many companies have discovered that Vietnam has a lot of advantages for shifting manufacturing, including a skilled workforce and reasonable salaries."

Being one of the fastest growing economies in South-east Asia also comes with its plethora of drawbacks and problems. Strong economic and population growth have not been friendly to the environment and have caused considerable pollution challenges.

Over the past decade, final energy consumption tripled, growing faster than output, and demand for water continues to increase while water productivity still remains low, according to the World Bank. The issue of marine plastics and water pollution has already impacted productivity of key sectors and human health. Air pollution is also a major concern with large cities including Hanoi and Ho Chi Minh City hitting their worst-ever levels in September.

A series of initiatives announced recently showed that the government is committed to reducing environmental footprints. For Mr Breu, a shift to cleaner energy sources and the management of increased pollution levels will be among Vietnam's top challenges in the years to come. "People are becoming unhappy with how these pollution levels are rising year after year. If you were to look at China and Beijing in particular, it took them 20 years to bring it under control and it took them enormous amounts of investment to actually clean this up," he said.

Source: The Business Times, 30 December 2019

Extract 6: Indonesia posts record trade gap in 2018, December exports sink

Indonesia posted wider-than-expected trade deficit in December, bringing the gap for 2018 to the largest ever, the statistics bureau said on Tuesday. December's trade deficit was \$1.10 billion (853.18 million pounds), in a third consecutive month where the gap was wider than market expectations. A Reuters poll had expected a deficit of \$930 million.

Southeast Asia's largest economy had a deficit of \$8.57 billion in 2018, the widest ever, a stark contrast to its \$11.84 billion surplus in 2017, Suhariyanto, the statistics bureau chief said. Last year was challenging because exports had slowed at a time when imports surged due to a recovering domestic economy, said Josua Pardede, an economist with Bank Permata in Jakarta.

This year would probably be equally challenging, Pardede said. "Global economic growth is stagnating. Growth in our major trading partners such as China, the United States, Japan and Europe is slowing. If we can't find new destinations for our products, export growth could slow further," he said, noting that falling oil prices could cool down imports.

Bank Indonesia also raised interest rates six times by a total of 175 basis points last year to try to reduce the trade deficit, and Warjiyo said the deficit in 2019 was expected at 2.5 percent. Fakhru Fulvan, Trimegah Sekuritas economist, said December trade data proved that Indonesia may need to slow its GDP expansion further to "bring back the balance" and reduce the trade deficit.

Source: Reuters News, 15 January 2019

Extract 7: Manufacturing less dominant in Indonesia's economy, but not shrinking

The government is not buying arguments that the manufacturing sector is shrinking even though its percentage contribution to the economy has declined over the past few years. The manufacturing sector remains the largest contributor to GDP. However, its percentage contribution to GDP reached 19.86 percent last year after struggling to remain at the 20 percent mark.

Vice President Jusuf Kalla said that the government was committed to developing manufacturing through the implementation of President Joko Widodo's road map on the fourth industrial revolution, titled Making Indonesia 4.0. He said technology and data control were the keys to getting ahead in today's industrial race with the rise of automation, but that people would remain the backbone of the economy. "We are not like those developed but aging countries, as we have a large workforce thanks to our demographic bonus. Physical work will remain relevant, as we need workers who can ensure our consumption continues," said Kalla.

Indonesia's working age population, or those aged 15 to 44, was projected to reach approximately 68 percent of the population, giving the country the highest number of productive aged citizens in Southeast Asia, the National Development Board (Bappenas) said.

"We can develop manufacturing through technological advancement, increased investment, human resources development and providing fiscal incentives to encourage research and development," Industry Minister Airlangga Hartarto said.

Source: The Jakarta Post, 18 Apr 2019

Questions

- (a) (i) Using Figures 2 and 3, compare the productivity levels of Vietnam with that of Indonesia over the period 2015-2019. [2]
- (ii) Explain how the change in (i) is likely to affect the living standards in Vietnam over the same period. [2]
- (b) Explain how a country such as Indonesia or Vietnam can have a high growth rate despite a low standing in the Global Competitiveness Index as shown in Table 1. [4]
- (c) Explain how an increase in interest rates as mentioned in Extract 6 might reduce the trade deficit. [4]
- (d) Extract 7 mentions that policymakers in Indonesia intend to implement some policies aimed at developing her manufacturing sector.
- Discuss the effectiveness of these policies in achieving the intended outcome. [8]
- (e) Extract 5 highlights that Vietnam is likely to continue enjoying high economic growth in 2020.
- Explain the factors that contribute to Vietnam's continued economic growth and consider whether the high growth rate is likely to be of overall benefit to her economy. [10]

[Total: 30]

Section A

One or two of your three chosen questions must be from this section.

- 1** Even with the recruitment of foreign nurses, the shortage of nurses continues to persist. This led to the latest round of salary adjustment, which saw the salaries of nurses increase by a significant 30%.
 - (a)** Using demand and supply curves, explain why there is an excess demand for nurses, and why it may have led to this significant salary adjustment. [10]
 - (b)** Discuss whether increasing salaries of nurses is the most effective policy in tackling the shortage of nurses in Singapore. [15]

- 2** The World Health Organisation (WHO) has declared e-cigarettes to be undoubtedly harmful and that they are not safer alternatives to regular cigarettes. In Singapore, the use, purchase and sales of e-cigarettes have been banned.
 - (a)** Explain why a government intervenes in the market for e-cigarettes. [10]
 - (b)** Discuss whether a ban is the best policy to ensure an efficient allocation of resources in the market for e-cigarettes. [15]

- 3** The Singapore government granted more operating licenses to increase competition in the telecommunications industry comprising three players — Singtel, StarHub & M1. Since then, TPG Telecom and several mobile virtual network operators such as Circles Life have entered the industry, leading to falling prices of mobile plans.
 - (a)** Explain how easing of barriers to entry in the telecommunications industry might lead to lower and less stable prices set by profit-maximising firms. [10]
 - (b)** Discuss the potential benefits and costs likely experienced by consumers, firms and government due to easing of barriers to entry in the telecommunications industry. [15]

Section B

One or two of your three chosen questions must be from this section.

- 4** (a) Explain how an appreciation of a country's currency might affect its balance of payments. [10]
- (b) In recent years, uncertainty and disruptions have affected global economic developments.

Discuss whether the Singapore government should change her policies for managing the balance of payments. [15]

- 5** The size and openness of an economy will affect the value of her multiplier, thereby influencing a government's macroeconomic policy decision-making.

- (a) Explain how trade-offs between government macroeconomic aims arise in the course of her policy decision-making. [10]
- (b) Discuss how far the size and openness of an economy influence a government's macroeconomic policy decision-making. [15]

- 6** While Singapore's national income and labour productivity grew over the past decade, she confronts the challenges of a shrinking workforce and declining productivity growth.

- (a) Explain how the challenges above will affect a country's economic growth. [10]
- (b) Discuss the extent to which economic growth determines the standard of living in Singapore. [15]

RVHS Prelim H2 CSQ1 Answers

(a) Describe the trend of global EV sales volume between 2013 and 2018. [1]

Increase

(bi) Explain what determines the extent of impact which an increase in competition has on the sales volume of EV. [3]

Price Elasticity of Demand. It measure the extent of the rise in quantity demanded i.e. sales volume of EV given a fall in price caused by the increase in supply due to the increase in competition i.e. increase in number of sellers.

(bii) Explain how this impact on sales volume might differ in the long run. [2]

In the long run, demand may become more price elastic. Consumers have more time to adjust their consumption pattern. Over time, as lower prices persist, consumers will be more ready to switch from petrol vehicles to EVs, causing sales volume to increase more significantly in the long run.

OR

In the long run, demand will become more price inelastic. Due to consumers' heightened environmental awareness, they may no longer perceive conventional petrol vehicles to be a close substitute for EV. As such, there will effectively be fewer close substitutes for EV. Thus, lower prices will lead to sales volume increasing less significantly in the long run.

(c) Explain whether cross elasticity of demand between EV and petrol vehicles is positive or negative [2]

Positive. From extract 1, it is stated that EV buyers would switch to petrol vehicles, which suggest that they are substitutes in consumption.

(d) Explain how R&D support for battery development might affect the different types of costs for an EV battery maker. [4]

Firstly, R&D support for battery development could affect fixed cost.

- R&D support for battery development may lower the cost of building of R&D facilities (ext.3)
- The cost of building of R&D facilities are considered a fixed cost as it does not vary with each battery produced.

Once R&D support for battery development is successful, it could affect the variable cost.

- R&D support could lower the cost of producing battery of each EV.
- the cost of producing lithium-ion battery is incurred with each battery produced.

(e) Discuss whether the new Gigafactory in Shanghai is likely to increase profits for Tesla. [8]

Likely to increase profits	Unlikely to increase profits
<p>The new Gigafactory in Shanghai facilitates access to a larger market. "Tens of millions of potential new customers" (Ext 4) suggests a larger market with greater number of buyers, thus increasing demand and increasing total revenue.</p> <p>AND</p> <p>Furthermore, a larger market allows for firms to produce a larger output and reap IEOS through e.g. economies of indivisibilities. If AC is lowered, this would lead to an increase in profits.</p> <p>OR</p> <p>The new Gigafactory suggests that Tesla would be producing its cars in China. Operating in China incurs lower cost of production compared to in US (Ext 4). Since cost of production is now lowered and revenue is higher, there will be an increase in profits.</p>	<p>Slowing global economy & china's car market has been in a slump (Ext. 4) could suggest expectations of falling income that may have dampened demand for normal goods like cars in general, including that of Tesla's cars. Therefore, this reduces total revenue and hence profits.</p> <p><i>EV: However, this is temporary, and once the economic conditions recover, demand will increase, and profits may increase.</i></p>
<p>Evaluation</p> <ul style="list-style-type: none"> • <i>Ultimately, it depends on their strategy. Thus far, we assumed that they are profit-maximising. However if their short-term objective is to gain market share, they may price their products competitively such that there may be temporary subnormal profits.</i> • <i>Whether Tesla can increase profits depends on whether advantages of the strong brand recognition outweighs the disadvantage from fierce competition from local players (Ext 4). If Tesla is willing to spend on advertisements to market its cars to Chinese consumers, it may be able to play to its advantage of strong branding, and edge out its competitors to gain market share. In this case, Tesla can enjoy higher revenue and lower cost (enjoy IEOS from expansion of output). Thus profits will likely increase.</i> 	

Level	Description	Marks
L2	<p>For a developed discussion on whether the new Gigafactory in Shanghai is likely to increase profits for Tesla</p> <p>A developed discussion should include the following points</p> <ul style="list-style-type: none"> • Why profits may increase (due to lower COP and higher TR) • Why profits may not increase (due to higher COP or lower TR) 	4-6
L1	For an undeveloped discussion on whether the new Gigafactory in Shanghai is likely to increase profits for Tesla	1-3

	Or For a developed answer that explains how the new Gigafactory in Shanghai will affect level of profits for Tesla	
	Evaluation	
E2	Developed judgement that is supported with economic analysis.	2
E1	Unexplained judgement	1

(f) Discuss whether grants for the purchase of EV or R&D support for battery development is likely to be a more effective policy to improve allocative efficiency in the market for petrol vehicles. [10]

There are negative externalities generated from the usage of petrol vehicles such as the health cost to pedestrians, due to emission of major air pollutants (extract 1). Consequently, this leads to over-usage (or over-consumption) of petrol vehicles, leading to allocation inefficiency. Hence, the aim of grants and R&D support for battery development is to reduce the usage (or consumption) of petrol vehicles towards the socially optimal level, thereby improving allocative efficiency.

Grants	R&D support for battery development
<p>Grants are a sum of money given to consumers to purchase EV, which lowers the upfront cost (ext 1). It targets "price-responsive" households i.e. those who are otherwise not willing or able to pay for an EV at the current market price.</p> <p>This increases households' ability to pay for an EV at the current market price. Ideally, this incentivizes consumers to buy EV in place of petrol vehicles.</p> <p>This decreases demand for petrol vehicles, thus reducing usage of petrol vehicles to the socially optimal level.</p>	<p>The R&D for battery development in EV may result in lower cost of producing batteries. Since batteries are a factor input of EV, it reduces cost of production for EVs. Therefore, this increases supply of EV and reduces prices of EV.</p> <p>Since EV and petrol vehicles are substitutes in consumption as established in part c), this reduces the demand for petrol vehicles.</p> <p><i>EV: effectiveness depends on the closeness of substitutes between EVs and petrol vehicles. Given that there is range anxiety about EV, they may not be currently perceived as close substitutes. As such, the extent to which demand falls may be small.</i></p> <p>OR</p> <p>The R&D support for battery development may lead to product innovation such as better battery performance, which may influence consumers' taste and preferences towards EV and away from petrol vehicles. This reduces demand for petrol vehicles, which would ultimately reduce usage to the socially optimal level.</p>
Limitation:	Limitation:

<p>However, the grants may be going to consumers who are already keen on buying fuel-efficient petrol vehicles (Extract 1). As such, the decrease in demand for fuel-inefficient petrol vehicles by consumers is likely to be limited.</p>	<p>Results are not guaranteed; R&D efforts may fail. (Extract 3). As such, this policy may not be successful in decreasing usage of petrol vehicles.</p> <p>Furthermore, R&D results are only seen in the long run. Thus, even if it is successful, it may not be effective in reducing demand in the short run.</p>
<p>Evaluation</p> <ul style="list-style-type: none"> Consumers' choice of vehicles is motivated by other factors other than cost. Given that consumers have range anxiety (ext. 4) about EVs, grants may not provide enough incentive to purchase EVs in place of petrol vehicles, especially if range anxiety is a more important issue than cost to consumers. Therefore, grants may not provide significant reduction of purchase and usage of petrol vehicles. Comparatively, R&D support for battery development may be a more effective policy, as improvements in battery performance can address the range anxiety that is currently impeding consumers' switch from petrol vehicles to EV. 	

Level	Description	Marks
L2	<p>For a developed discussion on how grants and R&D support for battery development improve allocative efficiency.</p> <p>A developed discussion should include the following points:</p> <ul style="list-style-type: none"> Identification of negative externalities leading to over-usage of petrol vehicles. How grants and R&D support for battery development work to improve allocative efficiency, using DD-SS framework Limitation of grants and R&D support 	5-7
L1	<ul style="list-style-type: none"> For an undeveloped discussion on how grants and R&D support for battery development improve allocative efficiency <p>OR</p> <ul style="list-style-type: none"> For a developed answer that explains how grants or R&D support for battery development improve allocative efficiency in the market for petrol vehicles 	1-4
Evaluation		
E2	Developed judgment supported with economic analysis.	2-3
E1	Unexplained judgment.	1

RVHS 2021 Preliminary Examinations JC2 H2 Paper 1 Question 2 Suggested Answers

- (a) (i) Using Figures 1 and 2, compare the productivity levels of Vietnam with that of Indonesia over the period 2015-2019. [2]**

Productivity level of Vietnam is lower than that of Indonesia. However, productivity growth rates of Vietnam was consistently higher than that of Indonesia.

- (a) (ii) Explain how the change in (i) is likely to affect the living standards in Vietnam over the same period. [2]**

A rise in productivity implies a rise in the output produced per unit of input i.e. a rise in competitiveness.

EITHER

Increase in productivity will result in an increase in total output and this will lead to an increase in the amount of goods and services available for consumption, thus increasing Vietnamese's material standard of living.

OR

With increased productivity, workers may be able to work fewer hours for the same level of production and hence enjoy more leisure hours. This improves the non-material aspect of standard of living.

- (b) Explain how a country such as Indonesia or Vietnam can have a high growth rate despite a low standing in the Global Competitiveness Index as shown in Table 1. [4]**

Despite a low standing in the Global Competitiveness Index, there are other factors that can contribute towards a high growth rate.

Any of the 2 factors below will suffice

① From Extract 1 and 3, we can infer that there is an abundance of labour in both Indonesia and Vietnam. This likely implies a relatively low wage as compared to other economies. This translates into a low cost of production, enabling their exports to be more price-competitive. Assuming the demand for exports is price elastic, this will increase export revenue. At the same time, the lower wages make these economies popular destinations for foreign direct investment (FDI) which will translate into an increase in investment. With increased export revenue and investment, aggregate demand increases and leads to growth in real GDP by a multiple.

② The high growth rate enjoyed by both countries is also dependent on external factors. From Extract 1, Vietnam's growth was largely in part due to the US-China trade tensions, which diverted trade and supply chains flow to Vietnam. This implies that Vietnam will likely see a rise in demand for their exports. If this translates to a rise in export revenue (X) and in turn AD, there will be a multiple rise in NY, thereby allowing the country to grow despite the low standing in the competitiveness index.

- (c) Explain how an increase in interest rates as mentioned in Extract 2 might reduce the trade deficit. [4]**

The trade deficit is due to the import expenditure outstripping the export revenue. Extract 2 mentions that the gap was due to exports slowing down at a time when imports are surging. The increases in interest rate is hence to deal with the surge in imports.

When interest rates are raised, it has a contractionary effect on the economy. Increased interest rates will lower consumption due to increased cost of borrowing for big ticket items and also higher rewards to savings. Additionally, as the cost of borrowing for firms increases, projects previously viable at the lower interest rates now becomes unviable, hence leading to lower investment.

With a fall in consumption and investment, aggregate demand will fall and this leads to a fall in national income by a multiple. As income of households starts to fall, they will be less inclined to buy imports since imports is a function of income. This will lead to a fall in import expenditure. Assuming no change to export revenue, the trade deficit will be reduced.

- (d) Extract 3 mentions that policymakers in Indonesia intend to implement some policies aimed at developing her manufacturing sector.**

Discuss the effectiveness of these policies in achieving the intended outcome. [8]

To develop the manufacturing sector means that Indonesia needs to increase the competitiveness of their manufactured goods through reducing their average cost of production or increase the quality of the goods produced.

From Extract 3, it can be seen that policymakers are leveraging the use of supply side policies such as investment in technology, fiscal incentives to encourage R&D and also investing in human capital. While these policies may help in developing the manufacturing sector, the effectiveness may not be very certain.

Analysis of a market oriented SSP

One form of market oriented supply side policies will be to provide fiscal incentives to encourage R&D. Market oriented policies focuses on allowing the markets to operate more freely with minimal government intervention to achieve growth in potential output. Fiscal incentives in the form of lowering corporate income taxes will help to increase the after tax profits. This leaves firms with more funds available for investment and to pursue innovation through research and development. This will increase the quantity and/or quality of capital which will increase the productive capacity of the economy. With successful R&D, the quality of products will improve or it may also lead to a fall in average cost of production, which will increase the competitiveness of Indonesia's manufactured goods.

However, reducing corporate tax cuts may not bring about the desired outcome as firms may choose to pay out higher dividends rather than undertaking more R&D. R&D can also take a significant amount of time and results are also not guaranteed.

Analysis of an interventionist SSP

Another policy that is implemented is the investment in human capital in the form of human resources development, which is an interventionist policy. Interventionist policies are policies where the government plays an active role to encourage growth in potential output. These can include initiatives pertaining to education and training to expand the quantity and quality of the workforce. This will in turn raise the employability of workers and labour productivity which increases the productive capacity

of the economy. Extract 3 highlighted that the demographic bonus has given Indonesia a large workforce. As such, the emphasis of human capital investment could be on the quality of these workers and equipping them with the skill sets to take on jobs in the manufacturing sector. This will provide a huge boost to the manufacturing sector as there are more workers to drive production when demand increases. As workers become more productive, it will also lower the average cost of production which will allow Indonesia to produce manufactured goods that are more price competitive.

However, such training is costly which gives rise to funding issues. Firms may be reluctant to do so for fear of losing workers after retraining or upgrading. The government could step in to provide funding but this will incur an opportunity cost as the funds could have been spent on other areas such as healthcare. Moreover, education and training is also dependent on workers' attitude and aptitude towards the skills training. Some of them may not be receptive towards it as they may have other interests, while those who go for the training may not have the ability to pick up the skills.

Evaluation/Synthesis

- The use of supply side policies, both market oriented and interventionist has its drawbacks and may have to be implemented together to increase the chances of a successful development of the manufacturing sector.

Marking Scheme

Level	Knowledge, Application, Understanding & Analysis	Marks
L2	Well-developed discussion of two policies aimed at developing the manufacturing sector in Indonesia. Reference have to be made to evidences from extract that support the arguments made.	4-6
L1	Well-developed discussion of one policy aimed at developing the manufacturing sector in Indonesia. OR Under-developed explanation (without limitations) of policies aimed at developing the manufacturing sector in Indonesia.	1-3
Evaluation		
E2	Developed judgement on effectiveness of policies in achieving the intended outcome.	2
E1	Unsupported judgement without economic analysis on effectiveness of policies in achieving the intended outcome.	1

(e) Extract 1 highlights that Vietnam is likely to continue enjoying high economic growth in 2020.

Explain the factors that contribute to Vietnam's continued economic growth and consider whether the high growth rate is likely to be of overall benefit to her economy. [10]

There are several factors that will contribute to the continuation of Vietnam's economic growth as seen from Extract 1.

First of all, the middle class in Vietnam will grow from 20% of the population to 50%, which will likely lead to a rise in consumption expenditure as income increases. Moreover, consumption expenditure contributes to a large proportion of Vietnam's GDP (close to 70%) and as such, Vietnam's economic growth is likely to continue with the increase in consumption expenditure.

Secondly, trade tensions between the US and China has resulted in Vietnam being a favoured destination for foreign direct investments (FDI), outside of China. With "a skilled workforce and reasonable salaries", investments in Vietnam will increase.

These factors contribute to the growth of the various components of aggregate demand (AD) and hence lead to a substantial increase in AD. Assuming spare capacity exists, which is very likely given the abundance of labour in Vietnam, it will lead to a multiple increase in national income (NY), thus allowing Vietnam to continue achieving actual economic growth. At the same time, with an increase in quantity and quality of factors of production due to an increase in investment, it also allow Vietnam to achieve potential economic growth. With actual economic growth and potential economic growth achieved, this also allows for sustained growth into the future.

Thesis: High growth rate will be beneficial to Vietnam's economy.

The high growth will bring about positive impact on employment. As real national income increase due to more goods and services produced, there will also be an increase in derived demand for labour and hence generates more employment opportunities, thus reducing cyclical unemployment.

Anti-thesis: High growth rate will be detrimental to Vietnam's economy.

Extract 1 pointed out that Vietnam's economic growth has been achieved at the expense of environmental degradation which have caused considerable pollution challenges. Energy consumption has grown faster than output and amount of output per unit of water has remained low. These have resulted in air and water pollution as more energy and water are used, which have affected productivity of Vietnam's key sectors negatively. At the same time, pollution has worsened the health of citizens, who is vital to driving the growth of a country. Besides causing a fall in the non-material standard of living in Vietnam, all these will also have a negative impact on Vietnam's economic growth rate and if so, employment might not improve as explained above.

Overall Evaluation/Synthesis

Whether Vietnam can harness the benefits of high growth rates will very much depend on what the government can do to tackle the challenge that stands in her way.

In the short run, high growth rate is likely to be beneficial for Vietnam as national income increases and employment rate will increase. However, if high growth rates persists in the long run, it must be ensured that there is an increase in productive capacity too. If not, it might result in overheating of economy and thus, demand-pull inflation. In addition, the environmental footprints need to be reduced so as to achieve sustainable economic growth.

Marking Scheme

Level	Knowledge, Application, Understanding & Analysis	Marks
L2	Well-developed explanation of two factors that contribute to Vietnam's sustained economic growth. A developed and balanced discussion on whether the high growth rate is of overall benefit to Vietnam's economy (linking to at least one macroeconomic aim in the thesis and anti-thesis). Reference made to evidences from extract that support the arguments made.	5-7
L1	Well-developed explanation of two factors that contribute to Vietnam's sustained economic growth. OR A developed and balanced discussion on whether the high growth rate is of overall benefit to Vietnam's economy (linking to at least one macroeconomic aim in the thesis/anti-thesis). Reference made to evidences from extract that support the arguments made.	1-4
Evaluation		
E3	Well-reasoned judgement on whether high growth rate is of overall benefit to Vietnam's economy.	3
E2	Under-developed judgement on whether high growth rate is of overall benefit to Vietnam's economy.	2
E1	Unsupported judgement on whether high growth rate is of overall benefit to Vietnam's economy.	1

RVHS Prelim H2 EQ1

Even with the recruitment of foreign nurses, the shortage of nurses continues to persist. This led to the latest round of salary adjustment, which saw the salaries of nurses increase by a significant 30%.

- a) Using demand and supply curves, explain why there is an excess demand for nurses, and why it may have led to this significant salary adjustment. [10]
- b) Discuss whether increasing salaries of nurses is the most effective policy in tackling the shortage of nurses in Singapore [15]

Part a) answer:

"Explain why there is an excess demand for nurses..."

The supply of nurses in the Singapore labour market comprises of foreign nurses and local nurses. The demand for nurses comprises demand by public and private medical organizations.

The recruitment of foreign nurses results in an increase in supply of nurses in the factor market for nurses.

However, even with an increase in supply, there is excess demand. This suggests there is an increase in demand that exceeds the increase in supply.

The increase in demand for healthcare could be due to rapid ageing population, which may mean a higher proportion of elderly, who generally require more healthcare services. This increases demand for healthcare.

(Other accepted points:

- *Growth of population also leads to an increase in demand for healthcare.*
- *the rise in chronic diseases such as diabetes in Singapore also leads to an increase in demand for healthcare.)*

Since nurses are a form of labor (factor of production) in the production of healthcare services, the increase in demand for healthcare leads to an increase in derived demand for nurses.

With reference to Figure 1, the increase in supply will shift the supply curve rightwards from S_0 to S_1 while the increase in demand will shift the demand rightwards from D_0 to D_1 . At the initial wage rate W_0 , quantity demanded is now at Q_d , which is greater than quantity supplied which is at Q_s . Hence, this shows labour shortage ($Q_s < Q_d$) arising from the excess demand for nurses.

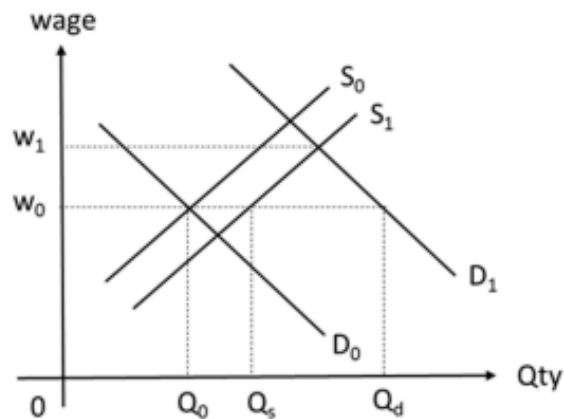


Figure 1: Market for nurses

“Explain why there is a significant salary adjustment...”

The significant salary adjustment could be due to the large shortage ($Q_s Q_d$) of nurses arising from a large excess demand.

Also, it could be due to a price inelastic supply, which compounds the increase in wage rate arising from the increase in demand. Price elasticity of supply measures the degree of responsiveness of the change in quantity supplied given a change in price, *ceteris paribus*. Supply is price inelastic because it takes years to undergo the complex training process before one can be qualified to practise as a nurse. i.e. an increase in wage (price of labour) will lead to a less than proportionate increase in quantity supplied. As such, given an increase in demand, a significant increase in wage rate from w_0 to w_1 (Figure 2) is required to increase the quantity supplied in order to clear the labor shortage, as compared to when supply is price elastic (w_0 to w_e)

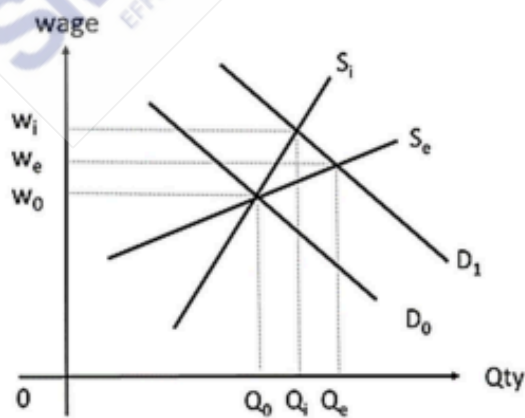


Figure 2: Market for nurses

Knowledge, Understanding, Application & Analysis		
L3	For a developed explanation on why there is an excess demand for nurses and why there is a significant increase in wage	8-10
L2	For an undeveloped answer on why there is an excess demand for nurses and why there is a significant increase in wage Or For a developed answer on why there is an excess demand for nurses or why there is a significant increase in wage	5-7
L1	Smattering of valid points	1-4

b) Discuss whether increasing salaries of nurses is effective in tackling the shortage of nurses in Singapore [15]

Thesis: It is effective.

- The shortage can be resolved by a wage increase.

Price adjustment process:

- With reference to Figure 1, as wage rate increases, more would be incentivised to join or rejoin the nursing profession, such that quantity supplied increases. At the same time, it becomes more costly to hire nurses. Hence, quantity demanded decreases. Wage rate will continue to increase until the new equilibrium at w_1 , where quantity demanded equals to quantity supplied.
- Ideally, the quantity demanded will be equal to quantity supplied of nurses at the 30% hiked pay as mentioned significant in the preamble, thus resolving shortage.
- Limitation: Due to a price inelastic supply, it is only effective if the medical organizations are able to increase the wage rate significantly. However, due to imperfect information or budget constraints of the medical organizations, it is possible that the increase in wage rate will be lower than what is needed to resolve the shortage. As such, the current increase in wages is insufficient to resolve the shortage fully.

EV: Furthermore, this drives up the cost of hiring nurses significantly. Given that wages take up a large proportion of their operating expenditure, this may be passed on to consumers in terms of higher prices of healthcare services. Given that healthcare is an essential good, this may worsen inequity. Consequently, this may result in a large amount of expenditure by the government, in terms of higher wages and subsidies required to ensure access to healthcare services.

Anti-thesis:

However, there are also other policies that can also tackle the shortage of nurses.

Decrease demand for nurses (choose 1 of the following):

1. Hold educational campaigns to improve lifestyle habits (e.g. improving diet & exercise) so as to keep the population healthy. This reduces demand for healthcare, and therefore reduces derived demand for nurses. Therefore, this reduces shortage at the current wage W_0 .

Limitations: However, this depends on the population's receptiveness to change their lifestyle habits. If such habits are deeply ingrained in them, it may be difficult to change, and consequently, derived demand for nurses may not be reduced in the short term.

2. The government can encourage medical organizations to adopt technology in patient care that can replace nurses in some duties. For example, subsidies can be given to medical organizations in their adoption of automated dispensing robots in the medical administration process, or AI-controlled companion robots for monitoring of elderly. With more use of capital in place of labour, medical organizations will reduce their demand of nurses. Therefore, this reduces shortage at the current wage W_0 .

Limitations: However, medical organizations may not be receptive to it as the technology is still new and may not be widely accepted by the public. They may perceive this as taking on unnecessary reputational risk. Therefore, the take-up rate may be low, and demand may not be reduced.

Increase in supply for nurses (choose 1 of the following):

3. Increase the supply by sponsoring those thinking of a mid-career switch to choose the nursing career. This would expand the pool of nurses that medical organizations can hire from. The government has implemented a 2-year Professional Conversion Programme for Registered Nurses (Diploma) which aims to support mid-career PMETs in acquiring relevant training to be Registered Nurses. The course fees are fully sponsored and successful applicants can receive training allowances. More professionals would be motivated to make the career switch to nursing. Therefore, this increases supply, and reduces shortage at the current wage W_0 .

Limitation: However, it takes time for mid-career professionals to be trained in nursing. Therefore, in the short term, supply will not increase.

4. Alternatively, organizations can attract people to join nursing by clearly defining career progression pathways to facilitate career development (e.g. opportunities to try new roles or specialize). As such, more would be attracted to embark on a nursing career. This increases supply, and reduces shortage at the current wage W_0 .

Limitation: This depends on the receptiveness of people. If people have reservations about joining nursing because of other reasons other than career development, then this solution may not be effective. For example, some may have the traditional mindset that it is undignified work as nurses typically have to clean up after patients as well as the long working hours and shift work required.

5. We can further increase the recruitment of foreign nurses. Healthcare organizations can hire foreign workers from other countries other than traditional sources like Philippines and India. This increases supply, and reduces shortage at the current wage W_0 .

Limitation: However, there may be cultural and language barriers between the foreign nurses and local patients. As such, to cater to the needs of local patients, there can only be a limited increase in supply of foreign nurses.

Knowledge, Application/ Understanding and Analysis		
L3	For a developed discussion on whether increasing the salaries is the most effective in tackling the shortage of nurses in Singapore. Developed discussion should include the following points: <ul style="list-style-type: none"> • How increasing salaries work to tackle the shortage & its limitation • How increasing supply and decreasing demand can tackle shortage and their limitations 	8-10
L2	For an undeveloped discussion on whether increasing the salaries is effective in tackling the shortage of nurses in Singapore.	5-7
L1	For an answer that explains how increasing salaries work to tackle the shortage of nurses in Singapore.	1-4
Evaluation		
E3	For an answer that uses analysis to evaluate whether increasing salaries is the most effective to tackle the shortage of nurses in Singapore (2 points required)	4-5
E2	For an answer that makes some attempt to evaluate whether increasing salaries is effective to tackle the shortage of nurses in Singapore.	2-3
E1	For an unexplained evaluative statement(s)	1

2021 RVHS Prelim Essay Question 2

The World Health Organisation (WHO) has declared e-cigarettes to be undoubtedly harmful and that they are not safer alternatives to regular cigarettes. In Singapore, the use, purchase and sales of e-cigarettes have been banned.

- Explain why a government intervenes in the market for e-cigarettes. [10]
- Discuss whether a ban is the best policy to ensure an efficient allocation of resources in the market for e-cigarettes. [15]

Suggested Answers

- Explain why a government intervenes in the market for e-cigarettes. [10]

Intro

E-cigarettes is a demerit good which it is deemed socially undesirable by the government and will be over-consumed if left to the free market. This over-consumption results because individuals disregard negative externalities and overestimate their private benefits.

Body 1 – Over-consumption due to negative externalities

In the market for e-cigarettes, producers incur the marginal private cost (MPC) of producing an additional unit of e-cigarettes. Marginal external costs (MEC) are also borne by 3rd parties who are not compensated for. For instance, friends, family and colleagues of the smoker may incur healthcare costs when treating illnesses arising from the inhalation of the second-hand smoke.

Since marginal social cost (MSC) = MPC + MEC, MSC is greater than MPC as shown in Figure 1 below. Assuming no positive externalities (i.e. MEB = 0), marginal social benefit (MSB) = marginal private benefit (MPB).

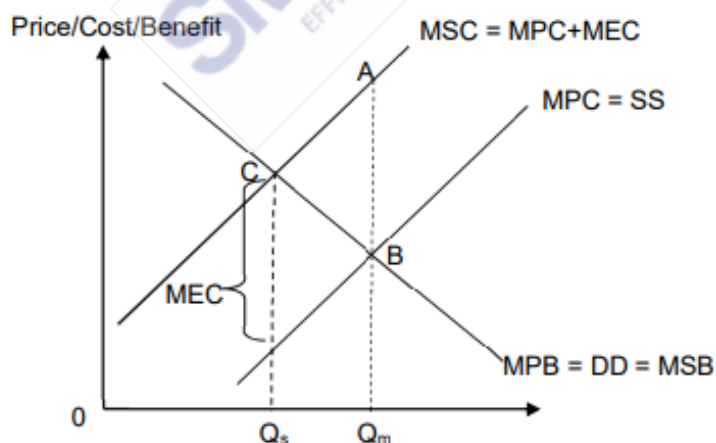


Figure 1: Over-consumption in the market in e-cigarettes due to negative externalities

With reference to Figure 1, when left to the free market, consumption and production of e-cigarettes occurs at Q_m where $MPC = MPB$ since individuals only consider their own private benefit and private cost and do not take into account the external costs in their decision-making. However, the socially optimal level of output is at Q_s , where $MSB = MSC$. Since Q_m is more than Q_s , there is over consumption of e-cigarettes and hence,

over-allocation of resources, resulting in allocative inefficiency. The deadweight loss to society is represented by the area ABC.

Body 2 – Over-consumption due to imperfect information

Besides negative externalities, over-consumption of e-cigarettes also occur due to imperfect information. Smokers might not be able to accurately estimate their private benefit as they are unaware of the full extent of harmful effects from smoking e-cigarettes. For instance, consumers may think that e-cigarettes is a safer alternative compared to traditional cigarettes, ignorant of the fact that e-cigarettes can result in more severe lung illness such as E-cigarette or Vaping Use-Associated Lung Injury (EVALI). Thus, it is likely that they will overestimate their MPB, leading to the perceived MPB being higher than the actual MPB. Assume no externalities.

If left to the free market, the consumption and production of e-cigarettes occurs at Q_m where misperceived $MPB = MPC$. However, the socially optimal level of output is Q_s , where actual $MPB = MPC$. Since $Q_m > Q_s$, there is over consumption of e-cigarettes and hence, over-allocation of resources, resulting in allocative inefficiency and deadweight loss to society.

Conclusion

The presence of both negative externalities and imperfect information leads to an over-consumption of e-cigarettes, thus requiring government intervention to improve the allocation of resources and reduce the deadweight loss.

Level	Knowledge, Application, Understanding & Analysis	
L3	Developed and well-contextualized explanation of both negative externalities and imperfect information leading to the over-consumption of e-cigarettes (2 types)	8 - 10
L2	Undeveloped explanation of both negative externalities and imperfect information leading to the over-consumption of e-cigarettes (2 types) OR Developed discussion of negative externalities OR imperfect information leading to the over-consumption of e-cigarettes (1 type)	5 - 7
L1	Smattering of valid points	1 - 4

- b) Discuss whether a ban is the best policy to ensure an efficient allocation of resources in the market for e-cigarettes. [15]

To improve the over-allocation of resources in the market for e-cigarettes, the government may intervene with a ban, indirect tax or moral suasion. Whether a ban is the most effective policy depends on the extent of over-consumption as well as whether the ban can address the root causes of the inefficient allocation.

Thesis: A ban can ensure an efficient allocation of resources

As WHO declared e-cigarettes to be undoubtedly harmful, it is likely that the MSC of consuming/producing e-cigarettes is higher than MSB for all output levels, thus the government decided to ban the use, purchase and sales of e-cigarettes. A ban is an extreme form of legislation where output is set at 0, meaning that there is zero consumption/production of e-cigarettes.

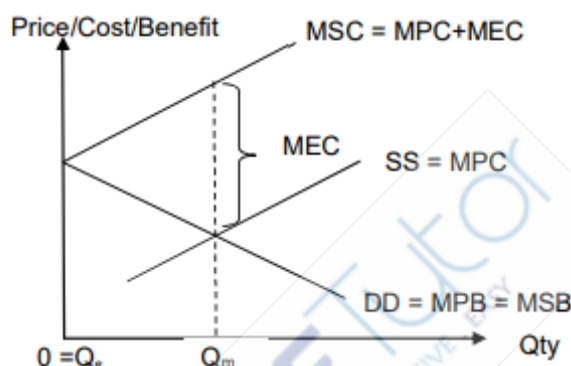


Figure 2: Ban in the e-cigarettes market

With reference to Figure 2 above, smokers consume Q_m where $MPB = MPC$ while Q_s is the socially optimal level of output where $MSB = MSC$. Since $Q_s = 0$, the imposition of a ban results in zero deadweight loss and leads to an efficient allocation of resources in the e-cigarettes market.

Anti-thesis 1: A ban cannot ensure an efficient allocation of resources

However, a ban may not bring about a more efficient allocation of resources if the extent of over-consumption is small/ the degree of negative externality is not large; imposing a ban may actually contribute to greater allocative inefficiency.

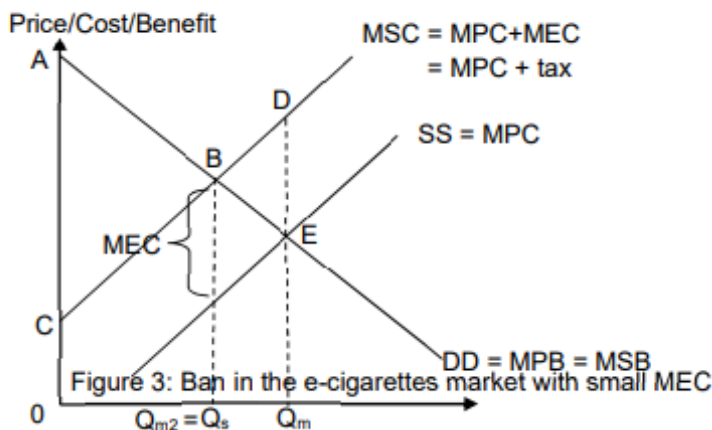


Figure 3: Ban in the e-cigarettes market with small MEC

As shown in Figure 3 above, when the divergence between MSC and MPC is very small (due to a small MEC), the socially optimal output (Q_s) would be a non-zero level and Q_s exceeds Q_m by a little. Thus, the ban would result in a greater deadweight loss of area DAE compared to the initial deadweight loss of area of ABC, worsening the inefficient allocation of resources.

Another limitation of the ban is the high administrative costs incurred in channeling resources to enforce compliance with the ban. For instance, the hiring of officers to monitor and carry out routine checks to ensure no sales and usage of e-cigarettes.

Anti-thesis 2: Other policies can ensure an efficient allocation of resources

① Alternatively, the government may choose to impose an indirect tax to increase the cost of producing e-cigarettes. With reference to Figure 3, when the tax is equal to MEC, smokers internalize the negative externality and MPC shifts upwards to coincide with MSC. This reduces Q_m until the new market output Q_{m2} coincides with Q_s , thus improving the inefficient allocation of resources in the e-cigarettes market.

However, there are limitations of an indirect tax to reduce the over-consumption of e-cigarettes. It is difficult to quantify MEC in monetary terms, hence difficult to estimate the optimal amount of tax to impose on e-cigarettes. As such, government intervention may actually produce unintended negative results making the cost of government failure considerably greater than the cost of market failure. For instance, the government may over-tax and this will lead to under-consumption/production. The new consumption level could fall short of social optimal level, Q_s , and welfare loss under government intervention could exceed initial welfare loss under free market conditions, thus it may not lead to an efficient allocation of resources. Conversely, if the government under-tax e-cigarettes, it will lead to under-consumption, which will still detract the goal of allocative efficiency.

② Alternatively, the government can also engage in moral suasion to educate the public on the harmful effects of smoking e-cigarettes. Such public health campaigns reduces the divergence between the smokers' misperceived MPC and the actual MPC by raising awareness about such issues. Effective campaigning will improve the information smokers have and make them less ignorant to the negative impacts of smoking e-cigarettes. With better quality of information, smokers' misperceived MPB decreases towards actual MPB, thereby reducing market equilibrium output Q_m towards the socially optimal level of output Q_s , thus improving the inefficient allocation of resources in the e-cigarettes market.

However, the limitation of moral suasion is that outcomes are uncertain as it relies on the voluntary actions of individuals to change their smoking habits. Despite being better informed, there is no perfect information as smokers tend to attach a low probability of them contracting any smoking-related diseases. Thus, improving the quality of information alone may not be sufficient to reduce the over-consumption of e-cigarettes and bring about an efficient outcome.

Level	Knowledge, Application, Understanding & Analysis	
L3	Developed discussion of whether ban is the best policy <ul style="list-style-type: none"> • how a ban works to bring about an efficient allocation of resources • ~2 limitations of a ban (anti-thesis) • 2 alternative policies + limitations (anti-thesis) 	8 - 10
L2	Undeveloped discussion OR developed explanation for one side (either thesis or anti-thesis) 'Undeveloped' – Descriptive explanation of how the measures address negative externalities and imperfect info	5 - 7
L1	Smattering of valid points	1 - 4
E3	Well-reasoned judgement on what constitutes the best government policy i.e. consider the root cause of the problems to decide which is the best policy	4-5
E2	Undeveloped judgement on why a ban may or may not be the best policy	2-3
E1	Unsupported judgement on why a ban may or may not be the best policy	1

2021 J2 H2 Prelims EQ4 (Macro) – Ans for other JCs

(a) Explain how an appreciation of a country's currency might affect its balance of payments. [10]

(b) In recent years, uncertainty and disruptions have affected global economic developments.

Discuss whether the Singapore government should change her policies for managing the balance of payments. [15]

Suggested Mark Scheme (a)

	Knowledge, Application/ Understanding and Analysis	
L3	For an answer that uses appropriate analysis to show how the current and financial account position will be affected when domestic currency appreciates. i.e. refers to appropriate elasticity values + considers impact on relevant sub-accounts in the BOP. <i>Suggested mark distribution: 3m per point, mix of current and financial account.</i>	8-10
L2	For an answer that gives a descriptive explanation of how the current and financial account position will be affected. Alternatively, the answer gives a developed explanation for <u>either</u> current or financial account only.	5-7
L1	Smattering of valid points	1-4

Suggested Mark Scheme (b)

	Knowledge, Application/ Understanding and Analysis	
L3	Developed discussion of at least 2 policies adopted by the Sg govt to manage her BOP, followed by whether and how there is a need to tweak them in view of recent global developments. 'Developed' – Able to explain the workings of each policy and how they affect the current/ financial account.	8-10
L2	Undeveloped discussion OR developed explanation for one-side only. 'Undeveloped' – Descriptive rather than analytical, superficial link to context and preamble.	5-7
L1	Smattering of valid points	1-4

E3	Evaluative appraisal of whether there is a need for the Sg govt to change current measures to manage the BOP. Specifically, after explaining each policy, the answer <u>considers how they can be refined/ adjusted</u> by referring to recent events (e.g. Covid-19 pandemic etc.)	4-5
E2	Some attempt at an evaluative appraisal of whether there is a need for the Sg govt to change current measures to manage the BOP.	2-3
E1	Unsupported concluding statement about the relevance of existing measures and whether they need to be tweaked in the light of recent developments.	1

Part (a)

INTRO

- Define balance of payments (BOP) as a record of all economic transactions between residents of one country and the rest of the world in a given time period
- Explain what a BOP surplus implies and what BOP deficit means.
- State that the BOP includes:
 - current account;
 - financial account
 - official financing account.
- Further explain that the current account includes:
 - Balance of Trade
 - Service Balance
 - Net Income Flows
 - Net Unilateral Transfers
- Next explain that the financial account includes:
 - Short term capital flows
 - Long term capital flows
- State overview of essay

DEVT

- Explain what is meant by exchange rate of a country's currency.
- Explain how an appreciation of a country's currency will lead to rise in price of exports coupled with fall in price of imports.
- Next, explain how the quantity demanded of exports and imports will be affected.
- Assume the Marshall-Lerner condition holds i.e. sum of price elasticities of demand for exports and imports exceeds 1 ($PED_x + PED_M > 1$).
- Following this, explain how net exports (X-M) will be affected and in turn, how the balance of trade and service balance position may worsen.
- Link to impact on current account and balance of payments position.
- Secondly, explain how the fall in price of imports will affect the cost of production in the domestic country.
- Subsequently, explain how this can help to partially mitigate the loss of export competitiveness.
- Link the above analysis to how the current account position may not worsen that much.
- Next, explain how an appreciation of a country's currency may affect her financial account position.
- Specifically, explain how a stronger domestic currency may encourage foreign direct investment if potential foreign investors perceive the country to be doing well.
- In this case, there will be a positive impact on the financial account position since there is inflows of long term capital.
- Provide an alternative case whereby the appreciation of a country's currency may also lead to potential foreign investors undertaking less investment.
- Reason being, it is now more costly to do so. Given the above possibilities, it is difficult to ascertain clearly how the country's financial account position will change.

CONCLUSION

- Highlight that it is difficult to state conclusively how a country's BOP will be affected when her currency appreciates.
- Reason being, at any point in time, many factors are changing simultaneously. As such, we will need to consider many other factors that have occurred.
- Only then can we say in definite how the balance of payments have changed.

