



**SMILE**Tutor  
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# 2022

## PRIMARY 4 SCIENCE

### TEST PAPERS

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## HENRY PARK PRIMARY SCHOOL MYE PAPER

### Section A (56 marks)

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

1. Mrs Tan has a dog. When Mrs Tan throws a ball, the dog runs after it.

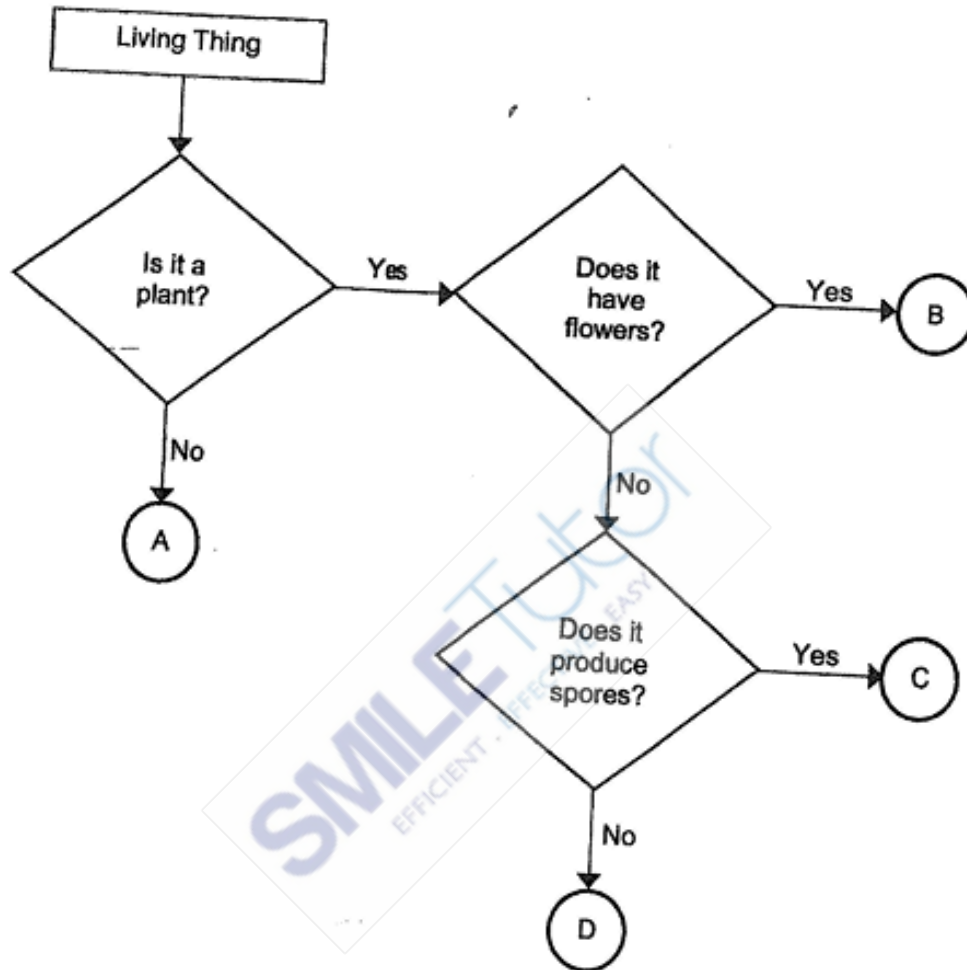


Based on the information given, what characteristic(s) of living things do/does the dog show?

- A It can grow.
- B It can reproduce.
- C It can respond to changes.

- (1) C only
- (2) A and B only
- (3) B and C only
- (4) A, B and C

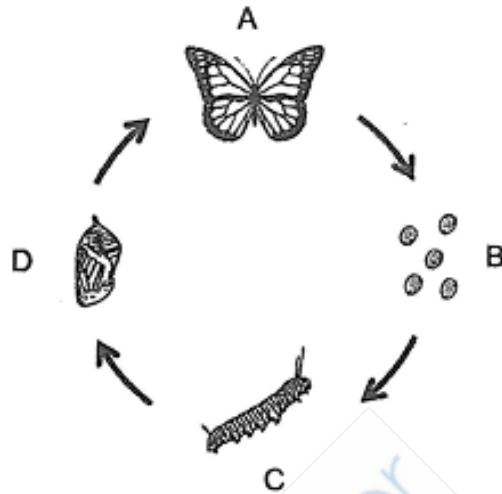
2. Study the flowchart below.



Which of the letters, A, B, C or D, best describes a bird's nest fern?

- (1) A
- (2) B
- (3) C
- (4) D

3. The diagram below shows the life cycle of an animal.



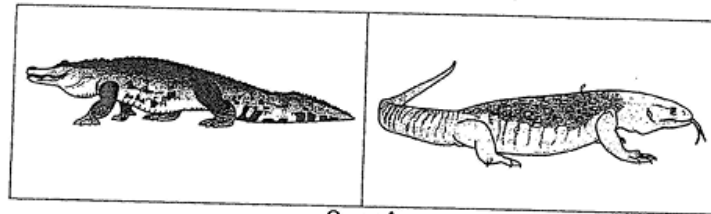
The diagram below shows the change in a leaf.



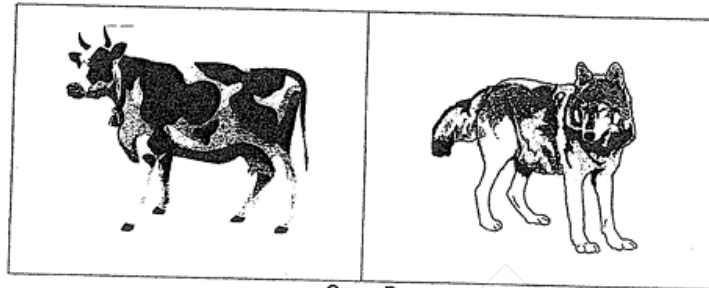
Which stage of the life cycle of the animal, A, B, C or D, had most likely caused the change in the leaf?

- (1) A
- (2) B
- (3) C
- (4) D

4. Study the two groups of animals, A and B, below.



Group A

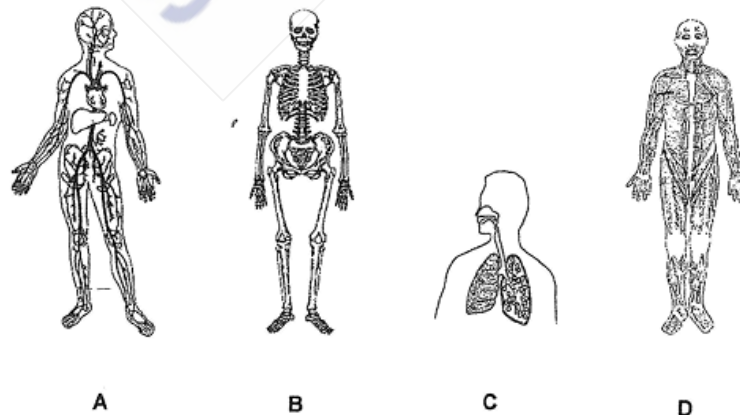


Group B

Which of the following describes the animals in groups A and B correctly?

Group A		Group B	
Covered with scales	Give birth to young	Covered with scales	Give birth to young
(1) No	No	No	Yes
(2) Yes	No	No	Yes
(3) No	No	Yes	Yes
(4) Yes	Yes	No	No

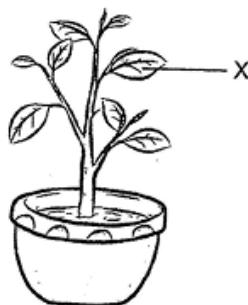
5. The figure below shows different body systems of the human body.



Which two systems work together to create movement?

- (1) A and B
- (2) A and D
- (3) B and C
- (4) B and D

6. Four students, A, B, C and D, made the following statements about the main functions of part X found in a young plant as shown below.

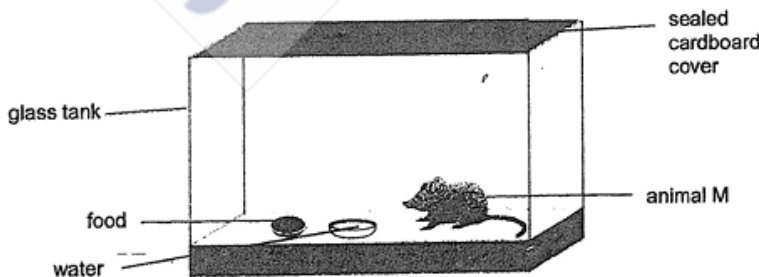


Student	Statement
A	It makes food for the plant.
B	It supports the branches and the leaves.
C	It takes in water and mineral salts from the soil.
D	It holds the plant firmly to the soil.

Which student(s) made the correct statement(s)?

- (1) A only
- (2) C only
- (3) A and C
- (4) B and D

7. Sunny kept animal M in a glass tank with a sealed cardboard cover to prevent it from escaping. He gave the animal M some food and water as shown in the diagram below.

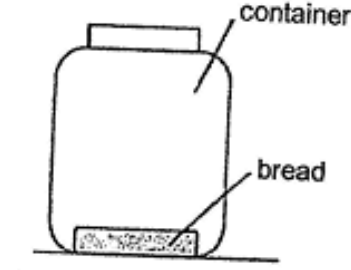
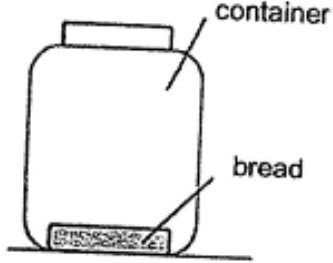

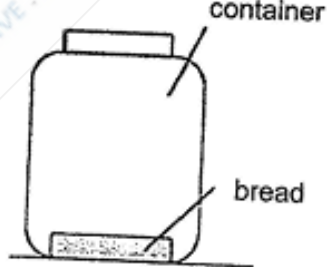


Sunny observed that animal M died after 6 hours.

Which of the following should he do to ensure that the animal M can survive for a longer period?

- (1) Provide animal M with more food.
- (2) Provide animal M with more water.
- (3) Make some holes in the sealed cardboard cover.
- (4) Change the cardboard to a glass cover to allow light to enter the tank.

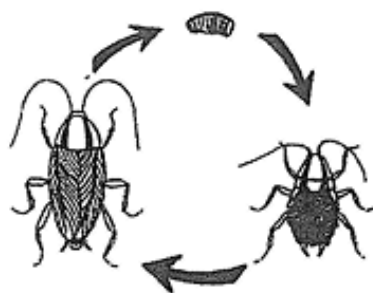
8. Kim Seng placed four similar slices of bread in four similar containers as shown below. All four containers were closed tightly.

<p>set-up A</p> 	<p>set-up B</p> 
bread sprinkled with 6 drops of water and placed on the table	bread sprinkled with 6 drops of water and placed in the refrigerator
<p>set-up C</p> 	<p>set-up D</p> 
bread toasted and placed on the table	bread toasted and placed in the refrigerator

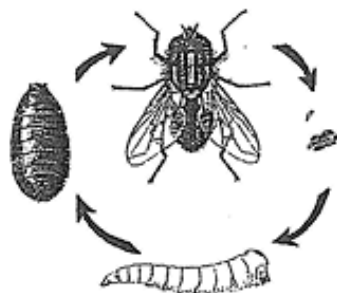
In which set-up would fungi grow fastest on its bread?

- (1) A
- (2) B
- (3) C
- (4) D

9. The diagrams show the life cycles of two different animals.



Life cycle of animal X



Life cycle of animal Y

Based on the diagrams above, which of the following statements can be observed from the life cycles of the animals?

- A Both animals lay eggs.
- B Both life cycles have a nymph stage.
- C The young of animal Y does not resemble its parent.
- D Animal X has a 3-stage life cycle but animal Y has a 4-stage life cycle.

- (1) D only
- (2) A and C only
- (3) A, C and D only
- (4) A, B, C and D



10. The table below describes the characteristics of the life cycles of four animals, P, Q, R and S.

Characteristic	Animal P	Animal Q	Animal R	Animal S
It has a 4-stage life cycle.	✓	×	×	×
The eggs are laid on land.	✓	✓	✓	×
The young looks like the adult.	×	✓	×	✓

A tick (✓) indicates that the characteristic is correct and a cross (×) indicates that the characteristic is wrong.



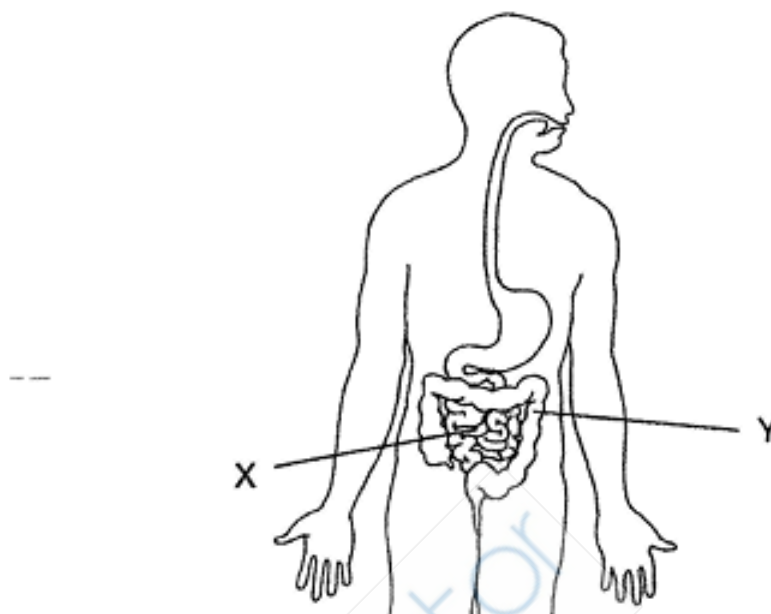
chick

Which of the following animals is likely to be the chick?

- (1) Animal P
- (2) Animal Q
- (3) Animal R
- (4) Animal S



11. The diagram below shows a human digestive system.



Which of the following statements about X and Y are correct?

- A Water is absorbed in organ Y.
- B Digestion is completed in organ X.
- C Digestion is completed in organ Y.
- D Digested food is absorbed into the bloodstream in organ X.

- (1) A and C only
- (2) A and D only
- (3) B and D only
- (4) A, B and D only

12. The classification table below shows the various systems in the human body and their functions.

System	P	Q	Digestive
Function	Protects the organs in the body.	Carries waste materials away from different parts of the body.	S
	Gives the body its shape.	R	

Some information was left out.

Which of the following sets best represents the letter P, Q, R and S?

	P	Q	R	S
(1)	Skeletal	Respiratory	Removes carbon dioxide from the body.	Breaks down food into simpler substances.
(2)	Muscular	Respiratory	Takes oxygen into the body.	Carries food, water and oxygen to all parts of the body.
(3)	Skeletal	Circulatory	Carries food, water and oxygen to all parts of the body.	Absorbs digested food so that it can be used by the body.
(4)	Muscular	Circulatory	Takes oxygen into the body.	Breaks down food into simple substances.

12. The classification table below shows the various systems in the human body and their functions.

System	P	Q	Digestive
Function	Protects the organs in the body.	Carries waste materials away from different parts of the body.	S
	Gives the body its shape.	R	

Some information was left out.

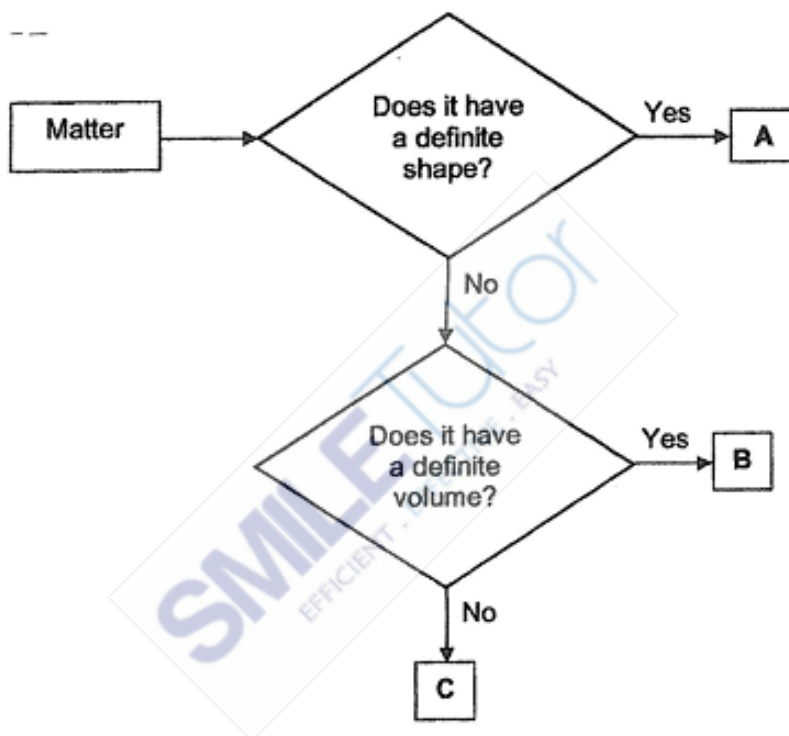
Which of the following sets best represents the letter P, Q, R and S?

	P	Q	R	S
(1)	Skeletal	Respiratory	Removes carbon dioxide from the body.	Breaks down food into simpler substances.
(2)	Muscular	Respiratory	Takes oxygen into the body.	Carries food, water and oxygen to all parts of the body.
(3)	Skeletal	Circulatory	Carries food, water and oxygen to all parts of the body.	Absorbs digested food so that it can be used by the body.
(4)	Muscular	Circulatory	Takes oxygen into the body.	Breaks down food into simple substances.

13. What do solids, liquids and gases have in common?

- (1) They have mass and occupy space.
- (2) They occupy space and have no mass.
- (3) They have definite shape and definite volume.
- (4) They have definite volume but no definite shape.

14. The following flow chart is used to classify three substances, A, B and C.

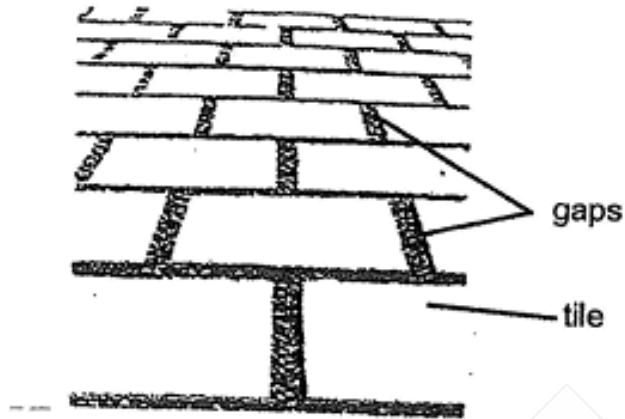


Based on the information given, which one of the following is likely to be substances A, B and C?

	A	B	C
(1)	sand	air	honey
(2)	oil	sand	ice
(3)	sand	honey	air
(4)	ice	air	oil

P4 SA1 SC 2022

15. The diagram below shows part of a pavement with gaps.



What will happen to the size of tiles and gaps on the pavement on a very hot day?

Size of		
	tiles	gaps
(1)	increase	increase
(2)	increase	decrease
(3)	decrease	decrease
(4)	decrease	increase

16. Wood is used to build houses as shown below.

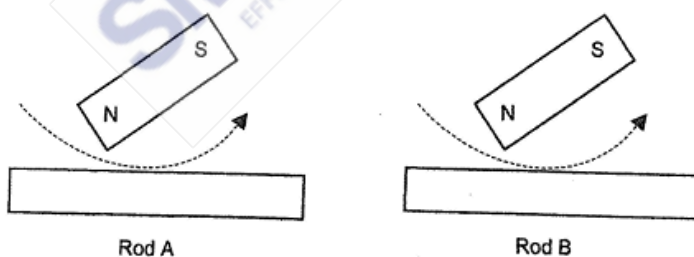


Houses built using wood can withstand wind and heavy rain.

Why is this so?

- (1) Wood is strong.
- (2) Wood is flexible.
- (3) Wood is able to float.
- (4) Wood does not allow light to pass through.

17. Tom stroked two similar iron rods, A and B, with the same magnet as shown below.



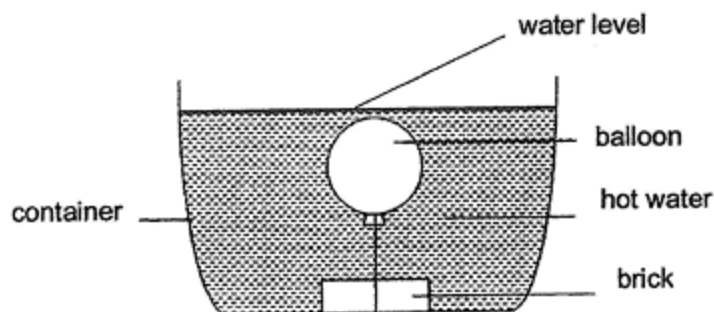
Both rods became magnets. Rod A attracted more pins than rod B.

Which of the following shows the possible number of strokes used for rods A and B respectively?

	Rod A	Rod B
(1)	40	40
(2)	40	15
(3)	15	40
(4)	15	15



18. Mrs Lim conducted an experiment using the set-up as shown below.

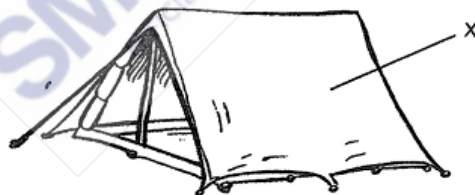


After some time, she observed that both the size of the balloon and the water level in the container increased.

Which one of the following explains why the water level in the container increased?

- (1) The balloon expanded and increased in mass.
- (2) The hot water expanded and occupied more space.
- (3) The hot water increased in mass and occupied more space.
- (4) The air in the balloon expanded and occupied more space in water.

19. The diagram below shows a tent.



Study the properties of the four materials shown below.

Material	Properties of material		
	Waterproof	Flexible	Strong
A	✓		✓
B	✓	✓	✓
C	✓	✓	
D		✓	✓

Which material is most suitable for making part X of the tent?

- (1) A
- (2) B
- (3) C
- (4) D

20. Jenny conducted an experiment on four different materials, A, B, C and D. The materials are of the same size and mass.

Jenny measured the mass of each material before placing each one of them in a container of water. She measured the mass of each material immediately after removing them from the container.

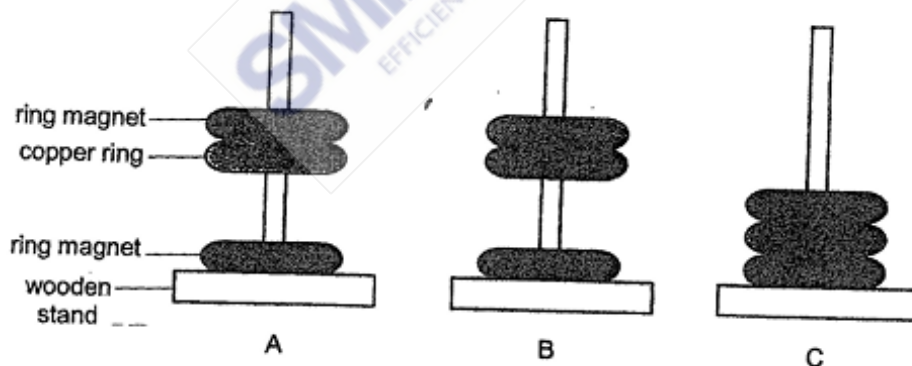
She recorded her observations in the table shown below.

Material	Mass <u>before</u> placing in the container (g)	Mass <u>after</u> removing from the container (g)
A	130	320
B	130	250
C	130	220
D	130	190

Based on Jenny's results, which material, A, B, C or D, is most suitable to make a bath towel?

- (1) A
- (2) B
- (3) C
- (4) D

21. Two ring magnets and a copper ring are slotted in a wooden stand as shown below.

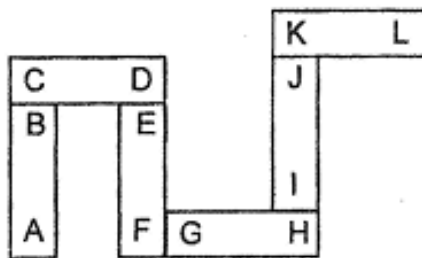


Which of the following observations below is / are possible?

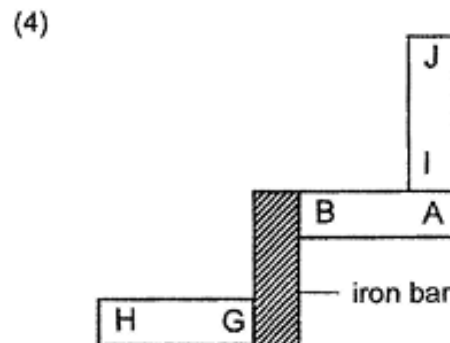
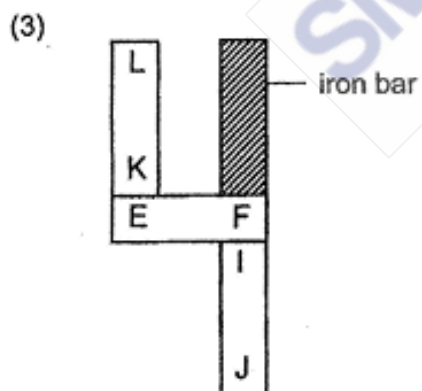
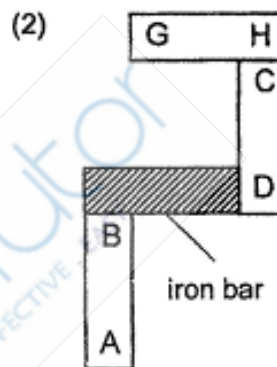
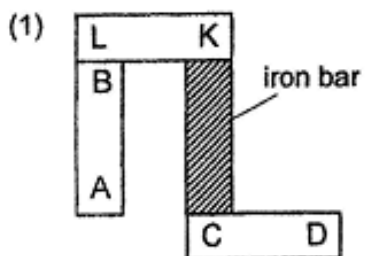
- (1) B only
- (2) A and B only
- (3) B and C only
- (4) A, B and C only



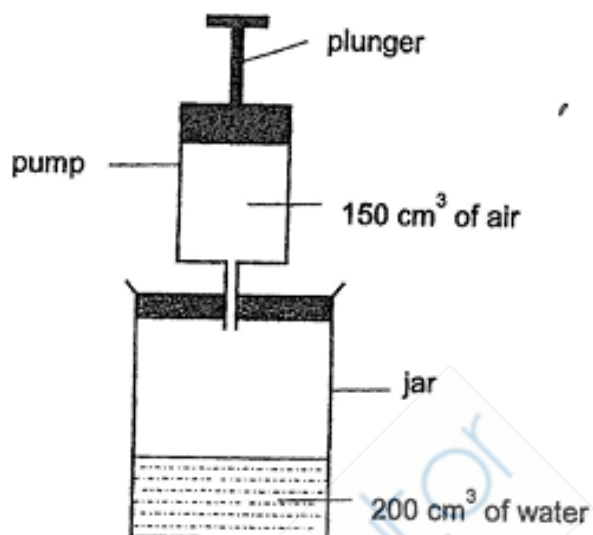
22. Bar magnets are arranged as shown below.



The bar magnets were then re-arranged with an iron bar added. Which of the following arrangements shown below is possible?



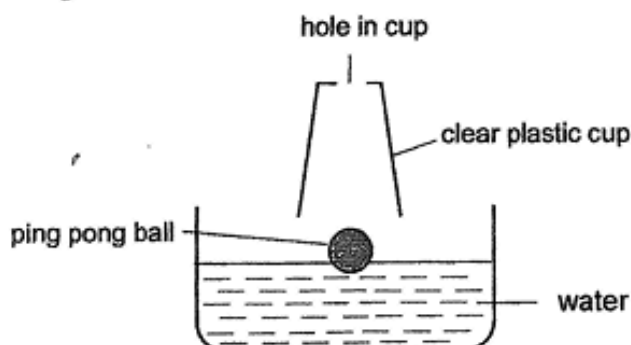
23. The diagram below shows a  $500\text{ cm}^3$  jar containing  $200\text{ cm}^3$  of water and a pump containing  $150\text{ cm}^3$  of air. When the plunger is pushed all the way down, the air in the pump goes into the jar.



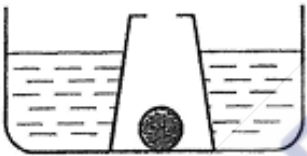
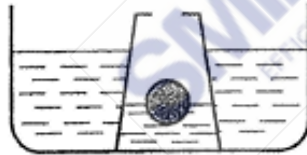
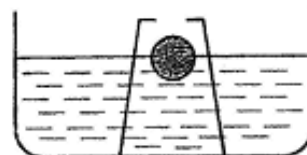
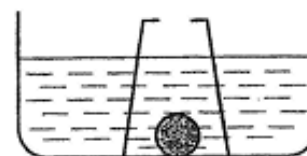
What is the amount of space occupied by air in the jar after the plunger is pushed down?

- (1)  $150\text{ cm}^3$
- (2)  $300\text{ cm}^3$
- (3)  $450\text{ cm}^3$
- (4)  $500\text{ cm}^3$

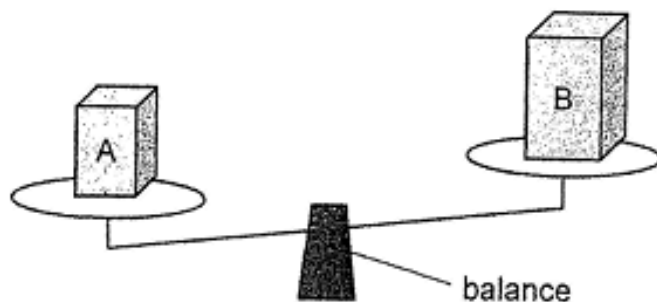
24. Bala lowered an inverted clear plastic cup with a hole at its base into the water with a ping pong ball floating on it.



Which of the following shows the correct observation that Bala would make and the reason for the observation?

	Observation	Reason
(1)		The cup is filled with air and thus water cannot enter.
(2)		The cup is filled with air. As air can be compressed, some water can enter the cup.
(3)		Water enters the cup and occupies the space as air has escaped. The ping pong ball will float on water as it is filled with air.
(4)		Water enters the cup and occupies the space as air has escaped. The ping pong ball will sink in water as it is filled with air.

25. Jimmy placed objects A and B on a balance and it tilted as shown in the diagram below.



He then repeated the experiment by placing objects A and C on the balance and it tilted as shown in the diagram below.



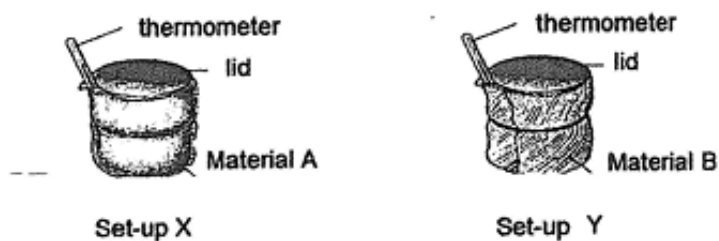
Which of the following statements is not correct?

- (1) Object C is the heaviest.
- (2) Object B is the lightest.
- (3) Object B has the largest volume.
- (4) Objects B and C have the same volume.

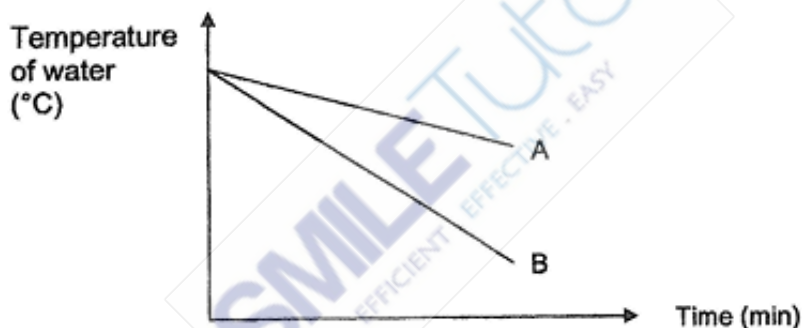
26. Joo Seng conducted an experiment using two similar glass beakers.

In set-up X, he wrapped the glass beaker with material A.

In set-up Y, he wrapped the glass beaker with material B. He filled both beakers with the same volume of hot water at  $80^{\circ}\text{C}$ .



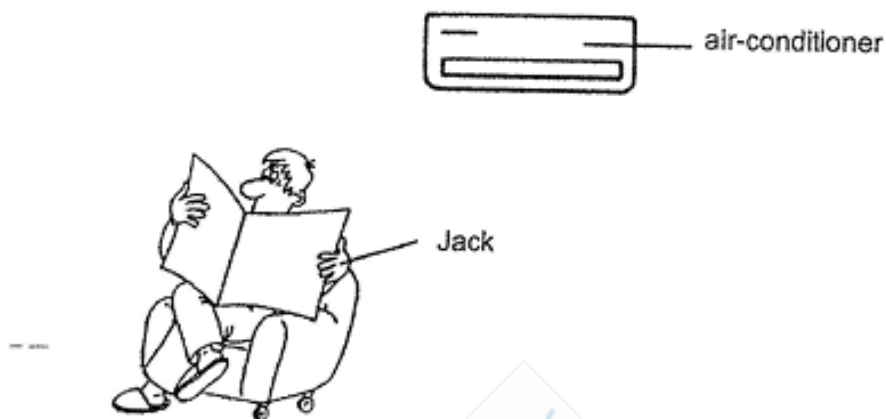
The graph shows the temperature in both set-ups over 15 minutes.



Which one of the following describes the use of material A or B correctly?

- (1) Material A can be used to make an ice box to keep ice for a longer period of time.
- (2) Material A can be used to make a cooking pot as it is a better conductor of heat.
- (3) Material B can be used to make the handle of a cooking pot as it is a poorer conductor of heat.
- (4) Material B can be used to make a lunchbox as it can keep food warmer for a longer period of time.

27. Jack entered a room with an air-conditioner which was already switched on as shown in the diagram below. After a few minutes, he felt very cold.

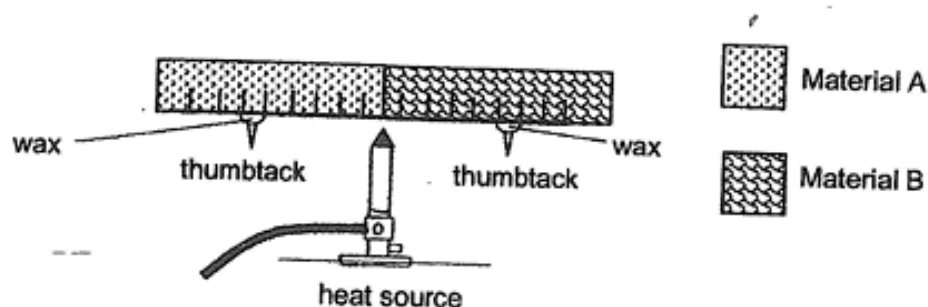


Which one of the following correctly explained why Jack felt cold?

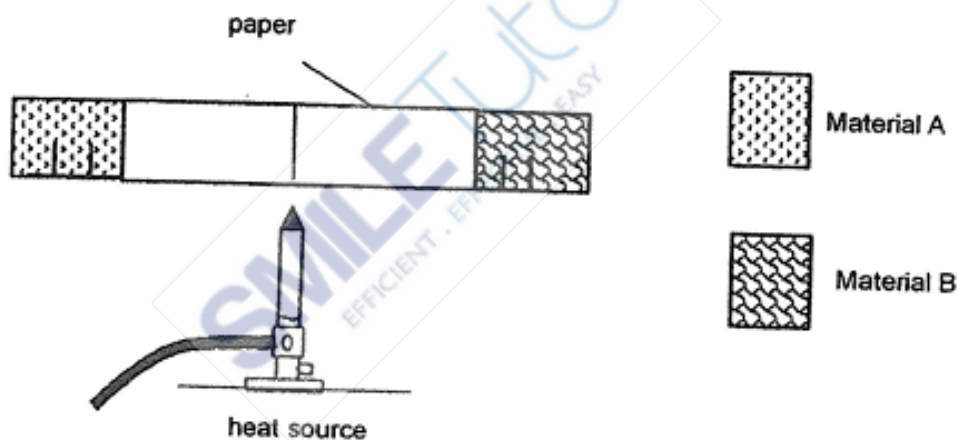
- (1) Jack lost heat to the cold air in the air-conditioned room.
- (2) The cold air in the air-conditioned room lost heat to Jack.
- (3) Jack gained heat from the cold air in the air-conditioned room.
- (4) Jack gained heat from the warm air in the air-conditioned room.



28. Mary prepared the set-up shown below using the same amount of wax to hold the identical thumbtacks on the materials A and B respectively. The materials have similar length and the thumbtacks were placed at equal distance away from the heat source. Mary observed the thumbtack on material B drop off first.



Next, she wrapped a piece of paper round materials A and B as shown below and put over a heat source. She observed the piece of paper after three minutes.



Which of the following provides the correct observation and explanation?

	Observation	Explanation
(1)	The paper on material A would burn.	Material A conducted heat to the paper more quickly
(2)	The paper on material A would burn.	Material A conducted heat away from the paper more slowly.
(3)	The paper on material B would burn.	Material B conducted heat to the paper more quickly.
(4)	The paper on material B would burn.	Material B conducted heat away from the paper more slowly.

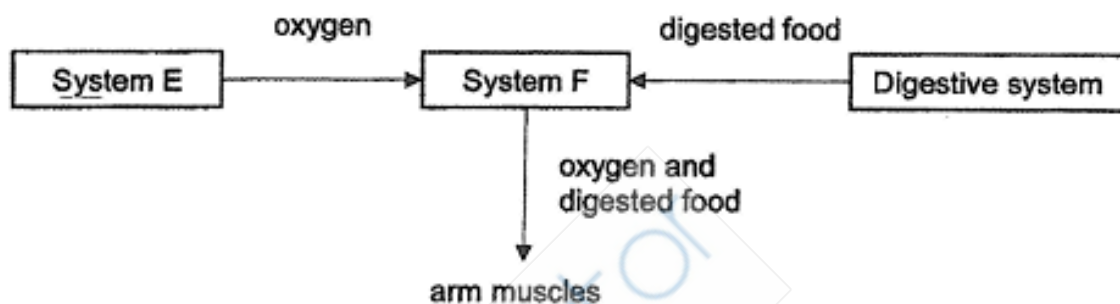
End of Booklet A

## Section B (44 marks)

For questions 29 to 40, write your answers in the space provided.

The number of marks available is shown in brackets [ ] at the end of each question or part question.

29. The diagram shows how some substances are transported in the human body to provide energy for the arms to bend.



- (a) Based on the information given, identify systems E and F. [2]

(i) System E: \_\_\_\_\_ system

(ii) System F: \_\_\_\_\_ system

- (b) Name an organ that can be found in system E. [1]

\_\_\_\_\_

- (c) State the function of the stomach in the digestive system. [1]

\_\_\_\_\_

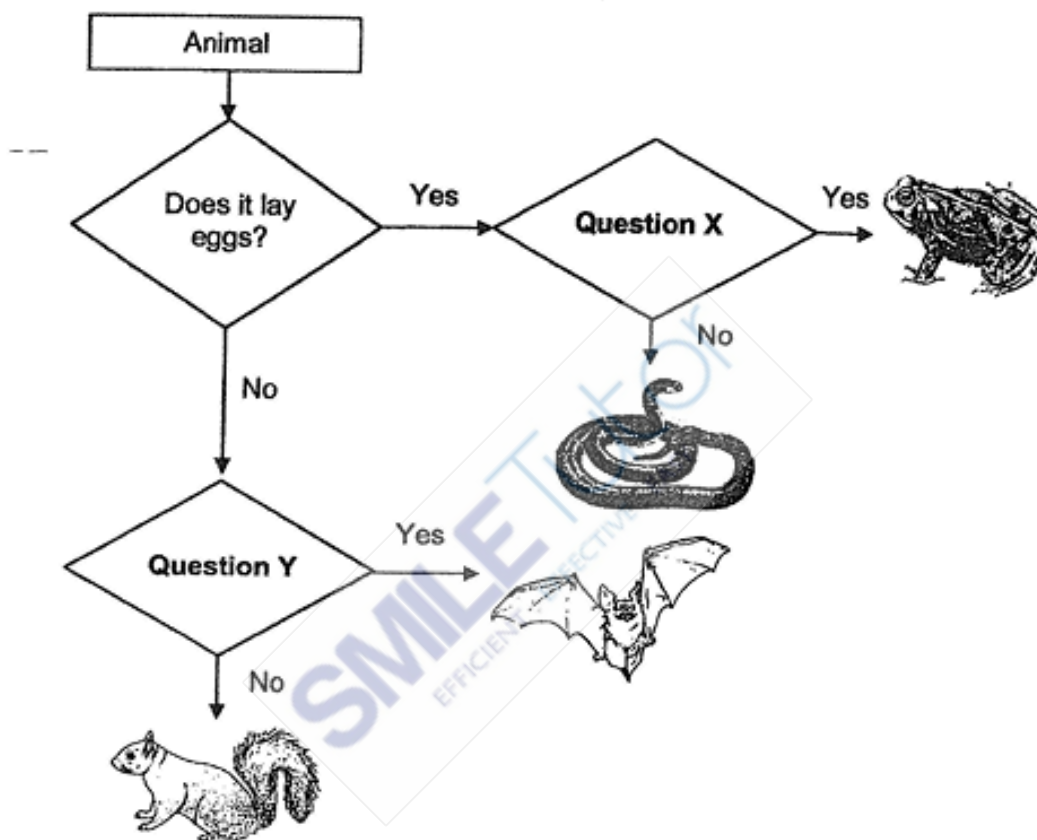
\_\_\_\_\_



30 (a) Why do living things reproduce?

[1]

Study the flow chart shown below.



(b) Based on the diagram given, write down a possible question for X and Y.

[2]

Question X:

Question Y:

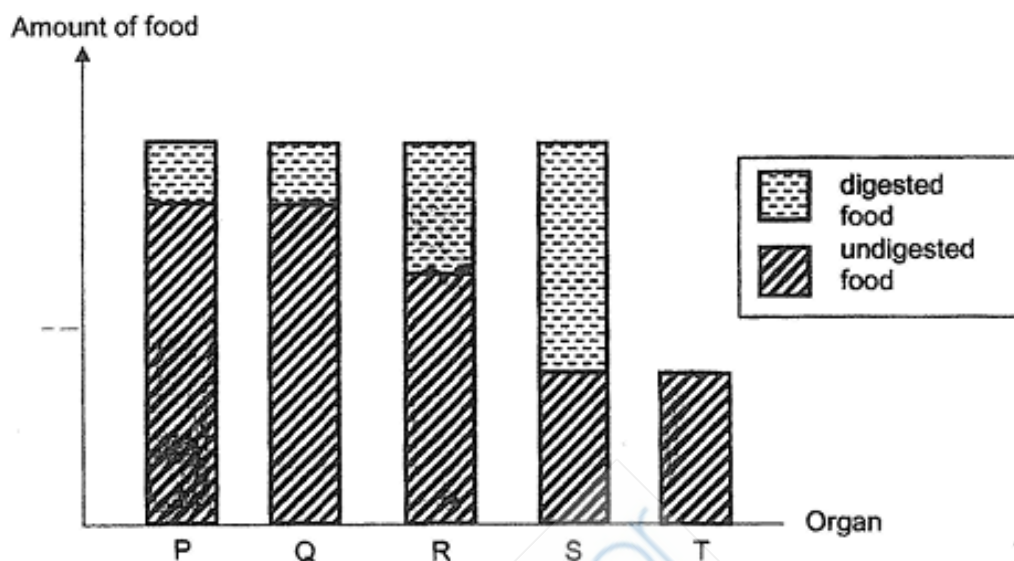
(c) Name two physical characteristics that would confirm that an animal is an insect.

[1]

(i)

(ii)

31. The graph shows the changes in the amount of digested and undigested food as it moved through the different organs, P, Q, R, S, and T of the human digestive system.



- (a) Name organ P. [1]

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- (b) Based on the graph, state whether digestion occurs in organ Q. [2]

Give a reason for your answer.

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- (c) Explain how the graph shows that organ S has absorbed the digested food. [1]

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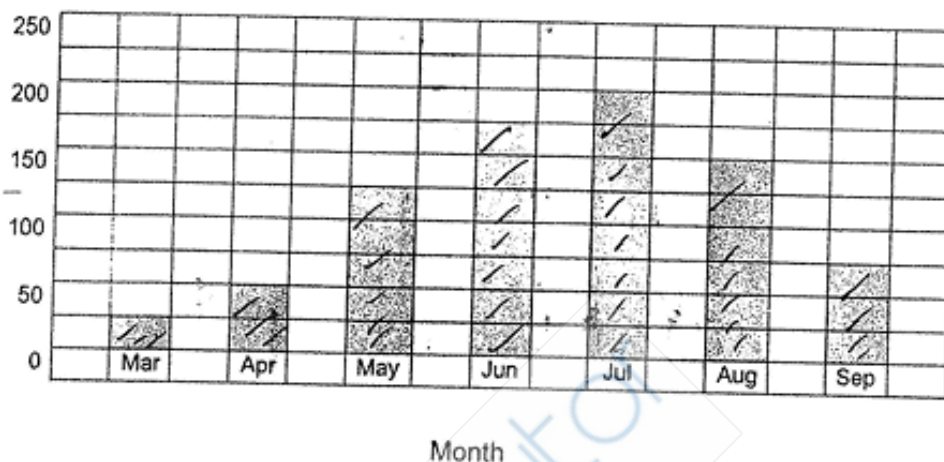


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32. Dengue fever is spread by the Aedes mosquito.  
 In town Z, the number of dengue cases is affected by the amount of rainfall as shown in the graphs below.

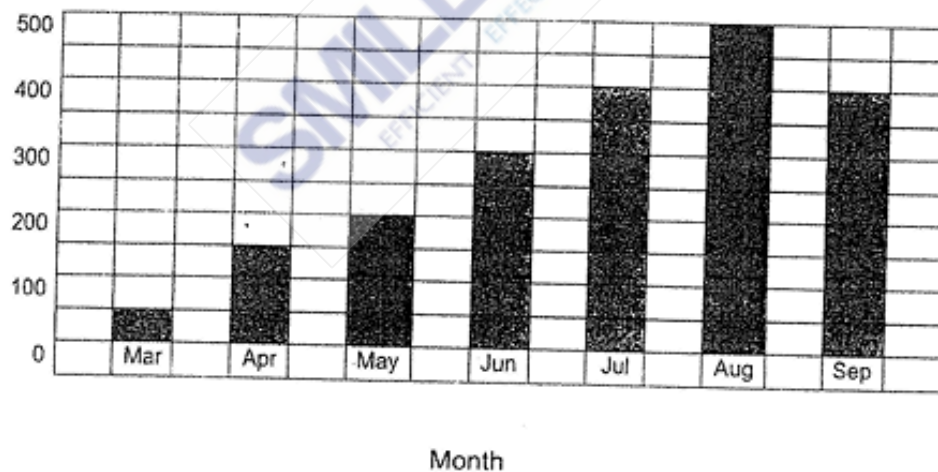
**Graph 1: Amount of rainfall**

Amount of rainfall (unit)



**Graph 2: Number of Dengue cases**

Number of dengue cases



- (a) What is the relationship between the amount of rainfall and the number of dengue cases from March to July? [1]

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P4 SA1 SC 2022

Question 32 continued

- (b) Give a reason for your answer in (a).

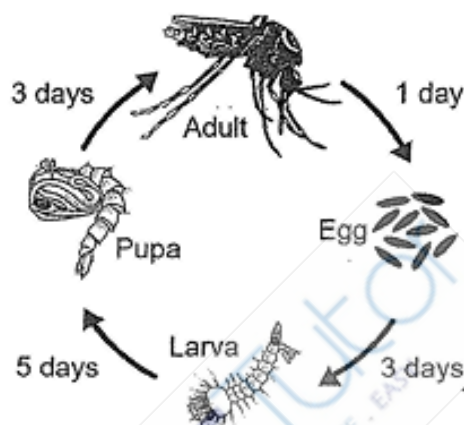
[1]

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The diagram shows the stages in the lifecycle of the Aedes mosquito.



- (c) Based on the information given, how many days does it take for the mosquito to reach adult stage after the eggs are hatched? [1]

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The number of dengue cases takes about three to four weeks to change after the amount of rainfall changes.

Dengue fever starts to develop about two weeks after a person is bitten by Aedes mosquito.

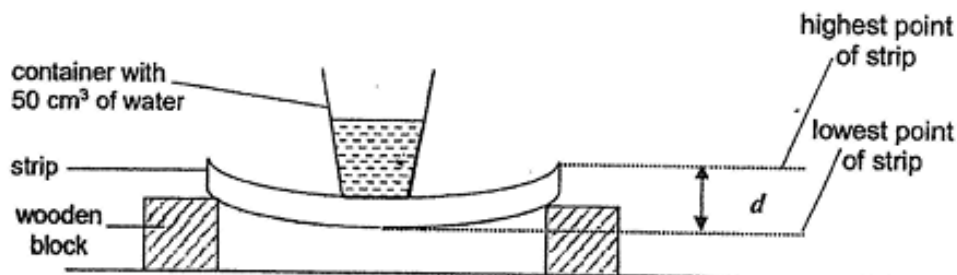
- (d) Based on the information given, suggest another reason why the number of dengue cases does not change **immediately** after the amount of rainfall changes. [1]

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33. Alvin set up an experiment as shown below to compare the flexibility of three similar strips, A, B, and C, each made of a different material.



For each strip, he added 50 cm<sup>3</sup> of water into the container and measured the distance  $d$ . The distance,  $d$ , between the highest and lowest points of the strip was measured. His results are shown below.

Strip	Amount of water added into the container (cm <sup>3</sup> )	$d$ (mm)
A	50	29
B	50	37
C	50	8

The diagram shows part of a bookshelf.



Based on the results given, which strip, A, B or C, is the most suitable for making part Y in the diagram shown above? [2]

Explain your answer.

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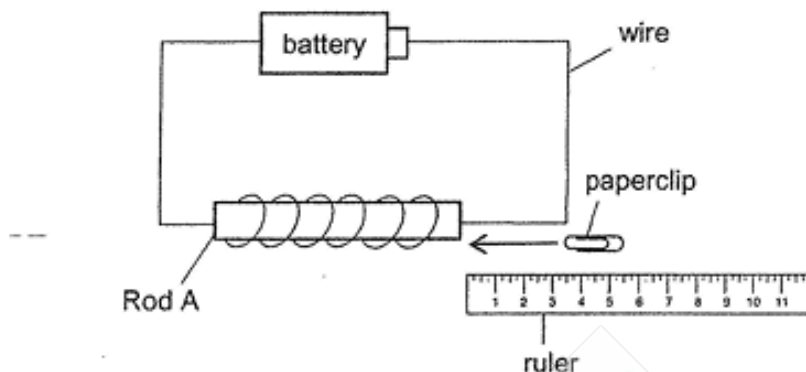


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34. Peter made three electromagnets using rods A, B and C, each of the same length. The rods are made of different materials.

He then placed the electromagnet at one end of a ruler and slowly pushed the paper clip towards it from the other end of the ruler until the paper clip was attracted to the rod as shown in the diagram below.



He repeated the experiment with rods B and C. The table shows the results of Peter's experiment.

Rod	Distance at which the paper clip was attracted to the electromagnet (cm)
A	5
B	9
C	0

- (a) Which one of the rods was the strongest electromagnet? Give a reason for your answer. [1]

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- (b) Peter noticed that rod C did not attract the paper clip at all. Explain why this is so. [1]

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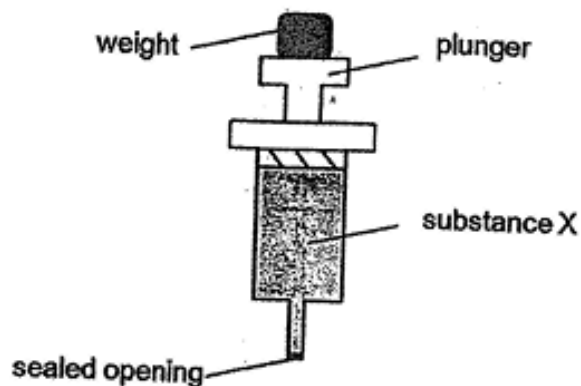
- (c) Without removing any part of the set-up, state one way to increase the strength of the electromagnet. [1]

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35. Tim sealed the opening of a syringe before filling the syringe completely with substance X. He then put weights on the plunger of the syringe as shown below.

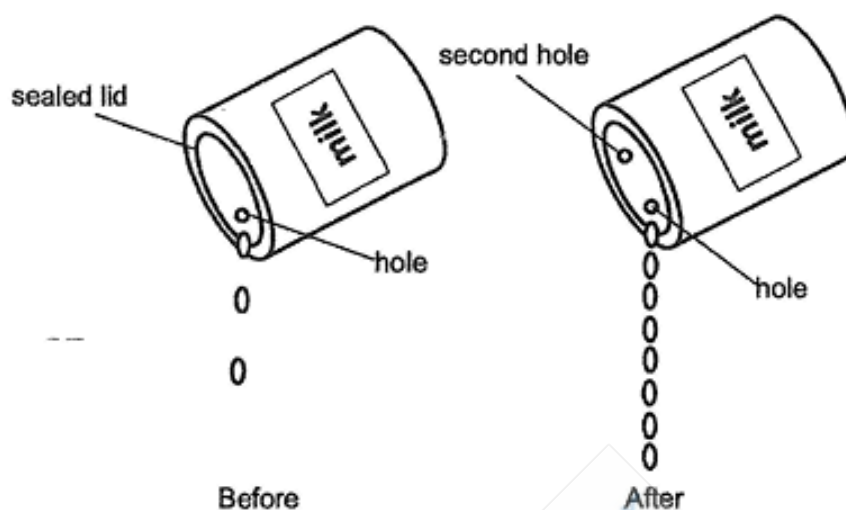


He recorded the volume of substance X in the table below for every weight added on the plunger.

weight added (g)	volume of substance X (cm <sup>3</sup> )
0	100
1	88
2	80
3	74

- (a) What is the volume of substance X before the weights were added? [1]
- \_\_\_\_\_
- (b) What happened to the volume of substance X when the number of weights added increased? [1]
- \_\_\_\_\_
- (c) Based on the results of the experiment, what can Tim conclude about the property of substance X? [1]
- \_\_\_\_\_
- (d) Suggest a reason why Tim needed to seal the opening of the syringe before conducting the experiment. [1]
- \_\_\_\_\_
- \_\_\_\_\_

36. Mary was trying to empty a tin of milk into a container. The milk was dripping slowly.



Mary made a second hole on the sealed lid as shown in the diagram above.

- (a) Milk dripped more quickly when there were two holes on the lid.

Explain why.

[2]

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- (b) After pouring out all the milk from the tin, was the tin empty?

[2]

Give a reason for your answer.

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37(a) State what temperature is.

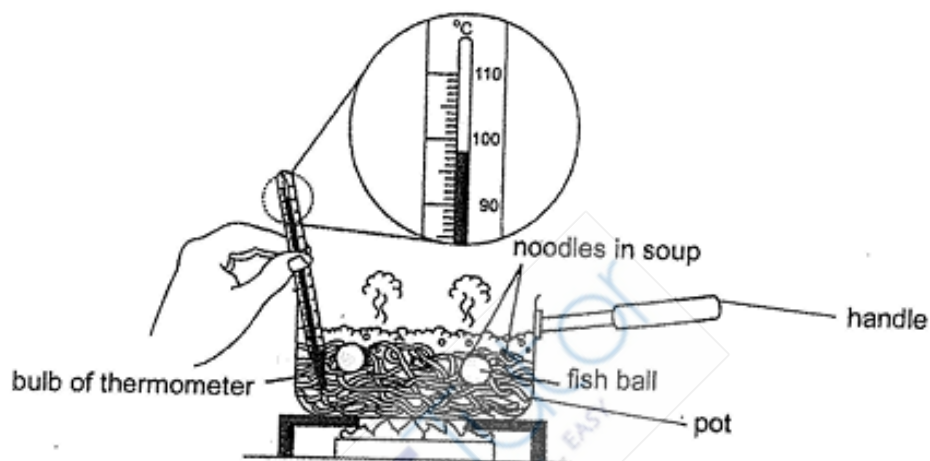
[1]

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Jane put some noodles and fish balls at room temperature into a pot of boiling soup as shown in the diagram.



(b) After Jane added some fish balls, the temperature of the soup decreased. Explain why

[1]

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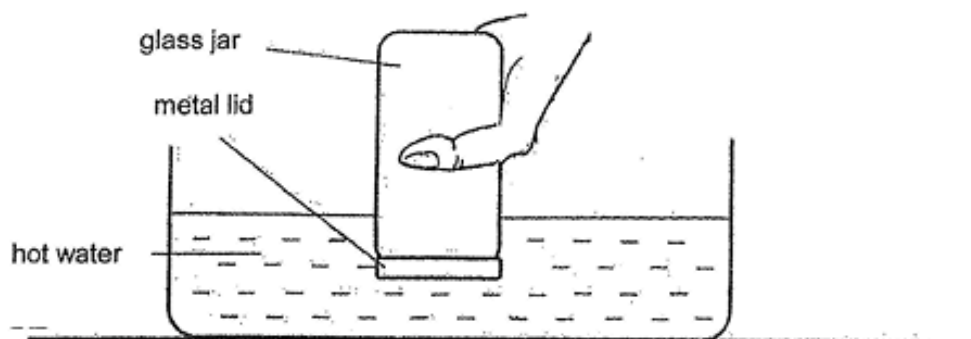
(c) What are the suitable materials that can be used to make the handle of the pot and the pot?

[2]

Tick (✓) the suitable material for the different parts of the pot.

	Material	
	Poor conductor of heat	Good conductor of heat
(i) Pot		
(ii) Handle of pot		

38. Mr Ang took a glass jar of jam from the refrigerator. He tried to open it but was unsuccessful.



His father told him to turn the jar over and dip it into a basin of hot water for twenty seconds as shown in the diagram above. After that, he was able to open the lid.

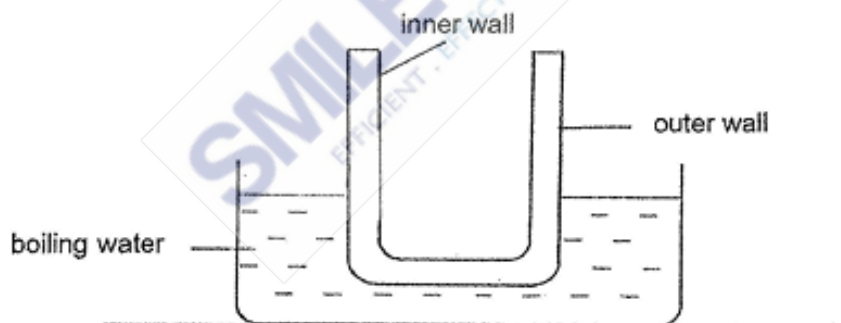
- (a) Explain why Mr Ang was able to open the lid of the jam jar.

[2]

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Thick-walled glass

- (b) Mr Ang took out a cold thick-walled glass from the refrigerator and placed it into a basin of boiling water as shown above. When he placed the glass in the boiling water, the glass started to crack.

[2]

Explain why the glass cracked.