Part (b)

INTRO

Discuss whether = 2 POV, can use THESIS-ANTITHESIS-SYNTHESIS approach

- Reference to be made to preamble.
- Key: Link policies to exports + FDI predominantly

DEVT Part 1:

THESIS: Sg govt may need to make some changes to current policies for managing the BOP. Why?

- Ref preamble: Uncertainty & disruptions happening around the world in recent yrs
- E.g.: Economic fallout from Covid-19 pandemic/ Technology disruptions/ Trade Wars etc.

① Be prepared to switch to neutral stance

- Following the economic fallout from Covid-19 pandemic, the Monetary Authority of Singapore (MAS) has kept S\$ on neutral stance.
- Students can explain briefly what a neutral stance means and how such a stance is necessary in the given circumstances.
- Focus on how such a policy stance can help to ensure Singapore's exports remain competitive with respect to other that of other countries.
- If we look at the trends or future outlook, MAS may need to be prepared to even move from neutral stance to depreciation, although this may not be very likely.

② Complement with measures to raise SRAS and/ or LRAS

- Following the economic fallout from Covid-19 pandemic, we can see that in 2020, the Singapore government has implemented various supplementary budgets.
- In each of these budgets, there are initiatives to help firms lower their cost of production. More notably, wage subsidies are being given to help with firms' operations.
- It is hoped that with such help measures, firms can continue to keep the price of their products (e.g. exports) competitive.
- If successful, this can help to ensure Singapore's exports remain competitive so that Singapore's current account will not go into deficit.
- Can evaluate that such help measures cannot be continued indefinitely because of the possible drain on government funds.
- Other measures that raise LRAS need to be continued given their importance to Singapore's long term economic growth.

DEVT Part 2:

ANTI-THESIS: No need for Sg govt to make big/ much change to current policies for managing the BOP. Why?

- Explain 2 current policies adopted by the Singapore government in managing the BOP:
 - (1) Keep Singdollar on a gradually appreciating stance
 - Explain what this policy stance means and how it works to manage the BOP.
 - Students need to explain how it affects the current account position.
 - Students also need to link to how the resulting price stability achieved can in turn have some implications on the financial account position.
 - (2) Use supply side policies
 - Explain some types of supply side policies that can contribute to raising the competitiveness of Singapore's exports.
 - Link to how this can affect the current account position.
 - If possible, students can also link how some of these supply-side policies can go on to affect Singapore's financial account position if it contributes to attracting FDI into Singapore.
- ∴ Traditionally, the above 2 policies have been adopted by the Sg govt to manage our BOP i.e. ensure favourable BOP position.

2021 J2 H2 Prelims EQ 5 (Macro) – Answers for Other JCs

The size and openness of an economy will affect the value of her multiplier, thereby influencing a government's macroeconomic policy decision-making.

(c) Explain how trade-offs between government macroeconomic aims arise in the course of her policy decision-making. [10]

(d) Discuss how far the size and openness of an economy influence a government's macroeconomic policy decision-making. [15]

Suggested Mark Scheme (a)

	Knowledge, Application/ Understanding and Analysis	
L3	For an answer that uses appropriate analysis to show three possible trade-offs that may arise in the course of macroeconomic policy decision-making i.e. uses analytical tools such as AD-AS diagram. <i>Suggested mark distribution: ±3m per trade-off.</i>	8-10
L2	For an answer that gives a descriptive explanation of trade-offs between government macroeconomic aims.	5-7
L1	Smattering of valid points	1-4

Suggested Mark Scheme (b)

	Knowledge, Application/ Understanding and Analysis	
L3	Developed discussion of how size & openness, and at least 2 other factors determine a government's macroeconomic policy decision-making. 'Developed' – Able to link each factor to how decision making will be affected. E.g., links size & openness to value of k, and consequently, whether the government can adopt demand-management policy predominantly or need to rely on policy mix.	8-10
L2	Undeveloped discussion OR developed explanation for one-side only. 'Undeveloped' – Descriptive rather than analytical, superficial link to preamble.	5-7
L1	Smattering of valid points	1-4
E3	Evaluative appraisal of how important the size & openness of an economy is to influencing government's macroeconomic policy decision-making. Specifically, after explaining the factors each policy, the answer is goes one step further to <u>weigh amongst them</u> , justifying which factor is relatively more important.	4-5
E2	Some attempt at an evaluative appraisal of how important size & openness of an economy is to influencing policy decision-making.	2-3
E1	Unsupported concluding statement about the appropriateness of the three-pronged approach	1

Part (a)

INTRO

- Explain what macroeconomic policy decision making entails.
- State the four key macroeconomic aims - sustainable economic growth, price stability, full employment and favourable balance of payments (BOP) position.
- State overview of essay

DEVT

Trade-off #1: Actual economic growth (or low unemployment) vs Price Stability

- When expansionary demand management policy is adopted to increase aggregate demand, this leads to a rise in national income by a multiple
- It may also contribute to a rise in employment.
- However, if AD continues to rise as the economy nears her full employment level of output, demand-pull inflation may result
- If so, this leads to a rise in general price level.
- Draw in AD-AS diagram to illustrate the above tradeoff.

Trade-off #2: Potential economic growth vs Low unemployment

- When certain types of supply-side policies e.g. policies to encourage more automation are implemented to increase a country's productive capacity, this theoretically leads to a rise in both the quantity and quality of factors of production.
- As a result, this translates to a rise in the long run aggregate supply.
- However, such supply side policies may cause hasten structural changes. When this happens, there will be potential economic growth but it comes at the expense of keeping unemployment low.

Trade-off #3: Price stability vs Favourable Balance of payment position

- When governments keep their domestic currency on a gradually appreciating stance, this prevents imported & cost-push inflation, as well as moderates DD-pull inflation.
- However, a stronger domestic currency causes exports to lose competitiveness.
- If so, there may be an adverse impact on the current account position.
- In this case, trade-off occurs between price stability and favourable balance of payments position.

**Note: Other instances of trade-offs between macroeconomic aims are acceptable as long as the explanation is economically sound.*

CONCLUSION

- Given that trade-offs occur in the pursuit of macroeconomic aims, the government will need to consider their costs and benefits carefully before deciding on their policy decisions.

Part (b)

INTRO

- Define multiplier and state the formula to calculate it i.e. $k = \frac{1}{1 - mpc} = \frac{1}{mps + mpt + mpm}$, where mpc, mps, mpt and mpm is the marginal propensity to consume, save, tax and import respectively.
- State that k shows the number of times that national income (NY) will change, given an initial change in aggregate demand (AD).
- Overview: Highlight that while size and openness of an economy does play a part in influencing a government's macroeconomic policy decision-making to some extent, it is not the only factor because other factors also matter.

DEVT Part 1 (Thesis)

- Using the example of Singapore, explain how the size and openness of the economy can have an implication on the value of the multiplier.
- Specifically, highlight that the nature of Singapore results in a small value of multiplier compared to that of larger and less open economies.
- Very importantly, the value of k will determine how effective demand-management policies will be and thereby influence a government's macroeconomic policy decision making.
- Students should draw reference to the multiplier process (but no need to give detailed numerical example), show how an increase in aggregate demand will translate to a smaller overall increase in national income after the various rounds in the case of small, open economies such as Singapore.
- In contrast, for larger and less open economies, the above increase in aggregate demand will instead translate to a much larger ultimate rise in national income.
- Link back to the question: in this case, the government of small, open economies will need to tap on other policies whereas the government of larger and less open economies can use demand management policy predominantly in times of recession.

DEVT Part 2 (Anti-thesis)

- Besides the importance played by the size and openness of an economy, the anti-thesis will require students to explain in detail at least two other factors that can influence a government's macroeconomic policy decision-making.
- Specifically, these factors can be explained:
 - Crowding out
 - Tradeoffs between macroeconomic aims
 - Time lags
 - Outlook
- For crowding out – first explain what this concept means and how it will influence decision making especially for expansionary fiscal policy.
- Link to how a rise in government expenditure will crowd out private investment and this may reduce the extent of increase in aggregate demand and in turn national income.
- Explain how decision making will differ between two cases: if crowding out exists vs if crowding out did not exist.
- For time lags – first explain the possible time lags that are present (i.e. recognition, implementation and impact lag).
- Next, explain how each of these lags work in decision making.
- More importantly, students can make use of example (e.g. Singapore) to show how the duration of each lag will affect government's decision making.
- Specifically, governments who face shorter duration lags will be in a position to undertake certain policies. In contrast, governments who suffer longer time lags may find that they are not able to adopt certain policies that easily.
- For tradeoffs between policy aims, students can make reference back to part (a). In the event where there are no tradeoffs, the government can make decisions on what policies to adopt more easily.

• **RVHS 2021 JC2 H2 Paper 2 Question 6**

- While Singapore's national income and labour productivity grew over the past decade, she confronts the challenges of a shrinking workforce and declining productivity growth.
- a) Explain how the challenges above will affect a country's economic growth. [10]
- b) Discuss the extent to which economic growth determines the standard of living in Singapore. [15]

- a) Explain how the challenges above will affect a country's economic growth. [10]

- A country's economic growth is defined as the rate of increase in real national income over a period of time, usually one year. The challenges of a shrinking workforce and declining productivity growth will affect a country's economic growth adversely.

- Given Singapore's falling birth rates and ageing population, this will lead to a shrinking workforce. With a shrinking workforce, this will lead to a fall in supply of workers, which will lead to an increase in wages as firms compete for these workers. The increase in wages will lead to a rise in cost of production at each and every output level, thus causing short-run aggregate supply (AS) to fall from AS_0 to AS_1 as shown in Figure 1.

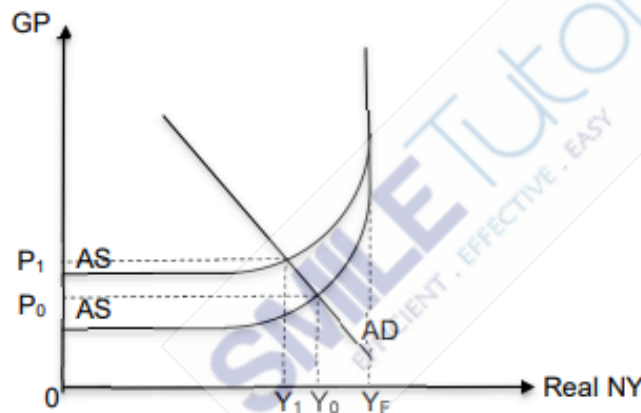


Fig 1 Fall in SRAS due to increase in

- At the original price P_0 , a shortage is created when short-run AS shifts from AS_0 to AS_1 , which will cause an upwards pressure on general price level (GPL). With an increase in GPL, there will be a fall in consumption as consumers are less willing and able to buy goods and services, a fall in investment as cost of production increases and also a fall in exports as exports become more expensive. All these are represented by a movement along the aggregate demand (AD) curve. GPL will continue to increase until the new equilibrium price P_1 is reached where AD is equals to AS_1 . As such, there will be negative economic growth as NY falls by a multiple from Y_0 to Y_1 .

- With a shrinking workforce, there will also be a fall in quantity of labour especially when senior workers retire and leave the workforce. If this is the case, it will result in a fall in productive capacity as long-run AS falls from AS_0 to AS_1 in Figure 2, assuming ceteris paribus. Similarly, at the original price P_0 , a shortage is created when long-run AS shift from AS_0 to AS_1 , which will cause an upwards pressure on GPL. GPL will continue to increase until the new equilibrium price P_1 is reached where AD is equals to AS_1 . Again, there will be negative economic growth as NY falls by a multiple from Y_0 to Y_1 .

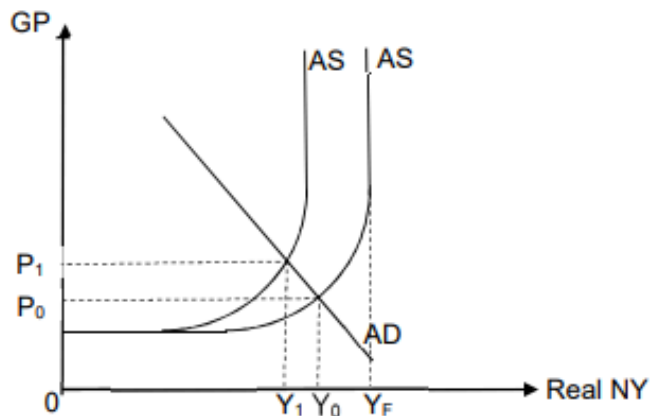


Fig 2 Fall in LRAS due to decrease in quantity of

- Productivity is defined as the amount of output per unit of input. With declining productivity growth, it means that the amount of output per unit of input will be increasing at a decreasing rate.
- With a decline in productivity growth, it is less attractive to invest as with the same amount of input, the increase in output is of a smaller extent. This will lead to a smaller increase in investment, both domestic and foreign direct investment, as there is a smaller increase in rate of return. Similarly, export competitiveness also increase at a slower rate as there are less improvements made to exports, which results in a smaller increase in export revenue. Together, these will lead to a smaller increase in AD as shown by AD increasing from AD_0 to AD_1 in Figure 3, thus increasing NY from Y_0 to Y_1 , compared to Y_2 in the case where productivity growth did not fall.

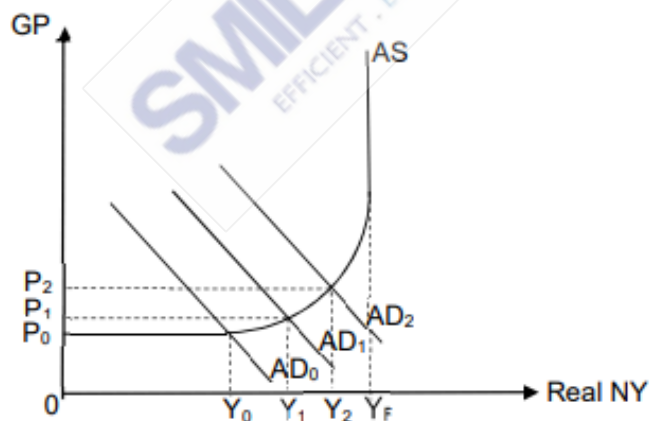
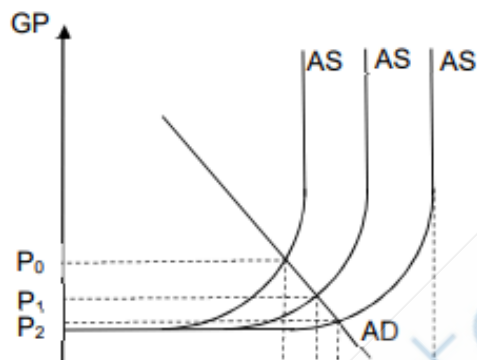


Fig 3 Increase in AD due to increase in

- With a declining productivity growth, the increase in quality of factors of production like labour and capital will be slower and as such, this will result in a smaller increase in productive capacity. Long-run AS will

increase from AS_0 to AS_1 , instead of AS_2 had productivity increase at the same rate. As such, this will result in a smaller increase in NY from Y_0 to Y_1 , instead of Y_2 .



Putting both challenges together, assuming that the effects caused by the shrinking labour force outweighs that of the declining productivity growth, negative economic growth will be experienced. On the other hand, if the effects of declining productivity growth outweighs that of the shrinking labour force, then economic growth will still be experienced, although at a smaller rate.

Knowledge, Application/ Understanding and Analysis

L3	For a developed answer that explains how each of the challenges given in the preamble affects a country's economic growth. A developed answer will have explained how both challenges have affected AD, SRAS and LRAS (with diagrams drawn) and as such, economic growth. Examples linking challenges faced by Singapore to economic growth can be used to substantiate the answer.	8-10
L2	For an undeveloped answer that explains how each of the challenges given in the preamble affects a country's economic growth. For a developed answer that explains how only one challenge given in the preamble affects a country's economic growth.	5-7
L1	For an answer that shows some unexplained knowledge of how each of the challenges given in the preamble affects a country's economic growth.	1-4

- **b) Discuss the extent to which economic growth determines the standard of living in Singapore. [15]**
- Intro
- A country's standard of living (SOL) can be determined by both material and non-material aspects. Material SOL measures the amount of goods and services that individuals within the country have available for consumption while non-material SOL involve indicators like environmental factors (e.g. pollution) and socio-economic factors (e.g. life expectancy, stress-related illnesses, etc).
- Thesis: Economic growth determines the standard of living in Singapore
- As part a defined, a country's economic growth is defined as the rate of increase in real NY over a period of time, usually one year. As such, there is an increase in real NY as economic growth is achieved. This can be caused by an increase in AD, assuming that economy is not at full employment yet or an increase in short-run AS, due to a fall in cost of production or an increase in long-run AS, assuming that AD is at the intermediate or classical section of the AS curve. A higher NY over time would mean that there are more goods and services produced and at the same time, employment levels will increase as more factors of production are needed to produce the increase in goods and services. Hence, material SOL will improve over time.
- In the case of Singapore, the rate of increase in real NY is likely to be higher than the rate of increase in population size due to falling birth rates, which is also reiterated by the shrinking workforce as mentioned in the preamble. As such, this will lead to an increase in real NY per capita, which means that more goods and services can be enjoyed by the average Singaporean and this will improve the current material SOL in Singapore. With higher NY per capita, non-material SOL can also be improved as Singaporeans can afford higher quality healthcare and thus, enjoy an increase in life expectancy.
- At the same time, it is much easier for a growing economy to care for its less fortunate citizens than it is for a stagnant economy. When there is economic growth, there is an increase in income levels experienced by households and firms and this will increase the tax revenue that the Singapore government can collect through personal income tax, goods and services tax and corporate income tax. With a higher tax revenue, some can be redistributed to the lower-income group and this will suggest that majority of the population are able to consume more goods and services, thus increasing their material SOL.
- With the emphasis on productivity-driven growth, Singapore has emphasized on supply-side policies like education and training to counter the increasing burdens of shrinking workforce and declining productivity growth. These initiatives help to create employment opportunities and also increase the wages of Singaporeans as their productivity increases. This helps to increase the amount of goods and services that Singaporeans can afford and thus, improve their material SOL. As workers' productivity increases, they might spend less time on work to produce the same amount of output. This frees up more time for leisure, which improve their non-material SOL in the future too.
- Anti-thesis: Economic growth alone will not determine the standard of living in Singapore
- General price level determines SOL
- Demand management policies like expansionary fiscal policy are usually undertaken to stimulate economic growth but if they are undertaken too aggressively, it might bring about demand-pull inflation especially in the case whereby increase in long-run AS is limited due to a shrinking workforce and declining productivity growth. As shown in Figure 5, increase in AD from AD_0 to AD_1 increases general price level from P_0 to P_1 . However, if AD continues to increase to AD_2 without any corresponding increase in AS, general price level will continue to increase to P_2 , resulting in demand-pull inflation. A persistent increase in general price level will lead to an increase in cost of living. With a fall in the internal value of money, citizens will be able to buy less goods and services with the same amount of money and this will result in a fall in material SOL as most might have to give up on luxuries in order to buy necessities.

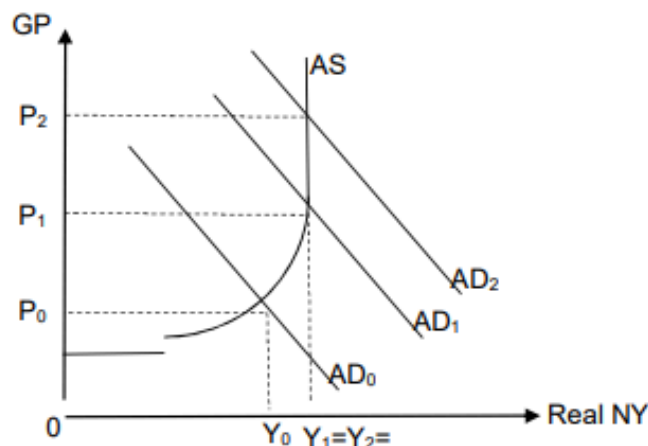


Fig 5 Increase in AD causing demand-pull inflation

• Distribution of income determines SOL

- Besides increasing real NY per capita, achieving an equitable income distribution is also important to improve SOL. With the emphasis on productivity-driven growth as mentioned earlier, Singapore has also encouraged the adoption of technology-driven solutions. As such, those with the knowledge and skills needed like IT skills will experience an increase in income as demand for these workers increases while those workers who are replaced by IT equipment and do not have the skills to take up new jobs will face structural unemployment. This will possibly lead to a widening income gap and thus, high real NY per capita may not necessarily mean that the income is evenly distributed amongst Singaporeans. An increase in real NY per capita could be due to higher level of income earned by a minority group of people while the majority do not see improvement in their income.

- As such, information on the Gini Coefficient (GC) is required to understand more about income distribution amongst the population in Singapore. The higher the GC (range from 0 to 1), the more uneven the income distribution is i.e. higher proportion of income is held in the hands of the wealthy minority. Real GDP per capita has been increasing over the last ten years although it fell in 2020 as Singapore's economy shrank due to the COVID-19 crisis. Including government transfers and taxes, the GC was 0.375 in 2020, the lowest in two decades. As such, with an increase in real GDP per capita over the last ten years together with a fall in the GC, it can be said that majority of Singaporeans have experienced an increase in material SOL over the years.

• Composition of goods produced determines SOL

- In addition, an increase in real NY might not translate to an increase in level of consumption per head. Whether an increase in real NY will lead to an increase in material aspect of SOL depends on the composition of consumption versus capital goods and the time frame of analysis. If the increase in real GDP is due to an increase in the production of capital goods to increase productivity e.g. investment in high tech machinery and equipment in the case of Singapore, this will probably only improve future SOL but does not improve current SOL since the amount of consumer goods and services available for current consumption e.g. food and clothing did not increase for an average Singaporean.

• Amount of leisure time, stress levels and pollution levels determines SOL too

- Last but not least, given that Singapore is a face-paced society, it is likely that even with an increase in labour productivity, majority of the workforce might still be working long hours in exchange for better work performance bonuses on an individual level or to achieve higher real NY on a macro level. Under such conditions, it is likely that leisure time might not have increase but instead stress levels will increase and this will adversely affect the mental health of Singaporeans, drastically reducing the non-material SOL of Singaporeans in the long run. With "homeworking" taking root amid the Covid-19 pandemic, many employees in Singapore find themselves being pushed to the limits, as the boundaries between work and home become blurred. Some worked around the clock, even on weekends. This will worsen the non-material SOL of Singaporeans.
-
- If the increase in NY causes more Singaporeans to consume more energy-consuming goods like usage of fossil fuel-powered cars and air conditioning, then this might result in an increase in air pollution and congestion. These negative externalities will result in worsening of Singaporean's non-material SOL.
-
- Conclusion
- It is no doubt that achieving economic growth determines the SOL in Singapore to a large extent. However, it is definitely not the only factor that determines SOL. In the attempt to achieve sustained economic growth, measures have to be undertaken to ensure that structural unemployment, income distribution, together with environmental and socio-economic factors do not worsen so as to ensure that both material and non-material SOL can continue to increase.
-
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Knowledge, Application/ Understanding and Analysis		
L3	For a well-developed discussion on the extent to which economic growth determines the standard of living in Singapore. Well-developed: Explanation on how economic growth improves both material and non-material SOL and also explanation on how with economic growth, material and non-material SOL might not improve, substantiated with good use of examples in the context of Singapore.	8-10
L2	For a undeveloped discussion on the extent to which economic growth determines the standard of living in Singapore or a well-developed one-sided explanation on how economic growth improves both material and non-material SOL or how with economic growth, material and non-material SOL might not improve, substantiated with some examples in the context of Singapore.	5-7
L1	For an answer that shows some knowledge of how economic growth improves both material and non-material SOL, with limited reference to the context of Singapore.	1-4
E3	For an answer that uses analysis to support an evaluative judgment to determine the extent to which economic growth determines the SOL in Singapore.	4-5
E2	For an answer that makes some attempt at an evaluative judgment to determine the extent to which economic growth determines the SOL in Singapore.	2-3
E1	For an unexplained evaluative statement(s).	1

TAMPINES MERIDIAN JUNIOR COLLEGE

PRELIM PAPER

Question 1: The pharmaceutical industry

Extract 1: Spending on research and development (R&D) in the United States (US)

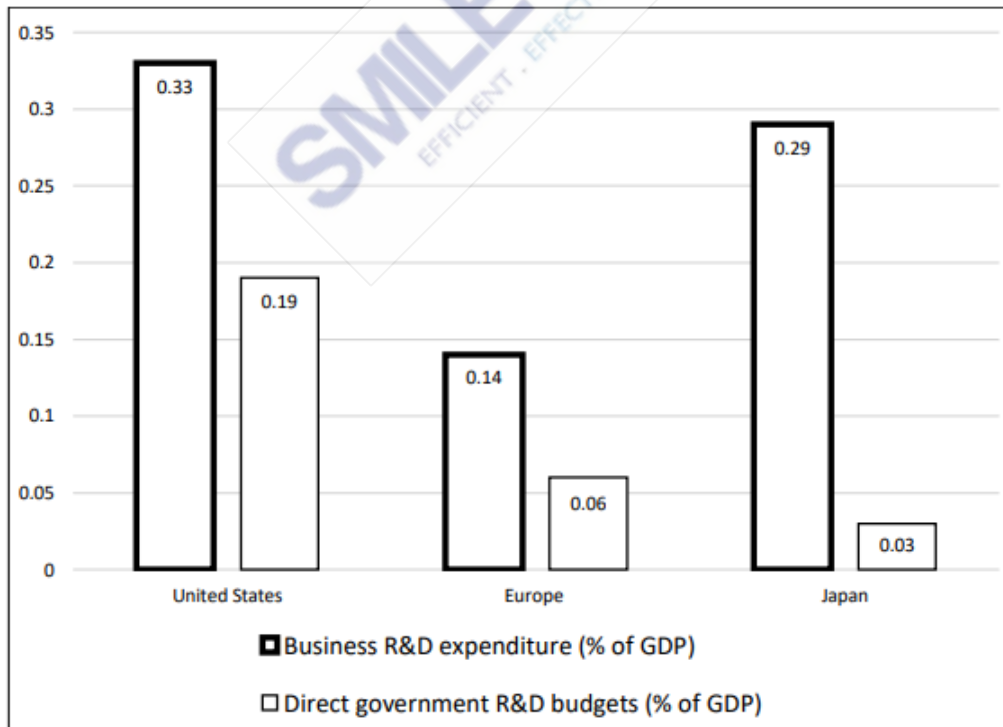
Every year, the US pharmaceutical industry develops a variety of new drugs that provide valuable medical benefits.

In 2019, the pharmaceutical industry spent \$83 billion dollars on R&D. Adjusted for inflation, that amount is about 10 times what the industry spent per year in the 1980s.

The volume of R&D projects undertaken by drug companies is determined by the amount of revenue they expect to earn from each new drug, the expected cost of developing that drug, and government policies that influence the supply of and demand for new drugs. Government policies include subsidies, tax incentives, issue of patents and certain statutory provisions that could delay approval of generic drugs. This delayed approval would then provide pharmaceutical companies with a period of market exclusivity for their branded drugs when competition is legally restricted.

Source: CBO publications, April 2021

Figure 1: Business R&D expenditure and direct government R&D budgets for pharmaceutical industry, 2014



Source: OECD, 2017

Extract 2: A fair price for prescription drugs

A prescription drug is available to the public only upon prescription written by a physician, dentist, or other practitioner licensed to do so. The wholesale price for the 30 top-selling prescription drugs in US has increased by 76% from 2010 to 2014.

Pharmaceutical companies often argue that their prices take into account R&D costs and that they practise tiered pricing, which allows poorer countries to pay less, subsidised by higher prices in wealthy countries.

To increase the affordability and promote equity in access to prescription drugs, India has issued a Drug Price Control Order which aims to cap prices of over 300 drugs in the Indian market. However, numerous economic studies indicate that price controls, by cutting the return that pharmaceutical companies receive on the sale of their drugs, would reduce the number of new drugs brought to the market. So, a short-run benefit for consumers could lead to a long-run negative impact on social welfare. This damage would not be fully felt for several decades because it takes so long to develop new drugs.

Sources: Forbes India, 23 April 2018 and The Digest, NBER, accessed 20 July 2021

Extract 3: Vaccine industry 'under-investing' in R&D

Reliance on the private market to develop vaccines has failed, leaving the world vulnerable to pandemics such as COVID-19, public health experts say.

The Age, an Australian newspaper, revealed that at least three vaccines that may have prevented COVID-19 were cut off from funding as they were about to go into clinical trials in Australia. Vaccines are far more expensive to develop and produce than other drugs, and many of the potential customers are the global poor, making big pharmaceutical companies reluctant to invest as there is just not enough profit margin for them.

In addition, R&D entails significant externalities that are difficult to capture by the private innovator. The gap, sometimes considerable, between social and private rates of return to inventions results in significant underinvestment in R&D.

Furthermore, once vaccines are produced, governments typically obtain vaccines at a price that covers manufacturing cost and not R&D cost. Since potential inventors anticipate this problem, they invest less in research than they would otherwise. All these reasons explain why private developers lack incentives to pursue research on socially valuable projects in the vaccine industry.

To solve the problem of underinvestment in R&D in the Australia's pharmaceutical industry, two charities were set up: the CEPI¹, to fund vaccine research, and GAVI², which works to distribute vaccines to the poor. Dr Seth Berkley, CEO of GAVI, said it was very difficult to get funding for research on vaccines for viruses that have not yet become pandemics. Australia has pledged \$250 million for GAVI between 2016 and 2020, and had given \$6.5 million to CEPI before the start of the current pandemic.

Opportunely, market failure in the R&D for COVID-19 vaccines has dissipated as billions of people demand access to a vaccine. Consumers are also willing to pay a higher price than the manufacturing cost. Furthermore, massive injections of research money by governments have contributed to eliminating market failures.

Patents also attempt to bring the private returns captured by inventors closer to the social value of their inventions as through it, a temporary monopoly right is granted to the inventor.

Sources: <https://www.ncbi.nlm.nih.gov/pmc/articles>, 1 July 2020 and
The Sydney Morning Herald, 13 April 2020

¹The Coalition for Epidemic Preparedness Innovations (CEPI) is a foundation that takes donations from public, private, philanthropic, and civil society organisations, to finance independent research projects to develop vaccines against emerging infectious diseases.

²The GAVI Alliance (formerly the Global Alliance for Vaccines and Immunisation) is a public-private global health partnership with the goal of increasing access to immunisation in poor countries.

- (a) With reference to Figure 1, compare the business R&D expenditure to direct government R&D budgets for pharmaceutical industry in the different countries. [2]

- (b) Patents delay the approval of generic drugs and provide pharmaceutical companies with a period of market exclusivity for their branded drugs when competition is legally restricted [Extract 1].

Define what a contestable market is and explain how the expiry of a patent will affect the contestability of the pharmaceutical industry. [3]

- (c) Explain how a profit-driven pharmaceutical company determines the “volume of R&D projects” (Extract 1) to undertake. [3]

- (d) Extract 2 states that pharmaceutical companies “practise tiered pricing, which allows poorer countries to pay less, subsidised by higher prices in wealthy countries”.

Explain the pricing strategy adopted by the pharmaceutical companies, and how it helps them to cover their R&D costs. [4]

- (e) Assess how the introduction of drug price control in India as described in Extract 2 is likely to affect its social welfare in the short run and long run. [8]

- (f) Discuss whether the issue of patents is the best government policy to deal with the problems caused by underinvestment in R&D. [10]

[Total: 30]

Question 2: Productivity and growth in the United Kingdom (UK)

Extract 4: Productivity slowdown in advanced economies

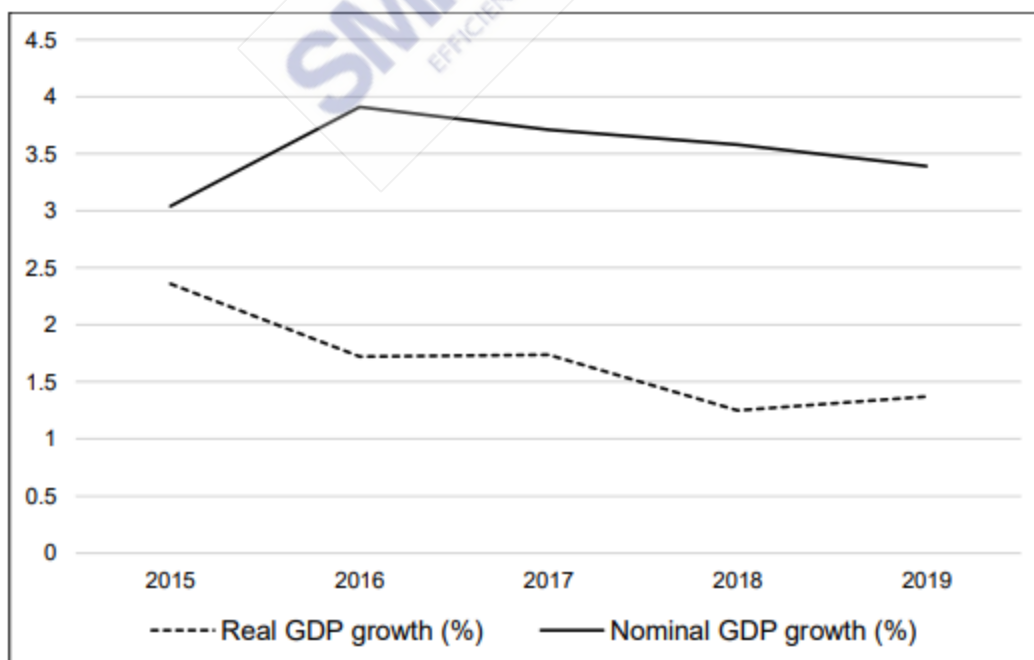
Productivity, commonly measured by gross domestic product (GDP) per man-hour, indicates how efficiently production inputs, such as labour and capital, are being used in an economy to produce a given level of output. It is considered a key source of economic growth and competitiveness and, as such, is basic statistical information for many international comparisons and country performance assessments.

Several advanced economies including the UK have been grappling with slow productivity growth. A key reason for the slowdown is the failure to accumulate capital: weak investment has left labour with too little capital to work with. This is a serious problem, but also a reassuringly conventional one. Since the low capital spending stems from a lack of credit or confidence, it is easy enough to imagine a reversal once financial wound heal and global sentiments revive.

Structural factors also account for the slowdown. From the mid-eighteenth century, as the Britons were major innovators in machinery such as steam engines, textile equipment and tool-making, they pioneered the railway system, built many systems, and manufactured most of the equipment other nations used. However, with the exceptional growth that the UK enjoyed in the past, it is now left with less room for further productivity growth, contributing to its inevitable slowdown.

Source: various

Figure 2: The UK's GDP Growth (2015 – 2019)



Source: Office of National Statistics, the UK

Table 1: Selected Macroeconomic Indicators for the UK (2015 – 2019)

	2015	2016	2017	2018	2019
Value of sterling (USD per £)	1.53	1.36	1.29	1.33	1.28
External Balance on goods & services (billion, in US\$)	-43.19	-48.76	-38.47	-34.00	-35.06
Fiscal Balance (% of GDP)	-4.6	-3.3	-2.5	-2.2	-2.1
Productivity growth (%)	0.7	0.3	0.7	0.3	0.2

Source: Office of National Statistics, the UK

Extract 5: Does a fall in the value of the pound correct the UK trade deficit?

The theory behind the relationship between the value of a country's currency and its balance of trade is as follows: A fall in the value of the pound against the currencies of its trading partners would increase the price of imports in the UK and decrease the price of UK goods abroad. This should lead to a decrease in quantities consumed of imports and an increase in quantities consumed of UK exports. According to the Marshall-Lerner condition, the depreciation of the pound will reduce the deficit on the UK balance of trade if the sum of the price-elasticity of demand for imports and exports is greater than one.

However, studies have shown that the demand for exports from the UK and imports into the UK is not very price sensitive. Hence, a depreciation will likely increase a trade deficit rather than reduce it.

Source: Economics Today, September 2019

Extract 6: Making inclusive growth happen in the UK

Ten years ago, the average income of the richest 20% in the UK was seven times that of the poorest 20%; in 2018, it was more than twelve times greater. These figures present a stark picture of how our traditional economic growth agenda has neglected inclusiveness and generated increasingly unequal benefits from growth. They show how those at the top have pocketed the majority of the gains of improved economic performance.

While a progressive income tax – one where higher tax rates are applied to higher levels of income – does play a role in reducing the UK's inequality problem, its impact is mainly felt in its function as an automatic stabiliser. Automatic stabilisers work to offset fluctuations in economic activity without direct intervention by policymakers. To ensure a fairer distribution of the proceeds from growth, there is a need to understand

that inequality is not just about income; it extends into educational attainment, employment opportunities and health status.

First, investment in education and skills is vital for supporting the poorest and promoting social mobility. In particular, more support should be given to schemes to enable small-medium enterprises (SMEs) to collaborate on apprenticeships and other types of training relevant in an increasingly globalised world.

Second, there needs to be greater funding for labour market training programmes to enable all unemployed people to address skills deficiencies and help more people enter employment.

Finally, there are stark differences in health outcomes across the UK – with large disparities in healthy life expectancy between the most and least deprived areas in England. Public health can contribute to reducing health inequalities by ensuring fair subsidies for healthcare, targeted at those who need it the most, and integrating health equity considerations into policy and programs.

Source: Making Inclusive Growth happen in the UK, OECD, accessed 20 July 2021

Extract 7: Delivering strong and sustainable growth in the UK

The UK has committed to net-zero emissions³ by 2050, in increasing recognition for strong and urgent action to tackle climate change. However, the UK government needs to overhaul its policy framework as it is falling behind in its plans to reach net-zero emissions.

To address the ongoing poor productivity performance, the UK needs to rebalance its economy from consumption towards investment by investing in infrastructure, innovation and skills. To be consistent with the commitment to net-zero emissions, such investments must help the UK build its innovation strengths in environment-related sustainable technologies, goods and services, and enable the country to gain an increased share of new and growing international markets.

Innovation policy needs to go beyond merely correcting market failures to achieve net-zero emissions. It is necessary to improve resource efficiency through developing an economy that is restorative and regenerative, utilising output as inputs in a continual cycle. Furthermore, policy needs to encourage firms to undertake technological innovation that is sustainable, and to roll it out at a scale that can drive down costs.

Source: Delivering Strong and Sustainable Growth in the UK, www.lse.ac.uk, 4 March 2020

³Net-zero emissions refer to achieving an overall balance between greenhouse gas emissions produced and greenhouse gas emissions taken out of the atmosphere.

- (a) Distinguish between the terms 'nominal GDP' and 'real GDP'. [2]
- (b) Using Figure 2,
- (i) compare the UK's real GDP growth and nominal GDP growth between 2015 and 2019. [2]
 - (ii) explain what happened to the general price level for the period shown. [2]
- (c) Suppose the price of imported goods into the UK rises due to a depreciation of the pound (Extract 5). Using the concept of cross elasticity of demand, explain what would happen to consumer expenditure by Britons on domestically produced goods and services. [3]
- (d) Extract 7 states that policy needs to encourage firms to roll out technological innovation at a scale that can drive down costs.
- Using an appropriate diagram, explain why technological innovation needs to be rolled out at a large scale in order to drive down a firm's costs. [3]
- (e) Discuss whether the UK's balance of trade position in Table 1 is a cause for concern. [8]
- (f) Discuss whether a progressive income tax system is sufficient to promote inclusive and sustainable growth in the UK. [10]

[Total: 30]

Answer **three** questions in total.

Section A

One or two of your three chosen questions must be from this section.

- 1** Plant-based oat milk has gained favour amongst consumers who consider it healthier and more environmentally sustainable than cow's milk. At the same time, there have been disruptions in the production of oat milk. Oat milk is commonly used in milk-based beverages offered by some cafes.
 - (a)** Explain how, according to economists, the pursuit of self-interest can help to address the problem of limited resources and unlimited wants. [10]
 - (b)** Discuss how the above events might impact consumer expenditure on oat milk and related goods. [15]

- 2** FoodInnovate is a government initiative that enables food companies to innovate, scale up and expand overseas. Its network of shared production facilities allows food, manufacturing and delivery companies to collaborate in developing, producing and distributing new, ready-to-eat foods. However, keen competition may make such collaboration difficult.

Discuss the extent to which such collaboration among companies would result in better outcomes for consumers, food companies and the economy. [25]

- 3** High levels of sugar consumption are contributing to soaring rates of obesity, which is a major risk factor for many serious health conditions. Obesity is an outcome of market failure, and innovation, not taxes on soft drinks, may be the solution.
 - (a)** Explain why obesity may be considered an outcome of market failure. [10]
 - (b)** Discuss the extent to which government policies can address this market failure. [15]

Section B

One or two of your three chosen questions must be from this section.

- 4** The following data relate to the two stated economies in 2019.

	Singapore	Vietnam
Real GDP growth rate (%)	0.73	7.0
Unemployment rate (%)	4.11	2.01
Human Development Index	0.938	0.704
Gini Coefficient (After accounting for government transfers and taxes)	0.398	0.35

Source: various

- (a) Using economic analysis, explain why some economies have higher real GDP growth rate than others. [10]
- (b) Discuss whether it is sufficient to use the economic performance of countries to explain the difference in their living standards. [15]
- 5** Governments have aims in relation to price stability and economic growth.
- (a) Explain why Singapore chooses exchange rates rather than interest rates as its main tool of monetary policy. [10]
- (b) Assess whether trade-offs between macroeconomic objectives are inevitable when the Singapore government allows its currency to appreciate in order to achieve price stability. [15]
- 6** The surging coronavirus rates have caused the global economy to fall into the worst recession. Despite high demand for healthcare workers in the country, unemployment rate in the United States (US) climbed to a record high of 14.7% in 2020. A US\$900 billion Covid-19 relief bill was passed to provide more support to firms and the unemployed, increasing the US budget deficit three-fold.

Source: Congressional Budget Office, 2020

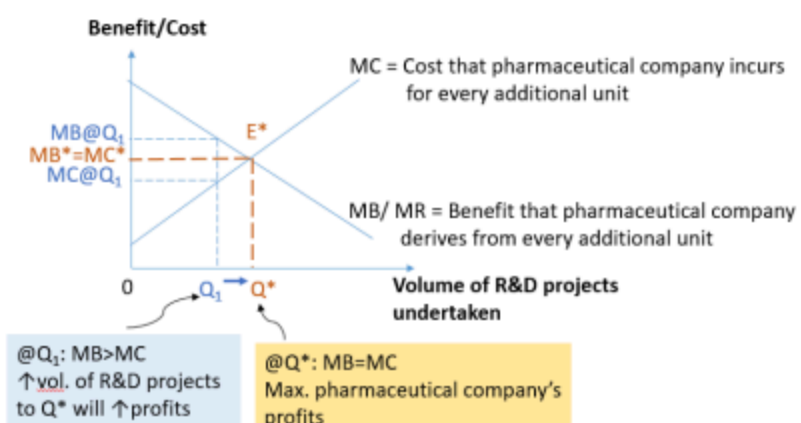
- (a) Explain how the surge in coronavirus could result in the US government failing to achieve its macroeconomic objective of low unemployment. [10]
- (b) Discuss how far supply-side policies could reduce high unemployment and rising budget deficit in the US. [15]

Question 1: The pharmaceutical industry

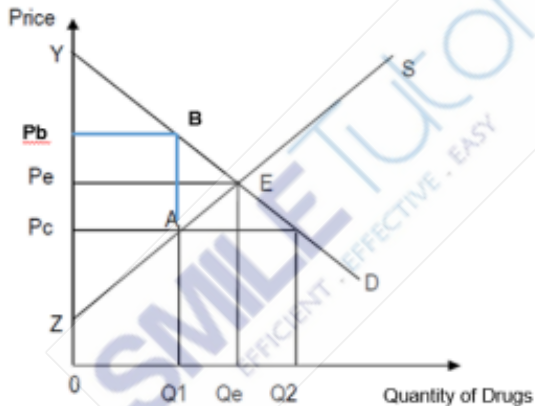
Suggested Answers

(a)	With reference to Figure 1, compare the business R&D expenditure to direct government R&D budgets for pharmaceutical industry in the different countries. [2]
	<p>Similarity: The business R&D expenditure is higher than the direct government R&D budgets for pharmaceutical industry, for the US, Europe and Japan. [1]</p> <p>Difference: The contribution by business R&D expenditure relative to direct government R&D budgets is the largest in Japan and smallest in Europe. [1]</p> <p><u>OR</u> The difference between business R&D expenditure and direct government R&D budgets is the greatest in Japan, followed by the US and then, Europe</p>
	<p><u>Strengths</u> Content: A: Most students were able to explain the similarity</p> <p>Skills: R: Most students responded accurately to the command word “compare” and explain a similarity and difference.</p> <p><u>Areas for Improvement</u> Content: A-: Some students were not comfortable when presented with such “cross-sectional data”. Although the question requested the students to compare between “business R&D” & “direct government R&D”, some students compared between the countries mentioned for each type of R&D instead.</p> <p>Skills: R-: A handful of students explained either only a similarity or a difference, rather than to explain both.</p>
(b)	<p>Patents delay the approval of generic drugs and provide pharmaceutical companies with a period of market exclusivity for their branded drugs when competition is legally restricted [Extract 1].</p> <p>Define what a contestable market is and explain how the expiry of a patent will affect the contestability of the pharmaceutical industry. [3]</p>
	A contestable market is one in which there is free entry to and exit from the industry and hence there is threat of potential competition. [1]

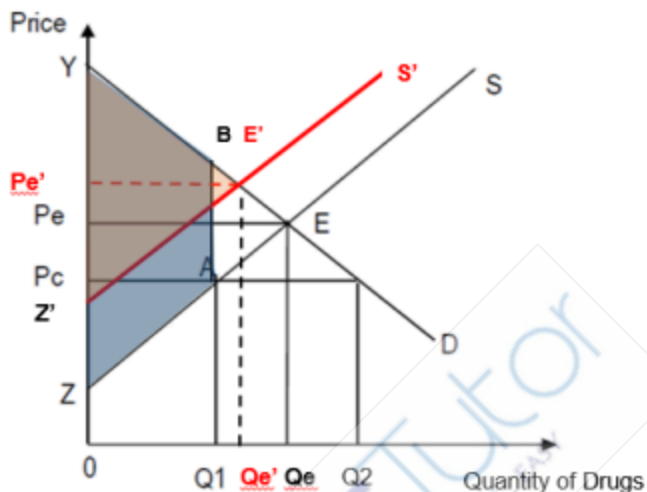
	Expiry of a patent will make the pharmaceutical industry more contestable [1] as other firms can enter to sell a generic version of the drugs [1] upon approval of sale by the government.
	<p><u>Strengths</u></p> <p>Skills:</p> <p>[R]: Most students tried to define what contestability is before trying to explain the impact of an expiry on the contestability of the pharmaceutical industry.</p> <p><u>Areas for Improvement</u></p> <p>Content:</p> <p>[A-] Majority of the students could not distinguish between “contestability—potential competition” and “competition—actual competition”. Most students had the impression that these 2 concepts were the same.</p>
(c)	Explain how a profit-driven pharmaceutical company determines the “volume of R&D projects” (Extract 1) to undertake. [3]
	<p>A profit-driven pharmaceutical company aims to maximise its profits.</p> <p><u>Explain how the volume of R&D projects are determined using the marginalist principle.</u></p> <p><u>State the profit-maximising condition.</u> [1]</p> <p>The volume of R&D projects undertaken by the company will occur when the marginal revenue (MR) = marginal cost (MC) of undertaking the project.</p> <p><u>Consider $MR > MC$ or $MR < MC$</u> [2]</p> <p>When $MR > MC$, the last unit of R&D project undertaken adds more revenue to the company than its costs. Hence the company will continue to undertake R&D projects as profits can be increased from an additional unit of R&D project. Vice versa when $MR < MC$.</p> <p>Hence the volume of R&D will occur when $MR = MC$ as no further profits can be added to the company from additional units of R&D projects undertaken. That is, the company's profits are maximised.</p> <p><u>Acceptable:</u> If students use the term MB instead of MR</p>

	 <p>(Diagram is for illustration only. Not required.)</p>
	<p>Strengths Content: A: Majority of the students were able to state the “profit maximising condition”</p> <p>Areas for Improvement Content: A-: Majority of the students did not develop their idea by elaborating on the “<u>marginalist principle</u>”. A-: A handful of students stated that the <u>profit-maximising condition</u> was $P=MC$, when it should have been $MR=MC$.</p> <p>Skills: [R-]: Some students approached the question by explaining how a firm could possibly earn supernormal profits first before suggesting how this presence of supernormal profits earned will enable firms to channel this supernormal profits to R&D. While this is true, this approach does not explain <u>how a firm would decide on the Q_e volume of R&D projects to undertake</u>. It merely explains why firm is able to undertake R&D.</p>
(d)	<p>Extract 2 states that pharmaceutical companies “practise tiered pricing, which allows poorer countries to pay less, subsidised by higher prices in wealthy countries”.</p> <p>Explain the pricing strategy adopted by the pharmaceutical companies, and how it helps them to cover their R&D costs. [4]</p>
	<p>The pricing strategy adopted by the pharmaceutical companies is likely to be price discrimination.</p> <p><u>Explain the pricing strategy adopted by the pharmaceutical companies is likely a form of price discrimination (PD). [2]</u></p> <p><u>Define PD</u></p>

	<p>Price discrimination happens when a firm sells the same product to different groups of consumers at different prices when the price difference cannot be explained by differences in the cost of production.</p> <p><u>Explain the companies are practising PD as the conditions of PD seem to be met</u> The companies practise tiered pricing by segmenting the markets – poorer countries vs wealthier countries. The price elasticities of demand are likely to be different between the 2 groups of countries. The demand for pharmaceutical drugs in the poorer countries is likely to be price elastic as the spending on these drugs will take up a larger proportion of their incomes unlike that in the wealthier countries where the demand is likely to be price inelastic. This enables the pharmaceutical companies to charge lower prices for drugs sold in the poorer countries and higher prices in the wealthy countries. Assuming resale is not possible and there is no cost difference in supplying the drugs to the different countries, then the pricing strategy is a form of PD.</p> <p><u>Explain how the pricing strategy helps to cover their R&D costs. [2]</u> Since the price elasticity of demand (PED) for drugs in the wealthy countries is < 1, a higher price charged (i.e. higher than the price before PD) will lead to a less than proportionate fall in its quantity demanded. That is, the gain in revenue from the increase in price is more than the fall in revenue from the decrease in its quantity demanded. On the hand, the PED for drugs in the poorer countries is > 1 where a lower price charged (i.e. lower than the price before PD) will lead to a more than proportionate increase in its quantity demanded leading to a rise in the total revenue.</p> <p>Hence overall total revenue will be higher than without PD enabling the pharmaceutical companies to better able to cover their R&D costs.</p>
	<p><u>Areas for Improvement</u></p> <p>Content:</p> <p>A-: Many students were not able to identify the content intent of this question—Price Discrimination (PD). These students went and gave a <i>descriptive explanation</i> based on the CSQ evidence.</p> <p>A-: A number of students gave an <u>inaccurate factor affecting PED</u>. They used the “income factor affecting DD” when it should have been “proportion of income spent”.</p> <p>A-: A number of students explained how PD will help them to earn more profits, instead of total revenue. These students went on to explain how these profits earned will help them to cover the R&D cost and carry out R&D.</p> <p>Skills:</p> <p>R-: some students explained how firms in developed countries practiced PD so as to enable them to “subsidise developing countries” by charging lesser. They failed to recognise that <u>firms charging lesser in developing countries</u> is also an act of PD.</p>

(e)	Assess how the introduction of drug price control in India as described in Extract 2 is likely to affect its social welfare in the short run and long run. [8]
	<p>Introduction</p> <p>“Drug price control in India as described in Extract 2” refers to a maximum legally permissible price and it is set below the equilibrium price in order to be effective. It aims to protect the consumers and to achieve a fairer distribution of essential goods and services.</p> <p>The social welfare of a society is given by the sum of consumer and producer surplus. At market equilibrium, the social welfare is maximised because the sum of consumer and producer surplus is maximised.</p> <p>Development 1: How a price ceiling works and how it affects social welfare in the short run</p>  <ul style="list-style-type: none"> • With a maximum price/price ceiling of OP_c imposed, consumers now pay a lower price and consumer surplus is increased from $YEPE$ to $YBAP_c$. • As such, the introduction of drug price control by capping prices of over 300 drugs in the Indian market is an effective short-term measure to lower the price of goods and services such as drugs thereby increasing the “affordability and promote equity in access to prescription drugs”. [Extract 2] • While consumer surplus has increased, producer surplus has fallen from $PeEZ$ to $PcAZ$. • Consequentially, there is a fall in social welfare from YEZ to $YBAZ \rightarrow$ there is a deadweight loss of BAE. • [Even if the black market price, P_b, prevailed \rightarrow deadweight loss of BAE persist. Consumer surplus: P_bYB; producer surplus: ZP_bBA] <p>C, R & T: addressed the intent of Qn by linking to “Price ceiling” & defining the term.</p> <p>R & T: Explained what is meant by “social welfare”.</p> <p>A: Explained how a price ceiling works in the short run with an accurate diagram</p> <p>C, A & R: Explained how price ceiling results in an increase in CS</p> <p>C, A & R: Explained how price ceiling \downarrow inequity with links to CSQ evidence</p> <p>A & R: Explained how price ceiling results in a fall in PS & how the changes in CS & PS results in overall \downarrow social welfare</p>

drugs, would reduce the number of new drugs brought to the market" → Total revenue earned falls from $0P_eE Q_e$ to $0P_cA Q_1$, assuming that the price ceiling is removed → fall in profitability → firms that did not earn enough to cover total cost in the long run will shut down and exit the market → fall in number of suppliers → leftward shift in supply from S to S'



A & R: Alternative explanation (assuming that the govt removes the price ceiling) of how a fall in SS in the LR results in overall further ↓ social welfare (Gain in social welfare : "orange" triangle < loss in social welfare: "blue" trapezium)

- As the market equilibrium changes from E (with price controls) to E' (where $D=S'$, assuming that price controls were removed in the long term, possibly due to a knee jerk reaction by the government when they observe a fall in the number of drug suppliers or if the black market price prevails), social welfare falls from $YBAZ$ (after implementing the price ceiling) to $YE'Z'$ (assuming that price controls were removed in the long term)

Conclusion:

- [E/Criterion: Degree of impact] This fall in social welfare depends on the extent of fall in number of suppliers.
- [E/Reasoning] The social welfare might increase if the fall in number of suppliers is minimal. Having said that, the social welfare $[YE'Z']$ would definitely be smaller compared to the original welfare $[YEZ]$ if the price control was not implemented. Furthermore, the number of firms is likely to increase if the firms were able to retain their revenue and supernormal profits earned. As the number of firms increase, the social welfare is likely to increase.

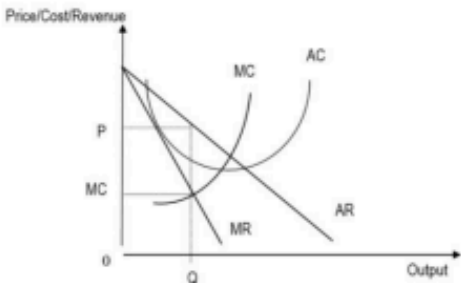
EV: Gave an overall synthesis by commenting on the extent of ↓ social welfare in both the SR & LR

	Diagrams drawn are meaningfully utilised in the analysis.		
	Good use of evidence from the extract.		
L1	Underdeveloped and balanced analysis of how price ceilings impacts social welfare in both short-run and long-run OR Developed but one-sided analysis of how price ceilings impacts social welfare in either short-run or long-run. Limited/poor use of evidence from extracts.	1-3	
E2	Provides a well-reasoned stand through the use of explicit criteria	2	
E1	Unsubstantiated stand without considering the context	1	
<p><u>Strength:</u> Content:</p> <ul style="list-style-type: none"> Majority of the students were able to identify the price control mentioned—Price ceiling <p>Skills:</p> <ul style="list-style-type: none"> Majority of the students addressed the intent of the question by attempting to explain both the short & long run impacts. <p><u>Areas for Improvement</u> Content:</p> <ul style="list-style-type: none"> A-: Majority of the students did not know what “social welfare” implies. They thought that social welfare refers to equity, when it should have been efficiency, based on the consumer and producer surpluses. Consequentially, majority of the students were unable to indicate the presence of deadweight losses on their diagrams drawn. A-: Although students were able to indicate the shortages created when the price ceiling is implemented, they were not aware of that only <u>Qs</u> amount of drugs are produced and 			

	<p><u>made available for consumers</u>. Many students had the idea that Qd amount of drugs would be consumed and explained how consumers are better off.</p> <ul style="list-style-type: none"> • A-: students are not aware that the deadweight loss would be experienced regardless if the black-market price prevailed. • A-: Some students also have the mis-conception that shortages created and the black market price are long run effects of the price ceiling. <p>Skills:</p> <ul style="list-style-type: none"> • A-: Explanation can be <u>descriptive</u>, especially for the long run impact. Some students merely copied and pasted relevant CSQ evidence without explaining the economic implications. E.g. how the fall in expected returns possibly results in a fall in total revenue, which could also be referenced from the diagram. Lifting of CSQ evidence \neq analysis. 	
(f)	Discuss whether the issue of patents is the best government policy to deal with the problems caused by underinvestment in R&D.	[10]
	<p>Identify the type of market failure in the R&D industry: There are positive externalities in production of R&D activities into pharmaceutical products.</p> <p>Explain the externality - Divergence between MSB and MPB: As mentioned in Extract 3, "R&D entails significant externalities" possibly in terms of the <u>cost savings</u> that the <u>other firms</u> in the pharmaceutical industry could enjoy as they are able to develop similar drugs due to the new knowledge created through the R&D conducted by the inventor firm, <u>for which they do not make payment for.</u></p> <p>The presence of the marginal external benefit (MEB) that arises from the existence of the <u>positive externality in production</u> causes the <u>divergence between benefit curves where $MSB > MPB$.</u></p>	<p>R & A: addressed the intent of Qn by identifying & giving a brief explanation of the source of market failure, resulting in underinvestment of R&D.</p>

	<p>A: Explanation of market failure is supported with an accurate diagram</p>
<p>Explain private and social optimal levels: Because <u>inventors only considers their own private benefits and costs</u>, ignoring any external benefits on other firms, it will conduct a less than optimum amount of research.</p> <p><u>Private optimal equilibrium occurs where $MPB = MPC$ at output Q.</u></p> <p>On the other hand, <u>social optimal equilibrium will be where MSB intersects MSC</u>, where output is at Q^*, society's welfare maximised.</p> <p>Deadweight loss and market failure: Hence, there is "significant <u>underinvestment in R&D</u>" (Extract 3) of $Q^* - Q$ units, which causes a <u>deadweight loss (shaded area) to the society</u>. The market fails because <u>allocative efficiency has not been achieved</u>. Hence, there is a need for the government to intervene.</p>	<p>R: addressed the qn by highlighting the rationale for the govt to intervene.</p>
<p>Explaining what patent is and how it works:</p> <p>Patent is "a temporary monopoly right is granted to the inventor" (Extract 3). It works by conferring a right or title for a set period, especially the sole right to exclude others from making, using, or selling the findings of the pharmaceutical research.</p>	<p>T & A: Defined and explained what a "patent" is</p>
<p>Patents work to correct the mkt failure in the R&D mkt:</p> <p>Reduces allocative inefficiency</p>	
<p>Government intervenes in the pharmaceutical industry through the use of patents.</p> <ul style="list-style-type: none"> Greater security of profits that can be earned from the R&D outcomes → increase willingness of firms to undertake 	<p>A: Explained how a patent works to mitigate the underinvestment of R&D with reference to a diagram</p>

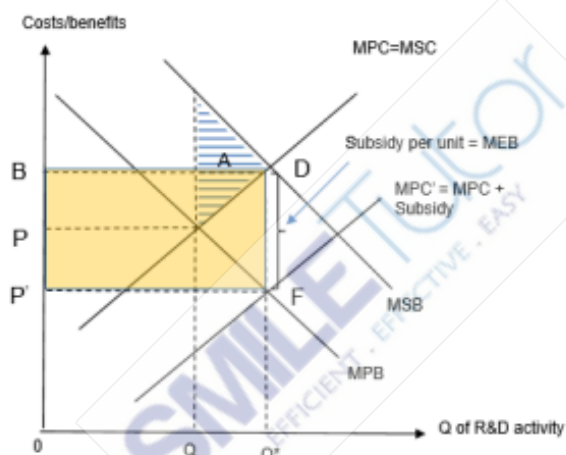
	<p>R&D as their Intellectual property (IP) right can be protected → MPB increases towards MPB'</p> <ul style="list-style-type: none"> • → private output increases → reduce amount of underinvestment of R&D → reduces deadweight loss (DWL) shown by the shaded area → reduces allocative inefficiency <p>Strength of using patents</p> <p>Enable firms to be dynamically efficient</p> <ul style="list-style-type: none"> • Patents are a form of government created <u>BTE</u> since it "provide pharmaceutical companies with a period of market exclusivity for their branded drugs when competition is legally restricted " (Extract 1) • → gives firms mkt power → ability to <u>retain supernormal profits in the LR</u> → use these funds to <u>further engage in other R&D areas</u> as mentioned in Extract 1 where "the volume of R&D projects undertaken by drug companies" is determined by the amount of profits they expect to earn from each new drug • → <u>more variety of new medicines</u> can be invented preferably before the pandemic unfolds as mentioned in extract 3 so that society can continue to rely on the private market to develop vaccines/drugs to prevent future pandemics • → more effective and improved health outcomes for consumers → improve social welfare → <u>effective and appropriate</u> government policy to deal with the problems caused by underinvestment in R&D. <p>Limitations of using patents – Unintended consequences making patents an inappropriate government policy (Any 1 limitation)</p> <p>During the period of time when the patents hold, government intervention in the pharmaceutical market may create unintended consequences instead.</p>	<p>R: Link to answer the qn</p> <p>A: Explained one strength & one limitation of a patent</p>
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	<div>  </div> <p>As explained above, the presence of patents gives firms great market power and thus great ability to set prices. A profit maximising firm will produce at output where $MC=MR$. At output Q, $P>MC$. Consumers value the last unit of the good more than it costs to produce that unit. The good is under-produced and welfare loss is incurred. Resources are thus <u>not allocated efficiently</u> → <u>inappropriate</u> government policy to deal with the problems caused by underinvestment in R&D.</p> <p>OR</p> <p>Moreover, with great market power, the firm has the ability to restrict output and charge a high price, P. Consumers are thus made worse off in this case.</p> <p>The higher price of drugs will also lead to <u>inequity</u> as <u>low-income consumers</u> such as those from India (Extract 2) will be less able to afford the drugs as it takes up a <u>greater proportion of their income</u> → <u>inappropriate</u> government policy to deal with the problems caused by underinvestment in R&D.</p> <p>[E/Criterion: Time Period] [E/Opinion] However, this problem is likely to be very <u>short term</u> in nature as there is a duration of time where the patents hold.</p> <p>[E/Reasoning] Patents enable firms to invent the new drugs needed to cure existing diseases which may otherwise not be created in the first place.</p> <ul style="list-style-type: none"> • The appropriateness of using patents is also for its long run impacts → once the patents expire → other generic drugs manufacturers can tap on the existing knowledge to make similar substitute drugs → which now costs much lesser as they do not bear the cost of the initial research • → The lower cost can translate to lower price to consumers especially for those from poorer countries like India, thus decreasing inequity for consumers (Extract 2). <p>The firms might face greater competition as the patents expire, and thus will behave more competitively.</p> <p><i>Alternatives to using patents – Subsidies or public private partnerships</i></p>	<p>EV: <input type="checkbox"/> Provides relevant and analytical comments that questions analysis outcomes (<u>extent of inequity due to higher prices brought about by the patent</u>) within the main development, using CORE</p> <p>R: Addressed the command word in the qn by explaining an alternative policy</p>
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Explaining what subsidy is and how it works to correct underinvestment in R&D:

Subsidies are transfers from the government to the firm for the provision of goods and services.

- The government can impose a per unit subsidy equal to MEB at the socially optimal output Q^* , where $MSB=MSC$.
- This will lower the marginal private costs of pharmaceutical firms & incentivise the producers to undertake more R&D. The \downarrow unit COP $\rightarrow \uparrow$ Profitability \rightarrow shift MPC to MPC' \rightarrow new private output ($MPB=MPC'$) will coincide with the socially optimal output ($MSB=MSC$) at Q^* \rightarrow eliminate amount of underinvestment of R&D \rightarrow eliminate DWL \rightarrow achieve allocative efficiency



Strengths of using subsidies

1. Enables firm to remain competitive & reduce price of drugs/vaccines

- Subsidies from the government will help firms to cover part of the R&D costs increasing their incentive to engage in R&D directly while not increasing the market power/dominance enjoyed by the firm, unlike patents.
- Furthermore, by helping R&D firms to reduce their cost of production, the new drug/ vaccine can be produced at a lower price $\rightarrow \uparrow$ access to drugs/vaccines especially in poorer countries like India (Extract 2) $\rightarrow \downarrow$ inequity

Limitations of using subsidies

1. Costly

- The long timeline and uncertain nature of R&D investments in the pharmaceutical sector suggests that a

T & A: Defined what a "subsidy" is

A: Explained how a subsidy works to mitigate the underinvestment of R&D with reference to a diagram

A: Explained one strength & one limitation of a subsidy

<p><u>very large subsidy</u> may be <u>required</u> to encourage firms to invest in R&D.</p> <ul style="list-style-type: none"> The amount of government expenditure with subsidy is given by the BDFP', yellow shaded area from the above figure. This amount will be higher if MEB was larger → <u>More costly</u> for the govt EV: → Need for private public partnership such as CEPI and GAVI in Australia (Extract 3) to co-fund the cost of R&D → <u>decreases the MPC of pharmaceutical firms as the cost of R&D is partially financed by civil groups & incentivise the producers to undertake more R&D</u> → reduce amount of underinvestment of R&D → reduces DWL → reduces allocative inefficiency <p>[Alternative analysis: Private public partnership]</p> <p>Private public partnership (PPP) work to correct the mkt failure in the R&D mkt: Reduces allocative inefficiency</p> <ul style="list-style-type: none"> Government intervenes in the pharmaceutical industry through the use of private public partnership such as CEPI and GAVI in Australia (Extract 3) to co-fund the cost of R&D → <u>decreases the MPC of pharmaceutical firms as the cost of R&D is partially financed by civil groups & incentivise the producers to undertake more R&D</u> → private output increases → reduce amount of underinvestment of R&D → reduces DWL → reduces allocative inefficiency <p>Strength of PPP</p> <ul style="list-style-type: none"> Incentivises the private sector to deliver R&D projects & final products on time and within budget while not taxing on govt's limited budget since the cost of the R&D will be partially financed by civil groups → Faster R&D and production of vaccines before a pandemic breaks out → reduces govt burden incurred when the govt has to deal with the effects of a pandemic → reduces government budgets and budget deficits → more effective use of scarce public resources <p>Limitation of PPP</p> <ul style="list-style-type: none"> R&D is long term and complex → difficult to identify all possible contingencies during project development and events and issues may arise that were not anticipated in the documents or by the parties at the time of the PPP contract → disagreements may arise between the public, private sector & the civil group → all parties will need to renegotiate the contract to accommodate these contingencies → effectiveness is reduced <p>Conclusion: Comparing between Patents & Subsidies</p>	<p>EV: <input type="checkbox"/> Provides relevant and analytical comments that questions analysis outcomes <u>(likelihood for govt to incur huge govt expenditure if subsidy can be complemented with PPP)</u> within the main development</p> <p>A: Explained how a PPP works to mitigate the underinvestment of R&D with reference to a diagram</p> <p>A: Explained one strength & one limitation of a PPP</p>
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	<ul style="list-style-type: none"> • [E/Criterion: Unintended consequences & opinion] In view of the long term nature of R&D, patents should be relatively cheaper to administer than subsidies. • [E/Reasoning] As long as the government can determine an optimal length of patent duration which does not empower the firm with too much market power and as long as firms are able to reap enough profits to cover the cost of drug development, patents should work to incentivise firms to carry out the socially optimal volume of R&D that will maximise society's welfare. <p>OR</p> <ul style="list-style-type: none"> • [E/Criterion: Nature of good] Vaccines and drugs are necessities, especially in major pandemics such as COVID-19 for everyone and not just the global poor. • [E/Reasoning] Given that the demand for vaccines & drugs tend to be price inelastic, the extent of increase in price can be very significant as firms enjoy an increase in market power when patents are enforced. • [E/Opinion] Since everyone should have access to vaccines and not be rationed off as prices increase, it would be <u>more appropriate for the government to rely on subsidies rather than patents</u> as a means to address the underinvestment in R&D. <p>OR</p> <p>Conclusion: Comparing between Patents & PPP</p> <ul style="list-style-type: none"> • [E/Criterion: Certainty of govt policy] In view of the uncertain nature of PPP, patents would be a more reliable govt policy to address the problems associated with the underinvestment of R&D • [E/Reasoning] CEPI is a foundation that takes donations from public, private, philanthropic, and civil society organisations, to finance independent research projects to develop vaccines against emerging infectious diseases. It is a grounds-up approach that cannot be coerced by the govt. This makes the source of funding uncertain & overly fluid. • [E/Opinion] In view of the urgency involved to prevent future pandemics, this makes patents more suitable and self-sustaining than PPP to ensure that the socially optimal of R&D is carry out. 		<p>E/C: Conclusion is based on a clear criterion used to compare all the policy options.</p> <p>E/O, E/Re: Opinion is provided for the conclusion based upon clear reasoning.</p>	
	Level	Descriptors	Marks	
	3	Well-reasoned, balanced answer discussing whether issue of patents is the best government policy to deal with the problems caused by underinvestment in R&D with a <u>brief explanation of the source of market failure – MEB which is ignored.</u>	5 – 7	

		Answer analyses one other government policy where patents may be lacking.	
2		<p>Answer may consist of one-sided but well developed analysis of how issue of patents lead to the development of more drugs and consumers' access to them with a <u>brief explanation of the source of market failure – MEB which is ignored.</u></p> <p>Answer may not have considered other government policies. Answer may also be without any reference to extract evidence. Answer is under-developed.</p>	3 – 4
1		<p>Answer may include only partially relevant links to patents and other possible government policies. No reference to extract evidence given. Answer is largely descriptive with inaccuracies.</p>	1 – 2
E2		Well justified evaluative comments about whether the issue of patents is the best government policy to deal with the problems caused by underinvestment in R&D	2 – 3
E1		Unjustified evaluative comments	1
<p>Strength: Content:</p> <ul style="list-style-type: none"> Most students responded appropriately to the question by bringing in one other policy, in addition to patents. <p>Skills:</p> <ul style="list-style-type: none"> Most students wrote a conclusion and elaborated on the reasoning for their judgement. <p>Areas for Improvement: Content:</p> <ul style="list-style-type: none"> Students need to prioritise explaining the problem using a theoretical framework where possible / where relevant. In this case, the problem relating to the underinvestment in R&D is positive externalities in production. Some students explained other related problems due to the underinvestment in R&D and these could be accepted but are relatively indirect. As the context is underinvestment in R&D, the market failure that should be explained is positive externalities in production (as R&D is part of the production process), as opposed to positive externalities in consumption where students explained that the positive externality is for example that there is a healthier population due to the use of vaccines (this relates to consumption, not production) and thus higher productivity in the economy. Some students wrongly explained that patents (this was explained as if there was a patent and no R&D was done yet) would give temporary monopoly power and firms would be able to earn supernormal profits, and thus would then be able to do R&D. This is incorrect because the patent applies to R&D that has already been done. Patent not being effective because it gives monopoly power making the firm complacent and thus not do R&D is an incoherent point. If there was no R&D done, then there wouldn't be the opportunity to apply for the patent, and then there wouldn't be monopoly power, and firm would not be complacent. 			

Skills:

- For a policy-related question, if the problem has not been clearly explained, students need to remember to briefly explain the problem 1st.
- There needs to be stronger linkage back to what the question is asking for. Some students merely explained that patents would give monopoly power and supernormal profits could be earned. But they did not link back to how this would increase MPB / incentivise producers to do more R&D.
- Students need to be selective on the type of limitations to write for each policy. They tend to list the limitations rather than explain and relate it to the given context.
- In the conclusion, a number mentioned that the best policy is the one that tackles the root cause of the problem. Claims were made on possible root causes with no justification or no root cause was actually identified.



2021 TMJC Prelim H2 Econs CSQ2

Question 2: Productivity and growth in the United Kingdom (UK)

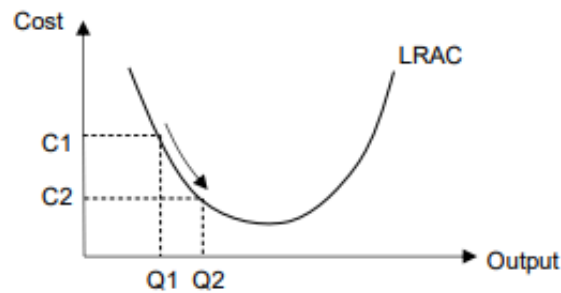
(a)	<p>Distinguish between the terms 'nominal GDP' and 'real GDP'. [2]</p> <p><u>Difference in terms of measurement – 1m</u> <i>Nominal GDP is valued at current price however, real GDP is valued at constant price (prevailing in base year)</i></p> <p><u>Implication of difference in measurement – 1m</u> <i>Nominal GDP has not been adjusted for price changes but real GDP has been adjusted for price changes.</i></p> <p>OR</p> <p><u>Difference in terms of definition – 2m</u> <i>Nominal GDP refers to the value of final goods and services produced in a country within a year whereas real GDP refers to GDP adjusted for inflation/price changes.</i></p>
	<p><u>Markers Report</u></p> <p>Skills <i>Strengths (+): What are the required skills that were well demonstrated?</i> <i>Areas for improvement (-): What are the skills that were lacking/ not well-demonstrated?</i></p> <p><i>(-) A handful of candidates did not demonstrate the data reading skills required of "distinguish" – no contrasting word used in their answers.</i></p> <p>Content <i>Strengths (+): What are some concepts that were well-explained with clear linkages made?</i> <i>Areas for improvement (-): What are some concept gaps / conceptual errors?</i></p> <p><i>(-) Majority of candidates did not provide the precise definition of GDP.</i></p>
(b)	<p>Using Figure 2,</p>
(i)	<p>Compare the UK's real GDP growth and nominal GDP growth between 2015 and 2019. [2]</p> <p><u>Difference #1 – 1m</u> <i>Overall, real GDP growth decreased whereas nominal GDP growth increased.</i></p>

	<p>OR</p> <p><i>Real GDP growth on the overall decreased whereas nominal GDP growth increased between 2015 and 2016, and fell thereafter.</i></p> <p><u>Difference #2 – 1m</u> <i>Nominal GDP growth is consistently above real GDP growth.</i></p>
	<p><u>Markers Report</u></p> <p>Skills Strengths (+): What are the required skills that were well demonstrated? Areas for improvement (-): What are the skills that were lacking/ not well-demonstrated?</p> <p>(-) A handful of candidates did not demonstrate the data reading skills required of “compare” – no contrasting word used in their answers.</p> <p>(-) A few candidates misread the nominal and real GDP growth data.</p> <p>Content Strengths (+): What are some concepts that were well-explained with clear linkages made? Areas for improvement (-): What are some concept gaps / conceptual errors?</p> <p>NIL</p>
(ii)	<p>Explain what happened to the general price level for the period shown. [2]</p> <p><u>Diagrammatically – 1m</u> <i>Since nominal GDP growth was consistently greater than real GDP growth</i></p> <p>OR</p> <p><u>Calculation – 1m</u> <i>Inflation Rate \approx Nominal GDP Growth Rate – Real GDP Growth Rate</i> <i>Calculation likewise for the rest of the years</i></p> <p><u>Effect on GPL – 1m</u> <i>This means that the inflation rate is positive \rightarrow GPL has increased</i></p>
	<p><u>Markers Report</u></p> <p>Skills Strengths (+): What are the required skills that were well demonstrated?</p>

	<p><i>Areas for improvement (-): What are the skills that were lacking/ not well-demonstrated?</i></p> <p>(-) Majority of candidates did not demonstrate the understanding of interpreting inflation rate from Figure 2.</p> <p>Content</p> <p><i>Strengths (+): What are some concepts that were well-explained with clear linkages made?</i></p> <p><i>Areas for improvement (-): What are some concept gaps / conceptual errors?</i></p> <p>(-) NIL</p>
(c)	<p>Suppose the price of imported goods into the UK rises due to a depreciation of the pound (Extract 5). Using the concept of cross elasticity of demand, explain what would happen to consumer expenditure by Britons on domestically produced goods and services. [3]</p> <p><u>Explain impact of depreciation of £ on domestically produced goods – 2m</u></p> <p>Depreciation would result in imported goods to be relatively dearer in pounds → $\uparrow P_m \rightarrow \downarrow Q_{Dm} \rightarrow$ assuming XED positive [1] (imports and domestically produced goods and services are substitutes) → Britons would switch to domestically produced goods → $\uparrow DD$ [1], ceteris paribus.</p> <p>$XED > 1 \rightarrow \uparrow DD$ MTP or not → award 1m</p> <p><u>Explain impact on consumer expenditure on domestic goods – 1m</u></p> <p>$\uparrow DD \rightarrow \uparrow P \ \& \ \uparrow Q \rightarrow \uparrow \text{Consumer expenditure } (P \times Q)$</p>
	<p><u>Markers Report</u></p> <p>Skills</p> <p><i>Strengths (+): What are the required skills that were well demonstrated?</i></p> <p><i>Areas for improvement (-): What are the skills that were lacking/ not well-demonstrated?</i></p> <p>(+) Majority of candidates demonstrated an understanding of the question by making the strong link to consumer expenditure ($P \times Q$).</p> <p>(-) A handful of candidates did not demonstrate the understanding of the key word in the question "using the concept of cross elasticity of demand", and thus did not provide a XED value in their answer.</p> <p>Content</p> <p><i>Strengths (+): What are some concepts that were well-explained with clear linkages made?</i></p> <p><i>Areas for improvement (-): What are some concept gaps / conceptual errors?</i></p>

	<p>(-) Notable misconceptions</p> <ul style="list-style-type: none"> - When the price of imports in sterling pounds increase due to depreciation, the quantity demanded for domestically produced goods will rise, assuming that imports and domestically produced goods are substitutes with XED that is negative. → The term “quantity demanded” is use for a price factor, which in this case, to be used on imports since the price of imports have increased in sterling pounds. As consumers switch over to substitutes, it is the “demand” (non-price factor) for domestically produced goods that will increase. → XED that is negative refers to complements, not substitutes which in fact has a positive XED value. - When the price of imports in sterling pounds increase due to depreciation, the quantity demanded for exports will rise, assuming that imports and exports are substitutes with XED that is positive. → It is the imports and domestically produced goods that are substitutes with positive XED ($XED > 0$); not imports and exports. Exports from the country are domestically produced, but not all domestically produced goods are the country's exports.
<p>(d)</p>	<p>Extract 7 states that policy needs to encourage firms to roll out technological innovation at a scale that can drive down costs.</p> <p>Using an appropriate diagram, explain why technological innovation needs to be rolled out at a large scale in order to drive down a firm's costs. [3]</p> <p><u>Identify the reason for large scale operations – 1m</u> <i>Large scale operations so that the firm is able to reap extensive internal economies of scale [1].</i></p> <p><u>Explain iEOS – 1m</u> <i>Since technological innovation stem from infrastructural investment (Extract 7 para 2), large scale production would allow the firm to reap marketing EOS in which firm has stronger bargaining power when purchasing factor inputs in bulk, thereby reducing the unit costs. [Any other 1 example of relevant iEOS to infrastructural investment is also acceptable]</i></p>

Diagram – 1m



OR – Spreading of overheads

Technological solutions stem from infrastructural investment → heavy financial outlay i.e. high fixed cost [1] OR include in as technical EOS [indivisibility of input]

Large scale → $\uparrow Q \rightarrow \downarrow AFC$ since $AFC = TFC / Q$ [1]

Illustrate using cost diagram showing $AC/AFC \downarrow$ as $Q \uparrow$ [1]

Markers Report

Skills

Strengths (+): What are the required skills that were well demonstrated?

Areas for improvement (-): What are the skills that were lacking/ not well-demonstrated?

(-) Majority of candidates misinterpreted the question and provided at length an answer on the impacts of technological innovation that drove down a firm's costs instead.

(-) For those candidates who managed to identify internal economies of scale as the reason why technological innovation has to be carried out in a large scale, did not elaborate the type of iEOS in context of the question.

Content

Strengths (+): What are some concepts that were well-explained with clear linkages made?

Areas for improvement (-): What are some concept gaps / conceptual errors?

(-) Notable misconceptions

- When a firm enjoys internal economies of scale, it is depicted by a shift of LRAC downwards.

→ **Internal economies of scale is the fall in unit cost of production as scale of production increases, depicted by movement down along the LRAC, not shift of the entire curve (that would be depicting external**

	economies of scale – fall unit cost of production as the entire industry expands).	
(e)	Discuss whether the UK's balance of trade position in Table 1 is a cause for concern. [8]	
	Question Dissection	
Command word	<i>Discuss whether</i>	<p>How do you discuss?</p> <ul style="list-style-type: none"> 2-sided balanced approach of explaining and evaluating <p>What do you explain?</p> <ul style="list-style-type: none"> Thesis: Explain why UK's BOT position in Table 1 should be a cause for concern → costs associated with BOT position Anti-thesis: Explain why UK's BOT position in Table 1 should not be a cause for concern → benefits associated with BOT position <p>What do you evaluate?</p> <ul style="list-style-type: none"> Evaluate whether costs outweigh benefits of UK's BOT position in Table 1
Content/ Concept	<i>Balance of Trade & Impacts on the economy</i>	<p>What is BOT? What is the UK's BOT position in Table 1? → <i>Table 1 indicates that UK is experiencing BOT deficit (negative external balance)</i></p> <p>What are the possible costs of BOT deficit on economy?</p> <ol style="list-style-type: none"> BOT deficit → $X \text{ revenue} < M \text{ expenditure}$ → fall in $(X-M)$ → fall in AD → effect on economy & SOL? <ul style="list-style-type: none"> [EV] UK's real GDP growth is still positive albeit decreasing → what does it imply? So, is BOT deficit still a cause for concern? Falling real output and rising unemployment → increases government's budget deficit → effect on economy in the LR? <ul style="list-style-type: none"> [EV] UK's fiscal deficit decreases as a % of GDP over time which may in turn boost investors' confidence instead. So, is BOT deficit still a cause for concern? <p>What are the possible benefits of BOT deficit on economy?</p> <p>A. BOT deficit results in depreciation of sterling pound → reduce BOT deficit if Marshall-Lerner condition holds (<i>Extract 5 para 1</i>)</p> <ul style="list-style-type: none"> [EV] However, Marshall-Lerner condition may not hold true in SR (<i>Extract 5 para 2</i>)

Context	UK	Answer to be applied to the context of UK
<p><u>Introduction</u></p> <p>According to Table 1, the UK is experiencing BOT deficit, since the external balance of goods and services is in negative.</p> <p><u>Thesis: BOT deficit is a cause for concern</u></p> <p>BOT deficit \rightarrow $X \text{ revenue} < M \text{ expenditure}$ \rightarrow fall in $(X-M)$ \rightarrow fall in AD \rightarrow assuming that the economy is operating with spare capacity \rightarrow at original GPL, there is a surplus where the total spending falls short of total output \rightarrow firms experience rise in inventories \rightarrow incentivises firms to reduce production to reduce output \rightarrow via the reverse multiplier effect, there will be multiple decrease in production, output and national income \rightarrow assuming that the population size growth remains unchanged \rightarrow fall in per capita income \rightarrow fall in purchasing power \rightarrow fall in ability to consume goods and services \rightarrow worsens material SOL</p> <p>At the same time, as firms' production decrease, derived demand for labour would decrease \rightarrow fall in ADL \rightarrow assuming that wages are sticky downwards at prevailing wage rate \rightarrow $ASL > ADL$ \rightarrow there will be excess supply of labour which gives rise to demand-deficient unemployment \rightarrow increased crime rates which reduces security and thus quality of life \rightarrow worsens non-material SOL</p> <ul style="list-style-type: none"> • [EV] UK's real GDP growth is still positive albeit decreasing \rightarrow implies economic slowdown \rightarrow so the fall in $(X-M)$ may not be that significant to result in negative growth (also because of the nature of the UK's economy \rightarrow not export oriented) OR fall in $(X-M)$ could be offset by rise in other components of AD such that there is still positive growth OR <p>Falling real output and rising unemployment \rightarrow falling tax revenue collected and rising government expenditure on transfer payments (unemployment benefits) \rightarrow increases government's budget deficit \rightarrow in the LR may erode investors' confidence which may hinder the growth of FDIs \rightarrow hindering potential growth of UK</p> <ul style="list-style-type: none"> • [EV] UK's fiscal deficit decreases as a % of GDP over time which shows that the above elaboration may not be a concern. <p><u>Anti-thesis: BOT deficit is not a cause for concern</u></p> <p>BOT deficit results in depreciation of sterling pound which will reduce BOT deficit if Marshall-Lerner condition holds (Extract 5 para 1), assuming floating exchange rate \rightarrow price of exports become relatively cheaper in foreign currency \rightarrow assuming $PED_x > 0$ \rightarrow rise in DD_x \rightarrow rise in X revenue in domestic currency. At the same time, price of imports become relatively dearer in pounds \rightarrow fall in QD_m MTP given that $PED_m > 1$ due to the many close substitutes available in the global market \rightarrow fall in import expenditure & rise in C_d as elaborated in (c) above \rightarrow assuming that Marshall-Lerner condition ($PED_x + PED_m > 1$) holds \rightarrow reduces BOT deficit over time \rightarrow thus not a concern.</p>		

- **[EV]** However, Marshall-Lerner condition may not hold true in SR (Extract 5 para 2) due to time lags & contractual obligations

Synthesis & Evaluative conclusion

[E/Criterion] Nature of the problem + ease of resolving it

[E/Opinion] UK's BOT position in Table 1 is a cause for concern.

[E/Reasoning] Whether deficit is a cause for concern depends on:

- (a) Cause: Likely a fall in productivity plaguing developed countries (Ext 1 & Table 1) resulting in uncompetitive goods & svc → worrying because structural and takes time + reform to address
- (b) Duration: Persistent → corroborates with difficulty in addressing root cause of low productivity + theory does not appear to apply to UK since ML does not hold for the UK (Ext 2) and theoretical relationship is not consistently observed in Table 1 → deficit does not appear to correct itself over time via a depreciation → Negative consequences of deficit likely to persist.

Level	Descriptor	Marks
L2	<ul style="list-style-type: none"> • Two-sided developed answer on the costs and benefits of BOT deficit on the economy • Thorough use of economic analysis. • Excellent use of evidence from the extracts. • Limited or no inaccuracies in explanation. 	4 – 6
L1	<ul style="list-style-type: none"> • Underdeveloped answer on the costs and benefits of BOT deficit on the economy • Some use of economic analysis. • Little use of evidence from the extracts. • Some inaccuracies in explanation. 	1 – 3
E	<ul style="list-style-type: none"> • Coherent, clear and insightful evaluation throughout the answer, making reference to key criteria in evaluation. 	1 – 2

Markers Report

Skills

Strengths (+): What are the required skills that were well demonstrated?

Areas for improvement (-): What are the skills that were lacking/ not well-demonstrated?

(+) Majority of candidates demonstrated an understanding of the command word "Discuss", and provided a two-sided response.

(-) Some candidates lack scope in their answers when they gave answers on same point. For example, many wrote depreciation of pound sterling as both the 'Thesis (BOT deficit is cause for concern)' and 'Anti-Thesis (BOT deficit not a cause for concern)'.

	<p>(-) Few candidates misinterpreted the question and provided at length an answer on causes of BOT deficit instead of the impacts.</p> <p>(-) Some candidates misinterpreted the change in exchange rate of sterling pounds – read it as appreciation of sterling pounds. <i>Do note that the exchange rate in Table 1 is USD/£.</i></p> <p>Content</p> <p><i>Strengths (+): What are some concepts that were well-explained with clear linkages made?</i></p> <p><i>Areas for improvement (-): What are some concept gaps / conceptual errors?</i></p> <p>(+) Most candidates are able to explain the contractionary effect of BOT deficit on the economy, although some answers may lack in rigour, i.e., lacking the adjustment process.</p> <p>(-) Notable misconceptions</p> <ul style="list-style-type: none">- Financing the large BOT deficit will worsen the budget deficit. → BOT deficit is financed by foreign reserves that the country has accumulated (from surpluses in the past). It has nothing to do with government's budget. In the event that the country has depleted its foreign reserves, it may have to finance the trade deficit by foreign borrowing (both private and government) which will in turn increase the country's foreign long-term debt; not budget- BOT deficit weakens investors confidence resulting in fall in FDIs and hence outflow of Hot Money. → Large and persistent BOT deficit does have the weakening of confidence effect, but indirectly, not the direct impact of BOT deficit. Investors' confidence level weakens because of contractionary effects due to BOT deficit [(X-M) decreases], not because of BOT deficit directly. Furthermore, the loss in investors' confidence will affect long term investment, not Hot Money (known as short term investment).						
(f)	<p>Discuss whether a progressive income tax system is sufficient to promote inclusive and sustainable growth in the UK. [10]</p> <table><tr><th colspan="3">Question Dissection</th></tr><tr><td>Command word</td><td><i>Discuss whether</i></td><td><p>How do you discuss?</p><ul style="list-style-type: none">• 2-sided balanced approach of explaining and evaluating<p>What do you explain?</p><ul style="list-style-type: none">• <u>Thesis</u>: Explain how progressive income tax system can promote inclusive & sustainable growth</td></tr></table>	Question Dissection			Command word	<i>Discuss whether</i>	<p>How do you discuss?</p> <ul style="list-style-type: none">• 2-sided balanced approach of explaining and evaluating <p>What do you explain?</p> <ul style="list-style-type: none">• <u>Thesis</u>: Explain how progressive income tax system can promote inclusive & sustainable growth
Question Dissection							
Command word	<i>Discuss whether</i>	<p>How do you discuss?</p> <ul style="list-style-type: none">• 2-sided balanced approach of explaining and evaluating <p>What do you explain?</p> <ul style="list-style-type: none">• <u>Thesis</u>: Explain how progressive income tax system can promote inclusive & sustainable growth					

		<ul style="list-style-type: none"> • Anti-thesis: Explain how progressive income tax system cannot promote inclusive & sustainable growth <p>What do you evaluate?</p> <ul style="list-style-type: none"> • Evaluate the extent to which progressive income tax can promote both inclusive and sustainable growth
Content/ Concept	<p><i>Progressive income tax system</i></p> <p><i>Inclusive growth</i></p> <p><i>Sustainable growth</i></p>	<p>What is it? How does it help achieve sustained economic growth first, and how it helps achieve inclusive growth as well as sustainable growth?</p> <p>What is it? What does inclusive growth entail?</p> <p>What is it? What does sustainable growth entail?</p>
Context	<i>UK</i>	Answer to be applied to the context of UK

Introduction: Define key terms [may be embedded into main development]

- **Inclusive Growth:** a rate of growth that is sustained over a period of time, is broad-based across economic sectors and creates productive employment opportunities for the majority of the country's population. It is sustained growth that takes into account income distribution
- **Sustainable Growth:** a rate of growth that can be maintained without creating other significant economic problems, particularly for future generations
- **Sustained Growth:** higher real output accompanied by lower price level i.e., non-inflationary growth. This is due to rise in potential growth. It occurs when actual growth is accompanied by an increase in potential capacity.
- **Progressive Y Tax:** Tax system where a higher tax is applied to higher levels of Y

Development: "Discuss whether the progressive income tax system is sufficient"

Thesis: *Progressive Y Tax is sufficient to a small extent to bring about inclusive & sustainable growth in UK*

Progressive Y Tax → What it is and how it works as an automatic stabilizer to bring about sustained growth + reduce income inequality:

Automatic stabilizers are counter-cyclical fiscal measures that are built into the fiscal structure of the country. They help to smooth out the fluctuations in the business cycle and real GDP, thereby stabilizing the economy.

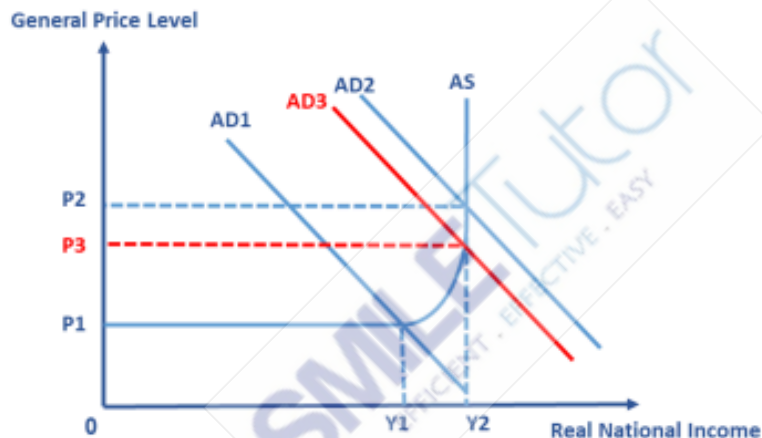
A progressive income tax may be sufficient to bring about inclusive and sustainable growth in UK.

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When the economy is expanding rapidly, the amount of tax revenue increases as more people fall into higher tax brackets. As people earn more when the economy grows, they will gradually move into higher income tax brackets and will face higher tax rates without any action by the government. This will reduce the effect of any rise in AD on national income by dampening the increase in households' disposable income.

Hence, during an economic upswing, a progressive Y tax helps prevent AD from rising too rapidly i.e., from AD1 to AD3 instead of to AD2, and thus prevents the economy from overheating too much i.e., suffering from severe demand-pull inflation since GPL rises from P1 to P3 instead of to P2.

This **helps promote non-inflationary growth** as actual growth of Y1 to Y2 is accompanied by a smaller increase in GPL from P1 to P3 (instead of a larger rise in GPL from P1 to P2 had AD1 increased more to AD2 in the absence of a progressive Y tax).



[EV]

[E/Criterion: Depth/Severity of problem relative to progressiveness of Y tax]

[E/Opinion + Reasoning] In cases where the Y tax is not progressive enough or AD is rising too quickly, it may not be able to rein in /slow down the excessive increase in AD and hence overheating and inflationary growth may still result.

In addition, a progressive Y tax **reduces income inequality** by transferring a larger percentage of the incomes of high-Y earners to the government as tax revenue. The disposable incomes of the poor fall by a smaller extent, allowing them to still be able to afford basic goods and necessities. This helps to promote equity and inclusive growth.

Moreover, a progressive income tax extracts a larger percentage of income during booms and so allows the tax revenue to grow faster. This allows the government to set aside a bigger budget to finance initiatives that promote sustainable and inclusive growth.

Antithesis: Progressive Y Tax is not sufficient to bring about inclusive & sustainable growth

Progressive Y Tax → How well it works to promote inclusive & sustainable growth: Limitations

- "inequality is not just about income": In itself the progressive Y tax merely reduces income inequality by transferring a larger percentage of the incomes of the rich to the government as tax revenue → **without a progressive benefit framework to systemically transfer these tax receipts to "those who need it the most" in areas of basic need such as education, health & employment, it cannot bring about significant reductions in inequity and bring about inclusive growth since access by the poor to basic goods and necessities is not significantly improved as their incomes are still low**
- In addition, although a progressive income tax extracts a larger percentage of income during booms and so allows the tax revenue to grow faster, **again without policies to transfer these receipts in a concerted effort to preserve resources it does little to promote sustainable growth**
- Finally, as a stabilisation tool that reduces economic fluctuations (makes business cycles less pronounced i.e. flattens them) **it does little to promote sustained growth - the prerequisite for inclusive & sustainable growth**. In fact it even **dampens a boom** making the actual growth lower than it will be without a progressive income tax system, detracting from the actual growth aspect of sustained growth. It also **does not promote potential growth** which is necessary for non-inflationary growth, and which cannot be achieved once the economy reaches full employment as any further increases in AD beyond full employment only brings demand-pull inflation without any increase in real output.