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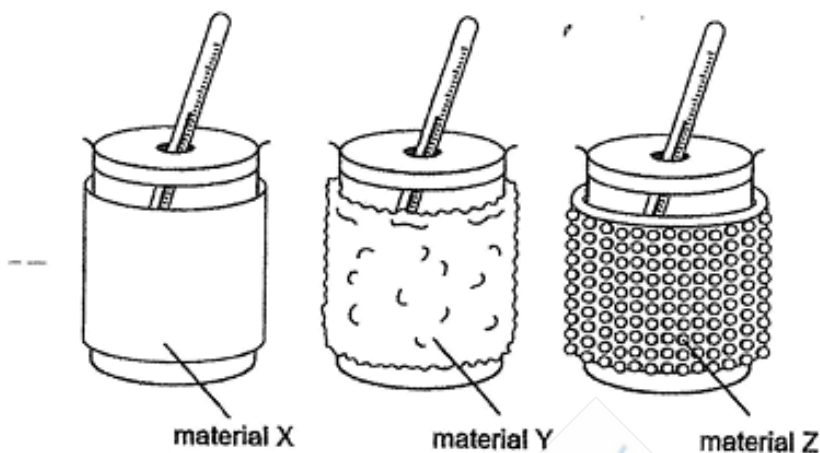
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39. May wanted to find out which material is able to keep her coffee hot for a very long time.

She used three similar cups and wrapped each one with a different material as shown below. She also poured the same amount of hot coffee into each cup.



She measured the temperature of the hot coffee in each cup using a thermometer. The temperature was measured every five minutes and recorded in a table shown below.

Material wrapped around the cup	Temperature of coffee ( $^{\circ}\text{C}$ )				
	At the start	5 min	10 min	15 min	20 min
X	60	55	43	39	29
Y	60	59	51	49	45
Z	60	57	46	43	39

- (a) Based on the results, which material, X, Y or Z will keep the coffee hot for the longest period of time? [1]

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- (b) Explain your answer in (a). [2]

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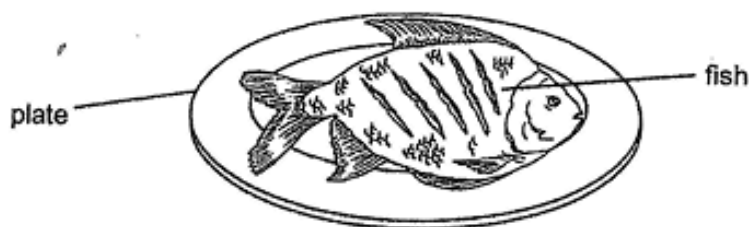


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40. Mrs Lee took a plate from the kitchen cabinet and placed a fish taken out from the refrigerator on it as shown in the diagram below.



- (a) Put a tick (✓) in the boxes below to indicate if the plate and fish would gain or lose heat when the fish was placed on the plate. [1]

	gained heat	lost heat
Plate		
Fish		

- (b) Explain why Mrs Lee's hand felt cold when she touched the plate after two minutes. [1]

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- (c) Mrs Lee then removed the fish from the plate and left the plate on a table in the kitchen. [2]

Describe how the temperature of the plate would change over a period of 2 hours.

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End of Booklet B

## ANSWER SHEET

Section A													
Q1	1	Q5	4	Q9	3	Q13	1	Q17	2	Q21	3	Q25	4
Q2	3	Q6	1	Q10	2	Q14	3	Q18	4	Q22	2	Q26	1
Q3	3	Q7	3	Q11	4	Q15	2	Q19	2	Q23	2	Q27	1
Q4	2	Q8	1	Q12	3	Q16	1	Q20	1	Q24	3	Q28	2
Qn	Answer						Do your corrections here						
29	(a) (i) respiratory (ii) circulatory  (b) nose / windpipe / lungs  (c) To <b>break food down</b> into simpler substances												
30	(a) Living things reproduce to ensure continuity of their kind / species <u>OR</u> prevent extinction of their kind / species.  (b) Question X: Does it have moist skin? Question Y: Does it have wings?  (c) 3 body parts 3 pairs of legs												
31	(a) Mouth  (b) There is <b>no digestion</b> in organ Q. The amount of digested food remains the same as organ P.  (c) Organ T does not contain digested food.												
32	(a) As the amount of rainfall increases, the number of dengue cases also increases.  (b) More rainfall leads to more stagnant waters for mosquitoes to lay eggs so there is more Aedes mosquitoes.  (c) 8 days  (d) It takes time for the young of the Aedes mosquitoes to reach adult stage.												
33	Strip C. The distance d is the shortest. C is the least flexible / bends the least so the books will not fall off.												



34	<p>(a) Rod B. It attracted the paper clip at the longest distance.</p> <p>(b) Rod C is made of a non-magnetic material so it cannot be magnetised.</p> <p>(c) Increase the number of coils around the rod <u>or</u> Increase the number of batteries.</p>										
35	<p>(a) <math>100\text{cm}^3</math></p> <p>(b) The volume of substance X decreases.</p> <p>(c) Substance X can be compressed.</p> <p>(d) To prevent substance X from escaping.</p>										
36	<p>(a) The extra hole will allow air to enter the can. Air will take up space in the tin, pushing the milk out from the other hole.</p> <p>(b) No, there is still air in the can.</p>										
37	<p>(a) Temperature is a measure of how hot or cold an object is.</p> <p>(b) The soup lost heat to the fish ball.</p> <p>(c) Pot – good conductor of heat handle of pot – poor conductor of heat</p>										
38	<p>(a) The metal lid gained heat from the hot water faster and expanded more than the glass.</p> <p>(b) The outer wall (of the glass) was in contact with the boiling water but not the inner wall so the outer wall gained heat faster and expanded faster than the inner wall.</p>										
39	<p>(a) Material Y</p> <p>(b) The temperature of the hot coffee decreased the slowest. Material Y conducted heat from the hot coffee to the surrounding air the slowest.</p>										
40	<table border="1"> <thead> <tr> <th>(a)</th><th>gained heat</th><th>lost heat</th></tr> </thead> <tbody> <tr> <td>Plate</td><td></td><td>✓</td></tr> <tr> <td>Fish</td><td>✓</td><td></td></tr> </tbody> </table> <p>(b) Mrs Lee's hand lost heat to the cold plate.</p> <p>(c) The plate gained heat from the surrounding air and the temperature of the plate would increase <u>until</u> it reached the room temperature.</p>	(a)	gained heat	lost heat	Plate		✓	Fish	✓		
(a)	gained heat	lost heat									
Plate		✓									
Fish	✓										

## HENRY PARK PRIMARY SCHOOL EOY PAPER

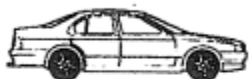
### Booklet A (56 marks)

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

- 1 Which one of the following is a living thing?



(1)



(2)



(3)



(4)

- 2 Which organ system is shown in the diagram?



- (1) skeletal system
- (2) muscular system
- (3) digestive system
- (4) respiratory system



3 In which part of the digestive system is digested food absorbed into the blood?

- (1) gullet
- (2) stomach
- (3) large intestine
- (4) small intestine

4 Tom made the following observations on the life cycle of an animal.

- There are three stages in the life cycle.
- The young looks like the adult.

Which animal was Tom observing?

- (1) frog
- (2) chicken
- (3) butterfly
- (4) beetle

5 The arrows (→) in the diagram below show the direction of movement of a substance in plants.

roots → stem → leaves

What is this substance?

- (1) soil
- (2) food
- (3) water
- (4) sunlight

6 Which one of the following is the best conductor of heat?

- (1) A glass rod
- (2) A metal rod
- (3) A plastic rod
- (4) A wooden rod

- 7 Ronald places a metal spoon in a cup of iced tea.



The spoon becomes colder after a while.

Which one of the following explains this?

- (1) The cup loses heat to the iced tea.
- (2) The iced tea gains heat from the cup.
- (3) The spoon loses heat to the iced tea.
- (4) The spoon gains heat from the iced tea.

- 8 Which one of the following is a source of light?



eyes

(1)



mirror

(2)



fire

(3)



moon

(4)

- 9 An object is placed in front of a light source. A shadow is formed on the screen as shown below.

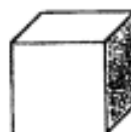


Which one of the following shows the object that could have been used to form the shadow?

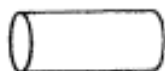
(1)



(2)



(3)



(4)



- 10 The diagram shows a rod magnet brought near a plastic cube.



Rod magnet

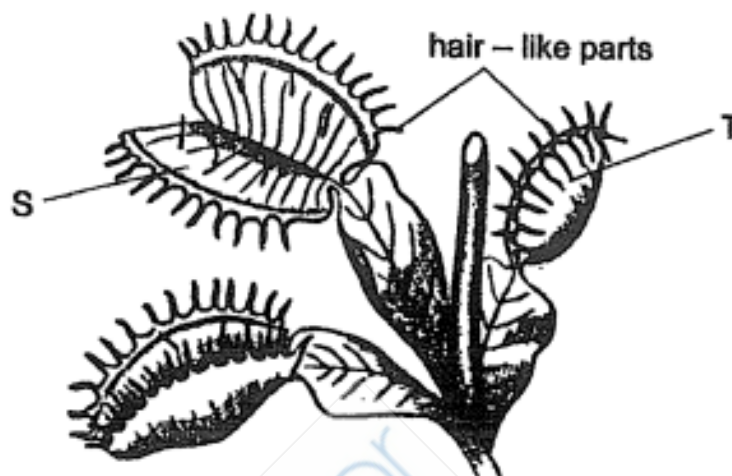


Plastic cube

What will happen to the plastic cube?

- (1) It will move up.
- (2) It will not move.
- (3) It will move to the left.
- (4) It will move to the right

- 11 The diagram shows a plant with two leaves, S and T.

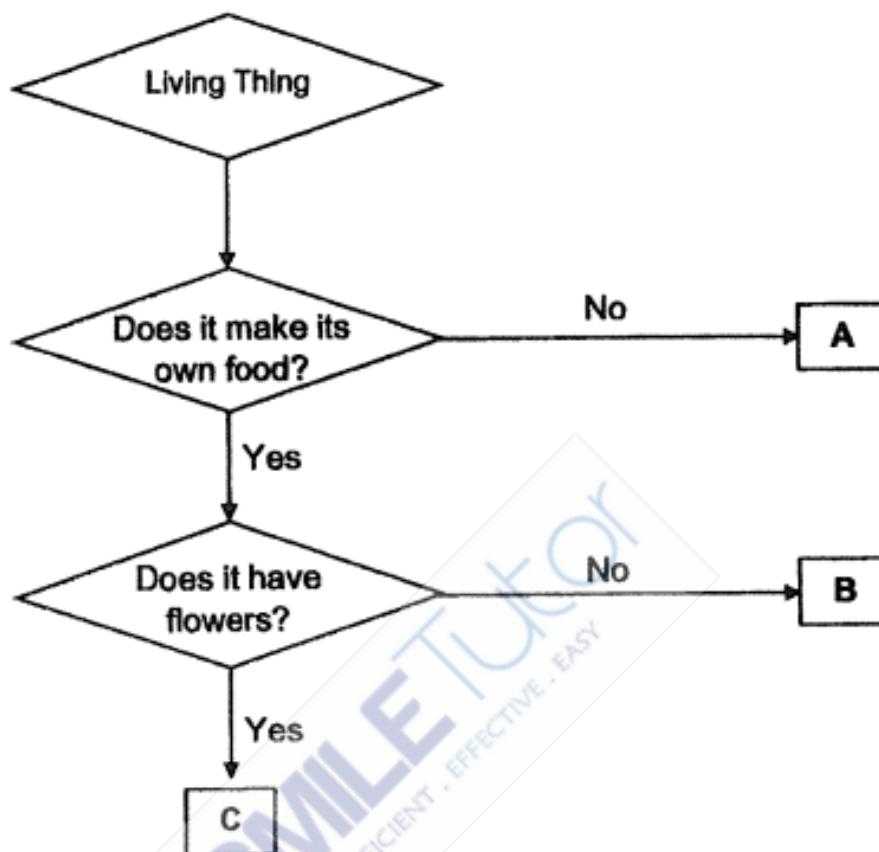


After an insect landed on leaf S, it closed and became like leaf T.

Which characteristic of living things does this show?

- (1) Living things grow.
- (2) Living things reproduce.
- (3) Living things respond to changes.
- (4) Living things need air, food and water.

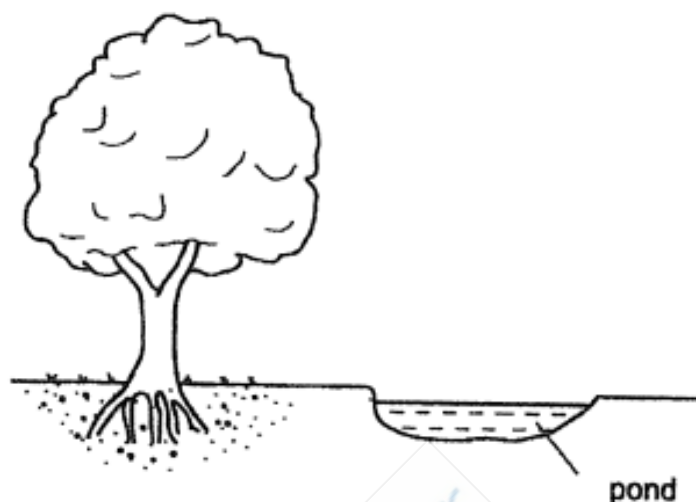
12 Study the flowchart below.



Which of the following correctly identifies **A**, **B** and **C**?

	<b>A</b>	<b>B</b>	<b>C</b>
(1)	fern	mushroom	rose
(2)	fern	rose	mushroom
(3)	mushroom	fern	rose
(4)	mushroom	rose	fern

13 The diagram shows a pond in Mary's school.



Mary observed 3 types of animals, X, Y and Z, living near the pond.

Only animals Y and Z lay their eggs in the pond. The young of animals Y and Z live in water.

The table shows the number of days needed for their eggs to hatch.

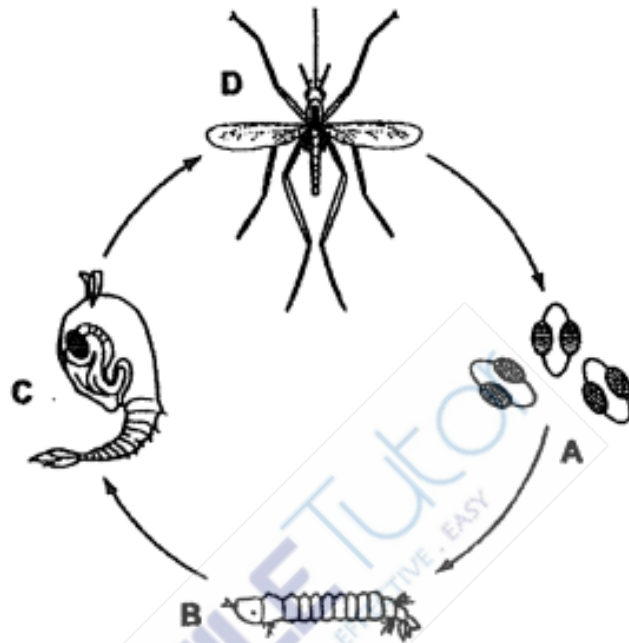
Animal	Observation
	Number of days needed for eggs to hatch
X	3
Y	1
Z	21

On day 15, what would Mary most likely find in the pond?

- (1) young of animals X and Y
- (2) young of animals of Y and Z
- (3) young of animal Y and eggs of animal Z
- (4) young of animal X and eggs of animal Z

14 The diagram shows the life cycle of a mosquito.

Jim sprayed oil onto the possible breeding grounds of mosquitoes in order to prevent mosquitos from breeding.

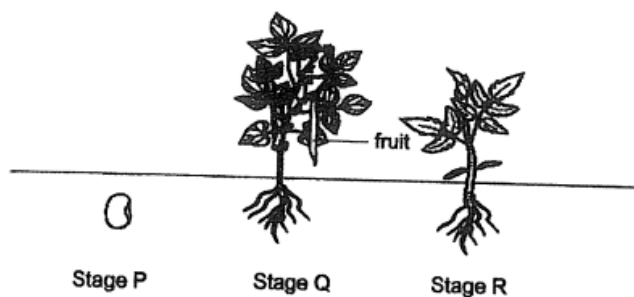


In which of the following stages does this method help to reduce the number of mosquitoes?

- (1) A and D
- (2) B and D
- (3) B and C
- (4) C and D



15 The diagram below shows a plant at different stages.

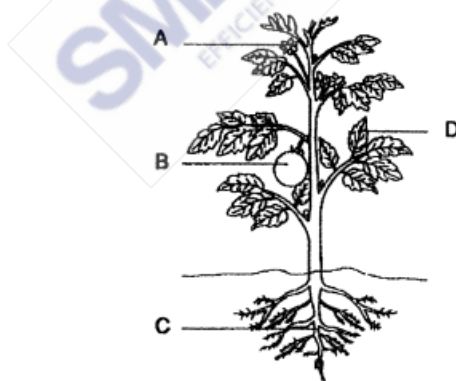


Which of the following statement(s) below is/ are correct?

- A The plant reproduces by seeds.
- B The plant needs sunlight in all three stages.
- C The plant can make its own food at Stage R.

- (1) A and B only
- (2) B and C only
- (3) A and C only
- (4) A, B and C

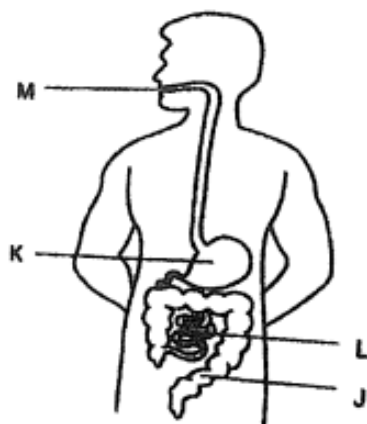
16 The diagram below shows a plant with four parts, A, B, C and D.



Which statement correctly describes what happens when one part is damaged?

- (1) When part C is damaged, the plant will wither.
- (2) When part B is damaged, the plant cannot make food.
- (3) When part A is damaged, the plant cannot stay upright.
- (4) When part D is damaged, the plant cannot take in water.

17 The diagram below shows the human digestive system.



Which of the following correctly identifies where digestion occurs and where water is removed?

	where digestion occurs	where water is removed
(1)	K and M	M
(2)	K and L	K
(3)	K, L and M	L
(4)	K, L and M	J

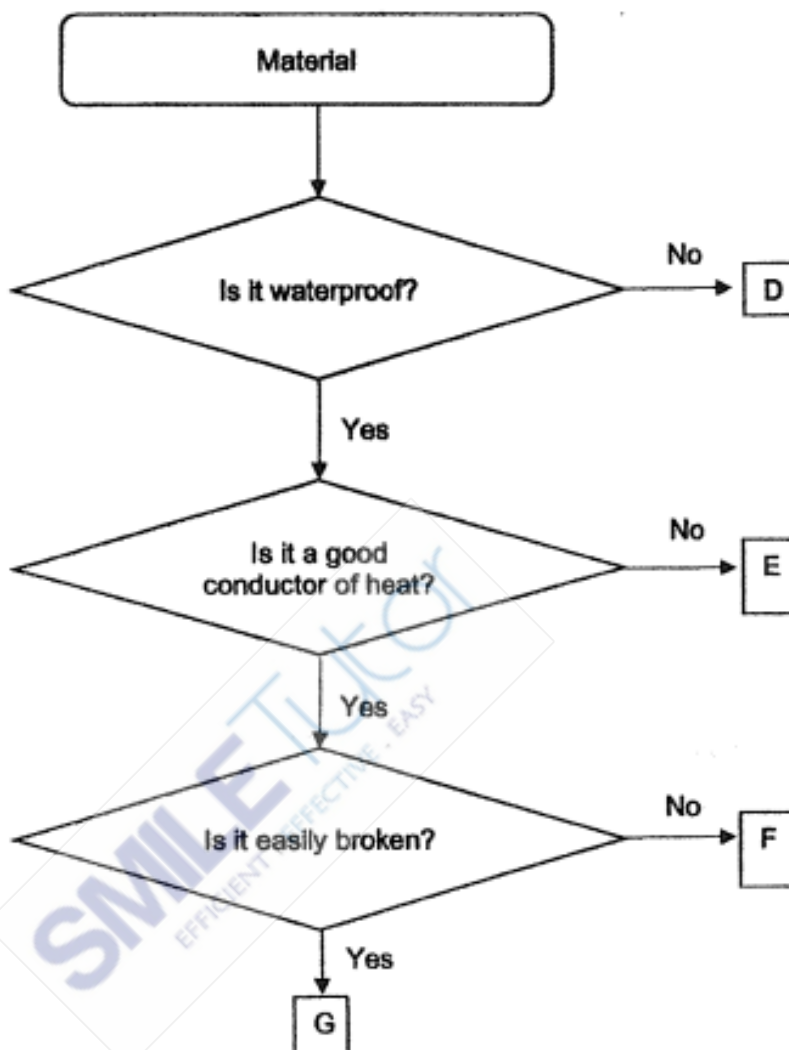
18 After Mr Pang removed a section of his small intestine, he lost a lot of weight and had to eat more frequently.

Based on the information given above, which of the following are possible effects after the removal of a section of the small intestine?

- A The absorption of food will be less.
- B The absorption of food will be more.
- C The digestion of food will be faster.
- D The digestion of food will be slower.

- (1) A and C
- (2) A and D
- (3) B and C
- (4) B and D

19 Study the flowchart below.



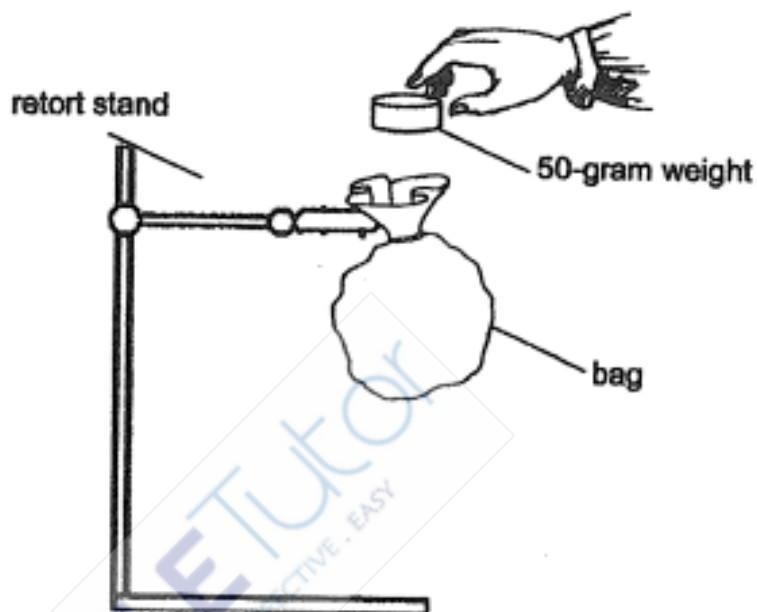
Which material should Siti use to make parts X and Y of a frying pan?



	Part X	Part Y
(1)	D	E
(2)	E	F
(3)	F	E
(4)	F	G

- 20 Alicia wanted to test the strength of bags made of four different materials, P, Q, R and S.

She placed 50-gram weights, one at a time, into each bag until it tore.



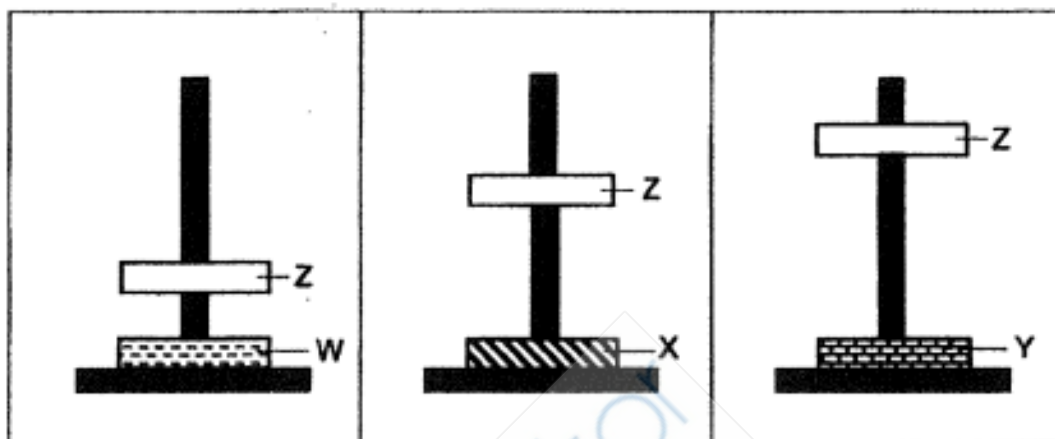
The table below shows the number of weights the bags could hold before they tore.

Material of bag	P	Q	R	S
Number of 50-gram weights	10	5	3	8

Based on the results, which material, P, Q, R or S is most suitable for making a pouch to hold a very large number of coins?

- (1) P
- (2) Q
- (3) R
- (4) S

- 21 The diagrams show three set-ups with magnets W, X, Y and Z.  
 The magnets have the same mass.

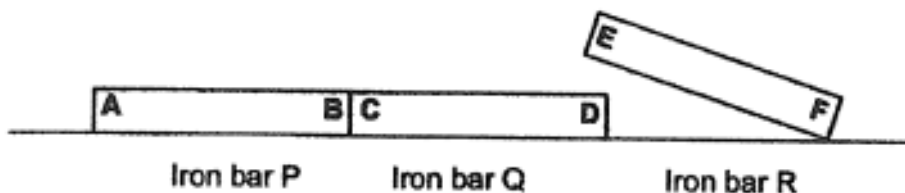


Which one of the following statement(s) is/are correct?

- A Magnet W is stronger than X and Y.
- B Magnet Y is stronger than W and X.
- C Magnet X is weaker than W but stronger than Y.

- (1) A only
- (2) B only
- (3) B and C only
- (4) A, B and C

- 22 Emma placed three iron bars on a wooden table as shown below. Two of the iron bars are magnets.

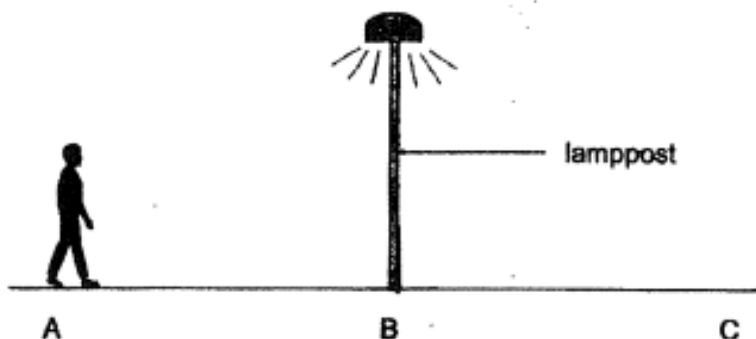


End F of iron bar R was brought close to each end of the other two iron bars.

Based on the information given, which of the following observations is possible?

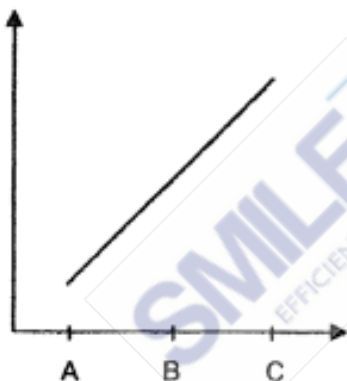
Observations when end F was brought near				
	End A	End B	End C	End D
(1)	attract	repel	attract	repel
(2)	attract	attract	repel	attract
(3)	repel	repel	repel	attract
(4)	repel	attract	attract	repel

- 23 One night, Jason walked from point A to point C, passing a lamppost at point B as shown in the diagram below.

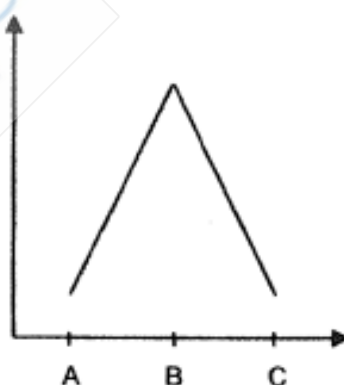


The lamppost is the only light source nearby. Which of the graphs below shows how the length of his shadow changes from points A to C?

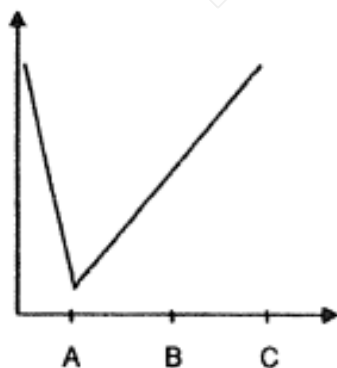
(1)



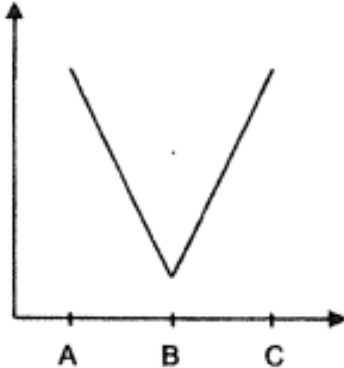
(2)



(3)

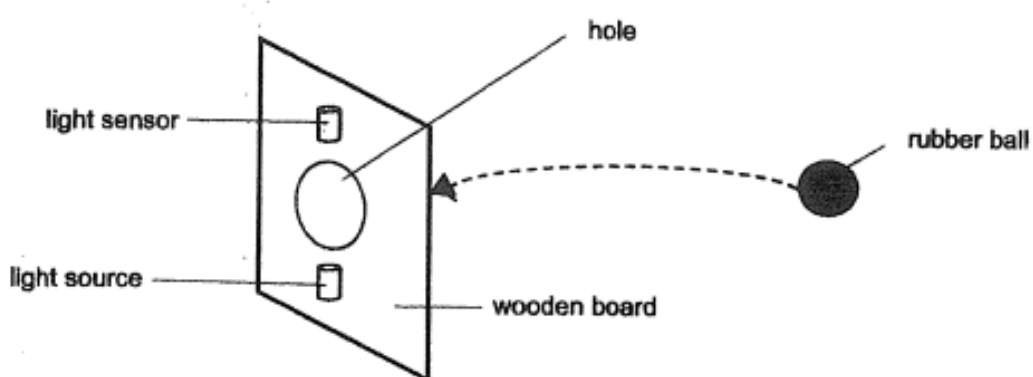


(4)

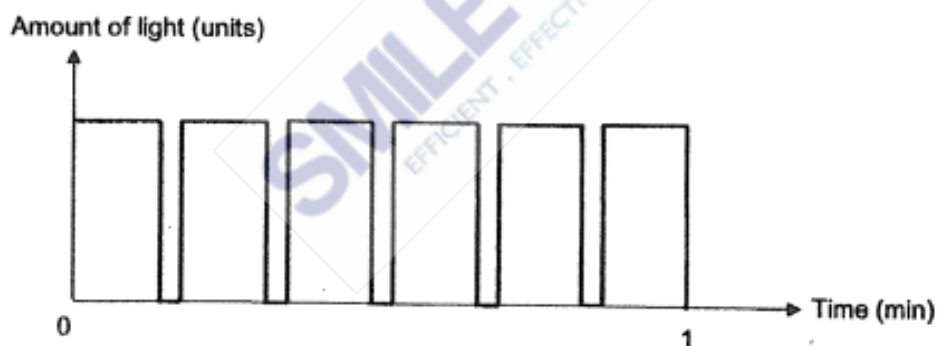




- 24 The diagram shows a light source and a light sensor placed on a piece of wooden board.



Ken used the set-up to count the number of rubber balls that were thrown, one at a time, through the hole. The results were recorded and shown in the graph below.



Based on the graph, how many rubber balls were thrown through the hole within 1 minute?

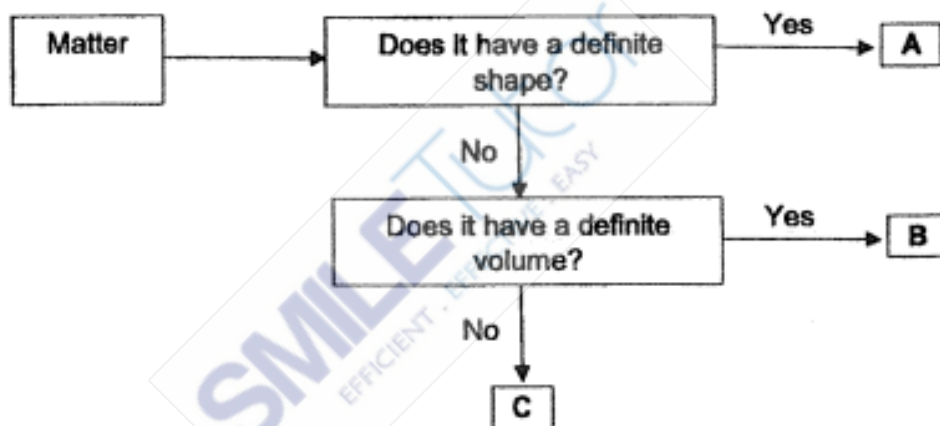
- (1) 5
- (2) 6
- (3) 11
- (4) 12

25 The table below shows the characteristics of objects P and Q.

A tick (✓) represents the presence of the characteristic.

Characteristic	Object	
	P	Q
Occupies space	✓	✓
Can be compressed		✓
Takes the shape of its container	✓	✓

Objects P and Q can be represented by A, B or C in the flowchart below.



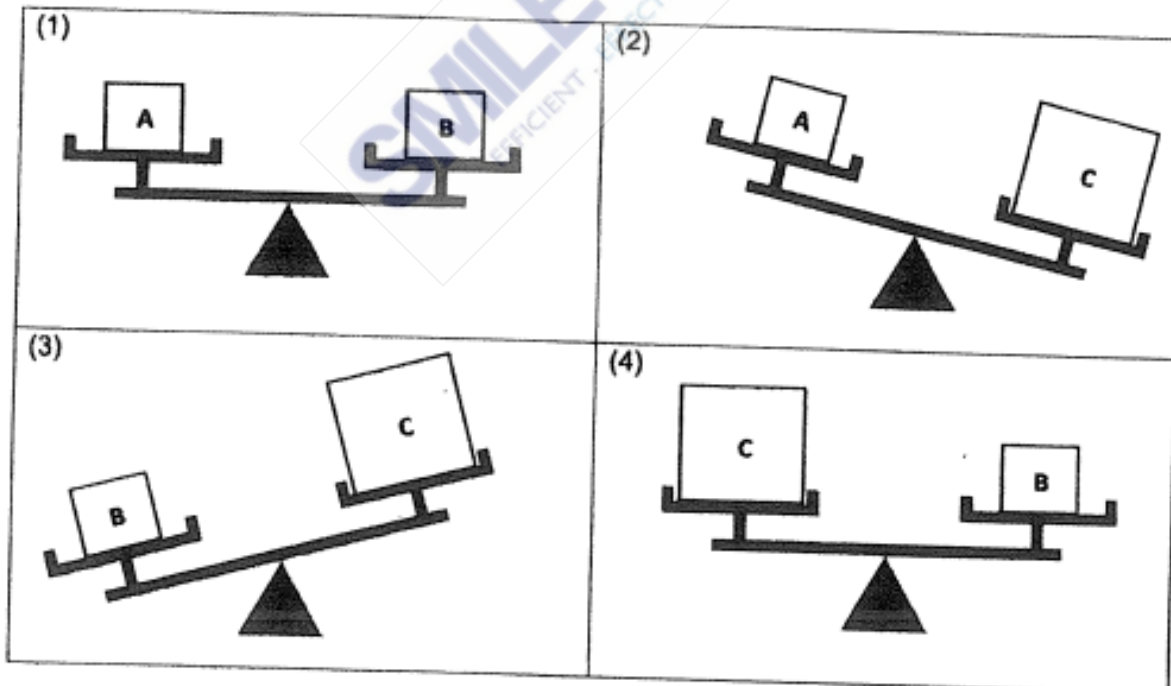
Based on the flowchart above, which letters A, B or C represent objects P and Q?

	Object P	Object Q
(1)	A	B
(2)	A	C
(3)	B	C
(4)	C	B

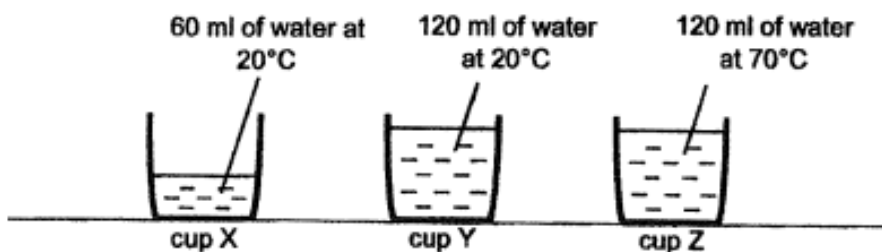
- 26 Bala received three parcels, A, B and C, that contained glass marbles, wooden blocks and plastic cubes respectively. He was also given a beam balance to measure the mass of the parcels.

Parcel size	A	B	C
Parcel Contents	glass marbles	wooden blocks	plastic cubes
Total parcel mass	350g	600g	350g

Which of the following diagrams is correct?



27 Study the diagram below.



Three students made the following statements.



Ali

The water in cup X contains less heat than the water in cup Y.



Ben

The water in cups Y and Z contain the same amount of heat.



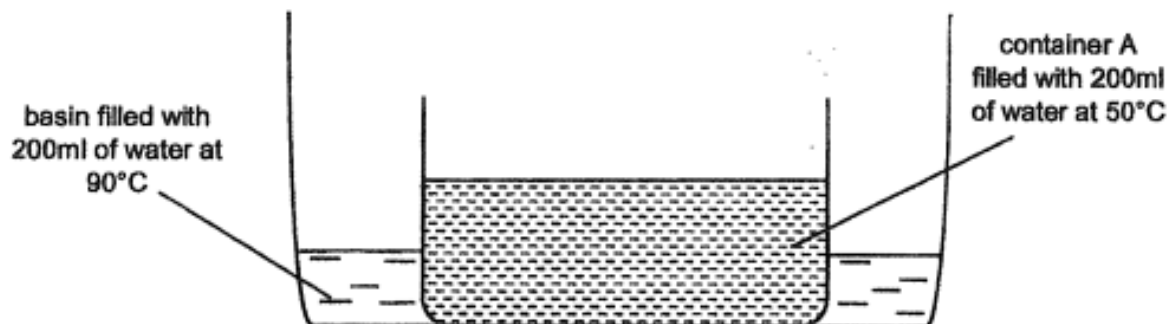
Caili

The water in cup Z contains the most amount of heat.

Which of the student(s) is/are correct?

- (1) Ben only
- (2) Caili only
- (3) Ali and Ben only
- (4) Ali and Caili only

28 The diagram shows container A placed in a basin of water.



The whole set-up was placed in a room. The temperature of the room is 23°C.

After five hours, what could the temperature of the water in container A and the basin be?

	Temperature of water in	
	Container A	Basin
(1)	90°C	50°C
(2)	50°C	50°C
(3)	23°C	23°C
(4)	50°C	23°C

**End of Booklet A**

**Booklet B (44 marks)**

For questions 29 to 41, write your answers in the space provided.

29 Draw lines to match the following animals to the correct groups.

[3]

**Animal**

**Animal Group**



● reptile



● bird

● insect



● mammal

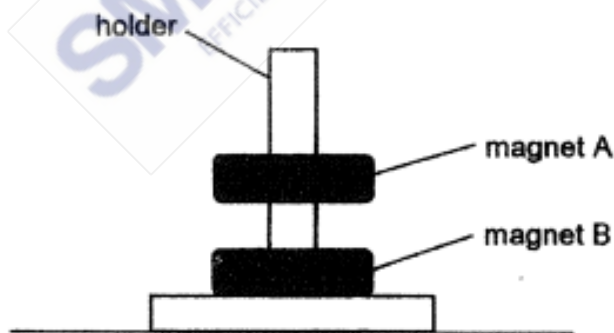
- 30 The diagram shows a raincoat. It has water droplets on it.



Fill in the blanks using the correct words in the box.

water	heat	waterproof	magnetic
-------	------	------------	----------

- (a) The raincoat does not absorb \_\_\_\_\_ [1]
- (b) The raincoat is made of a \_\_\_\_\_ material. [1]
- 31 Alice placed two ring magnets, A and B, through a holder as shown below.



- (a) The holder was made of rubber and did not attract the magnets.  
 Rubber is a \_\_\_\_\_ material. [1]
- (b) Why was magnet A floating above magnet B?  
 Magnet B was \_\_\_\_\_ magnet A. [1]



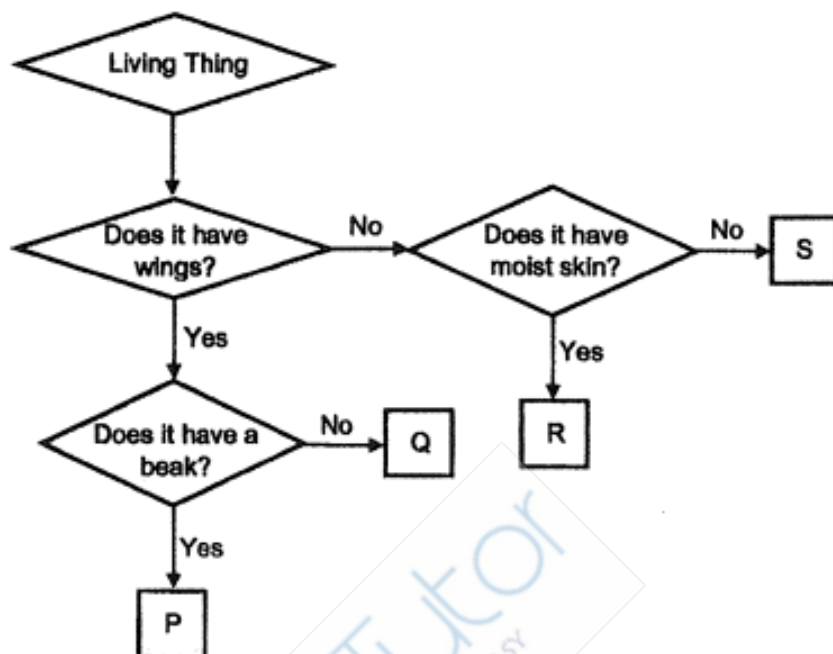
32 The diagram below shows the young and adult of some animals.

Draw lines to match the young with the correct adult.

[3]



33 Study the classification chart below.



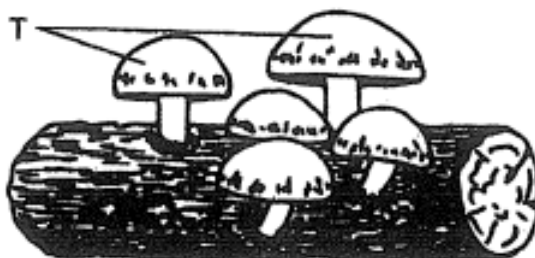
David saw some animals in the garden and drew them below.



- (a) Match each animal to the letter that represents it. Write the letters, P, Q, R and S, in the boxes provided. [2]

Question 33 continued

David also observed T growing on a log.



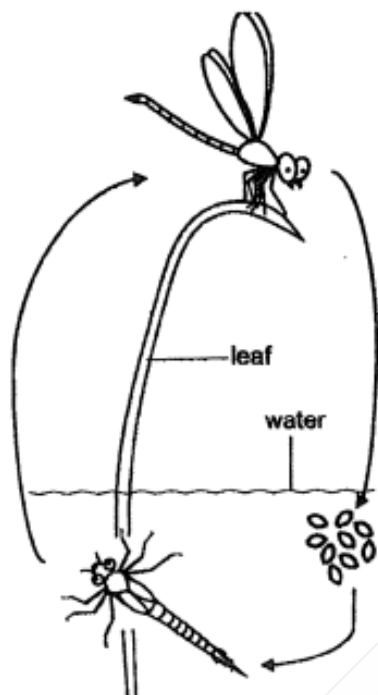
- (b) Name another living thing that belongs to the same group as T. [1]

---

- (c) Give a reason why T grows on the log. [1]

---

34 The diagrams show the life cycle of animals P and Q.



Life Cycle of Animal P



Life Cycle of Animal Q

- (a) State a similarity between the life cycle of animal P and animal Q. [1]

---



---

- (b) Eggs of animal P are found in pondwater while the eggs of animal Q are found in the ground. State another difference between the life cycle of animal P and animal Q. [1]

---



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- (c) Which group of animals does animals P and Q belong to? Give a reason for your answer. [1]

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Question 34 continued

- d) Both the adults of animals P and Q lay many eggs at one time.

[1]

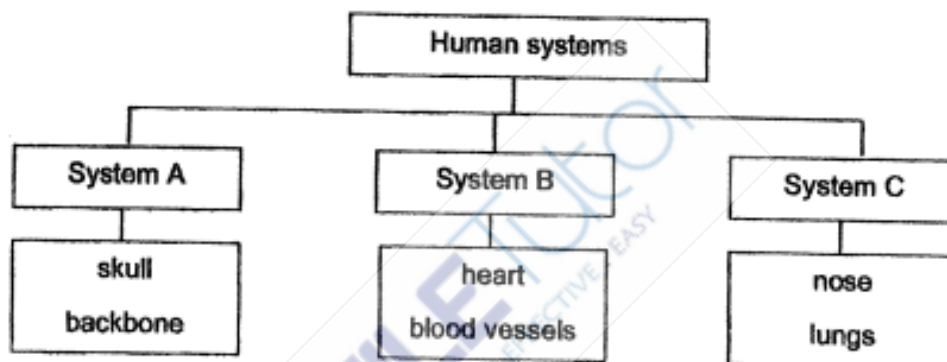
Explain how this helps to ensure the survival of the animals.

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- 35 The classification chart below shows three human systems and some of their parts.



- a) Name systems A and B.

[1]

System A : \_\_\_\_\_

System B : \_\_\_\_\_

- b) Name another part of system C.

[1]

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- c) State the function of system C.

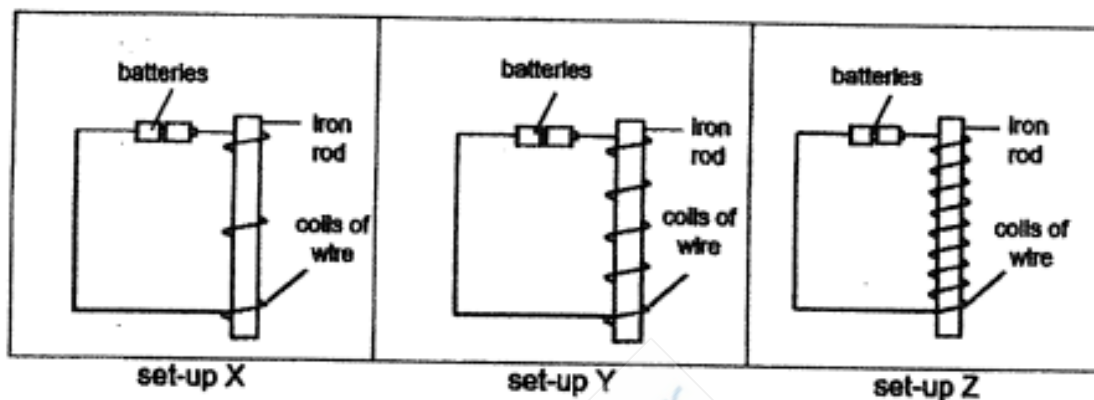
[1]

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- 36 Jane conducted an experiment to find out how the number of coils of wire around the iron rod affects the strength of an electromagnet.



She brought the electromagnets in set-ups X, Y and Z near a box of steel clips. She recorded the number of steel clips attracted by each electromagnet as shown below.

Set-up	Number of steel clips attracted
X	20
Y	40
Z	70

- (a) What is the relationship between the number of coils of wire around the iron rod and the strength of the electromagnet? [1]

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- (b) Predict how many steel clips would be attracted by the iron rod in set-up X when both batteries are removed: Explain your answer. [1]

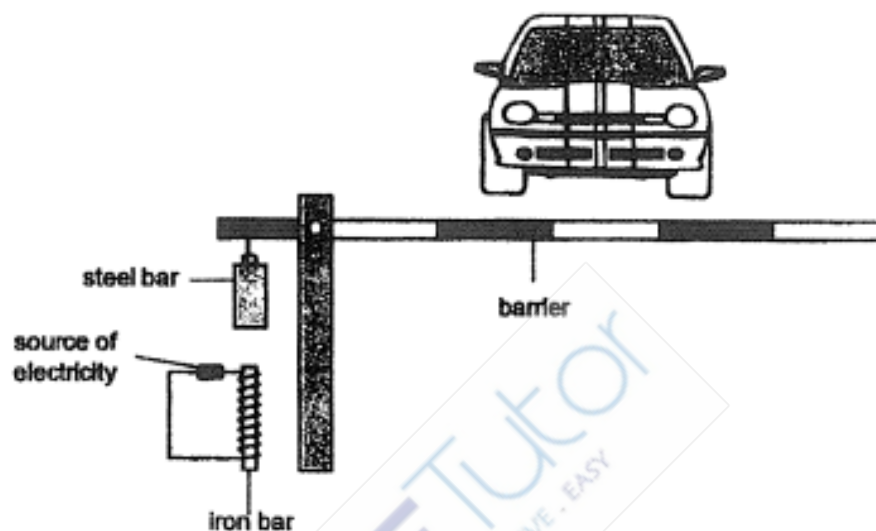
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**Question 36 continued**

The barrier at a carpark can be raised or lowered using an electromagnet. The diagram below shows the set-up of the barrier.



- (c) Describe what will be observed when the source of electricity is turned on. Explain your answer. [2]

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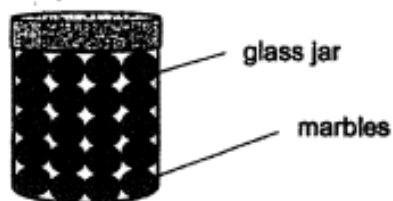
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- 37 The diagram shows a glass jar that contains marbles. The volume of the marbles is  $300 \text{ cm}^3$ .



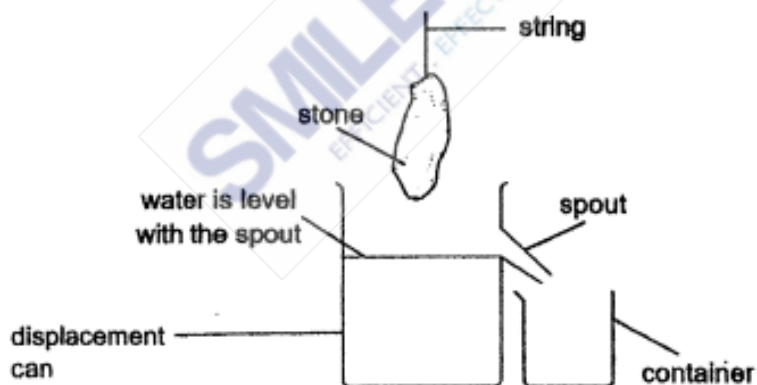
- (a) Danny says that the volume of the glass jar is more than  $300 \text{ cm}^3$ . [2]  
Do you agree with Danny? Explain your answer.

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- (b) The diagram below shows the set-up used to find the volume of a stone. Danny puts the whole stone into the water in the displacement can.



- (i) Describe what Danny would observe when he puts the whole stone into the water. [1]  
Explain your answer.

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**Question 37 continued**

- (ii) The diagram below shows a measuring cylinder.



Using the measuring cylinder, describe what Danny should do next to find out the volume of the stone.

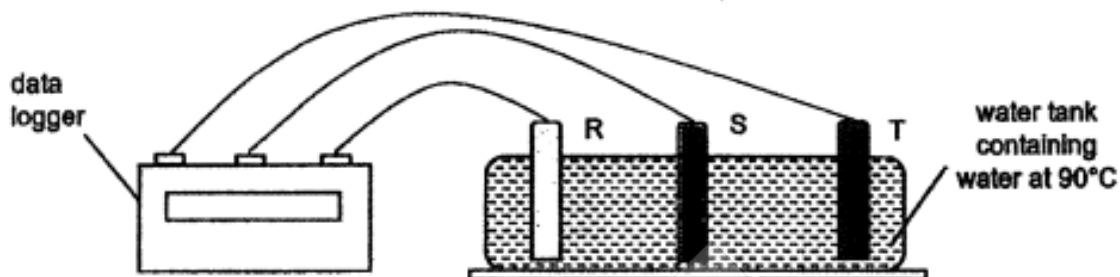
[1]

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- 38 James conducted an experiment with three rods, R, S and T, placed in a water tank as shown below. Rods R, S and T are made of different materials and are of the same length and thickness.



Each rod had a temperature of 25 °C at the start of the experiment. The rods were connected to a data logger and the changes in their temperature were measured and recorded in the table below.

Time (min)	Temperature (°C)		
	Material R	Material S	Material T
0	25	25	25
5	33	39	28
10	40	55	32
15	51	80	37

- (a) State what temperature is. [1]

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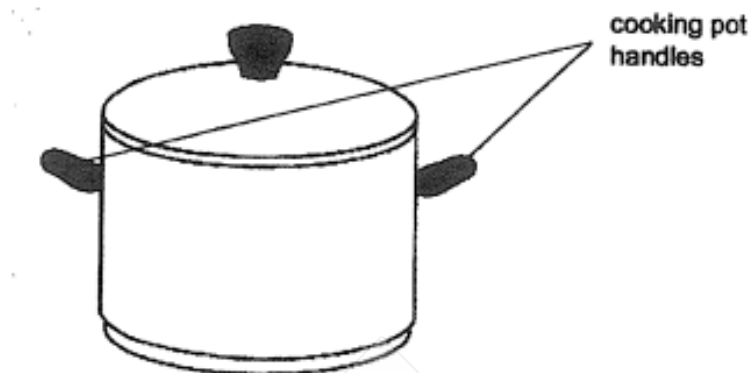
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- (b) What can James do to ensure that the results of the experiment are more reliable? [1]

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Question 38 continued

The diagram below shows a cooking pot.



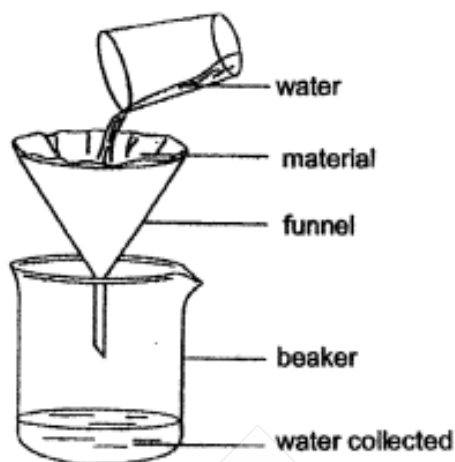
- (c) Based on the results of the experiment, which material R, S or T, is most suitable to make the handles of the cooking pot? Explain your answer. [2]

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- 39 Jenny wanted to find out how absorbent different materials, X, Y and Z are. She set up the experiment as shown below and poured  $100 \text{ cm}^3$  of water into the funnel lined with material X. She then measured the volume of water collected in the beaker.



Jenny repeated the experiment using materials Y and Z. The table below shows the volume of water collected in the beaker when the funnel was lined with materials X, Y and Z.

Material	Volume of water / $\text{cm}^3$
X	15
Y	94
Z	63

- (a) Based on the results, which material is most suitable for cleaning up a water spill on the floor? Explain your answer. [2]

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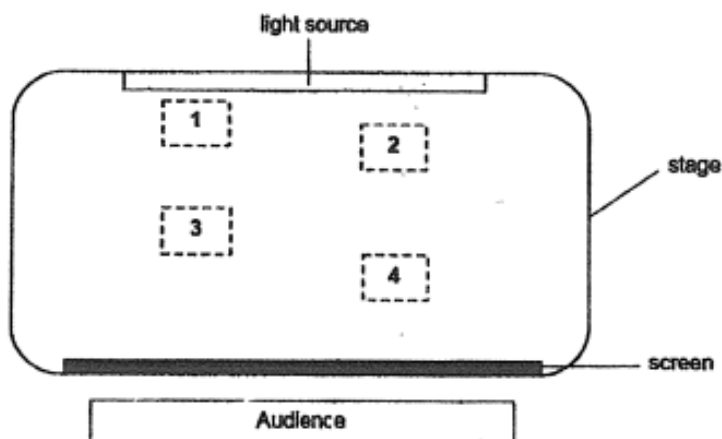
- (b) Jenny used materials of the same thickness during the experiment. Explain how using the same thickness helps to make the experiment a fair test. [1]

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40 The diagram shows the layout of a stage for a shadow puppet show.



During the show, two wooden puppets, A and B of the same size and shape were used. The audience watching the show saw the shadows of the puppets on the screen as shown below.



- (a) In order to form the above shadows, at which positions 1, 2, 3 or 4 were puppets A and B placed?

Position of puppet A: \_\_\_\_\_

Position of puppet B: \_\_\_\_\_

[1]

- (b) Explain your answer in (a).

[2]

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- (c) Jeff stated that the material of the screen does not allow any light to pass through. Do you agree with Jeff? Explain your answer.

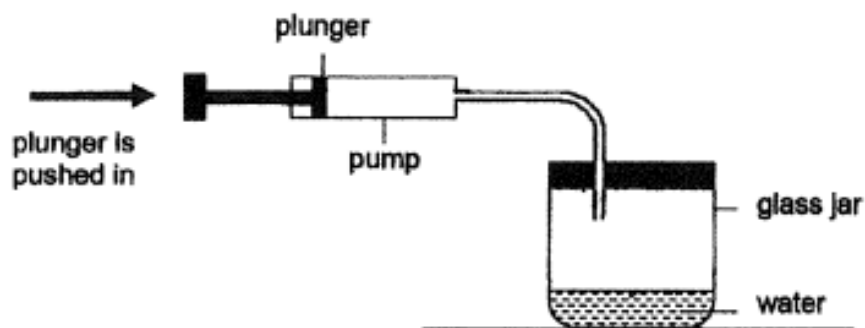
[1]

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- 41 The diagram shows a pump which is connected to a glass jar. The volume of the glass jar is  $300 \text{ cm}^3$  and it contains  $30 \text{ cm}^3$  of water.



Each time the plunger of the pump is pushed in completely,  $20 \text{ cm}^3$  of air is pumped into the glass jar.