Therefore, a progressive Y tax system needs to be complemented by SS-side policies to bring about inclusive and sustainable growth

{Explanation of complementary policy to illustrate the deficiencies of progressive Y tax may compensate a lack of 3 clear & well explained pts spanning thesis & anti-thesis. If there are already 3 clear and well-explained pts spanning thesis & antithesis that collectively address sustained growth that is inclusive & sustainable, there is no need to explain complementary policy in the main development – the complementary policy can be mentioned in the EV conclusion instead}

[Briefly explain] Supply side policies → What they are + how they work to bring about inclusive & sustainable growth (on top of sustained growth):

With the tax receipts amassed from a progressive income tax → government provides training to improve the skills of the labour force.

Sustained growth

This improves quality and mobility of factors of production, efficiency in the product markets, and increasing LRAS → Potential Growth. The increase in

G increases AD → Actual growth. AG + PG → sustained growth i.e., real output increases while GPL falls

Inclusive growth

Upgrading the skills of workers can be used to narrow the income gap by leveling up income of the low-income earners. By “investing in... skills” that are “consistent with the commitment to net-zero emissions”, **employability of the labour force improves** since they are equipped with expertise that are increasingly demanded in a world that calls for “strong and urgent action against climate change” → **raise Y level of low-income earners & ↓ Y inequality** * → growth is inclusive

Sustainable growth

Investment in human capital that is “consistent with the commitment with net-zero emissions” would imply that the **increase in firms’ production is achieved with a lower external cost** (e.g. pollution). Moreover, such manpower will also use resources more efficiently and thereby preventing their depletion in the near future → growth is sustainable

* Optional diagrammatic analysis to illustrate how skills training

↓ Y inequality:

Impact on the market for low skilled workers:

Education and training of low skilled, increases the skills level of these workers who become more efficient and hence are able to produce more output/man hour. This increase in productivity increases their employability. The demand for these workers increases from DD1 to DD2. At the same time, some of these workers may be equipped with the necessary skills to move to the market for high skilled labour, reduces the supply for unskilled workers from SS1 to SS2. Wages increase to W2 and there will be higher income for low-skilled workers and lower income inequality



Market for low skilled labour

Market for high skilled labour

Impact on the market for high skilled workers:

Education and training increases the supply for skilled workers. At every wage rate, the quantity supplied of labour increases and the supply curve shifts to the right to SS4 and the wage rate from decreases from W3 to W4. This lowers the income for the skilled workers and reduces income inequality. As shown from the diagram, education and training, reduces the income gap between

the low skilled and high skilled workers from W1-W3 to W2-W4 and reduces income inequality.

Alternative SS-side policy:

With the tax receipts amassed from a progressive income tax → Increase in government expenditure that focusses on clean technology, and/or reducing corporate income tax rates specifically for firms which are investing in clean technology → promotes not only sustained growth, but also sustainable & inclusive growth.

Sustained growth achieved:

In the short run, the rise in G & I increases AD and brings about actual growth. In the long run, the increase in both G and I will cause capital accumulation and increase productivity in areas related to clean technologies and production. The increase in quantity of capital goods will increase the productive capacity of the economy. AS increases and thereby leading to potential growth. In addition, as UK's environment-sustaining gds and svc gain competitiveness and recognition in this increasingly environment-conscious world → "gain an increased share of new and growing international markets" → cause further $\uparrow AD$ via $\uparrow X$ → If the AD is high enough, potential growth can be actualized and sustained growth is achieved as real output increases while GPL falls.

Sustainable growth achieved:

In this case, with sustained growth, sustainable growth is also achieved as the investment in clean technology would imply that the increase in firms' production is achieved with a lower external cost (e.g. pollution). Moreover, investing in research and development would also encourage a more efficient use of resources and thereby preventing their depletion in the near future ("improve resource efficiency through developing an economy that is restorative and regenerative, utilising output as inputs in a continual cycle")

Inclusive growth achieved:

Such clean tech improvements can be systemically applied across majority of industries allowing the gains in green productivity to be broad-based across different economic sectors, and all to enjoy a piece of the pie from the "new and growing international markets" that are increasingly environmentally conscious

Synthesis & Conclusion: Whether a progressive Y tax is sufficient to promote inclusive & sustainable growth

[E/Criterion] Nature of inclusive & sustainable growth + policy intent of progressive Y tax

[E/Opinion + Reasoning]

Summative: "While a progressive income tax does play a role in reducing UK's inequality problem, its impact is mainly felt in its function as an automatic stabilizer"

→ Both inclusive & sustainable growth require policy to not only amass the gains from growth but to share / distribute these gains

→ A progressive Y tax simply amasses the gains in its role as an automatic stabilizer and raises the potential for inclusive & sustainable growth but does not possess the discretion to actually distribute these gains

→ With it “falling behind in its plans to reach net-zero emissions”, falling productivity growth and increasing income inequality, UK cannot simply rely on automatic stabilisers such as a progressive Y tax, but needs to “overhaul its policy framework”

→ hence necessary but insufficient and should be complemented by other policies such as supply-side policies that focus on clean technology, and/or reducing corporate income tax rates specifically for firms which are investing in clean technology to help promote sustained, inclusive & sustainable growth

Additional insight:

- While it is necessary, governments must be cautioned against an overly progressive Y tax system as it can have a disincentive on work and investment → adverse impact on productivity & growth.
- UK Budget deficit → caution against excessive spending on SS-side policies → implication wrt budget deficit/fiscal debt servicing → spending needs to be prudent & calibrated based on careful CBA

Level	Descriptor	Marks
L2	<ul style="list-style-type: none"> • Two-sided developed answer on how & why a progressive income tax may or may not be sufficient to promote inclusive and sustainable growth in the UK. • Thorough use of economic (AD/AS) analysis • Clear linkage to sustained economic growth as well as income distribution and resource, environment preservation for inclusive and sustainable growth respectively • Excellent use of evidence from the extracts. • Limited or no inaccuracies in explanation. 	5 – 7
L1	<ul style="list-style-type: none"> • Underdeveloped answer on how & why a progressive income tax may or may not be sufficient to promote inclusive and sustainable growth in the UK. • Some use of economic analysis with some inaccuracies of the AD/AS analysis. • Weak linkage to sustained economic growth, with little emphasis on inclusivity and sustainability. • Little use of evidence from the extracts. • Some inaccuracies in explanation. 	1 – 4
E	<ul style="list-style-type: none"> • Coherent, clear and insightful evaluation throughout the answer, making reference to key criteria in evaluation. • A reasoned criterion-based judgement of whether progressive income tax is sufficient to promote inclusive and sustainable growth in the UK. • There could be a consideration of the key factors hindering the progressive Y tax from promoting inclusive and sustainable growth, &/or government response or ability to complement the progressive Y tax, in order to reach a reasoned judgement on the sufficiency of the progressive Y tax to promote inclusive and sustainable growth in the UK 	1 – 3

	<p><u>Markers Report</u></p> <p>Skills <i>Strengths (+): What are the required skills that were well demonstrated?</i> <i>Areas for improvement (-): What are the skills that were lacking/ not well-demonstrated?</i></p> <p>(+) Majority of candidates demonstrated an understanding of the command word "Discuss", and provided a two-sided response</p> <p>(+) There was also an appreciation of the word "sufficient" where most candidates identified and explained deficiencies in the stated policy. Several of these candidates also went on to enhance the clarity and quality of their explanation of these deficiencies with alternative or complementary policies.</p> <p>(+) Concerted efforts were made to apply to the UK context</p> <p>(-) There was a tendency to make assertive statements. Below are examples of common assertive statements:</p> <ul style="list-style-type: none"> - A progressive income tax is insufficient to promote inclusive and sustainable growth because there are other policies that can do the same. → How does the fact that other policies can fulfil the same objectives make progressive income tax insufficient? - A progressive income tax reduces inequality and so promotes inclusive growth. → 1st part of the statement is a direct lifting from Extract 6. How does reducing inequality promote inclusive growth? - A progressive income tax is insufficient to promote inclusive and sustainable growth because other policies can do better. → How? To call other policies "better" than progressive income tax, they need to, at the very least, overcome the limitations of a progressive income tax. <p>(-) There was a lack of connecting statements between the points made and the question. Many candidates explained how supply side policies without making clear how they promoted inclusive &/or sustainable growth.</p> <p>(-) Many candidates omitted sustainable growth from their answers or repeated some of the analyses they wrote for inclusive growth. Some simply planning to pull together similar analyses before writing the answer would help avoid this.</p>

Content

Strengths (+): What are some concepts that were well-explained with clear linkages made?

Areas for improvement (-): What are some concept gaps / conceptual errors?

(+) Most candidates recognised that sustained growth had to be achieved in order for inclusive and sustainable growth to be achieved.

(+) Most candidates also demonstrated an understanding of how a progressive income tax worked.

(-) Notable misconceptions

- A fall in GPL promotes equity as it makes goods, especially basic goods and necessities more affordable.

→ **This fall in GPL is not targetted at the poor; the rich experiences the same fall. And as their higher incomes/wealth allow them to cast more dollar votes than the poor, the market will still cater to them.**

- A progressive income tax lowers the incomes of the rich and raises the incomes of the poor.

→ **An income tax, irrespective of its rate, c.p., lowers disposable income. A progressive income tax, by taxing higher levels of income at higher tax rates, causes the disposable incomes of the rich to fall by a greater extent compared to the poor as their incomes are taxed a smaller percentage. This reduces the gap between disposable incomes.**

- An increase in LRAS, assuming the economy is initially operating near to or at full employment brings about actual growth alongside a fall in GPL i.e. sustained growth. The production of more goods and services results in the hiring of more labour, providing more employment opportunities, and reducing unemployment.

→ **While such an increase in LRAS brings about actual growth, it may not actually present a reduction in unemployment:**

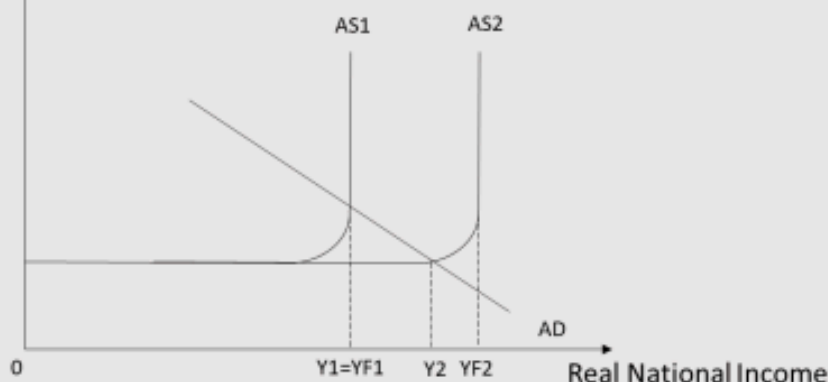
1. If the rise in LRAS is due to greater quantity of labour → if the % increase in the # of people employed < % increase in quantity of labour

→ UnM rate increases

2. If the rise in LRAS is driven by technology or greater quantities of capital goods → the actual growth was likely not have been driven by the hiring of more manpower → UnM rate unlikely to have fallen and in fact might have increased if other FOPs replace manpower

Diagrammatically (with reference to the diagram that follows), the actual growth from the increase in equilibrium real output from Y1 to Y2 is accompanied by an even larger potential growth i.e., increase in full employment level of real output from YF1 to YF2. This worsens unemployment rate as the gap between equilibrium output and full employment level of output widens.

General Price Level



- Government spending on subsidies for education increases AD via an increase in G.

→ **Actually this should be an increase in C (via a rise in disposable income) the government “spending” in this case is actually a transfer payment to households.**

(-) Explanation of how structural unemployment hinders inclusive growth tends to lack rigor. The linkages to the increase in income inequality due to a wider wage differential needs to be stronger and analysed using a DD-SS framework (though not necessarily using a demand-supply diagram). To add on, when illustrating structural unemployment diagrammatically, the appropriate diagram should be DD-SS for specific labour markets, and not ADL-ASL. The assumption of wages being sticky downwards is not of immediate relevance in the analysis for structural unemployment as it is focussed on equilibrium unemployment. This is different from disequilibrium unemployment like in the case of demand-deficient unemployment where there is a surplus of workers who are unemployed at the prevailing wage rate which is prevented from adjusting downwards due to contractual agreements or minimum wage.

(-) On the point of the assumption of wages being sticky downwards, it is not necessary to make such an assumption when explaining the reduction in demand-deficient unemployment → in this case there should just be a rise in ADL as well as a fall in unemployment.

[Total: 30]

2021 TMJC Prelim H2 Economics P2 EQ1

Plant-based oat milk has gained favour amongst consumers who consider it healthier and more environmentally sustainable than cow's milk. At the same time, there have been disruptions in the production of oat milk. Oat milk is commonly used in milk-based beverages offered by some cafes.

- a) Explain how, according to economists, the pursuit of self-interest can help to address the problem of limited resources and unlimited wants. [10]
- b) Discuss how the above events might impact consumer expenditure on oat milk and related goods. [15]

Suggested Answer Part a):

Intro:

The central economic problem of scarcity arises due to limited resources and unlimited wants. As society cannot have all the output it desires, choices have to be made by consumers and producers in pursuit of their self-interests. The price mechanism is the process in a market economy where consumers and producers interact to determine the allocation of these resources among competing uses.

Devt 1: Explain the pursuit of self-interest

- The principle of price mechanism, often referred to as 'the invisible hand', asserts that if each individual in the society acts in such a way as to maximise his own interest, the free market will assure maximum possible benefits to society as a whole.
- In the pursuance of self-interest, consumers attempt to maximise their satisfaction (utility) by being willing to pay the lowest possible prices.
- Producers in their attempt to maximise profits will try to charge the highest possible prices.
- Factor of production owners (factor owners – for example workers) will attempt to maximise their earnings by selling their services to the highest bidder.
- These participants send out and receive price signals through the market and decisions are made based on the prices.
- These participants also pursue their self-interests by engaging in a rational decision-making process that involves weighing their marginal private benefit and marginal private cost in deciding the quantity to consume or produce.
- Therefore, product and factor prices allocate resources and distribute the goods and services in a free market system addressing the problem of limited resources and unlimited wants.

Conditions necessary for free market to operate efficiently include:

- Large number of buyers and sellers
- Perfect knowledge & factor mobility
- Freedom of entry and exit

- Absence of externalities

Devt 2: Explain how price mechanism can allocate scarce resources

Consumers and producers will pursue their self-interests in the free market and their interactions will determine the allocation of resources via the price mechanism. The prices, determined by the forces of demand and supply in the market economy, perform three important functions to address scarcity. The 3 functions are:

- Signaling function of prices** → [What and how much to produce?] (the mix of goods and services)
- Incentive function of prices** → [How to produce?] (methods of production)
- Rationing function of prices** → [For whom to produce?] (the distribution of goods and services among members of the society)

With reference to the demand and supply diagram for oat milk below, the initial equilibrium is where $D1 = S1$ with price $P1$ and quantity $Q1$. Suppose there is an increase in demand for oat milk from $D1$ to $D2$, meaning that more dollar votes are cast for oat milk. At initial price $P1$, a shortage of $Q1Q3$ is created. This causes an upward pressure on price. This will **signal** to producers to allocate more resources to increase production to $Q2$ due to the **incentive** of earning greater profits. Thus quantity supplied of oat milk increases from $Q1$ to $Q2$. By choosing to allocate more resources into the production of oat milk, producers will need to channel limited resources away from the production of another good, leading to opportunity costs.

Assuming producers are profit motivated, they will be incentivised to adopt the least cost method of production in order to compete for consumers' dollar votes. Hence price determines what and how to produce.



Prices also serve to ration goods and services to consumers who are willing and able to pay. With reference to the diagram, as price of oat milk rise, those who are unable or unwilling to pay will be **rationed** (or priced) out of the market as reflected by a decrease in quantity demanded from Q3 to Q2. Hence, price also determines for whom to produce.

Conclusion

In conclusion, the pursuit of self-interest by rational consumers and producers and their interactions in the free market via the price mechanism helps to address scarcity. However, in reality, price mechanism may fail to allocate resources efficiently due to imperfect competition or presence of externalities.

Mark scheme:

Knowledge, Understanding, Application, Analysis		
L3	For an answer that gives a clear economic analysis of the how the pursuit of self-interest and the functions of the price mechanism address scarcity.	8-10
L2	For an answer that gives a descriptive explanation of how the pursuit of self-interest OR the functions of price mechanism address scarcity.	5-7
L1	For an answer that shows knowledge of the concepts of cost, benefit, marginalist principle and price mechanism.	1-4

Markers Report

Strengths:

Content

- A: Most students could interpret that the "the problem of limited resources and unlimited wants" refers to scarcity and recognized that this Central Economic Problem is one experienced by all the 3 economic agents—consumers, producers and government.

Areas for improvement:

Skills

- R-/A-: Inaccurate approach. This question requires students to apply the "price mechanism" to explain how it could address the problem of scarcity by answering the 3 economic problems of what, how and for whom to produce via the signaling, incentive & rationing function of prices. However, most students gave a description explanation without any attempt to showcase the content intent.
- A-: While a handful of students were able to explain the price mechanism using the context in the signpost, the explanation tends to be haphazard and incomplete.

b) Discuss how the above events might impact consumer expenditure on oat milk and related goods. [15]

Suggested Answers Part b):

Intro:

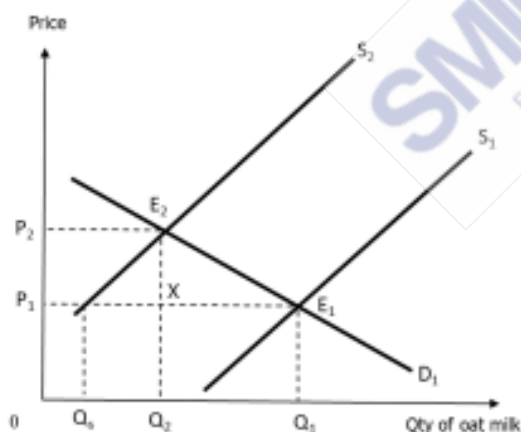
Consumer expenditure refers to total amount of money spent on a product, given by the product of price and quantity ($CE = P \times Q$). We will be analysing how the above events might impact consumer expenditure on oat milk and its related goods namely cow's milk and oat milk based beverages (e.g. oat milk latte) in this essay.

Devt 1: Impact on CE for oat milk

There has been an increase in demand for oat milk, since there is a favourable change in taste and preference towards oat milk due to health and environmental reasons. At the same time, disruptions to the production of oat milk will reduce the supply of oat milk.

i) Impact on CE due to ↓SS

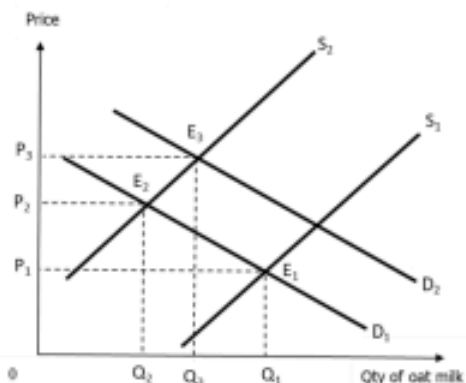
Suppose initial equilibrium occurs at E_1 with price P_1 and output Q_1 . A fall in supply of oat milk due to production disruptions will create a shortage of Q_1Q_s , leading to an upward pressure on price. The market adjusts to a new equilibrium with higher price P_2 and lower output Q_2 .



Assuming demand for oat milk is price elastic, given the availability of substitute beverages available such as cow's milk, soya milk and almond milk that offers similar smoothness and texture, a rise in price from P_1 to P_2 will lead to a more than proportionate fall in quantity demanded from Q_1 to Q_2 . Hence the rise in CE due to rise in price (denoted by area $P_1P_2E_2X$) is outweighed by the fall in CE due to the fall in quantity demanded (denoted by area $Q_2XE_1Q_1$). Hence, given a fall in supply, CE for oat milk is likely to fall from $0P_1E_1Q_1$

to $0P_2E_2Q_2$.

ii) Impact on CE due to $\uparrow DD$



At the same time, there is a rise in demand for oat milk from D_1 to D_2 due to favourable changes in consumers' taste and preferences. This will result in a rise in price and quantity of oat milk sold. Hence, given a rise in demand, CE for oat milk will rise from $0P_1E_1Q_1$ to $0P_3E_3Q_3$.

iii) Combined impact on CE

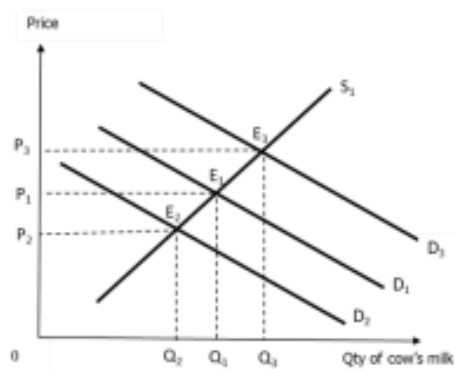
Overall, the combined impact on CE for oat milk due to shifts in demand and supply is indeterminate. Assuming the production disruption for oat milk is very severe and affects the majority of oat milk suppliers, the fall in CE due to fall in supply is likely to outweigh the rise in CE due to rise in demand. Hence, there will be an overall fall in CE for oat milk from $0P_1E_1Q_1$ to $0P_3E_3Q_3$.

[EV]: Over time, the impact of production disruptions may be reduced as firms expand their oat milk production capacities and adopt more efficient methods of production. At the same time, more people may gain greater awareness of the health and environmental benefits of oat milk, leading to a greater shift in demand. In the long run, rise in demand might outweigh fall in supply, leading to an overall rise in CE for oat milk instead.

OR [EV]: Lactose intolerant consumers may view oat milk as a necessity and if consumers become more convinced of the health benefits of oat milk and become less willing to switch to alternatives, demand for oat milk might become price inelastic. Given a fall in supply of oat milk, a rise in price will lead to a less than proportionate fall in quantity demanded. This will result in a rise in CE due to a fall in supply instead. Both fall in supply and rise in demand will reinforce an overall rise in CE for oat milk.

Devt 2: Impact on CE for cow's milk (substitute)

The demand for cow's milk is likely to be affected by changing taste and preferences and rise in price of oat milk (price of substitute).



Due to changing taste and preferences towards healthier and more environmental friendly oat milk, the demand for cow's milk will fall from D_1 to D_2 , lead to a fall in price and quantity and a fall in CE for cow's milk from $0P_1E_1Q_1$ to $0P_2E_2Q_2$.

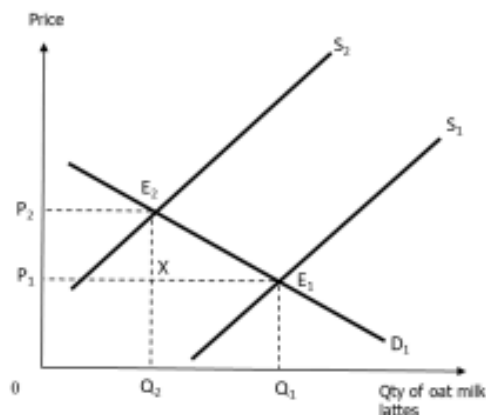
At the same time, as both goods are substitutes that satisfy the same needs and wants of a milk beverage, an overall rise in price of oat milk will lead to a rise in demand for cow's milk from D_1 to

D_3 as consumers switch to cheaper alternatives. A rise in demand for cow's milk will lead to a rise in price and quantity and a rise in CE for cow's milk from $0P_1E_1Q_1$ to $0P_3E_3Q_3$.

The overall impact on CE is indeterminate. The extent of increase in demand for cow's milk is dependent on XED. XED refers to the degree of responsiveness of demand for cow's milk due to changes in the price of oat milk, ceteris paribus. Both cow's milk and oat milk can be considered as strong substitutes since both products satisfy similar wants, hence XED value likely to be large and positive. A given rise in price of oat milk will lead to a more than proportionate rise in demand for cow's milk. Hence, overall demand for cow's milk is likely to rise and the overall CE is likely to rise.

[EV]: The magnitude of XED may fall over time, if oat milk companies engage in product differentiation and advertisements and successfully convince consumers of the greater health and environment benefits of oat milk compared to cow's milk, hence reduce the substitutability of cow's milk and lowering the XED value. Therefore, overall CE may not rise as much.

Devt 3: Impact on CE for oat milk latte in cafes



Oat milk is a key ingredient in milk based beverages such as milk lattes served in cafes. A rise in price of oat milk will lead to a rise in unit cost of producing oat milk lattes, reducing the potential profits per unit and reducing the supply of oat milk lattes from S_1 to S_2 . Assuming $PED > 1$ due to the availability of other substitute beverages, a given rise in price of oat milk lattes (from P_1 to P_2) will lead to a more than proportionate fall in quantity of oat milk lattes (from Q_1 to Q_2). Hence, CE for oat milk latte is likely to fall from $0P_1E_1Q_1$ to $0P_2E_2Q_2$ (similar to analysis above).

Conclusion:

[E/Opinion]: The impact on consumer expenditure for oat milk and its related goods may also depend on other factors. [E/Criteria]: In reality, ceteris paribus assumption may not hold.

[E/Reasoning]: Impact on CE on the products mentioned may be affected by changing market demand and/or supply due to rival firm strategies. For example, firms selling cow's milk may introduce counter advertising campaigns which could reverse the favourable changes in taste and preferences towards oat milk.

Knowledge, Understanding, Application, Analysis		
L3	For an answer using appropriate analysis to support the discussion of the impact on consumer expenditure of oat milk and related goods based on the combination of both events.	8-10
L2	For an answer that gives a descriptive discussion of the impact on consumer expenditure of oat milk and related goods based on the 2 events. OR an answer that only focusses on the impact of consumer expenditure either oat milk or a related good based on the 2 events.	5-7
L1	For an answer that shows knowledge of the events affect demand, supply or expenditure of oat milk and related goods.	1-4
E3	For an evaluative assessment on the extent of the impact on consumer expenditure based on economic analysis.	4-5
E2	For a descriptive assessment of the impact on consumer expenditure.	2-3
E1	For unexplained evaluative statements.	1

Markers Report

Strengths:

Content

- A: Students are generally familiar with IS(J)SUE framework.
- A: Generally well-explained Market Adjustment Process
- R: Most students know that this qn involves a DD/SS double analysis

Skills

- Most students demonstrated sufficient scope by extending the expenditure analysis to at least one other related market

Areas for improvement:

Content

- A-: Conceptual error. A number of students used PED to justify the relative shifts between demand and supply. PED measures the responsiveness of quantity

demanded (movement along DD curve) to a change in price, NOT the responsiveness of demand (shift of DD curve).

Skills:

- R-/A-: Inaccurate approach. This question requires students to analyse the effects on consumer expenditure (CE), by decomposing the effects of a disruptions in the production of oat milk and changes in taste & preferences respectively. However, many students analyse the effects on CE by performing a “double shift analysis” immediately. Such an approach would limit the rigorous analysis that is required of this question.
- R-: Insufficient development of analysis, especially for the related market. E.g., Most students only explained either the impact of a rise in the price of oat milk on the demand for cow's milk or the impact of changing taste & preference on the demand for cow's milk. They should have included both and gave a reasoning justification on the overall change in demand for cow's milk.



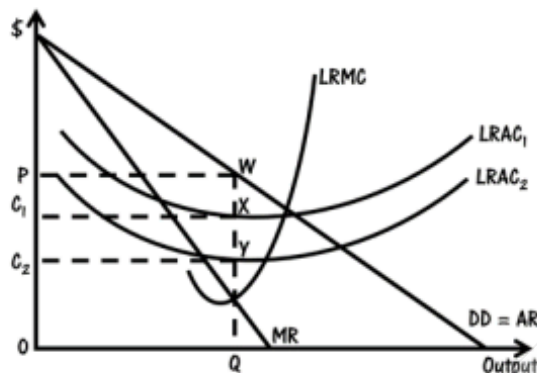
2021 TMJC Prelim H2 Economics P2 EQ2

FoodInnovate is a government initiative that enables food companies to innovate, scale up and expand overseas. Its network of shared production facilities allows food, manufacturing and delivery companies to collaborate in developing, producing and distributing new, ready-to-eat foods. However, keen competition may make such collaboration difficult.

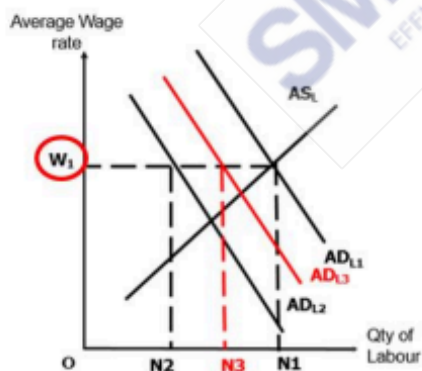
Discuss the extent to which such collaboration among companies would result in better outcomes for consumers, food companies and the economy. [25]

<p>Introduction:</p> <ol style="list-style-type: none"> Explain impact of “government initiatives such as FoodInnovate” <ul style="list-style-type: none"> “Innovate” → Process & product R&D “Scale up & expand overseas” → enjoy external/internal EOS & increase market dd and reduce degree of substitutability possible via product innovation Link to impact on consumers, food companies and economy <ul style="list-style-type: none"> Consumers: prices, variety of goods → consumer welfare/satisfaction Food companies: profits Economy: Macro goals such as growth, unemployment & BOT 	<p><input type="checkbox"/> Relevance : Addressing intent of Qn</p> <p><input type="checkbox"/> Context : examples used shows an accurate understanding of given context</p>
<p>Body 1: Explain & evaluate how collaboration help to bring about better outcomes for consumers, food companies and economy.</p> <ul style="list-style-type: none"> Enjoy external EOS Collaboration enables firms to work together for a common interest through the exchange, share complementary capabilities and resources, or joint development of products, technologies or services for the purpose of mutual benefits for firms in the entire industry For example, food companies which currently do not provide food delivery service can collaborate and negotiate for better contracts by partnering with third party logistics partners such as Lalamove, Pickup or GrabExpress, etc and food delivery platforms such as Deliveroo, foodpanda, GrabFood and Bungkus by tapping on government initiatives such as the Food Delivery Booster Package Another example, food companies which currently do not have a testing kitchen could also tap on FoodInnovate’s network of shared production facilities 	<p><input type="checkbox"/> Analysis & Context: Well-explained, rigorous explanation of the impact of external EOS using appropriate AR/MR/AC/MC diagram with application to given context</p> <p><input type="checkbox"/> Relevance : Addressing intent of Qn—</p>

- **Impact on food companies:** By pooling of talents and resources that a single firm cannot achieve alone → cost savings from this collaboration will be enjoyed by all the food companies → ↓ AC from LRAC₁ to LRAC₂ → regardless of firm's size, the firm enjoys cost savings. Ceteris paribus, a firm that produces at the π -max output Q, where MC cuts MR from below → a firm's π (PWXC₁ to PWYC₂) → Positive impact on food companies.



- **Impact on economy:** ↑ I in SR as expected returns ↑ → ↑ MEI → ↑ AD → shortage → ↑ incentive to ↑ production → multiplied ↑ in real output from Y1 to Yf1 → since demand of labour is a derived demand, AD for labour increases from AD_{L2} to AD_{L3}, assuming wages remain at W1, → ↓ demand deficient unemployment, from N2N1 to N3N1

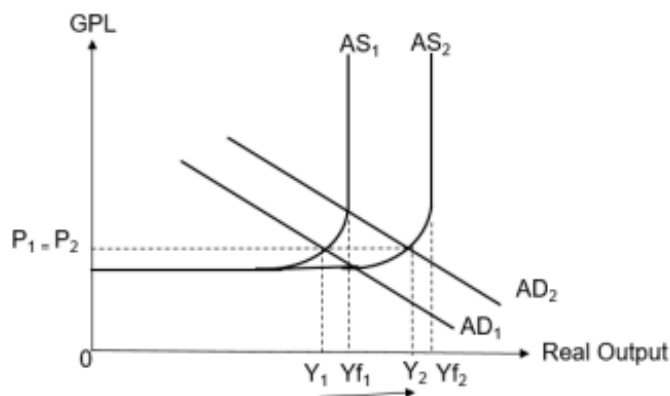


- ↑ I → ↑ productivity → ↑ individual market supply → if enough market supply curves ↑ → ↑ **productive capacity** of economy
 - ↑ AS in LR → potential growth (Yf1 → Yf2) → sustained non-inflationary economic growth as real output ↑ from Yf1 to Y2 → ↑ SOL over time

Impact on food companies

□ **Analysis & Context:** Well-explained, rigorous development of economic concepts using appropriate AD/AS model with application to given context

□ **Relevance :** Addressing intent of Qn— Impact on the economy



- May also bring about inclusive growth since development of such new growth engines is likely to bring about productive employment and increase wages & material SOL for low-mid skilled labour assuming that they are able to acquire new skill sets to work these growth sectors.

EV: [E/Criterion & Opinion] Given that there is a significant proportion of hawkers who are older, illiterate, and neither IT-literate nor social media-savvy, the **extent of better outcomes might be limited** as they would have more difficulty engaging in such collaborations. [E/Reasoning] However, with the right efforts in digitization to enable them to collaborate meaningfully (e.g., by offering a more hands-on approach to help them navigate complicated apps), the extent to which collaboration will bring about better outcomes will be higher

Foodinnovate makes it easier for firms to come together to innovate → **Process & product R&D**

[For more info:

<https://www.enterprisesg.gov.sg/industries/type/food-manufacturing/foodinnovate>]

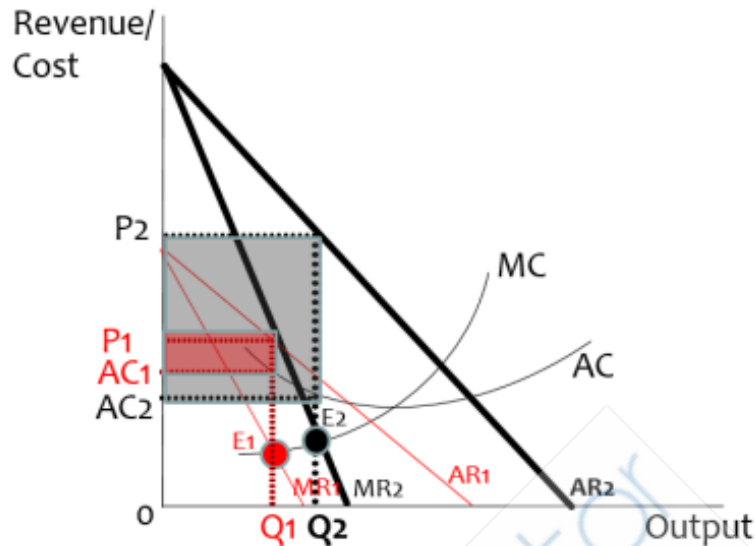
For example, food companies can tap on schemes such as "Productivity Solutions Grant"

- **Product innovation:** Food companies can collaborate with one another and food science experts to trial new ideas and bring new products to markets faster without investing in expensive equipment. E.g., developing ready-to-eat foods, food products with the nutritional requirements and food texture suited to the dietary needs of seniors in Singapore which is aging rapidly or development of alternative proteins such as insect farming.
- **Impact on Food companies:** By pooling of talents and resources that a single food company cannot achieve alone → food company is more likely to innovate successfully

□ **Evaluation** : Provides relevant and analytical comments that questions analysis outcomes within the **main development**, using **CORe**

□ **Analysis & Context:** Well-explained, rigorous explanation of impact of production R&D using appropriate AR/MR/AC/MC diagrams with

with a new product $\rightarrow \uparrow$ AR as demand and market share increases and \downarrow PED as the number of substitutes fall $\rightarrow \uparrow$ firm's profits from the red shaded area to the grey shaded area



- **Impact on Consumers both domestically and regionally** when food companies are able carry out product innovation successfully \rightarrow Greater variety & options of food
- **Impact on economy:** Assuming that F&B firms involved in development and sales of new food products can scale up and internationalise (expand overseas)/retail to regional export market $\rightarrow \uparrow$ X revenue and \uparrow AD \rightarrow multiplied \uparrow real output & actual economic growth $\rightarrow \uparrow$ since demand of labour is a derived demand, AD for labour increases, assuming wages remain at W_1 , $\rightarrow \downarrow$ demand deficient unemployment
 - \uparrow X revenue \rightarrow improve BOT and help the country to maintain healthy external balance.
- EV: [E/ Criterion & reasoning] Longer collaborative relationship between food companies may turn into 'group thinking' (herd mentality) \rightarrow may hamper creativity & innovation efforts \rightarrow slows down R&D process \rightarrow [E/Opinion] \downarrow profits for firms & variety for consumers.
- **Process innovation:** R&D can result in more efficient production methods which give rise to lower prices for consumers if cost savings are passed on. E.g., Enjoy technical EOS by developing a central kitchen concept via FoodInnovate's shared production facilities or efforts undertaken by private food companies. E.g., Foodgnostic and Veg Kitchen are 2 central food-processing concepts that

application to given context

□ **Relevance** : Addressing intent of Qn— Impact on food companies

□ **Relevance** : Addressing intent of Qn— Impact on consumers

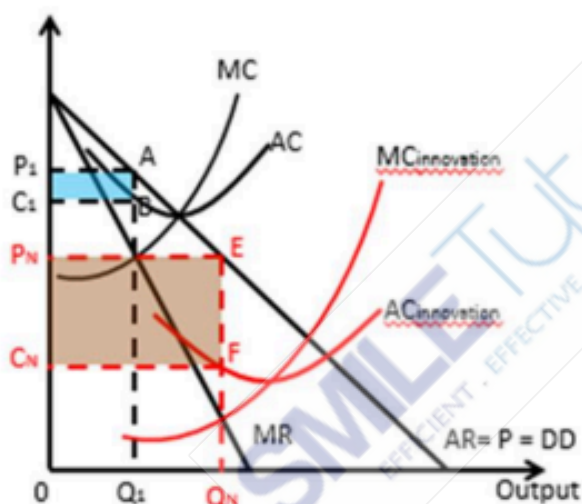
□ **Analysis & Context:** Well-explained, rigorous development of economic concepts using appropriate AD/AS model with application to given context

□ **Relevance** : Addressing intent of Qn— Impact on the economy

specialize in supplying large scale items for other reputable food companies/restaurants.

- **Benefits of a central kitchen:**
 - Reduces costs through internal economies of scale.
 - Enables better quality control. Firm's food quality will be more consistent.
 - Reduces food preparation time and manpower at the outlets.
 - Help firms to expand their business into catering or even supplying to other companies.
 - Reduces the space firms need at their outlets. Firms save on rental cost.

Price/Revenue/Cost

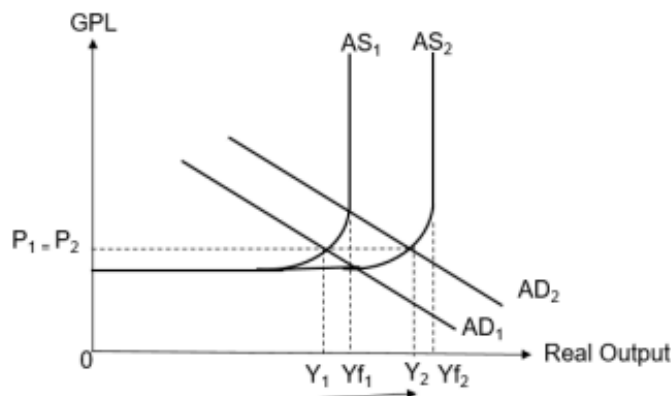


- **Impact on consumers:** Firms with more internal EOS reaped would have lower short-run MC and AC curves leading to a lower price charged at P_N based on $MC_{innovation} = MR$; whereas firms with less EOS would have higher short-run MC and AC curves, and charge a higher price P_1 based on $MC = MR$.
- **Impact on food companies:** Firms which are able to tap on such collaboration can also benefit from higher levels of profits from P_1C_1BA to P_NC_NFE .
- **Impact on economy:** \downarrow price $\rightarrow \uparrow$ qty demanded of X assuming that $PED_x > 1 \rightarrow \uparrow X$ and $\uparrow AD \rightarrow$ multiplied \uparrow real output & actual economic growth $\rightarrow \uparrow DD$ of labour since demand of labour is a derived demand $\rightarrow \downarrow$ demand deficient unemployment from N_2N_1 to N_3N_1
 - **Process R&D may bring about potential growth as resources are better /more efficiently utilised**

Analysis &

Context: Well-explained, rigorous explanation of process R&D using appropriate AR/MR/AC/MC diagrams with application to given context

□ **Relevance :** Addressing intent of Q_N — Impact on consumers, food companies and economy



- EV: Resource sharing may cause over usage → congestion issues esp. for food companies that share the same infrastructure → ↑ AC as firms slip into dis-economies of scale as output increases beyond Q_{mes} → [E/Opinion] ↓ profits if ↓ AR > ↑ AC

Body 2: Explain & evaluate possible limitations of collaboration amongst firms

1. Collaboration may breakdown / fail due to distrust between competitive food companies, lack of commitment, higher possibility of information leaks to third parties etc. Collaboration only works if the main objective of the collaborating food companies is to push Singapore food culture and not to expand your own brand.
- The success of collaboration depends on whether the food companies that collaborate have a collectively held confidence orientation towards each other as well as a willingness and confidence to build trust among each other.
 - However, firms have their own vested interests, especially for food companies that are direct competitors of each other. If there is distrust between firms. E.g. suspecting the food company that liaised with the supplier may have bribed the supplier for even better discounts but not available to other food companies, collaboration fails.
 - Owing to the relationship commitment of the food companies, there needs to be a willingness to contribute to the cooperative relationship such as sharing of R&D information, which could imply sacrificing short-term benefits to achieve long-term gains.
 - However, if food companies lack commitment to share R&D information due to their own vested interests, esp. for direct competitors, information sharing breaks down → collaboration fails.

☐ **Relevance** :
Addressing command word in Qn to give a balanced discussion

☐ **Analysis & Context**: Well-explained, rigorous explanation of possible limitations (Failure of collaboration OR R&D) with application to given context

<ul style="list-style-type: none"> Food companies may be less willing to cooperate to share information as it may mean if their direct competitors obtain such information, it could \uparrow their R&D success rate to develop newer food products \rightarrow may \downarrow their own profits <p>OR</p> <p>2. Collaboration may <u>not bear fruits</u> for food companies even if they are very vested in the <u>R&D process</u> due to the <u>uncertainty involved</u></p> <ul style="list-style-type: none"> Government's intervention to help food companies may be not very effective as the <u>success of innovation is not guaranteed</u>, leading to uncertain outcomes. Innovation may fail, and this will result in wastage of resources as a result as well. Moreover, <u>innovation takes time</u> to materialise. Hence it will not be able to address the immediate problems faced by F&B firms immediately. In addition, <u>innovation will incur huge expenses</u> for the food companies as research and development (R&D), despite the support given by the Singapore government. Some small food companies may not have the necessary resources to innovate and hence it may not be feasible for all food companies to conduct R&D. 	
<p>Conclusion: The extent to which such collaboration among companies would result in better outcomes for consumers, food companies and the economy could depend on</p> <ul style="list-style-type: none"> ➤ [E/Criterion] Size of firms \rightarrow [E/Opinion #1] <u>Collaboration leads to better outcomes when collaborating firms are of similar size, market share</u> ➤ [E/Reasoning] Small food companies such as small hawkers lack iEOS compared to large firms such as restaurants that usually gain iEOS \rightarrow Small hawkers are more vulnerable to subnormal profits especially in the like of the Covid-19 pandemic compared to larger food companies who might have accumulated supernormal profits to help tide them over during the circuit breaker \rightarrow small hawkers are more likely to want to collaborate say with food delivery companies ○ However, when small-and-medium-sized enterprises (SMEs) are in collaborative relationships with major partners, there are cases where the small firm becomes <u>dependent</u> on a dominating partner, which may lead to a power imbalance. For e.g. between the collaboration of major food delivery platforms like Grab and small hawkers which typically earn thin profit margin. [E/Opinion #2] Such a collaborative relationship may not necessarily \uparrow profits for small hawkers, resulting in a <u>smaller extent of benefits enjoyed by them.</u> 	<p>Evaluation : Well-reasoned & analytical judgment to conclude, using CORe</p>

- [E/ Reasoning & Opinion #2] On the other hand, collaboration between a larger food company such as a restaurant and the food delivery company is likely to result in larger ↑ profits for the food company as it could be in a better position to negotiate for a fairer partnership that is mutually beneficial for both parties.

OR

- [E/Criterion #2] Collaboration leads to better outcomes when the external environment or circumstances require/forces firms to engage in more purposeful collaboration in order to survive i.e. not make losses and shut down and leave the industry
- [E/Reasoning] Covid-19 pandemic has accelerated the need for F&B firms to digitalise as the endemic nature of the Covid-19 virus may force the government to impose frequent bans on dine-in at food and beverage (F&B) establishments and allowing only takeaways
- Covid-19 has also altered consumers dining preferences as they, especially the younger crowd, becomes more aware of and accustomed to the presence of delivery apps or frozen ready to eat food options.
- [E/Opinion] If there are sufficient F&B companies which are able to tap on the government's initiatives, collaborate and digitalise successfully, this may bring about more benefits for consumers, food companies and economy.

Markers Report

Strengths

Skills:

- Majority of students demonstrated sufficient scope in their responses—impact on consumers, food companies and economy (which is unfortunately misinterpreted as “society”)

Areas for Improvement

Content:

- A-: Conceptual error. Many students misinterpreted “collaboration” as “collusion”, “mergers” or “firms turning to behave like a monopoly”.
- A-: Conceptual error. Many students also interpreted “economy” as “society”
- T-: Conceptual error. There was a fair group of students who wrote consumers surplus as consumers welfare.

Skills:

- A-: Majority of the responses were descriptive. Students were not using appropriate AR/MR/AC/MC and ADAS diagrams to explain the impact of collaboration on consumers, food companies & macro economy. This resulted in responses which are very limited in rigour and development of ideas on the whole although most students demonstrated scope in their responses.

- A-: Majority of the students did not make comparison to the extent of impact on price and/or profits earned before and after collaboration → most simply wrote how collaboration may result in the presence of a large firm which could already enable them to earn supernormal profits, even if the firms do not collaborate. Students are encouraged to make concerted effort to pick up such comparative diagrammatic analysis as quickly as possible.
- EV-: Limited attempts to evaluate their ideas to question analysis outcomes.



Level	Out of 20 marks	Knowledge, Understanding, Application and Analysis
L3	15-20	<p>For an answer that shows well-developed analysis of how collaboration among companies could impact consumers, food companies and the economy & the limitations of collaboration among firms.</p> <ul style="list-style-type: none"> • Relevant, clear and accurate economic analysis, grounded by economic concepts, frameworks and principles [Firm analysis & ADAS analysis]. • Supported by relevant examples, with clear and accurate application to the Singapore food and beverage industry
L2	9-14	<p>For an answer that:</p> <p>Either shows under-developed analysis how collaboration among companies could impact consumers, food companies and the economy and the limitations of collaboration among firms;</p> <p>Or lacks scope – only analyse the outcomes for consumers, food companies & economy or limitations of collaboration among firms</p>
L1	1-8	<p>For an answer that:</p> <ul style="list-style-type: none"> • Fails to address question requirements • Is a listing of points, or unexplained statements • Has basic or many conceptual errors
Evaluation		
E3	4-5	<ul style="list-style-type: none"> • Well-justified and synthesised evaluation on the extent to which collaboration among companies would result in better outcomes for consumers, food companies and the economy with criterion, reasoning and opinion clearly established and explained. <ul style="list-style-type: none"> ◦ 2 EV within the development & 1 synthesised conclusion
E2	2-3	<ul style="list-style-type: none"> • Some attempt at justifying on the extent to which collaboration among companies would result in better outcomes for consumers, food companies and the economy
E1	1	<ul style="list-style-type: none"> • Unsupported evaluative statement/judgment on the extent to which collaboration among companies would result in better outcomes for consumers, food companies and the economy

2021 TMJC Prelim H2 Economics P2 EQ3

High levels of sugar consumption are contributing to soaring rates of obesity, which is a major risk factor for many serious health conditions. Obesity is an outcome of market failure, and innovation, not taxes on soft drinks, may be the solution.