- (a) State the volume of air and water in the glass jar after  $20 \text{ cm}^3$  of air is pumped into the glass jar. [1]

Volume of air - \_\_\_\_\_  $\text{cm}^3$

Volume of water - \_\_\_\_\_  $\text{cm}^3$

- (b) Explain your answer in (a). [2]

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- (c) Does the mass of the air in the glass jar **increase**, **decrease** or **remains the same** after  $20 \text{ cm}^3$  of air is pumped into the glass jar? [1]

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**End of Booklet B**

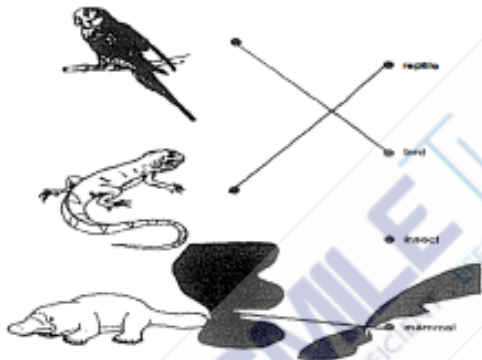
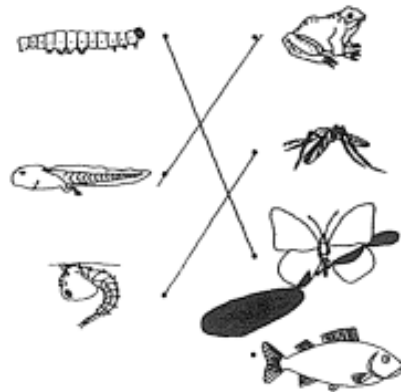



## ANSWER SHEET

### (BOOKLET A)

Q1	1	Q2	1	Q3	4	Q4	2	Q5	3
Q6	2	Q7	3	Q8	3	Q9	1	Q10	2
Q11	3	Q12	3	Q13	3	Q14	3	Q15	3
Q16	1	Q17	4	Q18	2	Q19	3	Q20	1
Q21	2	Q22	2	Q23	4	Q24	1	Q25	3
Q26	3	Q27	4	Q28	3				

### (BOOKLET B)

Q29		
Q30	a)	The raincoat does not absorb water.
	b)	The raincoat is made of a <u>waterproof</u> material.
Q31	a)	Rubber is a non-magnetic
	b)	Magnet B was repelling magnet A.
Q32		

Q33	a)	
	b)	Fungi
	c)	There is moisture on the log causing the fungi to grow on it as it only requires water and warmth
Q34	a)	They have three stage life cycle.
	b)	Animal Q look nymph looks like the adult while Animal P does not.
	c)	Insect. They have six legs
	d)	So that some of the eggs would hatch.
Q35	a)	System A : Skeletal System B : Circulatory
	b)	Windpipe
	c)	Helps you inhale oxygen and exhale carbon dioxide.
Q36	a)	As the number of coils of wire increases, the strength of electromagnet increases.
	b)	0. As there are no current flowing through causing the affect to attract any steel clips
	c)	The barrier would go up as the electromagnet magnet is on causing the steel bar to be attracted.
Q37	a)	Air is occupying the space between the marbles.
	b)	The water level will rise and the water will flow out from the spout into the container. Therefore, the water in the container will be equivalent to the volume of the rock.
Q38	a)	Temperature is a measurement of how hot or cold an object is.
	b)	Repeat the experiment two more times.
	c)	T. It has the lowest temperature after 15 minutes. Because the poorest of heat conducts heat slowest from pot to hands prevents hands from being burned.
Q39	a)	X absorbed the most amount of water. It is the most absorbent so it can absorb the most amount of water.
	b)	To ensure that the thickness of material is. The only thing causing the difference in results.
Q40	a)	Position of puppet A: 3 Position of puppet B: 2
	b)	Shadow of A is smaller than Shadow of B. A is further from the light source than B.
	c)	No, The screen was to allow some light to pass through for the shadows to be seen by the audience.

Q41	a)	Volume of air – $270\text{cm}^3$ Volume of water – $30\text{cm}^3$
	b)	Vol. of water remains the same. Water has no definite volume.
	c)	increase

a3} bii Danny should add  $20\text{cm}^3$  of water in the measuring cylinder than put the stone into the measuring cylinder and measure the volume of the water.

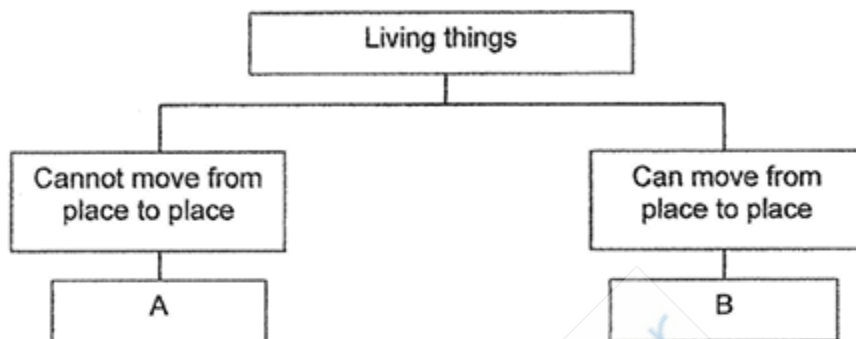


## NAN HUA PRIMARY SCHOOL MYE PAPER

### Section A: (28 x 2 marks = 56 marks)

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet.

- 1 Study the classification diagram below.



Which of the following statements is true about A and B?

- (1) A reproduces but B does not.
- (2) A is an animal and B is a plant.
- (3) A needs air, food and water but B does not.
- (4) A is a plant but B depends on other living things for food.

- 2 The pictures below show a rabbit and a zebra.



rabbit

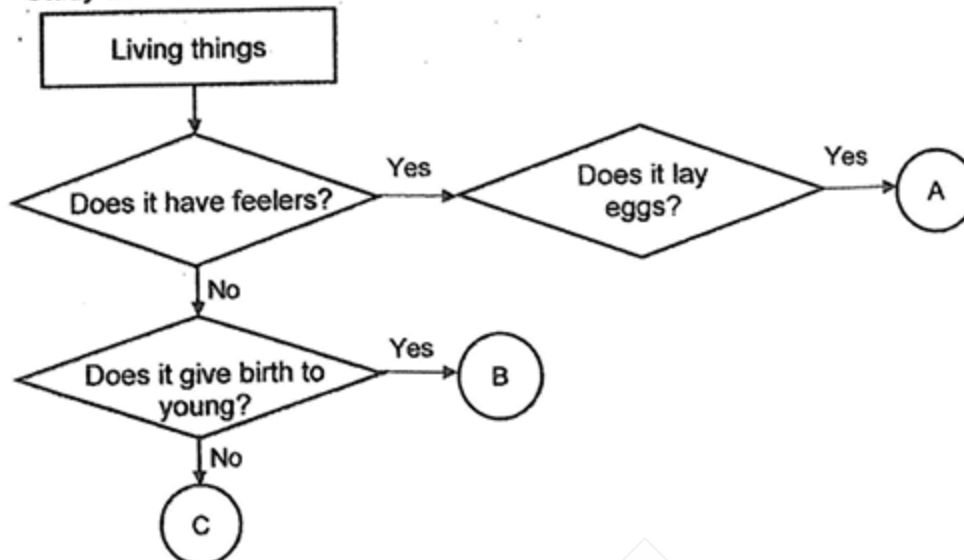


zebra

The rabbit and zebra are similar because they \_\_\_\_\_.

- (1) have no tail
- (2) have two legs
- (3) have hair as outer body covering
- (4) have scales as outer body covering

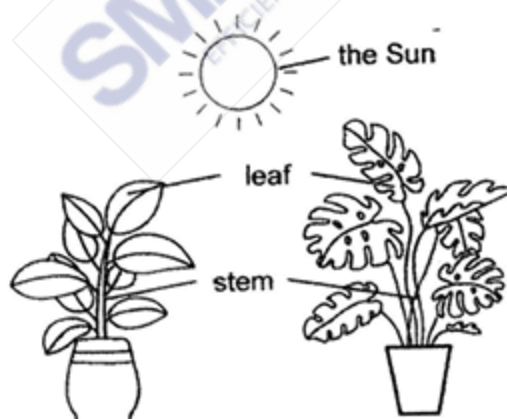
3 Study the flow chart below.



What could A, B and C be?

	A	B	C
(1)	bird	insect	mammal
(2)	bird	mammal	insect
(3)	insect	mammal	bird
(4)	insect	bird	mammal

4 The diagram below shows two plants.



The stems of the plants are holding up the leaves to \_\_\_\_\_.

- (1) expose the leaves to sunlight
- (2) help the leaves to absorb water
- (3) transport food from the leaves to the roots
- (4) transport water from the roots to the leaves

5 Which of the following statements about the roots of plants is not true?

- (1) Roots anchor the plant to the ground.
- (2) Roots support and keep a plant upright.
- (3) Roots help to absorb water and minerals.
- (4) Roots can absorb more water than the stem.

6 Meng wants to find out if water affects the growth of plants. He prepares four set-ups A, B, C and D, as shown in the table below. A tick (✓) shows that the condition is provided to the set-up.

set-up	sunlight	air	water
A	✓	✓	
B		✓	✓
C	✓	✓	✓
D		✓	

He ensures that the same type of plants is used for the experiment.  
Which two set-ups should Meng use to conduct a fair test?

- (1) A and B
- (2) A and C
- (3) B and D
- (4) C and D

7 The following statements describe what happens when food enters our body.

- A Undigested food goes into the large intestine and excess water is removed from it.
- B The tongue helps to mix the food with saliva.
- C After a few hours, the food in the stomach becomes almost liquid and goes into the small intestine.
- D The food travels down the gullet into the stomach.

Which of the following shows the correct order of the statements to describe what happens when food enters the digestive system?

- (1) B, C, D, A
- (2) B, D, C, A
- (3) D, B, A, C
- (4) D, C, A, B

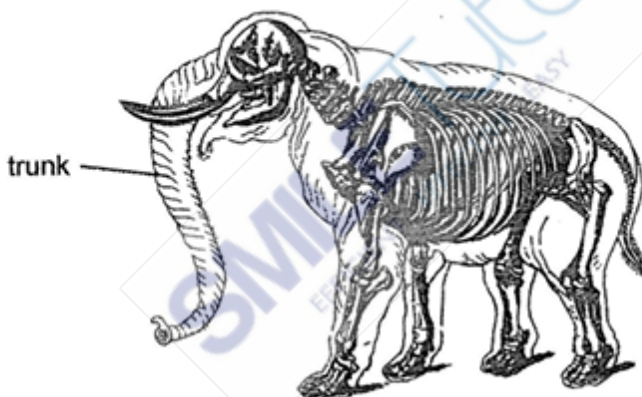


- 8 Siti wrote some statements about the small and large intestine as shown below.

statement	small intestine	large intestine
A	shorter and thicker	longer and narrower
B	digestion takes place here	no digestion takes place here
C	digested food is absorbed	water is absorbed
D	does not have digestive juices	has digestive juices

Which of the following are true about the small and large intestines?

- (1) A and B only
  - (2) A and D only
  - (3) B and C only
  - (4) C and D only
- 9 The diagram below shows the body of an elephant with one of its systems shown.



Which of the following body system(s) helps the elephant to bend and curl its trunk?

- (1) skeletal system
- (2) muscular system
- (3) respiratory system
- (4) skeletal and muscular system

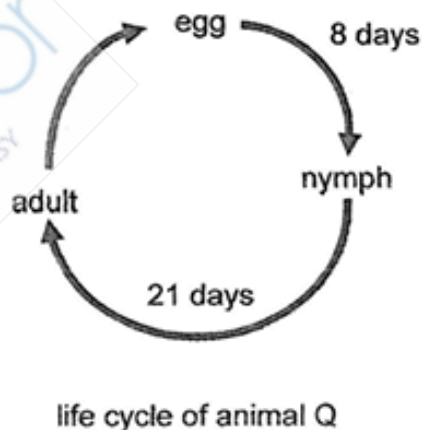
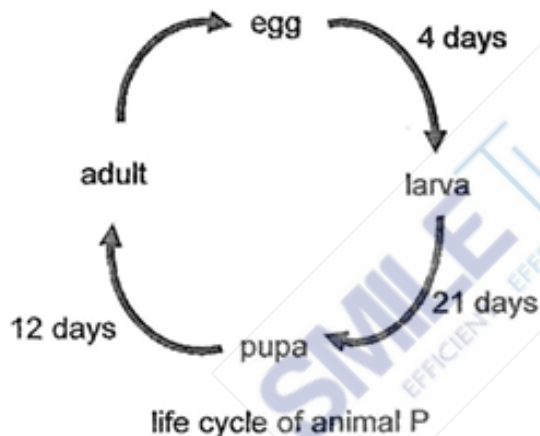


- 10 The eggs of animals S and T are laid in water. Animal S has a three-stage life cycle while animal T has a four-stage life cycle.

Which of the following correctly identifies animals S and T?

	S	T
(1)	frog	mosquito
(2)	chicken	beetle
(3)	frog	butterfly
(4)	cockroach	mosquito

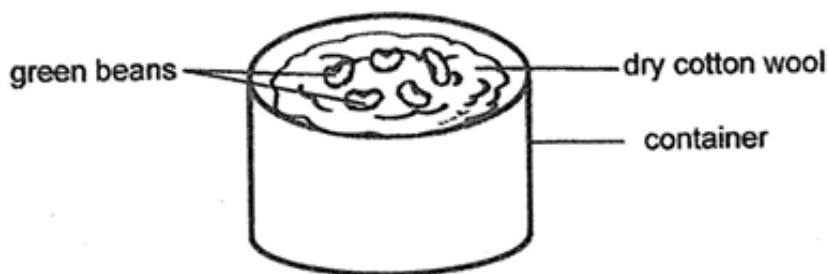
- 11 The diagrams below show the life cycles of 2 animals, P and Q, and the number of days the animals spend in the different stages.



Based on the diagrams above, which of the statements below is true?

- (1) Animal P has a longer life span than animal Q.
- (2) The young of animals P and Q resemble their parents.
- (3) Animal Q's eggs take a longer time to hatch than animal P's.
- (4) The young of animal P and Q take the same number of days to reach the adult stage.

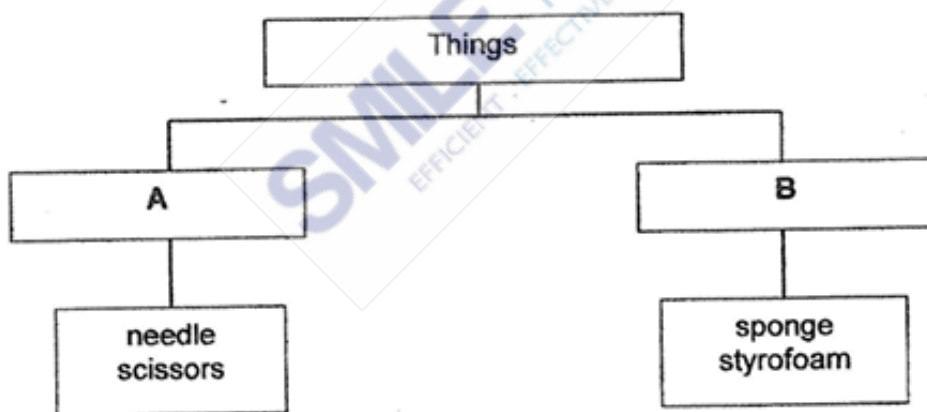
- 12** Su Lin placed some green beans on some dry cotton wool in a container as shown below. She placed the container on a shelf next to a window.



What would Su Lin observe after six days?

- (1) Roots would have grown from the beans.
- (2) The green beans would have shrunk in size.
- (3) The green beans would have turned mouldy.
- (4) There would be no change in the green beans.

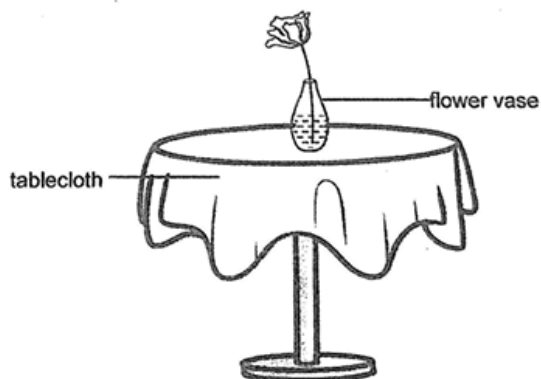
- 13** Study the classification chart below.



Which of the following would be a suitable heading for groups A and B?

	A	B
(1)	small	big
(2)	flexible	stiff
(3)	floats on water	sinks in water
(4)	strong	weak

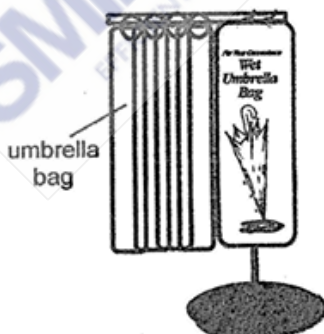
- 14 A flower vase is placed on a table which is covered with a tablecloth as shown below.



Which of the following shows the correct properties of the materials used to make the tablecloth and flower vase?

	tablecloth	flower vase
(1)	flexible	waterproof
(2)	floats on water	allows most light to pass through
(3)	does not allow light to pass through	strong
(4)	waterproof	flexible

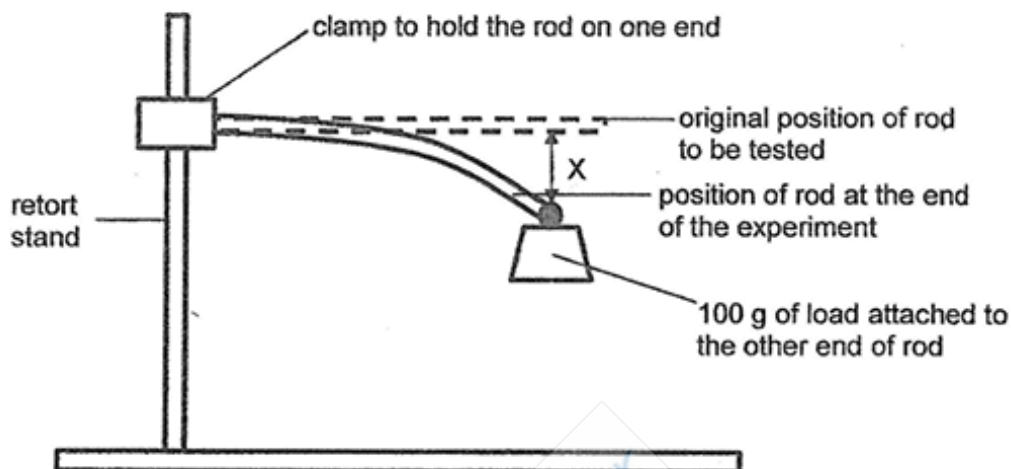
- 15 On rainy days, people entering a building can keep their wet umbrellas in the bag as shown in the diagram below.



Which of the following are important properties that the bags must have to avoid making the floor of the building wet?

- (1) light and transparent
- (2) flexible and waterproof
- (3) transparent and flexible
- (4) waterproof and transparent

- 16** Bala carried out an experiment to compare the flexibility of five rods, A, B, C, D and E, made of different materials as shown in the set-up below. All the rods used are of the same thickness.



Bala recorded the results of his experiment in a table as shown below.

	material				
	A	B	C	D	E
length of the rods (cm)	15	10	10	10	15
X (cm)	4	5	3	5	6

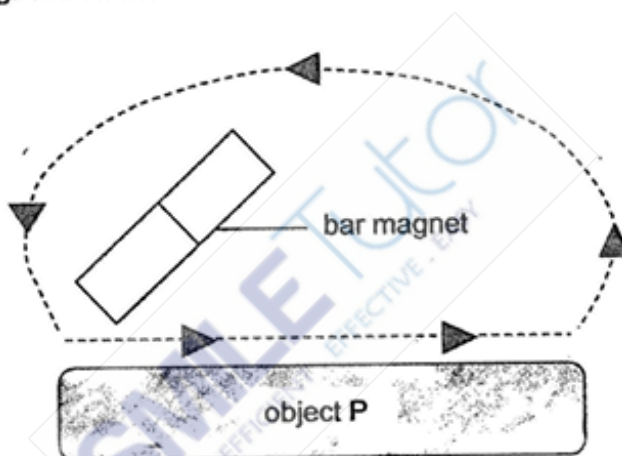
From the results above, Bala concluded that material \_\_\_\_\_.

- (1) A is more flexible than B
- (2) B is more flexible than C
- (3) C is more flexible than D
- (4) E is more flexible than D

**17** Which of the following statements about magnets is correct?

- (1) Like poles of two magnets attract when facing each other.
- (2) The magnetic strength of a magnet is weakest at its poles.
- (3) A temporary magnet can be made by the electrical method.
- (4) A freely suspended bar magnet will come to rest in the South-West direction.

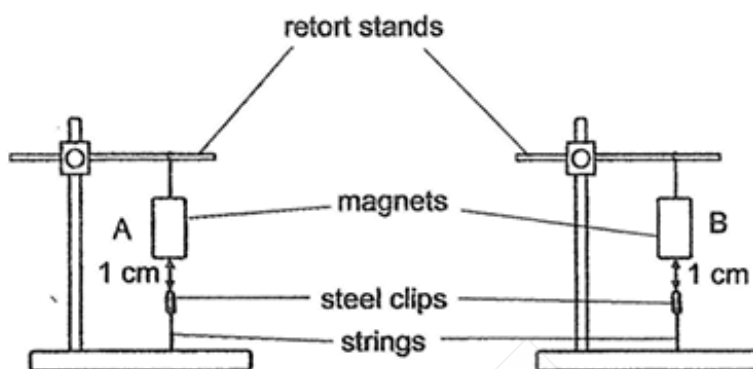
**18** Study the diagram below.



During an experiment, Carol used the same side of a bar magnet to stroke Object P repeatedly for 50 times. After that, Object P was able to attract some steel clips. Based on the above experiment, which of the following statements is correct?

- (1) Object P is a magnetic metal.
- (2) Object P is a non-magnetic metal.
- (3) The bigger the bar magnet, the stronger the magnetism.
- (4) The bar magnet lost all its magnetism after it was used to stroke Object P.

- 19 There are two bar magnets, A and B, of the same size. Both magnets can attract a steel clip held by a string even though they are 1 cm above the steel clip as shown in the diagrams below.



The magnets are then moved further away from the steel clip. The observations when the bar magnets are 2 cm above the steel clips are shown below.

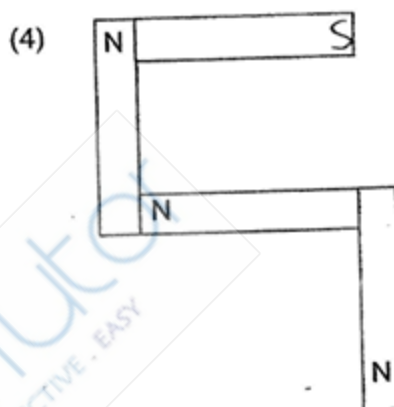
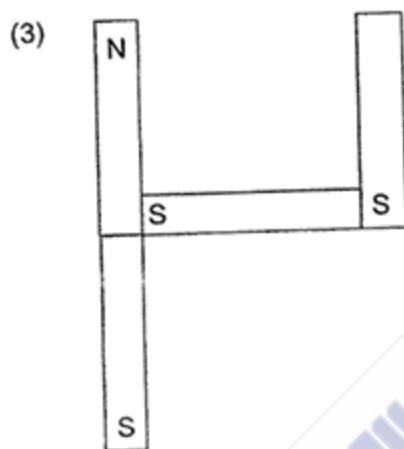
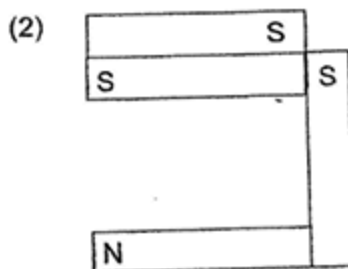
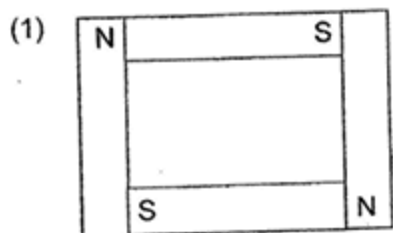


What can you infer from the observations above?

- A Magnets can act at a distance.
  - B Like poles of the magnets repel.
  - C The strength of the magnet is dependent on its size.
  - D The strength of the magnet is not dependent on its size.
- (1) A and D only  
 (2) B and C only  
 (3) A, B and C only  
 (4) A, B and D only



- 20 Study the arrangements of four bar magnets as shown below.  
Which arrangement is possible?



- 21 Which one of the following is **not** a source of light?

lighted candle



(1)

Sun



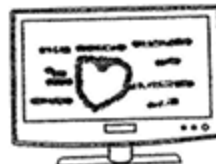
(2)

battery



(3)

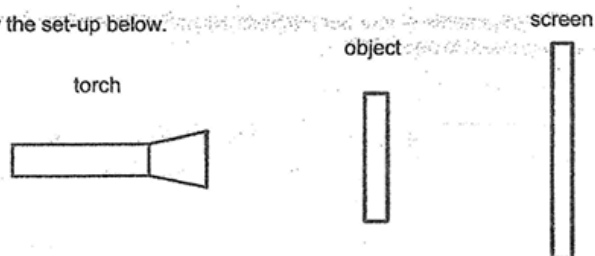
television (switched on)



(4)



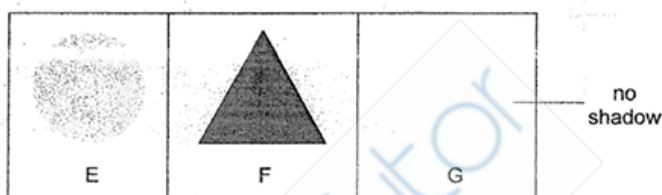
22 Study the set-up below.



Objects E, F and G were placed in between the light source and the screen one at a time.



The following shadows were formed on the screen.



Based on the observations above, which of the following statements is correct?

- (1) Object E blocked the most light.
- (2) Object F allowed most light to pass through.
- (3) Object G did not allow any light to pass through.
- (4) The path of light was blocked by at least one of the objects.

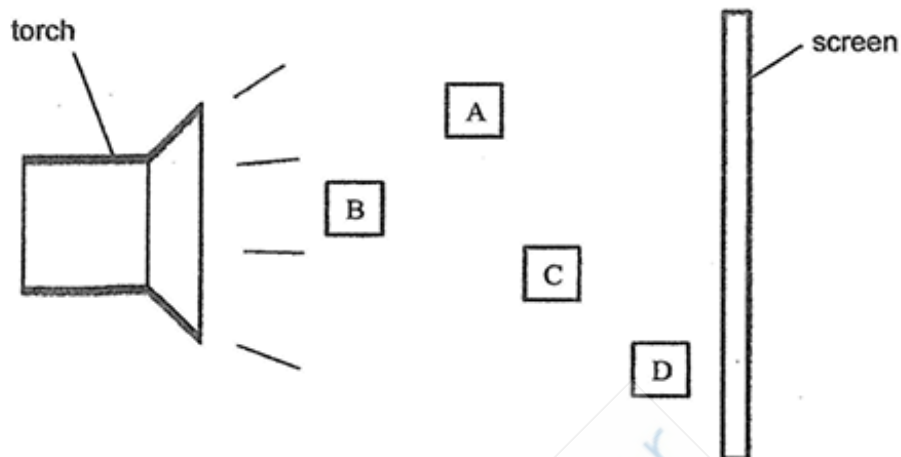
23 Annie used a torch to shine at an object. She discovered that the object could cast both the shadows shown below.



Which of the following was the object that Annie had shone the torch at?



- 24 Study the set-up below. Four identical metal cubes, A, B, C and D, were placed at different positions between a torch and a screen.



The torch was switched on and four shadows were cast on the screen.

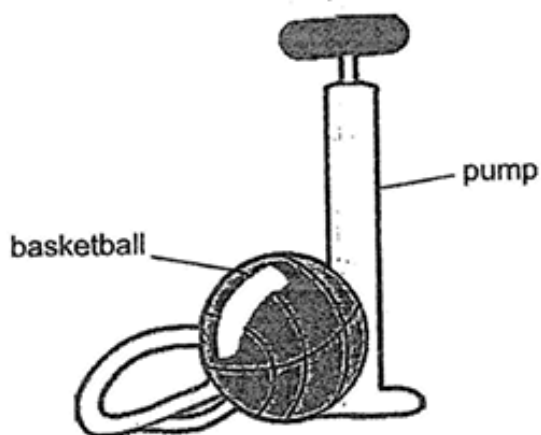
Which of the following correctly shows the shadow sizes of metal cubes A, B, C and D from largest to smallest?

	Largest shadow → Smallest shadow			
(1)	A	B	C	D
(2)	A	C	D	B
(3)	B	A	C	D
(4)	C	A	B	D

- 25 Which of the following is a matter?

- (1) wind
- (2) music
- (3) shadow
- (4) light from a flame

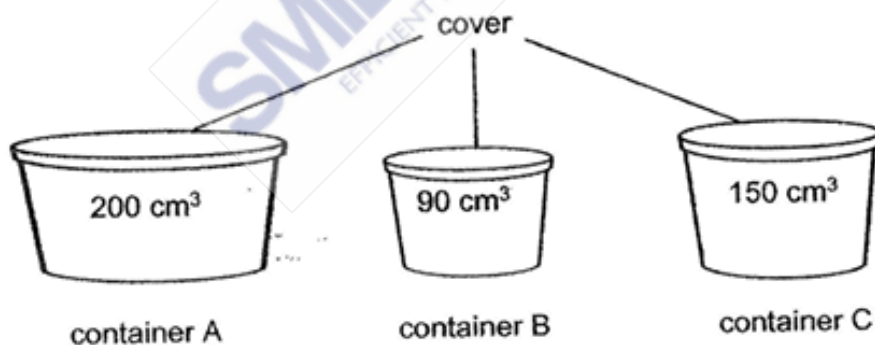
- 26 The basketball becomes bigger when air is pumped into it.



What does this tell us about air?

- (1) Air has mass.
- (2) Air cannot be seen.
- (3) Air occupies space.
- (4) Air cannot be compressed.

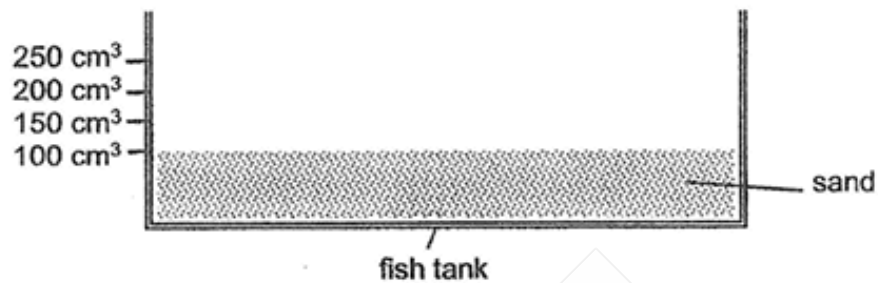
- 27 The diagram below shows three tightly covered containers with different volumes.



Which covered container(s) can be filled with  $180 \text{ cm}^3$  of air?

- (1) A only
- (2) C only
- (3) A and C
- (4) A, B and C

- 28 Ken bought a new fish tank. He filled it with sand up to the  $100\text{ cm}^3$  mark as shown in the diagram below.



The next day, he poured  $150\text{ cm}^3$  of water into the tank.

What will be the water level in the beaker be?

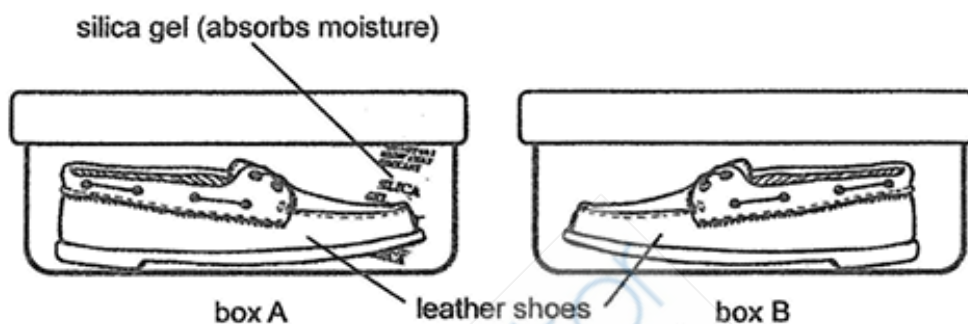
- (1)  $100\text{ cm}^3$
- (2)  $250\text{ cm}^3$
- (3) more than  $250\text{ cm}^3$
- (4) between  $100\text{ cm}^3$  and  $250\text{ cm}^3$

**Section B: (44 marks)**

Write your answers to questions 29 to 40 in the space provided.

The number of marks available is shown in brackets [ ] at the end of each question or part question.

- 29 Ahmad placed an identical leather shoe in two identical boxes, A and B, as shown in the diagram below. He placed a packet of silica gel in box A. The two boxes were then covered and placed in a shoe cabinet.



After a month, Ahmad found grey substance on the shoe in box B but not on the shoe in box A.

- (a) Name the grey substance found on the shoe in box B. [1]

---

- (b) Explain why the grey substance was not found on the shoe in box A. [2]

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- (c) State one other condition needed for the grey substance to grow. [1]

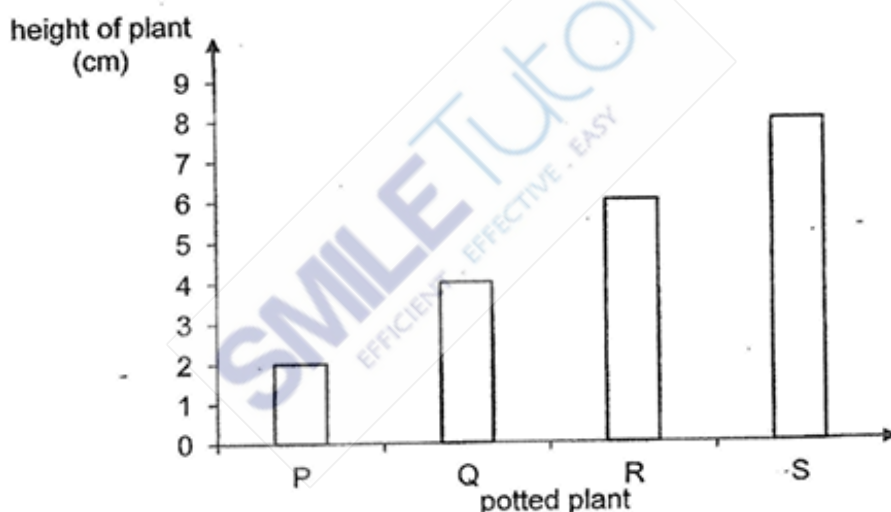
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- 30** Kumar placed four similar potted plants, P, Q, R and S, under the sun for a different number of hours over a period of ten days. Each potted plant was watered with the same amount of water each day.

The table below shows the number of hours the plants were placed under the sun for each day.

potted plant	number of hours exposed to the sun
P	1
Q	3
R	5
S	7

After ten days, Kumar measured the height of the plants and plotted a graph as shown below.



- (a) From the table and graph, what is the relationship between the number of hours the plant is exposed to the sun and the height of the plant? [1]

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---

- (b) Explain why Kumar had to expose the plants to the sun. [2]

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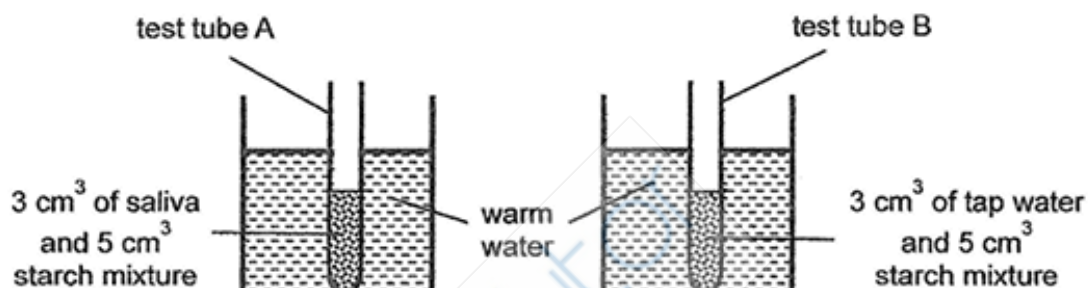
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- 31 Lee wants to find out if there are digestive juices in saliva that can digest starch. In his experiment, he uses iodine to test for starch. The colour change of iodine is shown in the table below.

presence of starch	colour of iodine
absent	remains brown
present	turns blue-black

Lee sets up the experiment as shown below.



Every 20 seconds, Lee takes a drop of the mixture from each test tube and tests the mixture with iodine.

He records the results in the table below.

time (seconds)	20	40	60	80	100
colour of iodine in test tube A	blue-black	blue-black	blue-black	brown	brown
colour of iodine in test tube B	blue-black	blue-black	blue-black	blue-black	blue-black

- (a) State the reason why the colour of iodine in test tube A changes from blue-black to brown but the colour of iodine in test tube B remains unchanged at 80 seconds?

[2]

Test tube A : \_\_\_\_\_

\_\_\_\_\_

Test tube B : \_\_\_\_\_

\_\_\_\_\_



**(b)** What can Lee conclude from (a) about saliva? [1]

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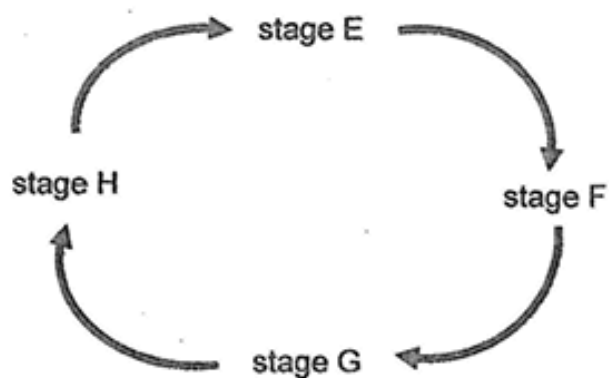
**(c)** What will Lee observe if the amount of saliva used in test tube A is increased to 5 cm<sup>3</sup>? [1]

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**32** The life cycle of animal Z is shown in the diagram below.



life cycle of animal Z

Animal Z is able to reproduce at stage F only. At stage G, it can be found on leaves. It sheds its skin multiple times at stage H. It stops eating at stage E.

**(a)** Identify the stages in the life cycle of animal Z. [2]

(i) E : \_\_\_\_\_

(ii) F : \_\_\_\_\_

(iii) G : \_\_\_\_\_

(iv) H : \_\_\_\_\_

**(b)** Which animal group does animal Z belongs to? [1]

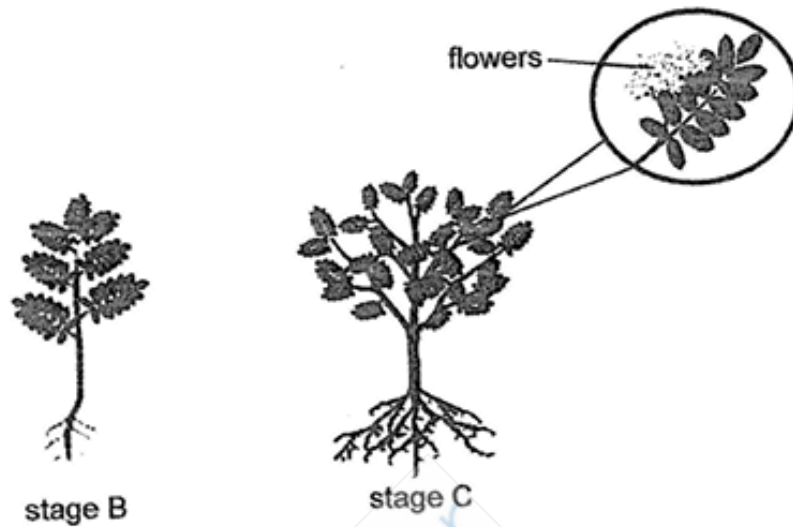
\_\_\_\_\_

**(c)** Give a reason why stage G can be found on leaves. [1]

\_\_\_\_\_

\_\_\_\_\_

**33** The diagram below shows the different stages of the life cycle of a wheat plant.



**(a) (i)** Identify stage B and C. [1]

Stage B : \_\_\_\_\_

Stage C : \_\_\_\_\_

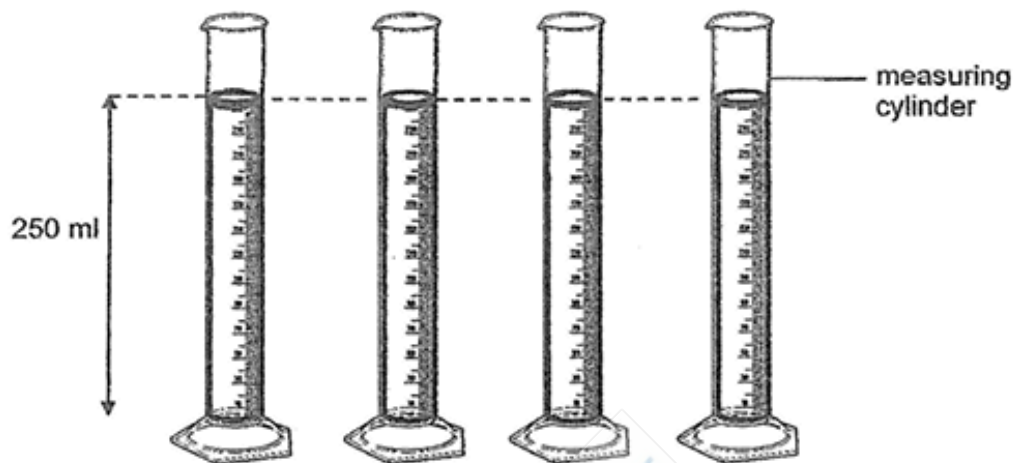
**(ii)** Give a reason for your answer in (i). [1]

\_\_\_\_\_  
 \_\_\_\_\_

**(b)** Is the plant able to make food at stage B? Explain why. [1]

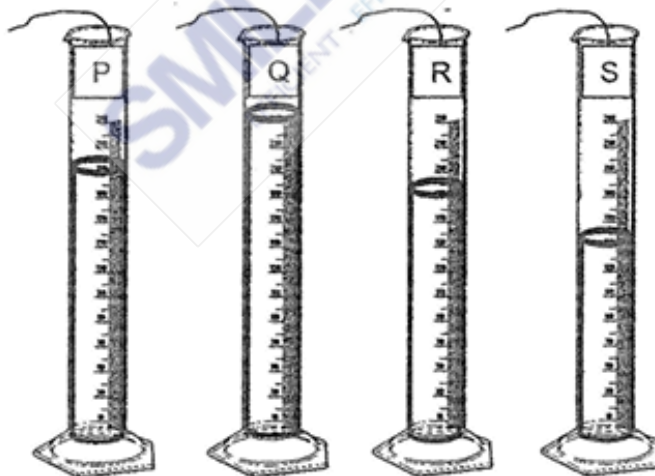
\_\_\_\_\_  
 \_\_\_\_\_

- 34 Miko poured 250 ml of water into each of four identical measuring cylinders as shown in the diagram below.



Miko then dipped four strips, P, Q, R and S of the same size, which are made of different materials into each measuring cylinder for a minute and removed them.

The diagram below shows the measuring cylinders after she had removed the strips.



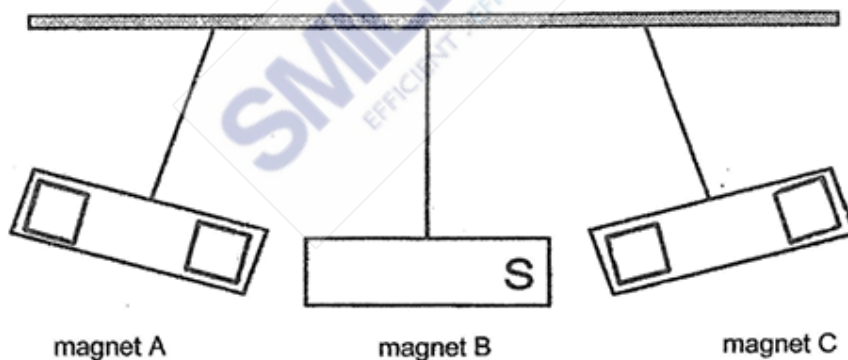
- (a) Which is the most absorbent material, P, Q, R or S?

[1]

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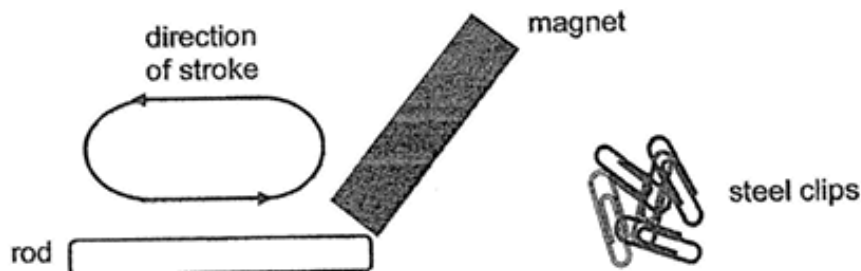
- 35 The diagram below shows what happens when three bar magnets, A, B and C, are suspended by strings next to one another.



- (a) In the boxes of the diagram above, label all the poles of magnets A and C, with the letters 'N' to show the North pole and 'S' to show the South pole. [2]
- (b) What will happen to magnets A and C if magnet B is removed from the set-up? [1]

---

- 36 Mary used a piece of bar magnet to magnetise a rod. She stroked the rod with the magnet from one end to the other end. She then observed the number of steel clips picked up by the rod as the number of strokes increased and recorded her observations in the table below.



Number of strokes	Number of steel clips picked up
20	2
40	4
60	5

- (a) What is the relationship between the number of strokes and the number of steel clips picked up by the rod? [2]

---



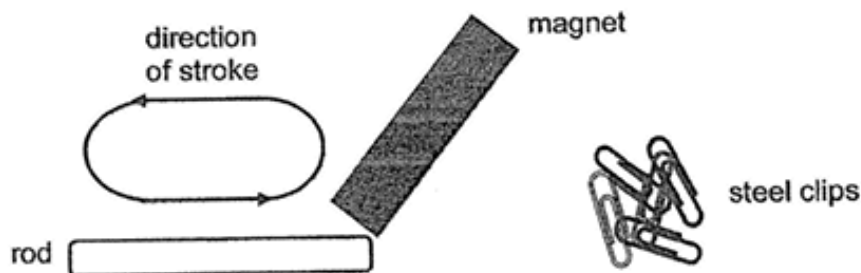
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- (b) Her friend, Jenny, used the same method to magnetise a rod made of a Different material. But the rod was not able to pick up any steel clips. Name the type of material that each rod is likely to be made of. [2]

Mary's rod: \_\_\_\_\_

Jenny's rod: \_\_\_\_\_

- 36** Mary used a piece of bar magnet to magnetise a rod. She stroked the rod with the magnet from one end to the other end. She then observed the number of steel clips picked up by the rod as the number of strokes increased and recorded her observations in the table below.



Number of strokes	Number of steel clips picked up
20	2
40	4
60	5

- (a) What is the relationship between the number of strokes and the number of steel clips picked up by the rod? [2]

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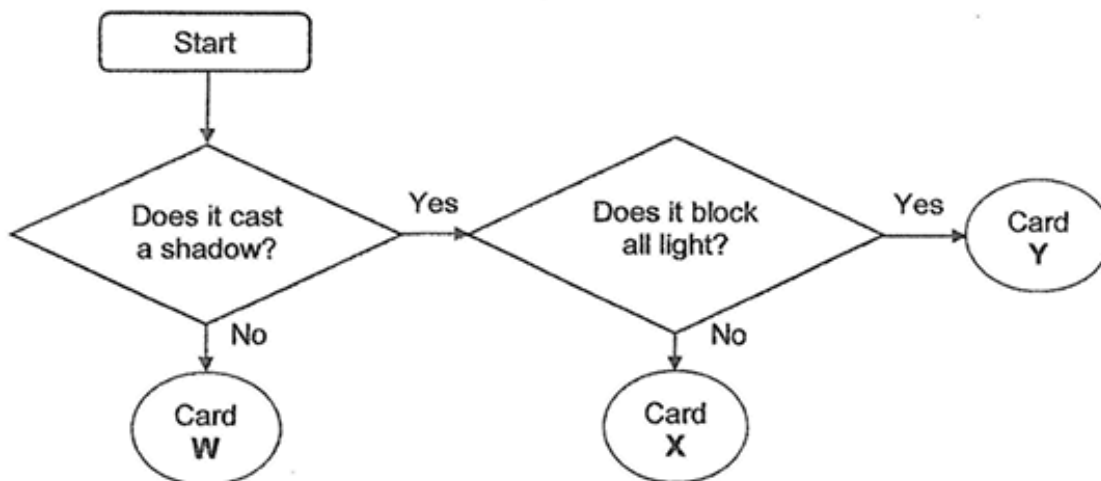
- (b) Her friend, Jenny, used the same method to magnetise a rod made of a Different material. But the rod was not able to pick up any steel clips. Name the type of material that each rod is likely to be made of. [2]

Mary's rod: \_\_\_\_\_

Jenny's rod: \_\_\_\_\_



37\* Study the flow chart below and answer the questions that follow.

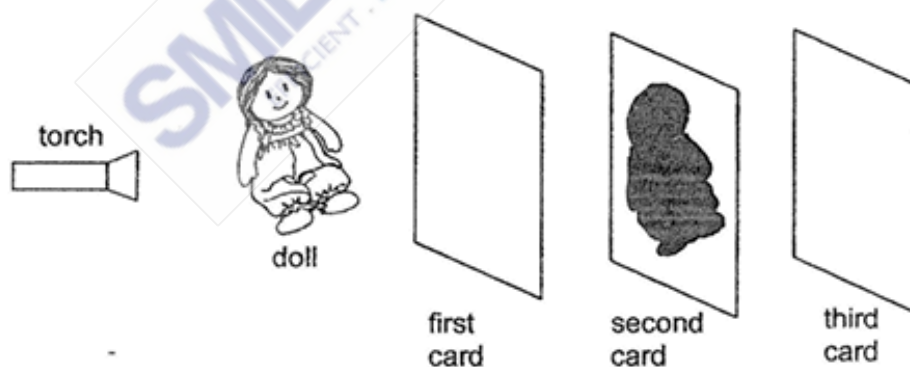


- (a) Based on the flow chart above, state the cards, W, X and Y, that can be used to make the following objects. [2]

Clear window pane : Card \_\_\_\_\_

Toilet door : Card \_\_\_\_\_

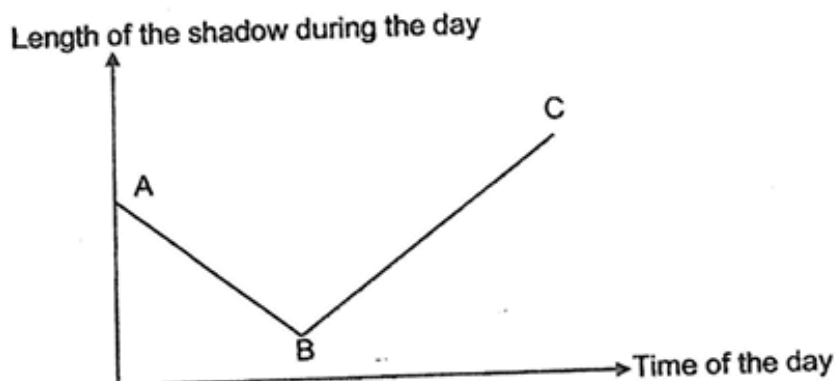
- (b) The three cards were arranged as shown in the diagram below. Same then shone a torch at a doll and observed a dark shadow on the second card. [2]



In the boxes below, write the letters, W, X and Y to identify the three cards used.

first	second	third

- 38 The line graph below shows the length of the shadow of a tree during the day.



- (a) Which part of the graph, A, B or C, shows the shadow of the tree at noon?  
 Explain your answer. [2]

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- (b) Sean is at the beach and he uses a beach umbrella to provide shade for himself from the glaring sun.



- Will he be able to see a shadow of the beach umbrella on the ground?  
 Explain your answer. [2]

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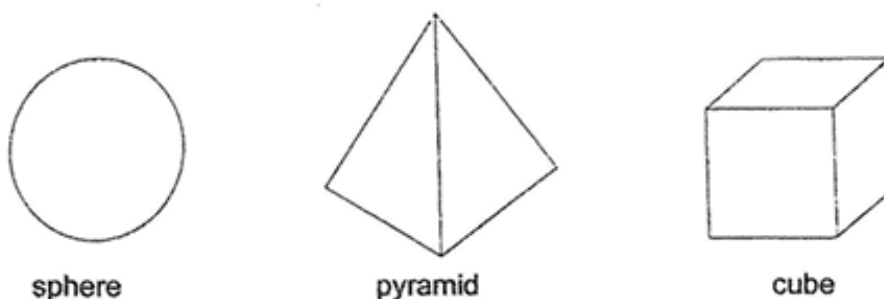


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- 39 As part of an experiment, Jason moulded the same piece of clay into a sphere, a pyramid and a cube, one at a time as shown below.



- (a) Would the mass of the clay change when Jason moulded it? Explain your answer. [1]

---

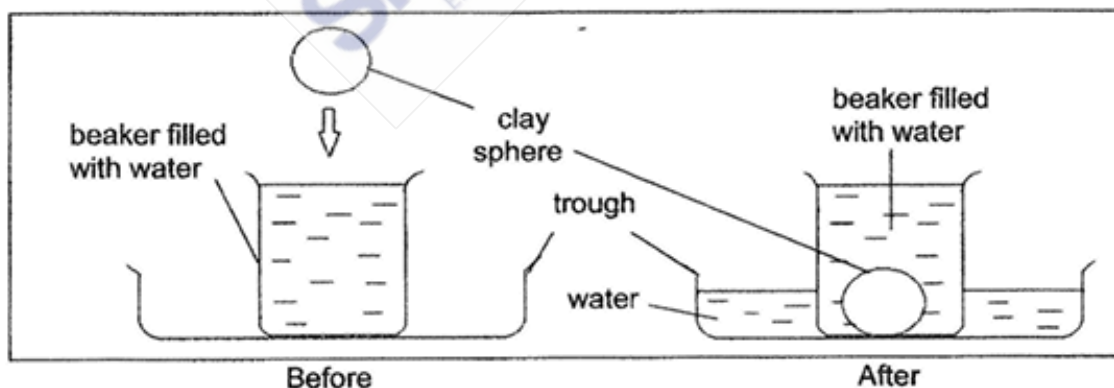


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- (b) What property changed when the clay was being moulded? [1]

---

- (c) Jason decided to take the experiment a step further. He prepared a beaker full of water. He then placed the clay sphere gently into the beaker and noticed that some water overflowed from the beaker to the trough as shown in the diagram below.



- Based on the experiment above, what can you conclude about the clay? [1]

---

40 (a) State two common properties of all matter.

[2]

---



---

The table below shows the properties of four specimens, A, B, C and D.

Properties	A	B	C	D
Can be seen.	No	Yes	Yes	Yes
Has mass.	Yes	Yes	No	Yes
Is a non-living thing.	Yes	No	Yes	Yes
Has a definite volume.	No	Yes	No	Yes

(b) Which of the specimen(s), A, B, C or D, is / are matter?

[1]

---

(c) Based on the properties given in the table, give an example of specimen A. [1]

---

~ End of paper ~

## ANSWER SHEET

### (BOOKLET A)

Q1	4	Q2	3	Q3	3	Q4	1	Q5	2
Q6	2	Q7	2	Q8	3	Q9	2	Q10	1
Q11	3	Q12	4	Q13	4	Q14	1	Q15	2
Q16	2	Q17	3	Q18	1	Q19	1	Q20	2
Q21	3	Q22	4	Q23	3	Q24	3	Q25	1
Q26	3	Q27	4	Q28	4				

### (BOOKLET B)

Q29	a)	Mould
	b)	The silicon gel removes moisture from box A. Mould cannot grow without moisture.
	c)	Air
Q30	a)	As the number of hours exposed as the sun increases the height of the plant increases.
	b)	The plant can trap sunlight to make food.
Q31	a)	Test tube A :No more starch was presenting the mixture at 80 seconds Test tube B :Starch was still present in the mixture at 80 seconds
	b)	There are digestive juices that digest starch in saliva.
	c)	The iodine will turn from blue-black to brown before 80 seconds.
Q32	a)	(i) E: pupa (ii) F : adult (iii) G : egg (iv) H : larva
	b)	Insects
	c)	To ensure that the young have food once they are hatched.
Q33	a)	(i)Stage B : Young Stage C : Adult (ii) The plant in Stage C has flowers while the plant in Stage B does not.
	b)	Yes. Leaves helps the plants to make food.
Q34	a)	S
	b)	(i) Q. The amount of water left in the container after Q is removed is the same as the amount of water at the start of the experiment remains at 250cm <sup>3</sup> material Q is waterproof. Hence, it is suitable to use as grow when washing dishes and Miko's hand will not get wet. (ii) Rubber

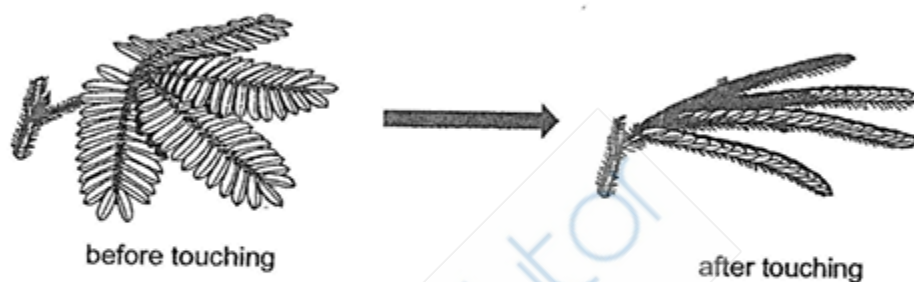
<b>Q35</b>	<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <p>S   N magnet A</p> <p>S   N magnet C</p> </div> <p>a)</p> <p>b) Magnet A will be attracted</p>
<b>Q36</b>	<p>a) As the number of strokes increases the number of steel clips picked up increases.</p> <p>b) Mary's rod: iron</p> <p>c) Jenny's rod: rubber</p>
<b>Q37</b>	<p>a) Clear window pane: Card W Toilet door: Card Y</p> <p>b) W, Y, X First, second, third</p>
<b>Q38</b>	<p>a) B. As the sun in noon is at the top the shadow would be the shortest.</p> <p>b) Yes. The umbrella is opaque causing a shadow to form on the ground.</p>
<b>Q39</b>	<p>a) The mass of clay did not change as no matter was removed from.</p> <p>b) The shape</p> <p>c) The clay occupies space</p>
<b>Q40</b>	<p>a) Matter occupies space and has mass</p> <p>b) Matter A, B and D</p> <p>c) Air</p>

## NAN HUA PRIMARY SCHOOL EOY PAPER

### Section A: (28 x 2 marks = 56 marks)

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

- 1 The leaves of a mimosa plant will close when touched.

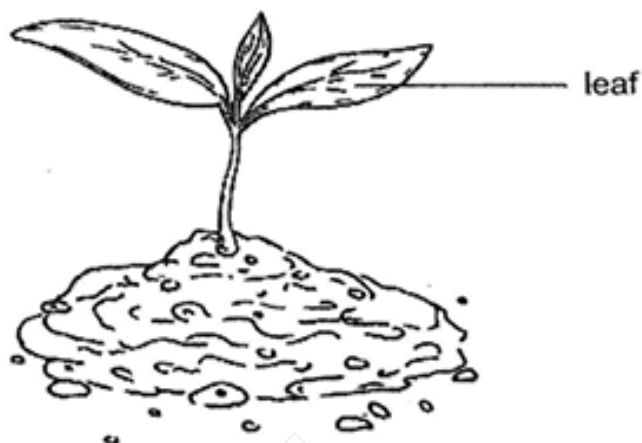


This shows that the mimosa is a living thing because it can \_\_\_\_\_.

- (1) grow
- (2) breathe
- (3) respond
- (4) reproduce



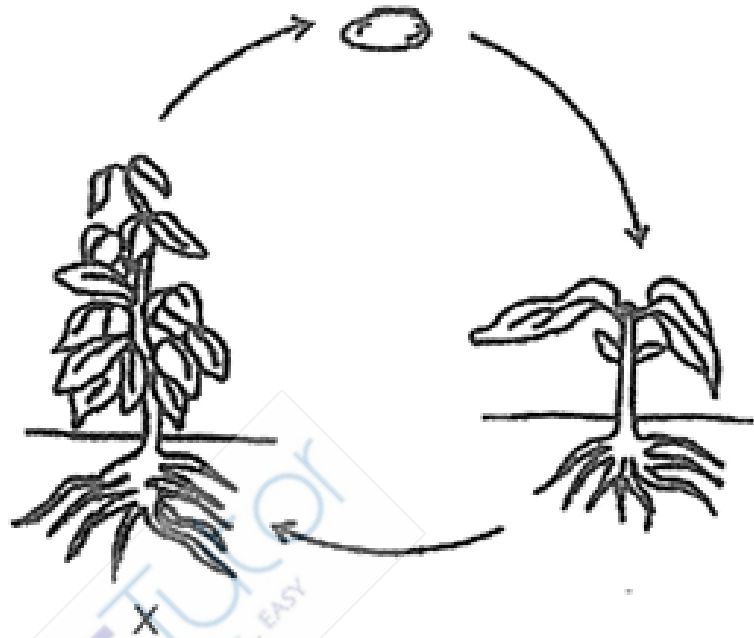
- 2 The diagram below shows a young plant.



The leaf helps the plant to \_\_\_\_\_.

- (1) make food
  - (2) grow upright
  - (3) absorb water
  - (4) absorb nutrient
- 3 In which part of the human digestive system is water absorbed into the blood?
- (1) gullet
  - (2) stomach
  - (3) small intestine
  - (4) large intestine

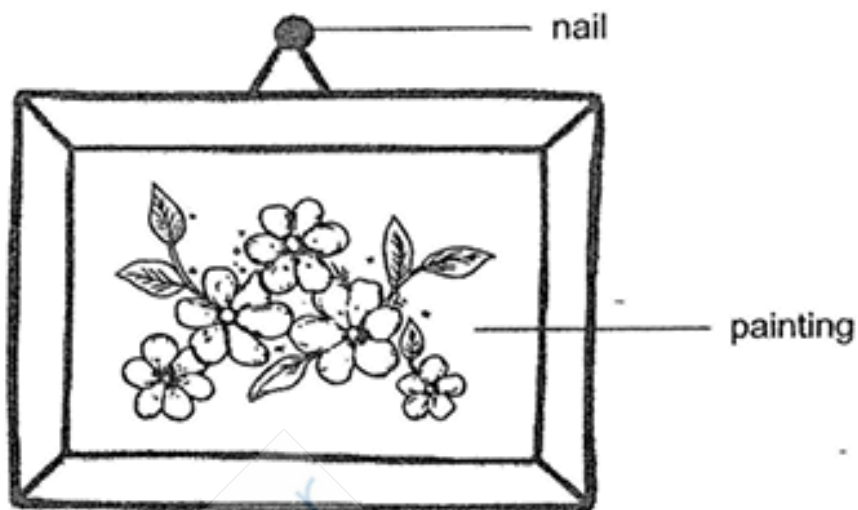
- 4 The diagram shows the life cycle of a plant.



What is the stage marked X?

- (1) egg
- (2) seed
- (3) adult plant
- (4) young plant

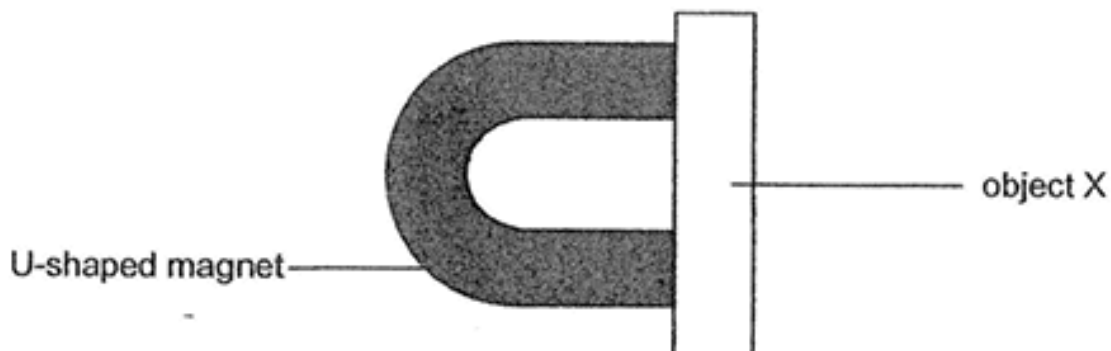
- 5 The diagram shows a painting hanging on a wall.



Iron is used to make nails because iron \_\_\_\_\_.

- (1) is shiny
- (2) is strong
- (3) sinks in water
- (4) conducts heat well

- 6 An object X was attracted to a U-shaped magnet, as shown in the figure below.



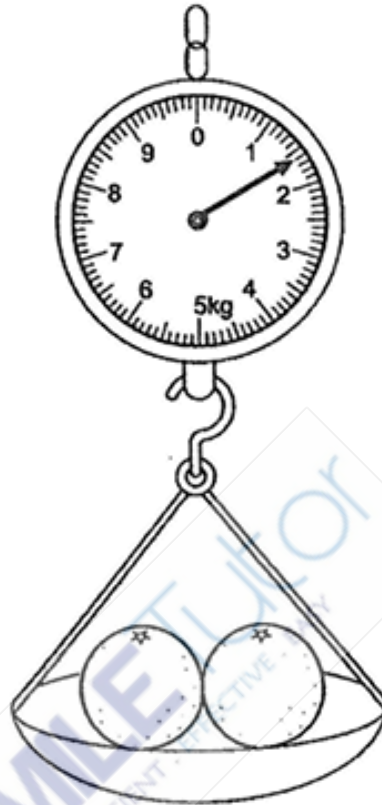
Object X is made of \_\_\_\_\_.

- (1) iron
  - (2) wood
  - (3) plastic
  - (4) rubber
- 7 Matter is anything that has mass and occupies space.

Which one of the following is **not** matter?

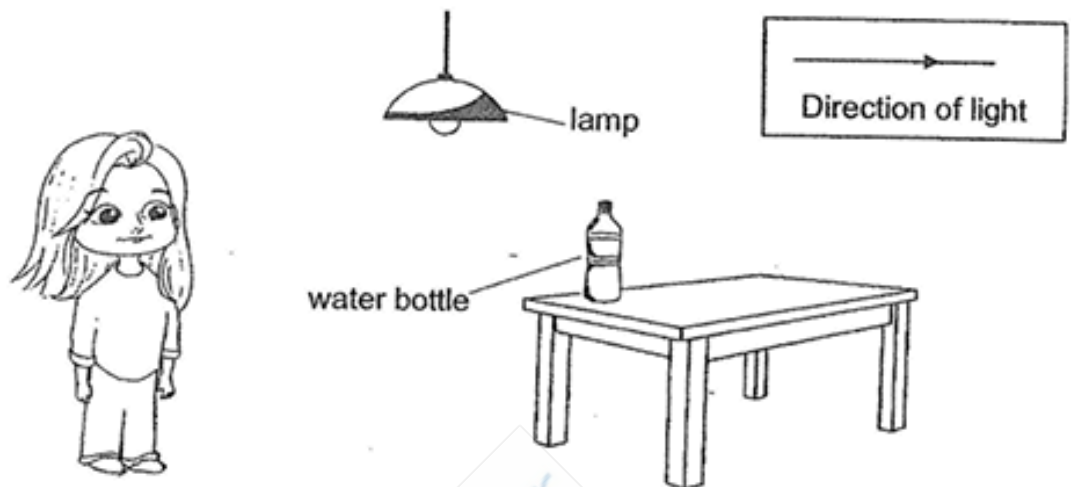
- (1) air
- (2) sand
- (3) music
- (4) water

- 8 The reading on the weighing scale shows that the mass of the oranges is \_\_\_\_\_ kg.

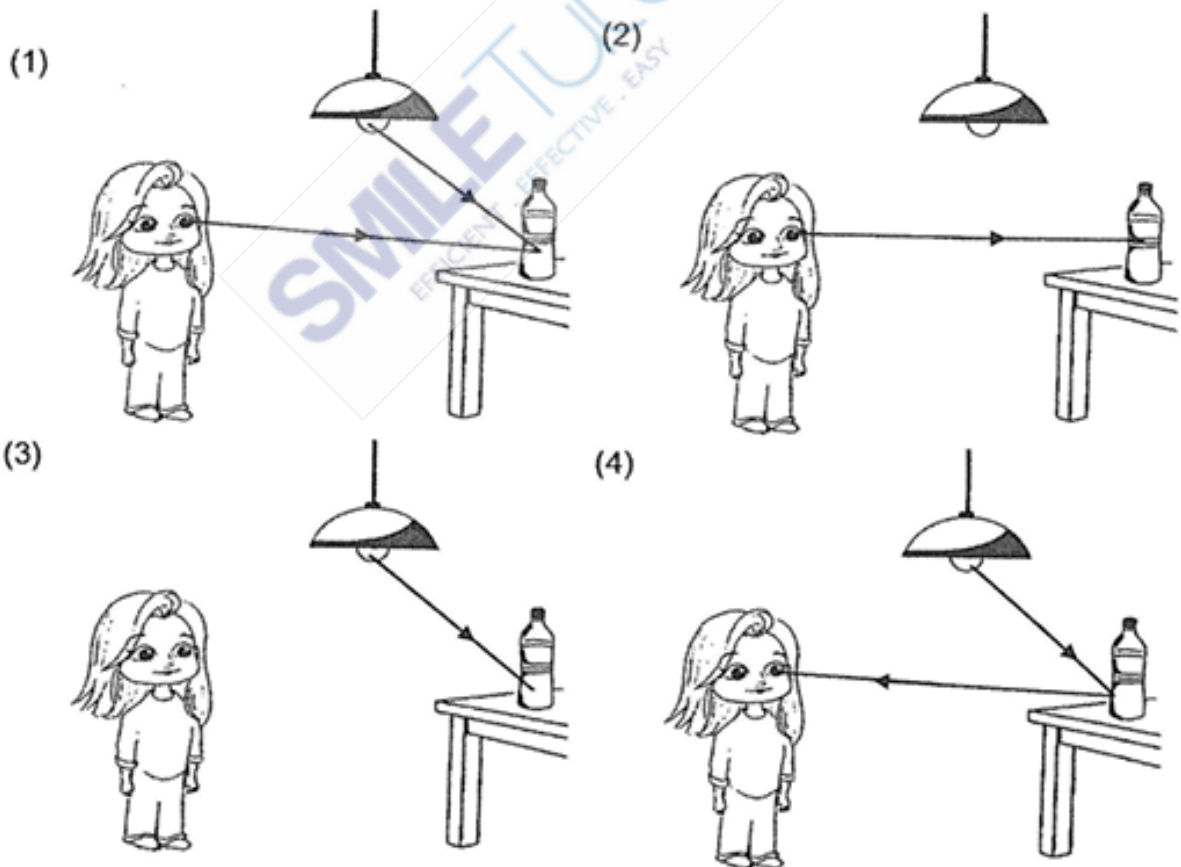


- (1) 1.4
- (2) 1.6
- (3) 2.4
- (4) 2.6

9 Look at the picture below.



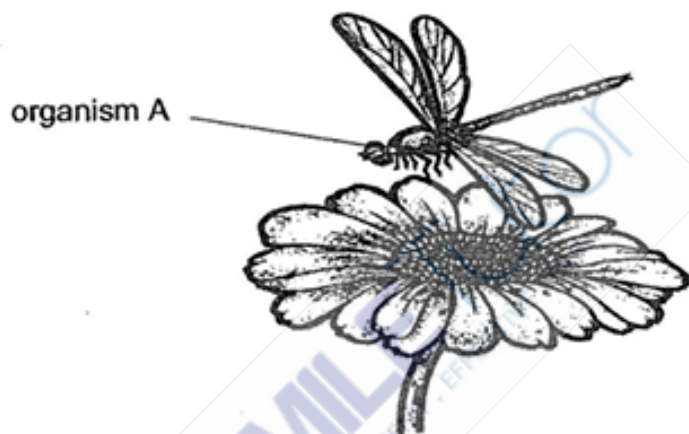
Which of the following explains why May was able to see her water bottle?



**10** Which one of the following is **not** a source of heat?

- (1) The Sun
- (2) A lighted bulb
- (3) A woollen shirt
- (4) A candle flame

**11** Jimmy wants to find out if organism A is an insect.

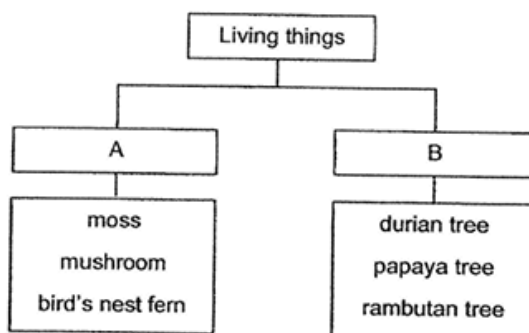


Which of the following characteristics will help Jimmy identify if organism A is an insect?

- (1) It can fly.
- (2) It has six legs.
- (3) It has huge eyes.
- (4) It has two pairs of wings.



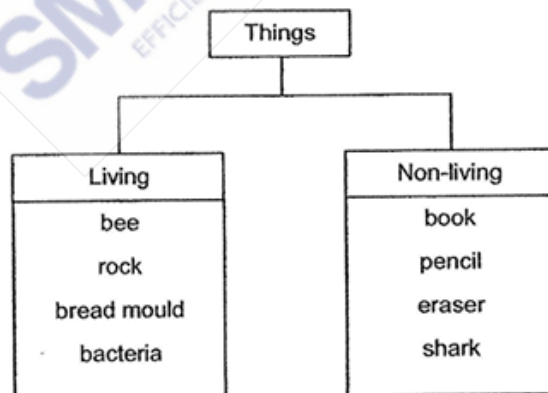
12 Study the chart below.



Which of the following best represents A and B correctly?

	A	B
(1)	fungi	plant
(2)	grow on land	grow in water
(3)	flowering plant	non-flowering plant
(4)	reproduce by spores	reproduce by seeds

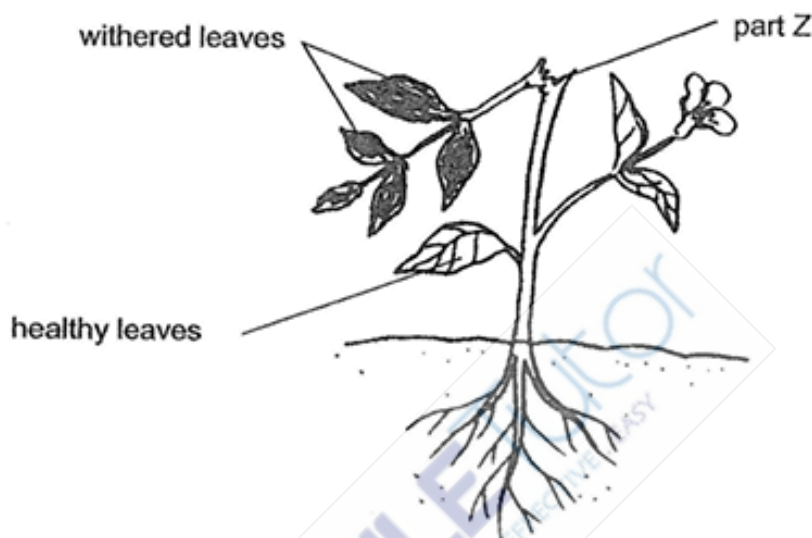
13 Study the classification chart below.



Which of the following have been placed in the wrong group?

- (1) bee and book
- (2) rock and shark
- (3) bacteria and eraser
- (4) bread mould and pencil

- 14 Amanda was gardening when she accidentally broke part of the stem at part Z as shown below. She observed that only the leaves originally growing above part Z had withered after a few days. The leaves below part Z remained healthy.



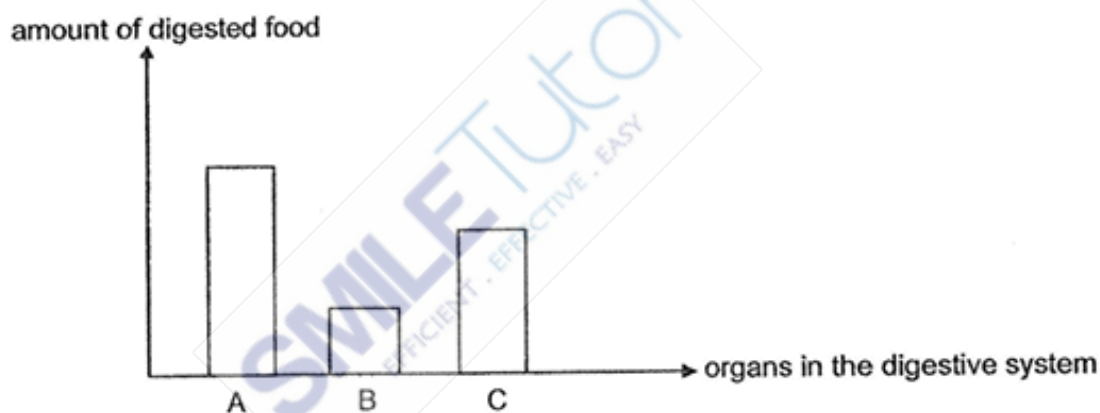
Which of the following statement best explains the observation she made?

- (1) Food could be transported to the leaves above part Z.
- (2) The leaves above part Z could not receive light to make food.
- (3) The leaves above part Z could not carry out gaseous exchange.
- (4) Water and mineral salts could not be transported to the leaves above part Z.

- 15 The table shows the different body systems and their functions.  
Which of the following **incorrectly** matches the function to the system?

	System	Function
(1)	skeletal	gives the body its shape
(2)	digestive	breaks down food into simple substances
(3)	circulatory	carries only digested food to all parts of the body
(4)	respiratory	enables gaseous exchange

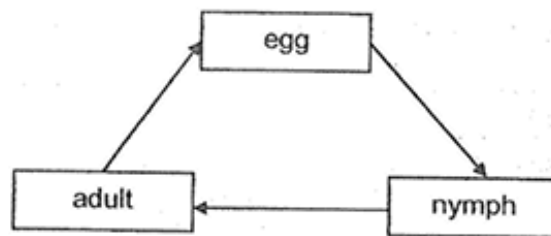
- 16 A, B and C are organs in the digestive system. The graph below shows the amount of digested food found in the different organs.



Which of the following correctly identifies organs A, B and C?

	Organ A	Organ B	Organ C
(1)	mouth	stomach	small intestine
(2)	mouth	small intestine	stomach
(3)	small intestine	mouth	stomach
(4)	small intestine	stomach	mouth

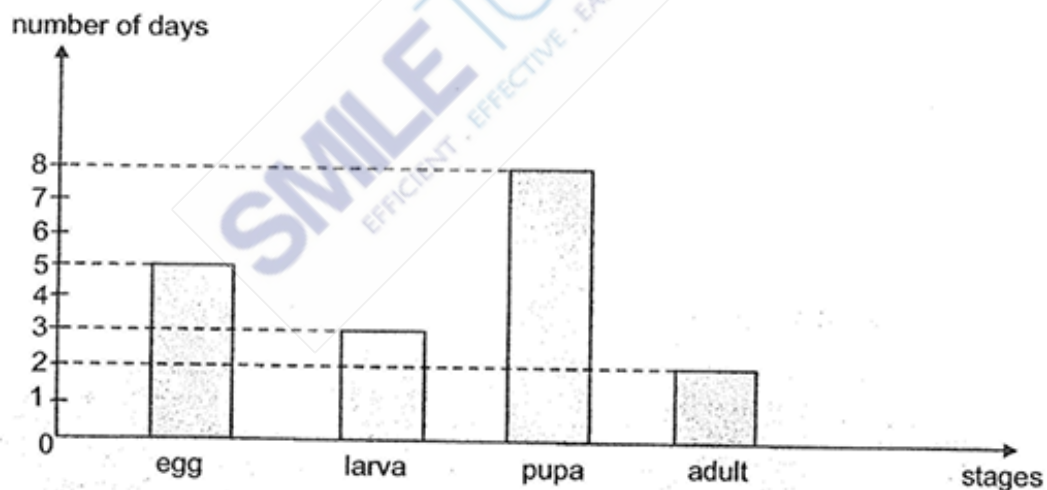
- 17 The diagram below shows the life cycle of organism X.



Which of the following could organism X be?

- (1) chicken
- (2) butterfly
- (3) mosquito
- (4) cockroach

- 18 The graph below shows the number of days organism Y remains in each stage of its life cycle.



Which of the following is true about the life cycle of organism Y?

- (1) The organism laid 5 eggs only.
- (2) The organism took about 5 days to lay its eggs.
- (3) The organism stayed in the pupa stage for 8 days.
- (4) The organism spent 1 more day as an adult than as a larva.

(Go on to the next page)

- 19 Jessica wanted to make part Q of a hammock as shown below.



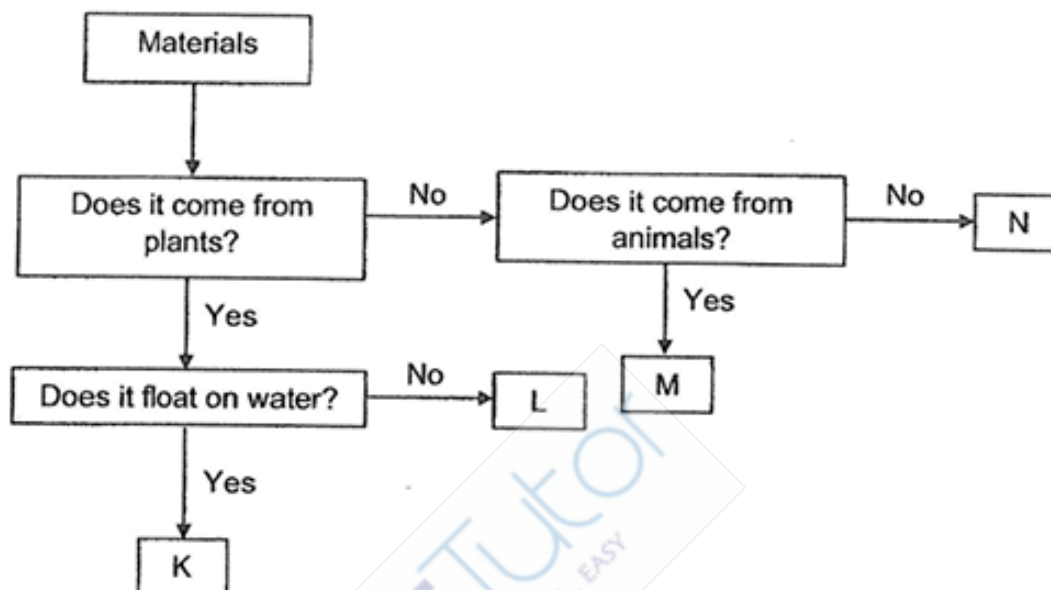
She carried out a few tests on materials, W, X, Y and Z and recorded their characteristics in the table below. A tick (✓) represents the presence of the characteristic in the material.

Material	Property		
	Flexible	Waterproof	Strong
W	✓	✓	
X	✓		✓
Y		✓	✓
Z	✓	✓	

Based on the information given in the table, which material was the most suitable for making part Q of the hammock?

- (1) Material W
- (2) Material X
- (3) Material Y
- (4) Material Z

- 20 Lucas classified some objects made of materials K, L, M and N, as shown below.

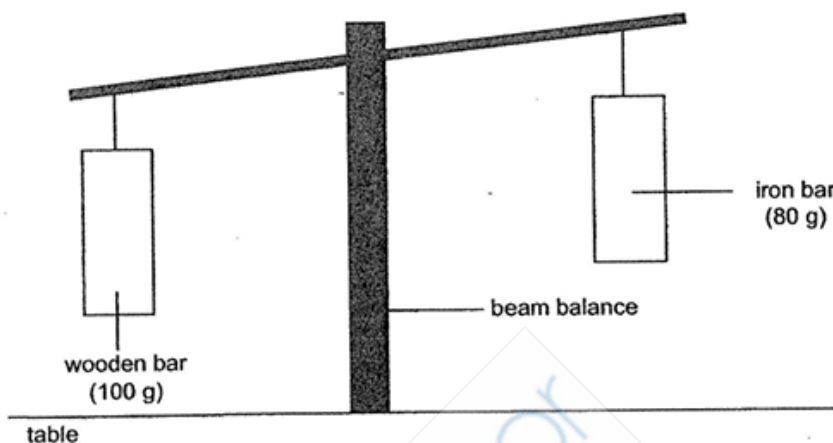


Which of the following correctly identifies the objects made of K, L, M and N?

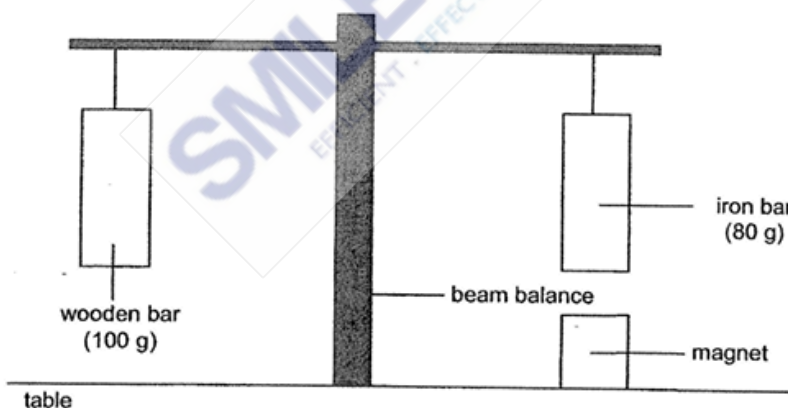
Objects made of different material				
	K	L	M	N
(1)	rubber	cotton	leather	metal
(2)	cotton	rubber	leather	metal
(3)	metal	cotton	rubber	leather
(4)	metal	leather	rubber	cotton



- 21 Lilian set up an experiment as shown in the diagram below. She attached a wooden bar of mass 100 g to the left while an iron bar of mass 80 g on the right and observed that the beam balance was tilted downwards to the left initially.



When she fixed a magnet to the table as shown in the diagram below, she realised the beam balance is now balanced.

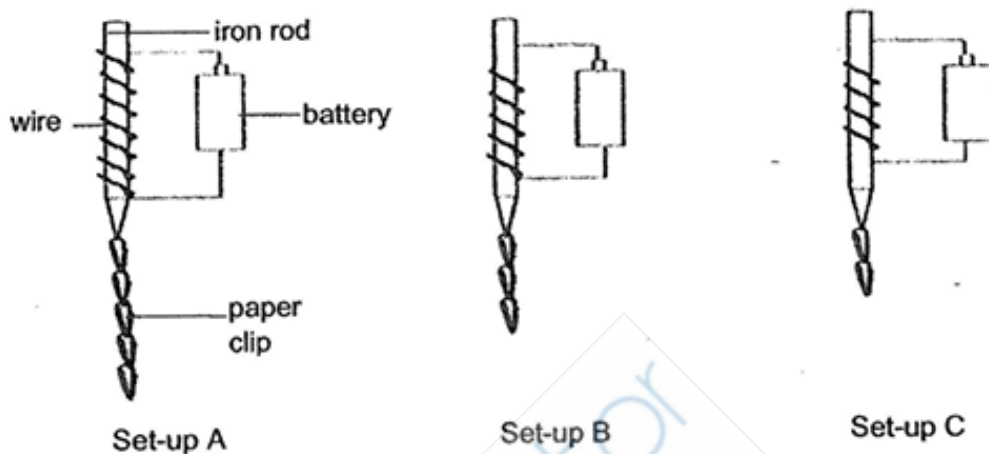


Which of the following statement explains how the beam balance is now balanced when the magnet is fixed to the table?

- (1) The magnet pushed the iron bar upwards as the iron bar is also a magnet.
- (2) The magnet pulled the iron bar downwards as the iron bar is also a magnet.
- (3) The magnet pushed the iron bar upwards as the iron bar is a magnetic material.
- (4) The magnet pulled the iron bar downwards as the iron bar is a magnetic material.



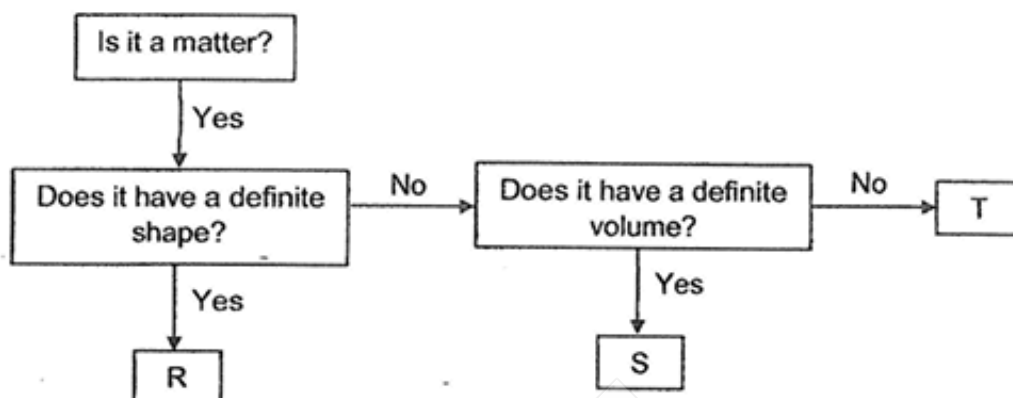
- 22** Jake carried out an investigation using identical batteries, iron rods and paper clips. He wanted to find out how the number of coils of wire around the iron rod will affect the strength of an electromagnet. The results of his tests are shown below.



What could Jake conclude from the results of his tests?

- (1) The iron rods became permanent magnets.
- (2) The iron rod in set-up A had the strongest magnetic strength.
- (3) The iron rod in set-up A was as strong as the iron rod in set-up C.
- (4) The iron rod in set-up B had a weaker magnetic strength than in set-up C.

23 Study the flow chart which classifies objects R, S and T below.



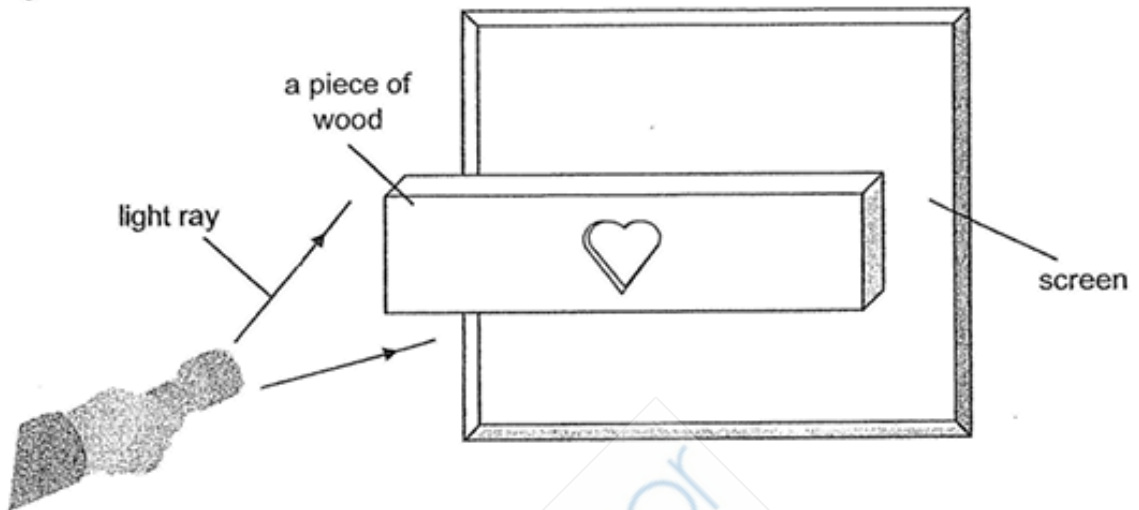
The table below shows the characteristics of objects C and D. A tick (✓) represents the characteristic an object possess.

Characteristic	Object	
	C	D
Occupies space	✓	✓
Can be compressed	✓	
Takes the shape of the container it is in	✓	

Based on the flow chart and the table above, which objects, R, S or T has similar characteristics as objects C and D?

	Object C	Object D
(1)	T	R
(2)	T	S
(3)	S	T
(4)	S	R

- 24 Peter cut out a heart-shape piece of wood from a wooden block as shown. He then shone light on it.

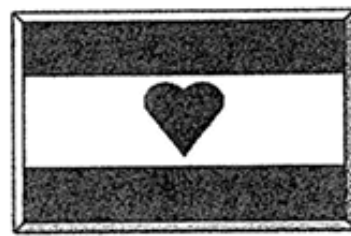


Which of the following image shows the correct image on the screen?

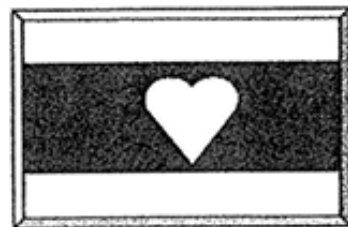
(1)



(2)



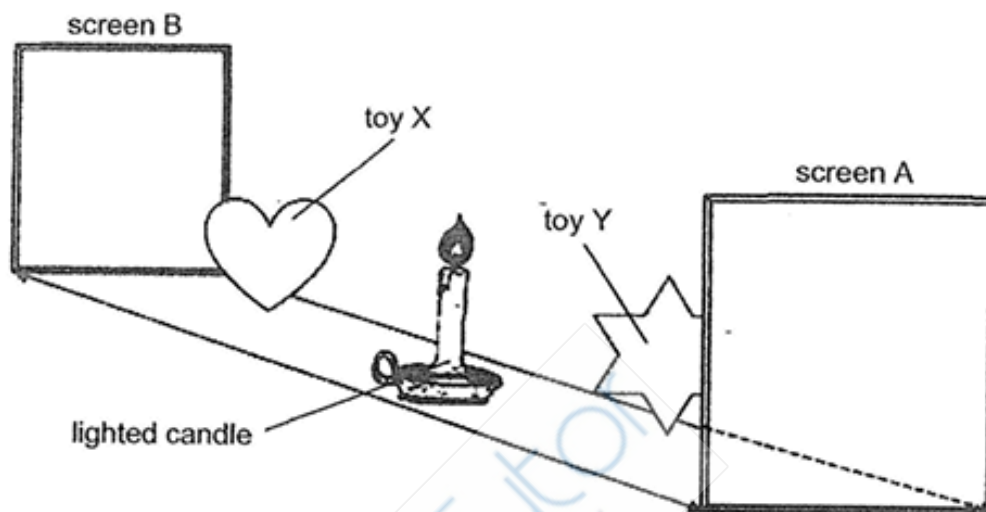
(3)



(4)



- 25 In a dark enclosed room, Tim placed two toys, X and Y, in a straight line. A candle is placed in the middle of the screens, A and B, and two toys as shown.



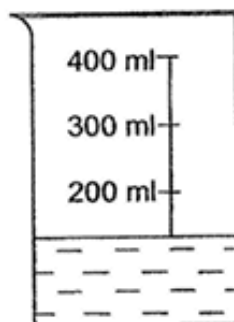
When the candle was lit, Tim moved toy Y towards the candle and toy X moves towards the screen B. The candle remained stationary.

Which of the following statement(s) above the size of the shadow is/are correct?

- A Toy Y's shadow increases in size on screen A.
- B Toy X's shadow increases in size on screen B.
- C Toy X's shadow increases in size on screen A.

- (1) A only
- (2) A and B only
- (3) B and C only
- (4) A, B and C

- 26 David prepared a beaker with 150 ml of water at 25 °C as shown below.



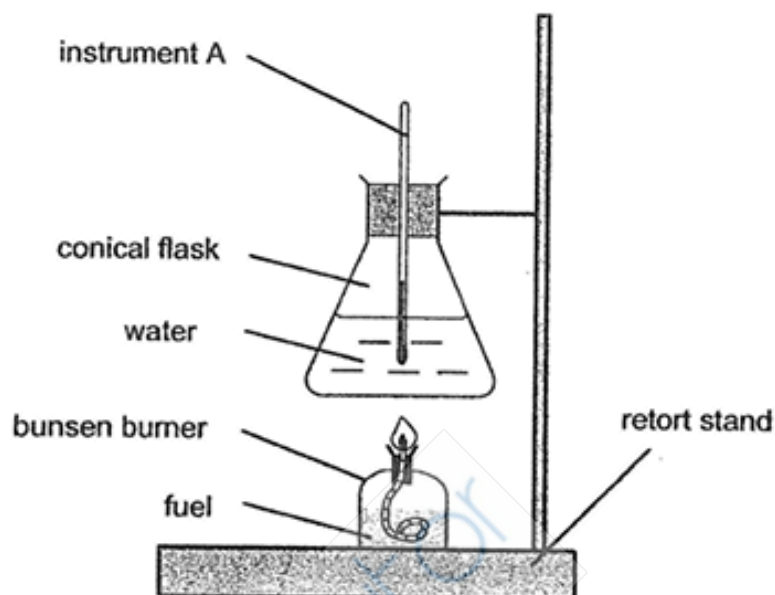
a beaker with 150 ml of  
water at 25 °C

He put some ice into the beaker.

What is a possible temperature of the water in the beaker after 2 minutes?

- (1) 0 °C
- (2) 15 °C
- (3) 30 °C
- (4) 45 °C

- 27 Mindy conducted an experiment with the set-up as shown below. She observed the temperature on instrument A after some time.

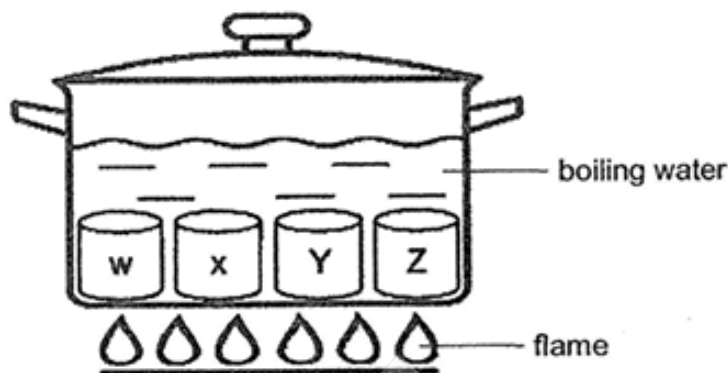


Which of the following statement(s) is/are correct?

- A Instrument A gains heat from the hot water and increases in temperature.
- B Instrument A loses heat to the surroundings and decreases in temperature.
- C Instrument A gains heat from the bunsen burner and decreases in temperature.

- (1) A only
- (2) C only
- (3) A and C only
- (4) B and C only

- 28 Ahmad set up an experiment as shown below to find out the ability of materials, W, X, Y and Z in conducting heat.



He submerged the materials into a pot of boiling water and recorded the temperature of each of the material in intervals of 5 minutes as shown below.

time (min)	temperature (°C)			
	Material W	Material X	Material Y	Material Z
0	25	25	25	25
5	34	50	42	27
10	42	72	57	29

Based on the results above, arrange the materials according to their ability to conduct heat.

	Poorest conductor of heat → Best conductor of heat
(1)	W, X, Y, Z
(2)	X, Y, Z, W
(3)	Y, Z, X, W
(4)	Z, W, Y, X

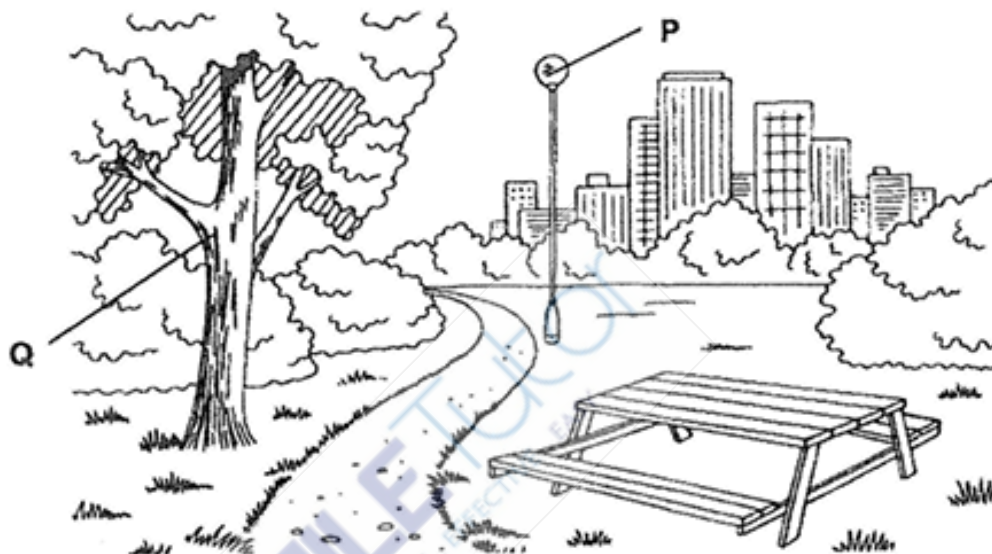


**Section B: (44 marks)**

For questions 29 to 41, write your answers in the spaces provided.

The number of marks available is shown in brackets [ ] at the end of each question or part question.

29 Peter saw some living and non-living things in the park.



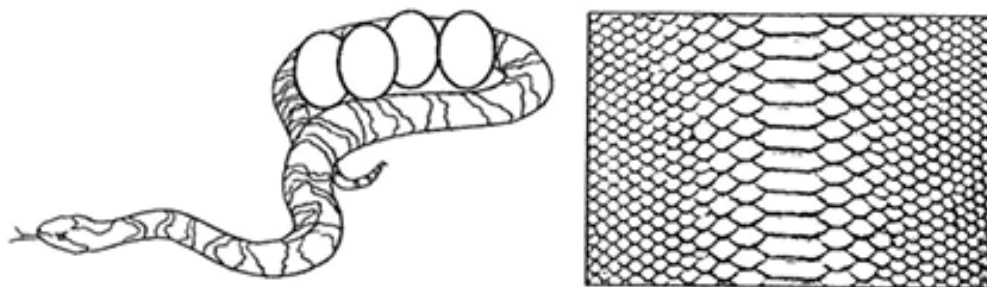
State if P and Q are living or non-living things.

(a) P is a \_\_\_\_\_ . [1]

(b) Q is a \_\_\_\_\_ . [1]

(c) Look at the diagram below.

[2]

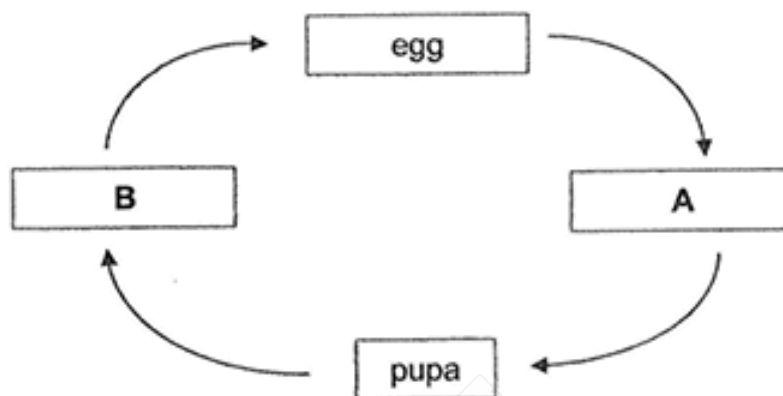


Tick (✓) 2 boxes below.

It is a reptile because \_\_\_\_\_.

- ☐ it lays eggs
- ☐ it has scales
- ☐ it has three body parts
- ☐ it breathes with its lungs

30 The diagram below shows the stages in the life cycle of a beetle.



Choose the correct words from the box to answer the question below.

seed	larva	adult	nymph
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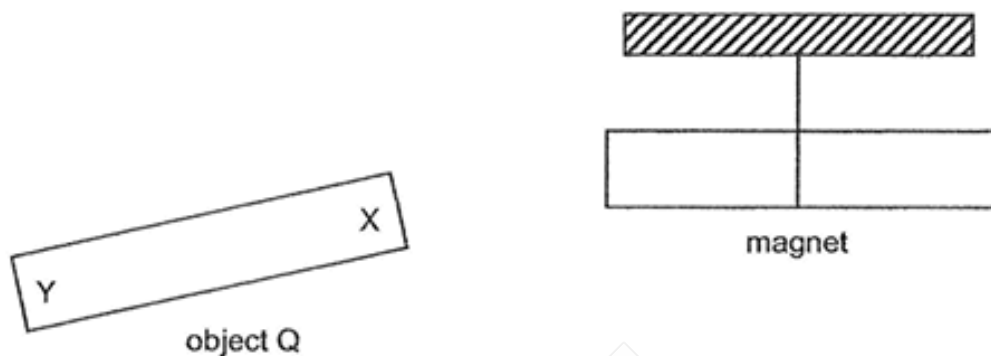
Name the two stages A and B.

[2]

A: \_\_\_\_\_

B: \_\_\_\_\_

- 31 When end X of object Q is brought near a magnet as shown, the magnet moves away.



- (a) This shows that object Q is a \_\_\_\_\_. [1]
- (b) When end Y of object Q is brought near to the north pole of the magnet, it \_\_\_\_\_ the magnet. [1]
- (c) A magnet when hung freely will come to rest in a \_\_\_\_\_ direction. [1]

**32** Johnny shines a torch on a toy and a shadow is formed on a smooth wall.



(a) A shadow is formed when light is \_\_\_\_\_ by an object. [1]

(b) Draw the shadow of the basketball that is formed on the wall. [1]



(c) Johnny wants to make the shadow of the basketball smaller.  
Suggest a way to make that happen without moving the torchlight and the smooth wall. [1]

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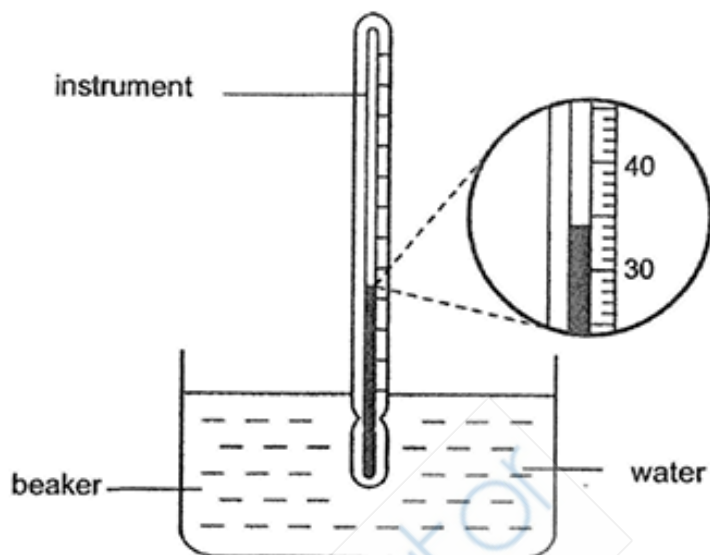
(d) Johnny wants to make the shadow of the basketball bigger instead.  
Suggest a way to make that happen without moving the basketball and the smooth wall. [1]

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- 33 Tim used an instrument to measure the temperature of water in a beaker as shown below.



- (a) What is the name of the instrument? [1]

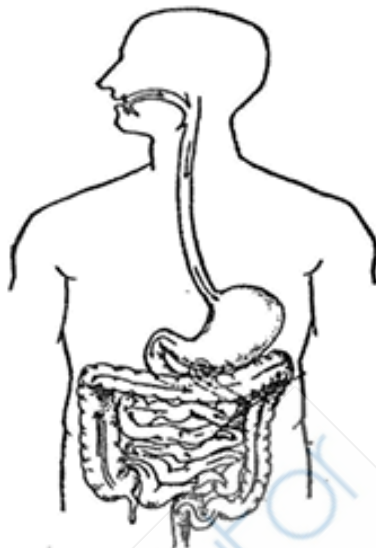
\_\_\_\_\_

- (b) What is the temperature of the water in the baker? \_\_\_\_\_ °C [1]

- (c) State what is temperature. [1]

\_\_\_\_\_  
\_\_\_\_\_

**34** The diagram shows a human digestive system.



- (a) In the diagram above, label the part of the digestive system where food is absorbed. [1]
- (b) Jason's mother had told him to chew his food longer before swallowing so that he can digest his food faster.  
Do you agree with her? Explain your answer. [2]

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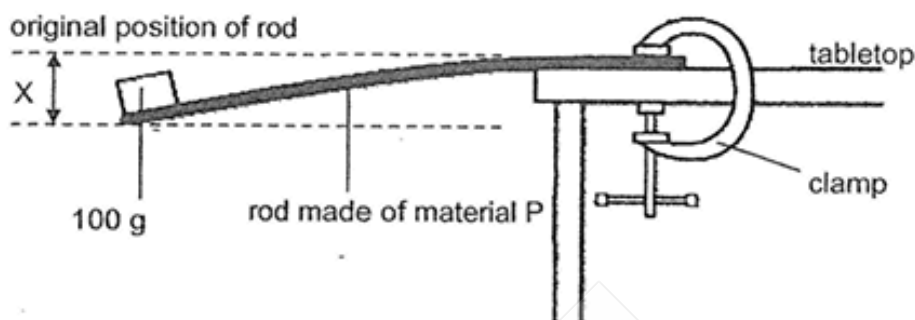
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- 35 Mr Lee carried out an experiment to test out a property of a rod made of material P. He secured one end of the rod on the tabletop using a clamp and taped a 100 g mass at the end of the rod. He observed that the rod moved downwards and measured the distance,  $X$ , as shown below.

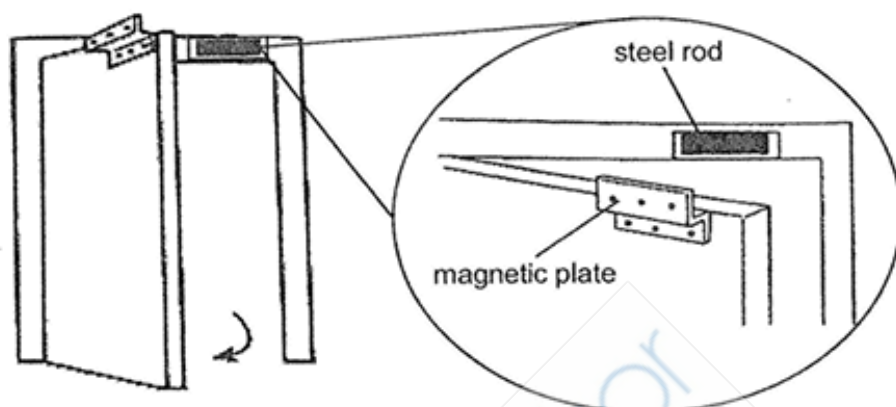


He repeated the experiment with 2 other rods made of materials Q and R and recorded all the results in the table below.

Material	Distance $X$ (cm)
P	8
Q	0
R	3

- (a) What was the property of the rods that Mr Lee was most likely investigating in the experiment above? [1]
- \_\_\_\_\_
- (b) Identify the changed (independent) variable in the experiment. [1]
- \_\_\_\_\_
- (c) Which material, P, Q or R, is the most suitable to make into a food tray? Explain your answer. [2]
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

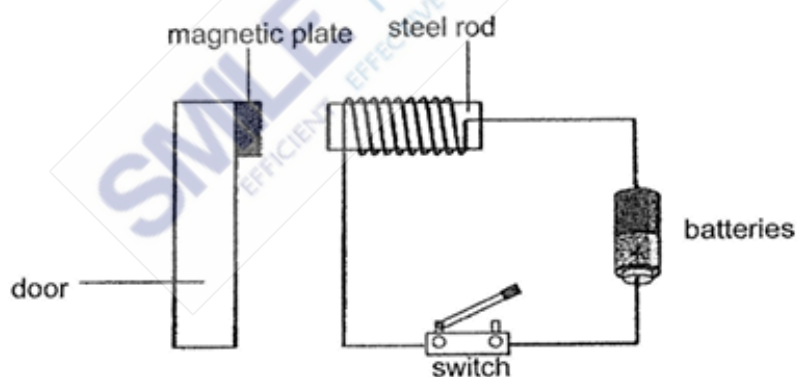
- 36 In some places, the doors for the office are fitted with an electromagnet as shown below to ensure that the doors always remain closed. To open the door, a switch has to be pressed to open the circuit which will result in a short disconnection to an electrical supply.



front view of the electromagnetic door

close-up view of the electromagnetic part

The diagram below shows the circuit to operate the electromagnet.



- (a) Explain clearly how the door stays locked when the switch is closed. [2]

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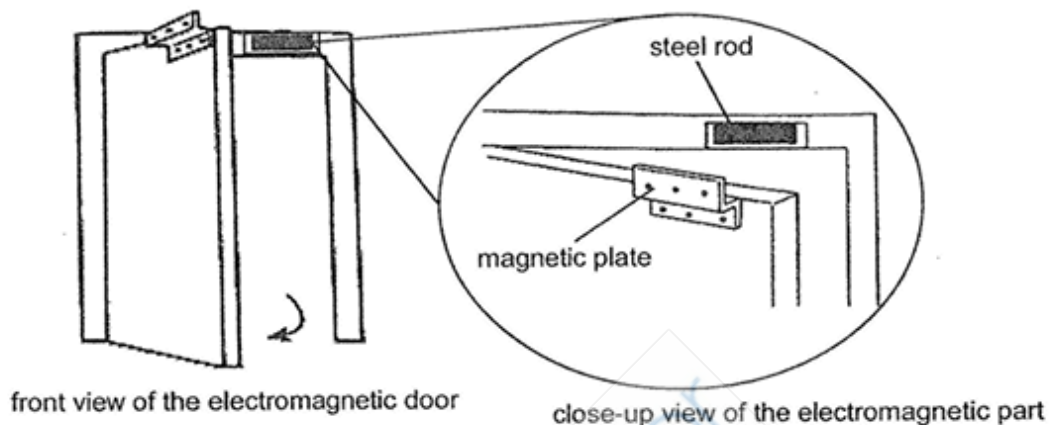


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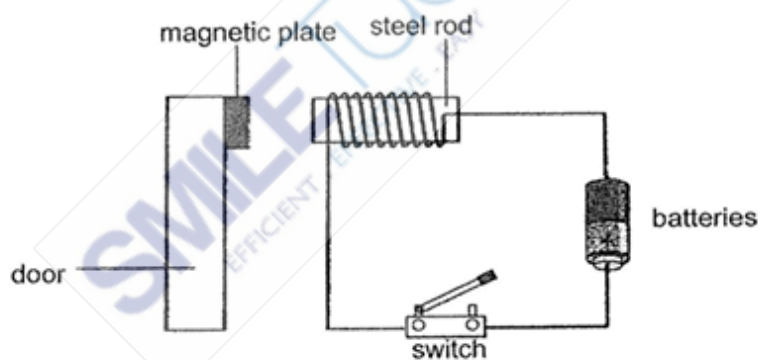


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- 36 In some places, the doors for the office are fitted with an electromagnet as shown below to ensure that the doors always remain closed. To open the door, a switch has to be pressed to open the circuit which will result in a short disconnection to an electrical supply.



The diagram below shows the circuit to operate the electromagnet door.



- (a) Explain clearly how the door stays locked when the switch is closed. [2]

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- (b) State two ways in which the strength of the electromagnetic door lock can be increased. [2]

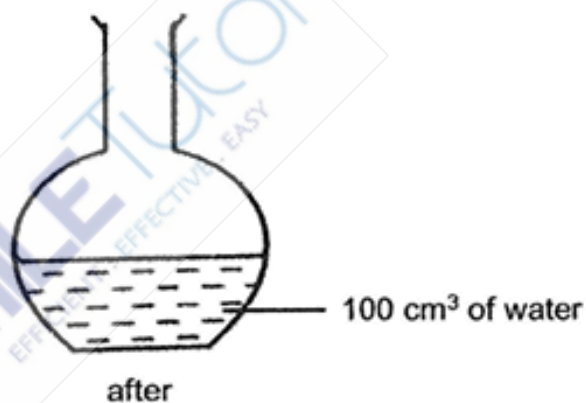
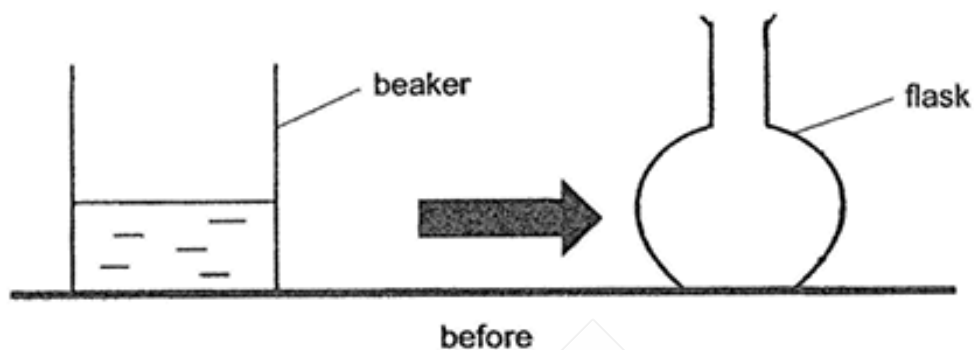
(i) 

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(ii) 

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- 37 Sandy transferred  $100\text{ cm}^3$  of water from a beaker to an empty flask as shown below.



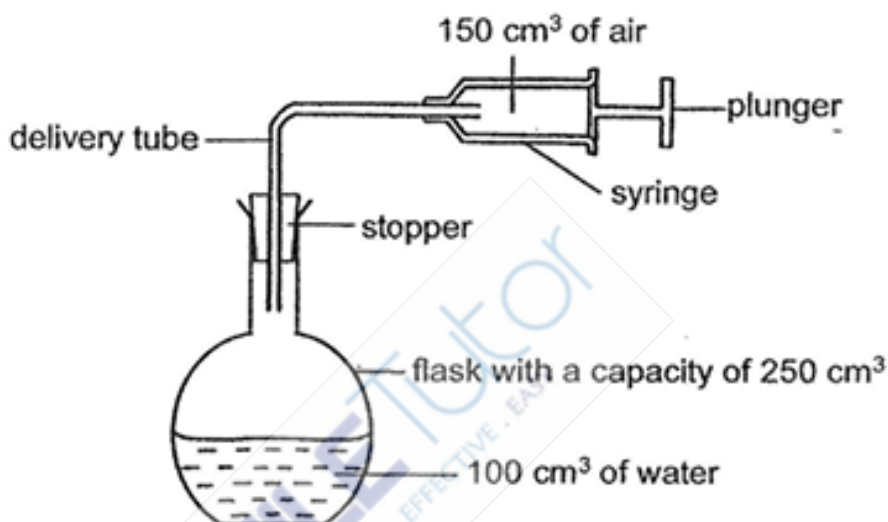
- (a) State two properties of water when it is a liquid. Explain in terms of shape and volume. [1]

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- (b) Sandy then attached a stopper, a delivery tube and a syringe to the flask containing the  $100\text{ cm}^3$  of water. The flask has a capacity of  $250\text{ cm}^3$ .

The plunger was pushed inwards twice.  $150\text{ cm}^3$  of air enters the flask each time the plunger was pushed in.



What is the final volume of the air in the flask after the plunger was pushed in twice? [1]

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- (c) State one property of air that best explains your answer in part (b). [1]

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- 38 Jason was planning to go for a holiday and he packed his clothes into a luggage. However, it would not fit as shown in diagram 1.