- (a) Explain why obesity may be considered an outcome of market failure. [10]
 (b) Discuss the extent to which government policies can address this market failure. [15]

SUGGESTED ANSWER

(a)

Introduction

Market Failure describes the circumstances in which distortions in the markets prevent the price mechanism from allocating resources efficiently, resulting in welfare loss

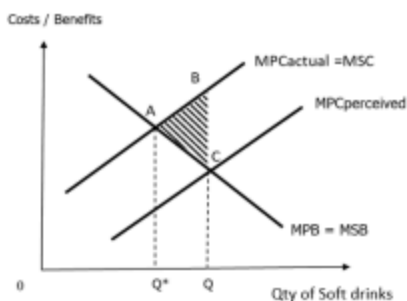
Soft drinks can be considered demerit goods, which are goods that the government believes consumers will consume too much if provided by the market because of 1) information failure whereby consumers under-estimate the private costs in consumption, and 2) the existence of negative externalities in consumption and consumers ignore external costs in their decision making

Market failure → there is overconsumption of soft drinks → obesity is a possible outcome

Main Development

Explain how information failure leads to market failure

Consumers tend to underestimate their private costs of consuming soft drinks as they are not fully informed of the negative health consequences. While consumption of soft drinks provides private benefits such as higher energy levels, it also brings about private costs such as medical fees due to future medical complications which they underestimated due to imperfect understanding of the health impacts of consuming soft drinks. Hence, consumers underestimate their private costs resulting in $MPC_{perceived}$ being below MPC_{actual} (with perfect information).



Private output occurs at Q where $MPC_{perceived} = MPB$, based on the marginalist principle where consumers maximise their self-interests. The socially optimal output occurs at Q^* where society's welfare is maximised at $MSB = MSC$. There is thus an overconsumption of $Q^* - Q$ units of soft drinks. At Q , the MSC is greater than the MSB . This means that the last unit of output adds more to society's costs

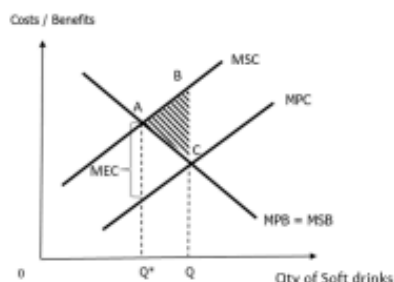
than it will to society's benefits, leading to an overallocation of resources to the consumption of soft drinks. The market fails to allocate resources efficiently leading to a deadweight loss area of shaded region ABC incurred.

The overconsumption of soft drinks (which causes the market failure) may bring about obesity.

Explain how negative externalities leads to market failure

The consumption of soft drinks usually generate negative externalities.

Consumers only consider the private benefits (e.g. higher energy levels) and private cost (e.g. monetary cost) of consuming soft drinks but ignore the external costs related to consuming soft drinks e.g. poorer health due to obesity-related health issues causing a lowering of workers' productivity, bringing about higher unit cost of production and lower profits for firms. External costs are imposed on third parties which are not compensated for. In the presence of negative externalities, MSC lies above MPC (Since $MSC = MPC + MEC$).



Private output occurs at Q where $MPC = MPB$, based on the marginalist principle where consumers maximise their self-interest. The socially optimal output occurs at Q^* where society's welfare is maximised at $MSB = MSC$. There is thus an overconsumption of QQ^* units of soft drinks, leading to an overallocation of resources to soft drinks. The market fails to allocate resources efficiently leading to a deadweight loss area of shaded region ABC incurred.

The overconsumption of soft drinks (which causes the market failure) may bring about obesity.

Conclusion

Therefore, governments should implement policies to address the above issues.

Level	Descriptors	Marks
L3	For a thorough and well-developed explanation using economic concepts / diagrams and appropriate examples on how consumption of soft drinks lead to market failure, with a linkage to obesity as the outcome	8 – 10
L2	For an under-developed explanation on how negative externalities or information failure may lead to market failure. Answer may contain some conceptual errors but appropriate economic concepts and analysis are used. Some examples provided but not well-explained.	5 – 7
L1	For an undeveloped answer that shows lack of knowledge of the reasons for market failure.	1 – 4

Markers' Report

Content:

- (+) Most students know that this is a market failure question and apply the appropriate framework.
- (-) Conceptual error- some students were not able to distinguish between negative externalities and information failure, often citing how negative externalities are caused by lack of information.
- (-) Students need to remember to monetise both the external cost, and the private cost that is underestimated
- (-) The phrasing 'overallocation of goods' is incorrect. Overallocation relates to resources, not goods.

Skills:

- (-) Lack scope- some students only identified and explained ONE source of market failure.
- (+/-): Linkage back to obesity as an outcome was not done well.
- (-) Some students only explained 1 source of market failure. For a 10 mark question, students need to explain 2 sources.

SUGGESTED ANSWER

(b) Discuss the extent to which government policies can address this market failure.

[15]

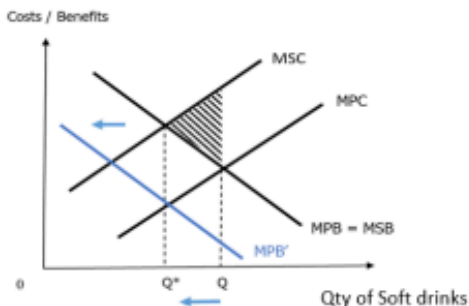
Introduction

A government can use a variety of policies in order to address the sources of market failure found in soft drinks.

Main Development

Policy #1: Innovation → Subsidise R&D for drink producers to produce healthier drinks

[How it works]: A subsidy on R&D for drink producers to produce healthier drinks will lower the unit COP for healthy drinks which translates to lower prices for consumers. As price of healthier drink alternatives falls, MPB of soft drinks falls (represented by a leftward shift to MPB') as consumers switch away from soft drinks since the private benefit derived from each additional unit of soft drink is lower now that substitutes in the form of healthier drinks are cheaper. Hence, the new private output will be the socially optimal output of Q^* , eliminating the overconsumption of Q^*Q and market failure.



[How well it works]:

- (-) The innovation may take time to be completed. Therefore in the short run, consumers may still continue consuming soft drinks and the market failure would continue.

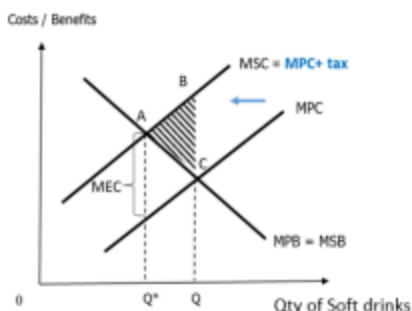
(-) Even with the innovation taking place and healthier/cheaper drink options available, consumers may not see the healthy drinks and soft drinks as close substitutes. Therefore they may not switch over to consuming the healthier drinks.

(-) The innovation may involve coming up with new ingredients to sweeten the drinks. The ingredients may not cause the same health problems as sugar but may however, have other negative health impacts which may result in negative externalities and market failure as well.

Policy #2: Taxes on soft drinks

[What it is]: A tax on soft drinks refers to payments made by soft drinks producers to the government. Government can impose a per unit tax equivalent to MEC at Q^* .

[How it works]: This raises the MPC of consuming soft drinks as represented by the shift of the MPC from MPC to $MPC + tax$. Private output will fall from Q to the socially optimal level of Q^* , hence eliminating overconsumption of soft drinks and deadweight loss.



[How well it works]: Consider a strength and a limitation of the policy

(+) Easily implemented & flexible: Tax is a market-based solution which has the advantage of working through the market mechanism and does not require excessive monitoring or enforcement. Moreover, the amount of tax can be adjusted to reflect the extent of market failure (i.e. the greater the external cost, the greater the per unit tax)

(-) Availability of information: However, there might be difficulty in measuring the extent of external cost and thus, it is difficult to estimate the correct amount of per unit tax. Should governments overtax, this may create a problem of underconsumption of soft drinks and possibly a greater deadweight loss as compared to the case before government intervention.

(-) PED of soft drinks: The PED of soft drinks is likely to be < 1 as sugar can be addictive in nature. The tax will thus cause a less than proportionate fall in quantity demanded of soft drinks, reducing the extent that the market failure can be addressed by a given amount of tax.

[Transition statement to next policy:]

A key source of market failure is information failure, thus a policy that addresses this is needed as well. Taxes for example target the ability to pay which becomes less effective if income levels rise – hence it is important to educate people about the ills of sugary drinks and this will target the willingness aspect of demand.

Policy #3: Provision of information

[What it is]: Govt can provide more information to consumers about the nutritional value of soft drinks with appropriate labelling, hence allowing people to have more accurate information. Govt can also provide more information via campaigns about the true cost of consuming soft drinks.

[How it works]: $MPC_{perceived}$ will shift closer to MPC_{actual} and overconsumption of soft drinks would be reduced, thereby addressing the market failure. (make reference to diagram in part a)

[How well it works]:

(-) the effectiveness depends on the receptivity of the citizens to the campaigns. Should individuals be unreceptive to the public education efforts, they may still incorrectly value the MPC, and the problem of overconsumption may not be fully resolved

Conclusion

#1

[OPINION] In conclusion, it could be true that “innovation, not taxes on soft drinks, may be the solution”.

[REASONING] As sugar is addictive, the government might need to focus on more upstream prevention of habit-forming consumption of soft drinks among the young as it has longer lasting positive impact than downstream intervention such as taxes, since it is difficult to break the habit once it has been formed. For example, the government could use innovative approaches such as installing more water coolers in schools, thereby increasing the accessibility to healthy alternatives. Thus the market failure could be better addressed in this manner.

#2

[CRITERIA] The extent to which government policies can effectively address the market failure is determined by the level of information that a government has access to.

[REASONING] In terms of subsidies for R&D, having accurate information will help the government decide not only on the amount of subsidies to give, it will also help the government to provide guidelines in terms of how the R&D should be done in order for it to be effective.

In a time where large amounts of data is available on the internet and technologies such as data analytics can be used, the likelihood of having accurate information is much higher.

[OPINION] Thus government policies can likely address the market failure to a large extent.

#3

[REASONING] Furthermore, as governments can implement a combination of policies to address both information failure and negative externalities, the likelihood of market failure being addressed to a large extent **[OPINION]** would be higher. Governments would be able to use a combination of policies as funding of the policies would not be a concern. This is because the tax revenue collected from the tax on soft drinks can be used to pay for the campaigns.

Level of Response	Knowledge, application, understanding, analysis	Marks
L3	<i>Well-developed economic discussion of the extent that government intervention would result in a more efficient allocation of resources in <u>both</u> the case of information failure <u>and</u> negative externalities.</i>	8-10
L2	<i>Balanced discussion of the extent that government intervention would result in a more efficient allocation of resources in <u>either</u> the case of information failure or negative externalities. Analysis is not consistently rigorous. Some conceptual errors in answers.</i>	5-7
L1	<i>Descriptive answer which lacks detailed analysis. Conceptual errors are evident.</i>	1-4
Evaluation		
E3	Well-reasoned judgements / decisions <i>Synthesizes economic arguments to arrive at well-reasoned judgements and decisions such as in a good summative conclusion</i>	4-5
E2	Largely unexplained judgements <i>Some attempt at evaluation or a summative conclusion</i>	2-3
E1	An unsupported evaluative statement <i>Unsupported evaluative statement(s) or judgements</i>	1

Markers' Report

Content:

(+/-) Most students were able to analyse at least one policy well (usually taxes), but alternative policy tend to be descriptive.

(+) Many students showed a clear attempt to respond to signpost by including innovation as one of the ways in which the government can use to address the market failure. However, some areas need brushing up:

(-) It is oftentimes unclear what the role of the government is in the policy explanation. Students often write "another way to address this market failure is through innovation", and then goes on to explain how innovation can address the market failure, but does not make clear how the government brings it about. The question specifies 'government policies', so it needs to be clear how the government is effecting this innovation. The ways in which the government can promote innovation is to provide subsidies to firms to reduce their unit cost of production in undertaking innovation, or to develop infrastructure to support firms' efforts to innovate by defraying their fixed cost of production and hence reduce their unit cost of production as well.

(-) When explaining how subsidies for innovation work to address the market failure, students tend to overlook how the subsidies work i.e., via a reduction in unit cost of production, and go straight to how innovation addresses the market failure.

(-) In terms of how innovation addresses market failure, answers tend to be descriptive i.e., no application any economic model or framework. Other than the one in the suggested answer, here are some alternative ways:

- [Using DD-SS model]
 Subsidies \downarrow unit COP of innovation $\rightarrow \downarrow P$ of healthier alternatives that taste just as good ($\downarrow P$ & \uparrow quality) \rightarrow **healthier alternatives now a close substitute for sugary drinks $\rightarrow \uparrow XED \rightarrow \downarrow P$ healthier alternatives $\rightarrow \downarrow \downarrow DD$ for sugary drinks $\rightarrow \downarrow Q$ consumed to a level that is closer to that which is socially optimal \rightarrow overconsumption is reduced**

OR

- [Using Benefit-Cost model]
 Innovation \rightarrow sugary drink producers able to replace sugar in their drinks with healthier sugar substitutes such as stevia or agave which **impose lower 3rd party costs** since they have a lower likelihood of resulting in diabetes and its corresponding lower levels of productivity. **Gap between MSC & MPC is reduced \rightarrow private level of consumption is closer to that which is socially optimal \rightarrow overconsumption is reduced**

Skills:

(+) Most students responded favourably to the command word “discuss” and went into an analysis of the strengths & limitation of the policies. However, there are some areas to note:

(-) The question focusses on the “extent to which government policies can address this market failure”. Hence, some of the limitations that we typically explain will need a bit of extra massaging in order to link back to the question. Below are some examples, where the words in purple are ways in which the limitation can be linked back to the question:

- Subsidies are a strain on the government’s budget and are likely to incur opportunity cost in terms of the development in other areas such as education. **[Link back to question] Hence if the government’s budget is limited or in deficit, or if there are other more pressing areas for the government to dedicate their financial resources to, they might not be able to spend on subsidies to encourage innovation, hence reducing the extent to which this policy can address the market failure.**
- The demand for sugary drinks tends to be price-inelastic as sugar can be quite addictive resulting in its high degree of necessity among consumers. Hence, for an indirect tax to effectively reduce consumption to the level that is socially optimal, it needs to be sufficiently high. However, a high tax will raise the price of sugary drinks to a large extent, and reduce the affordability and accessibility of soft drinks to lower income households, worsening inequity. **[Link back to question] (In view of how it is the poor who tend to consume more sugary soft drinks compared to the rich because sugary soft drinks are more affordable than healthier alternatives,) the equity concerns that arise from imposing too large a tax might prevent the government from imposing a high enough tax to reduce consumption to the socially optimal level. This reduces the extent to which the policy can address the market failure.**

(-) This market failure arises from both negative externalities and information failure – hence to address this market, candidates need to demonstrate a recognition of the need to address both market failure sources.

2021 TMJC Prelim H2 Economics P2 EQ4

4 The following data relate to the two stated economies in 2019.

	Singapore	Vietnam
Real GDP growth rate (%)	0.73	7.0
Unemployment rate (%)	4.11	2.01
Human Development Index	0.938	0.704
Gini Coefficient (After accounting for government transfers and taxes)	0.398	0.35

Source: various

- (a) Using economic analysis, explain why some economies have higher real GDP growth rate than others. [10]
- (b) Discuss whether it is sufficient to use the economic performance of countries to explain the difference in their living standards. [15]

Suggested answer (a)

Introduction

- **Define real GDP growth rate:** measures the rate of change in the volume of output produced within the country in a year
- **Use data from preamble to illustrate meaning of “higher”:** Vietnam’s 7.0% is higher than Singapore’s 0.73% → Vietnam’s real GDP (output) increased by a larger extent (or grew faster) as compared to Singapore in 2019 (*Note: students can provide other possible examples*)
- **State possible reasons for “higher real GDP growth rate”:** extent of changes in AD and AS, degree of spare capacity and size of multiplier

Development

1. Extent of change in AD

- Increase in AD will cause real GDP to grow: due to increase in any of the components C, I, G, X, assuming ceteris paribus
- Increase in AD of SG < increase in AD of Vietnam (*Note: students can provide other possible examples*)
 - Larger increase in AD due to: (*can accept any possible example(s) that can increase any component(s) of AD, not limited to the ones below*)
 - Faster/larger growth in population size → larger increase in C
 - More positive economic outlook → larger increase in C or I
 - More ambitious developmental projects → larger increase in I or G
 - Relatively weaker ER → larger increase in X
- Illustrate with diagram and example: As seen in Figure 1, assuming both economies had same level of real output (Y₁) initially and performing with excess spare capacity. When AD rises, total spending exceeds total output, causing a shortage hence inventories fall. Firms will step up production to increase output. When an economy experiences a larger increase in AD from AD₁ to AD₃, it will result in a larger increase in real output from Y₁ to Y₃, therefore **higher rate of growth**. In contrast, if an

economy experiences a slower increase in AD from AD1 to AD2, the increase in real output is only from Y1 to Y2 and hence a **lower rate of growth**. For example, many businesses are seeing the potential in Vietnam as a country to set up their production facilities due to lower labour costs hence lower COP in general. Therefore there may be greater FDI inflow into Vietnam as compared to other economy, e.g. Singapore.

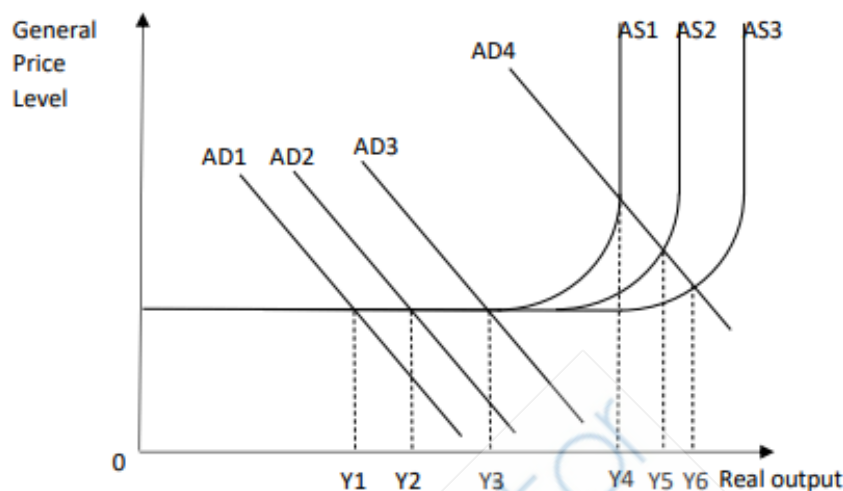


Figure 1

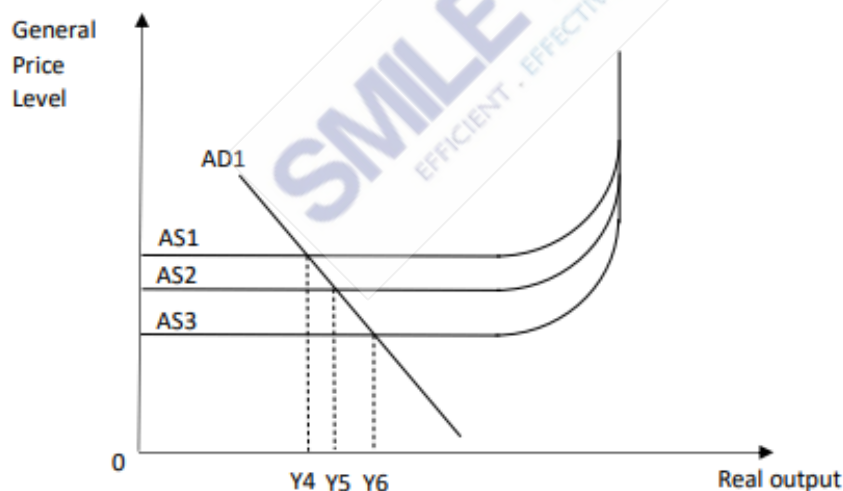
2. **Extent of change in AS** (can accept either increase in LRAS or SRAS)

- Increase in AS will cause real GDP to grow: increase LRAS due to increase in quantity or quality of FOPs or improvement in state of technology **OR** increase SRAS due to decrease in COP in the economy (refer to explanation in box below for increase SRAS)
- Increase in LRAS of SG < increase in LRAS of Vietnam (Note: students can provide other possible examples)
 - Larger increase in LRAS due to: (can accept any possible example(s) that can increase LRAS, not limited to the ones below)
 - Larger increase in quantity of resources due to discovery of new sources of raw materials especially for countries with larger land mass which can be converted into mining fields / larger population growth hence larger increase in workforce
 - Larger increase in quality of resources due to more intensive or better receptivity in training of workers hence the improvement in quality of workers may be more significant in developing economies where the workforce may be larger and younger while that of a developed economy which faces aging population may experience a slower improvement in the quality of workers
 - Larger improvement in state of technology due to faster development or adaptable of technology in the production process by developing economies as developed / advanced economies may take a longer time to see further development of more advanced technology due to lack of technical knowledge / longer time for R&D
- Illustrate with diagram: As seen in Figure 1, assuming both economies had same level of real output (Y4) initially and are operating at full employment (or AD is sufficiently high). When an economy experiences a larger increase in LRAS from AS1 to AS3, it

will result in a larger increase in real output from Y4 to Y6, therefore **higher rate of growth**. In contrast, if an economy experiences a slower increase in LRAS from AS1 to AS2, the increase in real output is only from Y4 to Y5 and hence a **lower rate of growth**. For example, due to significant increase in investment, there is greater capital accumulation (increase in quantity of capital goods) in the economy of Vietnam in LR hence larger increase in AS as compared to other economy, e.g. Singapore.

OR

- Increase in SRAS of SG < increase in SRAS of Vietnam (Note: students can provide other possible examples)
 - Larger increase in SRAS due to: (can accept any possible example(s) that can increase LRAS, not limited to the ones below)
 - Larger decrease in unit COP due to reaping of EOS when the industries produce on a much larger scale (e.g. industrialisation) as compared to those whose increase in scale of production may be less significant
- Illustrate with diagram: As seen in diagram below, assuming both economies had same level of real output (Y4) initially and are operating at excess spare capacity. When an economy experiences a larger increase in SRAS from AS1 to AS3, it will result in a larger increase in real output from Y4 to Y6, therefore **higher rate of growth**. In contrast, if an economy experiences a slower increase in SRAS from AS1 to AS2, the increase in real output is only from Y4 to Y5 and hence a **lower rate of growth**.



3. Size of multiplier size (k)

- The extent of increase in national income for a given amount of injection depends on **the size of the multiplier**. The initial increase in injection will stimulate a stream of further spending. **This is because expenditure by one party is income to another.**
- Increase in real GDP of SG < increase in real GDP of Vietnam
 - Larger multiplier size [$k = 1/(1-MPC) = 1/(MPW)$] due to:

- Larger MPC due to higher spending (out of the additional income) to fulfil more needs
- Smaller MPW due to lower savings rate, tax rate and/or rate of imports
- Illustrate with example: Assuming both countries having similar level of real GDP initially and excess spare capacity. Singapore has a very small multiplier due to compulsory savings (i.e. CPF) and high rate of imports, which account for a large withdrawal. While Vietnam's residents tend to have a higher MPC as they are likely to spend a larger proportion of their additional income to fulfil more of their unmet needs, unlike that of Singaporeans. Hence, the extent of increase in real GDP will be larger for Vietnam than for Singapore and therefore **higher rate of real GDP growth**.

4. Degree of spare capacity

- Whether the extent of change in AD, AS or size of multiplier affects the extent of real GDP growth depends on the extent of spare capacity the economy has. If an economy has limited or no spare capacity, there would be limited or no real GDP growth no matter how much AD increase by or how big the multiplier is. The multiple increase in income due to increase AD will be in the form of nominal income rising, i.e. real GDP increase by limited amount or remain unchanged but GPL keeps rising. Hence for such economy, the **real GDP growth rate will tend to be lower** than one which has excess spare capacity, where the multiple increase in income arising from a rise in AD will be in the form of real GDP rising. Therefore the only way for a country with limited or no spare capacity to achieve higher real GDP growth is to increase AS in the LR to increase the amount of spare capacity available in the economy. (Examples under point #2 are also applicable here to increase the spare capacity of an economy but if students have already explained them above, do not double credit)

Conclusion

Link to (b): The reasons given above will affect the extent of growth in any economy, which in turn will affect the standard of living of residents in the country.

Marking Scheme (a)

Level	Knowledge, Comprehension, Application and Analysis	Marks
L3	For an answer that gives a detailed and analytical explanation of at least 3 reasons for the different rate of real GDP growth.	8-10 (9)
L2	For an answer that describes the reasons for the different rate of real GDP growth and lack economic rigour <u>OR</u> an analytical explanation of any 2 reasons.	5-7 (6)
L1	For an answer that shows unexplained knowledge of the reasons for the different rate of real GDP growth.	1-4 (3)

Markers' Report

Skills:

(-) Question stated "Using economic analysis" but so many candidates gave descriptive answers, without linking to any economic framework. They stated the reasons and jumped straight into how therefore output will increase. For example, many pointed out how with

larger population size, there would be greater increase in spending and therefore firm will increase output. For economic rigour, candidates should link the greater spending to larger increase in AD and briefly elaborate on the adjustment process to show how therefore output level increases by a larger extent, hence higher real GDP growth. It will be better if students explain with the aid of diagram to illustrate so that it helps in the clarity of the answers.

(-) Many candidates were not careful in looking out for the key word "higher real GDP **growth rate**" and ended up explaining why some countries enjoy higher real GDP. They did not realise that the question is asking for the reason why **increase in real GDP is by a larger extent** as compared to other countries. Hence it is important to look at the **extent of increase in output level**, not just the level of output at that point in time whether is higher or lower.

(-) Candidates did not see the need to do an explicit comparison between different countries when explaining the reason why some economies have higher real GDP growth rate than others. They focused only on 1 country to explain why there is larger increase in GDP. Candidates did not see the importance of comparing the relative difference and therefore leading to difference in real GDP growth rate. For example, many candidates used Vietnam as an example to show how the country can enjoy higher real GDP growth rate due to the larger land size. Yes, this point may apply when compared to Singapore but if compared to another country, the point may not be valid. There could be countries with larger land size as compared to Vietnam but they may not experience higher real GDP growth rate. Therefore, there has to be reference point for the comparison, i.e. need to compare with another country.

Content:

(-) Many candidates provided theoretical explanation without application to any context. Although the nature of the question does not require candidates to make use of the examples given in the preamble, they can use the given data as a starting point to brainstorm for reasons why the 2 countries have different rates of real GDP growth. They can also bring in other countries as examples. It makes the explanation clearer if candidates are able to apply to real world context rather than some abstract or theoretical reasons.

(-) Many candidates pointed out that one of the reasons is the level of unemployment rate. For example, the lower unemployment rate in Vietnam means more people are employed and hence they have higher income to spend which increases AD by larger extent. Usually labour is a derived demand, hence the lower unemployment is due to a rise in AD in the first place and therefore when firms step up production, they will hire more labour. Therefore, we need to identify what is the cause and effect. There should be an underlying reason why AD increase in the first place, which leads to firms increasing output level by demanding for labour, i.e. the low unemployment could be an outcome of the higher GDP growth rather than the cause. Hence there is a need for students to be mindful of how they explain the reason and to include necessary assumptions where appropriate.

- (b) Discuss whether it is sufficient to use the economic performance of countries to explain the difference in their living standards. [15]

Suggested answer (b)

Introduction

- **State the various indicators to determine the economic performance of a country:**
 - Economic growth rate → change in national income
 - Inflation rate → price stability
 - Unemployment rate → utilisation of spare capacity
 - Balance of trade → value of net exports
- **Define living standards:** well-being of people in a country.
 - The **material well-being** of an individual is measured by the quantity of goods and services (G&S) consumed by an individual.
 - The **non-material well-being** relates to the quality of life and is influenced by environmental factors such as crime rates, as well as by socio-economic factors such as life expectancy, availability of health care, etc.

Development

Thesis: may be sufficient to use the economic performance of countries to explain the difference in their living standards

Explain how economic growth rate, inflation rate, unemployment rate and BOT may be reflective of difference in material and non-material SOL

Economic growth rate

- Economic growth rate: shows the extent of increase in SOL → higher (+ve) EG rate → larger increase in real output → residents able to enjoy a greater increase in quantity of G&S, assuming no change in population size for all economies → larger increase in mSOL → **higher mSOL assuming same level of SOL initially**
- SG's EG rate < Vietnam's EG rate → Vietnamese enjoy a larger increase in mSOL than Singapore
- Evaluation: However we cannot conclude that Vietnam will have a higher mSOL than Singapore as it depends on the initial level of real GDP or SOL in the respective countries. If Singapore's GDP was very much higher than Vietnam's, even if the real GDP growth rate of Vietnam's is higher than Singapore, the extent of increase in GDP may not be sufficient to overtake Singapore level of GDP hence we are unable to conclude whether eventually the mSOL of Vietnam's will be higher than Singapore's.
- SG's EG rate < Vietnam's EG rate → Vietnam may experience a lower nmSOL due to higher level of air pollution as the economy increases production and lack strategies to minimise the problem
- Evaluation: However we cannot conclude that Vietnam will have a lower nmSOL than Singapore as it depends on the initial level of pollution in the respective countries. If Vietnam's pollution was very low to begin with, the increase in pollution may not cause the level of pollution to exceed Singapore's hence Vietnam's nmSOL may still be higher than Singapore's.

Unemployment rate

- Unemployment rate: shows the proportion of unemployed labour out of the labour force → higher unemployment rate → larger proportion of labour unemployed → more people are earning zero income → unable to enjoy basic level of G&S + higher stress level due to

loss of jobs or higher crime rates as people may resort to stealing → **lower mSOL + nmSOL**

- SG's unN+ rate > Vietnam's unN+ rate → more Singaporean are earning zero income hence SOL, in general, is lower than Vietnamese as more people suffer from a fall in the quantity of G&S they get to enjoy + higher stress level

Inflation rate (optional)

- Inflation rate: shows the increase in cost of living (COL) → higher inflation rate → higher COL → lower real income/purchasing power → larger decline in mSOL → **lower mSOL assuming same level of SOL initially**
- Evaluation: However we cannot conclude that economy A will have a higher mSOL than economy B just because economy B suffers from a higher rate of inflation as it depends on the initial level of SOL in the respective countries. If economy B's mSOL was very much higher than economy A's, even if the inflation rate of economy A's is higher than economy B's, the extent of decline in mSOL may not be so significant as to become lower than economy A's. Hence we are unable to conclude whether eventually the mSOL of economy A's will be higher than economy B's.

Balance of Trade (optional)

- Balance of trade: shows the value of net exports → if positive, i.e. $X > M$ → contributes to the growth of the economy as AD increases → enjoys higher SOL within the economy but may not be higher than another economy as explained above, depending on the initial level of GDP or SOL of the respective economies.

Anti-thesis: may not be sufficient to use the economic performance of countries to explain the difference in their living standards

Explain how economic growth rate, inflation rate, unemployment rate and BOT may not be reflective of difference in material and non-material SOL → **limitations** of using economic performance to explain difference in living standards

- Did not factor in change in population size: even though Vietnam may have enjoyed a higher rate of EG, if the population size increase at a faster rate → real GDP per capita falls → individual's purchasing power falls → enjoy lower mSOL than before → unable to accurately determine the change in mSOL → unable to compare the mSOL across countries
- Not direct indicators of nmSOL:
 - even though the rate of production may affect the quality of air, it may not be an accurate reflection of the actual quality of air unless we have more information like the pollution index. Thus it is not always true that the higher the rate of EG, the air quality will be worse off as compared to other countries. It depends on the production process as well as how the government might have managed the emissions.
 - even though the rate of unemployment in Singapore is higher, it depends on what type of unemployment is present and whether it causes any stress on the labour. If the high rate of unemployment is mainly due to frictional employment where workers were primarily looking for better job fit, it may eventually lead to higher quality of life rather than causing stress on individuals.
 - Evaluation: Therefore there is a need to supplement the economic indicators with other indicators of quality of life for a more accurate assessment of the quality of life and hence the overall SOL.

Suggest **other indicators** that may be useful to explain the difference in their living standards

- **HDI:** The Human Development Index (HDI) is a summary measure of average achievement in three key dimensions of human development – a long and healthy life (life expectancy), being knowledgeable (literacy rate) and have a decent standard of living (real GDP per capita in PPP terms). The higher the HDI index (i.e. closer to 1) the higher will be the level of standard of living, in terms of both material and non-material aspect. This is because an increase in a country's HDI value would have been attributed to an increase in **life expectancy index**, **education index** and/or **GNI index**. Hence even though Vietnam might have a higher rate of EG and lower unN+, the HDI at 0.704 is still lower than Singapore's 0.938, showing that overall SOL is lower than Singapore's.
- **Gini coefficient:** The Gini coefficient is a commonly-used indicator that measures the income inequality. It measures the extent to which the distribution of income among individuals or households within an economy
 - a value of 0 represents perfect income equality – where every household has the same income,
 - a value of 1 represents perfect income inequality – where one household has all the income in the economy.

Thus, the greater the value of the Gini coefficient, the greater is the income inequality. This may suggest that most of the benefits of growth may not be enjoyed by the majority of the population. Thus, the majority of the population may have a much lower material standard of living than the minority. Hence Vietnam's lower Gini coefficient of 0.35 might be representative of a larger proportion her residents enjoying higher purchasing power than Singapore's Gini coefficient of 0.398 hence higher mSOL in general.

Conclusion

Overall, it is not possible to draw conclusions on the difference in standard of living between countries because it is insufficient to rely solely on the economic performance. It does not take into consideration many factors, most notably change in population size, as such, GDP per capita (in PPP terms) would be a better indicator.

Why real GDP per capita in PPP terms is a better indicator:

- One of the most commonly and accurately computed data,
- Provides direct information about the purchasing power of the citizens and hence the quantity of goods and services citizens can enjoy in the respective economies after converting to common currency using PPP exchange rate → single most powerful indicator of mSOL when making comparison between countries

However, there is also a need to consider the income distribution and quality of life which are not directly reflected by the economic performance / real GDP per capita of the economy:

- PPP-adjusted real GDP per capita does not take into account income distribution → hence complement with Gini coefficient
- Although it is possible to infer how the rise in real GDP per capita may improve nmSOL → BUT is not a direct measure of nmSOL → hence complement with HDI which could shed some light on why countries with the same PPP-adjusted real GDP per capita might have different HDI outcomes

Marking scheme (b)

Level	Knowledge, Comprehension, Application and Analysis	Marks
L3	For a well analysed and balanced response considering the sufficiency of economic performance (consider at least 2 economic performance) in measuring both mSOL and nmSOL.	8-10 (9)

L2	For a one-sided discussion (lacking in scope) or a response lacking in economic rigor or a response not referencing to SOL.	5-7 (6)
L1	For a response that demonstrates some knowledge of economic performance and SOL.	1-4 (3)
Evaluation		
E3	For evaluative comments that build on appropriate analysis to evaluate the usefulness of economic performance in assessing SOL.	4-5
E2	For an answer that makes some attempt at a judgement or conclusion, lacking in explanation or analysis.	2-3
E1	Mainly unsupported evaluative statements.	1

Markers' Report

Skills:

(+) Majority of the candidates understood the need to provide balanced argument, i.e. 2-sided answer.

(+/-) Many candidates attempted to round up their arguments with a logical judgment but the reason to support judgment was often a rehash of the points explained earlier in the main development or lacked elaboration.

(-) Many candidates were not mindful of linking back to SOL in their analysis. They got carried away explaining the economic performance data, for example how higher real GDP growth rate reflects higher output produced without explicitly linking back to material SOL. Or they criticised how the economic performance data did not factor in pollution level, without explaining the link between pollution and SOL.

(-) There was also no link to why there is a need to bring in HDI or how other indicators, like Gini coefficient, complement the economic performance data. Candidates merely explained how economic performance data can affect SOL and the limitations of solely using them, then straight away bring in HDI and Gini coefficient. There should be better linkage, for example how HDI is a better indicator than economic performance data because HDI factors in both material and non-material SOL or because it factors in real GDP per capita in PPP terms.

Content:

(+) Majority of the candidates touched on both material and non-material SOL and clearly defined the meaning of both.

(-) Majority of the candidates were unable to see that higher real GDP **growth rates** mean that Vietnamese will be experiencing a higher **increase** in income level and hence able to consumer **more** goods and services but this means a greater **increase** in material SOL for Vietnam as compared to SG, not the absolute level of material SOL for Vietnam to be higher than SG. To begin with, Vietnam's material SOL may be way below SG's hence even if Vietnam's material SOL **increase** by a greater extent due to the higher growth rate, the absolute level of material SOL may still be below that of SG's.

(-) Poor understanding of HDI. Many candidates mistook HDI to measure only non-material SOL or were unsure of the 3 aspects HDI accounts for.

(-) Poor understanding of the use of Gini coefficient in helping to determine SOL. Many candidates mistook Gini coefficient to be able to measure the material SOL directly, i.e. when there is greater income equality, there is better material SOL. Gini coefficient is used to complement the real GDP growth rate data in the sense that whether the increase in output is enjoyed by the majority or only the minority high-income group, i.e. whether the majority gets to enjoy higher material SOL or only the minority.

(-) There is quite high occurrences that the terms "income inequality" and "inequity" were used interchangeably. Several candidates stated that Gini coefficient is a measure of inequity, when it should be income inequality. Income inequality does lead to inequity but they are not synonymous. Inequity is about the **unfairness in resource allocation** (of essential goods), which may arise due to income inequality, which is the **unequal distribution of income**.



2021 TMJC Prelim H2 Economics P2 EQ5

- 5** Governments have aims in relation to price stability and economic growth.
- (a) Explain why Singapore chooses exchange rates rather than interest rates as its main tool of monetary policy. [10]
- (b) Assess whether trade-offs between macroeconomic objectives are inevitable when the Singapore government allows its currency to appreciate in order to achieve price stability. [15]

Suggested Answers

(a) Explain why Singapore chooses exchange rates rather than interest rates as its main tool of monetary policy. [10]

Introduction

[Define monetary policy] Monetary policy is a demand-management policy which involves altering money supply, interest rates or exchange rate to influence aggregate demand to achieve the macroeconomic objectives of high and sustained economic growth, low and stable inflation, low unemployment and healthy balance of payments.

[Define SG Context] Singapore is a small and open economy and its characteristics are the underlying reasons for its choice of tool of monetary policy.

- Small: Limited natural resources, small domestic demand
- Open: Dependent on imported raw materials, external demand is relatively larger than domestic demand

Development #1: Explain why exchange rate is chosen by SG as its main tool of monetary policy

- **Exchange rate policy is able to curb imported inflation**

Imported inflation is one of the main sources of cost-push inflation in SG. As a resource poor country, SG is very dependent on imported factors of production e.g. oil and other raw materials. If import prices were to rise, it would significantly affect the cost of production of domestic firms, raising the GPL to a large extent which is a concern to the government as it affects both export competitiveness and the cost of living. In such a case, MAS can strengthen (revalue) the currency to reduce the price of imports (measured in domestic currency), thus reducing cost of production for firms, and thus the GPL as well. In comparison, interest rate policy is unable to directly address imported inflation.

- **Exchange rate policy is more effective in influencing AD**

As an open economy, trade is an important engine of growth for SG and thus a policy such as exchange rate policy that can influence net export revenue would be more effective.

In the event of slowing growth or a recession, the government can use exchange rate policy to raise the growth rate. MAS can lower the external value of the currency (devalue). This would lower export prices (in foreign currency) and raise import price (in SGD). Assuming $PED_x > 0$, this will lead to a rise in quantity demanded for exports in foreign markets. Given that there is no change in price of exports in domestic currency, a rise in quantities sold overseas hence raises export revenue.

With the higher import prices, and given that SG's demand for imports is price inelastic since we are import reliant (i.e. $PED_m < 1$), the increase in price of imports leads to a less than proportionate decrease in quantity of imports and import expenditure will rise.

Assuming that the Marshall-Lerner condition holds, where the sum of price elasticity of demand for exports and imports is greater than 1, a depreciation of the Singapore dollar will then lead to a rise in the value of net exports (i.e. $(X-M)$ rises).

Since net export revenue makes up a very large proportion of the total demand in SG due to SG's high trade dependence, the impact of an increase in $(X-M)$ will result in a substantial rise in AD resulting in higher rates of growth. In comparison, interest rate policy tends to only impact C and I, which make up a smaller proportion of total demand. The impact on AD would be smaller than the impact that exchange rate policy brings about.

Development #2: Explain why interest rates is not chosen by SG (any 1 reason)

- **Changing interest rates result in instability in exchange rates**

If SG were to vary its interest rate, this would cause a significant impact on the exchange rate. This is because hot money, which is short term capital in search of higher returns and monetary stability, would flow out of a SG if its interest rates were to be lowered. This would cause an increase in supply of SGD in the foreign exchange market, thus causing the exchange rate to depreciate, which worsens imported inflation. Changes in the interest rates could therefore lead to large capital movements into or out of the country, causing instability in the external value of the currency, creating uncertainty and affects the cost of business decisions.

- **SG is a price taker for interest rates → difficult to target interest rates**

As SG is a financial centre, it has open capital markets which makes it difficult to target interest rates. If the MAS were to raise interest rates, a significant amount of hot money would enter SG. This would increase the supply of loanable funds which would reduce interest rates. Thus, it would be difficult to vary the interest rates away from that of foreign

interest rates as any change would be thwarted by the inflow or outflow of hot money in the economy.

- **Demand for investment is interest rate inelastic in SG**

The interest rate inelasticity for the demand for investment makes interest policy less effective. Even if SG were able to change its interest rates, the extent of the impact on AD would be small as the MEI tends to be interest rate inelastic. A fall in interest rates would mean that the cost of borrowing is lower and thus previously unprofitable investment project may now be profitable. The volume of investment thus increases, leading to greater investment expenditure. However, since MEI is interest inelastic as majority of investment in SG is due to FDI and foreign firms may not necessarily need to borrow locally, this leads to a less than proportionate rise in the volume of investment. Thus investment expenditure would increase to a small extent only. Therefore impacts on AD would not be significant.

Conclusion

In summary, due to Singapore's key characteristics as a small and open economy, exchange rate is the preferred option for monetary policy.

Alternative approach is to address why e/r & correspondingly not i/r together:

1. Exchange rate policy is able to curb imported inflation

Imported inflation is one of the main sources of cost-push inflation in SG. As a resource poor country, SG is very dependent on imported factors of production e.g. oil and other raw materials. If import prices were to rise, it would significantly affect the cost of production of domestic firms, raising the GPL to a large extent which is a concern to the government as it affects both export competitiveness and the cost of living. In such a case, MAS can strengthen (revalue) the currency to reduce the price of imports (measured in domestic currency), thus reducing cost of production for firms, and thus the GPL as well. In comparison, interest rate policy is unable to directly address imported inflation.

2. As Singapore is a small and open economy, external demand (X) makes up a significant proportion of AD relative to domestic demand ($C_d + I + G$). Manipulating exchange rate directly influences X via changes in P_x , whereas manipulating interest rate affects C_d & I via changes in cost of borrowing. As such exchange rate manipulation is more effective in influencing AD to achieve macroeconomic objectives/stabilization compared to interest rate manipulation. Hence MAS manages MP through exchange rate instead of interest rate.

3. Singapore is a financial centre where open capital markets result in free capital movements. In the presence of free capital movements, manipulating the interest rate can lead to massive movements of short-term capital, destabilising the exchange rate (and preventing the central bank from controlling the exchange rate). In the context of

free capital movements, Singapore can either have autonomy over its exchange rate or interest rate but not both. Hence given its import reliance and hence the need to use exchange rate to control the price of imports and control import-price-push inflation, it chooses to manipulate exchange rate instead of interest rate and allows the interest rate to move in tandem with the rest of the world so as to maintain a fixed interest rate parity.

Moreover, **as a small and open capital market**, if the MAS were to raise interest rates, a significant amount of hot money would enter SG. This would increase the supply of loanable funds which would reduce interest rates. Thus, it would be difficult to vary the interest rates away from that of foreign interest rates as any change would be thwarted by the inflow or outflow of hot money in the economy.

Level	Knowledge, Application & Understanding	Marks
L3	For an answer using economic analysis to explain the advantages of using exchange rate policy over interest rate policy set in the context of the Singapore economy. Answer should show both sides: explain why exchange rate is preferred, and why interest rate is not preferred.	8-10
L2	For a largely descriptive answer (lacking analysis) OR an answer lacking in scope (e.g. only explains why exchange rate policy is good).	5-7
L1	For an answer which shows some knowledge of what is exchange rate and interest rate policy or a list of unexplained reasons.	1-4

Markers' Report

Skills:

(-) Many students provided in-depth analyses of both exchange rate policy and interest rate policy without explaining **why** exchange rate was preferred over interest rate in the case of Singapore.

(-) Quite a number of students focussed mainly on explaining why exchange rates were chosen. Students should take note that in order to gain full credit, they should explain both why exchange rates were chosen, and why interest rates were not i.e. clear reasoning for not using interest rates have to be given as well.

Content:

(-) Some students think that interest rate policy is not used because SG has a small multiplier size. Students need to recognise that the small multiplier size affects the effectiveness of all demand management policies, exchange rate policy included, since k size determines the multiplied increase in national income given an injection.

(-) When explaining why SG does not use interest rates, many students explained that this was because there would be impact on hot money flows which then affected the amount of FDI. There was confusion between hot money and FDI and some students used them interchangeably, which is incorrect.

(-) Students tended to write about the “large proportion of AD that (X-M) takes up” as a reason why exchange rate was preferred. This was not fully accurate. To explain why exchange rate was preferred over interest rate, students should take note that they should compare the **relative** size of (X-M) with **Cd and I** and not just talk about the size of (X-M) or Cd and I in absolute terms.

(b) Assess whether trade-offs between macroeconomic objectives are inevitable when the Singapore government allows its currency to appreciate in order to achieve price stability. [15]

Introduction:

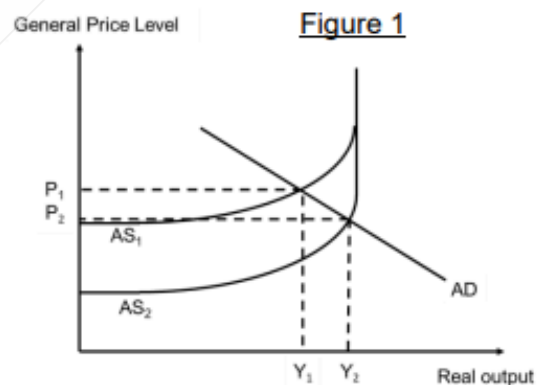
The use of exchange rates is a significant tool to help Singapore achieve her economic goals, as explained in part (a). The appreciation of the SGD allows for the achievement of price stability, but could also potentially lead to trade-offs with other macroeconomic objectives.