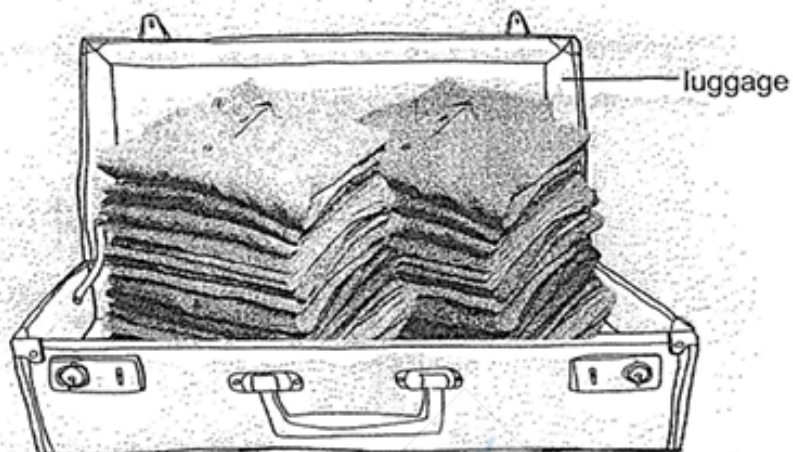


Diagram 1

- (a) Why was he not able to fit all his clothes in the luggage as shown above? Explain your answer in terms of volume. [1]

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He placed the two piles of clothes of equal masses into two vacuum bags, A and B. He used a suction machine to remove air from bag A, and sealed it as shown in diagram 2 below.

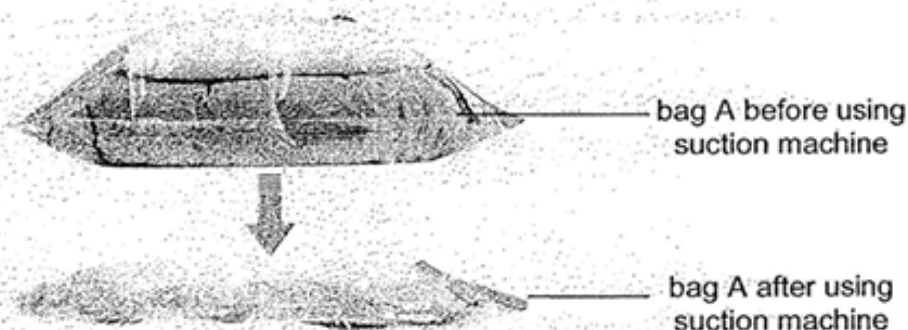


Diagram 2



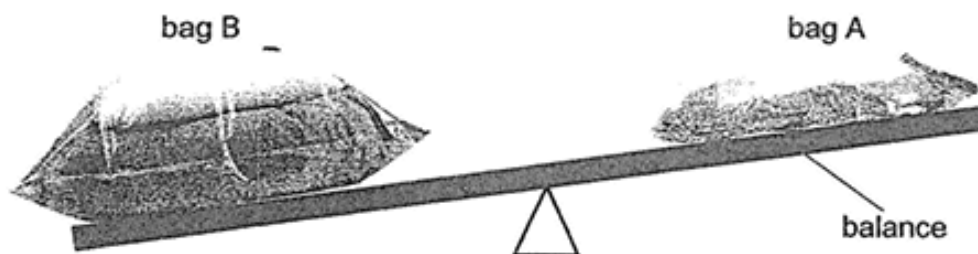


Diagram 3

He placed the two vacuum bags on a balance and observed that the balance tilted to the left as shown in diagram 3.

- (b) Why did the balance in diagram 3 tilted to the left? [2]

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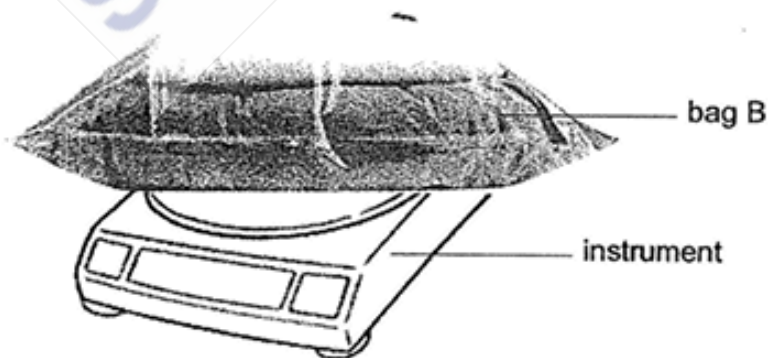


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- (c) Jason wants to find out the mass of bag B. He uses the instrument as shown below.



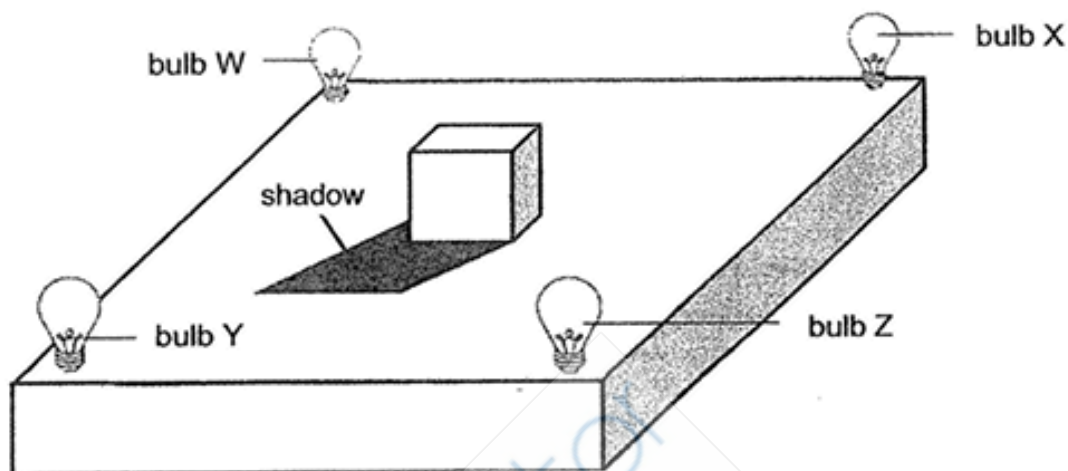
What is the name of the instrument used to measure the mass of the bag B?

[1]

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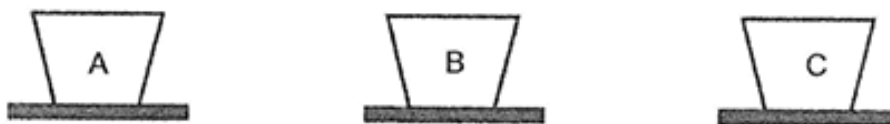


- 39** In the setup below, an object is placed in the centre with four light bulbs, W, X, Y and Z around it. Only one of the four bulbs is lighted up.



- (a) Which light bulb needs to be switched on to form the shadow as shown above? [1]
- \_\_\_\_\_
- (b) What property of the object enables it to form the shadows as shown? [1]
- \_\_\_\_\_
- (c) State the property of light that allows the shadow to be formed as shown above. [1]
- \_\_\_\_\_

- 40 Jane prepared three identical bowls, A, B and C, as shown below. She then poured different amount of hot soup into each bowl. The temperature of the soup in each bowl was  $60^{\circ}\text{C}$ . The bowls were left on a table in a room temperature of  $25^{\circ}\text{C}$ .



room temperature:  $25^{\circ}\text{C}$

After 10 minutes, she recorded the temperatures of the soup in each bowl in the table below.

Bowl	A	B	C
volume of hot soup (ml)	100	150	200
starting temperature ( $^{\circ}\text{C}$ )	60	60	60
temperature after 10 min ( $^{\circ}\text{C}$ )	45	X	50

- (a) State a possible temperature for X. [1]

---

- (b) Jane drank all the soup from bowls A and B. She left the soup in bowl C on the table to cool until it has reached a constant temperature.

- (i) State the constant temperature of the soup in bowl C. [1]

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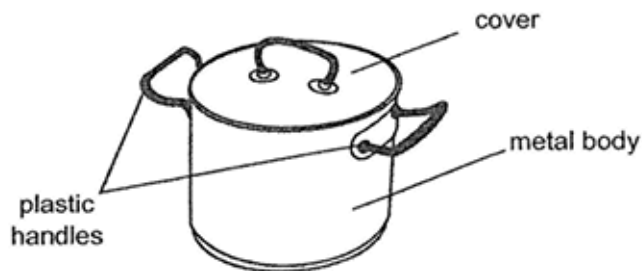
- (ii) Explain your answer to (b)(i). [1]

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41 The diagram below shows a metal pot.

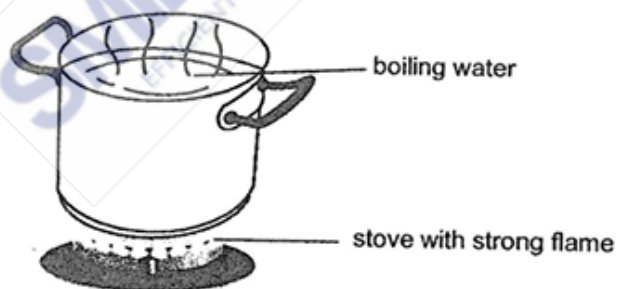


- (a) The handles of the pot are made of plastic because it is a  
 (i) \_\_\_\_\_ conductor of heat.

The body of the pot is made of metal because it is a  
 (ii) \_\_\_\_\_ conductor of heat.

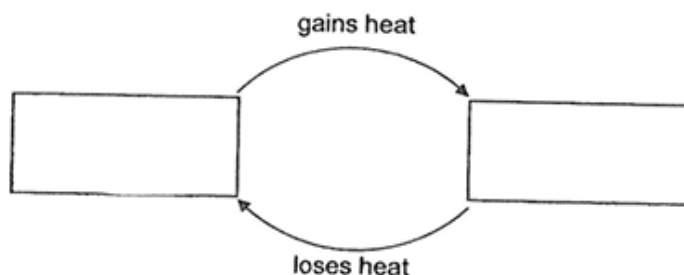
[1]

- (b) Timothy removed the pot cover and placed it on the cooler kitchen top while boiling some water. After boiling the water under strong flame for 30 minutes, he observed the amount of water in the pot decreased and there was a change in the state of water.



- (i) Fill in the boxes below to show the change in state of water during the boiling process.

[1]



Timothy placed the cover back on the metal pot. He noticed a small gap between the cover and the metal pot, and the cover could not fit on the metal pot completely.



(ii) Explain why the cover did not fit completely onto the metal pot now. [2]

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~ End of Paper ~

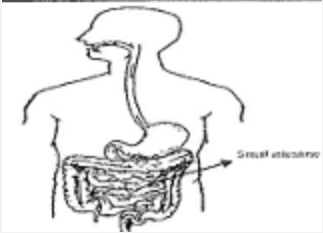
## ANSWER SHEET

### (BOOKLET A)

Q1	3	Q2	1	Q3	4	Q4	3	Q5	2
Q6	1	Q7	3	Q8	2	Q9	4	Q10	3
Q11	2	Q12	4	Q13	2	Q14	4	Q15	3
Q16	3	Q17	4	Q18	3	Q19	2	Q20	1
Q21	4	Q22	2	Q23	1	Q24	3	Q25	1
Q26	2	Q27	1	Q28	4				

### (BOOKLET B)

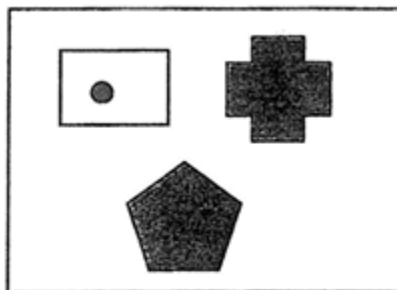
Q29	a)	non-living thing
	b)	living thing
	c)	it lays eggs it has scales
Q30	A: larva B: adult	
Q31	a)	magnet
	b)	attracts
	c)	north-south
Q32	a)	blocked
	b)	
	c)	Place the basketball nearer to the smooth wall.
	d)	Place the torch light nearer to the basketball.
Q33	a)	thermometer
	b)	34
	c)	Temperature is measure of the degree of hotness or coldness of an object.

<b>Q34</b>	 <p>a)</p> <p>b) The teeth cuts the food into smaller pieces. There is a greater exposed surface area in contact with the digestive juice, hence, digestion is faster.</p>
<b>Q35</b>	<p>a) Flexibility of the rods</p> <p>b) The material of the rod</p> <p>c) The rod did not bend, the rod is not flexible so that the food can be placed on the tray without spilling.</p>
<b>Q36</b>	<p>a) When the switch is closed, the steel rod is magnetized and becomes an electromagnet and attracts the magnetic plate.</p> <p>b) i) Place more batteries ii) Coil more wire around the steel rod</p>
<b>Q37</b>	<p>a) Water has no definite shape but has a definite volume.</p> <p>b) <math>150\text{cm}^3</math></p> <p>c) Air can be compressed</p>
<b>Q38</b>	<p>a) His clothes have a greater volume</p> <p>b) The air bag B is not vacuumed as there is air and air has mass, therefore causing bag B to be heavier than bag A.</p> <p>c) Electronic balance</p>
<b>Q39</b>	<p>a) Bulb X Opaque</p> <p>b) Light will be blocked if there is an opaque object causing it to have shadows</p>
<b>Q40</b>	<p>a) <math>48^\circ\text{C}</math></p> <p>b) i) <math>25^\circ\text{C}</math></p> <p>c) Soup C lost its heat to the surroundings causing it to reach room temperature.</p>
<b>Q41</b>	<p>a) i) poor ii) good</p> <p>b) i) Liquid <math>\rightarrow</math> gains heat <math>\rightarrow</math> gas <math>\rightarrow</math> loses heat</p> <p>c) The metal pot expanded as it was gaining heat causing the cover to not fit metal pot.</p>

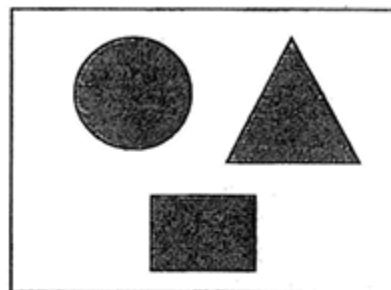
## NANYANG PRIMARY SCHOOL MYE PAPER

### Section A: Multiple Choice Questions [56 marks]

1. Study the diagrams below.



Group A



Group B

How are the objects classified into groups A and B?

- (1) By their sizes.
- (2) By their shapes.
- (3) By their colours.
- (4) By the number of dots in them.

2. Gemma saw Plant X in the diagram below.



She recorded her observations below.

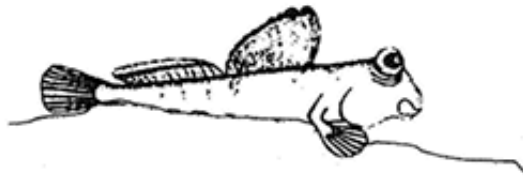
- A It bears flowers.
- B It grows in a pot.
- C It reproduces by spores.
- D It needs a support for its stem.

Which of her observations are correct?

- |                     |                      |
|---------------------|----------------------|
| (1) A and B only    | (2) B and C only     |
| (3) A, C and D only | (4) B, C, and D only |



3. The diagram below shows Animal P.



The characteristics of animal P are as follows:

- A It lays eggs.
- B It has fins and a tail.
- C It breathes through its gills.
- D It has scales.

Which animal group would animal P most likely belong to?

- (1) Fish
- (2) Insect
- (3) Amphibian
- (4) Mammal

4. Samy observed organisms X and Y and recorded their characteristics in the table below. A tick (✓) indicated that the organism has the characteristic.

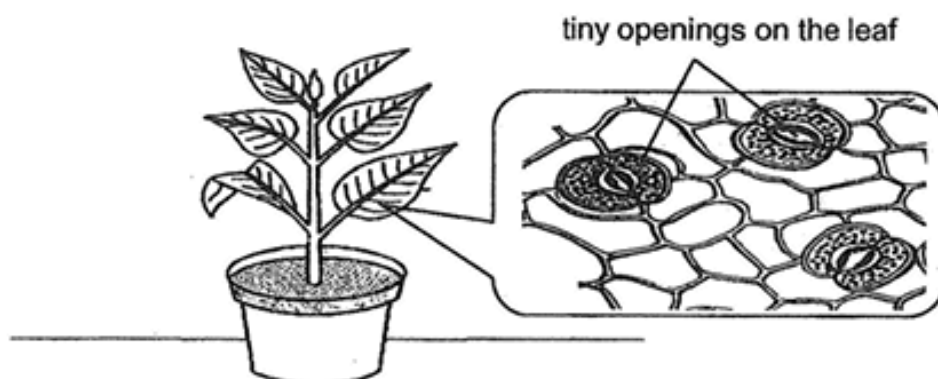
Characteristic	Organism X	Organism Y
Has moist skin		✓
Adult lays eggs	✓	✓
Has a beak	✓	
Lives on land and in water		✓

Based on the information above, which of the following statements are definitely true about organisms X and Y?

- A X is a bird.
- B X has dry scales.
- C Y is an amphibian.
- D Y feeds on the organisms that it grows on.

- (1) A only
- (2) A and C only
- (3) B and C only
- (4) B and D only

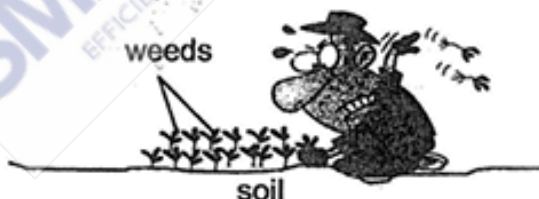
5. Tiny openings are found on the leaves as shown in the diagram below.



What is the function of these tiny openings found on the leaves?

- (1) To hold the plant upright.
- (2) To take in water for the plant.
- (3) To hold the plant firmly to the soil.
- (4) To help the plant take in and give out gases.

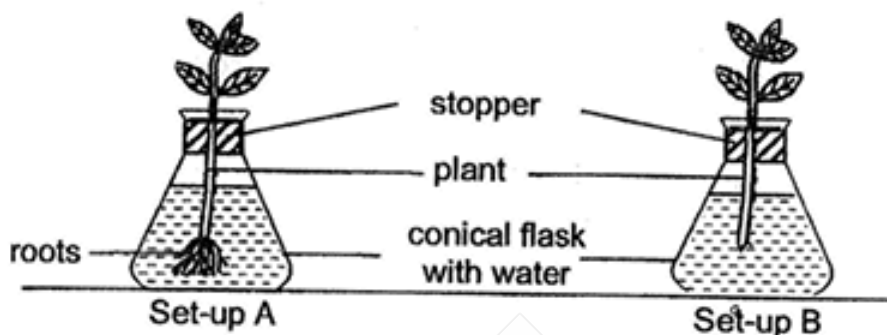
6. Farmer Tom found some unwanted plants called weeds growing in his vegetable garden. He tried to pull the weeds out as shown in the diagram below.



What is the possible reason that Tom found it difficult to pull out the weeds?

- (1) The soil is wet.
- (2) The weeds are growing upright.
- (3) The leaves of the weeds are big.
- (4) The roots hold the weeds firmly to the ground.

7. Sam carried out an experiment under the hot sun as shown in the diagram below.



He measured the volume of water after 5 hours and recorded the results in the table below.

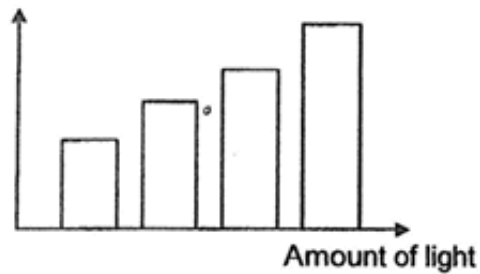
Set-up	Amount of water at first (ml)	Amount of water after 5 hours (ml)
A	400	255
B	400	320

Which one of the following statements is the correct conclusion for the experiment?

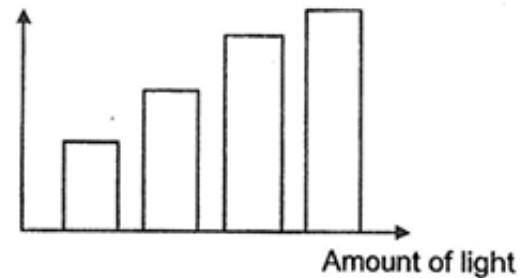
- (1) Plants with more roots take in more water from the flask than plants without roots.
- (2) Plants with less leaves take in more water from the flask than plants with more leaves.
- (3) Plants with less roots give out more water to the surroundings than plants without roots.
- (4) Plants with more leaves give out more water to the surroundings than plants with less leaves.

8. Muhammad observed how light had affected the growth of several pots of plant T. At the start, the plants were of the same height and had the same number of leaves. He made his observations over a few weeks and recorded his observations in the graphs below.

Number of leaves

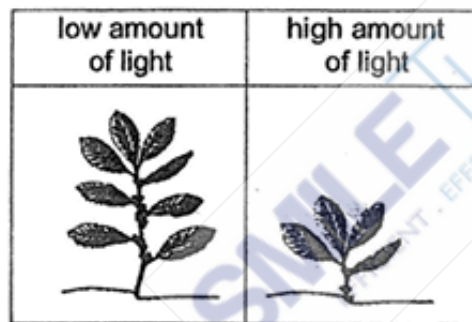


Height of plant T

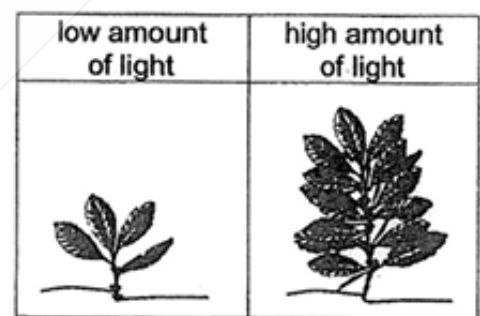


Which of the following will most likely be plant T under different amounts of light?

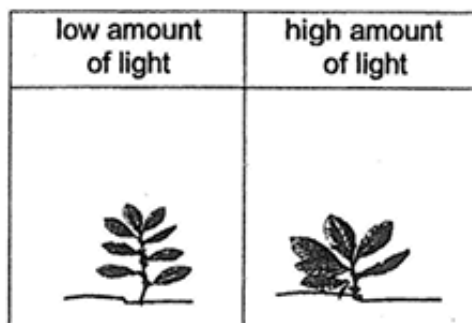
(1)



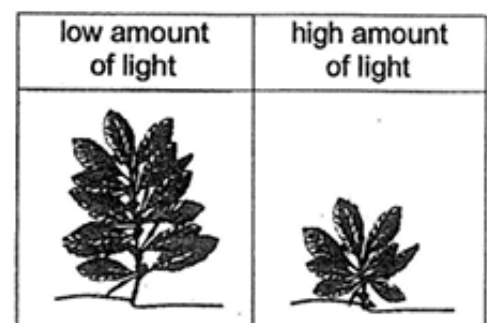
(2)



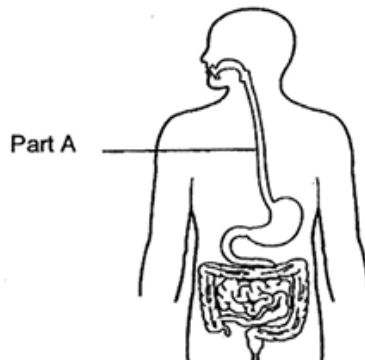
(3)



(4)



9. The flowchart below shows part of the digestive system.



What is part A?

- (1) gullet
- (2) mouth
- (3) stomach
- (4) large intestine

10. Study the diagram below.



Which one of the following human systems has the same function as the system of the bird shown in the diagram above?

(1)



(2)



(3)



(4)





11. Which of the following statements about digestion is/are true?

- A Digestion ends in the stomach.
- B Our teeth chew and grind the food into smaller pieces.
- C Small intestine produces digestive juices that help in digestion.
- D Digested food passes through the walls in the large intestine.

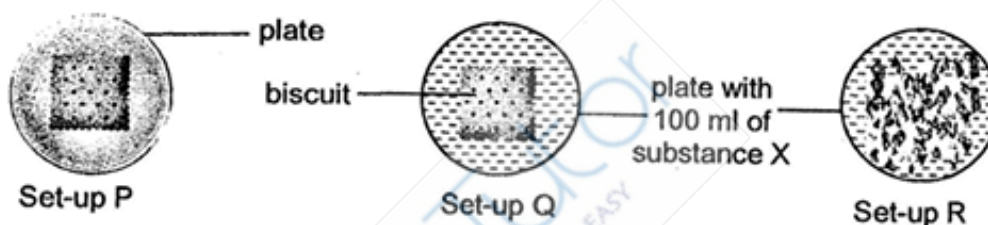
(1) A and B only

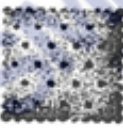
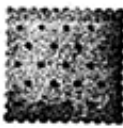

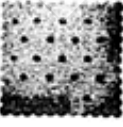


(2) B and C only

(3) A, C and D only

(4) B, C and D only

12. Samuel wanted to find out how substance X affects how fast the food is digested. He broke identical biscuits into different sizes and placed them onto a plate with 100 ml of substance X as shown in the diagram below. He made his observations and recorded the results after 1 hour in the table below.

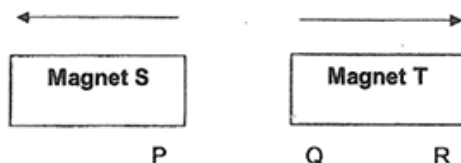


	Set-up P	Set-up Q	Set-up R
<b>Biscuit at the start of the experiment</b>			
<b>Biscuit at the end of the experiment</b>			

What could Samuel conclude from this experiment?

- (1) Digestion takes place without substance X.
- (2) It takes a longer time to digest smaller pieces of biscuits.
- (3) It takes a shorter time to digest smaller pieces of biscuits.
- (4) The size of the biscuit does not affect how fast it is digested.

13. The diagram below shows magnets S and T pushing each other away.



What could the poles marked P, Q and R be?

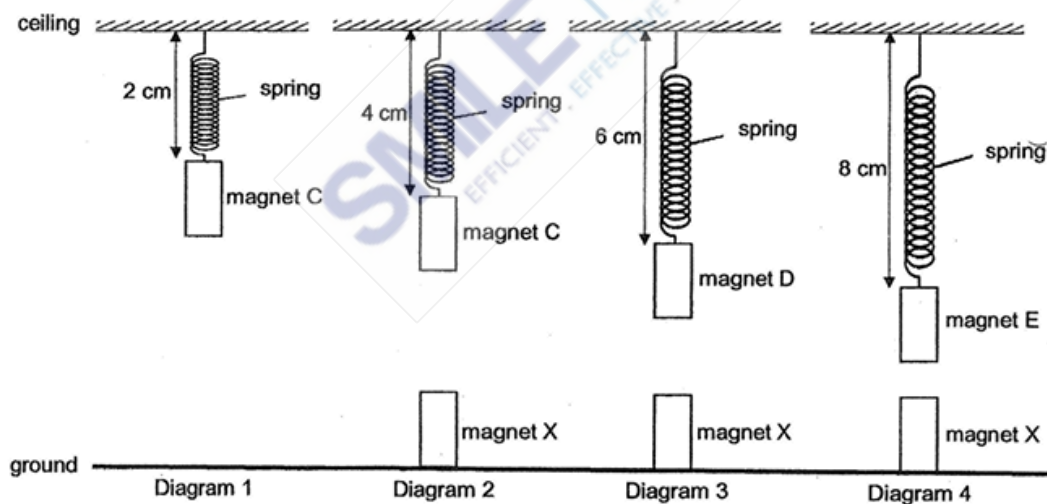
	P	Q	R
(1)	N	N	N
(2)	N	S	S
(3)	S	N	S
(4)	S	S	N

14. Magnet C was hung from a spring as shown in diagram 1.

Magnet X was then placed on the ground, directly below magnet C as shown in diagram 2. The spring increased length from 2 cm to 4 cm.

The experiment was repeated by replacing magnet C with magnet D as shown in diagram 3 and with magnet E as shown in diagram 4.

All the magnets have the same weight.

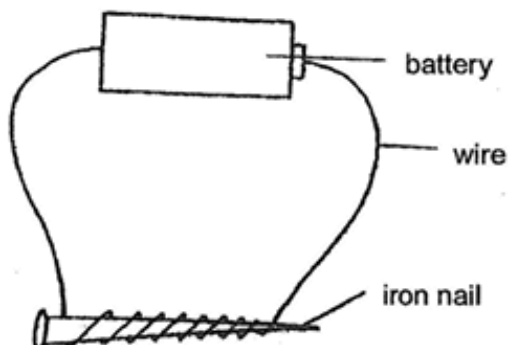


Which one of the following statements is correct?

- (1) Magnet D has the weakest magnetic strength.
- (2) Magnet C has the strongest magnetic strength.
- (3) Like poles of the magnets are facing each other.
- (4) Unlike poles of the magnets are facing each other.



15. Janice wants to make an electromagnet as shown below.



Which of the following will **not** affect the strength of the electromagnet?

- A Adding more batteries
- B Increasing the length of the wire
- C Changing the direction in which the nail faces
- D Increasing the number of coils of wire around the iron nail

- |                  |                  |
|------------------|------------------|
| (1) A and C only | (2) A and D only |
| (3) B and C only | (4) B and D only |

16. Which one of the following statements about light and shadow is **incorrect**?

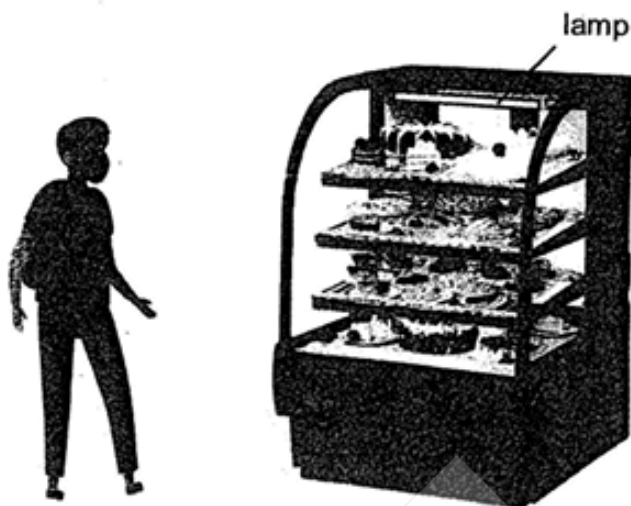
- (1) Light is a form of energy.
- (2) Only living things can cast a shadow.
- (3) A shadow is formed when light cannot pass through an object.
- (4) Objects that give off light on their own are natural sources of light.

17. Which one of the following is a source of light?

- A fire
- B Sun
- C moon

- |                  |                  |
|------------------|------------------|
| (1) A only       | (2) A and B only |
| (3) A and C only | (4) B and C only |

18. Evan stood in front of a glass display case with pastries as shown below.



He was able to see the pastries under the light in the display case.

Which of the following statements correctly explains why Evan could see the pastries in the display case?

- A The cakes gave out light on its own.
- B The glass display case allowed light to pass through it.
- C The cakes reflected the light from the lamp into Evan's eyes.
- D The lamp reflected the light from Evan's eyes onto the cakes.

- (1) A and B only
- (3) B and C only

- (2) A and C only
- (4) B and D only

19. There was a blackout one night at home. Damien needed to find his way out of the house to seek help. He could not see a single object in the dark.

Which one of the following statements correctly explains why he cannot see any objects in the dark?

- (1) No light falls on any of the objects.
- (2) His eyes give off light in the darkness.
- (3) The objects absorb light in the darkness.
- (4) His eyes cannot reflect light in the darkness.

20. Study the classification table.

Objects which allow light to pass through	Objects which do not allow light to pass through
tracing paper X	iron sheet Y

Which object best represent X and Y in the table above?

	X	Y
(1)	cardboard	wooden tray
(2)	wooden cup	cardboard box
(3)	frosted glass	clear plastic bag
(4)	clear plastic bag	mirror

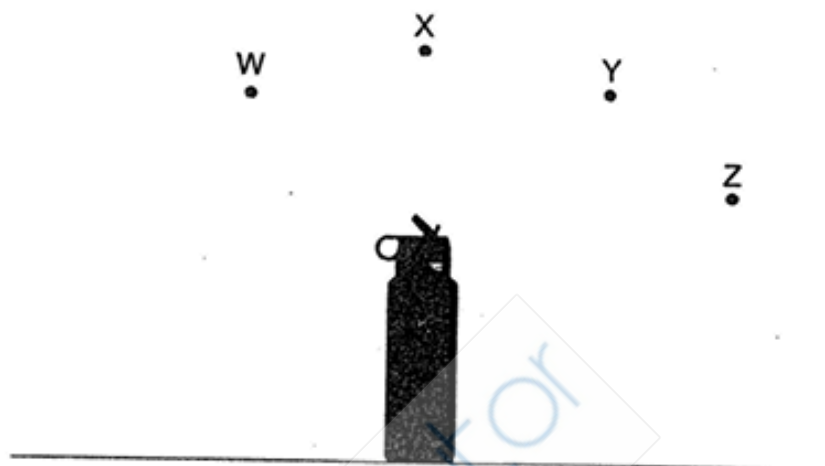
21. A scientist needs to wear a pair of safety goggles to protect his eyes from strong chemicals and prevent eye injuries, while still allowing light to pass through.



Which one of the following materials is most suitable for making part A of the safety goggles?

- |                   |                   |
|-------------------|-------------------|
| (1) wood          | (2) metal         |
| (3) frosted glass | (4) clear plastic |

22. In the diagram below, W, X, Y and Z represent the position of the sun at different times of the day. Halim placed his water bottle under the sun and observed that different lengths of shadows were formed when the position of the sun changes.



Based on the diagram above, which one of the following statements about his observation is correct?

- (1) No shadow was formed when the sun was at position X.
  - (2) The shadow formed when the sun was at position Y was the longest.
  - (3) The shadow formed when the sun was at position Z was the shortest.
  - (4) The shadow formed when the sun at position W was longer than at X.
23. Which one of the following properties is true for both air and a chair?
- (1) They can be seen.
  - (2) They occupy space.
  - (3) They have a definite shape.
  - (4) They have a definite volume.

24. Study the classification table below carefully.

Matter		
X	Y	Z
pen spoon	milk water	light air

Which one of the following had been classified **wrongly**?

- (1) milk
- (2) light
- (3) water
- (4) spoon

25. Study the table below. The table shows the properties of 3 substances, P, Q and R. A tick (✓) shows that the substance has the property.

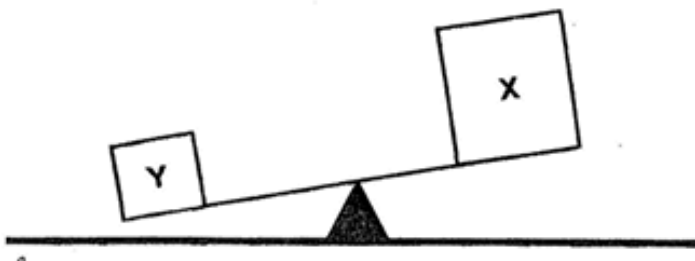
Property	Substance		
	P	Q	R
has a definite shape		✓	
can be compressed			✓

Based on the table above, which of the following represents substances, P, Q and R?

	P	Q	R
(1)	oxygen	stone	water
(2)	stone	oxygen	water
(3)	water	stone	oxygen
(4)	water	oxygen	stone

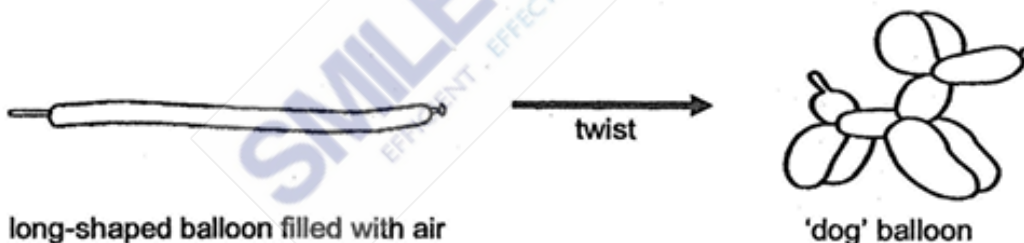


26. Two objects, X and Y, are placed on a lever balance as shown in the diagram below.



Based on the diagram, which one of the following statements is correct?

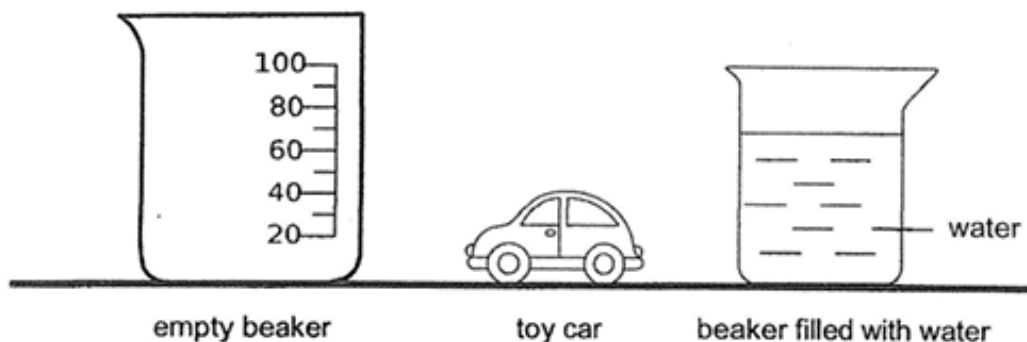
- (1) Object X has less mass than object Y.
  - (2) Object X has more mass than object Y.
  - (3) Object X has less volume than object Y.
  - (4) Object X and object Y have the same volume.
27. Timothy pumped some air with an air pump to inflate a long-shaped balloon. He then twisted the long-shaped balloon to form a 'dog' balloon as shown in the diagram below.



Which one of the following statements correctly explains why Timothy is able to twist the long-shaped balloon and form a 'dog' balloon?

- (1) Air does not have mass.
- (2) Air has a definite volume.
- (3) Air has no definite shape.
- (4) Air does not occupy space.

28. Clarissa set up an experiment to find out the volume of her toy car as shown in the diagram below.



She took the following steps to find out the volume of her toy car.

- A Lower the toy car gently into the beaker of 40ml of water.
- B Read the new volume of water.
- C Calculate the difference between the old and new volume of water.
- D Fill the empty beaker with 40ml of water.

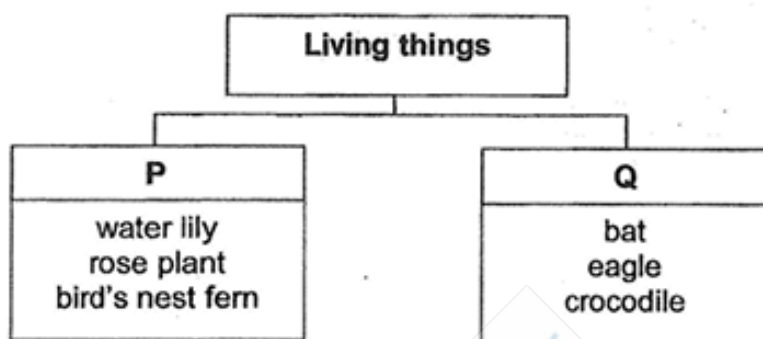
Which of the following shows the correct sequence of the steps Clarissa took to find out the volume of her toy car?

- (1) A → B → C → D
- (2) B → A → C → D
- (3) C → A → D → B
- (4) D → A → B → C



### Section B: Open-Ended Questions [44 marks]

29. Study the classification table below.



(a) Identify a suitable heading for P and Q. [2]

P: \_\_\_\_\_

Q: \_\_\_\_\_

(b) State one characteristic of living things. [1]

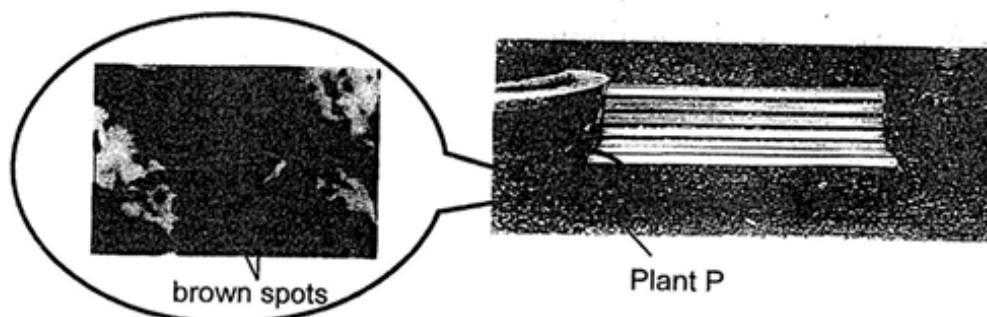
\_\_\_\_\_

(c) State one difference in characteristics between the living things in P and Q. [1]

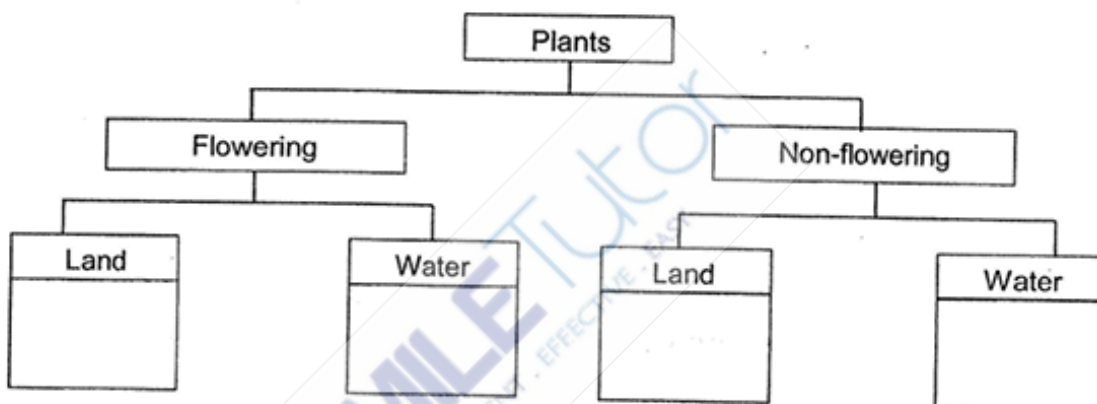
\_\_\_\_\_

\_\_\_\_\_

30. May Ling was walking in the park and found some Plant P growing next to the bench's legs. She saw brown spots on the underside of the leaves.

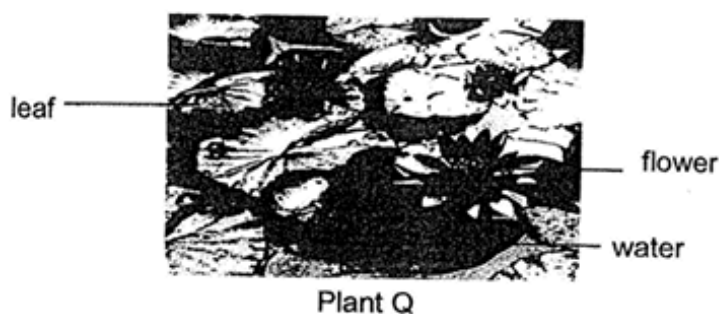


Study at the classification diagram below and answer parts (a) and (b).



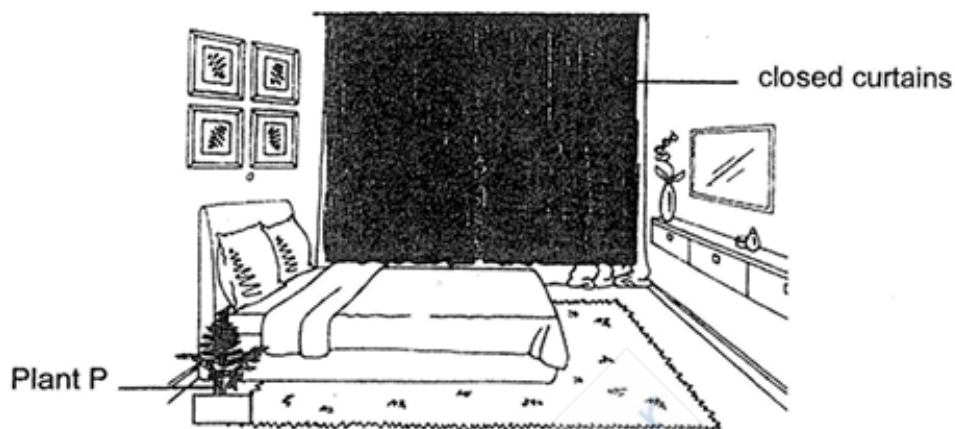
- (a) In the classification table above, classify Plant P in the correct box above by writing "P" in the correct box. [1]

May Ling saw another type of plant, Plant Q, in the pond as shown below.



- (b) In the classification table above, classify Plant Q in the correct box above by writing "Q" in the correct box. [1]

May Ling wanted to grow plant P at home. She placed plant P in her bedroom with her curtains closed at all times. She also watered the plant daily. After a few weeks, she noticed that plant P had died.



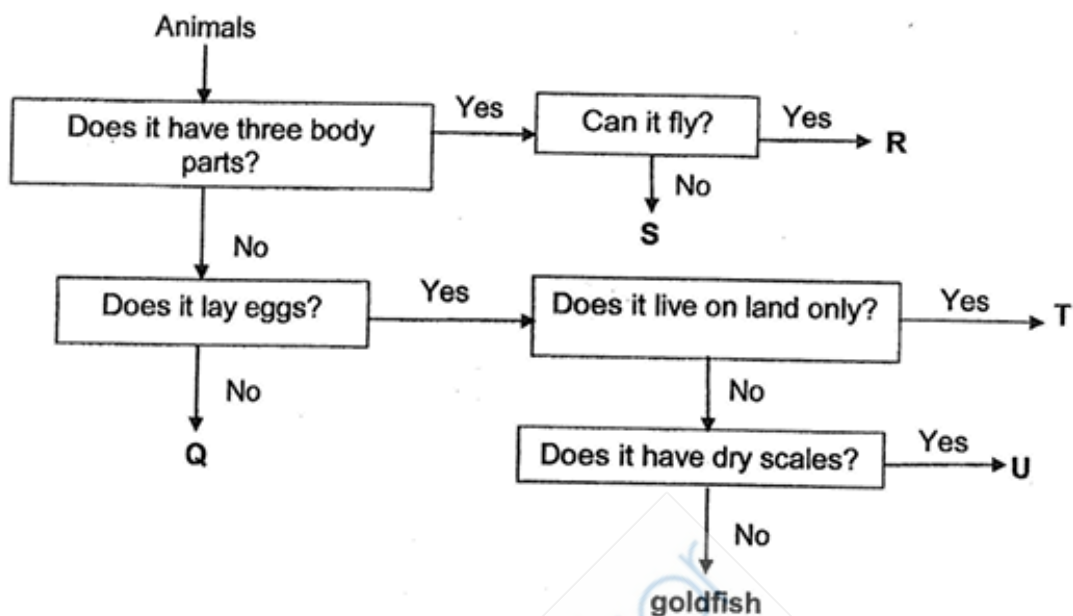
(c) Explain why plant P died.

[1]

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31. Study the flow chart below.



- (a) Based on the flow chart above, state all the similarities in characteristics between animals T and U. [1]

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- (b) Based on the flow chart above, state the difference in characteristics between animals R and S. [1]

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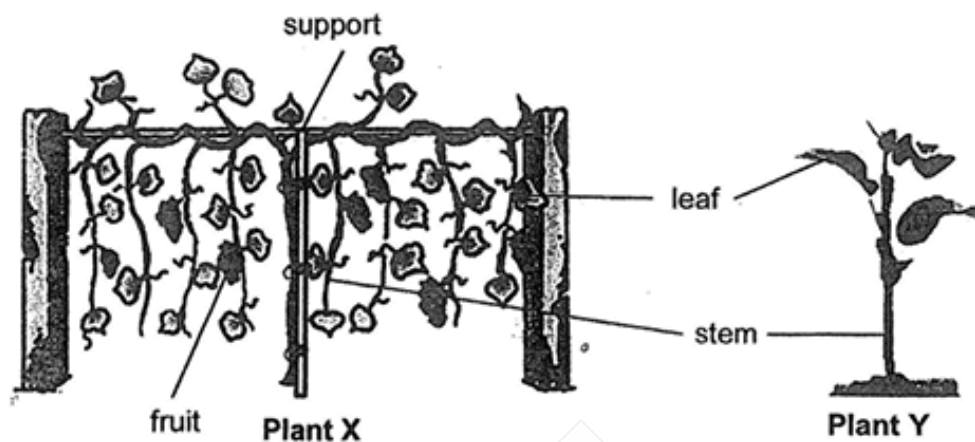


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- (c) Write the letters, Q, R, T and U that best represent the animals in the boxes provided. [2]

crocodile	butterfly	parrot	cat

32. The diagram below shows plants X and Y.



(a) State the difference between the stems of plant X and plant Y. [1]

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(b) What is the function of the leaves? [1]

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(c) Why do the stems of both plants grow upwards? [1]

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33. The table below shows the different parts of the human digestive system. A tick (✓) shows the function of that part.

Function	Parts of the human digestive system			
	A	B	C	D
Removes water from undigested food	✓			
Digested food is absorbed to the bloodstream				✓
Carries out digestion			✓	✓

- (a) Identify the parts A, B, C and D of the digestive system.

[2]

A: \_\_\_\_\_  
 B: \_\_\_\_\_  
 C: \_\_\_\_\_  
 D: \_\_\_\_\_

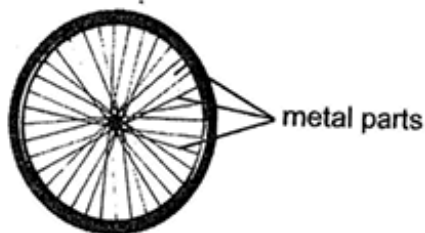
At part D, digested food is absorbed into the bloodstream.

- (b) Which system does the digestive system work with to transport the digested food to the rest of the body?

[1]

\_\_\_\_\_

The diagram below shows a bicycle wheel. It has metal parts that gives the wheel its shape.



- (c) Identify the human organ system that has a similar function as the metal parts of the bicycle wheel.

[1]

\_\_\_\_\_



34. May used the stroke method to make an iron bar into a temporary magnet. She then placed the iron bar next to some paper clips and recorded the number of paper clips attracted.

She repeated the experiment with different number of strokes and recorded her results in the table shown below.

<b>Total number of strokes</b>	25	50	100
<b>Number of paper clips attracted to the iron bar</b>	2	8	13

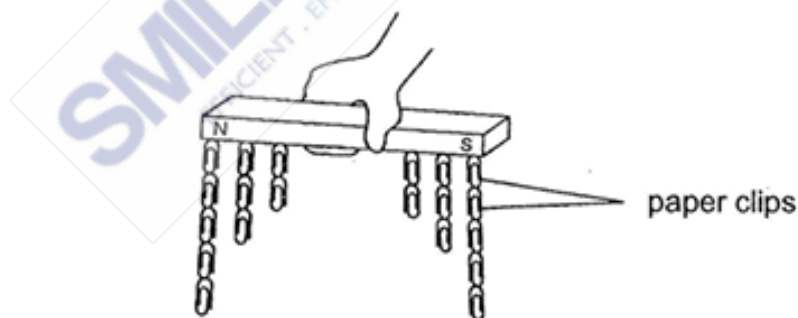
- (a) Based on the results above, what is the relationship between the number of strokes and the number of paper clips attracted to the iron bar? [1]

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The diagram below show what May observed when the iron bar picked up the paper clips.



- (b) What could May conclude about the poles of the magnetised iron bar from her observation? [1]

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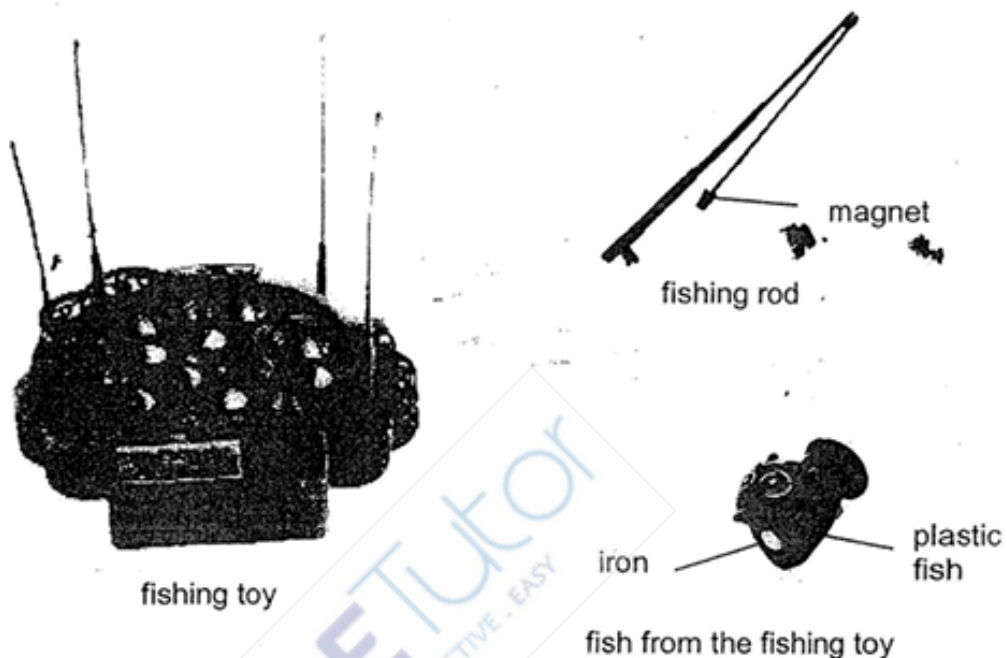


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Continue from Q34.

May played with a fishing toy using a fishing rod to catch the plastic fishes. She observed that there is a small piece of magnet attached to the end of the fishing rod. There is also a small piece of iron inside each fish's mouth.



- (c) Which property of a magnet enables the fishing toy to work? [1]

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After playing with the toy for many months, May noticed that she could not catch any fish anymore as the magnets on her fishing rod had lost its magnetism.

- (d) Suggest what could have happened to cause her fishing rod to lose its magnetism. [1]

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35. Classify the following items under the correct headings in the table below. [2]

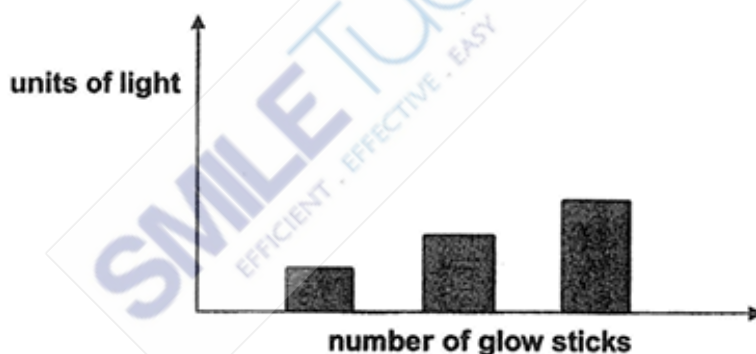
(a) lit candle      (b) lit torch      (c) mirror      (d) shadow

Sources of light	Not a source of light

36. Adam placed some glow sticks in a dark room. He used a light sensor to measure the amount of light present.

- (a) What was the source of light detected by the light sensor? [1]

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- (b) Describe how he was able to see the glow sticks. [1]

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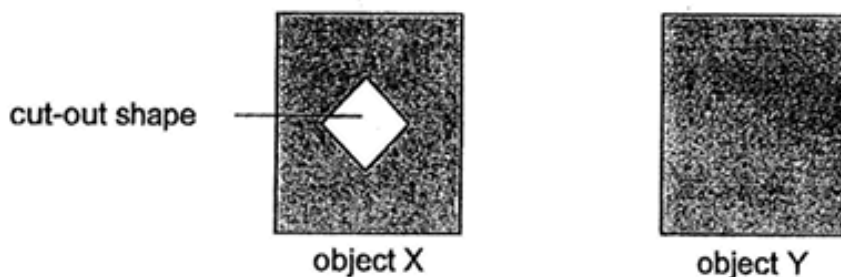
- (c) What is the relationship between the number of glow sticks and the units of light given out? [1]

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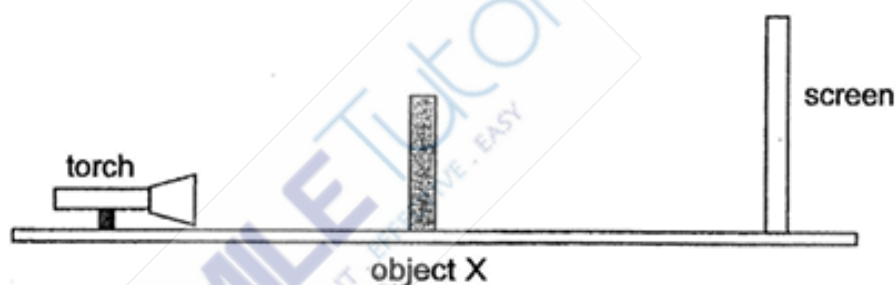
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37. Objects X and Y were made from cardboard as shown in the diagrams below. Object Y did not have a cut-out shape. Both objects were of the same size.



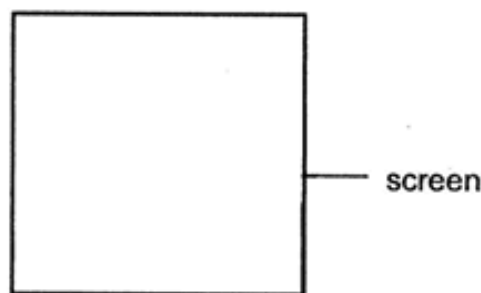
**Front view of cardboard sheets**

Object X was placed in front of a torch as shown below.



- (a) Draw the shadow that will most likely be formed on the screen.

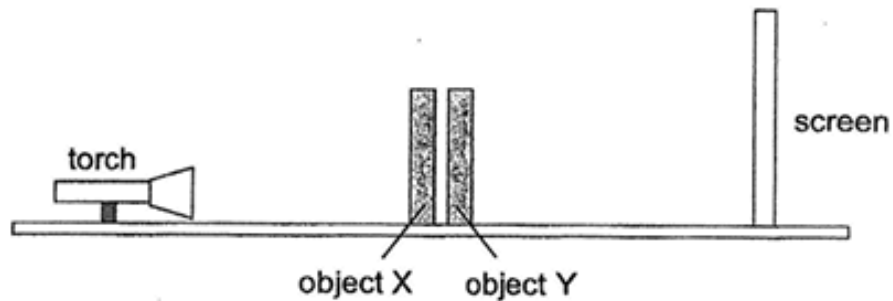
[1]



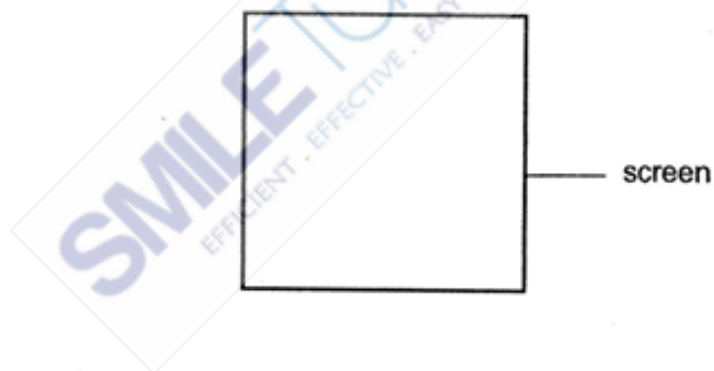
**Need Tuition? ACT NOW!**  
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Continue from Q37.

Pei Ling added object Y behind object X as shown in the diagram below.



- (b) Draw the shadow that will most likely be formed on the screen when object Y was added. [1]



- (c) Without changing the position of the torchlight and objects, state one change Pei Ling could do to make the shadows of objects X and Y appear smaller. [1]

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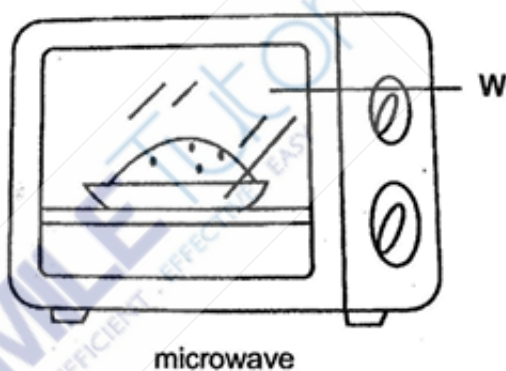


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Continue from Q37.

Pei Ling conducted an experiment and collected some results on the amount of light passing through different materials. She recorded her results in the table shown below.

Materials	Amount of light passing through each material (lux)
A	225
B	736
C	0



Part W of the microwave door should enable the user to see the inside of the microwave clearly.

Pei Ling thinks that Material C should be chosen to make part W.

(d) Explain if Pei Ling's choice is correct. [2]

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38. Priya set up a pot of water with some carrots in it as shown in the diagram below.

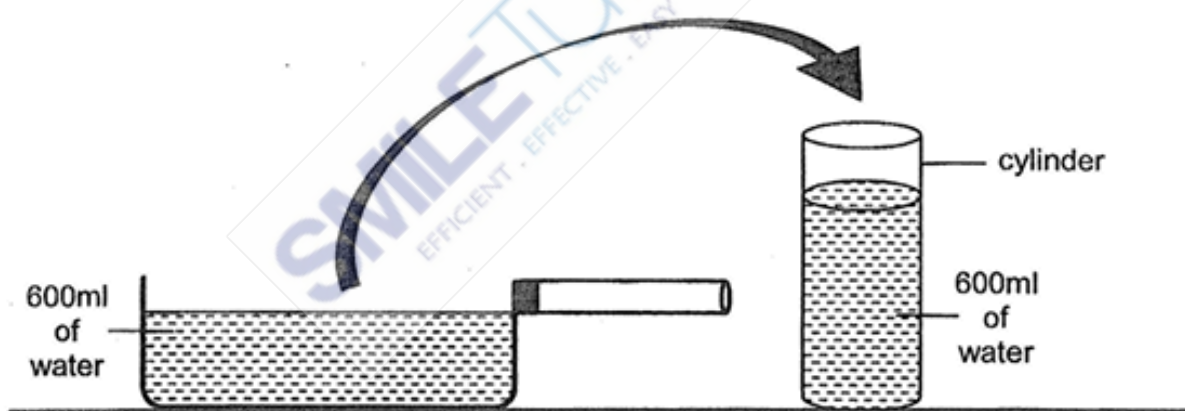


(a) Identify the state of matter for the following objects.

[1]

Object	State of Matter
(i) carrot	
(ii) water	

After removing the carrots, Priya then poured all the water from the pot into a cylinder without spilling as shown in the diagram below.



(b) Based on the observation above, state the property of water that is shown. [1]

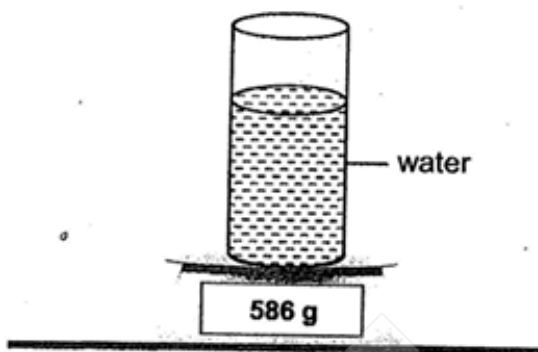
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Continue from Q38.

Priya then measured the mass of the cylinder of water on an electronic balance as shown in the diagram below.



- (c) Will the mass of the water in the cylinder be 586g or less than 586g? Explain your answer. [1]

---

---

---



39. Fandy had 2 similar stones, M and N, of the same size and shape as shown in the diagram below. However, stones M and N are made of different materials. He measured the volume of stone M and found out that stone M had a volume of  $18\text{cm}^3$ .



stone M



stone N

- (a)(i) State the volume of stone N. [1]

\_\_\_\_\_  $\text{cm}^3$

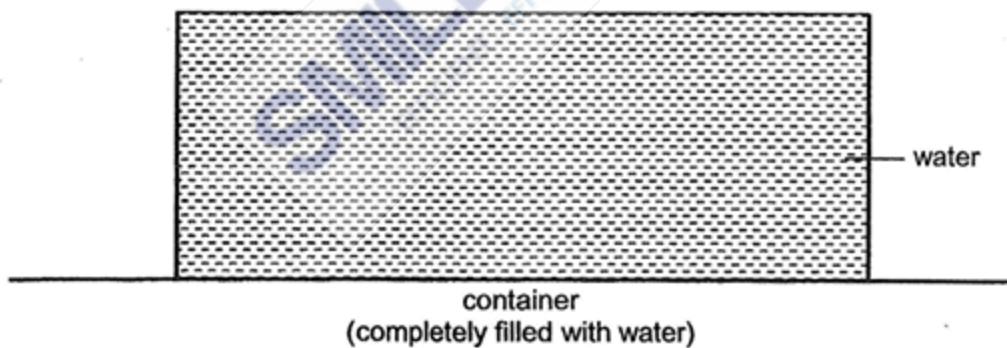
- (ii) Explain your answer. [1]

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---

Fandy then set up a container completely filled with water to its maximum as shown in the diagram below. He placed both stones, M and N, carefully into the container.



- (b)(i) What will happen to the water after both stones, M and N, were placed into the container of water? [1]

---

- (ii) Explain your answer above. [1]

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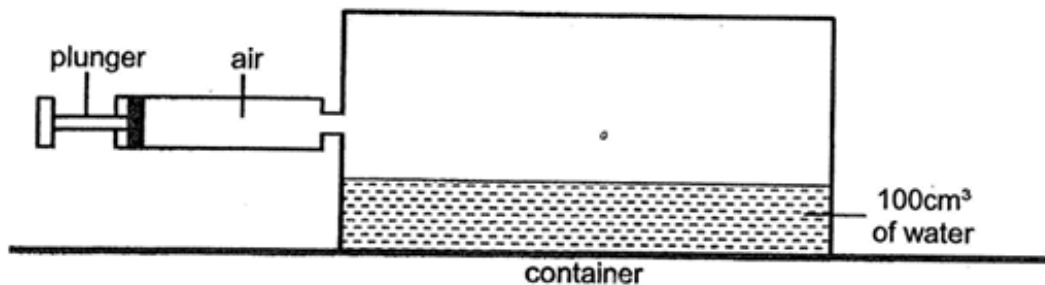


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40. Patrick set up an experiment as shown below. He prepared an empty container with a volume of  $300\text{cm}^3$ . He filled the container with  $100\text{cm}^3$  of water. He then connected an air pump to the container. Each push of the plunger pumps  $50\text{cm}^3$  of air into the container.

Patrick then pushed the plunger once.

Before he pushed the plunger:



After he pushed the plunger:



- (a) In the table below, state the volume of air in the container before and after he pushed the plunger once. [2]

	Volume of air in the container ( $\text{cm}^3$ )
(i) Before he pushed the plunger once	
(ii) After he pushed the plunger once	

- (b) Based on the results of his experiment above, state the property of air that is shown. [1]

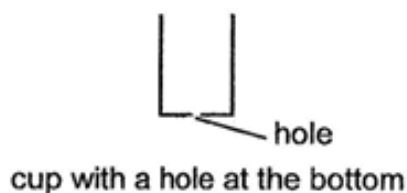
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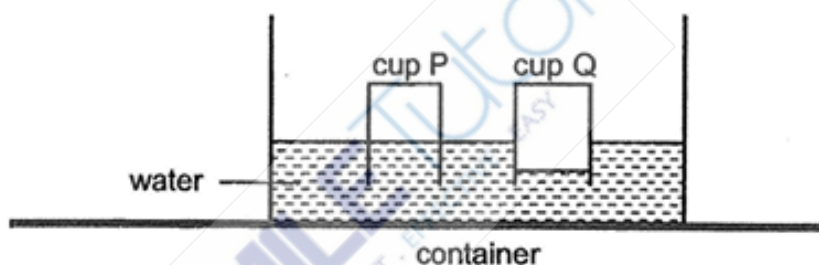
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Continue from Q40.

Patrick set up another experiment with 2 identical plastic cups, P and Q. Only one of the cups had a hole at the bottom as shown in the diagram below.



He inverted both cups and placed them into a container of water. His observations are shown in the diagram below.



c  
(b)

Based on the results above, which cup, P or Q, most likely had a hole at the bottom? Explain your answer. [2]

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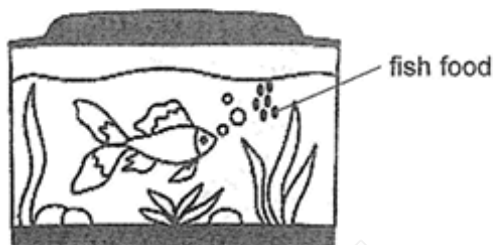
## ANSWER SHEET

Q1	
Q2	
Q3	
Q4	
Q5	
Q6	
Q7	
Q8	
Q9	
Q10	
Q11	
Q12	
Q13	
Q14	

## **NANYANG PRIMARY SCHOOL EOY PAPER**

### **Section A: Multiple Choice Questions (56 marks)**

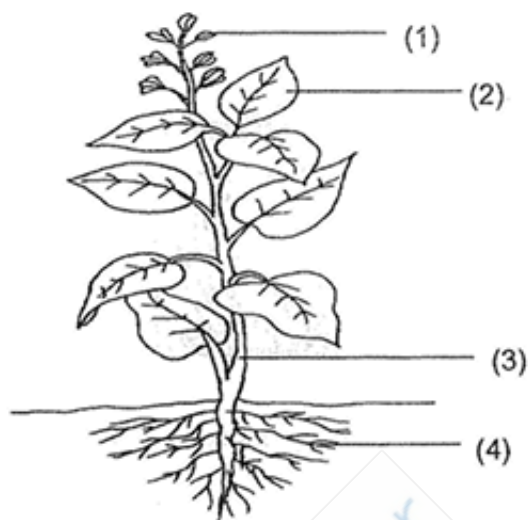
1. Jane has a fish in a glass tank. When she drops some fish food into the tank, the fish swims towards the food.



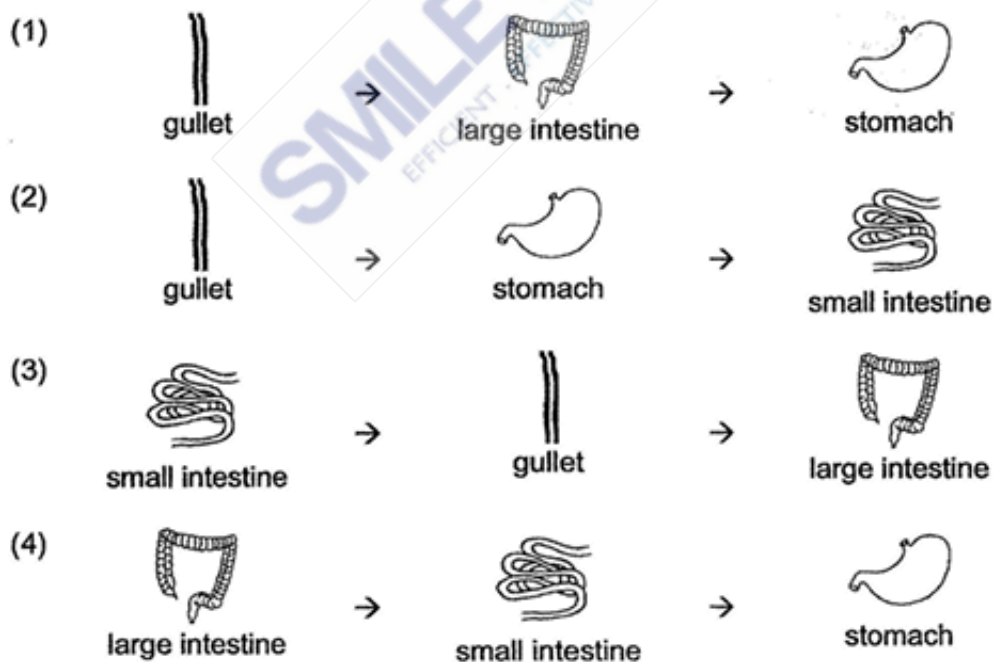
This shows that the fish is a living thing because it can \_\_\_\_\_.

- |               |             |
|---------------|-------------|
| (1) breathe   | (2) grow    |
| (3) reproduce | (4) respond |
2. Which statement is true about most mammals?
- (1) They can swim.
  - (2) They have wings.
  - (3) They have four legs.
  - (4) They give birth to their young alive.

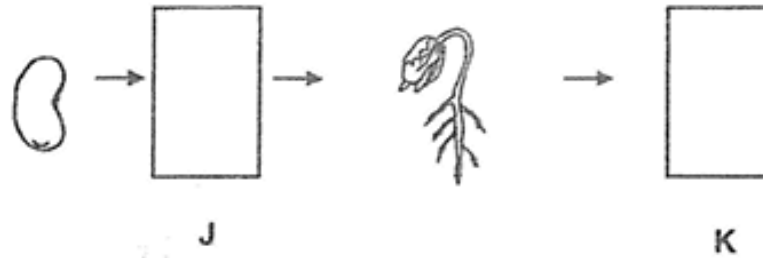
3. Which part, (1), (2), (3) or (4), holds the plant upright?











4. Which one of the following shows the correct order when food moves through some parts of the digestive system?



5. The diagram below shows the growth of a young plant with two missing stages, J and K.



Which one of the following shows the correct stages for J and K?

	J	K
(1)		
(2)		
(3)		
(4)		



6. Which one of the following can be attracted by a magnet?

(1) a piece of cloth



(2) a sheet of glass



(3) an iron nail



(4) a wooden ball



7. Which one of the following objects can be bent easily without breaking?

(1) a glass cup



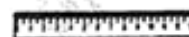
(2) a metal bottle



(3) a rubber band



(4) a wooden ruler



8. Which one of the following is **NOT** a source of light?

(1) fire

(2) an apple

(3) a lit bulb

(4) The Sun

9. Which one of the following is a source of heat?

(1) a coat

(2) a candle flame

(3) a blanket

(4) a woollen cap

10. Which one of the following substances has a fixed shape?

- (1) air  
(3) oil

- (2) rock  
(4) milk

11. Study the classification table below.

X	Y
cat	snake
lion	goldfish
elephant	dolphin

Which of the following headings best represent X and Y?

	X	Y
(1)	have 4 legs	have no legs
(2)	living things	non-living things
(3)	animals that live in water	animals that live on land
(4)	can move by themselves	cannot move by themselves

12. The diagram below shows two plants.



Plant B



Plant E

Which one of the following statements about plant B and plant E is correct?

- (1) Only plant E reproduces by seeds.  
 (2) Both plants cannot make their own food.  
 (3) Only plant B needs air, food and water to survive.  
 (4) Both plants can move freely on their own from place to place.

13. The characteristics of 4 animals, P, Q, R and S are listed in the table below.

Characteristics	P	Q	R	S
Has hair			✓	
Has 4 legs			✓	✓
Has a beak	✓			
Has 3 body parts		✓		



Animal X

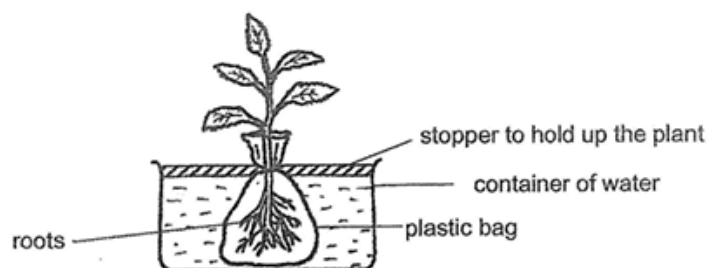
Which one of the animals P, Q, R or S best represents animal X as shown above?

- |              |              |
|--------------|--------------|
| (1) Animal P | (2) Animal Q |
| (3) Animal R | (4) Animal S |

14. Which one of the following statements about fungi and bacteria is correct?

- (1) Fungi can make their own food.
- (2) Bacteria can only be seen with our naked eyes.
- (3) Fungi can move freely from place to place on its own.
- (4) Some bacteria can cause diseases such as food poisoning.

15. Pauline did an experiment by wrapping the roots of her plant in a plastic bag before placing it into a container of water as shown in the diagram below.



One week later, she observed that the plant dried up and the leaves turned yellow and died.

Based only on her observations, what can Pauline conclude from this experiment?

- (1) The leaves make food for the plant.
  - (2) The roots take in water for the plant.
  - (3) The roots cannot hold the plant firmly.
  - (4) The stem takes in mineral salts for the plant.
16. Our body systems are made up of different organs.  
Which of the following organs have been correctly classified in the table below?

	Skeletal system	Digestive system	Respiratory system
(1)	skull	stomach	lungs
(2)	skull	mouth	blood vessels
(3)	heart	nose	windpipe
(4)	muscles	mouth	nose

17. Ben was playing when his finger was accidentally hit by a ball.



Finger hit by a ball



Finger became swollen and could not be straightened

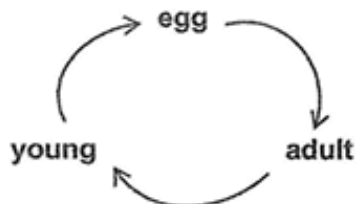
He felt a sudden pain and saw that his finger became swollen. He could not straighten his finger as shown in the diagram above. He went to see the doctor and he was told that he had fractured his finger.

Which one of the following human organ systems would he most likely have injured?

- (1) Skeletal system
- (2) Digestive system
- (3) Circulatory system
- (4) Respiratory system

18. Which of the following shows the correct life cycle of a butterfly?

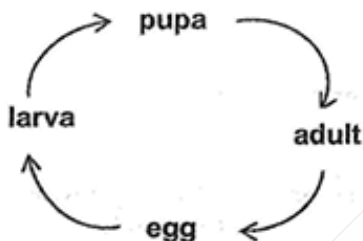
(1)



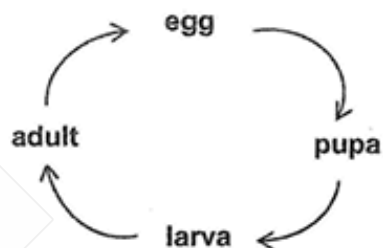
(2)



(3)



(4)



19. Which of the following statement(s) about the life cycle of the cockroach is/are true?

- A It has a pupa stage.
- B The cockroach lives on land.
- C The young resembles the adult.
- D The cockroach has a four-stage life cycle.

(1) A and D only

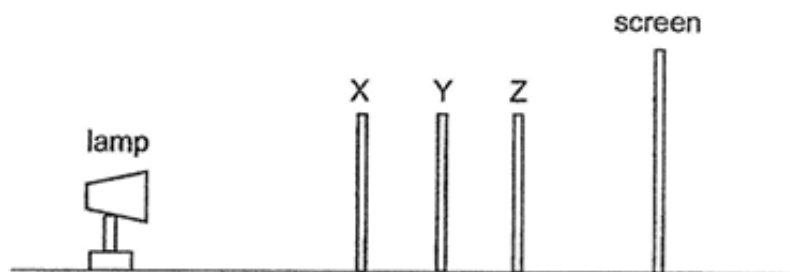
(3) B, C and D only

(2) B and C only

(4) A, B, C and D

20. Sammy wanted to find out how the property of different materials used affect the shadow formed.

His experiment was conducted in a room with only one light source, a screen and three different materials, X, Y and Z and as shown in the diagram below.



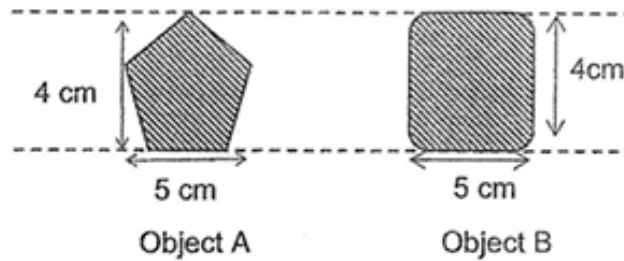
When the lamp was turned on, there was a patch of bright light seen on Y. A shadow was observed on Z and the screen.

Which of the following best describe the property of materials X, Y and Z?

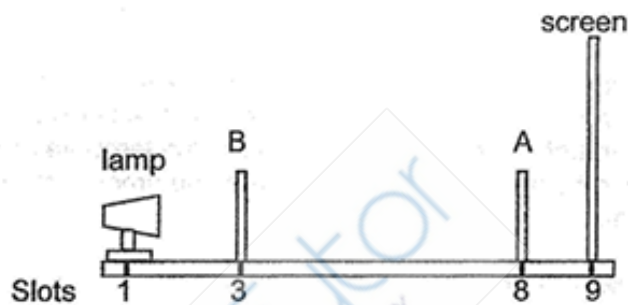
	Allow light to pass through it	Does not allow light to pass through it
(1)	Z	X and Y
(2)	X and Y	Z
(3)	Y and Z	X
(4)	X	Y and Z



21. The diagram below shows two wooden objects, A and B.



The two objects were arranged using the Light Kit such that a shadow was formed on the screen.



Which one of the following correctly shows the shadow formed?

(1)



(2)



(3)

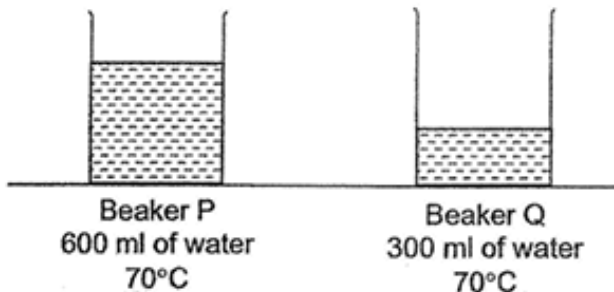


(4)





22. Rahim set up two beakers of water. Beaker P contains 600 ml of water at  $70^{\circ}\text{C}$ . Beaker Q contains 300 ml of water at  $70^{\circ}\text{C}$ . He then placed them in a room at temperature of  $25^{\circ}\text{C}$  for 2 hours as shown in the diagram below.

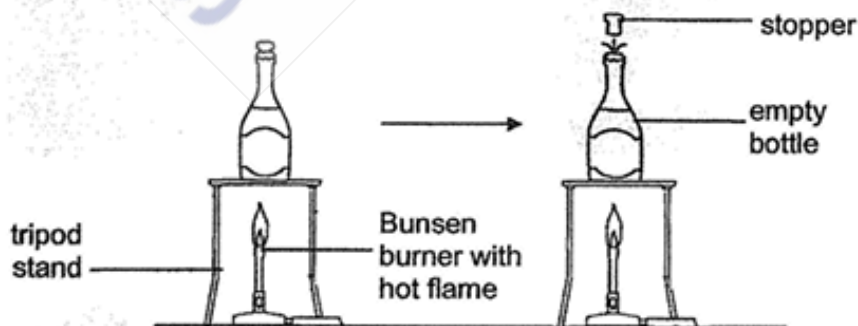


Rahim made some statements based on his observations:

- A The water in both beakers will lose heat to the surroundings.
- B The water in both beakers will gain heat from the surroundings.
- C The water in both beakers will reach the same temperature after 1 day.
- D The water in both beakers will have the same amount of heat at the start of the experiment.

Which of the following statement(s) is/are wrong?

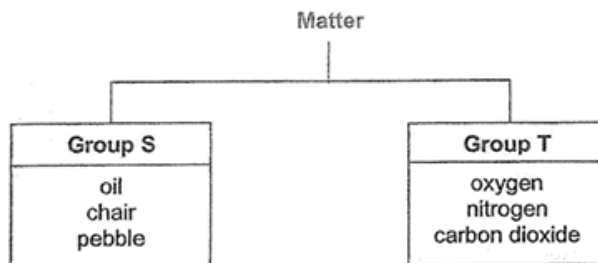
- (1) A and B only
  - (2) A and C only
  - (3) B and D only
  - (4) C and D only
23. An empty bottle is covered with a stopper. It was placed on a tripod stand, above a Bunsen burner with a hot flame. After some time, the stopper popped out of the bottle.



Which of the following explains this observation?

- (1) The Bunsen burner lost heat and contracted.
- (2) The air in the bottle lost heat and contracted.
- (3) The air in the bottle gained heat and expanded.
- (4) The Bunsen burner gained heat from the surroundings.

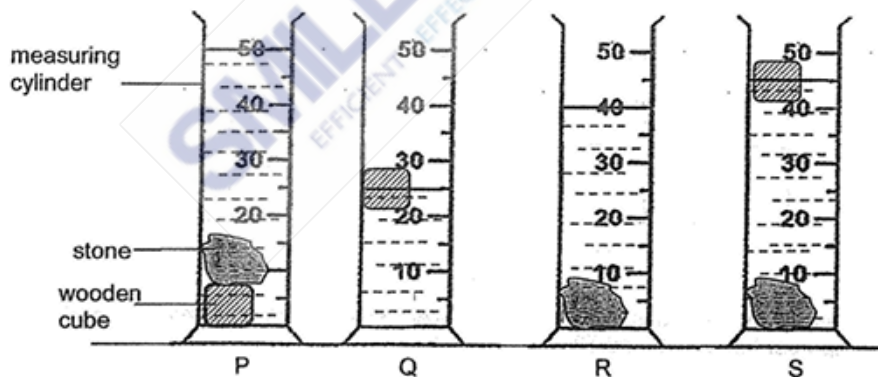
24. Study the classification chart below.



Based on the classification chart above, which of the following headings correctly represent groups S and T?

	Group S	Group T
(1)	occupies space	does not occupy space
(2)	has definite shape	does not have definite shape
(3)	has definite volume	does not have definite volume
(4)	can be compressed	cannot be compressed

25. Alina conducted an experiment with four set-ups, P, Q, R and S using identical measuring cylinders. Each measuring cylinder contained 20 cm<sup>3</sup> of water. She placed identical wooden cubes and stones in the measuring cylinders as shown below.

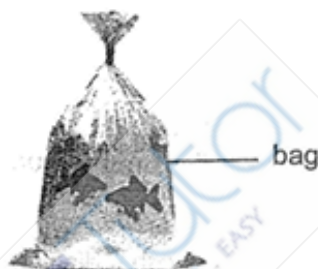


Based on the observations above, which one of the following correctly shows the volumes of the wooden cube and the stone?

	Volume of wooden cube (cm <sup>3</sup> )	Volume of stone (cm <sup>3</sup> )
(1)	5	15
(2)	10	20
(3)	10	40
(4)	25	40

26. The table below listed the properties of 4 materials, A, B, C and D.

Properties	Material A	Material B	Material C	Material D
Is it strong?	No	Yes	Yes	Yes
Is it flexible?	Yes	Yes	Yes	No
Is it waterproof?	Yes	No	Yes	Yes



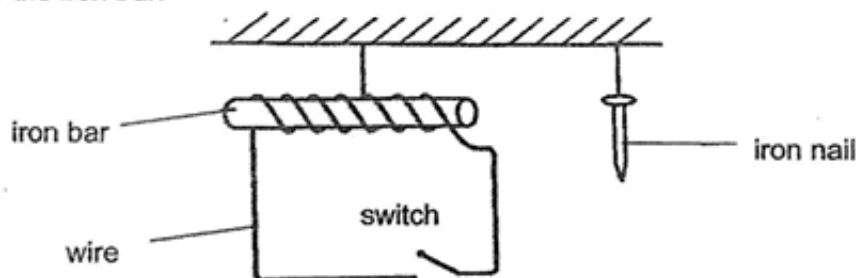
Mrs Lim went to the aquarium to get some live goldfish. She was given a bag to store the fish as shown in the diagram above.

Which one of the following materials is most suitable to make this bag?

- (1) Material A  
(3) Material C

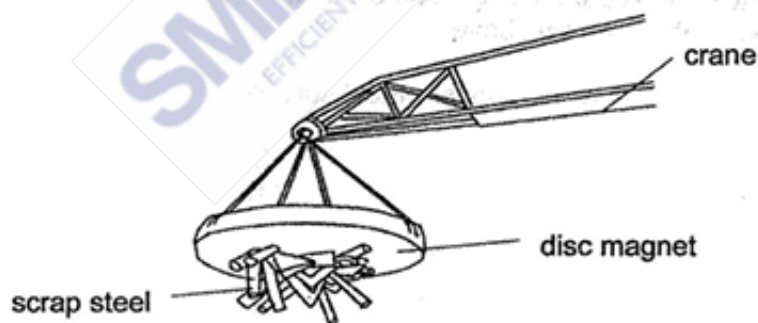
- (2) Material B  
(4) Material D

27. Suli wanted to make an electromagnet. She used the following materials as shown in the setup below. When the switch was turned on, she observed that the iron nail was not attracted to the iron bar.



Based on the diagram above, which one of the following statements explains why the iron nail was not attracted to the iron bar?

- (1) There was no battery.
  - (2) The wire was too short.
  - (3) The electromagnet was too weak.
  - (4) There were too many coils of wire around the bar.
28. The diagram below shows a crane with a disc magnet at its end. It is commonly found at a scrap yard to help move large amounts of scrap steel easily from one place to another. When the operator switches on the electric switch, the disc magnet attracts the scrap steel. When the operator switches off the electric switch, the scrap steel drops.



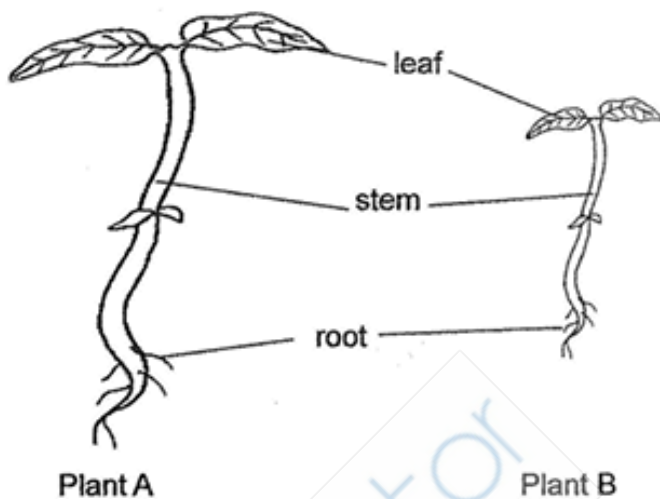
Which one of the following statements is true?

- (1) The disc magnet is not an electromagnet.
- (2) Only non-magnetic materials will be attracted to the disc magnet.
- (3) When the electric switch is turned on, the disc magnet loses its magnetism.
- (4) When the electric switch is turned on, the disc magnet becomes magnetised.

~ END OF BOOKLET A ~

**Section B: Open-Ended Questions [44 marks]**

29. The diagram below shows two plants with their parts labelled.



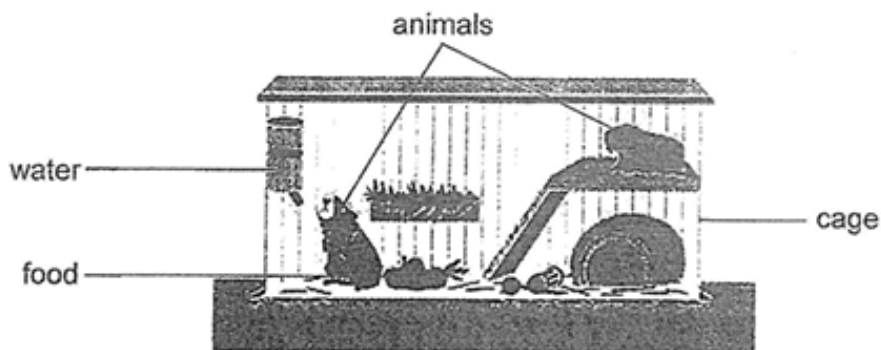
(a) What is one difference between the leaf of plant A and the leaf of plant B?

The leaf of plant A is \_\_\_\_\_ than the leaf of plant B. [1]

(b) The roots help the plant to take in \_\_\_\_\_ and mineral salts from the soil. [1]



30. Study the diagram below.



(a) Put a tick (✓) in the correct box below.

After a few days, the amount of water in the water dispenser will:

[1]

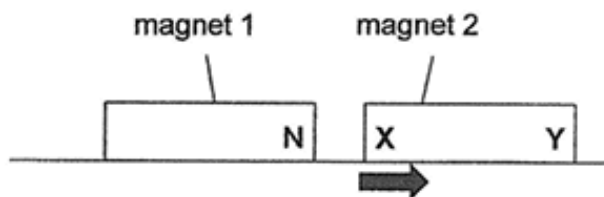
- ☐ Increase
- ☐ Decrease
- ☐ Remain the same

(b) Based on the diagram above, state one substance this animal needs so that it remains alive.

[1]

\_\_\_\_\_

31. When the north pole of magnet 1 is placed next to the pole labelled X of magnet 2, magnet 2 moves away from magnet 1, as shown by the arrow below.



The north pole of magnet 1 is labelled N.

Identify the poles labelled X and Y on magnet 2.

[2]

X: \_\_\_\_\_

Y: \_\_\_\_\_

32. The diagram below shows a block of ice.



Fill in the blanks using the correct words in the box.

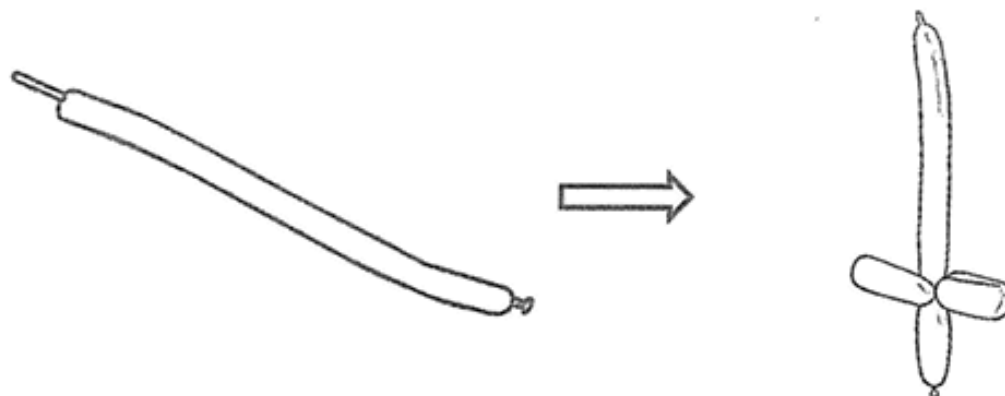
gas	decreases	liquid
remains unchanged	increases	

(a) The block of ice is left on a table. After some time, the ice will change its state to become a \_\_\_\_\_ . [1]

(b) When Lisa places a pot of water over a fire, the temperature of the water \_\_\_\_\_ . [1]



33. Ali pumps 5 pumps of air into a long balloon as shown. He then squeezes the balloon slightly without bursting it. He is able to twist the balloon into the shape of a sword.



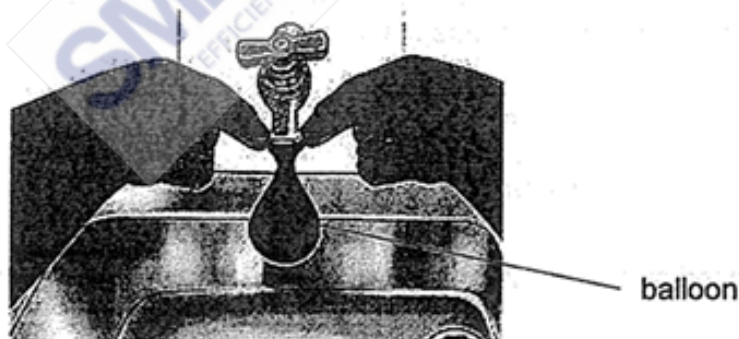
Both the volume and shape of air inside the balloon changes.

**Circle** the correct option in the statement below.

- (a) This shows that air is a 'solid' / 'liquid' / 'gas'.

[1]

Ali fills another balloon with 50 ml of water. After that, he empties the water in the balloon back into a beaker. The volume of water is still 50 ml.



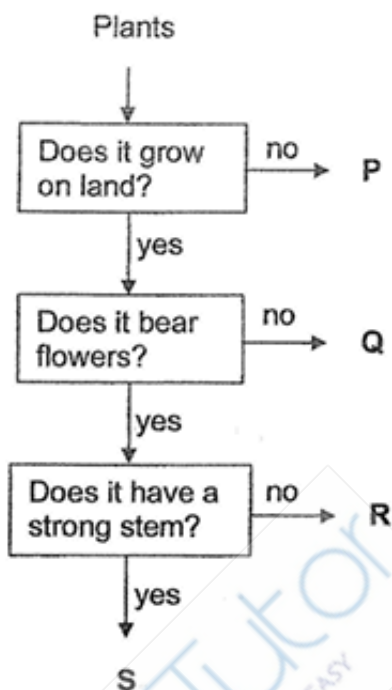
The shape of the water changes but the volume of water remains the same.

**Circle** the correct option in the statement below.

- (b) This shows that water is a 'solid' / 'liquid' / 'gas'.

[1]

34. Study the flowchart below.



(a) Based on the flowchart above, which of the following plants, P, Q, R or S, best represent the plants below? [2]

- i) apple tree \_\_\_\_\_
- ii) bird's nest fern \_\_\_\_\_

(b) Based on the flowchart above, state **all** the similarities between plants R and S. [1]

---



---

(c) Based on the flowchart above, state the difference between plants P and Q. [1]

---



---

35. Study the classification table below.

Group K	Group L
eagle	dog
ostrich	whale
penguin	giraffe

- (a) Based only on the animals' method of reproduction, identify the correct headings for groups K and L. [2]

Group K: \_\_\_\_\_

Group L: \_\_\_\_\_

- (b) State another characteristic that only animals in Group K have. [1]

\_\_\_\_\_

Animal Q lives in a cold place. Both the hair on animal Q and the jacket that people wear have a similar function.



animal Q



jacket

- (c) Describe how the hair helps animal Q to live in a cold place. [1]

\_\_\_\_\_

36. Manfred found organism Y growing on the grass as shown in the diagram below.



- (a) Which group of living things does organism Y belong to? [1]

\_\_\_\_\_

- (b) How does organism Y reproduce? [1]

\_\_\_\_\_

Over the next few days, the weather was hot and there was also more rainfall. Manfred then observed that the number of organism Y had increased.

- (c) State the conditions that organism Y needed in order to grow. [1]

\_\_\_\_\_

Manfred's mother bought some freshly baked bread and left it on the table. Manfred suggested she should keep the bread in the refrigerator to prevent the bread from getting mouldy.

- (d) Is Manfred's statement correct? Explain your answer. [1]

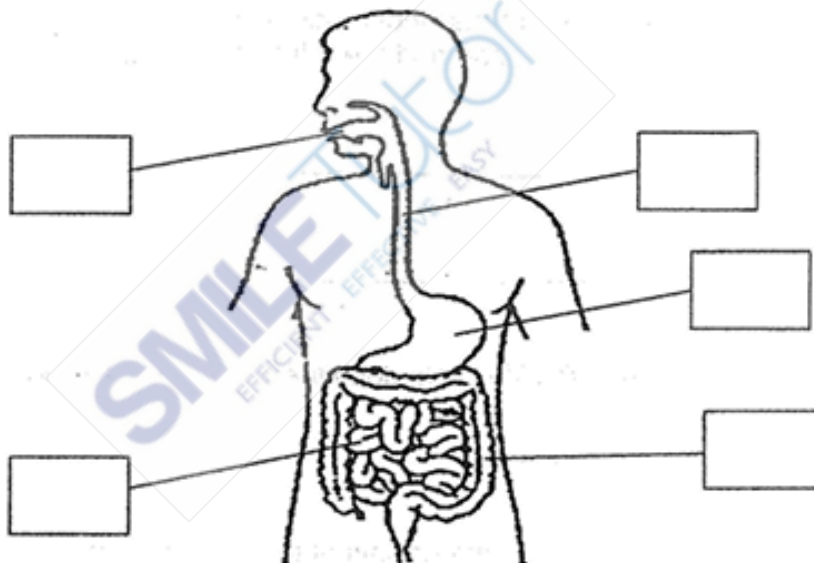
\_\_\_\_\_  
\_\_\_\_\_

37. Study the table below.

(a) Identify the human organ system based on their functions in the table below. [1]

	Human Organ system	Functions
(i)		works together with skeletal system to enable movement
(ii)		takes in oxygen from the air we breathe in and gives out carbon dioxide

(b) In the diagram below, identify the organs which **do not** produce digestive juices by marking an "X" in the correct box(es) only. [2]



(c) Give a reason why chewing food before swallowing helps in faster digestion of food. [1]



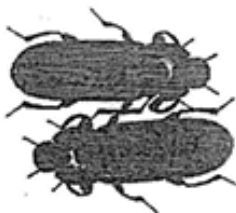

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38. Hafiz found two eggs of a mealworm beetle in his garden. He kept them in a box with a netting as the cover and observed their growth. He took some photographs of the beetle in its different stages as shown in the table below.

			
<b>Stage K</b>	<b>egg</b>	<b>adult</b>	<b>Stage L</b>

Stages of the life cycle of a mealworm beetle

- (a) Based on the photographs above, identify the stages of the life cycle of the mealworm beetle. The egg and the adult stages have been correctly identified for you. [1]

Stage K: \_\_\_\_\_

Stage L: \_\_\_\_\_

- (b) At which stage in the life cycle does the beetle stop feeding? [1]

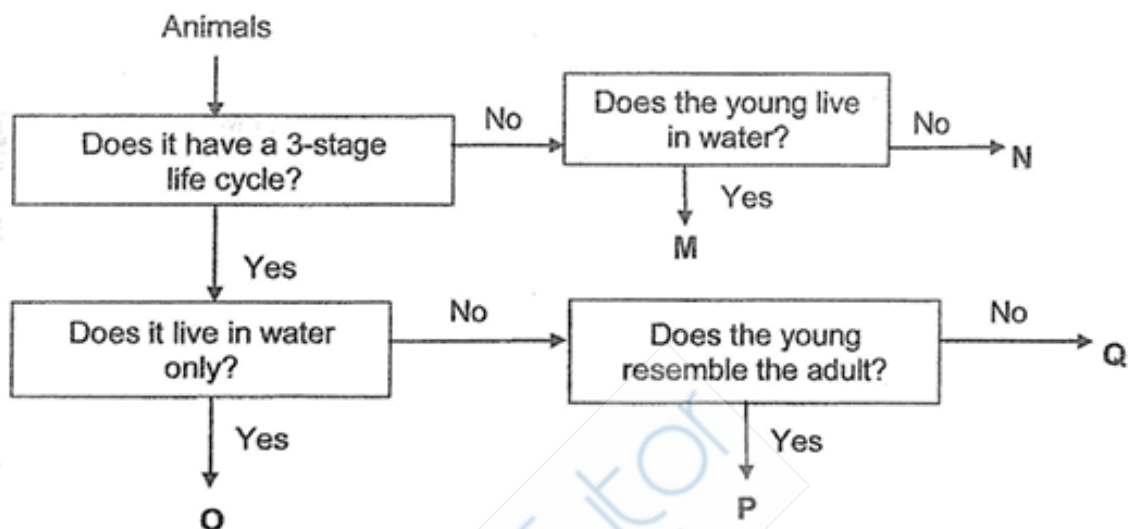
\_\_\_\_\_

- (c) State one example of another animal that has the same stages of life cycle as the mealworm beetle. [1]

\_\_\_\_\_

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Study the flowchart below.



- (d) Based on the flowchart above, state the difference between the life cycles of animals M and O. [1]

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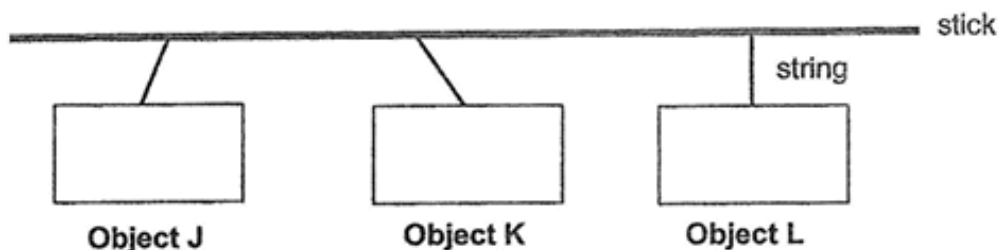
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- (e) Based on the flow chart above, which of the following animals, M, N, O, P or Q, best represent the animals in parts (i) and (ii)? [1]

(i)	frog	Animal _____
(ii)	mealworm beetle	Animal _____



39. Janet was playing with objects J, K and L. She hung them onto a long stick using 3 similar strings as shown in the diagram below. She observed that objects J and K moved away from each other while object L remained in the same position.



Janet concluded that objects J and K are definitely magnets.

- (a) Explain if Janet's statement is correct. [1]

---



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- (bi) Was object L made of a magnetic material? Give a reason for your answer. [1]

---



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- (bii) Identify a **material** that object L was most likely made of. [1]

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Janet had an iron nail and she turned it into a temporary magnet.

- (c) Using the stroke method, how can she increase the magnetic strength of the iron nail? [1]

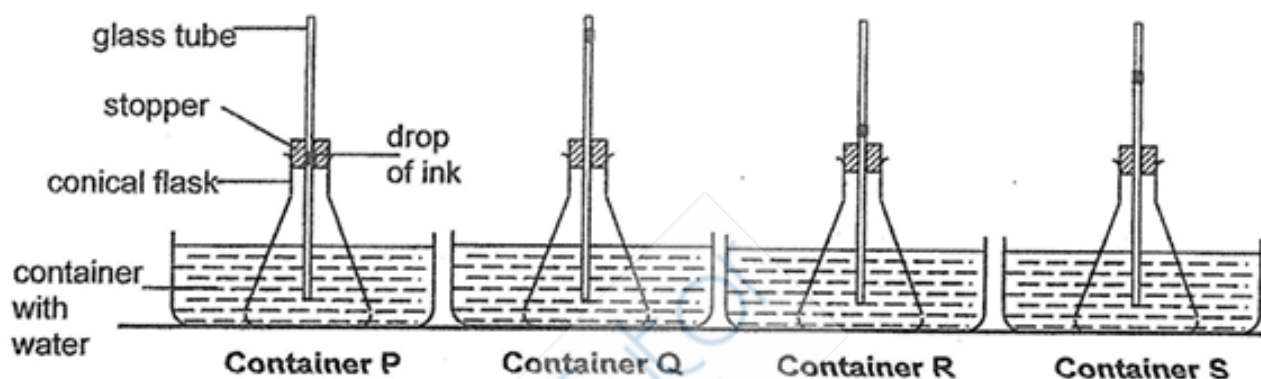
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40. Raj set up four identical conical flasks. He inserted each empty conical flask with a glass tube and a stopper. Each of the four tubes contained a drop of ink at the same height.

The flasks were then placed into four containers, P, Q, R and S, that were filled with water of different temperatures. After 20 minutes, the drop of ink in each tube changed its position as shown in the diagram below.



- (a) Based on the results above, arrange the containers, P, Q, R and S, from the highest temperature of water to the lowest temperature of water. [1]

highest temperature  $\longrightarrow$  lowest temperature

Container	Container	Container	Container

- (b) Explain why the drop of ink moved up the glass tube in container Q. [2]

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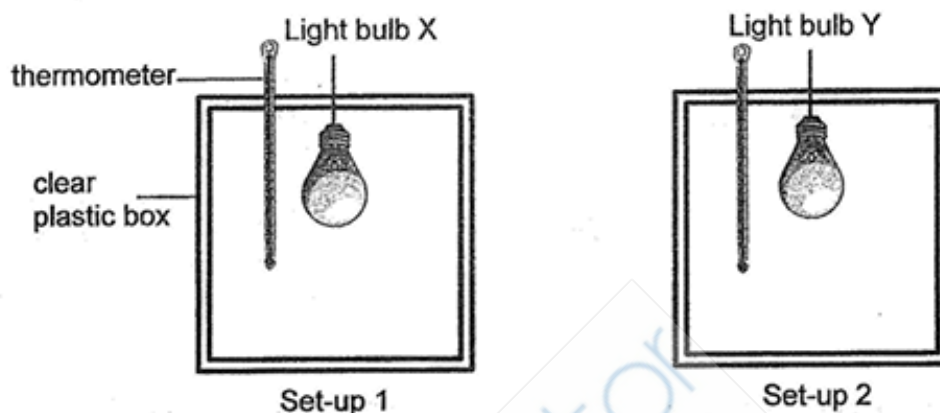


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Raj had learnt that he can save the environment by using energy-saving electrical appliances. He also learnt that energy-saving light bulbs produce less heat energy than other light bulbs.

Raj decided to conduct an experiment to find out which light bulb, X or Y, is more energy-saving as shown in the diagram below.



He observed that the drop of ink in set-up 2 rose higher than the drop of ink in set-up 1. He ~~also~~ recorded the temperature of the air in the set-ups at the beginning and after 1 hour of the experiment as shown in the table below.

	Set-up 1	Set-up 2
At the start of experiment	25°C	25°C
At the end of experiment	26°C	28°C

- (c) Based on the diagram above, which light bulb, X or Y, is more energy-saving? [1]

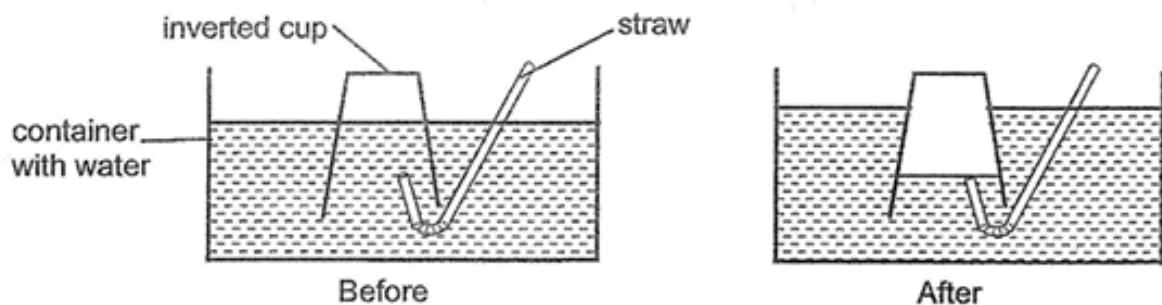
Light bulb \_\_\_\_\_

Raj wanted to set up another experiment using the items in set-up 1. He wanted to find out how the number of light bulbs affect the temperature of the air in the clear plastic box.

- (d) State the variable that Raj should change in this experiment. [1]

\_\_\_\_\_  
 \_\_\_\_\_

41. Alyssa set up the experiment as shown in the diagram below. When she blew air into the straw, she observed that the water level inside the inverted cup decreased.



- (a) Explain why the water level inside the inverted cup had decreased. [1]

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- (b) Based on the experiment above, state the property of matter that is shown. [1]

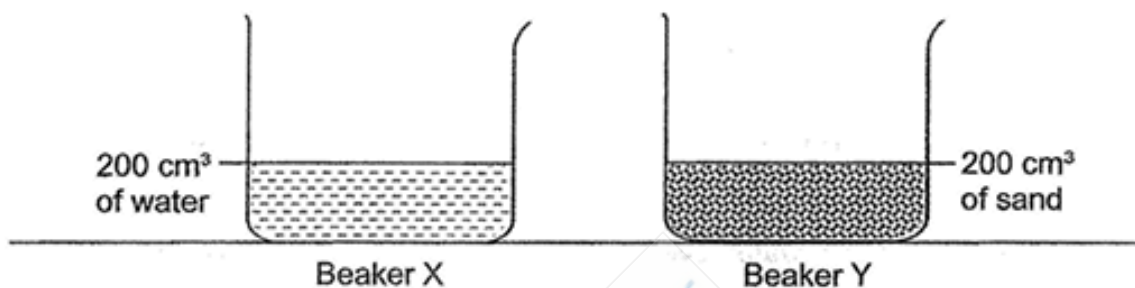
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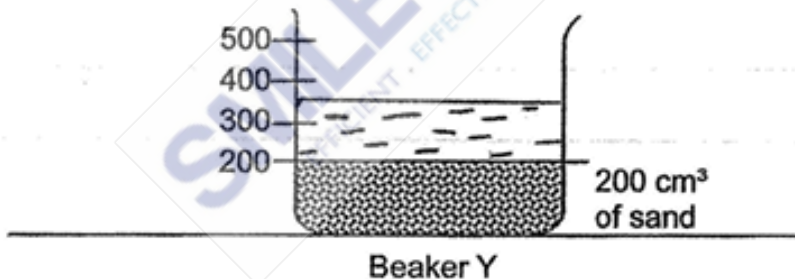
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Alyssa set up another experiment using beaker X and Y. She filled beaker X with  $200 \text{ cm}^3$  of water. She then filled beaker Y with sand, up to  $200\text{-cm}^3$  mark. Next, she poured all the water from beaker X into beaker Y



- (c) In the diagram below, draw the water level in beaker Y that would be observed. [1]



- (d) Explain your answer in part (c). [1]

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## ANSWER SHEET

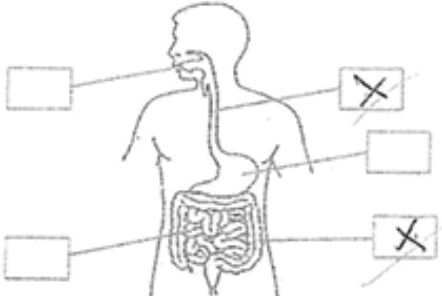
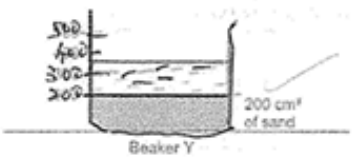
Q1	4
Q2	4
Q3	3
Q4	2
Q5	4
Q6	3
Q7	3
Q8	2
Q9	2
Q10	2
Q11	1
Q12	1
Q13	4
Q14	4
Q15	2

Q16	1
Q17	1
Q18	3
Q19	2
Q20	4
Q21	2
Q22	3
Q23	3
Q24	3
Q25	2
Q26	3
Q27	1
Q28	4



<b>Q29</b>	a) Bigger b) Water
<b>Q30</b>	a) Decrease b) This animal needs water to remain alive
<b>Q31</b>	X: North Y: South
<b>Q32</b>	a) Liquid b) Increases
<b>Q33</b>	a) Gas b) Liquid
<b>Q34</b>	a) i) S ii) Q b) Both plants R and S grow on land and bear flowers. c) P does not grow on land but Q grows on land.
<b>Q35</b>	a) Group K: Lay eggs Group L: Give birth to their young alive b) The animals in group K have beaks. c) The hair can trap air and keep animal Q warm.
<b>Q36</b>	a) Fungi b) Organism Y reproduce by spores, c) Air, moisture and warmth d) Yes. If Manfred mother keeps the bread in the refrigerator, it will not grow mold as there is no warmth.
<b>Q37</b>	a) i) Muscular system b) Respiratory system



	b)	
	c)	The food will be partially digested and broken down into smaller pieces making faster digestion of food.
Q38	a)	Stage K: Larva Stage L: Pupal stage
	b)	Stage L
	c)	Butterfly
	d)	Animal O has a 3-stage life cycle but animal M does not have a 3-stage life cycle.
	e)	i) Q ii) N
Q39	a)	Janet's statement is correct as objects J and K is pushing each other away which means their like poles are facing each other and is repelling.
	bi)	No. If object K was a magnet, it would have attracted object L if it was a magnetic material.
	bii)	Plastic
	c)	She could increase the number of strokes and increase the magnetic strength.
Q40	a)	Q, S, R, P
	b)	Container Q's water probably had a high temperature making the air in the conical flask to gain heat from the container of water and expanding causing the drop of ink to move up the glass tube.
	c)	X
	d)	The number of light bulbs.
Q41	a)	Air takes the space inside the inverted cup, so no water can get in. When air is blown in through the straw, bubbles are observed. The water level inside the inverted cup dropped because the space near the top is occupied by air.
	b)	Air occupies space.
	c)	
	d)	The sand will have air pockets allowing some of the water to fill them making the volume lesser than $400\text{cm}^3$

## PEI CHUN PUBLIC SCHOOL EOY PAPER

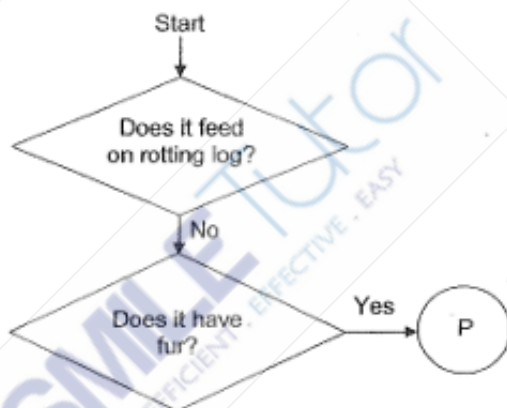
### Section A (28 × 2 marks)

For questions 1 to 28, choose the most suitable answer and shade its number (1, 2, 3 or 4) on the Optical Answer Sheet (OAS) provided.

- 1 Which one of the following statements is true for **all** plants?

- (1) They grow on land.
- (2) They have strong stems.
- (3) They make their own food.
- (4) They have flowers and fruits.

- 2 Study the diagram below.



What could P be?

- (1) fish
- (2) fungi
- (3) bacteria
- (4) mammal

- 3 The diagram shows a fork.



Metal is used to make the fork because metal \_\_\_\_\_.

- (1) is shiny
- (2) is strong
- (3) sinks in water
- (4) conducts heat well

- 4 The diagram shows a magnet brought near a plastic toy truck.

plastic toy truck



magnet

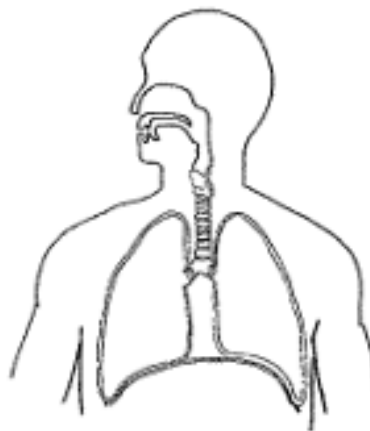
What will happen to the plastic toy truck?

- (1) It will move up.
  - (2) It will not move.
  - (3) It will move to the left.
  - (4) It will move to the right.
- 5 The reading on the weighing scale shows that the mass of the apples is \_\_\_\_\_ kg.