Development #1: Explain how an appreciation of the SGD works to lower inflation rate in SG

(i) Explain how appreciation lowers cost-push inflation

In SG, a modest and gradual appreciation is used by the Monetary Authority of Singapore (MAS) to reduce imported cost-push inflation. A stronger SGD will reduce the price of imported raw materials in terms of domestic currency. This lowers the unit cost of production and increases supply of goods and services. If many individual market supply curves increase, then SRAS

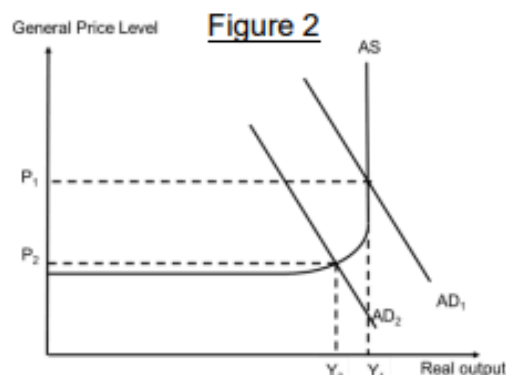
increases from AS_1 to AS_2 as shown in Figure 1, causing GPL to fall, thus tackling the problem of imported cost-push inflation. In addition, the appreciation also causes imported final goods and services to be cheaper in terms of SGD, and also increases competitive pressure for domestic firms to keep prices low. These overall aim to lower domestic inflation rates in SG, thus achieving price stability. At the same time, there is also an increase in real output from Y_1 to Y_2 , achieving actual growth. The increase in production would mean that firms would increase their demand for factors of production, including labour. Thus, demand-deficient unemployment is reduced. As such, the achievement of price stability, through lowering cost-push inflation via an appreciation of



SGD does not lead to a trade-off with other macroeconomic objectives since actual growth and lower unemployment are achieved at the same time.

(ii) Explain how appreciation lowers demand-pull inflation

The appreciation of the SGD can also help to curb demand-pull inflation. With an appreciation of the SGD, price of exports in foreign currency rises and price of imports in domestic currency (SGD) falls. Assuming the Marshall-Lerner Condition holds, where $PED_x + PED_m > 1$, this will decrease net export revenue ($X-M$) and thus aggregate demand (AD), ceteris paribus. The fall in AD (as seen in Figure 2) thus lowers GPL, lowering demand-pull inflation.



[Linking paragraph] While the main intent of the appreciation of SGD is to address imported inflation, it can also address demand-pull inflation, as explained. While the appreciation may successfully reduce inflation rates in Singapore, trade-offs with the government's other macroeconomic objectives may be inevitable.

Thesis: Trade-offs are inevitable when the SGD is allowed to appreciate to achieve price stability

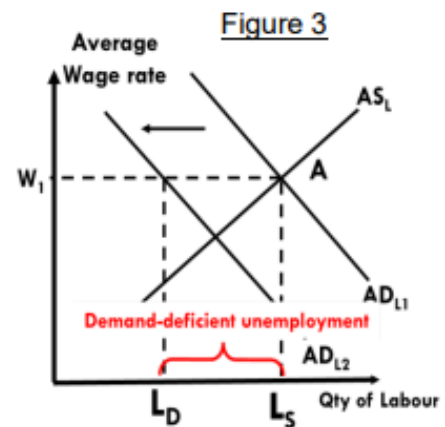
- Explain the possible trade-offs that occur as a result of appreciation of SGD [explain 1 trade-off]

Show that while an appreciation of the SGD can lower cost-push and demand-pull inflation, it may worsen BOT, cause negative growth and increase demand-deficient unemployment in SG

Firstly, the appreciation of SGD may worsen Singapore's balance of trade. With higher prices of exports measured in foreign currency and lower import prices measured in domestic currency, assuming the M-L condition holds, as explained earlier, ($X-M$) falls. Assuming the trade balance were in equilibrium, where $(X-M) = 0$, a fall in ($X-M$) would lead to a deficit in the trade balance. This causes a trade-off with the goal of a favourable BOT, if the deficit in the BOT is large and persistent.

Secondly, while the fall in $(X-M)$ and hence AD leads to a lowering of demand-pull inflation, the fall in AD thus leads to a fall in real output, causing negative economic growth. As a result, firms are likely to decrease the derived demand for labour. Aggregate demand for labour (AD_L) decreases, and assuming that there are sticky wages at W_1 (Figure 3) due to contractual agreements, there is demand-deficient unemployment of $L_D L_S$.

The appreciation of the SGD to achieve low and stable inflation thus causes a trade-off with the other goals of high and sustained growth as well as low unemployment.



EV: However, in the short run, the PED_x and PED_m may not be greater than 1 due to existence of contractual agreements between SG and her trading partners. Hence, when there is an appreciation of the SGD, $(X-M)$ increases in the short run, before decreasing later on. As a result, since $(X-M)$ increases, the appreciation of the SGD doesn't actually lead to a worsening of the trade balance or negative growth and demand-deficient unemployment in the short run but instead, may in fact promote an improvement in the trade balance and allow for actual growth.

[Link to question] As such, the shorter the time period, the higher the likelihood that the M-L condition does not hold and thus, the less likely trade-offs with other macroeconomic goals will occur.

Note: Point about M-L condition can be written as an anti-thesis point too, but if students do so, then I think they should write one more other point from those below as well.

Anti-Thesis: Trade-offs are not inevitable when the SGD is allowed to appreciate to achieve price stability

- Explain why trade-offs may not occur (i.e. they are not inevitable)

Possible factors affecting the likelihood of trade-offs [explain any 1]:

1. Whether there are other policies put in place to achieve the other macro goals
2. State of the global economy

Factor #1: Trade-offs may not occur if the SG government puts in place other policies to achieve the other macroeconomic goals (i.e. other policies to increase AD / improve export non-price comp.) *Note: Briefly explaining one policy will suffice.*

Other policies may also be pursued simultaneously with an appreciation to achieve other macroeconomic goals as well.

Supply-side policies: For e.g. supply-side policies (e.g. subsidies for investment in R&D for product innovation) may also improve the non-price competitiveness of exports from

SG. Hence, in spite of the lower price competitiveness of SG's exports due to the appreciation, the non-price competitiveness of the exports may still result in a high demand for it and hence, still allow for an increase in X and AD overall. As such, the appreciation may not necessarily lead to a trade-off with the goals of a healthy BOT, as well as economic growth.

OR

Expansionary FP: For e.g. expansionary fiscal policy may be employed to boost domestic demand so as to achieve actual growth. As such, even with the appreciation of the SGD which has effects like lowering the AD through lowering external demand and causing negative growth, the use of an expansionary FP to boost domestic demand may offset the fall in AD , and should the injection of G be significantly larger than any fall in X due to the appreciation, overall AD may rise and bring about an increase in real output instead. Hence, there may not necessarily be negative growth and demand-deficient unemployment when the SGD is allowed to appreciate, if there are other expansionary demand-management policies put in place at the same time.

[Link to question] Hence, if there are alternative policies put in place to complement the appreciation of SGD in promoting high export demand, and the more successful these policies are, the trade-offs with other macroeconomic goals may less likely occur given an appreciation of the SGD as these alternative policies help to mitigate the trade-offs.

EV (Criterion: success of policies): However, this depends largely on the success of the policies. Given that efforts in R&D and innovation take time and may not always reap positive outcomes, the use of supply-side policies may not necessarily allow for improved export competitiveness. The impact of an appreciation may still hurt export competitiveness and the trade-offs brought about may still be significant.

Factor #2: State of the global economy (i.e. external factors that influence X)

There are also factors that are not within the control of the SG economy in determining whether the appreciation of the SGD will lead to trade-offs with other macroeconomic goals. For e.g. should there be strong economic growth worldwide, there could be rising incomes which causes higher purchasing power of SG's trading partners for SG's exports. In light of that, even though SG appreciated its currency which will reduce demand for SG's exports, the higher incomes worldwide may increase the willingness of other countries to import from SG, thereby increasing SG's export revenue and hence AD . As such, though the appreciation of SGD would lower $(X-M)$ and hence AD giving rise to a trade-off with a favourable BOT, growth and employment (as explained above), the increase in AD due to higher foreign incomes helps to mitigate this and thus, a trade-off may not necessarily occur.

[Link to question] The greater the increase in incomes due to worldwide economic growth, the less likely the appreciation of SGD leads to trade-offs with the other three macroeconomic goals.

EV (Criterion: size of external impact): The extent to which this factor influences the extent of trade-off is dependent on the closeness of the trading partners to SG. Should there be rising incomes in SG's closest trading partners, then the likelihood of trade-off could be much lesser, compared to a case where rising incomes are observed in economies which are not as close to SG as a trading partner.

Conclusion (answer the question on whether or not trade-offs are inevitable):

[E/Criterion: Time period] In conclusion, trade-offs are generally inevitable in the short run. **[E/Reasoning]** This is because policies to counter the trade-offs generally have a time lag in implementation. Therefore, they may not be implemented quickly enough to minimise the trade-offs when the currency is appreciated. **[E/Opinion]** That said, given that the MAS generally pursues an appreciation of the SGD that is modest and gradual, there will not be large increases to the external value of the SGD and hence, despite there being trade-offs, the extent to which trade-offs occur will be much lesser.

[E/Opinion] Nevertheless, in order to minimise conflicts in government's objectives, the use of supply-side policies should be implemented to ensure that the demand for her exports remains strong through greater improvement in the quality of her exports. The focus on raising productivity is also important to maintain Singapore's competitiveness.

[E/Reasoning] These policies will be able to further offset some of the loss in export price competitiveness when Singapore adopts a strong exchange rate policy.

Level	Knowledge, Application, Understanding and Analysis	Marks
L3	Clear analytical explanation of trade-offs and the factors that influence the likelihood of the trade-offs, in the context of Singapore. Balanced argument to show that trade-offs may and may not be inevitable depending on certain factors.	8-10
L2	One-sided answer that <i>either</i> explains possible trade-offs that may occur (thesis) <i>or</i> explains why trade-offs may not occur when the SGD is allowed to appreciate (anti-thesis). OR Underdeveloped answer lacking use of a clear analytical framework to explain trade-offs (thesis) and why they may not occur (anti-thesis).	5-7
L1	Knowledge of how an appreciation of the SGD works to address macroeconomic goals in SG (i.e. to tackle both cost-push (imported) inflation as well as demand-pull inflation) i.e. explanation of the intended outcome of an appreciation of the SGD.	1-4
Allow up to 5 additional marks for Evaluation		

E3	For an answer that arrives at an analytically well-reasoned judgment on whether or not trade-offs in macroeconomic objectives are inevitable when there is an appreciation of the SGD.	4-5
E2	For an answer that makes some attempt at evaluating or for a conclusion that answers the question but does not explain the judgment or base it on analysis.	2-3
E1	For an answer that gives an unsupported evaluative statement.	1

Markers' Report

Skills:

(+) Candidates demonstrated an understanding of the command words "Assess whether" by providing analyses of situations or circumstances under which the use of currency appreciation to achieve price stability results in a conflict with other macroeconomic objectives, and circumstances under which it does not. These responses were often followed by a synthesis that identifies key factors determining whether or not a conflict arises.

(-) It is necessary that when answering this question, candidates answer based on the premise of using currency appreciation to achieve price stability. Several candidates misinterpreted the question to mean whether different policies to achieve price stability led to conflicts between macroeconomic objectives.

Content:

(+) Majority are able to explain how appreciation works to lower AD and thus explain the trade-off between achieving low inflation with negative growth / demand-deficient unemployment.

(-) While most candidates explained in part (a) that Singapore uses a strong SGD to curb imported inflation arising from high cost of imported inputs, most scripts did not expound on this in part (b) when explaining how Singapore uses appreciation to achieve price stability. This would have made a good argument for the point that there might not be a trade-off when using currency appreciation to achieve price stability.

(-) There was still confusion in the application of the PED assumptions for PED_x and PED_m. Students are strongly advised to review these concepts and ensure they are written accurately.

2021 TMJC Prelim H2 Economics P2 EQ6

The surging coronavirus rates have caused the global economy to fall into the worst recession. Despite high demand for healthcare workers in the country, unemployment rate in the US climbed to a record high of 14.7% in 2020. A US\$900 billion Covid-19 relief bill was passed to provide more support to firms and the unemployed, increasing the US budget deficit three-fold.

Source: Congressional Budget Office, 2020

(a)	Explain how the surge in coronavirus could result in the US government failing to achieve its macroeconomic objective of low unemployment.	[10]
(b)	Discuss how far supply-side policies could reduce high unemployment and rising budget deficit in the US.	[15]

Suggested answer

(a) Explain how the surge in coronavirus could result in the US government failing to achieve its macroeconomic objective of low unemployment. [10]

Question Dissection		
Command phrase	Explain how	Elaborate with economic rigour, the causes of the different types of unemployment in the US; be mindful of the rigour of the process in elaboration.
Content	Reasons for high unemployment	<p>What are the types of unemployment mentioned in preamble?</p> <ol style="list-style-type: none"> Demand-deficient unemployment <ul style="list-style-type: none"> - Due to surge in coronavirus, which components of AD would be affected? - Link how it leads to unemployment. Structural unemployment <ul style="list-style-type: none"> - With significant layoffs, especially in exporting industries, what happened to these displaced workers? Are they able to transit into industry where demand is rising (i.e. healthcare industry)? - Link how it leads to unemployment. Frictional unemployment <ul style="list-style-type: none"> - With more unemployment benefits handed out to the unemployed, what might be the reaction of the displaced workers? Will they look for jobs proactively? - Link how it leads to unemployment.

Context	US	Has your answer applied to the context by bringing in real-world examples in US?
<p><u>Introduction</u></p> <p>[Define unemployment] Unemployment refers to the number of people in the working population who are actively looking for a job but cannot find a job.</p> <p>[Briefly explain the broad types of unemployment] There are disequilibrium and equilibrium unemployment respectively.</p> <p>[Briefly explain the impact of surge in coronavirus] As mentioned in the preamble, the surge in coronavirus has resulted in global recession, which causes demand-led recessions for US. Additionally, surge in coronavirus may cause supply-led recessions as lockdown continues in light of surging coronavirus.</p> <p>[State essay direction] This answer seeks to explain the different causes of rising unemployment, particularly demand-deficient unemployment due to demand-led recession and structural unemployment due to changing demand of goods and services.</p> <p><u>Main Development</u></p> <p>[Explain causes of recession → rising unemployment]</p> <p>A. Demand-led recession – fall in AD</p> <ul style="list-style-type: none"> - Surge in coronavirus has brought about lockdowns and tighter restrictions on travel. As a result, this leads to a fall in number of tourists into the US which in turn leads to a fall in demand for tourism services, thus there will be a fall in export revenue and hence, a fall in (X-M) which in turn results in a fall in AD (assuming other components of AD are constant). OR - Due to the global recession as a result of the surge in coronavirus, US' trading partners would experience a fall in national income, thus they will demand less of US exports, assuming that US goods & services are normal goods. This would in turn reduce US' (X-M) and hence AD (assuming other components of AD are constant). - Furthermore, surge in coronavirus has resulted in the build-up of negative consumer sentiments whereby households may expect future income to fall due to possible job losses & retrenchment, hence resulting in a fall in C. - Similarly, negative business confidence would cause firms' expected returns fall, resulting in leftward shift in MEI, and thus resulting in a fall in I. - Assuming that US economy is operating near Y_f level, the fall in (X-M), C & I has resulted in fall in AD. This leads to a surplus and a build-up in inventories. Firms will sell off excess stocks at lower prices bringing a downward pressure on GPL. A new equilibrium is achieved whereby 		

there is a fall in both real output from Y_1 to Y_2 and GPL, suggesting negative growth.

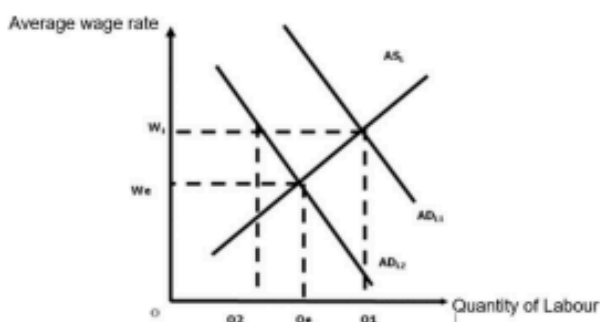


Diagram explanation

The fall in real output would imply that firms will cut back on production. This leads to a fall in aggregate demand for labour to $AD_{1,2}$. **[Link back to Qn – failure to achieve low unemployment]** Assuming wages are sticky downwards due to contractual agreements, there will be an excess supply of labour at W_1 , resulting in demand-deficient unemployment.

B. Supply-led recession – fall in SRAS

- Surge in coronavirus has brought about supply-side shocks in which factories providing the factors of production had to stop production due to the pandemic. As a result that, there is a fall in supply of FOPs which in turn leads to an increase in unit cost of production (COP).
- At the same time, due to the lockdown measures as a result of surging coronavirus, there exists a situation of labour crunch in the US. The fall in supply of labour has resulted in an increase in wages, thus causing unit COP to rise.

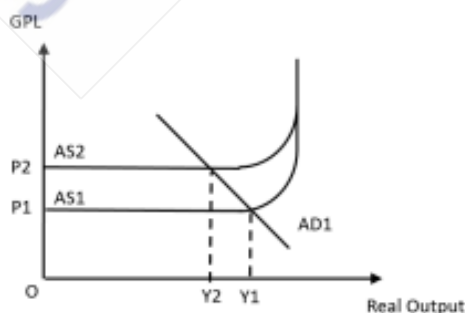


Diagram explanation

As a result of rising unit COP, profit margins to producers decrease and thus, market supply decreases. If sufficient market supply are impacted, SRAS will decrease, shifting the SRAS curve to the left from AS_1 to AS_2 , as seen in Figure above. **[Link back to Qn – failure to achieve low unemployment]** This results in a fall in real output from Y_1 to Y_2 , suggesting negative growth which in turn reduces the firms' derived demand for labour and thus, unemployment as a whole increases.

[Explain rising structural unemployment]

At the same time, while manufacturing jobs experience a significant layoffs in times of surging coronavirus, especially in export industries, there is rising demand for healthcare workers as mentioned in preamble. As such, there will be a fall in demand of workers in the manufacturing exporting industries whereas there is an increase in demand for high-skilled healthcare workers. **[Link back to Qn – failure to achieve low unemployment]** However, displaced workers from the exporting industries may not be able to take up jobs in healthcare industry due to the mismatch of skills, thus resulting in structural unemployment.

[Explain other factors that prevented low unemployment in US]

1. Covid-19 Relief prolonging frictional unemployment

As with any economy, it is impossible for any governments to achieve zero unemployment for given fact that there exists the natural rate of unemployment, such as frictional unemployment. Frictional unemployment arises due to imperfect information in the labour market, where job seekers are not fully aware of what jobs are available while employers are not fully informed about the type of labour available. As both parties spend time searching for the best match, it gives rise to frictional unemployment. The search time will be further prolonged in US context, simply because the US government has provided US\$900million Covid-19 relief for the firms and unemployed as mentioned in preamble, due to the surge in coronavirus. Since more unemployment benefits have been handed out to the unemployed, it may in turn create disincentives for unemployed workers (especially those who were displaced from the manufacturing exporting industries) to be proactive in their search for jobs. **[Link back to Qn – failure to achieve low unemployment]** This in turn prolongs the frictional (search) unemployment.

2. Budget deficit

As mentioned in preamble, US budget deficit has increased three-fold as a result of increased relief provided to firms and unemployed. With increasing budget deficit, the US government may not be at the liberty to implement expansionary fiscal policy or supply-side policies such as subsidising education and training to reduce demand-deficient and structural unemployment respectively, without incurring costs to the economy. For instance, too large a budget deficit may lead to large public debt which may cause a loss in investors' confidence. This may harm the economy in the future as investment decreases. **[Link back to Qn – failure to achieve low unemployment]** As such, the growing budget deficit has resulted in the US government failing to achieve low unemployment.

Conclusion

Overall, there are many possible reasons for the US government failing to achieve low unemployment. In order for US government to achieve its macro

goal of low unemployment, it has to implement appropriate policies to reduce the unemployment rate, which will be discussed in part (b) below.

Level	Knowledge, Comprehension, Application and Analysis	Marks
L3	For a developed response that addresses both the disequilibrium and equilibrium unemployment. <ul style="list-style-type: none"> • Thorough use of economic analysis to explain rising unemployment. • Clear linkage to rising unemployment or failure to achieve low unemployment. • Limited or no inaccuracies in explanation. • Award 10 marks for well-elaborated answer on demand-deficient and structural unemployment, with the use of information from preamble. 	8-10
L2	For a developed response that addresses either the disequilibrium or equilibrium unemployment. OR For an undeveloped response that addresses both the disequilibrium and equilibrium unemployment. <ul style="list-style-type: none"> • Some use of economic analysis to explain rising unemployment. • Some linkage to rising unemployment or failure to achieve low unemployment. • Some inaccuracies in explanation <p><i>[For 7m –]</i></p> <ul style="list-style-type: none"> ➔ Thorough analysis of demand-deficient UE – component resulting in the fall in AD must be well-elaborated OR ➔ Well-elaborated SS-led recession which gives rise to increased unemployment & make strong link to structural unemployment. 	5-7
L1	For an answer that lists points or has conceptual errors	1-4

Strengths

Skills:

(+) Most of the candidates demonstrated sufficient scope in their responses—structural and demand-deficient unemployment as the reasons for US government failing to achieve its macroeconomic objective of low unemployment.

Areas for Improvement

Content:

(-) Conceptual error: Many candidates were confused with the cause and effect for recession. Recession is the effect of falling AD, which is then caused by a fall in any components of AD since $AD = C + I + G + (X - M)$. However, many used recession as a trigger/cause for AD to fall, in which many explained how induced consumption fell because of falling incomes. That itself does not explain how recession (effect) arises.

(-) Conceptual error: A number of candidates misuse the assumption of “assuming that wages are sticky downwards due to contractual obligations” – use it when elaborating

Context	US	Have you made a stand on the effectiveness of policy in resolving unemployment and budget deficit?
<p><u>Introduction</u></p> <p><i>[Briefly explain government's objective of full employment]</i> Full employment occurs when the number of workers who are able and willing to work at prevailing wage rates equals the number of job vacancies available. Although full employment suggests that disequilibrium employment has been eliminated, it does not mean zero unemployment. Equilibrium unemployment persists and is referred to as the natural rate of unemployment, also known as NAIRU.</p> <p><i>[Explain briefly the problems the US government is facing]</i> Apart from rising unemployment (UE), US government is also facing rising budget deficit, which may impede the government's ability to implement appropriate policies to achieve low unemployment. In the longer term, the rising budget deficit may result in huge public debt which may erode investors' confidence depending on how the debt is financed.</p> <p><i>[State essay direction]</i> Herein my essay, I will be examining whether the use of supply-side policies by the US government is sufficient to reduce both unemployment and fiscal deficit.</p> <p><u>Thesis: SS-side policies are able to reduce UE & fiscal deficit</u></p> <p>A. Reduce structural unemployment</p> <p><i>[What it is]</i> The US government could implement supply-side policies like subsidising education and skills upgrading to help mitigate structural unemployment because it improves the quantity, quality and mobility of labour. <i>[Example – FYI]</i> US Department of Labour has increased its funding grants to \$90 million, which seek to provide training programmes for the unemployed so that they would have reemployment opportunities.</p> <p><i>[How it works]</i> As mentioned in (a), structural unemployment occurs when the number of people looking for jobs is equivalent to the number of job vacancies at the prevailing wage rates, but workers are not able to take up the jobs available due to a mismatch between the skills they own and the requirements of the available jobs. So with education and retraining, labour productivity increases, allowing workers to be more employable. Equipped with more relevant skills, this will help to reduce the mismatch of skills and thus improve labour mobility across industries (e.g. from traditional manufacturing to healthcare industry). With greater mobility, low skilled workers from the manufacturing industry are now able to take up jobs in the healthcare industry. <i>[Link back to Qn]</i> This thus reduces structural unemployment in the US, assuming that wages are flexible.</p> <p><i>[Link to next development]</i> Although SS-side policies are technically not meant to target DD-deficient unemployment, the US government has been</p>		

able to implement SS-side measures to combat DD-deficient unemployment to some extent.

B. To reduce demand-deficient unemployment

[What it is] There are also supply-side policies that when introduced, can mitigate DD-deficient unemployment. One such example is the SS-side policies where government invests on building infrastructure to attract foreign direct investment (FDIs) into the US. **[How it works]** With the construction of infrastructure, it improves the factor quantity and quality which increases the productive capacity of US economy. At the same time, it also enhances the investment climate which in turn attracts FDIs into the country in the longer-term. As more firms set up their businesses in US, investment expenditure rises and AD increases, *ceteris paribus*. Assuming that US economy operates with spare capacity, via the multiplier effect, there will be multiple increase in production, output and real national income. As production increases, firms need to hire more factors of production like labour. Since labour is a derived demand, the aggregate demand for labour rises, thereby reducing demand-deficient unemployment.

[How ss-side policies work to reduce budget deficit] While budget deficit may increase in the SR, but IF the supply-side policies are successful in the LR, budget deficit may decrease. This is because workers who were formerly displaced, would therefore be equipped with the necessary skills to transit into the healthcare industry where the demand for workers is rising. At the same time, when there is an increase in the flow of information between employers and employees, frictional unemployment decrease. This decrease in unemployment implies that US government would be able to reduce the unemployment benefits. Moreover, as more people are employed, it widens the tax base and thus increases the tax revenue collected by US government. As a result of fall in government expenditure and rise in tax revenue collected would thus reduce the budget deficit. Furthermore, in the longer term, as workers are equipped with more up-to-date skills, labour productivity would increase which enhances the investment climate of US. This in turn would increase FDIs into US which would help reduce budget deficit via the increase in corporate income tax revenue.

[How well ss-side policies work] However, it takes time to improve literacy & numeracy skills, and to complete an apprentice or a degree. Hence, it will take several years before improvements in education and training result in higher labour productivity. In addition, the effectiveness of this measure is rather uncertain as it depends on the receptivity of the workers being trained. Should they be unreceptive to the training, then it may lead to the supply of high-skilled workers increasing to a smaller extent. Furthermore, such a policy incurs high government expenditure, and this will increase the budget deficit that US government is currently facing. Apart from the scarce funding for

retraining programmes, US fails to train people in skills that industries actually need, resulting the policy to be ineffective to correct structural unemployment. Thus, the US government would have to conduct a careful cost-benefit analysis before implementing the supply-side policy. If the costs of increasing budget deficit outweigh the benefits of reducing structural unemployment, then the US government should not use supply-side policy to achieve full employment.

Anti-Thesis: SS-side policies are unable to reduce UE and fiscal deficit

That said, it is important to note that although SS-side policies to give incentives and encourage enterprise can encourage business development and this helps to reduce the size of demand-deficient unemployment in US, they may not be sufficient to effectively address demand-deficient unemployment if the country's AD is initially at very low levels. Therefore, other policies are required to reduce demand-deficient unemployment.

[What it is] The US government would have to adopt demand-management policies such as EFP & EMP in order to boost AD and hence address demand-deficient unemployment.

A. Expansionary Fiscal Policy (EFP)

[Example of EFP] As mentioned in preamble, US government has passed a US\$900 billion Covid-19 relief bill to provide more support to firms and the unemployed. **[How it works]** Such a government expenditure will directly increase the AD, *ceteris paribus*. Assuming that US economy operates with spare capacity, a rise in AD would increase real output via the multiplier effect. Firms would therefore need to hire more factors of production like labour. Since labour is a derived demand, the aggregate demand for labour (ADL) would rise, reducing demand-deficient unemployment. **[How well it works]** However, EFP may only increase the US budget deficit in the SR (*as seen in the preamble, because of the Covid-19 relief package, US budget deficit increased three fold*). But in the mid-term, as the rise in real output might boost household and investors' confidence, C & I may rise which further increases AD and thus real output, further reducing demand-deficient unemployment. With falling unemployment, it implies that US government would be able to reduce the unemployment benefits which would eventually reduce the budget deficit as elaborated above. **OR**

B. Expansionary Monetary Policy (EMP)

[Example of EMP – FYI] In 2020, the Federal Reserve (FED) cuts its interest rates to 0% and launches massive \$700 billion quantitative easing programme. **[How it works]** A cut in interest rates reduces the cost of borrowing which leads to households increasing consumption on credit/big-ticket items. At the same time, fall in cost of borrowing would make those previously unprofitable projects profitable, thus there will be a rise in investment expenditure. The increase in C & I would lead to a rise in AD,

ceteris paribus. Assuming that US economy operates with spare capacity, rise in AD would increase real output. As such, firms need to hire more factors of production like labour. Since labour is a derived demand, the aggregate demand for labour rises, thereby eliminating demand-deficient unemployment. **[How well it works]** Since US has a large multiplier size, the use of EMP to affect AD would be very effective thus rendering the policy highly effective in reducing DD-deficient unemployment effectively. However, the bleak economic outlook may result in firms and households withholding their investment expenditure and consumption expenditure respectively. As a result, AD may not rise to bring about a decrease in demand-deficient unemployment.

[Explain how expansionary demand-management policies help reduce budget deficit] As real output rises, there will be actual growth in the US economy in short run. And as elaborated above, demand-deficient unemployment decreases. So over time, US government would be able to reduce the unemployment benefits. Also, as more people are employed, it widens the tax base and thus increases the tax revenue collected by US government. As a result of fall in government expenditure and rise in tax revenue collected would thus reduce the budget deficit. Furthermore in the long run, the rise in I would lead to increase in capital stock accumulation, there will be rise in productive capacity of US economy and thus leads to potential growth. As a result, there will be sustained economic growth which may further reduce budget deficit. **OR**

Large budget deficit would lead to large public debt and too huge a government's debt may actually lead to capital flight as investor's confidence fall. Capital flights weaken the exchange rate and leads to external instability. Hence, the US government may implement fiscal austerity to reduce budget deficit. **[How it works]** Fiscal austerity works via reducing government expenditure and raising taxes. This will effectively reduce the budget deficit, which in turn may restore investors' confidence in the long run, thereby leading to a rise in I and hence AD. As a result, demand-deficient unemployment in the longer-term may be reduced. **[How well it works]** However, fiscal austerity will result in contractionary effects on the economy which may worsen the demand-deficient unemployment in the SR.

Synthesis & Conclusion

In order to achieve both full employment & better budget position, the US government has to adopt a combination of both demand management and supply-side policies in order combat both the equilibrium and disequilibrium unemployment since there is no one best policy in combating unemployment and budget deficit. Though it can be seen that the various supply-side policies put in place aimed at encouraging labour mobility have proven to be effective in addressing structural and frictional unemployment in the US, it may not be sufficient to achieve full employment.

	<p>[E/Criterion] Whether supply-side policies are sufficient to reduce unemployment and budget deficit depends on the root cause of unemployment in US.</p> <p>[E/Opinion] Supply-side policies are sufficient to reduce unemployment and budget deficit to a small extent. Instead, monetary policy may be a more viable option.</p> <p>[E/Reasoning] This is because the root cause of unemployment facing US is largely due to demand-deficient unemployment as a result of recession brought about by the surge in coronavirus which resulted in restrictions that led businesses to suddenly shut down and shed millions of workers during the lockdowns, especially in the hospitality, retail and manufacturing sectors. Furthermore, the global recession would prolong the pessimism firms and US households have on the future economy, which will eventually impede the economic growth of the US economy. Moreover, US relies heavily on its internal demand to drive her growth, thus the prolonged pessimism will definitely take a toll on its growth and thus demand-deficient unemployment, which explains the speed and magnitude of the loss of jobs in US during this period. As such, the use of EMP may be a more effective and appropriate policy in achieving low unemployment without incurring greater cost on the government budget. OR</p> <p>[E/Criterion] Whether supply-side policies are sufficient to reduce unemployment and budget deficit depends on the time period in consideration.</p> <p>[E/Opinion] Supply-side policies may not be sufficient to reduce unemployment and budget deficit as their effects could be felt only in the long-run. Instead, short term policies such as EMP may be a more viable option.</p> <p>[E/Reasoning] This is because the longer workers remained unemployed, the more likely they will lose their skills compared to workers who are unemployed for a shorter time. Therefore, they would be less likely to gain employment and eventually over time, these unemployed who are unable to find employment would grow to be discouraged and decide to leave the workforce. Hence, there is a need for a fast acting policy to reduce unemployment in the short run.</p>				
	<table border="1"> <thead> <tr> <th>Level</th><th>Knowledge, Application, Understanding and Analysis</th><th>Marks</th></tr> </thead> </table>	Level	Knowledge, Application, Understanding and Analysis	Marks	
Level	Knowledge, Application, Understanding and Analysis	Marks			

	L3	<ul style="list-style-type: none"> Two-sided well-developed answer on how supply-side policies reduce unemployment and budget deficit within US context. <i>[For 10m – two sided elaboration of SS-side policies]</i> <ul style="list-style-type: none"> 2m on resolving structural UE 3m on resolving demand-management UE 2m on reducing budget deficit 3m for limitations/strengths of policies Thorough use of economic (AD/AS) analysis. Clear linkage to resolving the different types of unemployment (<i>at least structural and demand-deficient unemployment</i>) as well as reducing budget deficit Limited or no inaccuracies in explanation. 	8-10	
	L2	<ul style="list-style-type: none"> Two-sided under-developed answer on how supply-side policies (<i>short run & long run SS-side policies</i>) reduce unemployment and budget deficit within US context. Good use of economic (AD/AS) analysis. Some linkage to resolving the different types of unemployment or reducing budget deficit Some inaccuracies in explanation. Max 7mks for a well-developed one-sided answer (i.e. thorough analysis of how supply-side policies help reduce unemployment and budget deficit). <i>[For 7m – one sided elaboration of SS-side policy]</i> <ul style="list-style-type: none"> 2m on resolving structural UE 3m on resolving demand-management UE 2m on reducing budget deficit 	5-7	
	L1	<ul style="list-style-type: none"> Brief and descriptive explanation about the various policies that the government uses to reduce unemployment or budget deficit. Weak linkage to resolving the different types of unemployment or reducing budget deficit. Much inaccuracies in explanation 	1-4	
	Allow up to 5 additional marks for Evaluation			
	E3	<p>For an answer that arrives at an analytically well-reasoned judgment on the extent to which supply-side policies is sufficient to reduce unemployment and budget deficit.</p> <p>Include well-developed answer on how <u>alternative policies</u> (<i>recognising that SS-side policies inadequate to resolving demand-deficient UE</i>) reduce unemployment and budget deficit within US context. <i>[For 5m evaluation]</i></p> <ul style="list-style-type: none"> Thorough analysis of alternative policy to reduce UE and budget deficit OR Well-reasoned 2 criteria for judgement with brief justification (<i>substantiate with reason</i>) the need for alternative policy. 	4-5	
	E2	For an answer that makes some attempt at evaluating or for a conclusion that answers the question but does not explain the judgment or base it on analysis.	2-3	

	E1	For an answer that gives an unsupported evaluative statement.	1	
<p><u>Strengths</u></p> <p>Skills:</p> <p>(+) Most of the candidates were able to explain how supply-side policies reduce structural unemployment.</p> <p><u>Areas for Improvement</u></p> <p>Content:</p> <p>(-) Conceptual error: Many candidates explained alternative policy – exchange rate policy via depreciation to help reduce demand-deficient unemployment and budget deficit, which is not applicable to the context of US. US uses interest rate policy and not exchange rate policy.</p> <p>(-) Conceptual error: A handful of students confused budget deficit with BOT deficit. They are different types of deficits. Note that budget deficit (<i>also known as fiscal deficit</i>) is where government expenditure exceeds tax revenue collected. But BOT deficit (<i>also known as trade deficit</i>) is where import expenditure exceeds export revenue.</p> <p>(-) Conceptual error: A few candidates were confused with the policy tools under expansionary monetary policy – they wrote on reducing taxation for EMP, which is erroneous. EMP uses interest rate (in context of US) as a policy tool.</p> <p>(-) Conceptual error: Most candidates explained contractionary fiscal policy as a measure to reduce budget deficit, which is erroneous. While contractionary fiscal policy uses policy tools such as rise in G and fall in T, the intent of policy is to reduce AD to prevent overheating or to reduce demand-pull inflation; not to reduce budget deficit. Instead, candidates should use fiscal austerity (rise in G and fall in T) but the intent of policy is to reduce budget deficit.</p> <p>Skills:</p> <p>(-) Majority of the responses were did not elaborate how the supply-side policies are able to reduce budget deficit as well as demand-deficient unemployment in the longer run.</p> <p>(-) A large number of candidates did not provide limitations of the policies to substantiate the ineffectiveness of the policies to reduce structural unemployment.</p> <p>(-) Limited attempts to evaluate their responses.</p>				

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Answer all questions.

Question 1: Unsustainable Production and Consumption of Soy and Meat

Table 1: Soybean Production

Country	2008 (million tonnes)	2018 (million tonnes)
Brazil	80.8	123.7
China	59.8	117.9

Source: Ourworldindata, accessed 13 August 2021

Extract 1: Global Market Report: Soybeans

Soybeans are among the few complete protein vegetable-based foods with nine essential amino acids. For this reason, the soybean has become an important source of human and animal protein, with the majority of its cultivation destined for animal feed and the remaining for direct human consumption. In fact, almost 80% of the world's soybean crop is fed to livestock, especially for beef, chicken, egg and dairy production (milk, cheeses, butter, yogurt etc.). Soy oil is used for cooking and can also be found in margarine, chocolate, ice cream or baked goods, as well as in cosmetics or soaps. Soybean production grew significantly, largely driven by world population growth and increased demand for meat.

Source: Global Market Report: Soybean 2020 and WWF, accessed on 26 July 2021

Extract 2: Why is the Amazon burning?

The rainforest in Brazil has progressively fallen victim to global demand for soybean and beef.

To produce soy, millions of hectares of land like the Amazon rainforest is being ploughed up and converted from forests, savannahs and grasslands, endangering valuable habitats and species, putting at risk, traditional local livelihoods. Many fires are set in previously cleared lands to quickly remove any excess vegetation that has popped up. Others are set in land that is still in the process of being cleared, in order to make more open land for crops, to make way for cattle ranches, and to grow soybean which is used to feed livestock or exported to other parts of the world.

The National Institute for Space Research (INPE) reported that there were more than 80,000 fires throughout Brazil in 2019, the most that it had ever recorded. More than half of those fires took place in the Amazon.

Deforestation increased sharply ever since Brazil's President, Jair Bolsonaro, argued that the country must prioritise economic growth, even if it comes at the cost of destroying the planet's largest tropical rainforest and dismantled protections for the Amazon when he took office in January 2019.

Source: Adapted from The Verge, 28 Aug 2019 and Foreign Policy, 4 Jan 2019

Extract 3: Mighty Giants: Leaders of the Global Meat Complex

Institute for Agriculture & Trade Policy (IATP) defines the "Global Meat Complex" as a highly concentrated (horizontally and vertically), integrated web of transnational corporations (TNCs) that controls the inputs, production and processing of mass quantities of food animals. Some of these TNCs occupy all major parts of the global meat production value chain.

The rise of this type of agribusiness has been phenomenal over the last forty years, but particularly intense since the 2000s. JBS, Tyson Foods, Cargill and Smithfield are the world's largest meat-producing companies. JBS alone accounted for over ten million tons of meat processing from 2009 to 2010, surpassing the combined total of the world's top 11 to 20 companies. Each of these companies has deployed a mix of similar strategies: mergers and acquisitions of other companies to grow bigger as well as product diversification and/or wholesale retail. They are also successful in the lobbying of governments that in turn negotiate trade and investment deals that ease these companies' access to foreign markets.

Source: Adapted from IATP, 10 April 2018

Extract 4: Brazil's JBS accused of violating Amazon rainforest protection laws

The Amazon rainforest, the world's largest rainforest, is considered one of the best natural defenses against global warming.

The world's largest meatpacker, Brazil's JBS SA, has for years knowingly bought cattle that were raised on illegally deforested land, turning a blind eye to regulations meant to protect the Amazon rainforest, Brazil's environmental regulator has alleged. Earlier this month, the environmental agency, Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA), the Brazilian Ministry of the Environment's administrative arm, ordered the suspension of two JBS meat packing plants and 13 others in southwest Pará state for buying cattle raised on pastures cleared by slashing and burning the forest. It fined the company 24 million reais (\$7.7 million).

Brazilian authorities have long said cattle ranching is responsible for more destruction of the Amazon than any other activity. The onus should be on the meat companies to check their livestock sources properly with modern technology available today and crosscheck with satellite imagery publicly posted on the agency's website.

Source: Adapted from Reuters, 1 April 2017

Extract 5: Brazil bans fires, redeploys military to protect Amazon rainforest

Brazil's President Jair Bolsonaro on Tuesday issued a broad 120-day ban on unauthorized outdoor fires as the country suffered its worst drought in decades ahead of the annual burning season in the Amazon rainforest. Bolsonaro also redeployed the military to stop deforestation in the world's largest rainforest. Both moves repeat policies instituted by Bolsonaro annually since 2019, in response to international outcry that Brazil was not doing enough to stop the

destruction of the vital defence to climate change. Neither policy has previously been effective in lowering deforestation or forest fires.

In a paper published in the journal, *World Development* concluded that hotter temperatures which result from clearing natural vegetation already are costing Brazil's soybean farmers more than \$3 billion each year in lost productivity. These local and regional temperature increases are on top of global climate change, which also is intensified as deforestation adds carbon dioxide to the atmosphere. However the economic harm to the soybean industry from these regional weather changes still is outweighed by the profits that soybean farmers collectively can gain by claiming more land. But Rafaela Flach, co-author of the study say that when this damage is added to other disincentives to stop deforestation, such as a possible tax on carbon emissions, the economic argument against deforestation could become compelling.

Source: Adapted from Reuters, 29 June 2021 and NPR, 13 July 2021

Questions

- (a) With reference to Table 1, identify the country with the higher growth in soybean production from 2008 to 2018. Justify your answer. [2]
- (b) With reference to Extracts 1 and 2,
- (i) explain the relationship between soybean crop and livestock. [2]
 - (ii) explain the likely value of price elasticity of demand for soybean. [2]
- (c) With the help of a diagram or diagrams, explain two strategies adopted by the world's largest meat-producing companies to raise their profits. [6]
- (d) (i) The production of soy as livestock feed and for export comes at the cost of destroying the Amazon forest and leads to economic inefficiencies in resource allocation.

In light of the above economic inefficiencies in resource allocation, discuss whether Brazil should continue to prioritise economic growth. [8]

- (ii) Discuss whether a ban on unauthorised outdoor fires is the best policy to deal with the problems caused by the slashing and burning of the Amazon rainforest. [10]

[Total: 30]

Question 2: China's Quest for High Quality Growth

Table 2: Selected Economic Indicators of China (2014 – 2019)

	Real GDP Growth (%)	Unemployment (%)	Annual Inflation (%)	Population growth (%)	Gini coefficient
2014	7.4	4.1	2.0	0.51	0.469
2015	7.0	4.1	1.4	0.51	0.462
2016	6.9	4.0	2.0	0.54	0.465
2017	7.0	3.9	1.6	0.56	0.467
2018	6.8	3.8	2.1	0.46	0.468
2019	5.8	3.6	2.9	0.36	0.465

Source: *statista.com*, *worldbank.org*, accessed 19 Aug 2021

Extract 6: China's achievement and challenges

In the past four decades, the Chinese economy has been transformed from a predominantly agricultural one to an industrial powerhouse and is now increasingly service oriented. With China's tremendous economic development, average incomes grew nine-fold since 1990, and some 800 million people were lifted out of poverty. This was associated with an increase in labour productivity, which led to higher wages, saving, investment and capital stock growth. However, population ageing, productivity slowdown, rising inequality and environmental degradation are constraining China's economic growth potential.

As China approaches the technological frontier, productivity growth is slowing, and so has the growth of the Chinese economy in recent years. While a trend decline in economic growth appears inevitable in the coming decades, the quality of growth will differ significantly depending on the policy choices. China's structural reform rebalancing from export- and investment-led growth to consumption- and innovation-led growth is important. Without such rebalancing, its efficiency of investment is projected to decline further while wide income disparities remain and energy consumption and carbon emissions rise.

Source: Adapted from UN ESCAP Policy Brief, 27 March, 2019

Extract 7: Can China avoid a growth crisis?

Demographic data shows that China's working-age population is shrinking. In the absence of drastic improvements in labor productivity, a smaller workforce means a lower GDP growth rate. Japan has experienced a similar decline in working-age population, and it has been unable to achieve the productivity gains necessary to maintain the same rate of growth. It is unlikely that China's firms will succeed where Japan's have failed, primarily because the factors that have driven China's spectacular growth over the past 20 years—a low baseline of productivity to begin with, an excess supply of rural workers, and easy access to foreign technology—have significantly weakened.

Source: Black & Morrison, Harvard Business Review, September 2019

Extract 8: China says will not set target to double GDP from 2021

China, the world's second largest economy, will focus more on higher-quality, long-term growth, in a break from past practice. The economy has sailed into a new era when the country gears up to build a moderately prosperous society in all respects, not just impressive economic figures.

China would deepen economic reforms and further open its markets to foreign investors as it looks to move from high-speed to high-quality growth. Chinese Premier Li Keqiang said that China has the ability and conditions to achieve higher quality, more efficient, more inclusive and sustainable development, citing a complete industrial system, a vast market, abundant human resources and dynamic entrepreneurs and innovators. China will completely open its general manufacturing sector to foreign investors this year. Meanwhile, access to sectors like telecommunications, medical services, education, elderly care and new energy vehicles will also be expanded for foreign investment.

Also, China's rising middle-income group, with a population of around 400 million, means a huge consumption market for foreign firms thanks to their increasingly bigger appetite for foreign products. China will open their markets wider to promote industry upgrading and to provide Chinese consumers with a broader range of choices. However, China's future economic growth is not without headwinds. Recent rising trade friction with the United States is widely considered to be a major roadblock checking the country's external demand.

Source: *Reuters.com*, 26 October 2017

Extract 9: Towards a sustainable future

Recent government policies show that China is giving more weight to the quality of growth. First, China is pursuing supply-side reforms, focusing on technology and innovation. The country has established objectives to become an “international innovation leader” by 2030.

Second, actions are underway to improve the inclusiveness of economic growth. China has established objectives for eliminating absolute poverty by 2020. Fiscal transfers to enhance social protection have been increased, while more funds have been deployed for rural infrastructure, agricultural subsidies and discounted loans.

Third, China has taken serious steps to curb pollution while speeding up the transition to clean energy. China aims to get 20 per cent of its energy from renewables by 2030. In late 2017, a carbon emissions trading system was launched in the country.

Such policies should be pursued in an integrated manner in order to reduce trade-offs and maximise synergies. In the Chinese example, policy priorities on technology and innovation could boost growth in GDP but might worsen income inequality. Policies to reduce carbon emissions would be more effective if combined with new technologies and innovation which improves resource efficiency.

Source: UN ESCAP Report, 8 July 2019

Questions

- (a) With reference to Table 2, comment on what can be concluded about the change in living standards in China. [5]
- (b) (i) Define the Production Possibility Curve. [2]
(ii) With the aid of a production possibility curve diagram, explain why economic growth would slow as an economy approaches its technological frontier as described in Extract 6. [3]
- (c) With reference to Extract 7, explain why “a smaller workforce means a lower GDP growth rate”. [2]
- (d) Discuss the impact of deepening economic reforms and further opening its market to foreign investors on China’s balance of payments. [8]
- (e) Discuss the appropriateness of any two measures described in Extract 9 in achieving high-quality growth in China. [10]

[Total: 30]

- End of Paper -

Answer **three** questions in total.

Section A

One or two of your three chosen questions must be from this section.

- 1** Palm oil price hits record high due to recovering global demand and labour shortages as a result of the coronavirus pandemic. Palm oil is one of the most commonly used oils in the world, with its main uses in food but also in cosmetics and biofuels. To help ease the people's cost of living, Malaysia's government has set a maximum retail price of below 30 Malaysian ringgit for 5kg of pure palm cooking oil in bottled packaging.

Source: *The Edge Markets*, accessed 21 August 2021

- (a) Using demand and supply analysis, explain why recovering global demand and labour shortage may have led to a record high price for palm oil. [10]
 - (b) Discuss the factors that the Malaysian government would consider when deciding to set a maximum retail price for pure palm cooking oil in bottled packaging. [15]
- 2** One of the most competitive consumer categories is telecommunications. The market has opened up with home-grown brands, as well as foreign players looking to disrupt the market. The result: Consumers now have more options than ever before. In 2016, there were three service providers to choose from. Today, there are eleven. The consequence is shrinking revenues for these firms.