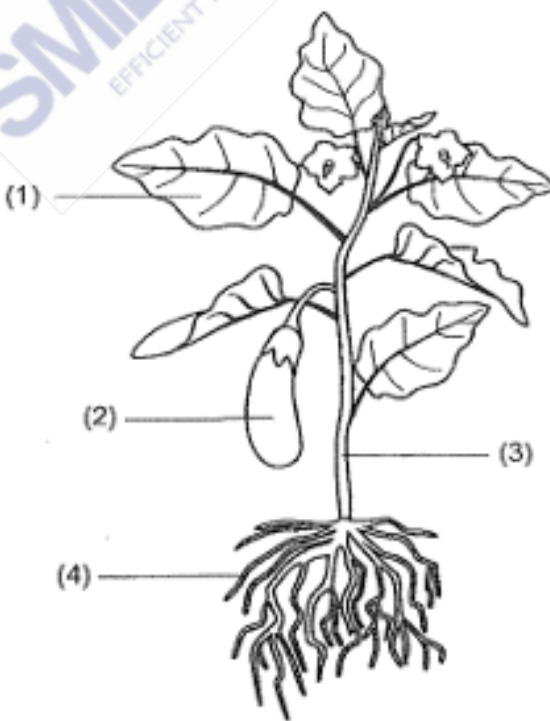
- (1) 1.6
- (2) 1.8
- (3) 2.0
- (4) 2.2

6 Which organ system is shown in the diagram?

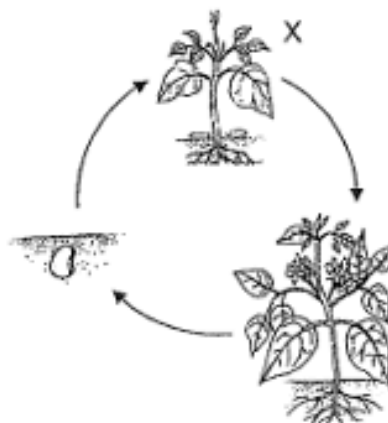


- (1) skeletal system
- (2) muscular system
- (3) circulatory system
- (4) respiratory system

7 The diagram shows a plant.  
Which part, (1), (2), (3) or (4), is the stem?



- 8 The diagram shows the life cycle of a plant.

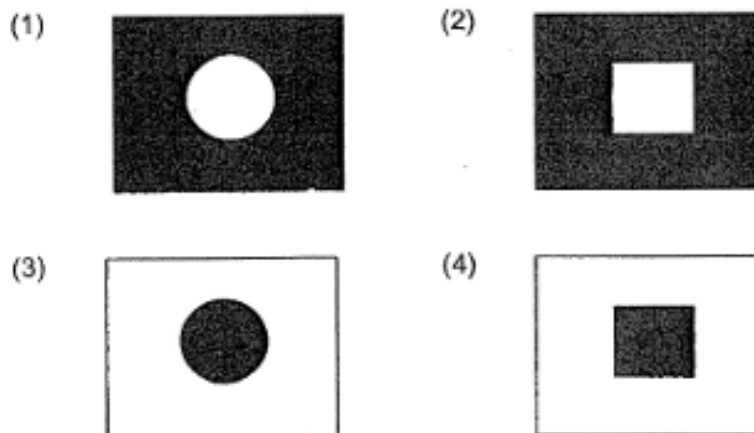


What is the stage marked X?

- (1) pupa (2) seed  
(3) adult plant (4) young plant
- 9 The set-up below shows light shining on a wooden box.

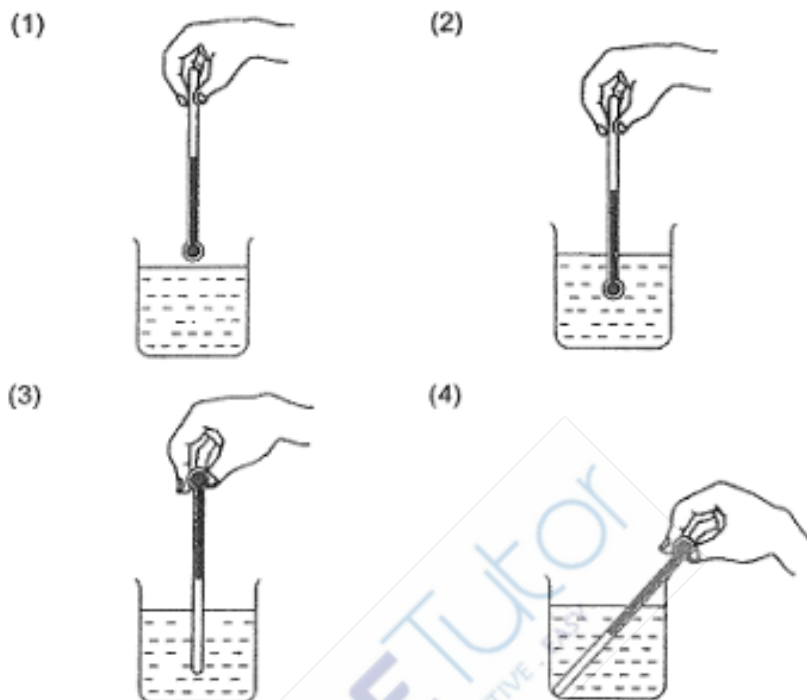


Which of the following would likely be seen on the screen?

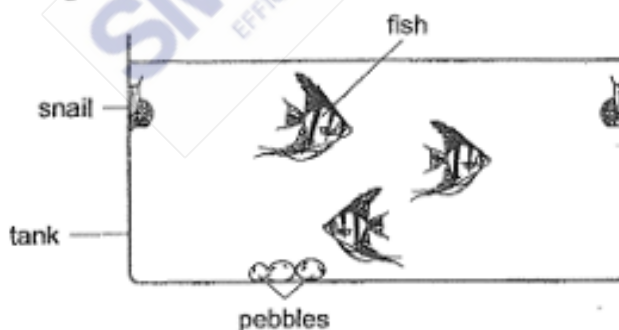


10 Amir wants to measure the temperature of cold water in a beaker.

Which of the following diagrams shows the correct position of the thermometer when taking the temperature reading?



11 Study the diagram below.



Which classification is correct?

	Living things	Non-living things
(1)	tank, fish	snail, pebbles
(2)	pebbles, tank	fish, snail
(3)	fish, snail	- tank, pebbles
(4)	tank, fish, snail	pebbles

12 Which of the following does **not** show that living things respond to changes?

- (1) The length of a tree's shadow decreases at noon.
- (2) The mimosa plant folds up its leaves when touched.
- (3) The girl sneezes loudly as she enters the cold room.
- (4) The zebra runs away when it spots a tiger approaching.

13 Which of the following characteristics is/are found in amphibians, but **not** in fish?

- A They lay eggs.
- B They have gills.
- C They breathe through moist skin.

- (1) B only
- (2) C only
- (3) A and B only
- (4) A, B and C

14 Four different materials, P, Q, R and S, each of mass 20 g, are soaked in water for a day. The table below shows the mass of the material after it was removed from the water.

Material	P	Q	R	S
Mass after removal from water (g)	45	20	35	30

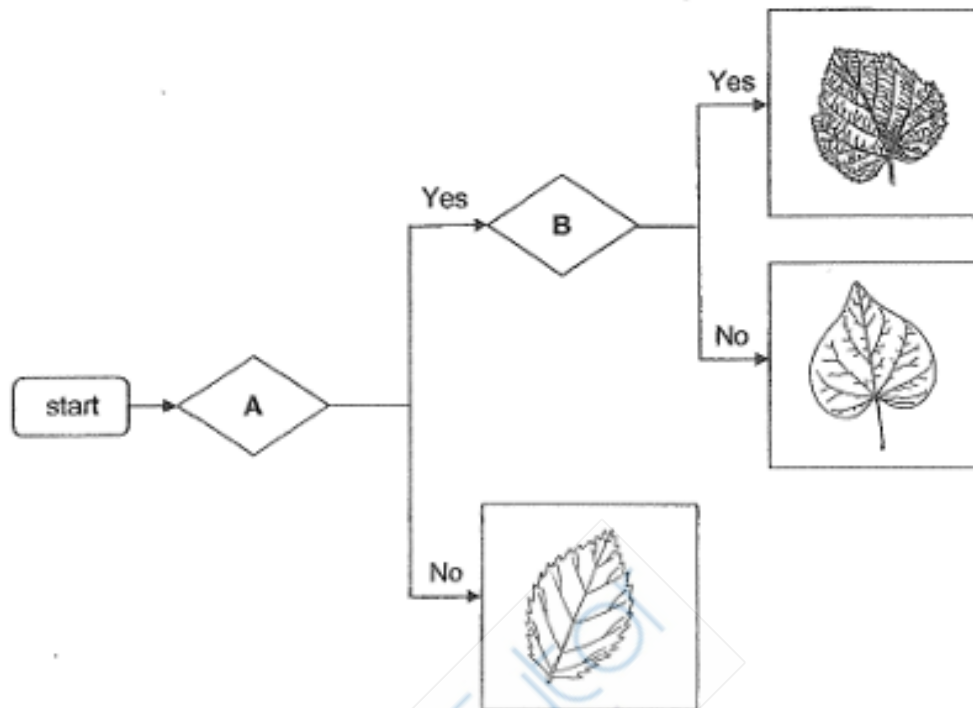
Which material is most suitable to make part X of an umbrella?



- (1) P
- (2) Q
- (3) R
- (4) S



15 The chart shows how some leaves are classified.



Which of the following represents A and B?





	A	B
(1)	oval-shaped	toothed edge
(2)	toothed edge	oval-shaped
(3)	heart-shaped	toothed edge
(4)	toothed edge	heart-shaped

16 Which of the following statements about the life cycle of a grasshopper is/are correct?

- A The young looks like the adult.
- B The young does not need food.
- C There are four stages in the life cycle.

- (1) A only
- (2) A and B only
- (3) B and C only
- (4) A, B and C

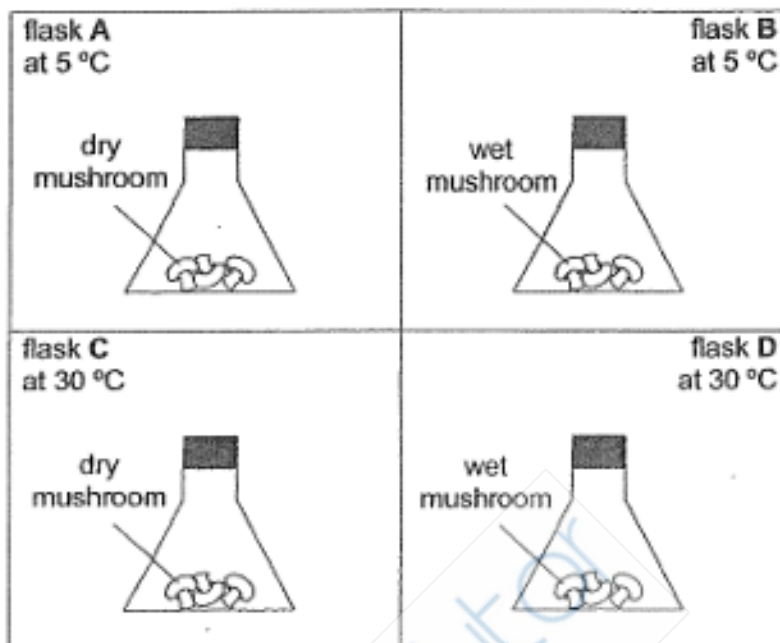
17 Study the classification table below.

Living things	
K	L
  	  

Which of the following is correct?

	K	L
(1)	non-flowering plants	flowering plants
(2)	reproduce from spores	reproduce from seeds
(3)	need support to grow	do not need support to grow
(4)	can only be seen under microscope	can be seen without microscope

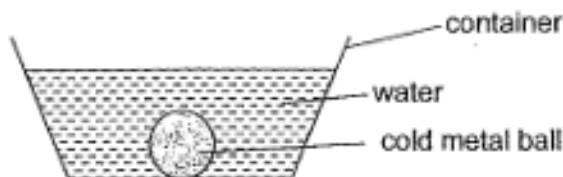
- 18 Yin Yin wanted to investigate the effect of water on the growth of mould on mushrooms.



Which two flasks should she compare in order to draw a conclusion?

- (1) A and D
- (2) B and C
- (3) B and D
- (4) C and D

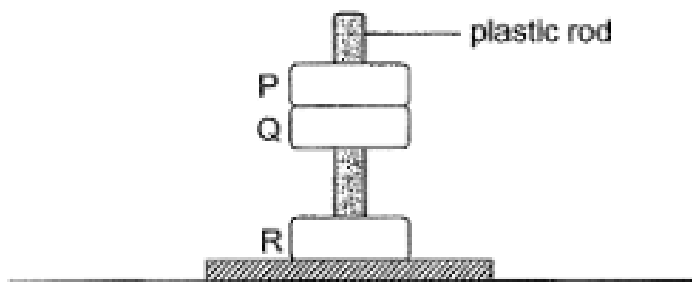
- 19 A cold metal ball was placed in a container of water at room temperature as shown in the diagram below.



Which of the following shows the flow of heat?

- (1) container → water → metal ball
- (2) metal ball → water → container
- (3) metal ball → container → water
- (4) water → metal ball → container

- 20** In the set-up below, P, Q and R are three rings that pass through a smooth plastic rod.

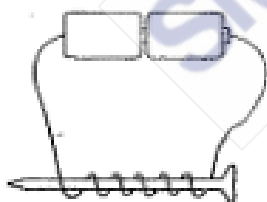


Which of the following is possible?

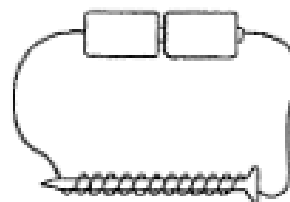
	P	Q	R
(1)	steel	magnet	rubber
(2)	rubber	steel	magnet
(3)	rubber	magnet	magnet
(4)	magnet	magnet	steel

- 21** Which is the strongest electromagnet?

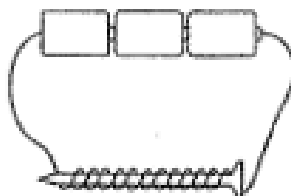
(1)



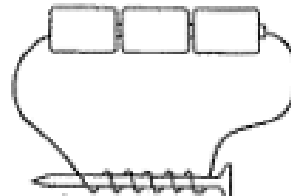
(2)



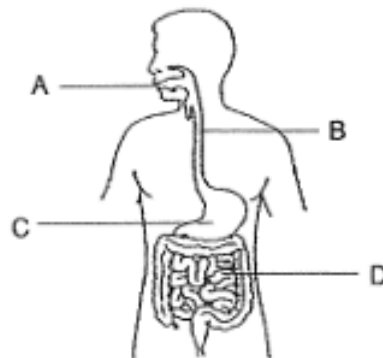
(3)



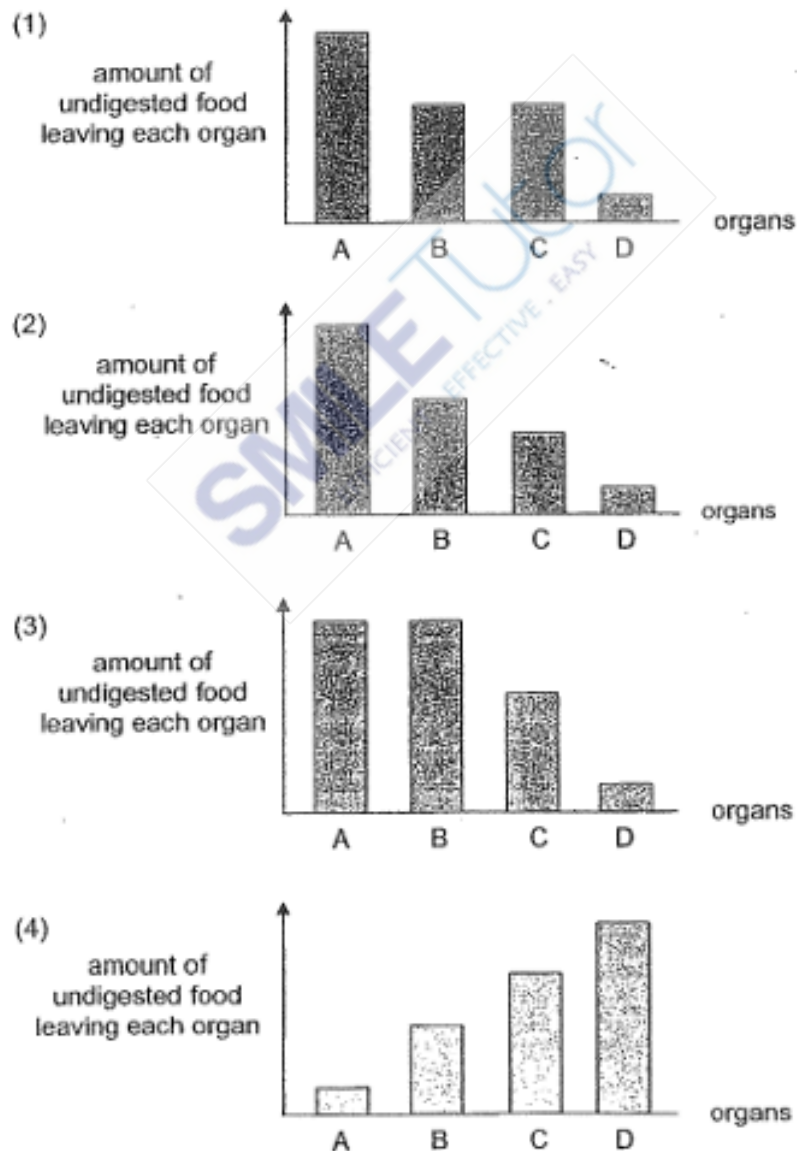
(4)



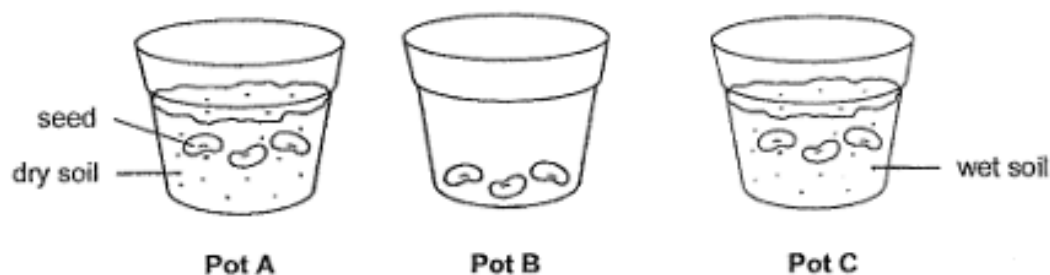
22 The diagram below shows the human digestive system.



Which of the graph shows the correct amount of undigested food leaving each organ after a meal?



- 23 James conducted an experiment by placing the same number of seeds in three pots in a room as shown.



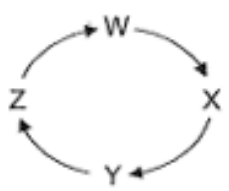
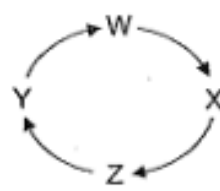
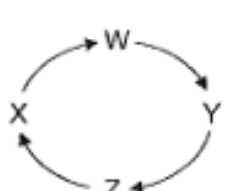
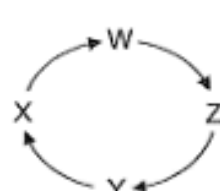
Only the seeds in pot C grew. The above experiment shows that \_\_\_\_\_ is needed for seeds to grow.

- (1) soil
- (2) light
- (3) water
- (4) space

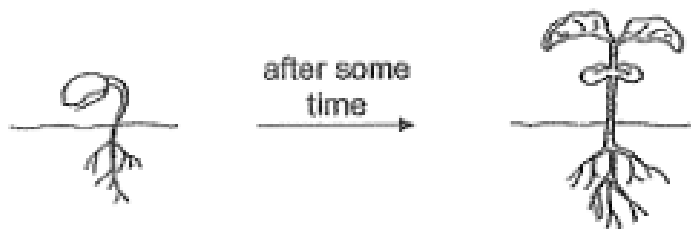
- 24 W, X, Y and Z are the various stages in the life cycle of a butterfly.



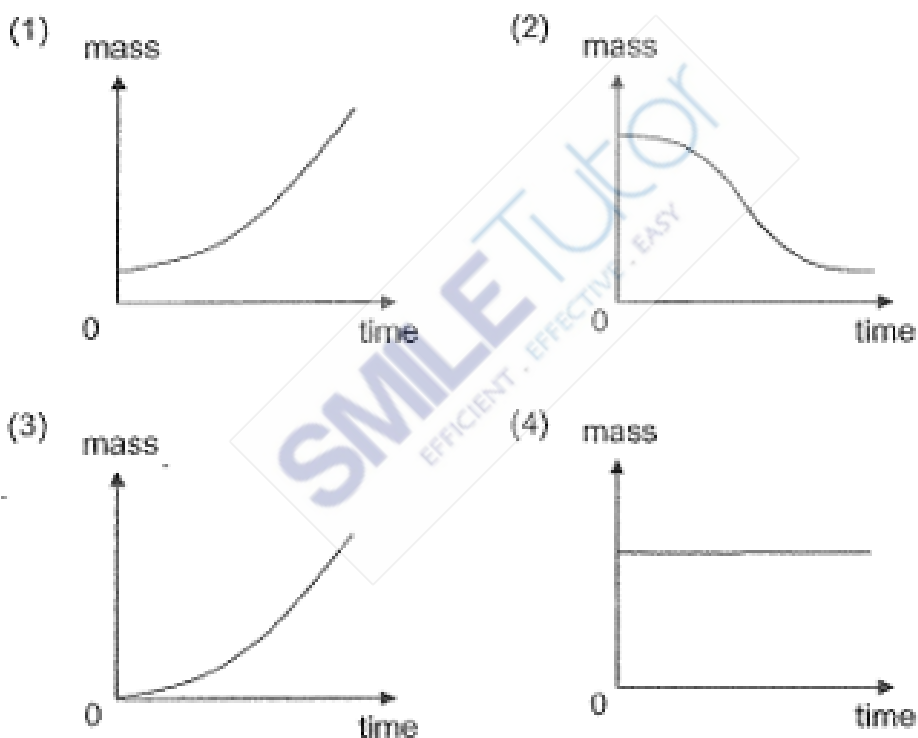
Which of the following correctly shows the life cycle of a butterfly?

- (1) 
- (2) 
- (3) 
- (4) 

25 The diagram below shows how a plant changes after some time.

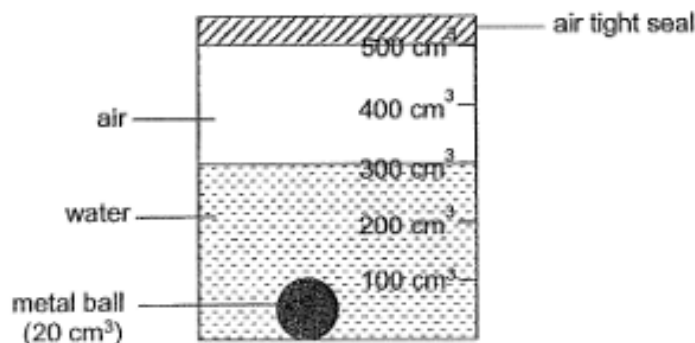


Which of the following graphs show how the mass of the plant changes with time?





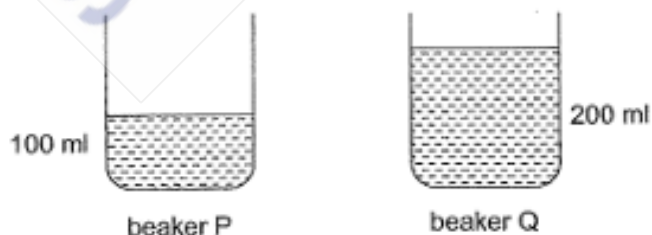
- 26 Vignesh placed a metal ball of volume  $20 \text{ cm}^3$  into a container. He then poured some water into the container, pumped in  $250 \text{ cm}^3$  of air and sealed the container. The diagram shows what he observed.



Which of the following shows the volumes of the water and air in the container?

	Water	Air
(1)	$300 \text{ cm}^3$	$250 \text{ cm}^3$
(2)	$280 \text{ cm}^3$	$200 \text{ cm}^3$
(3)	$280 \text{ cm}^3$	$250 \text{ cm}^3$
(4)	$300 \text{ cm}^3$	$200 \text{ cm}^3$

- 27 Two identical beakers, P and Q, contained different volumes of water at the same temperature of  $90^\circ\text{C}$ .



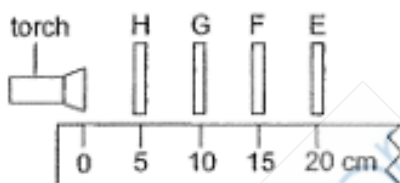
Which of the following statements about the two beakers of water is correct?

- (1) The water in both beakers have the same amount of heat.
- (2) The water in beaker P is colder than the water in beaker Q.
- (3) The water in beaker P has less heat than the water in beaker Q.
- (4) The water in beaker P will reach room temperature slower than the water in beaker Q.

- 28 Jake conducted an experiment to investigate whether light can pass through four sheets, E, F, G and H, made of different materials. The sheets are arranged in set-ups, W and X, as shown.

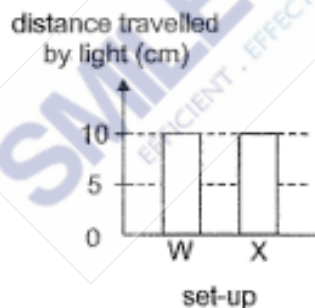


Set-up W



Set-up X

The distance travelled by the light for each set-up was measured and the results are shown in the chart below.



Based on Jake's results, which of the following materials allow light to pass through?

- (1) E and F only
- (2) E and H only
- (3) F and G only
- (4) E, F, G and H

End of Section A

**Section B (44 marks)**

For questions 29 to 41, write your answers in the spaces provided.

29

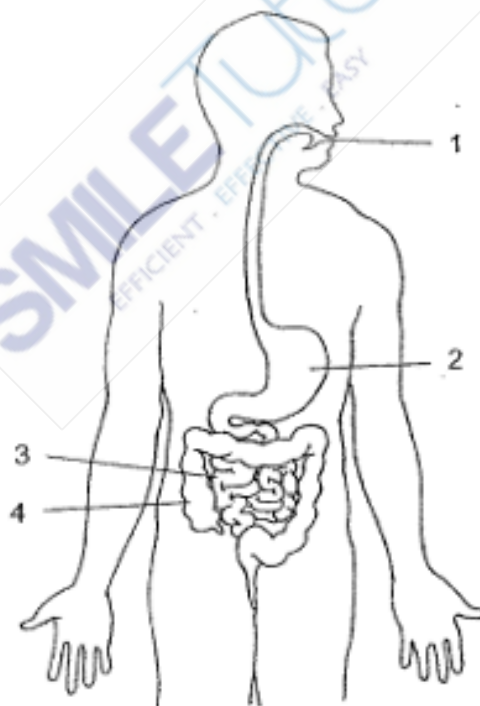


(a) The boy needs air, food and \_\_\_\_\_ to stay alive. [1]

(b) The boy becomes taller after some time.

This shows that he can \_\_\_\_\_. [1]

30 The diagram below shows the human digestive system.



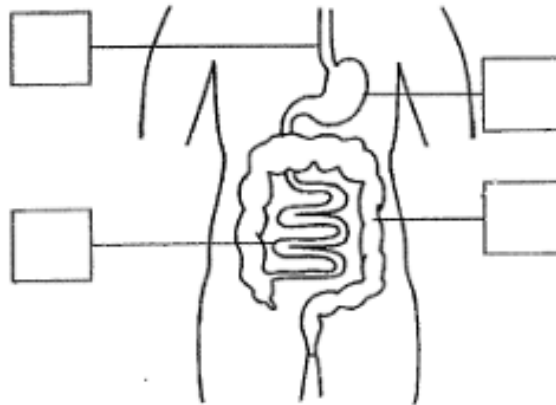
Identify the part where:

(a) digestion first takes place : \_\_\_\_\_ [1]

(b) - food is completely digested : \_\_\_\_\_ [1]

(c) Tick (✓) the correct box to show where the stomach is.

[1]



31 The diagram below shows the young and adult of some organisms. Draw lines to match the young with the correct adult.

[3]



32 The diagram below shows a beaker of water.



(a) Circle the correct state of water. [1]

solid / liquid / gas

(b) Fill in the blanks using the correct words in the box.

solid	decreases	liquid
increases	remains unchanged	gas

(i) When heat is taken in by the water, its temperature \_\_\_\_\_ [1]

(ii) The beaker of water is put over a hot stove. After some time, the water will change its state to become a \_\_\_\_\_. [1]

33 (a) State what is matter. [1]

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(b) Classify the following into matter and non-matter. [1]

air	sound	milk	cat
-----	-------	------	-----

Matter	Non-matter

- 34 Salim was shown some information on three animals, X, Y and Z, in a table. A tick (✓) shows that the animal has the characteristic.

Characteristic	X	Y	Z	Bird
Has wings		✓		
Has skin covered with scales			✓	
Has fewer than 3 pairs of legs	✓		✓	

- (a) Identify all characteristics of a bird by ticking (✓) the correct box(es) in the table above. [1]

- (b) State a difference between animal X and Z. [1]

---



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- (c) Salim guessed that animal Y could be an insect. Use a characteristic given in the table above to explain why he made this guess. [1]

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- (d) (i) The diagram below shows a tortoise.



Match the tortoise to the correct letter (X, Y or Z) in the table.

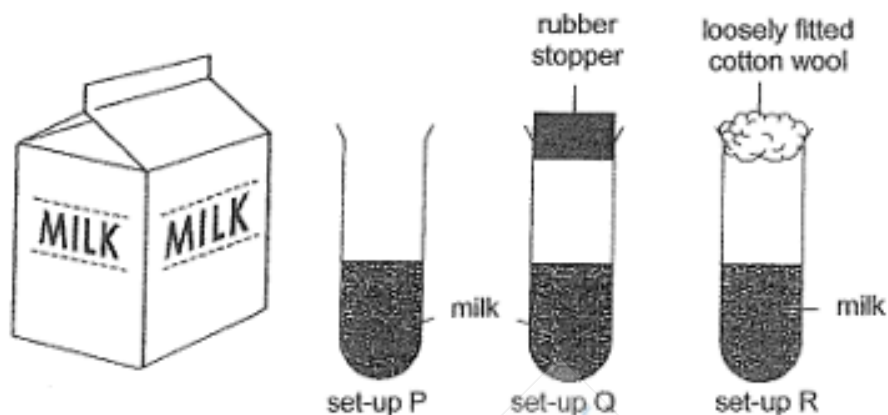
It is animal \_\_\_\_\_ [1]

- (ii) Name the animal group that the tortoise belongs to. [1]

---

- 35 Jim learnt that bacteria present in the air cause food to turn bad. He also learnt that when food is exposed to more air, the food turns bad faster.

Jim carried out an experiment using a packet of milk and the 3 set-ups shown below.



He put the same amount of milk in three test tubes and left the tubes at room temperature. For each set-up, he recorded the number of hours for the milk to turn bad.

- (a) (i) In which set-up, P, Q or R, does the milk take the longest time to turn bad? [1]
- 
- (ii) Give a reason for your answer in (a)(i). [1]
- 

- (b) Jim repeated his experiment by placing the three set-ups in the refrigerator. He observed that the milk in all three set-ups took a longer time to turn bad.

What can he conclude from his observation?

Tick (✓) the correct box.

[1]

☐

As temperature increases, the bacteria reproduces faster.

☐

As temperature increases, the bacteria reproduces slower.

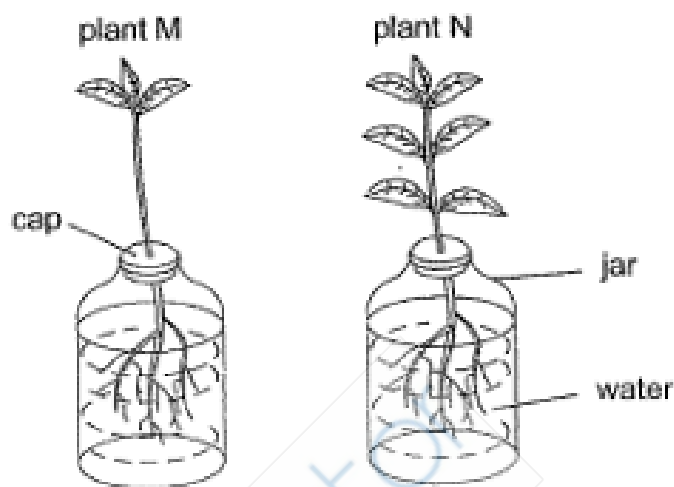
☐

Temperature does not affect how fast bacteria reproduces.



- 36 Bala conducted an experiment to find out if the number of leaves on a plant would affect the amount of water taken in by the plant.

He placed two plants in identical jars. Both jars contained the same amount of water.



- (a) Bala predicted that plant N would absorb more water after some time.  
 What observation would show that plant N absorbed more water? [1]

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- (b) Name the part of the plant that allows it to stay upright. [1]

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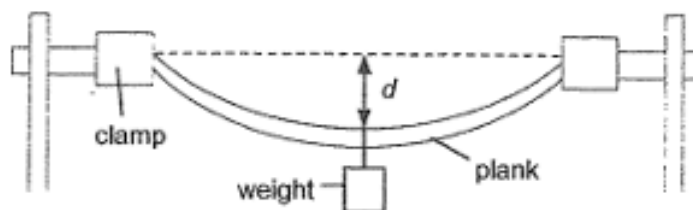
- (c) After two weeks, plant N survived but not plant M.  
 Suggest a reason how having more leaves helped plant N to stay alive. [1]

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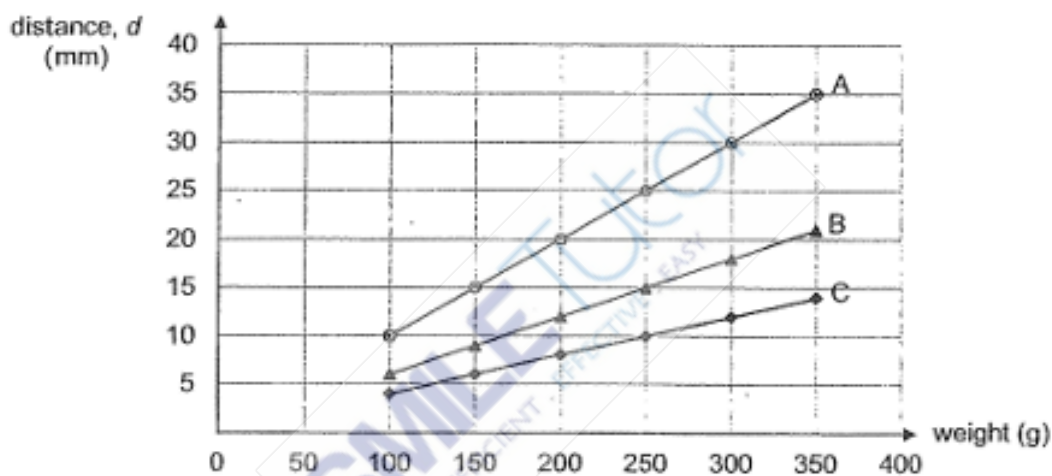


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- 37 Zhiyong carried out an experiment to compare three similar planks made of different materials, A, B and C. He measured the distance,  $d$ , at the middle of the plank after adding each weight.



His results are shown below.



- (a) How did distance,  $d$ , change when more weight was added to the planks? [1]

---



---

- (b) Which condition(s) should Zhiyong keep the same so that his experiment was a fair one? Tick (✓) the correct box(es). [1]

- ☐ distance  $d$
- ☐ material of plank used
- ☐ thickness of the plank

(c) The diagram below shows a basket.



- (i) Based on Zhiyong's experiment, which material, A, B, or C, is most suitable to be used for making the basket? Explain your answer. [1]

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---

- (ii) State another property of the material that makes it suitable to be used to make the basket. [1]

---

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- 38** Lee Meng conducted an experiment using three metal bars, W, X and Y as shown in the diagram. He labelled the ends of the bars as shown below. Bars W and X are magnets and bar Y is made of iron.



bar W  
(magnet)



bar X  
(magnet)



bar Y  
(iron bar)

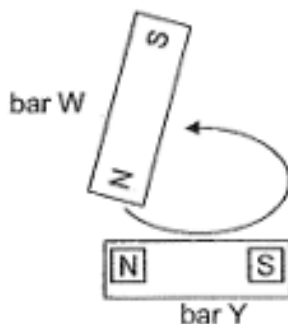
He placed one end of a bar near to one end of another bar and recorded his observations.

- (a) Fill in the table by putting a tick (✓) in each row to show his observations.

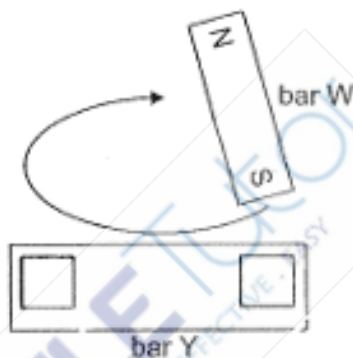
[2]

Experiment	Observation		
	Attraction	Repulsion	No effect
<div><div><div>B</div><div>A</div></div><div>bar W</div></div> <div><div><div>C</div><div>D</div></div><div>bar X</div></div>			
<div><div><div>B</div><div>A</div></div><div>bar W</div></div> <div><div><div>D</div><div>C</div></div><div>bar X</div></div>			
<div><div><div>B</div><div>A</div></div><div>bar W</div></div> <div><div><div>E</div><div>F</div></div><div>bar Y</div></div>			
<div><div><div>B</div><div>A</div></div><div>bar W</div></div> <div><div><div>F</div><div>E</div></div><div>bar Y</div></div>			

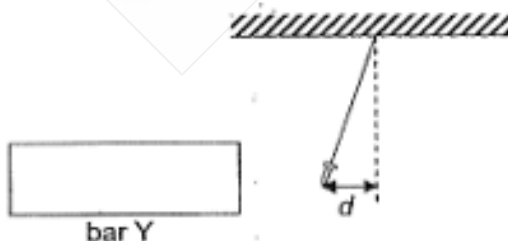
- (b) Lee Meng used the North pole of bar W to magnetise bar Y using the 'stroke' method. The poles of bar Y after it was magnetised is shown in the diagram.



What would the poles of bar Y be if Lee Meng had stroked bar Y in the way as shown in the diagram below instead? Fill in the boxes with 'N' or 'S'. [1]



- (c) Lee Meng placed the magnetised bar Y at a fixed position near a hanging pin as shown. He measured the distance  $d$  moved by the pin from the vertical position.



- (i) How does increasing the number of times he stroked bar Y affect distance  $d$  moved by the pin? [1]

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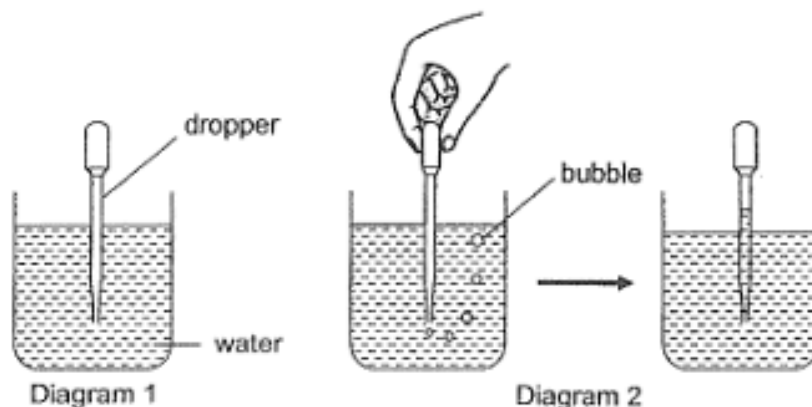
- (ii) Explain your answer in (c)(i). [1]

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- 39 Cheryl dipped an empty dropper in a beaker of water. She observed that water did not enter the dropper as shown in Diagram 1. When Cheryl squeezed the top part of the dropper, she observed some bubbles escaping from the opening. Then, water entered the dropper as shown in Diagram 2.



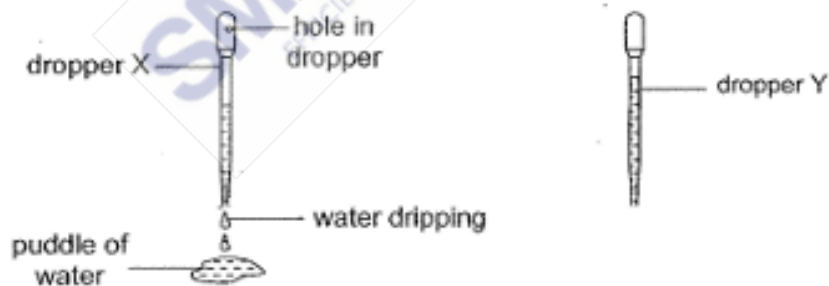
- (a) Explain why the water did not enter the dropper when it was first dipped in the beaker of water. [1]

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- (b) Cheryl filled two droppers, X and Y, with the same amount of water. She noticed that there was a hole at the top part of dropper X and water dripped out of dropper X forming a puddle. However, no water dripped out of dropper Y.



- (i) Explain why the water dripped out of the dropper when there was a hole. [1]

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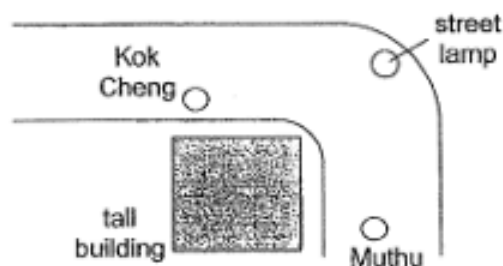


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- (ii) What property of matter is shown by the water as it dripped out and formed the puddle? [1]

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- 40 Kok Cheng and Muthu were standing near a tall building along a street as shown in the diagram. The street lamp ensured that the area is well-lit.



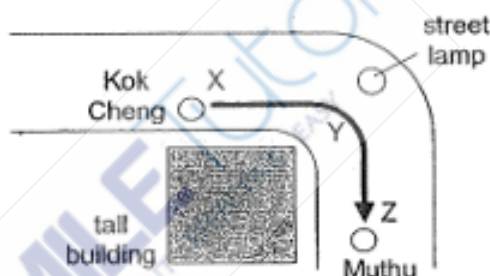
- (a) What property of light prevented Kok Cheng from seeing Muthu? [1]

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- (b) Kok Cheng walked towards Muthu from point X to point Z as shown.



- (i) Kok Cheng could see Muthu after walking for some time.

Describe how the light from the street lamp allowed Kok Cheng to see Muthu. [1]

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- (ii) Would the length of Kok Cheng's shadow increase, decrease or remain the same as he walked from X to Y and then from Y to Z?

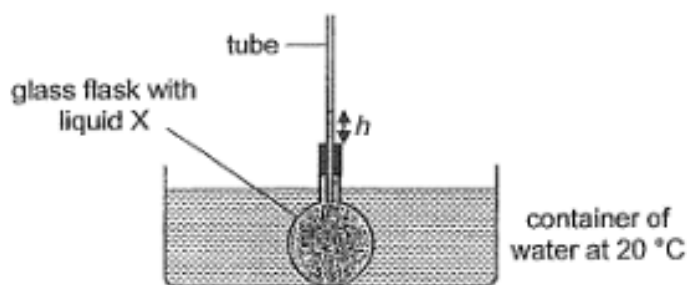
Put a tick (✓) in the correct boxes.

[2]

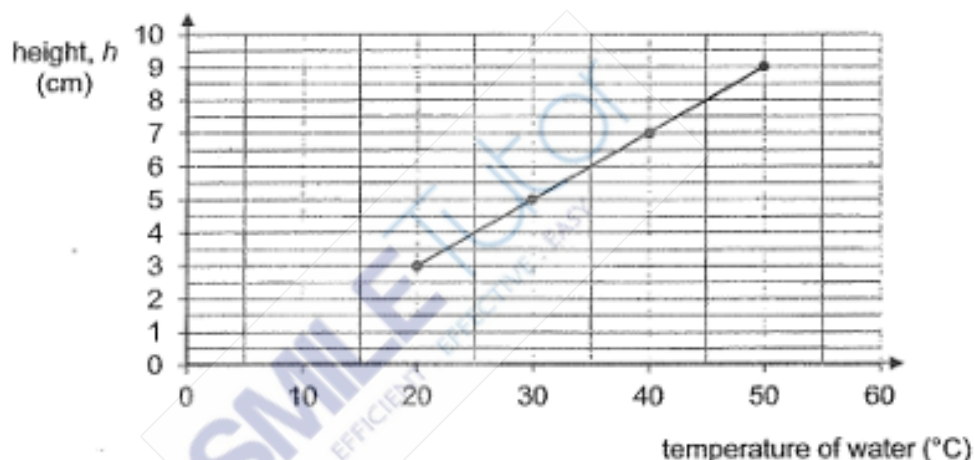
	Length of shadow		
	Increase	Decrease	Remain the same
From X to Y			
From Y to Z			



- 41 Radha conducted an experiment with a glass flask with liquid X at room temperature. She placed the flask in a container of water at 20 °C as shown below. She waited for five minutes before measuring the height of liquid X in the tube,  $h$ .



She repeated her experiment by placing the glass flask in containers of water of different temperatures. Her results are shown below.



- (a) What was  $h$  when the temperature of the water was 40 °C? [1]

\_\_\_\_\_ cm

- (b) (i) State how  $h$  changed when the temperature of water increased from 20 °C to 40 °C. [1]

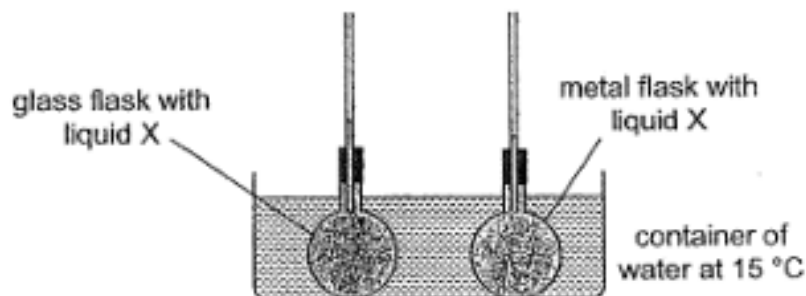
\_\_\_\_\_

- (ii) Explain why  $h$  changed when the temperature of water increased. [1]

\_\_\_\_\_

\_\_\_\_\_

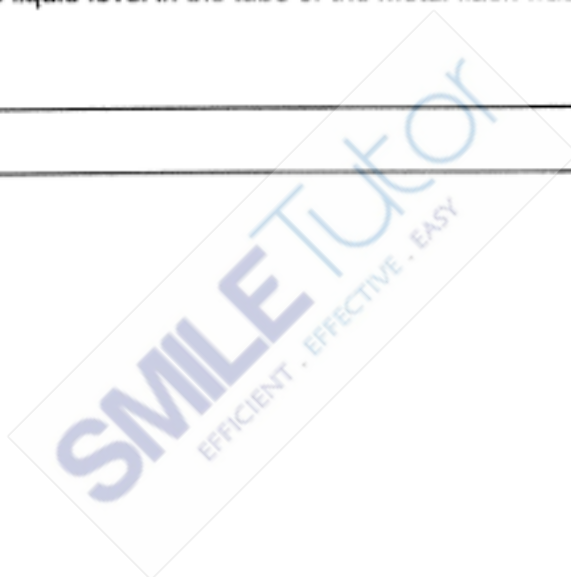
- (c) Radha filled a similar metal flask with the same amount of liquid X at room temperature. She placed the glass and metal flasks in a container of water at 15 °C. The diagram below shows her observations after 5 minutes.



Explain why the liquid level in the tube of the metal flask was lower than that of the glass flask. [1]

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## ANSWER SHEET

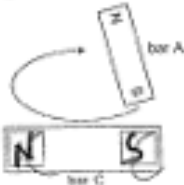

### Booklet A

Q1	3	Q2	4	Q3	2	Q4	2	Q5	2
Q6	4	Q7	3	Q8	4	Q9	4	Q10	2
Q11	3	Q12	1	Q13	2	Q14	2	Q15	3
Q16	1	Q17	2	Q18	4	Q19	1	Q20	3
Q21	3	Q22	3	Q23	3	Q24	2	Q25	1
Q26	2	Q27	3	Q28	2				

### Booklet B

Q29	<p>(a) water</p> <p>(b) grow</p>
Q30	<p>(a) 1</p> <p>(b) 3</p> <div style="text-align: center;">  </div> <p>(c)</p>

Q31									
Q32	<p>(a) Liquid</p> <p>(b) (i) increases</p> <p>(ii) gas</p>								
Q33	<p>(a) Matter is anything that occupies space and has mass.</p> <p>(b)</p> <table border="1"> <thead> <tr> <th>Matter</th><th>Non-matter</th></tr> </thead> <tbody> <tr> <td>Air</td><td>sound</td></tr> <tr> <td>Milk</td><td></td></tr> <tr> <td>cat</td><td></td></tr> </tbody> </table>	Matter	Non-matter	Air	sound	Milk		cat	
Matter	Non-matter								
Air	sound								
Milk									
cat									
Q34	<p>(a) Tick : Has wings, Has fewer than 3 pairs of legs</p> <p>(b) Z is covered with scales but X is not covered with scales.</p> <p>(c) Insect has 6 legs.</p> <p>(d) (i) Animal Z</p> <p>(ii) Reptiles</p>								
Q35	<p>(a) (i) Set-up Q</p> <p>(ii) There is least amount of air present in set-up Q.</p> <p>(b) Tick the first box.</p> <p>As temperature increases, the bacteria reproduces faster.</p>								
Q36	<p>(a) There was lesser amount of water in the jar with N.</p> <p>(b) Stem</p> <p>(c) The plant with more leaves can make more food.</p>								
Q37	<p>(a) When more weight was added, distance d increased.</p> <p>(b) Thickness of the plank</p> <p>(c) (i) Material C. It bent the least.</p> <p>(ii) strong</p>								

<b>Q38</b>	<div style="display: flex; justify-content: space-around;"> <table border="1" style="font-size: 0.8em;"> <thead> <tr> <th>Answer</th> <th>Reason</th> </tr> </thead> <tbody> <tr><td>100</td><td>✓</td></tr> <tr><td>100</td><td>✓</td></tr> <tr><td>100</td><td>✓</td></tr> <tr><td>100</td><td>✓</td></tr> </tbody> </table> <div>OR</div> <table border="1" style="font-size: 0.8em;"> <thead> <tr> <th>Answer</th> <th>Reason</th> </tr> </thead> <tbody> <tr><td>100</td><td>✓</td></tr> <tr><td>100</td><td>✓</td></tr> <tr><td>100</td><td>✓</td></tr> <tr><td>100</td><td>✓</td></tr> </tbody> </table> </div> <p>(a) </p> <p>(b) </p> <p>(c) (i) Distance <math>d</math> increases when the number of times he stroked bar Y increases,        (ii) When the bar was stroked more times, it became a stronger magnet.</p>	Answer	Reason	100	✓	100	✓	100	✓	100	✓	Answer	Reason	100	✓	100	✓	100	✓	100	✓
Answer	Reason																				
100	✓																				
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100	✓																				
Answer	Reason																				
100	✓																				
100	✓																				
100	✓																				
100	✓																				
<b>Q39</b>	<p>(a) There was air occupying the space in the dropper and the air cannot escape.</p> <p>(b) (i) Air can enter the dropper through the hole pushing the water out.        (ii) Water has no definite shape.</p>																				
<b>Q40</b>	<p>(a) Light travels in a straight line.</p> <p>(b) (i) Light from the street lamp falls on Muthu and is reflected into Kok Cheng's eyes.        (ii) X to Y : Decrease        Y to Z : Increase</p>																				
<b>Q41</b>	<p>(a) 7cm</p> <p>(b) (i) H increased.        (ii) Liquid X in the flask gained heat from the water and expanded.</p> <p>(c) Metal is a better conductor of heat than glass. Liquid X lost more heat to the cold water in the container and contracted more.</p>																				

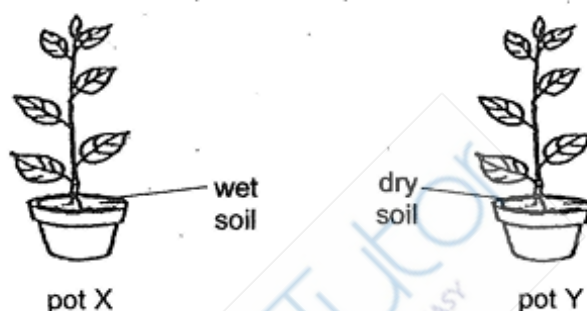
## **PAYA LEBAR METHODIST GIRLS' SCHOOL (PRIMARY)**

### **MYE PAPER**

#### **Section A (28 x 2 = 56 marks)**

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

1. John had two similar plants in identical pots filled with an equal amount of soil. Both pots were placed next to each other in the garden.

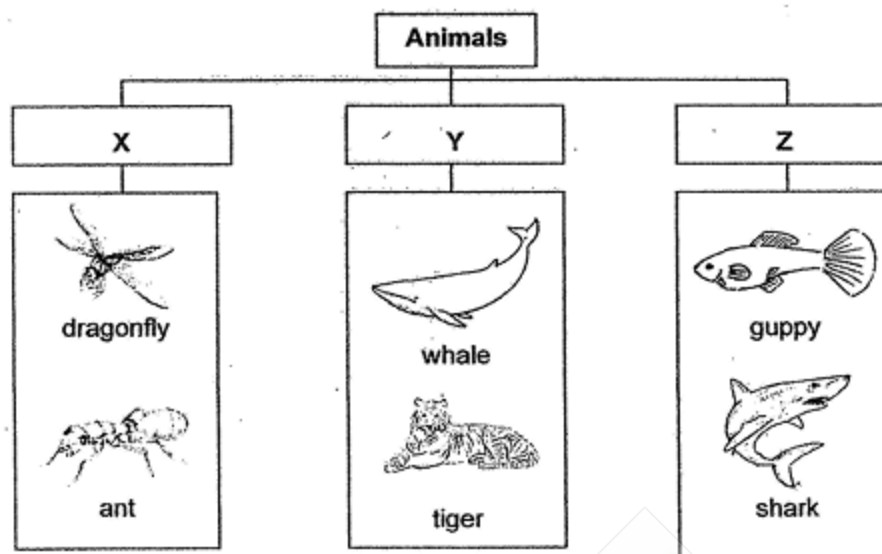


A week later, he observed that the plant in pot Y died but the plant in pot X grew taller.

This shows that the plants need \_\_\_\_\_ to survive.

- (1) air
- (2) soil
- (3) water
- (4) sunlight

2. Study the classification diagram below carefully.



Which one of the following identifies the animal groups correctly?

	X	Y	Z
(1)	insects	mammals	amphibians
(2)	reptiles	fish	amphibians
(3)	insects	mammals	fish
(4)	amphibians	reptiles	fish

3. The diagram shows a person wearing a face mask.



Rubber is used to make the ear loops because rubber \_\_\_\_\_.

- (1) is flexible
- (2) is waterproof
- (3) can reflect light
- (4) can sink in water



4. Emily saw plant Q and concluded that it is an adult plant.



What did she observe that led her to that conclusion?

Plant Q has \_\_\_\_\_.

- (1) stem
- (2) roots
- (3) fruits
- (4) leaves

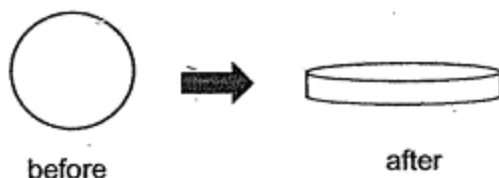
5. Which one of the following is not matter?

- (1) light
- (2) sand
- (3) water
- (4) sponge

6. In which part of the digestive system is water removed from undigested food?

- (1) mouth
- (2) stomach
- (3) small intestine
- (4) large intestine

7. Rosie took a ball of plasticine and flattened it as shown below.



What happened to the mass and volume of the plasticine after it has been flattened?

	mass of plasticine	volume of plasticine
(1)	decreased	decreased
(2)	increased	remained the same
(3)	remained the same	remained the same
(4)	remained the same	increased

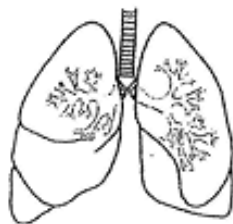
8. Four rose plants of the same height were planted in four identical pots, A, B, C and D.  
The table below shows the conditions given to the four pots.

	Pot A	Pot B	Pot C	Pot D
Amount of garden soil	400 g	400 g	800 g	800 g
Amount of water given every day	100 ml	200 ml	100 ml	200 ml
Place pots were placed	In the garden	In the garden	In the garden	In the living room

Which two pots should be used to find out if the amount of soil would affect the plant's growth?

- (1) A and B
- (2) A and C
- (3) B and C
- (4) C and D

9. The diagram below shows 3 body parts from the human body systems.



lungs



stomach



heart

Which of the following body systems match the parts above correctly?

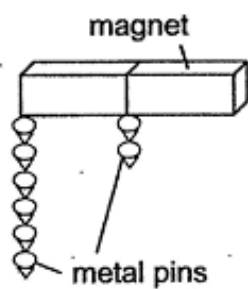
	lungs	stomach	heart
(1)	respiratory	circulatory	digestive
(2)	circulatory	respiratory	digestive
(3)	digestive	circulatory	respiratory
(4)	respiratory	digestive	circulatory

10. Which one of the following statements about magnets is correct?

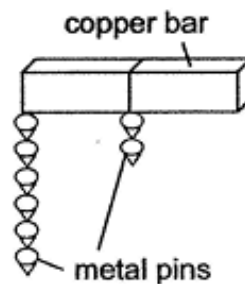
- (1) A magnet can attract all metals.
- (2) A magnet is made of magnetic material.
- (3) A small magnet has less magnetic strength.
- (4) A magnet can repel non-magnetic materials.

11. Which one of the following diagrams is correct?

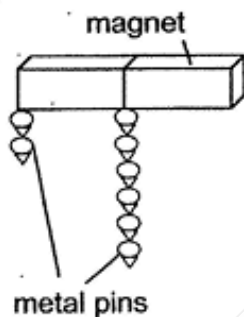
(1)



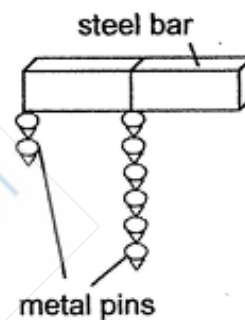
(2)



(3)



(4)



12. Ali made the following observations of an animal.

- It eats meat only.
- It has an outer covering of hair.
- It gives birth to several young each time.

Which group of animals matched Ali's observations?

- (1) fish
- (2) birds
- (3) reptiles
- (4) mammals

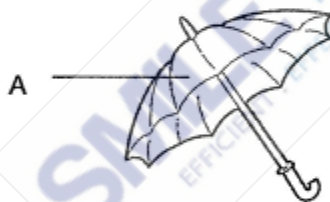
13. The table below describes the characteristics of living things A, B, C and D. A tick (✓) shows the characteristic the living thing has.

Characteristic	A	B	C	D
Can move	✓			
Reproduces from seed		✓		
Can make its own food		✓	✓	

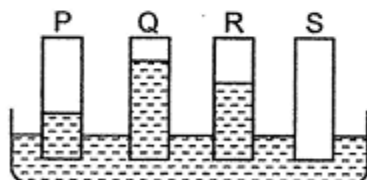
Which one of the living things A, B, C or D is a fern?

- (1) A
- (2) B
- (3) C
- (4) D

14. The picture shows a part of an umbrella labelled A.



Fadli had four strips of different materials with the same mass and size. He wanted to find out which material is most suitable to make part A of the umbrella. He dipped the strips into a dish of water to carry out his investigation.



At the end of the experiment, which of the following would not help Fadli decide which material is most suited to make part A of the umbrella?