Source: *The Business Times*, 9 December 2019

- (a) Explain how the market structure in which telecommunications firms operate is likely to influence how prices are determined. [10]
 - (b) Discuss the various strategies telecommunication firms could adopt to increase their profits. [15]
- 3** Singapore's spending on healthcare has grown every year and is likely to continue rising, which is why the country needs to be prudent and ensure support is targeted at those in greater need, said Health Minister. In the end, preventative healthcare will be key in addressing the rising medical demands of an ageing population and containing costs in the long term.

Source: Adapted from *The Business Times*, 6 March 2021

- (a) Explain why the Singapore government might intervene in the provision of healthcare. [10]
- (b) Discuss the policies that the Singapore government can adopt to achieve the efficient allocation of resources in the healthcare market. [15]

Section B

One or two of your three chosen questions must be from this section.

- 4** Singapore's real Gross Domestic Product per capita recorded a grow of 3.0% in 2018 while Cambodia's growth in real Gross Domestic Product per capita stands at 5.9% in 2018.

Source: *World Bank*, accessed 30 Aug 2021

Discuss the extent to which you would support the use of real Gross Domestic Product per capita as a measure of the change in the living standards in Singapore in 2018, and when comparing living standards with another country such as Cambodia. [25]

- 5** The US Federal Reserve signalled on June 19 that it is ready to cut interest rates for the first time in more than a decade to give employment a boost but this could indirectly spur more inflation.

Source: Adapted from *The Conversation*, 20 June 2019

- (a) Explain the main causes of unemployment in an economy such as the USA. [10]
- (b) Discuss whether possible conflicts between macroeconomic objectives is the main factor that needs to be considered in policy decision-making by a government. [15]

- 6** In 2019, Singapore overtakes US to become the most competitive economy. Singapore will need to improve the capabilities of the enterprises, transform industries and ensure that workers are well-equipped with the right skills to stay competitive. The global competitiveness of an economy can be improved by supply-side policies that attracts FDI which brings about innovation.

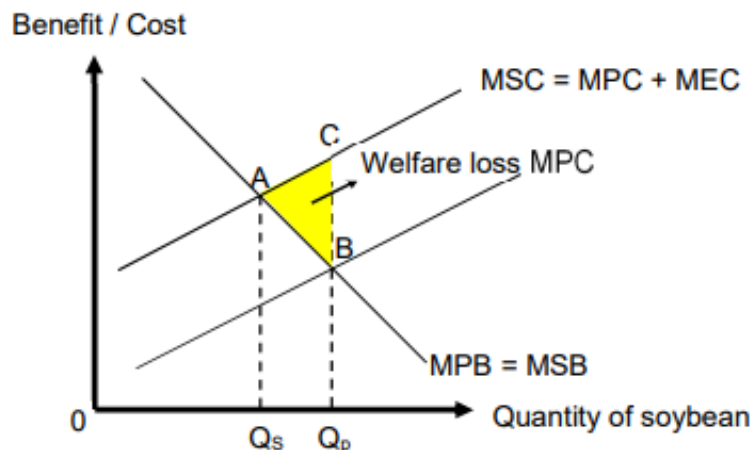
Source: Adapted from *Channel News Asia*, 9 Oct 2019

- (a) Explain how improving competitiveness will help Singapore achieve its macroeconomic goals. [10]
- (b) Discuss whether supply-side policies focusing on attracting FDI is the best approach to help Singapore maintain its global competitiveness. [15]

ANSWER SHEET

(a)	With reference to table 1, identify the country with the higher growth in Soybean production from 2008 to 2018. Justify your answer.	[2]
	<p>China [1]</p> <p>Formulae used: $(2018-2008)/2008 \times 100$ 53.1% for Brazil vs 97.2% for China</p> <p>Answer must reflect understanding of how to use the data to derive growth in Soy bean production [1]</p>	
(b)	With reference to Extract 1 and 2,	
	(i) Explain the relationship between Soybean crop and livestock.	[2]
	<p>Extract reference: "almost 80% of the world's soybean crop is fed to livestock"</p> <p>State relationship: Soybean crop is the FOP of livestock [1]</p> <p>Explanation: Changes in price of soybean crop affects the unit COP of raising livestock and hence SS of livestock is affected. [1]</p> <p>Or</p> <p>Explanation: Change in DD for livestock will lead to change in derived demand for soybean crop. [1]</p>	
	(ii) Explain the likely value of price elasticity of demand for Soybean.	[2]
	<p>Extract reference: "soybean has become an important source of human and animal protein, with the majority of its cultivation destined for animal feed and the remaining for direct human consumption, "</p> <p>State likely value: PED value < 1 [1]</p> <p>Explanation: Due to the importance of soybean as an important FOP for production of many food as well as direct consumption e.g. animal feed. The high need for it makes its demand price inelastic i.e demand insensitive to price changes. [1]</p>	
(c)	With the help of a diagram or diagrams, explain two strategies adopted by the world's largest meat-producing companies to raise their profits.	[6]
	<p>"Mergers and acquisitions" [3m]</p> <ul style="list-style-type: none"> - Through mergers and acquisitions, the merged company will have a larger market share → larger output → Could enjoy greater technical economies of scale → lowered unit cost of production → Since profits = revenue – costs, lowered MC and AC leads to higher profits. <p>OR</p> <ul style="list-style-type: none"> - Through mergers and acquisitions, the merged company will have a greater market share → greater firm DD, AR shifts to the right → Through diagram, P and Q increases → Since revenue = $P \times Q$, revenue increases, ceteris paribus. <p>"Product Diversification" [additional 2m]</p>	

		<ul style="list-style-type: none"> - Through product diversification, firms could better cater to the taste and preferences of consumers as well reduce substitutability of products → increases firm demand and more price inelastic (AR shifts to the right and more price inelastic) → P and Q increases → Since revenue = $P \times Q$, total revenue increases, ceteris paribus <p>OR</p> <p>"Successful lobbying of governments...ease of these companies' access to foreign markets."</p> <ul style="list-style-type: none"> - Larger export market for greater firm DD → AR shifts to the right → Since revenue = $P \times Q$, total revenue increases, ceteris paribus - <p>Correct use of at least 1 diagram to support analysis [1m]</p>	
(d)	(i)	<p>The production of soy as livestock feed and for export comes at the cost of destroying the Amazon forest and leads to economic inefficiencies in resource allocation.</p> <p>In light of the above economic inefficiencies in resource allocation, discuss whether Brazil should continue to prioritise economic growth.</p> <p>Brazil should continue to prioritise economic growth due to the improved standards of living that it could bring about. The production of soy for export allows for greater export revenue (X) leading to AD increasing since $AD = C + I + G + (X - M)$. The increase in AD leads to RNY increasing by multiples causing economic growth. The increase in real purchasing power of Brazil citizens as a result of greater disposable income leads to increased consumption of goods and services hence improving MSOL.</p> <p>Brazil should not prioritise economic growth due to the presence of allocative inefficiency, in particular, the over-production of soybean. Production of soybean through slash and burn techniques leads to negative externalities such as carbon dioxide and the resulting air pollution which affects the respiratory health of people living around. They may incur healthcare cost which are not compensated for. The presence of the negative externalities leads to a divergence between MPC and MSC where MSC is greater than MPC by the MEC generated. Producers of soy through slash and burn techniques ignore the spillover costs such that they would choose to maximise their net private benefit by consuming at Q_p where $MPB = MPC$. However, the socially optimum quantity where societal welfare is maximized, is at Q_s, where $MSB = MSC$. At Q_p, $MSC > MSB$ where for every additional unit of soy produced, the society incurs a greater cost than it would benefit (value). Since $Q_p > Q_s$, there is an overproduction of soy through slash and burn techniques in the market. This results in over-allocation of resources leading to welfare loss which is the summation of the excess of MSB over MSC for the units $Q_p Q_s$. Hence there is allocative inefficiency in the production of soy.</p>	[8]

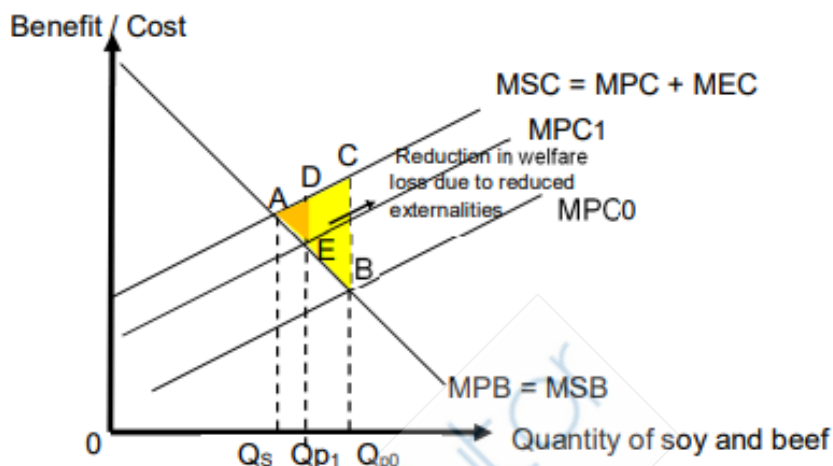


Overall, as it is mentioned in Extract 5 that the Brazilian government has not been effective in lowering deforestation or forest fires through the implementation of policies, whether Brazil should prioritise the economic growth in light of the economic efficiencies depends on whether there is the presence of effective government intervention to ensure that the negative externalities is reduced to the minimum in order to reduce the extent of economic inefficiencies in resource allocation. Should the government be able improve implementation and monitoring, prioritization on economic growth is possible without economic inefficiencies.

Level	Knowledge, Understanding, Application, Analysis	Mark
L2	For a well-developed answer that explains both the benefits of economic growth as well as costs of economic inefficiencies in resource allocation as a result of economic growth. Answer is well-supported with appropriate examples where applicable/in the context of the question.	4-6
L1	For an underdeveloped answer that explains the benefits of economic growth and/or costs of economic inefficiencies in resource allocation as a result of economic growth. Answer may be one-sided.	1 – 3
Evaluation		
E1	Value-judgements on the whether Brazil should continue to prioritise economic growth.	1-2

- | | | |
|------|---|------|
| (ii) | Discuss whether a ban on unauthorised outdoor fires is the best policy to deal with the problems caused by the slashing and burning of the Amazon forest.
[10] | [10] |
|------|---|------|

As explained in di), slashing and burning of the Amazon forest has led to the problem of negative externalities in the production for soybean and beef. To tackle the issue, one policy adopted by Brazil is to issue a ban on unauthorized our fires (Extract 5)



A ban on unauthorized outdoor fires restricts the cheap slash and burn method of farming to produce soy and beef. This will reduce the MEC as there is less pollution to the environment as well as deforestation. Producers will now experience higher unit COP due to the need to switch to more expensive production method and hence produce at Q_{p1} where $MPB = MPC_1$. The overproduction is reduced from Q_{p0} to Q_{p1} and welfare loss is reduced from ACB to ADE . At the same time, this may reduce the problem of hotter temperatures which had led to loss of productivity in the soybean farmers. Soybean farmers are then potentially able to make more profits with reduced pollution.

The ban may not be the best policy as it may not be effective, as evidenced in the case of Brazil where enforcement is difficult to be implemented and monitored. Curbing the slashing and burning as a farming practice also meant that Brazil has to give up on lesser soy and beef production, leading to lower economic growth. However, a ban is a clear and easy policy to understand and follow, especially by farmers in Brazil who may not be well-educated.

Another policy to tackle the problems caused by the slashing and burning of the Amazon forest is through the use of public education on farmers to inform them of the cost on themselves as well as negative externalities due to global climate change. For instance, farmers should be educated on the economic harm to the soybean industry from regional weather changes and how they outweigh the profits that soybean farmers collectively can gain by claiming more land. With increased MPC from MPC_0 to MPC_1 , producers will now produce at Q_{p1} where $MPB = MPC_1$. The overproduction is reduced from Q_{p0} to Q_{p1} and welfare

	<p>loss is reduced from ACB to ADE. On the other hand, with understanding on the negative externalities,</p> <p>However, public education may not tackle the issue of negative externalities directly and its effectiveness is dependent on public receptivity.</p> <p>The 'cap and trade' system can also be implemented. The Brazilian government decides on the optimum number of permits to be given out. A permit gives a polluter the right to discharge wastes of a certain amount into the environment. If the number of permits issued corresponds to the socially optimum quantity, it will solve the market failure problem. The government then issues permit to all farmers. The excess permit that the firms received from the government can be resold in the trading market. The price of the permit in the trading market is determined by the market demand for permits by firms wanting to pollute, and the market supply of permits available in the market. The price of pollution permits will be determined by the demand and supply for pollution permits. Firms who could reduce pollution cheaply by changing production processes and investments in green technology would do so as long as it is cheaper than to buy a permit at the prevailing market price. They would then either not require additional permits, and / or be able to sell the permit off in the market to another firm who is not able to reduce pollution cheaply.</p> <p>The policy can be very effective if the government is able to correctly and accurately measure the optimal level of emissions and therefore decide on the correct number of permits to be issued. It also targets root cause of problem – i.e. firms are now internalising external costs, as firms are now made to pay for permits to pollute (or incur costs by investing in new technology to reduce pollution). However, it could be difficult, or costly for the Brazilian government to estimate the amount of permits to issue in the first place. The government also has to estimate the socially optimum level of pollution accurately.</p> <p>In conclusion, a ban, being an easy policy to understand can be a short term policy to deal with the problems caused by the slashing and burning of the Amazon forest. As long as the enforcement can be fulfilled and done in well, this is a direct method to tackle immediate environment threats. However, this is also a blunt policy and without the relevant knowledge of the problem holistically i.e how farmers' profits and not third parties can also be hurt with environmental degradation, as well as policies to facilitate farmers to raise their productivity of farming via other farming methods, this policy will not work for the long term. With Amazon forest owned by many countries, it should also be a collective effort/ partnerships from all countries involved to restrict deforestation and pollution. In this sense, the 'cap and trade' system collectively owned by all countries will likely be the best policy to coordinate international efforts on the problems of the Amazon forest.</p>							
	<table> <tr> <th>Level</th><th>Knowledge, Understanding, Application, Analysis</th><th>Marks</th></tr> <tr> <td></td><td></td><td></td></tr> </table>	Level	Knowledge, Understanding, Application, Analysis	Marks				
Level	Knowledge, Understanding, Application, Analysis	Marks						

		L2	For a well-developed answer that explains 2 policies to reduce the market failure and associating problems caused by the slashing and burning of the Amazon forest. Explanations includes limitations of policies.	5-7	
		L1	For an answer that explain policies to reduce the market failure and associating problems caused by the slashing and burning of the Amazon forest. Cap of 4 if only 1 policy is explained	1 – 4	
		Evaluation			
		E2	Value-judgements on the best policy	2-3	
		E1	Unjustified stand	1	



2021 JC2 H2 Prelims Paper 1 Question 2

(a)	With reference to Table 2, comment on what can be concluded about the change in living standards in China. [5]
	<p><u>Approach:</u> This question is about whether Table 2 informs that SOL has increased or not and not whether Table 2 is sufficient or not to conclude changes in SOL.</p> <p>Table 2 clearly contains indicators of both mat and non-mat SOL. Therefore, it is fair to expect both (mat and non-mat SOL) to be covered to access the full marks.</p> <p><u>Suggested answer:</u> Material SOL (only 1 argument is required):</p> <ol style="list-style-type: none"> 1) Real GDP growth <ol style="list-style-type: none"> a. From the positive real GDP growth over the period, we can infer that the national output/income has increased → increase in availability of goods and services for consumption / increase in income level leading to increase in purchasing power → increase in mat SOL 2) Real per capita GDP growth <ol style="list-style-type: none"> a. Since real GDP growth rate > population growth rate, we can infer that the real GDP per capita has increased → increase in availability of goods and services for consumption per capita / increase in per capita income level leading to increase in purchasing power → increase in mat SOL 3) Fall in unemployment rate <ol style="list-style-type: none"> a. From the fall unemployment rate over the period, we can infer that a larger proportion of the labour force is employed → increase in ability to earn income → increase in purchasing power → increase in mat SOL <p>Non-material SOL (only 1 argument is required):</p> <ol style="list-style-type: none"> 1) Fall in unemployment rate <ol style="list-style-type: none"> a. Since a larger proportion of the labour force is employed → possibly fall in stress level to find jobs and earn an income → improvement in non-material SOL. 2) Gini coefficient did not worsen with the economic growth <ol style="list-style-type: none"> a. Triangulating with real GDP growth rate, we can infer that that growth in inclusive in nature and hence there is less likelihood of worsening social unrest → did not worsen non-material SOL. <p>2m each for material and non-material SOL. 1m for an overall stand. In this case, there is only 1 stand that is possible. So, 2+2+1 2m = accurate and some/little/no gaps (i.e. sufficiently developed) 1m = accurate and answer make sense (i.e. undeveloped) If students uses only unemployment rate to explain both mat and non mat SOL, this point will be capped at 3m max.</p>
(b)	(i) Define the Production Possibility Curve. [2]
	<u>Approach:</u>

		<p>This question tests the understanding of PPC rather than merely regurgitation of definitions. Therefore, 1m will still be awarded for an incomplete/imperfect answer demonstrating a correct understanding of what a PPC is.</p> <p><u>Suggested answer:</u> The Production Possibility Curve (PPC) shows the maximum alternative combinations of two goods which the economy can produce when a given quantity and quality of resources are used fully and efficiently at a given state of technology.</p> <p>2m = accurate and no gaps 1m = accurate, make sense but incomplete, e.g. lacking assumptions</p>
	(ii)	<p>With the aid of a production possibility curve diagram, explain why economic growth would slow as an economy approaches its technological frontier as described in Extract 6. [3]</p>
		<p><u>Approach:</u> This question tests the understanding of how the level of technology is a factor limiting the PPC or (potential) economic growth. And in order for growth to be sustained, there is a need to shift the PPC outwards. There will be 1m allocated to an accurate diagram and 2m for explanation (if answer demonstrates some understanding of the concepts tested, it will already qualify for 1m, the full 2 marks is reserved for accuracy and economic rigour).</p> <p><u>Suggested answer:</u> Economy approaches its technological frontier means that the economy was initially operating at within the PPC and moving closer to the PPC.</p> <p>Economic growth will slow down because to sustain economic growth, there is a need to expand QOT (or increase in PPC) and this takes some time.</p> <p>2m = accurate and some/little/no gaps (i.e. sufficiently developed) 1m = accurate and answer make sense (i.e. undeveloped) 1m = accurate diagram</p>
	(c)	<p>With reference to Extract 7, explain why "a smaller workforce means a lower GDP growth rate". [2]</p>
		<p><u>Approach:</u> This question can be approached using the AD-AS model (preferred). Answers should demonstrate an understanding of how the quantity of labour affects the QOT and hence LRAS/Y_f which affects economic growth (or the change in Y_e).</p> <p><u>Suggested answer:</u> A smaller workforce → lower quantity of labour available → LRAS shift left → AD cuts AS at a lower Y_e → lower GDP growth rate.</p> <p>2m = accurate and some/little/no gaps (i.e. sufficiently developed) 1m = accurate and answer make sense (i.e. undeveloped)</p>

(d)	<p>Discuss the impact of deepening economic reforms and further opening its market to foreign investors on China's balance of payments. [8]</p>
	<p><u>Approach:</u> This is one of the two HOTS questions. The phrasing and design are intentional to differentiate the assessment requirement. Part d focuses on the impact of events on economy, i.e. this is not a typical TAS approach but more of a direction-extent approach, while Part e focuses more on policies and impact of policies. Also, a TAS approach will work for Part e.</p> <p>Essentially, this question is expecting at least 2 arguments/analysis with an evaluation. A typical answer will contain one impact on current account and one impact on capital account with a weightage on the overall BOP. It will be difficult to assess the highest marks if answer is only 1 sided (i.e. impact on current account only or impact on capital account only).</p> <p>An alternative approach is to consider one positive impact and one negative impact and attempt to evaluate by making comments on the extent of impact. It will be difficult to assess the highest marks if answer is only 1 sided (i.e. positive impact only or negative impact only).</p> <p><u>Suggested answer:</u> Impact on current account:</p> <ol style="list-style-type: none"> 1) Deepening of economic reforms and opening up to foreign investors → increase in I → increase in AD and LRAS → economic growth & fall in unemployment → increase in income level → increase in DD for imports → increase in M → current account worsening, c.p. <ol style="list-style-type: none"> a. Evidence: higher quality, more efficient, inclusive, sustainable development, rising middle-income group b. Evaluation: extent could be substantial because of complete industrial system, vast market, abundant HR, entrepreneurs and innovators. 2) Deepening of economic reforms and opening up to foreign investors → increase in the quality of goods and services produced → Chinese switching from imported goods to domestically produced goods → decrease in DD for imports → decrease in M → current account improvement, c.p. <ol style="list-style-type: none"> a. Evidence: access to sectors like telecommunications, medical services, education, elderly care, new energy vehicles, provide Chinese consumers with a broader range of choices, rising middle-income group b. Evaluation: extent of substitutability of imported vs domestic goods 3) Deepening of economic reforms and opening up to foreign investors → increase in the quality of goods and services produced → increase in DD for China's exports → increase in X → current account improvement, c.p. <ol style="list-style-type: none"> a. Evidence: open general manufacturing sector b. Evaluation: rising trade friction with US may limit the extent of increase in X 4) Increase in FDI inflow → increase in income (i.e. dividends, profits) outflow in the future → current account worsening, c.p. <p>Impact on capital account</p>

	<p>1) Deepening of economic reforms and opening up to foreign investors → increase in FDI inflow and/or fall in capital outflow from China → increase in net long term capital inflow → improvement in capital account.</p> <p>Stand: will depend on the arguments raised in the body paragraphs.</p> <p>Mark scheme</p> <table border="1"> <tr> <td>L1</td><td>For an attempt to link to BOP but undeveloped or inaccurate. 1 to 2 for inaccurate 2 to 3 for accurate but incomplete.</td><td>1 to 3</td></tr> <tr> <td>L2</td><td>Analysis on both the capital account and current account or both the positive and negative impact. Analysis is well explained (with theory) and elaborated (with use of evidence/examples from data).</td><td>4 to 6</td></tr> <tr> <td>E</td><td>For an attempt at a justified stand</td><td>Up to 2</td></tr> </table>	L1	For an attempt to link to BOP but undeveloped or inaccurate. 1 to 2 for inaccurate 2 to 3 for accurate but incomplete.	1 to 3	L2	Analysis on both the capital account and current account or both the positive and negative impact. Analysis is well explained (with theory) and elaborated (with use of evidence/examples from data).	4 to 6	E	For an attempt at a justified stand	Up to 2
L1	For an attempt to link to BOP but undeveloped or inaccurate. 1 to 2 for inaccurate 2 to 3 for accurate but incomplete.	1 to 3								
L2	Analysis on both the capital account and current account or both the positive and negative impact. Analysis is well explained (with theory) and elaborated (with use of evidence/examples from data).	4 to 6								
E	For an attempt at a justified stand	Up to 2								
(e)	<p>Discuss the appropriateness of any two measures described in Extract 9 in achieving high-quality growth in China. [10]</p> <p><u>Approach:</u> An alternative command word is 'effectiveness', which will increase the content demand of the question. Appropriateness will allow more scope (i.e. feasibility, effectiveness and unintended consequences).</p> <p>There are several measures being described in Extract 4:</p> <ol style="list-style-type: none"> 1) SS side reforms, e.g. technology advancement and innovation 2) Fiscal transfer for inclusive growth, e.g. agricultural subsidies, discounted loans, funds channelled to rural infra 3) Speed up transition to clean energy (possibly through incentives or disincentives for dirty energy, extract didn't specific though), e.g. emission trading system. <p>Students can pick any 2 measures from the 3 groups above and do a 3 or 4 steps analysis on both</p> <ol style="list-style-type: none"> 1) Explain how the measure achieves high-quality growth in China 2) Explain how appropriate the measure is to achieve high-quality growth in China (open to discussion if we want to insist on this) 3) Explain how inappropriate the measure is to achieve high-quality growth in China (e.g. limitations, unintended consequences, not feasible – costly, burden on budget) 4) Overall stand for each measure (there is no need to compare because each measure is addressing a different objective) <p>Mark scheme</p>									

		L1	For an attempt to link measures to high-quality growth but undeveloped or inaccurate. 1 to 2 for inaccurate 3 to 4 for accurate but incomplete.	1 to 4
		L2	Answer covers 2 measures and demonstrates depth of knowledge in the policy mechanism (i.e. showcase economic theory), the appropriateness and inappropriateness (i.e. 2-sided) of both measures with reference to the China's context.	5 to 8
		E	For an attempt at a justified stand	Up to 2
		I think it will be easier to mark using a L1 and L2 mark scheme (we can even break the 10m into 5+5). Otherwise, it will be very difficult to award a L3-7 and for L3-8, we will be looking for perfection before we award 8m. And very likely non-perfect answers won't score 7m as we will think that 1 or 2 gaps or little inaccuracies should be given L2 marks and not deserving of L3 at all.		



2	<p>Palm oil price hits record high due to recovering global demand and labour shortages as a result of the coronavirus pandemic. Palm oil is one of the most commonly used oils in the world, with its main uses in food but also in cosmetics and biofuels. To help ease the people's cost of living, Malaysia's government has set a maximum retail price of below 30 Malaysian ringgit for 5kg of pure palm cooking oil in bottled packaging.</p> <p style="text-align: right;">Source: <i>The Edge Markets</i>, accessed 21 August 2021</p>
(a)	<p>Using demand and supply analysis, explain why recovering global demand and labour shortage may have led to a record high price for palm oil. [10]</p>
(b)	<p>Discuss the factors that the Malaysian government would consider when deciding to set a maximum retail price for pure palm cooking oil in bottled packaging. [15]</p>

Suggested Answers for 2021 H2 Mid-Year Exam – Essay Q2

Question Analysis (3'Cs' Approach):

Command	<p>Explain Making clear of causal links, supported by economic analysis.</p>
Content	<p>Demand and Supply factors to explain a record high price for palm oil What are demand and supply factors? What are the relevant elasticity factors? What framework and tools of economic analysis to use?</p>
Context	<p>No specific context</p>

Question Approach:

This question tests on the demand and supply factors to explain on the record high price for palm oil. To explain a record high price, besides demand and supply factors, there is a need to apply concepts of PED and PES.

Suggested Answer:

Introduction:

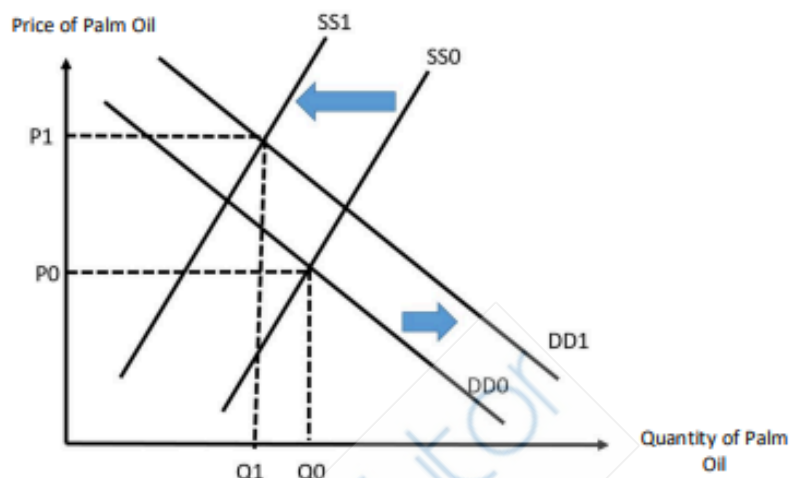
- Price of a good is determined by demand and supply factors.
- Recovering global demand could lead to a rise in demand and labour shortage could reduce the supply.
- Together, the increase in demand and fall in supply could contribute to the record high price for palm oil.

Body Paragraph 1: Increase in demand

- As mentioned in the preamble, factors like worldwide economic recovery can lead to higher disposable income and a rise in demand for commodities. Since palm oil is one of the most commonly used oils in the world, with its main uses in food but also in cosmetics and biofuels. When demand for commodities increase, there will be a rise in derived demand for FOP such as palm oil in the production of these commodities → demand for palm oil is likely to increase. The demand curve shifts rightwards.

Body Paragraph 2: Decrease in supply

- Supply of palm oil is likely to decrease.
- This is largely due to labour shortage leading to a rise in labour cost → upward pressure on wages (price of labour) → producers are less willing and able to supply at all price levels → supply for palm oil is likely to fall. The supply curve shifts leftwards.



As seen from the diagram above, the increase in demand and a fall in supply leads to a reinforced increase in price of palm oil. A shortage is created at the original price level P_0 . This shortage creates an upward pressure on price for palm oil, leading to the price increase until it reaches to the new eqm at P_1 .

Body Paragraph 3: Price inelastic demand and supply

- While the demand increase and supply decrease could contribute to the rise in price, PED and PES concepts could be used to explain the record high price for palm oil.
- The **demand for palm oil is likely to be relatively price inelastic** as palm oil is one of the most commonly used oils in the world, with its main uses in food but also in cosmetics and biofuels.
- It is an important FOP of high need for the production of goods and services.
- The **supply of palm oil is also relatively price inelastic** due to the long production time as it take time to plant and harvest palm tree for palm oil.
- Therefore, with demand and supply both being price inelastic, as shown in the figure above, the rise in demand and fall in supply along price inelastic supply and demand curve leads to a large increase in price, leading to record high price for palm oil.

Conclusion

In conclusion, a rise in demand, coupled with a fall in supply are reasons behind the increase in price for palm oil. In addition, the price inelastic demand and supply increases the price increase in terms of magnitude.

Mark scheme

Knowledge, Understanding, Application and Analysis		
L3	<p>For a well-developed answer that thoroughly explains how recovering global demand and labour shortage as demand and supply factors to explain for a record high price for palm oil.</p> <p>Answer demonstrates excellent knowledge and understanding of demand and supply analysis, including concepts on PED and PES.</p>	8 - 10
L2	<p>For an under-developed answer that explains how recovering global demand and labour shortage as demand and supply factors to explain for a high price for palm oil.</p> <p>Answers may not have included concepts of PED and PES.</p>	5 - 7
L1	<p>For a largely irrelevant or smattering answer that demonstrates little/some knowledge & understanding of demand and supply factors to explain the high price for palm oil.</p> <p>Answer may contain conceptual errors.</p>	1 - 4

Discuss the factors that the Malaysian government would consider when deciding to set a maximum retail price for pure palm cooking oil in bottled packaging. [15]

Question Analysis (3'Cs' Approach):

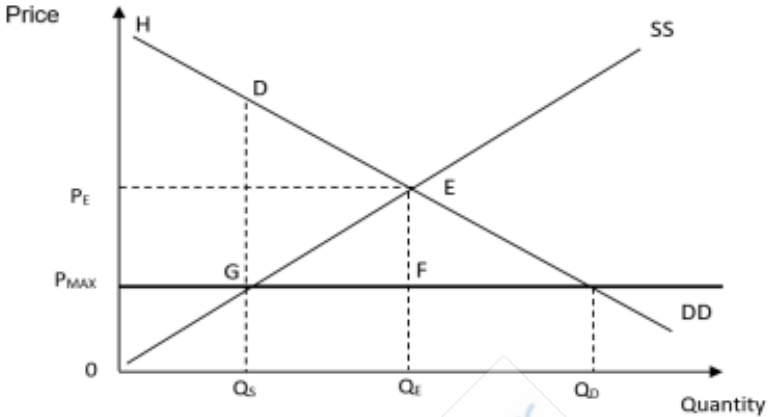
Command	'Discuss' (whether) 2 sided arguments + Stand. Support answers with economic analysis
Content	DM factors that the Malaysian government would consider when deciding to set a maximum retail price for pure palm cooking oil in bottled packaging. What are the benefits and costs for setting the price ceiling? What are the constraints? What are some information to be gathered? What are the different perspectives the government will consider?
Context	Malaysia DM factors should be applied to the Malaysian context.

Question Approach:

This question tests on decision-making factors the Malaysian government would consider in setting a policy of a maximum retail price for pure palm cooking oil in bottled packaging. Students have to apply this context to the decision-making factors, weigh among them for importance in consideration.

Suggested Answer

Introduction	Palm oil price has hit a record high. Given its importance as cooking oil, the high price has affected the cost of living. One of the policy to reduce the impact on cost of living is to set a price ceiling i.e maximum retail price for pure palm cooking oil in bottled packaging. This essay seeks to discuss the factors the Malaysian government would consider when deciding on this policy.
Body 1:	The objective of maximum price control is to prevent prices from rising above a certain level to make goods and services more affordable. The government will consider the benefits of price ceiling i.e maximum retail price which is the
Benefits	

	<p>reduction of the price of palm oil and improving equity of the good to the lower income group.</p> <p>A maximum price is the maximum permissible price that producers may legally charge for a good or service.</p>  <p>For the maximum price regulation to be effective, the price will be set below the market equilibrium price. With the maximum permissible price P_{MAX}, Q_S number of consumers will be able to purchase the palm oil at this price, sheltering them from the record high price of the good. Consumer surplus increases from HEP_E to $HDGP_{MAX}$.</p>
<p>Body 2:</p> <p>Costs</p>	<p>The Malaysian government also has to consider the costs of the policy. A maximum price leads to allocative inefficiency. Maximum permissible price leads shortage of palm oil in the market. In the diagram, the maximum price P_{MAX} leads to a shortage of $(Q_S Q_D)$ units. Due to the policy, while there is a tendency for the price to increase, price is not able to adjust to the equilibrium, leading to allocative inefficiency and deadweight loss of area DEG.</p> <p>Prolonged shortages of palm oil of high demand may lead to the emergence of black markets for certain goods, i.e. food products that are bought at the price and are illegally sold at prices above the legal price ceiling. This suggests that the policy may not work and less consumers may benefit from the policy.</p>
<p>Body 3:</p> <p>Constraints</p>	<p>To effectively implement the policy, the Malaysian government has to consider constraints to the implementation of it. The government has to consider if there is sufficient enforcement officers to all supermarkets and shops selling bottled palm cooking oil. This is because firms have a profit maximizing objective and since there is shortage of palm cooking oil due to the maximum permissible price, supermarkets and shops may succumb to the higher black market price, intentionally restricts sale of the products to only the black market.</p> <p>As one of the largest exporter of palm oil in the world, producers may also keep stock of the good to have it exported overseas. Without effective enforcement, the policy will not be feasible to be carried out.</p>
	<p>In deciding the implementation of maximum permissible price, the Malaysian government is likely to weigh between the benefit and costs of it. This depends</p>

	<p>on the importance of palm cooking oil as a necessity in the country. For example, if it is the primary cooking oil in the country and there are no close substitutes for it, the benefit of the policy which is lowered price of the good is likely to outweigh the cost. The benefit of the policy is then likely to be the primary factor of consideration.</p> <p>However, whether benefits of the policy can be reaped is also dependent on the constraints in the implementation, which is whether the maximum permissible price can be successfully implemented successfully. If enforcement is indeed an issue, then constraints will also be an important factor to consider as without constraints only then the benefits can be reaped.</p> <p>Lastly, to reduce the impact on the shortage problem, the government can implement complementary policy of rationing of the good to limited quantity per household. If this can be implemented, costs of policy can be mitigated and it will not be as important a factor of consideration.</p>
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Mark Scheme

Knowledge, Understanding, Application and Analysis		
L3	For a well-developed answer that shows thorough knowledge and explanation of the decision-making factors the Malaysian government considers when deciding to set a maximum retail price for pure palm cooking oil in bottled packaging. There is good application to the Malaysian government context.	8 - 10
L2	For an under-developed answer explains the decision-making factors the Malaysian government considers when deciding to set a maximum retail price for pure palm cooking oil in bottled packaging. Answers may not have applied to the Malaysian government context.	5 - 7
L1	For an answer that shows some knowledge of the decision-making factors.	1 - 4
Evaluation		
E3	For an answer that arrives at an analytically well-reasoned judgement.	4-5
E2	For an answer that makes some attempt at evaluation, but does not explain adequately their judgement.	2-3
E1	For an answer that gives an unexplained, unsupported evaluative statement.	1

- 2 One of the most competitive consumer categories is telecommunications. The market has opened up with home-grown brands, as well as foreign players looking to disrupt the market. The result: Consumers now have more options than ever before. In 2016, there were three service providers to choose from. Today, there are eleven. The consequence is shrinking revenues for these firms.

Source: *The Business Times*, 9 December 2019

- (a) Explain how the market structure in which telecommunications firms operate is likely to influence how prices are determined. [10]

Explain the reasons for their choice of market structure

Oligopoly	MC
High barriers to entry E.g. High financial costs E.g. Substantial iEOS reaped Few large firms, holding a large market share in the industry E.g. the dominant players in SG include SingTel, StarHub, M1	Low barriers to entry E.g. Low financial costs (cutting down on rent by going online, sharing the established firm's infrastructure network etc.) E.g. Smaller iEOS reaped Many small firms, each with insignificant market share E.g. new players include TPG, Circles, MyRepublic, Gomo Nature of product: differentiated (different pricing, customisation of plans etc.)

Link to how prices are being determined in the market

Oligopoly	MC
Explain price rigidity Kinked Demand Theory OR, price-fixing, under a collusive model (e.g. price leadership model/ cartel)	The above features gives rise to a relatively elastic demand curve Weak price-setting ability ($P > MC$ by a small amount) Due to low barriers to entry, in the long run, if firms earns supernormal profits, there is entry of new firms, and profit levels are eroded to long run normal profits. Similarly, in the long run, if firms earns subnormal profits, there is exit of firms, and profit levels rises to long run normal profits.

L3	For a well-developed answer that shows thorough knowledge and appropriate application of the telecommunications firms to the student's choice of market structure. Answers explains how characteristics affects prices determined in the market.	8 - 10
L2	For an under-developed answer that shows some knowledge and application of the telecommunications firms to the student's choice of market structure.	5 - 7
L1	For an answer that shows some knowledge of the student's choice of market structure.	1 - 4



- 2 One of the most competitive consumer categories is telecommunications. The market has opened up with home-grown brands, as well as foreign players looking to disrupt the market. The result: Consumers now have more options than ever before. In 2016, there were three service providers to choose from. Today, there are eleven. The consequence is shrinking revenues for these firms.

Source: *The Business Times*, 9 December 2019

- (b) Discuss the various strategies telecommunication firms could adopt to increase their profits. [15]

Oligopoly	MC
<p><u>Price strategies</u></p> <p>Limit/predatory pricing: The oligopolist can lower prices significantly in the short run to prevent new firms from entering, or drive out an existing firm. But, this leads to losses</p> <p>Price discrimination: The oligopolist can adopt 3rd degree price discrimination to increase its total revenue, and thus profits. Its effectiveness depends on whether the other conditions for price discrimination are met.</p> <p><u>Non-price strategies</u></p> <p>Product and/or process innovation: With long run supernormal profits, the oligopolist has the ability to undertake product and process innovations. Tends to be costly, and an increase in profits from these innovations is not guaranteed.</p> <p>Advertising and brand promotion In creating perceived differences in consumer's minds, the oligopolist enjoys an increase in its demand, as well as a relatively more inelastic demand curve. Tends to be costly, and the result depends on the effectiveness of the advertising campaigns</p>	<p><u>Price strategies</u></p> <p>As demand is relatively price elastic, the MC firm would decrease prices to increase total revenue, and thus profits. But, this may lead to a price war, and thus, losses.</p> <p>Price discrimination: The MC firm can adopt 3rd degree price discrimination to increase its total revenue, and thus profits. Its effectiveness depends on whether the other conditions for price discrimination are met.</p> <p><u>Non-price strategies</u></p> <p>Advertising and brand promotion In creating perceived differences in consumer's minds, the MC firm enjoys an increase in its demand, as well as a relatively more inelastic demand curve. Tends to result in only weakly differentiated products (nature of product)</p>

<u>Evaluative comment</u>	
<p>Time period: Recognising that these alternative strategies may only be effective in the short run, while process innovation is more likely to have long term effects.</p> <p>Nature of industry: Telecommunications may benefit firms with higher capital as they are better able to leverage off the rapid changes in technology to create better, more seamless ICT product offerings for their consumers.</p>	<p>Type of long-run profits: Its non-price strategy tends to be constrained by its long run normal profits which negates its ability to do product and process innovation.</p> <p>Customisation of product: Their niche lies in offering the customisation of products to suit the varying needs of their consumers. E.g. gamers who require fast and reliable broadband, or companies who require work phones that have attractive data roaming rates for international business calls.</p>

L3	For a well-developed answer that shows thorough knowledge and explanation of strategies telecommunication firms can take to increase profits. Answers are supported with AR/MR/MC/AC diagrams.	8 - 10
L2	For an under-developed answer that explains some strategies telecommunication firms can take to increase profits. Answers may lack clear diagrammatic analysis or lack consistent application to the context of telecommunication firms.	5 - 7
L1	For an answer that shows some knowledge of firms' strategies to increase profits.	1 - 4
Evaluation		
E3	For an answer that arrives at an analytically well-reasoned judgement.	4-5
E2	For an answer that makes some attempt at evaluation, but does not explain adequately their judgement.	2-3
E1	For an answer that gives an unexplained, unsupported evaluative statement.	1

Singapore's spending on healthcare has grown every year and is likely to continue rising, which is why the country needs to be prudent and ensure support is targeted at those in greater need, said Health Minister. In the end, preventative healthcare will be key in addressing the rising medical demands of an ageing population and containing costs in the long term.

Source: Adapted from *The Business Times*, 6 March 2021

(a) Explain why the Singapore government might intervene in the provision of healthcare. [10]

(b) Discuss the policies that the Singapore government can adopt to achieve the efficient allocation of resources in the healthcare market. [15]

(a) Explain why the Singapore government might intervene in the provision of healthcare. [10]

Question Analysis

Command	Explain why – reasons for government intervention in the healthcare market
Content	Allocative inefficiency (merit good (positive externalities + imperfect information) & inequitable distribution of resources in the healthcare market.
Context	Singapore

Question Approach: Students to explain at least 2 reasons for government intervention in the healthcare market.

Introduction

Singapore government might intervene in the provision of healthcare to achieve her microeconomic goals of allocative inefficiency and equity. Since healthcare is a merit good, the allocation of resources are inefficient and furthermore, there is inequity in the access of healthcare resources, such as preventive healthcare that includes medical screening. Hence it calls for government intervention in the provision of healthcare.

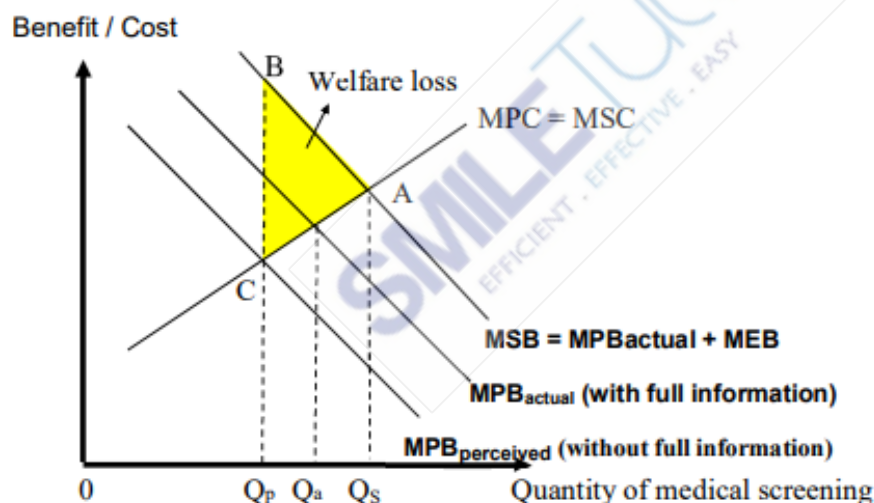
Body: Explain how imperfect information leads to market failure in the healthcare market, which results in government intervention.

There is imperfect information in preventive healthcare, like medical screenings. Consumers are not fully aware of the benefits to themselves of regular medical screenings, which is the early detection of potentially chronic diseases such as cancer and cost savings from avoiding treatment of the illness for the long term as early treatment is more effective. In actual fact, most individuals only get medically screened when serious symptoms are present. As such, they under-estimate their actual marginal private benefit (MPB_{actual}) of going for medical screenings, resulting in a perceived marginal private benefit ($MPB_{perceived}$) that is lower than MPB_{actual} . Therefore his/her perceived private optimal output is at $0Q_p$, where the MPB perceived intersects with the MPC. But because the benefits of early medical screening is undervalued, their actual marginal private benefit (MPB_{actual}) is higher than their perceived marginal private benefit

($MPB_{perceived}$). This means that with perfect information, private optimum consumption will be at $0Q_a$, where the MPB actual intersects with MPC.

Body: Explain how the presence of positive externalities leads to market failure in the healthcare market, which results in government intervention.

In addition, medical screening generates positive externalities in consumption. Assuming that there are no negative externalities, MPC equals to marginal social costs (MSC). When individuals get medically screened and effectively treated, they can remain an active part of the workforce and contribute to the growth of the economy. With the presence of MEB, there is a divergence between the marginal social benefit (MSB) and MPB_{actual} , where the MSB is higher than the MPB_{actual} . The vertical distance between MPB_{actual} and MSB is the MEB. Individuals maximise their net private benefit at $0Q_a$, where $MPC = MPB_{actual}$ but the society's welfare is maximised at $0Q_s$ where $MPC = MSB$. Hence, when left to the market force, there is an underconsumption ($Q_s Q_a$) of healthcare services, like medical screenings. At output level $0Q_a$, where $MSB > MSC$, the society values an additional unit of medical screening more than what it would cost society to produce it. Society desires more consumption of medical screening.



By summing the excess of MSB over MSC for the units $Q_p Q_s$, we arrive at a monetary measure of welfare loss (also known as deadweight loss) of area ABC to the society. As a result, the Singapore government intervene in the provision of healthcare.

Body: Explain how inequity in the healthcare market results in government intervention.

The other reason the Singapore government intervenes in the provision of healthcare is to ensure the individuals belonging to the lower income group are able to afford and thus gain access to basic necessities such as healthcare service. This is because if market prices are too high,

individuals from the low income group may not be allocated basic necessities through the price mechanism, thus lead to an inequitable allocation of resources.

L3	<p>For a well- developed answer that shows thorough knowledge and application as to why the Singapore government intervenes in the provision of healthcare.</p> <p>Equity + allocative inefficiency (need not have both positive externalities & imperfect information) to get full range of L3 marks.</p> <p>Max 8m – for a well-developed answer on positive externalities & imperfect information</p>	8-10
L2	<p>For an under-developed answer that shows knowledge and application as to why the Singapore government intervenes in the provision of healthcare.</p>	5-7
L1	<p>For an answer that shows some knowledge as to why the Singapore government intervenes in the provision of healthcare.</p> <p>Smattering of points</p>	1-4

Marker's Comments

Only a handful of students were able to give equity as a reason for government intervention in the provision of healthcare, most easily cited the presence of positive externalities and imperfect information as the reason for government intervention. Most students could not explain who were the 3rd parties were and how they benefited from the consumption of healthcare explicitly and clearly. Also when students presented the market failure caused by positive externalities and imperfect information on one single diagram, they were confused the quantity consumed due to the positive externality and imperfect information.

(b) Discuss the policies that the Singapore government can adopt to achieve the efficient allocation of resources in the healthcare market. [15]

Question Analysis

Command	Discuss – explanation of the policies to achieve efficient allocation of resources, with the advantages and limitations
Content	Policies to correct market failure due to imperfect information and positive externalities
Context	Singapore

Question Approach: Students to explain at least 2 policies adopted by the Singapore government to achieve efficient allocation of resources. The discussion should include the explanation on how the policies work, the advantages and limitations of the policies.

Introduction:

The Singapore government can adopt to achieve efficient allocation of resources via legislation, direction provision, subsidies to consumers and public education.

Body: Explain at least 2 of the following policies on how it can be adopted to achieve the efficient allocation of resources in the healthcare market, along with its benefits and limitations.

1. Legislation

- E.g. Government implements compulsory vaccination programmes under the Infectious Disease Act.
- This will increase the demand for vaccinations, which shifts the Marginal Private Benefit curve right until it coincides with the Marginal Social Benefit curve. This will result in the socially optimal level of vaccinations being consumed.
- Advantages: simple to implement and administer, directly increases consumption to the level which government deems as desirable.
- Limitations: High monitoring, compliance and administrative costs, possibility of loopholes in monitoring.

2. Direct provision

- The government directly provides medical services in polyclinics at highly subsidized rates and healthcare screenings at zero cost to consumers.
- Direct provision enables the government to directly supplement the underproduction of services in the unregulated healthcare market.
- Advantage: the socially optimal level of healthcare services will be produced; low-income groups will be able to afford basic healthcare
- Limitations:
 - Possibility of government failure due to red tape and bureaucratic problems. High administration costs are incurred and decisions are slow to be made, which may compromise the quality of healthcare services.

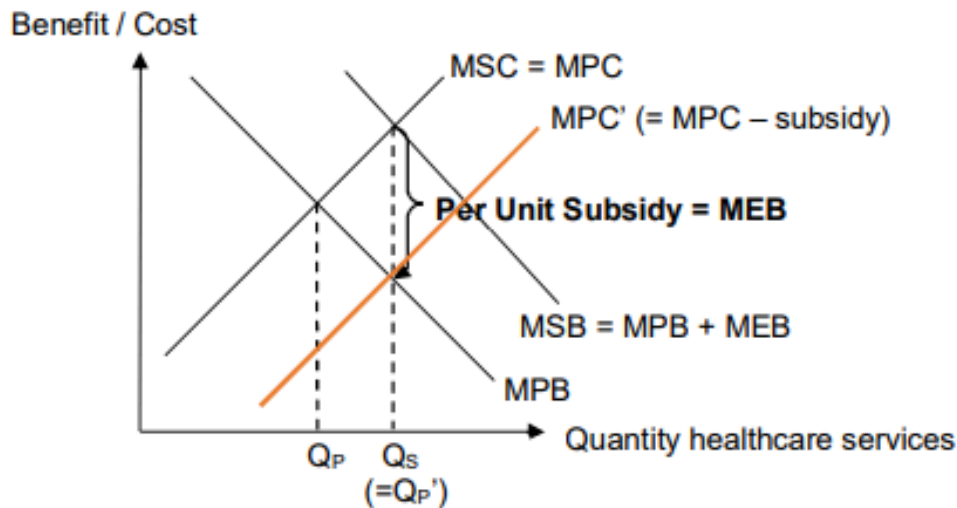
- Also, inefficiencies could arise as a result of the lack of incentive to minimize costs. They are less concerned with minimizing cost and maximizing efficiency as their objective is not to profit-maximize.
- Providing certain healthcare services at highly subsidized rates or at zero cost could also lead to overconsumption as demand increases beyond the socially optimal level. The consequence is longer queues at polyclinics and more resources will be required to provide these services to the public.
- The provision of these services needs to be financed by higher taxes.

3. Public education

- The government uses advertising and campaigns to create awareness about the benefits of consuming healthcare services.
- The objective is to reduce ignorance amongst the consumers as a result of imperfect information.
- This would increase the demand for healthcare services, causing the Perceived Marginal Private Benefit Curve to shift to the right to coincide with the Actual Marginal Private Benefit curve. Here, the socially optimal level of healthcare services will be consumed.
- Limitations: Difficult to change mindsets, may not be able to achieve immediate results as it will take some time before the more elderly Singaporeans are comfortable with seeking preventive healthcare; high costs of advertising etc.

4. Subsidies to consumers

- The government provides subsidies of MEB at the socially optimal level of output to patients staying in the B and C class wards in government hospitals. The lower the class of ward, the higher the subsidies given. To enable more lower-income patients to benefit from the higher-subsidized ward classes, means-testing was implemented to enable a more targeted form of subsidy allocation.
- The government has also set up Medifund, CHAS subsidies to aid low-income patients who are still unable to pay for their medical bills even with the government subsidies already provided. Their healthcare bills are directly financed by the Medifund.
- The imposition of subsidies reduces the cost of consuming healthcare services. Thus, the subsidy shifts the MPC vertically downwards by the full amount of the subsidy to "MPC – subsidy" curve.
- The output level where MPC' equates to MPB is now at $0QP'$, which coincides with $0QS$.
- This means that consumption has risen to the socially optimal level $0QS$. Thus, allocative efficiency is attained.



- **Advantages:** Consumers will internalize the positive externalities which reduce the divergence between MSB and MPB: these targeted subsidies enable the lower-income groups to gain access to affordable healthcare.
- **Limitations:** Difficult to estimate the correct amount of subsidy which could lead to inefficient allocation of resources (e.g. too much subsidy \rightarrow overconsumption of hospital wards \rightarrow longer waiting time and compromised quality of healthcare services rendered to patients); subsidies need to be financed by tax revenue which incurs an opportunity cost in budget allocation; high administrative costs could be incurred in the process of allocating the subsidies and means-testing etc.

Conclusion

- **Criteria:** effectiveness in reducing the divergence between MSB and MPB to produce/consume the socially optimal level of healthcare services and in the provision of affordable healthcare to the public
- Based on these criteria, the combination of subsidies to consumers and direct provision is most effective in achieving both aims.
- These measures help to improve resource allocation closer to the socially optimal level of healthcare services, and ensure that every Singaporean citizen is able to afford healthcare.
- However, these might put a strain on the government's resources.
- Therefore, these measures are complemented by compulsory savings schemes like Medisave to reduce the burden placed on the state as they get Singaporeans to co-pay their medical expenses.

L3	For a well-developed answer of at least 2 measures that the Singapore government takes to achieve efficient allocation of resources in the healthcare market, including limitations of the measures and diagrams to support the analysis and good application to the context.	8 – 10
L2	For an undeveloped/under developed answer of the measures that the Singapore government takes to achieve efficient allocation of resources in the healthcare market.	5 – 7
L1	For an answer that shows some knowledge of the policies but is descriptive in nature with no economic analysis. Smattering of points	1 – 4

E3	For a well-developed evaluative assessment supported by economic analysis.	4-5
E2	For an underdeveloped evaluative assessment supported by economic analysis.	2-3
E1	For an unexplained judgement that is not supported by economic analysis.	1

Marker's Comments

Generally, most students were able to identify and describe the policies and their limitations. But their answers lacked in explaining how the policies can achieve the efficient allocation of resources in healthcare services. So, the main issue for this question was that the students lacked the economic framework and analysis required. Furthermore, when student drew the diagram to illustrate on how subsidies correct the market failure, some drew the extent of shift of the MPC with subsidy that is to coincide with the socially optimal level of output wrongly, it seemed like student were drawing the diagram without understanding.

- 4 Singapore's real Gross Domestic Product per capita recorded a grow of 3.0% in 2018 while Cambodia's growth in real Gross Domestic Product per capita stands at 5.9% in 2018.

Source: *World Bank*, accessed 30 Aug 2021

Discuss the extent to which you would support the use of real Gross Domestic Product per capita as a measure of the change in the living standards in Singapore in 2018, and when comparing living standards with another country such as Cambodia.
[25]

Question Analysis

*Standard of living consists of both **material** and **non-material** aspects.*

*The key statistics mentioned in the preamble, namely real GDP per capita growth is an indicator of internal economic performance. However, it needs to be noted that indicators of economic performance alone are not sufficient to assess standards of living. This question has **four main areas** for discussion, **how can real GDP per capita growth shows/measure higher standard of living, the limitations of this indicator for comparison of standard of living over time in Singapore, and with other economies** and what indicators could be a better measurement.*

*For comparison overtime within a country (Singapore), it should be recognised that there are other factors that can affect standard of living. **Hence, an explanation of a range of the factors that impact on quality of life** can include indicators on hours worked, pollution, access to education and health care, and equity (in terms of fairness and ease of access to goods and services) and so on should be explained.*

*For comparisons to be made with other economies, limitations of the use of data should be explained and students should suggest **real GDP per capita needs to be converted to a common currency - PPP.***

In addition, for better assessment a range of additional measures might be used instead.

Suggested Outline

Introduction

Standard of living refers to the well-being of an average person in the economy. This includes the **material / quantitative** and **non-material / qualitative** aspects of welfare.

Material standard of living refers to the quantity and quality of goods and services available for consumption to the average resident of a country while non-material standard of living refers to the intangible aspects of quality of life, e.g. in terms of physical, social and mental well-being.

Real GDP per capita growth rate is to a certain extent able to indicate the increase in quantity of goods and services available for consumption to the average resident of a country; but, it is insufficient to assess accurately SOL within a country and between countries.

Explain how real GDP per capita growth is able to measure of the change in the living standards in Singapore

- From the preamble, Singapore's real GDP per capita has grown by 3.0% in 2018 implying that on average, an individual is having an increased share of national output produced.
- GDP refers to the total monetary value of all final goods and services produced within a country's geographical boundary, regardless of the ownership of factors of production, during a given period of time and before adjustment for depreciation.
- Using "real" GDP meant that GDP has been adjusted for inflation on the monetary value of the goods and services produced and it measures the **actual volume of production**.
- Besides accounting for the changes in prices (inflation), this indicator has also **considered the change in size of population** where the "per capita" value is derived from real GDP divided by the population size and hence signifies what an average citizen would be enjoying in terms of the actual volume of production.
- Hence, with a **growth in real GDP per capita**, it means that **each individual** is likely to have a **higher income and hence higher purchasing power to consume more goods and services**. Hence, **material aspect of standard of living has increased**. In Singapore in 2018, our material growth as measured is 3.0% while Cambodia's was 5.9%
- Since Cambodia's growth rate was higher, it means that she has achieved greater growth in material SOL as compared to SG.
- With economic growth, Singapore government is also able to collect more tax revenue, which can in turn be used for financing government expenditures, particularly on **merit goods**, e.g. health care and education, improving the **non-material aspects** of Singapore residents as well
- However, this indicator is likely to only measure SOL within and between countries accurately to a small extent.

Explain the limitations of using real GDP per capita growth to measure SOL within country (SG) overtime / real GDP per capita growth insufficient to measure SOL overtime

- Indicator does not consider income distribution. Income inequality is not captured in this data. There is a need to use complementary indicators like Gini coefficient to assess changes in income distribution in a country. This is because real GDP per capita growth although indicates what an average citizen may enjoy, it does not accurately captures the distribution. This increase in gini coefficient in SG in the recent years meant that the economic growth **may not be equally enjoyed** by all. The *greater availability of goods and services* could have been felt more intensely by the higher skilled/higher income earners but less for the lower skilled/lower income. Hence standard of living might not have improved for the lower income households. It not only meant that material SOL may not have increased for the

latter group, it may also give rise to social and political instability, worsening non-material aspect of standard of living.

- Other aspects of non-material SOL are not captured too. For example, higher GDP could come at the expense of longer hours worked, a greater stress level and lesser leisure hours. This is especially so if the larger output was not because of higher productivity. In fact, statistic has shown that our productivity has indeed seen a fall in the recent years. This compromises the mental health of individual and would decrease the non-material well-being of the individual.
- *Can also explain material SOL using point on the need for unemployment rate as the higher real GDP could be due to less pool of employed contributing to more production → hence the increase in income and purchasing power is not enjoyed unequally.*
- *Can also explain that to ascertain material SOL, need data on real income growth rate → real income growth rate needs to be at least on par with inflation in order for citizens to increase purchase of G&S*
- *For non-material SOL, can also explain using pollution level, state/quality of health, state/quality of education status etc is not captured*
- *(any 2 points above that are well explained)*

Explain reason why comparing real GDP per capita growth between countries is insufficient/inaccurate to measure SOL

- Real GDP per capita growth rate in the preamble shows that Cambodia has a higher growth than Singapore. While this indicates what may have happened to Cambodia's SOL over the years in the same way as explained above, the ability to compare SOL between SG and Cambodia based on this indicator is largely limited and should only be supported to a small extent.
- First and foremost, stages of development in the 2 countries are vastly different. SG is considered as a relatively developed country while Cambodia is still developing. As such, the stock of wealth and the ability to accumulate wealth to give a higher growth value in the real GDP/capita is different. The real GDP/capita growth measures what was gained from the new production, but it failed to account for the utility that is available from the already existing assets. Singapore would have already built up large stock of consumer durables and well-developed infrastructures and amenities compare to Cambodia. Thus, even though Cambodia growth of real GDP per capita is greater in year 2018, it does not necessarily means that the Cambodians are enjoying a higher SOL than Singaporeans.
- Riding on similar point, the increase in Cambodia's national income could have been contributed by an increase in her defence expenditure which Singapore has

previously and consistently been investing in. While this causes an increase in national income, it does not necessarily mean that Cambodia will have a higher SOL. Likewise, if the national income of Cambodia was contributed by an increase in investment into education and healthcare services, SOL may not increase immediately.

- Moreover, to begin with, assessment on SOL between countries by using such indicator may be inaccurate.
- This is because, national income figures accounted by individual countries are denominated in different currencies. When there is a need to compare SOL within these countries, their GDP figures measured in their local currencies are then converted at the current exchange rate for comparison. However the current market exchange rate may be a poor indicator of the purchasing power of the currency at home especially if a country's exchange rate has been manipulated to meet its macro goals such as to boost economic growth.

For example, for a comparison of the United States and China. In 1992, real GDP per person in the U.S. was US\$24,408. In China, it was 2,028 Yuan. During 1992, US\$1 was worth 5.732 Yuan. Using this exchange rate to convert Chinese Yuan into U.S. dollars, real GDP per capita in China was US\$352. Based on the data, real GDP per capita in U.S. was 69 times higher than that in China. But \$1 in the U.S. cannot buy the same amount of goods as 5.762 Yuan can buy in China. The relative prices (or cost of living) in the two countries are very different.

Henceforth, in order for a fairer comparison, there is a need to convert real GDP per capita of different economies to a **common currency using purchasing power parity (PPP) exchange rate**. This is a rate of exchange that would allow a given amount of money in one country to buy the same amount of goods in another country after exchanging into the currency of the other country.

Explain the limitations should countries use real GDP per capita growth to compare between countries overtime / real GDP per capita growth insufficient to measure SOL overspace

- Should 2 countries still continue to use real GDP per capita growth, the accuracy could also be flawed by the following

(any 2 points from the following)

- Accuracy of GDP figures may be different in different countries depending on data collection methods. It is typically more difficult to collect accurate data in larger and less developed countries as compared to smaller and more developed countries. In developing countries like Cambodia, the method used may be primitive and data may not be as readily available less compared to SG which is likely to use more advanced and accurate means of accounting for our national income. Thus,

comparison between the 2 may not give an accurate picture of the SOL in respective countries.

- Another problem about using national income statistics to make international comparison is the omission of non-marketed transactions. In this case, there is a higher possibility that less developed Cambodia has a larger non-marketed transaction than Singapore. Much more families in Cambodia are likely to for example, engage in farming and be self-sufficient in terms of planting their own food and exchanging produces with their neighbours, they are more likely to make their own clothes, look after their children on their own etc. These are productive labour service that are not accounted for but would have be recorded in Singapore as these services are often 'outsourced' and are official transactions.
- *Can explain size of black market → these earnings are omitted and unrecorded e.g. part time one-to-one tutor in SG, Private drivers e.g. Grab drivers who made a deal with passenger privately to avoid giving commission to Grab company. → These unrecorded transactions will understate national income figures. Thus, cannot compare accurately.*
- *Can explain difference in quality of goods and services....*

If without PPP and a comparison would like to be made, perhaps the countries could use other indicators

Explain the need to use other indicators to measure and compare SOL

- Recommend and explain the use of composite indicators that have considered both aspects of both the quantitative and quality aspects have been taken into consideration....
-

Evaluation/Judgement/Conclusion

For comparison within country overtime, real GDP per capita growth rate is probably one of the more accurate indicators that measures SOL and is able to measure change in material SOL to a large extent, nonetheless, it should be complemented with gini coefficient in order to account for the distribution of the growth. However, in measuring the non-material SOL, this indicator to a large extent is not sufficient.

For comparison between countries, there are much more considerations about its inadequacy and accuracy and hence to a larger extent, I will not support the use of this indicator on its own. Nonetheless, when the need arising to use such indicator to compare between different countries, the accuracy may differ. It should be noted that it would have a higher accuracy in terms of comparison if it is used for comparing 2 countries which are of comparable level of development and used similar methodologies of computing data as the inaccuracy could be reduced and hence able to shed more reliability data on the difference in SOL as compared to 2 countries with large difference in development and/or used vastly different methods of computing.

Last but not least, while we may agree that using composite index may give rise to more accurate comparison overtime within a country and also between countries, the data collection and use of the data can also be fraught with difficulties and inaccuracies too. Henceforth, an array of indicators should be used and made reference to before any conclusion can be made about the SOL within and between countries.

Level	Knowledge, Application/Understanding and Analysis	Marks
L3	<p>For an answer that uses economic analysis to explain how <i>real GDP per capita growth shows/measure higher standard of living</i> and the limitations of the data in assessing both standard of living within a country over time and in comparisons with other economies. Answer also suggested use of composite index to measure SOL more accurately.</p> <p>Max 18m if answer is not able to explain that a the given stats is unable to conclude that SG has lower SOL than Cambodia (i.e. did not explain 2 countries have different stages of growth and "stock of wealth")</p> <p>Max 15m if students fail to recognise that question is on "growth".</p>	15-20
L2	<p>For an underdeveloped answer that uses economic analysis to explain how <i>real GDP per capita growth shows/measure higher standard of living</i> and the limitations of the data in assessing both standard of living within a country over time and in comparisons with other economies. Answer also suggested use of composite index to measure SOL more accurately.</p> <p>(for markers:) Max 14m if all 3 main points not in.</p> <p>Max 14m for ans with enough scope but lacks in depth in explanation (i.e. indicator can measure mat SOL + indicator limited for both mat & Nmat SOL within country + indicator limited for comparing between countries x2 + composite index)</p> <p>Max 12m for ans that lacks depth in scope and explanation (i.e. indicator can measure mat SOL + indicator limited for either mat or Nmat SOL within country x2 + indicator limited for comparing between countries x2 + composite index)</p> <p>OR</p> <p>Max 11m for an answer that uses economic analysis to explain how <i>real GDP per capita growth shows/measure higher standard of living</i> but only consider either the limitations of the data in assessing standard of living within a country over time or in comparison with other economies</p>	9-14

	OR For an answer that gives a descriptive explanation of measures of standard of living and / or their limitations	
L1	For an answer that shows some basic but largely unexplained knowledge of measures of the standard of living or their limitations.	1-8
Evaluation		
E3	For an answer that uses economic analysis to support evaluative comments about both assessing standard of living within a country over time and comparisons with other economies	4-5
E2	For an answer that gives unsupported evaluative comment(s) about assessing standard of living within a country over time or comparisons with other economies	2-3
E1	Stating of judgment, without any substantiation	1

- 5 The US Federal Reserve signalled on June 19 that it is ready to cut interest rates for the first time in more than a decade to give employment a boost but this could indirectly spur more inflation.

Source: Adapted from *The Conversation*, 20 June 2019

- (a) Explain the main causes of unemployment in an economy such as the USA. [10]
- (b) Discuss whether possible conflicts between macroeconomic objectives is the main factor that needs to be considered in policy decision-making by a government. [15]

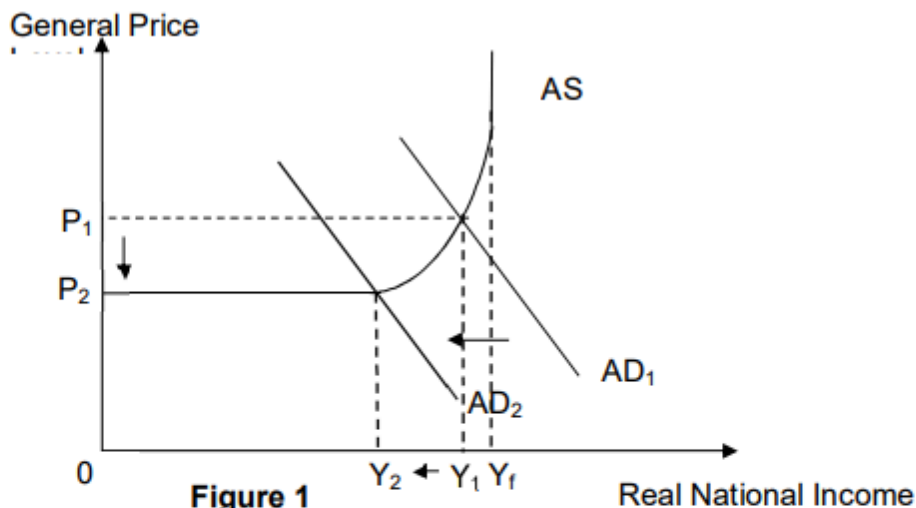
Question Analysis (3'Cs' Approach):

Command	Explain Making clear of causal links, supported by economic analysis.
Content	Main causes of unemployment What framework and tools of economic analysis to use?
Context	Economy such as USA

Question Approach:

This question the various causes of unemployment. To explain cyclical unemployment, the AD/AS framework is important and in explaining structural unemployment key economical analysis on the skills mismatch is essential. Frictional unemployment could be the 3rd cause of unemployment.

In the recent Covid-19 pandemic, not only has USA's exports been badly impacted by the global shocks, its aviation and tourism sectors have also come to a standstill as leisure travel drops to near zero. The pandemic depressed domestic consumption (C) with lock-downs/circuit breaker, while travel restrictions reduced investment expenditure (I) and paralysed the trade sector leading to a fall in net export revenue (X). The fall in these components of AD reduces AD and hence national income, leading to a rise in cyclical unemployment, *ceteris paribus*. With reference to Figure 1, the economy is initially at equilibrium at national income level Y₁, where AD₁ intersects AS. When recession occurs, AD in the economy falls, resulting in a fall in the national income from Y₀ to Y₁. Firms will find that they cannot sell all their current output leading to an accumulation in stocks (or inventories). Rationally therefore, firms will cut back on production and attempt to cut losses. As the firms cut down on production, they hire fewer factor inputs, including labour. This fall in employment reflects the rise in cyclical unemployment and the widened gap between the new national output level (Y₂) and the full employment output (Y_f) implies that there are more idling labour resources in the economy corresponding to the higher unemployment levels.



Countries like USA have to continuously restructure in the face of competition. We have developed new areas of comparative advantage which are relevant and competitive so as to differentiate our products from rivals. When an economy undergoes restructuring there is a deliberate shift in the focus from one industry to another. Workers in the old industry may find themselves out of job, but are unable to find job in the new industry, due to the lack of skills needed. This mismatch in the skills set results in the employers not willing to hire labours without the relevant skills set bringing about structural unemployment.

Frictional unemployment occurs because it takes time for people to find the right jobs and for employers to find the right people to hire, but there exist market imperfections such as **imperfect information** (e.g. Employers are not fully informed about the types of workers that are available and workers are not aware of the jobs that are available.) As a result, there is usually some time lag between leaving and finding employment, which leads to inevitably some form of frictional unemployment being present in any economy at any point of time, even at the full employment level of national output. This is part of the natural rate of unemployment as mentioned earlier. Inefficiency of information worsens the time lag between leaving and finding employment, but jobseekers who are frictionally unemployed are usually unemployed for a relatively short period of time.

Level Descriptors		Marks
L3	<ul style="list-style-type: none"> Conceptually accurate and well-developed explanation on <u>3</u> causes of unemployment in an economy such as the USA including both structural and demand deficient unemployment. Good use of relevant examples to support explanation. <p>Cap at 9 if it is only on cyclical + structural causes of unemployment</p>	8-10
L2	<ul style="list-style-type: none"> Conceptually correct but explanation contains several inaccuracies and/or is not well developed 	5-7

	<ul style="list-style-type: none"> Explanation not well developed Explanation not sufficiently supported by relevant examples. 	
L1	<ul style="list-style-type: none"> Major conceptual errors in explanation. Absence of conceptual analysis. 	1-4

Marker's Comments

Most responses were able to identify cyclical and structural unemployment as major sources of unemployment in economies such as USA. Stronger responses managed to use strong context to illustrate the sources of unemployment and for cyclical unemployment managed to use concepts present in the multiplier process to explain how greater production led to lowering of demand deficient unemployment. Weaker responses tend to be descriptive in nature.

- (b) Discuss whether possible conflicts between macroeconomic objectives is the main factor that needs to be considered in policy decision-making by a government. [15]

Question Analysis (3'Cs' Approach):

Command	Discuss whether 2 sided arguments + Stand. Support answers with economic analysis
Content	Conflicts between macroeconomic objectives 'Main Factor' DM framework could be used to brainstorm of the other factors that a government could consider in policy decision-making. Alternatively, one could consider the factors which influence the effectiveness of policies such as the multiplier size.
Context	Pre-ambble context is on the USA.

Question Approach:

This question could be answered using the DM framework or by considering factors that influences the effectiveness of policies. The first factor that should be considered will be the conflict between macroeconomic goals.

Policy decision making involves the careful deliberation of possible conflicts between macroeconomic objectives and consideration of various factors that could influence the effectiveness of the policy such as whether it targets the root cause and the interest elasticity of demand.

Possible conflicts between macroeconomic objectives is an important factor that needs to be considered in policy decision making.

Expansionary monetary policy used to resolve demand-deficient unemployment may lead to demand-pull inflation. For example, with lower interest rates set by the FED, there will be a rise in consumer spending and higher investment because the cost of borrowing is lower. When AD increases, there will be unplanned fall in inventory. Firms will raise production and increase the demand for factors of production such as labour. This will result in lower demand-deficient unemployment. As seen in Figure 2, while the GPL rises from P_0 to P_1 , the RNO rises as well from Y_0 to Y_1 and this rise in production is associated with the lower unemployment levels. However, as national income increases through the multiplier process and the economy operates nearer to full-employment. This results in competition for resources, thus pulling up the prices of factors of production and leading to demand-pull inflation. As such, the government faces unintended costs in the form of conflicts between macroeconomic objectives.

A government's policy decision-making is also dependent on whether the policy is effective.

For instance, a country like the USA might implement an expansionary monetary policy used to resolve demand-deficient unemployment. For example, with lower interest rates set by the FED, there will be a rise in consumer spending and higher investment because the cost of borrowing is lower. However, consumption and investment spending may not be responsive to interest rate changes. The reduction in interest rates may also fail to stimulate consumption and investment spending because of low confidence or pessimistic expectations of future economic conditions. For instance, if the producers perceive the harmful impacts of the Covid 19 pandemic on the economy to continue for a period of time, thereby harming the expectations of profitability, a fall in interest rate may not be sufficient to incentivise firms to borrow and invest. As such, governments may decide not to use the interest rate policy if they expect the policy not to be very effective and might instead choose to implement policies such as the expansionary fiscal policy through an increased G which could more directly stimulate the economy.

A government's policy decision-making is also dependent on whether the choice of policy targets the root cause of the economic problems it seeks to resolve.

For instance, while the usage of an interest rate policy could spur an increase in AD to resolve demand deficient unemployment, this policy might not be effective if the cause of unemployment is due to that of structural unemployment instead. The root cause of structural unemployment is that of skills mismatch between the skills possessed by the workers and the skills demanded by the employers. Consequently, the usage of an expansionary interest rate policy will not reduce the extent of skills mismatch and will not be effective in reducing the structural unemployment. To resolve structural unemployment, governments might choose to implement a supply side policy such as Skills Future in Singapore which provides workers with the platform to retrain their skills into skills

demand by the employers, thereby reducing the extent of skills mismatch and effectively reducing structural unemployment.

Conclusion

In conclusion, the extent to which conflicts play a role in determining a government's macroeconomic decision making depends on the nature of the economy. A government will have to be concerned about the conflict between low inflation and low unemployment is also one that governments have to constantly consider. In this case, conflicts become a lesser concern than the interest elasticity of demand for investments and consumption because the unresponsiveness of consumption and investments would mean that growth is not even achieved, which thus means that unemployment remains high. This then causes inflation to not be a concern since the main issue is making the policy work in the first place. Overall, the level of influence that conflicts have on government policy decision making is highly dependent on the nature of the economy.

Knowledge, Application, Understanding and Analysis		
L3	<ul style="list-style-type: none"> A well-developed answer that demonstrates a strong understanding of the possible conflict that may arise and the other factors that influence government decision making. Good use of economic frameworks that provide rigorous depth of analysis Answer is well-balanced and considers both the possibility that conflicts are a major influence and may not be. Coverage of at least 1 conflicts and 2 other factors that influence a government's decision. <p>Cap at 9 if hit only 1 conflict and 1 other factor?</p>	8 – 10
L2	<ul style="list-style-type: none"> An adequately developed answer that demonstrates some understanding of the possible conflict that may arise and the other factors that influence government decision making. Adequate use of economic frameworks that provide some depth of analysis 1-sided answer or insufficient coverage of depth if both sides are considered. 	5 – 7
L1	<ul style="list-style-type: none"> Smattering of points Descriptive answer lacking in economic analysis 	1 – 4
Evaluation		
E3	<ul style="list-style-type: none"> Judgement that is well supported and synthesizes all the arguments put forth 	4 – 5
E2	<ul style="list-style-type: none"> Judgement that has some support and has some attempt to draw conclusions from the arguments raised. 	2 – 3
E1	<ul style="list-style-type: none"> Unsupported judgement 	1

Marker's Comments

Stronger responses were able to identify the conflict between macroeconomic objectives with strong application of the context present within the preamble. For instance, such answers recognised the use of the interest rate policy and the conflict between lowering of unemployment and higher inflation rates. Stronger responses also used strong examples to illustrate the other factors to be considered such as the consideration and link of the nature of economy to the size of the multiplier. These responses then made a strong link back to how the factors influenced policy decision making. Weaker responses tend to lack context, failed to consider relevant factors or did not make a link back to how their answer influenced the decision making process.



- 6** In 2019, Singapore overtakes US to become the most competitive economy. Singapore will need to improve the capabilities of the enterprises, transform industries and ensure that workers are well-equipped with the right skills to stay competitive. The global competitiveness of an economy can be improved by supply-side policies that attracts FDI which brings about innovation.

Source: Adapted from *Channel News Asia*, 9 Oct 2019

- (a) Explain how improving competitiveness will help Singapore achieve its macroeconomic goals. [10]
- (b) Discuss whether supply-side policies focusing on attracting FDI is the best approach to help Singapore maintain its global competitiveness. [15]

Suggested Answers for 2021 H2 Mid-Year Exam – Essay Q6

Question Analysis (3'Cs' Approach):

Command	Explain how Making clear of causal links, supported by economic analysis.
Content	Improving competitiveness will help to achieve macroeconomic goals like sustained economic growth, price stability, low unemployment and healthy balance of payment. What is improving competitiveness? How does it help SG to achieve such macroeconomic goals? What framework and tools of economic analysis to use?
Context	Singapore being an open and small economy. Small (without natural resources, only humans) and open economy who is heavily reliant on the trade sector as engines of growth.

Question Approach:

This question tests on the AD-AS analysis on how improving competitiveness will help to increase FDI and net exports which in turn lead to achieving sustained economic growth, price stability, low unemployment and healthy BOT for SG.

Suggested Answer:

Introduction:

Improving competitiveness can help a country to achieve macroeconomic goals. This would include the attainment of

- Sustained, Inclusive, Sustainable economic growth
- Low Inflation / Price Stability
- Low unemployment / Full Employment
- Healthy balance of payments

Singapore being a small and open economy that is export-oriented and heavily dependent on trade. Improving competitiveness in terms of capabilities of the enterprises, transform industries and ensure that workers are well-equipped with the right skills to stay competitive. All these can lead to attraction of investors and bring about **foreign direct investments (FDI)** and brings about **increase in net exports** that lead to the attainment of sustained economic growth and full employment. Furthermore, with a competitive export sector in terms of better quality for SG's exports, it will also help SG to achieve external macroeconomic performance.

Sustained Economic Growth (non-inflationary) + Full Employment

Firstly, Sg improving its competitiveness such as transforming the industries and ensuring workers are well equipped with right skills will be able to attract investors and bring about foreign direct investments (FDI) thus attaining sustained economic growth and full employment.

- With greater inflow of FDI, **investment expenditure increases** which in turn leads to an **increase in aggregate demand (AD)**. For example, when foreign MNCs relocate their operations in Singapore, they would have to purchase machinery and new capital goods in order to start production. The increase in investment spending and AD leads to an increase in real national output resulting in **actual growth**.
- In addition, with FDI inflows, quantity of capital stock in the country would increase as there are greater amount of factories and productive equipment. Not only will there be greater amount of factors of production to, **higher quantity of capital stock increases the capital-labour ratio leading to capital deepening** as each worker is equipped with machinery and equipment that **increases labour productivity**. As the quantity and quality of resources in Singapore increases, its productive capacity expands resulting in **potential economic growth**.

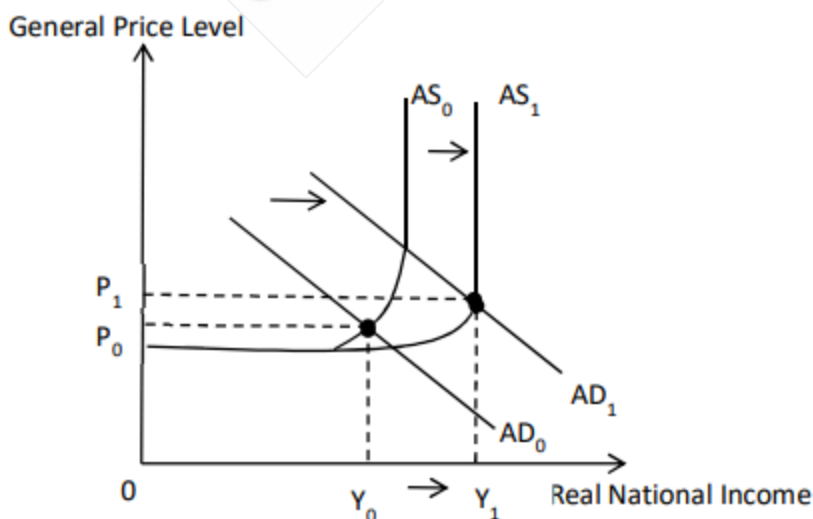


Figure 1: An increase in AS & AD

- The relocation of MNCs to Singapore would also create jobs for Singaporeans, lowering the level of unemployment.
 - For example, the location of many foreign banks and firms providing other financial services has created many jobs in the finance sector for Singapore.
- With an increase in AD, firms will respond by increasing the derived demand for FOP including labour, and in turn pay out more factor income, in order to increase production.
- With more income, this will also lead to a rise in income induced expenditure.
- This will lead to a multiplied increase in the real national income / national output via the multiplier effect, while general prices increase moderately as the rise in AD is supported with the rise in LRAS.
- This is important as it provides spare capacity for growth, and allows the country to achieve **sustained non-inflationary economic growth**.
- There will also be a **reduction in demand-deficient (cyclical) unemployment rate**.
- **With the workers being equipped with the right skills and when foreign companies set up here that requires certain skills, it can also help to reduce structural unemployment → hence overall unemployment rate will fall.**

Healthy BOP

Secondly, by transforming the industries and improving the capabilities of entrepreneurship, it will help to improve export sector would also help to achieve external macroeconomic performance. Transform our industries to ensure that our industries are relevant in the global market and able to produce goods for the global market, ensuring local entrepreneurs have increase capabilities in terms of production and hence able to experiences IEOS which will lower COP, able to price goods for exports at a lower price.

- Having a competitive export sector would mean Singapore's exports are price competitive, but are also of high quality, consisting largely of value-added, capital intensive or knowledge based services.
- Low prices of exports would mean that Singapore's exports are price competitive, which would boost export volume (quantity demanded of exports).
 - This would increase export revenue for Singapore.
- Likewise, producing high quality capital intensive or knowledge based goods and services would make them less substitutable due to the lack of competitors.
 - This would increase demand for exports, and would also increase export revenue.
- Moreover, increased export revenues would improve Singapore's balance of payments position, specifically in the current account. This would ensure Singapore's BOP is kept in a healthy position, maintaining external stability for the economy.

Price stability

Thirdly, by improving competitiveness where by ensuring the workers have the right skills will help to achieve price stability, full employment and healthy BOP.

- Focusing on having a skilled workforce
 - Prevent wage push inflation
- Having a highly skilled workforce might also improve occupational mobility
 - As workers have the basic literacy skills to learn new complex tasks
 - This prevents the mismatch between the skills workers have and what the job requires
 - Which helps to alleviate the onset of structural unemployment.
- A skilled labour force also represents one of our most important factor endowments.
 - This decreases the opportunity cost of producing knowledge based and capital intensive goods and services.
 - Our comparative advantage, and subsequent specialization into these goods and services, help boost export revenue, acting as an engine for growth in the economy.

Mark scheme

Knowledge, Understanding, Application and Analysis		
L3	<p>For a well-developed answer that thoroughly explains how improving competitiveness leads to SG achieving its macroeconomic goals.</p> <p>Answer demonstrates excellent knowledge and understanding of how improving competitiveness lead to attainment of macroeconomic goals using aggregate demand and aggregate supply analysis, including attainment of its internal and external goals.</p>	8 - 10
L2	<p>For an under-developed answer that explains how explains how improving competitiveness leads to SG achieving its macroeconomic goals.</p> <p>Answers may not have included both internal and external goals.</p>	5 - 7
L1	<p>For a largely irrelevant or smattering answer that demonstrates little/some knowledge & understanding of how improving competitiveness leads to SG achieving its macroeconomic goals.</p> <p>Answer may contain conceptual errors.</p>	1 - 4

Marker's Comments

Stronger responses were able to identify Singapore's nature of economy is small and open and this question has 2 parts to it. Stronger responses first identify relevant methods Singapore adopt to improve its competitiveness via FDI and increase quality of exports or maintain price competitiveness of exports and secondly able to link these methods to the attainment of growth. There is a need to elaborate on how to increase FDI and particularly net exports. Some answers lacked methods that Singapore had undertaken to increase both FDI and/or net exports. Answers should contain scope of both methods on how to increase FDI and were not stated clearly. Weaker answers lacked development of answer to show how such methods lead to attainment of both internal and external goals.

Discuss whether supply-side policies focusing on attracting FDI is the best approach to help Singapore maintain its global competitiveness. [15]

Question Analysis (3'Cs' Approach):

Command	'Discuss' (whether) 2 sided arguments + Stand. Support answers with economic analysis
Content	<p>Approaches can be supply side or demand side to help SG maintain its global competitiveness.</p> <p>Supply side policies such as focusing to attract FDI how it help SG to maintain its global competitiveness and other supply side policies such as improving labour productivity and demand side approaches would also help in short run.</p> <p>What the different approaches SG can adopt? How will supply-side policies focusing on attracting FDI (which also brings about innovation) works to help SG maintain its global competitiveness? What are the constraints SG might face if it wants to maintain its global competitiveness? Hence suggest what other approaches could be adopted. What are the criteria to come to a conclusion which is the best approach for Singapore?</p>
Context	<p>Singapore</p> <p>Approaches suggested should be applied to Singapore context.</p>

Question Approach:

This question tests on the various approaches to help SG to maintain its global competitiveness. Supply sides policies like attracting FDI that brings about innovation may not be the best approach as there are other ways that SG can adopt such as other supply-side policies and even demand-side policies in the SR. Student must consider what SG is/will be facing if it wants to maintain its global competitiveness - such as labour productivity and constraints such as infrastructure restrictions hence need to consider other approaches. Students have to apply to Singapore context and come to a conclusion on which is the best approach with clear criteria and justification to weigh among the different approaches for importance in consideration.

Suggested Answer

Supply side policies focusing on attracting FDI which brings about innovation helps Singapore to maintain its global competitiveness.

Supply-side policies focusing on attracting FDI is a good approach for Singapore to maintain its global competitiveness as it will help to improve the qty, qly of capital and level of technology with innovation that it brings about.

Why:

Singapore has a small domestic market and small pool of local entrepreneurs. Singapore is also a financial hub with little or no capital controls. FDI is hence an important source of investment for Singapore, and can help supplement domestic investment. FDI can bring in more innovation which might be limited if just dependent on domestic market.

Benefits:

Supply-side policies focusing on attracting FDI through tax holidays/ grants, removing or reducing restrictions imposed on FDI, no limits on foreign ownership, removal of complex rules and regulations and screening procedures on inward FDI, foreign enterprises would now find it easier and more attractive to invest in Singapore because they can retain a relatively larger portion of their profits earned, hence able to invest in different sector of the economy, bringing much needed capital, skills and technology, and spurs innovation within the domestic market.

For example: The Pioneer Certificate Incentive (PC) and the Development and Expansion Incentive (DEI) are aimed at encouraging companies to grow capabilities and conduct new or expanded activities in Singapore. Approved company under the PC or DEI is eligible for a corporate tax exemption or a concessionary tax rate of 5% or 10%, respectively, on income derived from qualifying activities. The incentive period is limited to five years.

Attracting FDI rather than focusing just on domestic sources of capital accumulation is that FDI not only often brings in foreign capital, but also foreign technology and knowledge, thus spurring innovation to take place.

FDI will allow resource and technology transfer. This allows for the host country to experience an increase in productive capacity at a faster pace, compared to relying on domestic investments alone.

Domestic firm's faces more competition hence will also likely innovate to keep up, spurring more innovation.

This ensures that our level of technology, Qty and Qly of capital high and we can continue to sustain our competitiveness through the encouragement of investments from foreign companies.

Limitations of supply side policies focusing on attracting FDI which brings about innovation.

- Difficulty in removing tax concession, opp cost of supporting investment by foreign firms than local firms.
- Massive attraction of FDI and the entrance of foreign firms may result in these short run consequences:

- Higher structural unemployment in the short run, possibly due to the adoption of capital-intensive methods of production in which workers may not be able to keep up with.
- Perceived inequality between foreign and domestic firms, particularly when foreign firms have advantage of scale of operations and skilled labour.
- New innovations and workers does not possess relevant skills to adopt such technology and structural unemployment. Thus, the government must consider if the long-run benefits of transference of knowledge from the foreign firm to local labour force outweighs the short-term costs of rising unemployment.

Other supply-side policy focusing on Education and Labour Training Programmes

The Singapore government maintains the competitiveness of the economy by improving the quality of education and enacting labour training programmes which also helps to reduce structural unemployment that might be brought about by inflow of FDI and foreign talent.

Why:

Singapore is a city state with a small population, with falling birth rates. Adding to that, its population is also ageing, which means over time, its labour force will start shrink as well. Hence, focusing on having a skilled workforce is especially important to prevent wage push inflation, improve occupational immobility and helps too develop knowledge-based, capital intensive comparative advantages

Benefits:

Having a highly skilled workforce might also improve occupational mobility as workers would have the basic literacy skills to learn new complex tasks that are required when FDI enters and bring in new technology. This prevents the mismatch between the skills workers have and what the job requires which helps to alleviate the onset of structural unemployment.

A skilled labour force also represents one of our most important factor endowments. This decreases the opportunity cost of producing knowledge based and capital intensive goods and services. Which improves our comparative advantage, and subsequent specialization into these goods and services, help boost export revenue, acting as an engine for growth in the economy.

The SkillsFuture Programme which provides all Singaporeans aged 25 and above will be given \$500 worth of credits to be spent on registered training and upgrading courses. These courses improve the quality of human capital in Singapore. The SkillsFuture programme ensure that workers currently in the workforce are kept up to date with new technologies and new jobs, as old ones may become obsolete This ensures that our labour force is kept competitive even though it is ageing.

Keeping the cost of university education low and affordable and providing bursaries ensure that tertiary education is kept affordable for more Singaporeans. Singaporeans can then be able to take on complex, high skilled jobs in value added sectors

These schemes help increase the productivity of the firms and help lower their per unit cost of production. This would also improve the quality of human capital and labour in Singapore, making our economy more competitive as a result.

Therefore, supply side policies focusing upskilling workers are key to Singapore's global competitiveness and attainment of its macroeconomic goals. In particular, in the long run, to ensure we can continue to sustain our competitiveness through the encouragement of labour that are skilled.

Limitations of Supply-side policies focusing on education and retraining

- However, the cost of these programmes are not insignificant.
- The government may have to divert funds away from other pressing needs, such as subsidizing healthcare for the aged, or developing our transport network
- These alternatives forgone are also important as they improve standard of living and the mobility of factors of production.
- In addition, labour training and education programmes have to be sustained for a long period of time before any of them bear fruit.
- Deep skills take time to learn, and workers have to also learn on the job to achieve mastery.
- Meaningful changes made to tertiary education are slow, as students and teachers adapt to new industry needs and competencies
- This means any gains in competitiveness are not visible at least until years later.
- The outcomes of some training programmes are also uncertain.
- They depend on the receptivity of the workforce and of the employees.
- Employees might not be receptive to training as it might mean loss of income during the training period
- Employers or firms might be sceptical of the effects of training, and might not want to send workers for training especially during times where workers are needed for production.

Therefore, while the policy may sound impressive in theory, in reality they require buy-in from workers and firms and it may be difficult.

Other approaches-demand-side policies may be alternative in the short run.

- Spending on infrastructure (Expansionary Fiscal Policy)
- Exchange rate policy (zero-appreciation or gradual and modest appreciation → used to keep imported inflation at bay → keeping COP low for producers.)

During severe recession, to maintain our global competitiveness it can be helped by keeping the prices of our exports low, Singapore should directly reduce the price of our exports in terms of foreign currency through a depreciation of the Singapore dollar.

Hence a depreciation of the Singapore dollar during times of recession, will help boost our global competitiveness and increase our export demand which will boost our aggregate demand and actual economic growth.

Limitations of exchange rate policy to help SG maintain global competitiveness:

It is still a short run measure to help sg maintain its global competitiveness as depreciation of the Singapore dollar would lead to higher import prices in terms of Singapore dollars. This would hence increase the cost of production of many of our industries since sg is import dependent. This would lead to a fall in Short Run Aggregate Supply (SRAS) and a rise in General Price level and cost push inflation in the economy → if inflation is relatively higher than other countries, it will not help to a great extent.

Conclusion:

The only way to maintain our global competitiveness in the long run is through our supply side policies. This is largely done by the Singapore government through attraction FDI, spurring innovation, transforming industries and efforts to increase R and D as well as retraining of workers. Focusing on developing the capabilities and competitiveness of its own local producers in face of foreign competition helps local enterprises grow and develop their capabilities to compete in the world market. Supply side approaches is the best approach but in the short-run not sufficient just to depend on Supply-side policies as there might be circumstances like recession.

Singapore being an advanced developing nation and high income country, our exports are being competed based on quality rather than prices in the global market. Therefore, demand management policies will just be a short run measure and will not have significant impact on helping to improve quality of exports or attracting significant FDI inflow. Thus supply side policies is the main policy to attract FDI and attract research and development here and helps to spur innovation which ultimately helps to improve quality of exports, thus allowing us to maintain global competitiveness.

Mark Scheme

Knowledge, Understanding, Application and Analysis		
L3	For a well-developed answer that shows thorough knowledge and explanation of how supply-side policies focusing on attracting FDI and other supply side approaches or even demand management policies can help SG in SR to maintain its global competitiveness. There is good application to the Singapore context.	8 - 10
L2	For an under-developed answer explains of how supply-side policies focusing on attracting FDI and other approaches can help SG to maintain its global competitiveness. Answers may not have applied to the Singapore context.	5 - 7

L1	For an answer that shows some knowledge of how supply side policies such as attracting FDI can help SG maintain its global competitiveness or some of the the different approaches that SG can adopt.	1 - 4
Evaluation		
E3	For an answer that arrives at an analytically well-reasoned judgement.	4-5
E2	For an answer that makes some attempt at evaluation, but does not explain adequately their judgement.	2-3
E1	For an answer that gives an unexplained, unsupported evaluative statement.	1



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