- (1) the position of each strip in water
- (2) the amount of water left in the dish
- (3) the length of the strip that remained dry
- (4) the amount of water absorbed by each strip

15. Joseph kept four mealworm beetles, A, B, C and D. They are at different stages of their life cycles.

He kept each mealworm beetle in a separate container and he placed 20 g of food in each of the container.

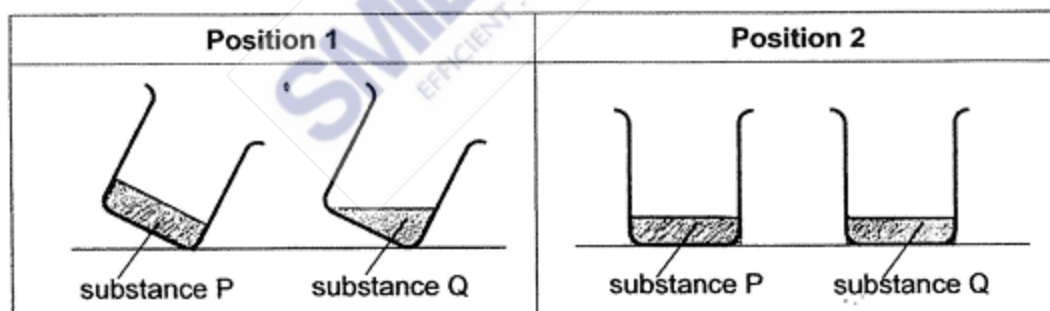
He measured the mass of food left in the container after 3 days and recorded the results in a table.

Mealworm	Mass of food left (g)
A	10
B	20
C	14
D	6

Which mealworm is most likely to be in the pupa stage?

- (1) A
- (2) B
- (3) C
- (4) D

16. The diagram below shows substance P and substance Q placed in different positions.

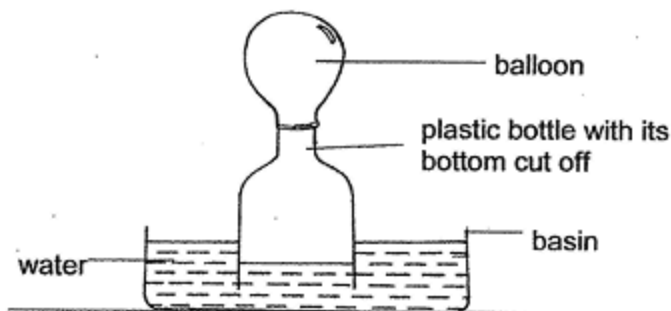


Which states of matter are substances P and Q in?

	substance P	substance Q
(1)	solid	solid
(2)	solid	liquid
(3)	liquid	liquid
(4)	liquid	solid



17. When Devi pushed the plastic bottle into the basin of water, the balloon inflated.



This shows that \_\_\_\_\_.

- A air has mass
- B air takes up space
- C air has no definite shape

- (1) B only
- (2) A and C only
- (3) B and C only
- (4) A, B and C

18. The table below describes the states of three matter, A, B and C.

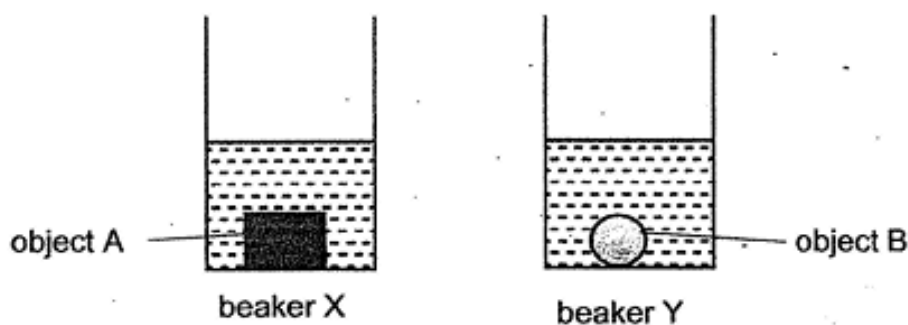
	A	B	C
Has fixed shape	No	Yes	No
Has fixed volume	Yes	Yes	No

Based on the table above, what could A, B and C be respectively?

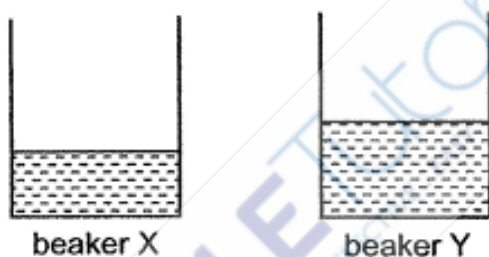
	A	B	C
(1)	juice	table	air
(2)	air	table	tea
(3)	juice	air	table
(4)	table	tea	air



19. Lily placed objects A and B in two identical beakers as shown below.



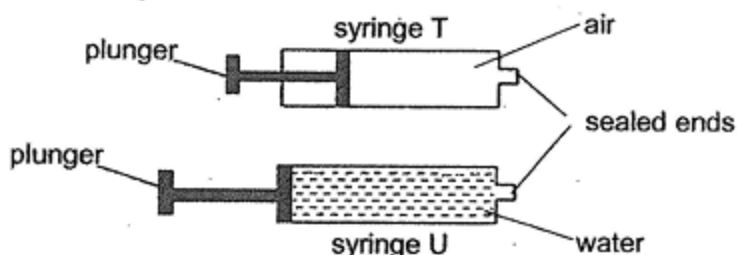
The diagram below shows the amount of water left in the beakers after removing both objects.



Which of the following statements about the two objects is correct?

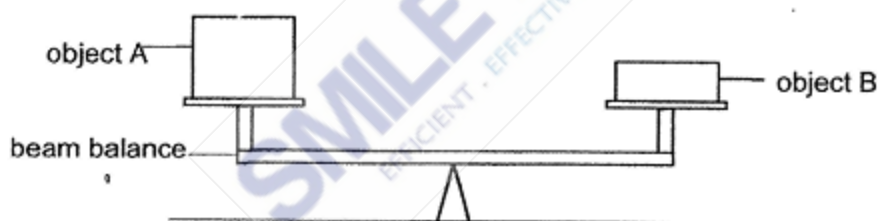
- (1) Both objects have the same volume.
- (2) Object A has a larger volume than object B.
- (3) Object B has a larger volume than object A.
- (4) Object A occupies less space than object B.

20. Swee Lee filled two similar syringes, T and U with the same volume of air and water respectively. She observed that the plunger of syringe T moved a little while the plunger of syringe U did not move at all when pushed.



Based on her observations, what conclusion can she make about air and water?

- (1) Water has a bigger mass than air.
  - (2) Both air and water do not have a definite shape.
  - (3) Both air and water do not have a definite volume.
  - (4) Air can be compressed while water cannot be compressed.
21. Gopal conducted an experiment with a beam balance. The result of his experiment was shown below.



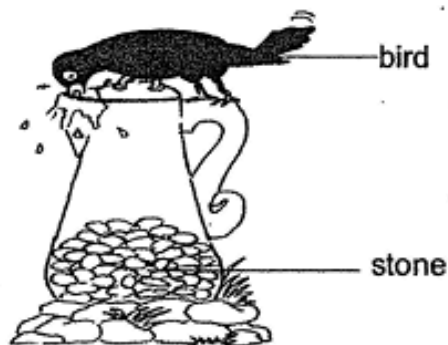
He made the following conclusions based on his observation.

- A Object A is heavier than object B.
- B Object A and B have the same mass.
- C Object A and B have the same volume.
- D Object A has more volume than object B.

Which of his conclusions are correct?

- (1) A and C
- (2) A and D
- (3) B and C
- (4) B and D

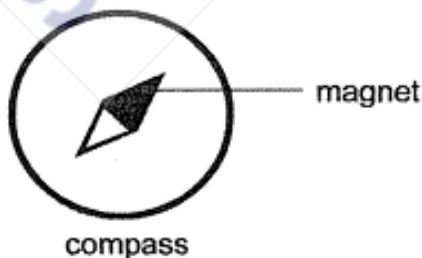
22. A bird threw stones into a pitcher of water to make the water level rise.



What property of matter does the stones show when the water level rise?

- (1) The stones have mass.
- (2) The stones occupy space.
- (3) The stones have a definite shape.
- (4) The stones cannot be compressed.

23. Tom lost his way while going home. He used a compass to help him find his direction back home.



The compass is able to do so because \_\_\_\_\_.

- (1) like poles repel
- (2) unlike poles attract
- (3) magnets attract magnetic materials
- (4) magnets come to rest in a North-South direction

24. Nadia was given a set of materials as shown below.



wooden stand



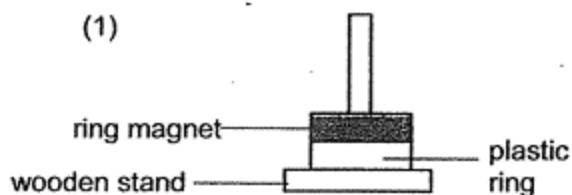
ring magnet



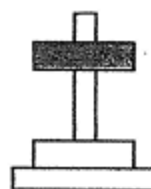
plastic ring

She placed the ring(s) onto the wooden stand in several different arrangements. Which one of the following set-ups is possible?

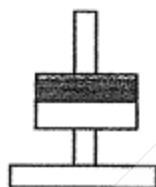
(1)



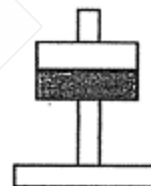
(2)



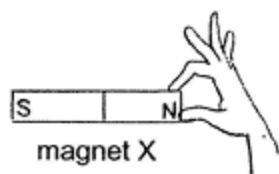
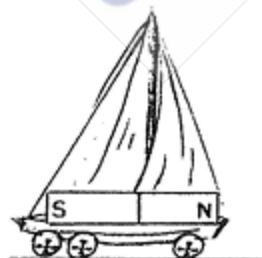
(3)



(4)



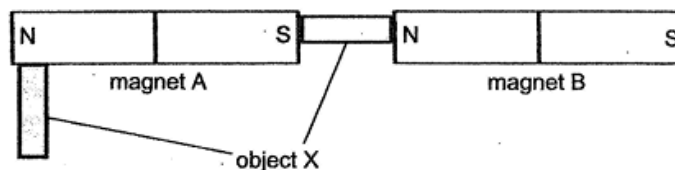
25. Sharon attached a strong magnet on her toy sailboat as shown below. She brought another strong magnet X near the sailboat.



What would most likely happen to the toy sailboat?

- (1) It remains still.
- (2) It spins around.
- (3) It moves towards magnet X.
- (4) It moves away from magnet X.

26. Study the diagram below.



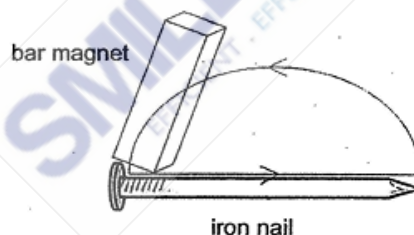
Both magnet A and magnet B attract object X.

Object X could possibly be a/an \_\_\_\_\_.

- A iron rod
- B plastic rod
- C rod magnet
- D wooden rod

- (1) A only
- (2) A and C only
- (3) B and C only
- (4) A, B, C and D

27. Xueli used a bar magnet to stroke an iron nail in the direction as shown below.



There are three different iron nails, X, Y and Z. She stroked each iron nail a different number of times. Then, she placed each nail near some steel pins and recorded the number of steel pins attracted by the nail.

Iron nail	Number of strokes	Number of steel pins attracted
X	30	2
Y	50	4
Z	80	7

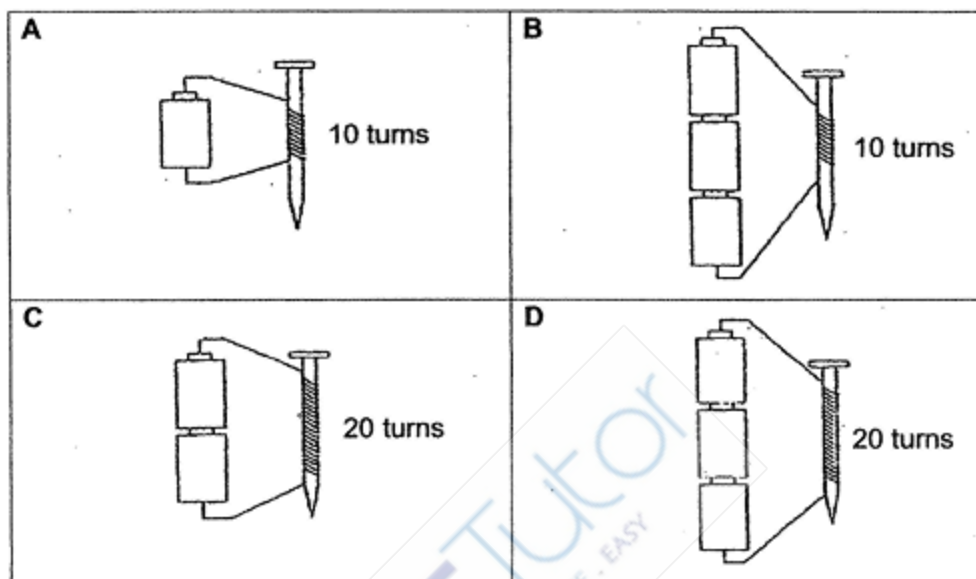
What is the relationship between the number of strokes and the number of the steel pins attracted to it?

- (1) The steel pins are not affected by the number of strokes.
- (2) The more the number of strokes, the lower the magnetic strength of the nail.
- (3) The fewer the number of strokes, the more the number of steel pins attracted.
- (4) The more the number of strokes, the more the number of steel pins attracted.

28. An iron nail becomes a magnet when it is placed in a coil of wire connected to a battery or a few batteries.

Paul wanted to find out if the number of batteries would affect the strength of the magnet.

He set up four arrangements below.



Which of the following pairs of arrangements should he choose for his experiment to be a fair test?

- (1) A and B
- (2) A and C
- (3) B and C
- (4) B and D

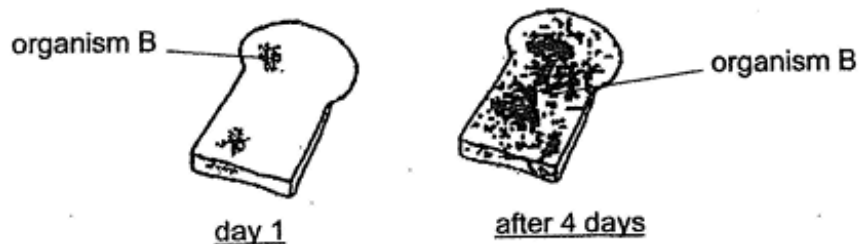
END OF BOOKLET A



### **SECTION B: 44 Marks**

For questions 29 to 41, write your answers in the spaces provided.  
 The number of marks available is shown in brackets [ ] at the end of each question or part question.

29. Mei Ling found an organism B growing on a piece of bread. She wanted to find out if it would grow without sunlight. She placed the piece of bread in a dark cupboard.



After 4 days, she noticed that the organism B was still alive and there was more of it growing on the bread.

- (a) What could organism B be? [1]

---

- (b) Mei Ling concluded that the organism B could not be a plant. Explain how she came to her conclusion. [1]

---



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- (c) Based on the information given, state a similar characteristic between animals and the organism B. [1]

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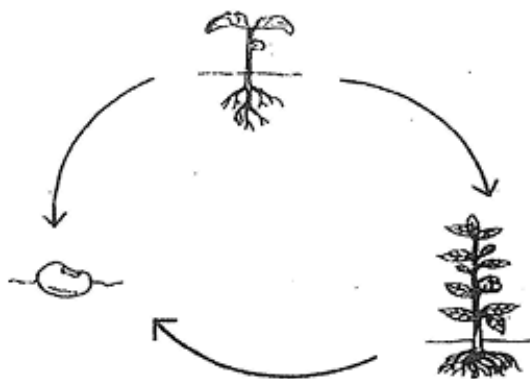
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- (d) Where does organism B get its food from? [1]

---



30. Study the life cycle of a plant below.



- (a) One of the arrows has been wrongly drawn. Circle the incorrect arrow in the diagram above. [1]

The diagram below shows a developing young plant.



- (b) State three conditions needed for the young plant to develop from a seed. [1]

---

- (c) State the functions of the following parts. [2]

A: 

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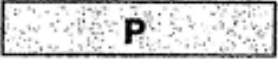





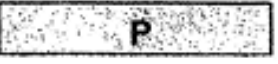

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B: 

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---

31. Andy placed objects P, Q and R, close together in pairs to observe how they interacted with each other.

Objects		Observation
		Nothing happens
		Nothing happens
		P attracts part Y
		P repels part Z

Based on the above observations, put a tick (✓) in the appropriate boxes below. [3]

	Statement	True	False	Not possible to tell
(a)	Object P is a magnet.			
(b)	Object Q is magnetic.			
(c)	Object R can be used to magnetise an iron nail.			

32. Leela observed the states of matter K, M and P. She recorded her observations in the table below.

Properties	K	M	P
Has mass	Yes	Yes	Yes
Takes up space	Yes	Yes	Yes
Has a definite volume	Yes	No	Yes
Has a definite shape	Yes	No	No

- (a) Based on the table, which matter, M or P, is in the gaseous state?  
Explain your answer. [2]

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- (b) Leela concluded that matter K is a solid.  
What properties of matter K did Leela observe to make the conclusion? [1]

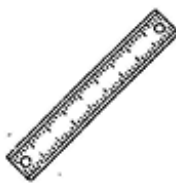
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33. The diagram shows three different apparatus R, S and T.



R



S



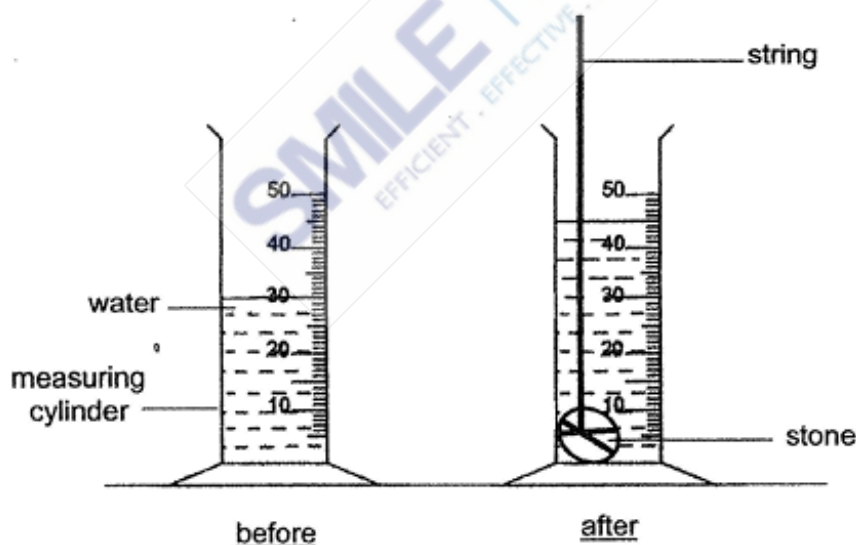
T



marble

- (a) Which one of the above apparatus, R, S or T, should be used to measure the volume of a marble? [1]

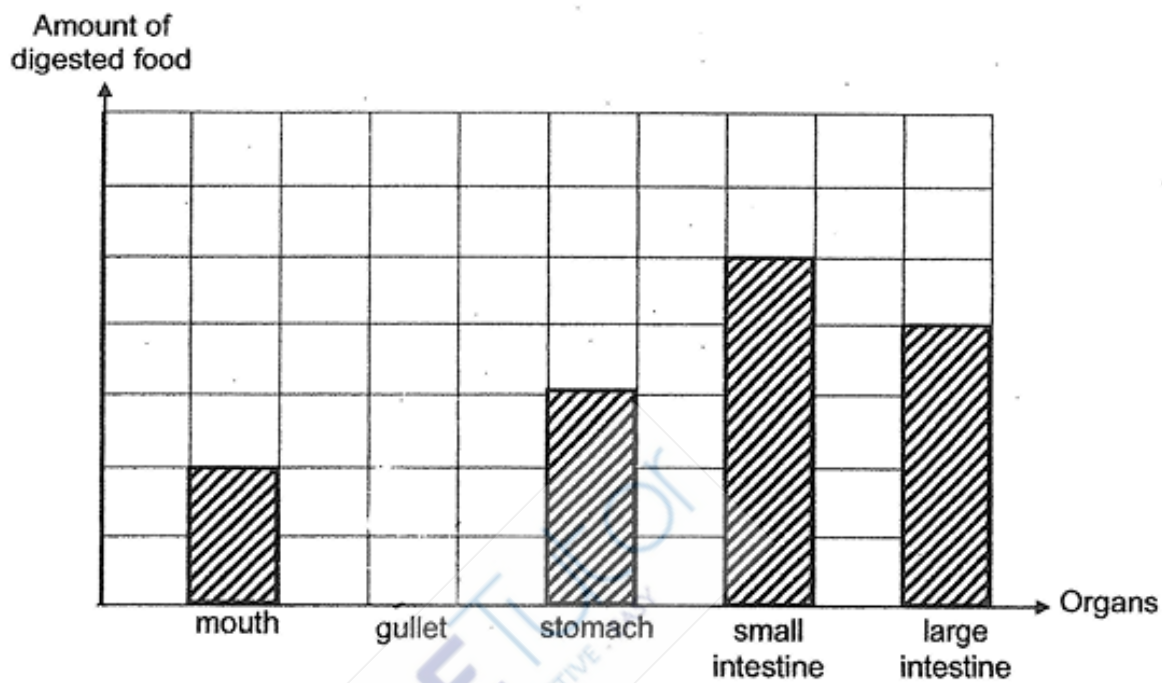
A student wanted to find out the volume of a stone.  
 First, she filled a measuring cylinder with some water as shown below.  
 Then, she lowered the stone into the measuring cylinder.




- (b) What is the volume of the stone? [1]

\_\_\_\_\_ cm<sup>3</sup>

34. Debbie drew a graph to show how the amount of digested food changes as it moves through the human digestive system. She did not finish drawing the graph.



- (a) Complete the graph above by drawing a bar (  ) to show the amount of digested food in the gullet. [1]
- (b) Debbie made a mistake in drawing the amount of digested food in one of the organs. State the organ and give a reason for your answer. [2]

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35. Study the two plants, A and B, in the diagram below.



plant A



plant B

- (a) Based on your observations, what is the difference between the stems of plant A and B? [1]

---



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- (b) Why does plant B coil around a pole for support? [1]

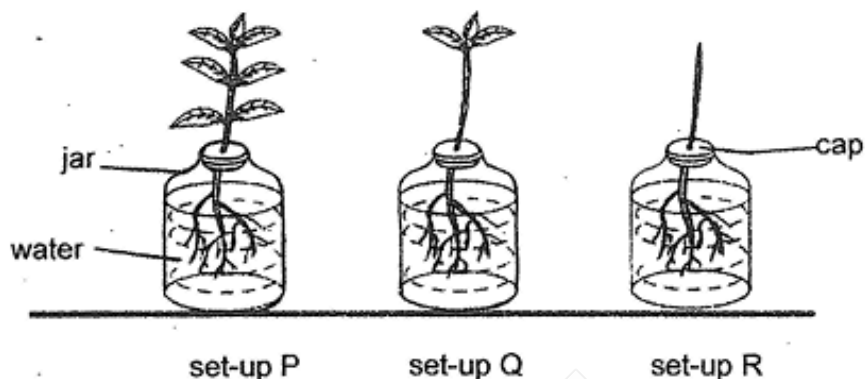
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Joe used three similar plants in his experiment. He removed some leaves from the plant in set-up Q and removed all the leaves from set-up R.



- (c) Which plant part in all the set-ups take in water? [1]

After a week, he measured the amount of water left in each set-up. The results are shown in the table below.

Set-up	Volume of water left in the jar (ml)	
	Day 1	Day 2
P	250	150
Q	250	200
R	250	220

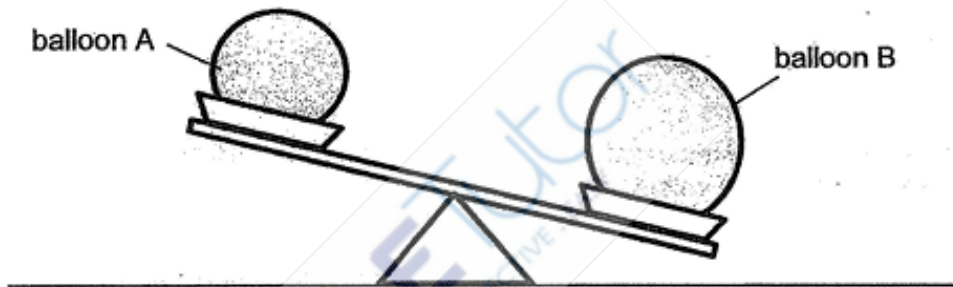
- (d) Based on the results in the table, what is the relationship between the number of leaves and the amount of water taken in by the plant? [1]



36. Amir conducted an experiment to find out the property of matter in the gaseous state. He pumped the same amount of air into two identical balloons A and B. He then placed them on a weighing balance as shown below.



Amir pumped another  $200 \text{ cm}^3$  of air into balloon B and put it back on the weighing balance as shown below.



- (a) Explain why the balloon became bigger. [1]

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- (b) Why did the weighing balance tilt downwards after  $200 \text{ cm}^3$  of air was pumped into balloon B? [1]

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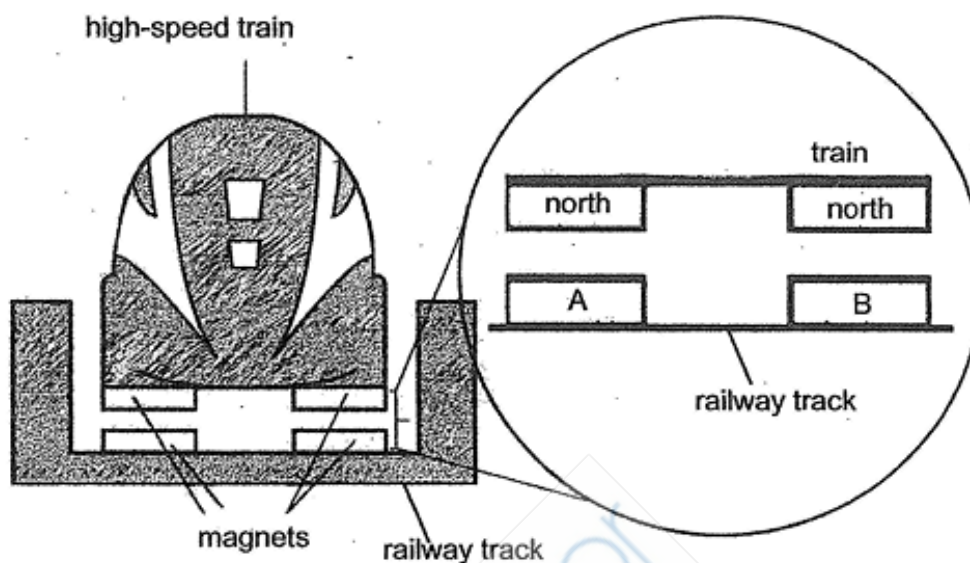


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- (c) Besides air, state another example of matter in the gaseous state. [1]

---

37. The diagram below shows the front view of a high-speed train.



The high-speed train has strong electromagnets under the train and on the railway track. The train 'floats' above the railway track as shown above.

- (a) Label poles A and B. [2]

A: \_\_\_\_\_

B: \_\_\_\_\_

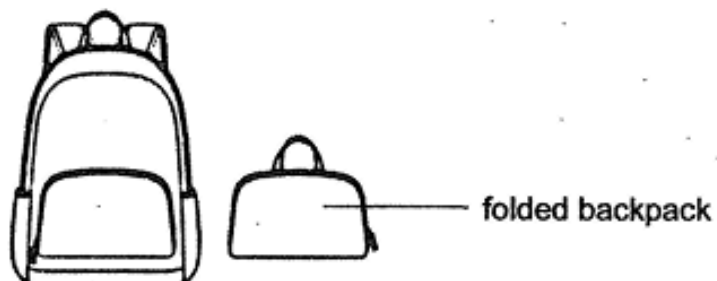
- (b) Based on the property of a magnet, explain how the high-speed train is able to 'float' above the railway track. [1]

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38. Mr Lim wanted to make a backpack that can be folded easily for children. He used materials A, B and C and carried out tests to find out the properties of the materials.



The table below shows the properties of the materials A, B and C.

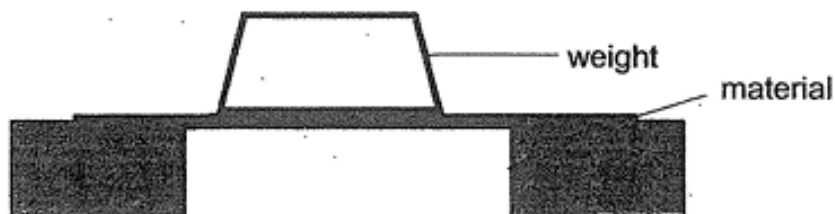
Material	Is it waterproof?	Is it flexible?	Can it sink or float?
A	No	No	sink
B	Yes	Yes	float
C	No	Yes	float

- (a) Based on the table above, state a physical property of the material to make the backpack. Explain why the physical property is needed to make a backpack. [2]

Property: \_\_\_\_\_

Reason: \_\_\_\_\_  
 \_\_\_\_\_

Mr Lim wanted to find out how much weight the material A, B and C could carry without tearing.



The table below shows the results of the experiment.

Material	Weight the material could carry before it tore (kg)
A	1
B	9
C	2

Mr Lim found out that a student's backpack could carry between 4kg to 6kg of weight.

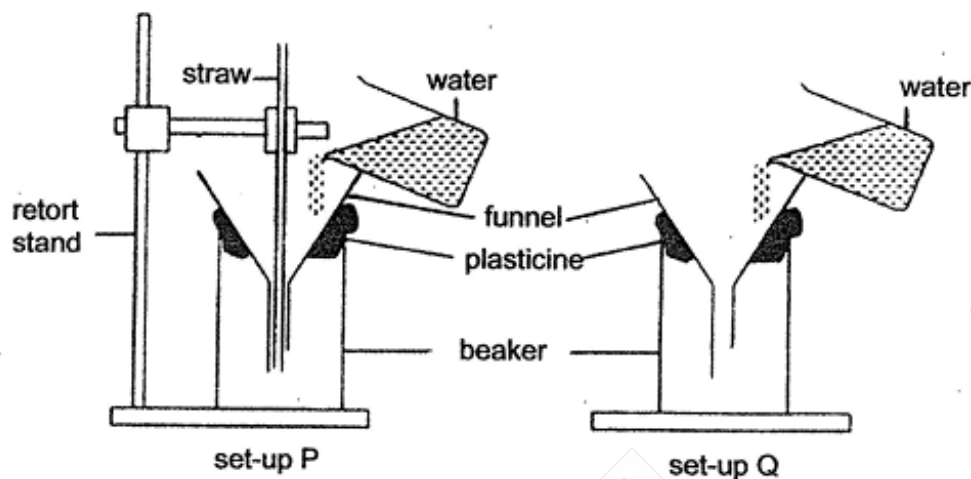
- (b) Based on the results of the experiment, which material (A, B or C) would be most suitable to make the backpack? Why? [2]

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39. Delia set up two experiments as shown in the diagrams below. Two balls of plasticine were used to hold the funnel in place and to prevent air from escaping. Delia then poured the same volume of water at the same time into each of the funnels.



Delia compared the amount of water collected in the beakers of both set-ups after 5 minutes.

- (a) Which set-up, P or Q, would Delia observe a greater volume of water in the beaker? Explain your answer. [2]

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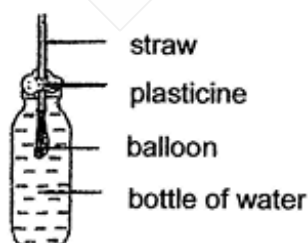


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Delia set up another experiment as shown.



She tried to inflate the balloon by blowing through the straw.

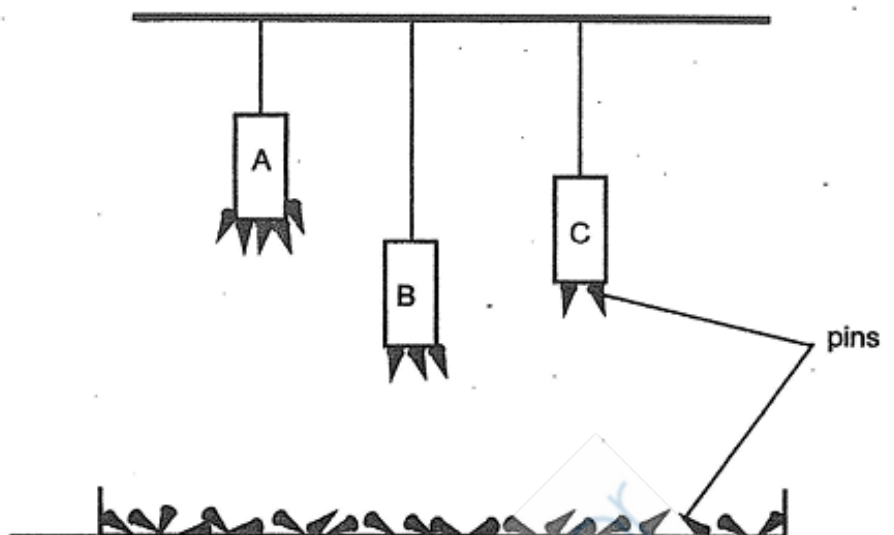
- (b) Would the balloon inflate? Explain your answer. [1]

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40. Sophie hung three magnets, A, B and C on a string of different lengths. The magnets were of the same size. She placed them directly above a container of steel pins as shown below.



- (a) Based on the diagram above, which magnet has the most magnetic strength? [1]

---

- (b) Explain your answer in (a). [1]

---



---

- (c) Sophie wanted to find out whether magnet A or magnet C has more magnetic strength. Suggest how she should change the position of the magnets. [1]

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- (d) Suggest one way Sophie can increase the magnetic strength of all the magnets. [1]

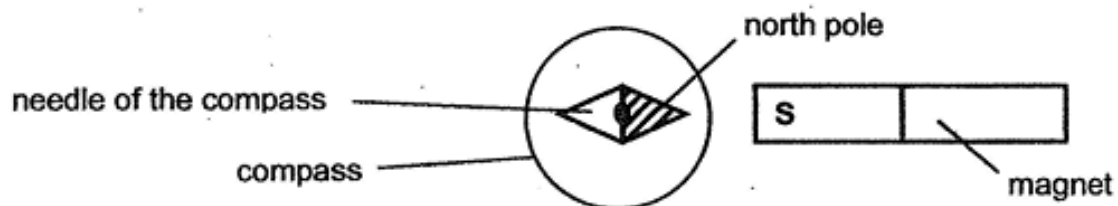
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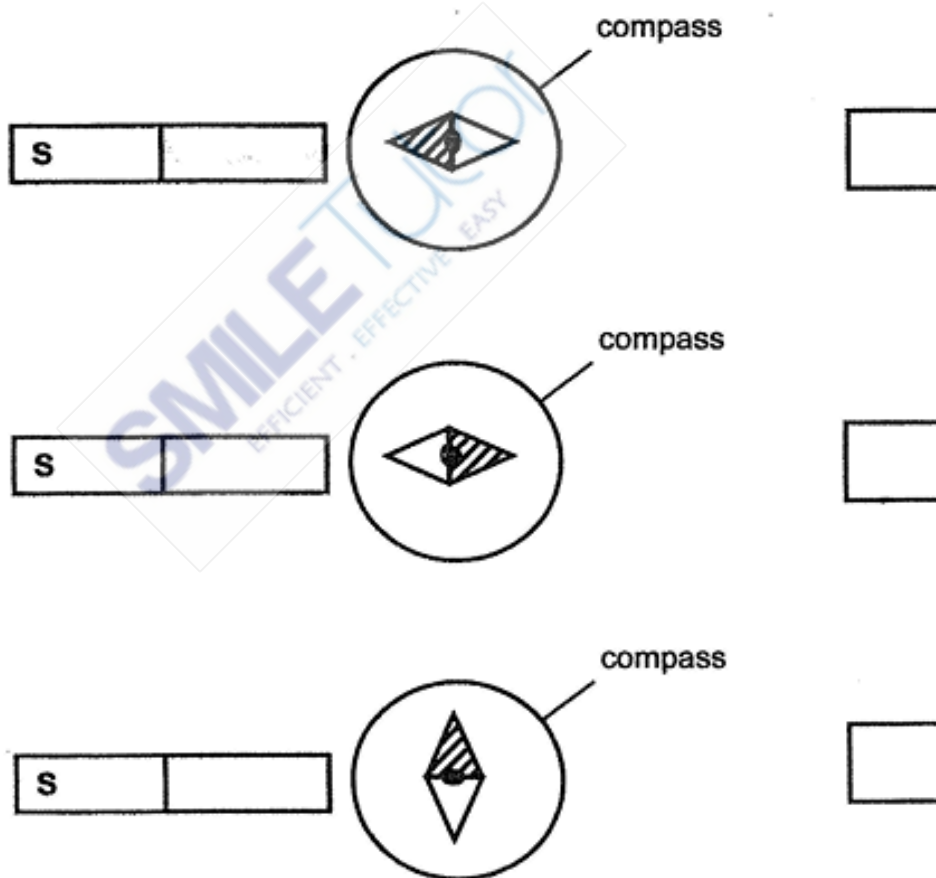
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41. The needle of a compass is a magnet. When another magnet is placed near the compass, the needle will move and stop at the position as shown below.

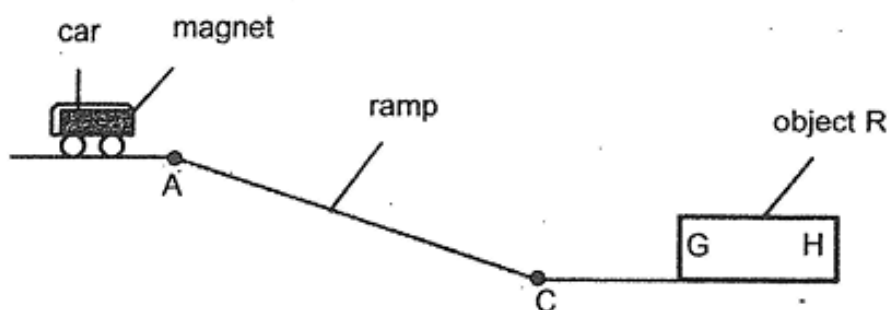


- (a) Tick (✓) the box which shows the correct position of the needle when the magnet is brought near the compass. [1]





Zaki set up an experiment as shown below. When he released the toy car from position A, the car moved down the ramp before stopping at C. The car did not touch G of object R.



Zaki turned object R around so that H was facing the ramp. When he released the toy car from A, the car moved down more quickly towards H of object R and touched H.

- (b) Explain why the car was able to move down more quickly towards H. [1]

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- (c) Name a material for object R. [1]

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- (d) Without changing any of the materials used, suggest one way which Zaki can make the toy car move down the ramp faster towards H. [1]

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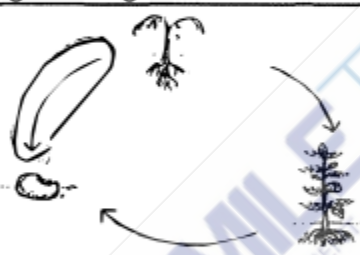
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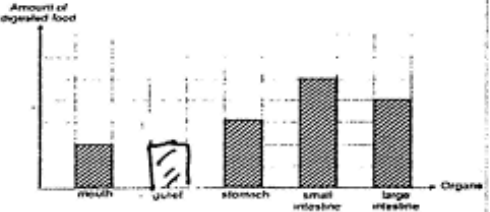

## ANSWER SHEET

### (BOOKLET A)

Q1	3	Q2	3	Q3	1	Q4	3	Q5	1
Q6	4	Q7	3	Q8	2	Q9	4	Q10	2
Q11	1	Q12	4	Q13	3	Q14	2	Q15	2
Q16	2	Q17	3	Q18	1	Q19	2	Q20	4
Q21	4	Q22	2	Q23	4	Q24	1	Q25	3
Q26	2	Q27	4	Q28	1				

### (BOOKLET B)

Q29	a)	Mould
	b)	Fungi do not need sunlight to grow.
	c)	Both animals need and organism B need water, food and oxygen to grow and survive.
	d)	Organism B gets its food from the piece of bread.
Q30	a)	
	b)	water, oxygen, warmth
	c)	A : A anchors the young plant firmly to the ground. B : Stores food for the seedling.
Q31	a)	True
	b)	False
	c)	True
Q32	a)	Matter M. It is the only state of matter that does not have a definite volume, and only matter in the gaseous state does not have a definite volume.
	b)	State of matter K is the only state that has a definite shape, and only solids have a definite shape.
Q33	a)	Apparatus T.
	b)	15 cm <sup>3</sup>

Q34	a)	
	b)	Large intestine. The amount of digested food in the large intestine should be 0 as digestion ends in the small intestine.
Q35	a)	The stem of plant A is strong while the stem of plant B is weak
	b)	The stem of plant B is weak, hence, the plant coils around a pole to reach for more sunlight to make food.
	c)	Roots
	d)	As the number of leaves increases, the amount of water taken in by the plant increases.
Q36	a)	When $200\text{cm}^3$ of air was pumped into balloon B, it occupied some space in the balloon, causing the balloon to expand.
	b)	After $200\text{cm}^3$ of air was pumped into balloon B, the air added to the mass of the balloon, causing the balloon to weigh heavier and the weighing balance to tilt downwards
	c)	Nitrogen
Q37	a)	A : North B : North
	b)	The like poles of the magnets under the train and on the railway track are facing each other, and like poles repel.
Q38	a)	Property: Flexibility Reason: The backpack must have flexibility to be folded.
	b)	Material B. B can hold the most weight. It is the strongest.
Q39	a)	Set-up P. In set-up P, there was a straw which allowed air to escape but in set-up Q, air cannot escape. The water took up more space that was previously occupied by the air in set-up D.
	b)	No. Water cannot be compressed for the balloon to inflate.
Q40	a)	Based on the diagram above, magnet A has the most magnetic strength.
	b)	Although magnet A was hung on the shortest string and was the furthest away from the steel pins, it attracted the most number of steel pins.
	c)	Sophie should hang magnets A and C on strings of equal length.
	d)	Sophie can stroke the magnet with another stronger magnetism using the same pole more times in the same direction.
Q41	a)	
	b)	The pole of the magnet of the car and h are unlike poles so they attract each other.
	c)	Iron
	d)	Place object R nearer to the ramp.

**PAYA LEBAR METHODIST GIRLS' SCHOOL (PRIMARY)**  
**EOY PAPER**

1. Which statement is true about most amphibians?

- (1) They have tails.
- (2) They give birth to their young.
- (3) They are covered with feathers.
- (4) They can live on land and in water.

2. Which animal has a 4-stage life cycle?

(1)

chicken



(2)

cockroach



(3)

butterfly

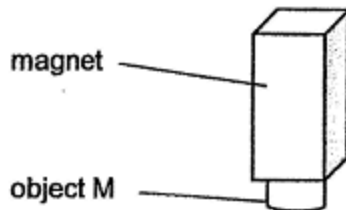


(4)

grasshopper



3. An object M was attracted to a magnet, as shown in the figure below.



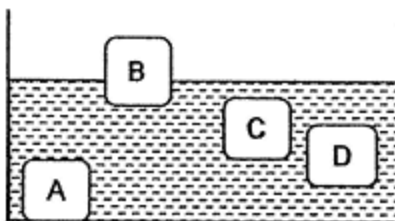
Which material is object M made of?

- (1) steel
  - (2) wood
  - (3) plastic
  - (4) rubber
4. Matter is anything that has mass and occupies space.  
Which one of the following is **NOT** matter?

- (1) sand
- (2) sound
- (3) oxygen
- (4) apple juice

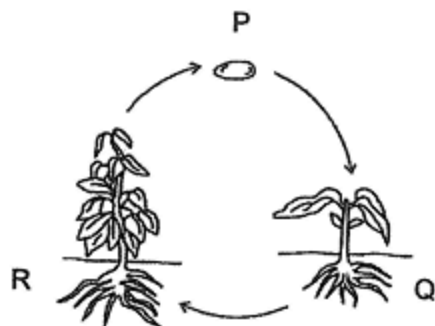
5. Bruce put a metal solid block into a container of water.

At which position, A, B, C or D, would the block most likely be found?



- (1) A
- (2) B
- (3) C
- (4) D

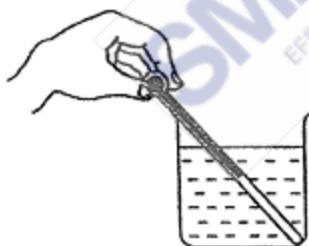
6. The diagram shows the life cycle of a plant.



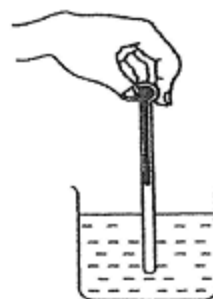
What is the stage marked Q?

- (1) egg
  - (2) seed
  - (3) adult plant
  - (4) young plant
7. Eunice wants to measure the temperature of hot water in a beaker.
- Which one of the following diagrams shows the correct position of the thermometer when taking the temperature reading?

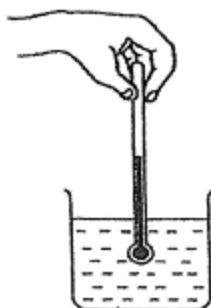
(1)



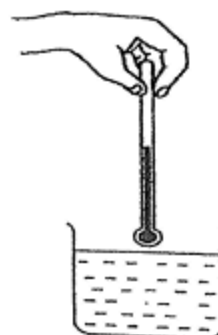
(2)



(3)



(4)





8. The arrows (  $\longrightarrow$  ) in the diagram below show the direction of movement of a substance in plants.

roots  $\longrightarrow$  stem  $\longrightarrow$  leaves

What is this substance?

- (1) air
- (2) soil
- (3) food
- (4) minerals

9. The set-up below shows light shining on a metal cup.



Which one of the following would likely be seen on the screen?

(1)



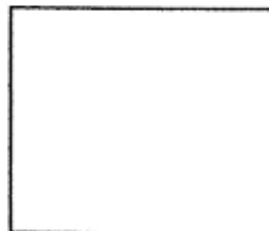
(2)



(3)

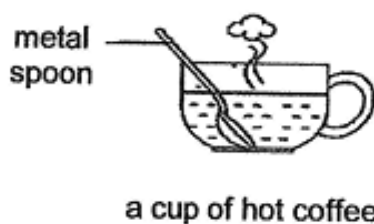


(4)





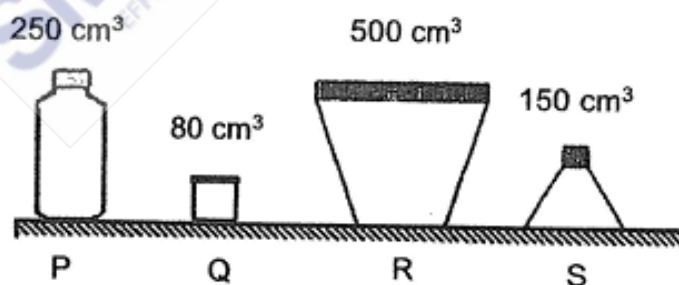
10. Mikayla places a metal spoon in a cup of hot coffee.



The spoon becomes hotter after a while.  
Which one of the following explains this?

- (1) The cup loses heat to the hot coffee.
- (2) The spoon loses heat to the hot coffee.
- (3) The spoon gains heat from the hot coffee.
- (4) The hot coffee gains heat from the spoon.

11. Sam has four containers, P, Q, R and S, as shown in the diagrams below.



Which of the containers can he use to hold  $100 \text{ cm}^3$  of water?

- (1) P and R only
- (2) Q and S only
- (3) P, R and S only
- (4) P, Q, R and S

12. Which statement about the fern and the mushroom is correct?

- (1) Both grow only on trees.
- (2) Both reproduce from spores.
- (3) Both are non-flowering plants.
- (4) Both cannot make their own food.

13. Mary carried out some tests on 4 different materials, P, Q, R and S. She recorded her observations in the table below.

	Materials			
	P	Q	R	S
Is it flexible?	No	Yes	No	Yes
Is it waterproof?	No	Yes	Yes	Yes
Does it break easily?	Yes	Yes	No	No

Mary wants to make a rubber hose as shown below.



Which materials, P, Q, R or S should she use to make the hose?

- (1) P
- (2) Q
- (3) R
- (4) S

14. Abigail made some observations about the matter P, Q and R and recorded them in the table below.

	P	Q	R
Has definite volume	No	Yes	Yes
Has definite shape	No	Yes	No

What could P, Q and R be?

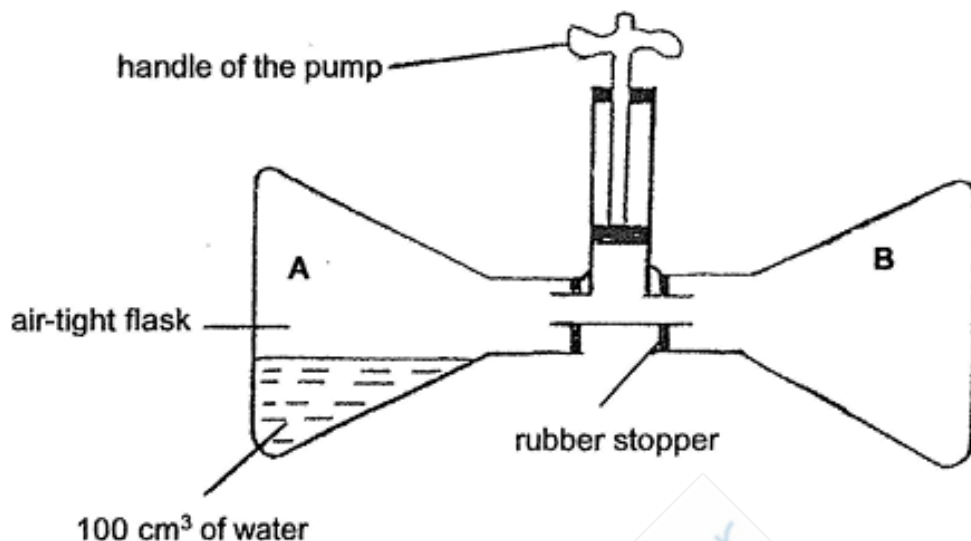
	P	Q	R
(1)	marble	air	milk
(2)	air	marble	milk
(3)	air	milk	marble
(4)	milk	air	marble

15. Ali painted the surfaces of all the leaves of a plant with thick paint and left it in the garden. The plant is watered daily. A few weeks later, the plant died because it did not have \_\_\_\_\_.

- A air
- B water
- C sunlight
- D nutrients

- (1) A and C only
- (2) C and D only
- (3) A, B and D only
- (4) B, C and D only

16. The diagram below shows two flasks, A and B, attached to a pump.

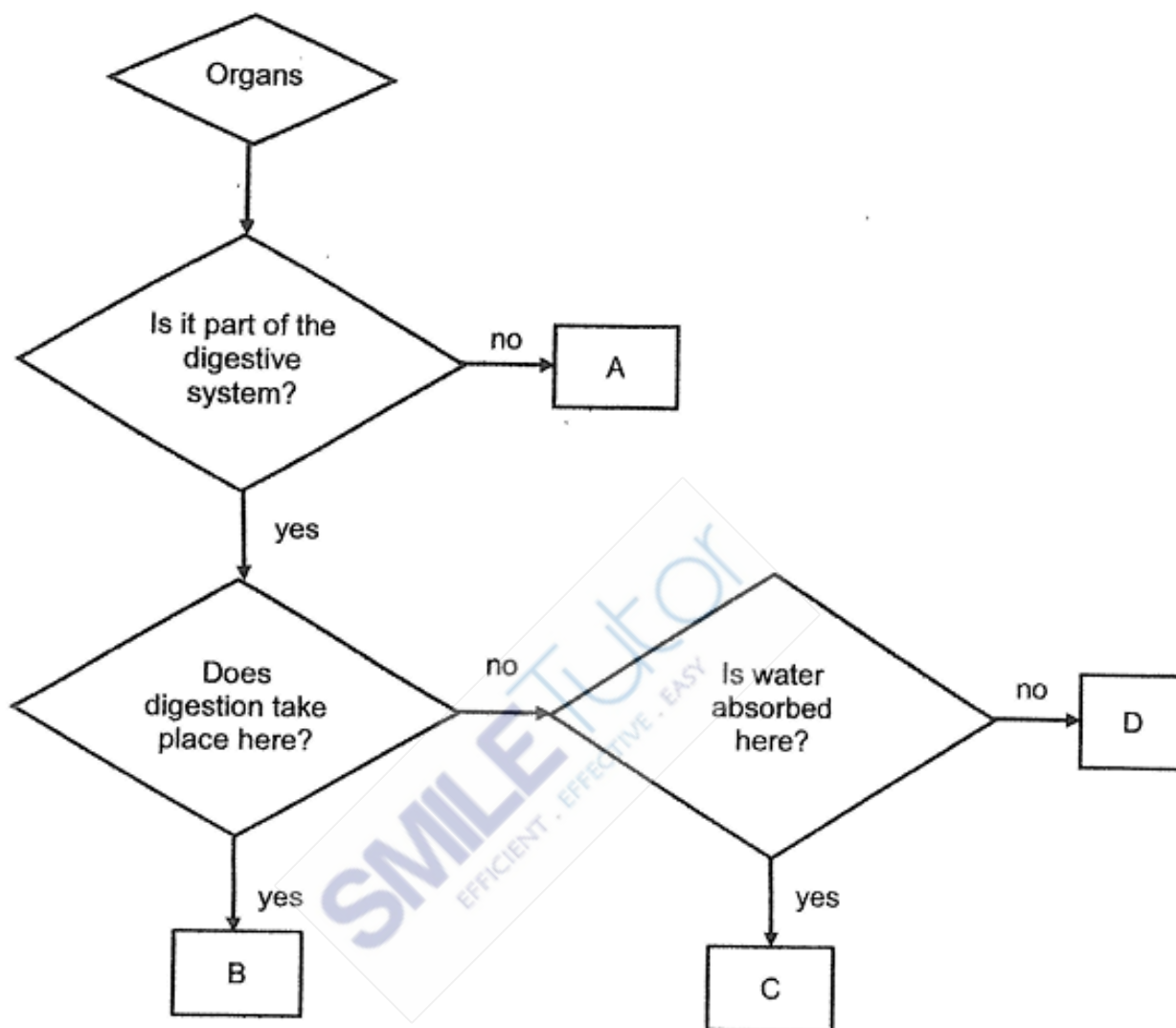


Flasks A and B are air-tight. The capacity of each flask is 400 cm<sup>3</sup>. Flask A has 100 cm<sup>3</sup> of water in it.

50 cm<sup>3</sup> of air is pumped each time when Ahmad pushes down the handle of the pump. If Ahmad pushes down the handle twice, what is the final volume of air in each flask?

	Volume of air (cm <sup>3</sup> )	
	Flask A	Flask B
(1)	200	300
(2)	200	500
(3)	300	400
(4)	300	500

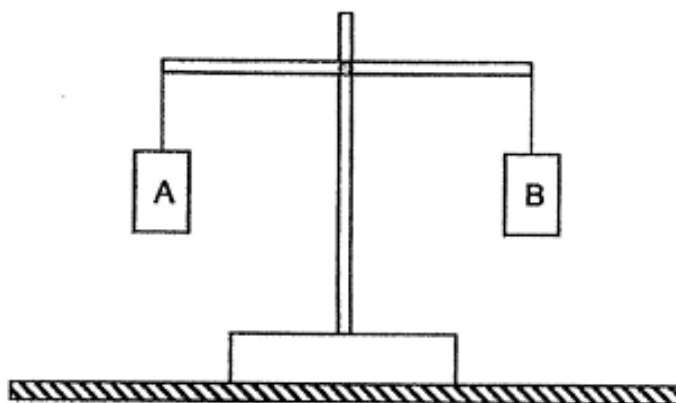
17. Study the flowchart below.



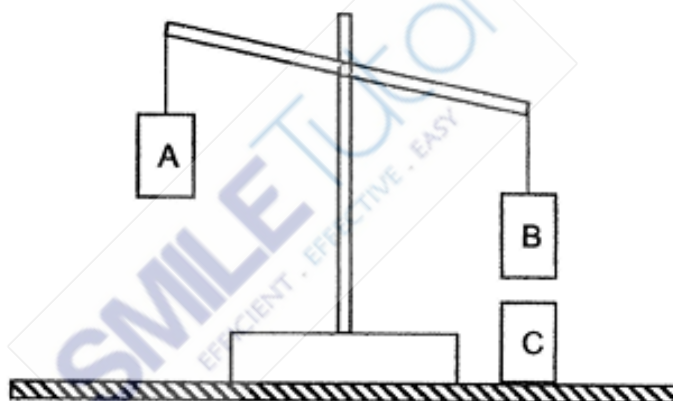
Which of the following correctly represent A, B, C and D?

	A	B	C	D
(1)	mouth	large intestine	small intestine	stomach
(2)	mouth	small intestine	windpipe	large intestine
(3)	nose	small intestine	large intestine	gullet
(4)	windpipe	large intestine	mouth	gullet

18. The diagram below shows a balance with two objects, A and B, hung at both ends.



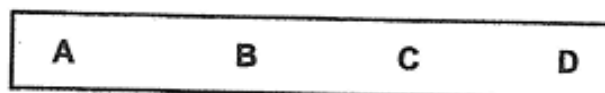
When object C is placed directly below object B, the balance moved, as shown below.



Based on the observation above, what could objects B and C be?

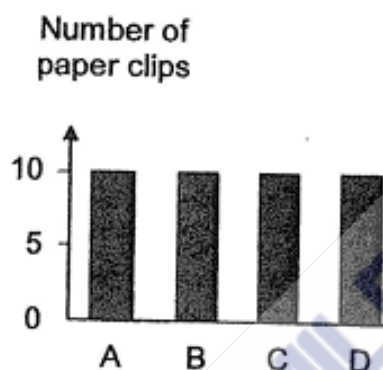
	object B	object C
(1)	iron box	magnet
(2)	magnet	copper box
(3)	copper box	iron box
(4)	iron box	iron box

19. Alice wanted to test the magnetic strength at the various points, A, B, C and D, of a bar magnet as shown below.

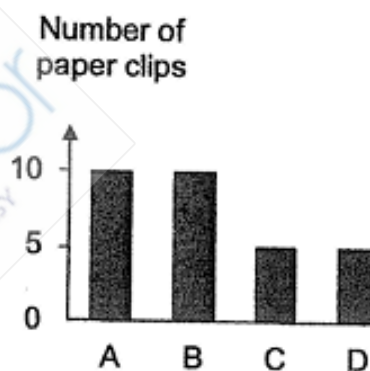


She puts the bar magnet into a bag full of paper clips. Which one of the following graphs shows the correct number of paper clips attracted to the different points of the bar magnet?

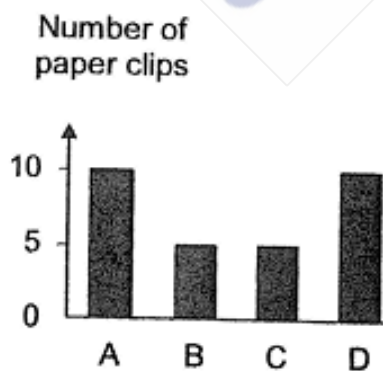
(1)



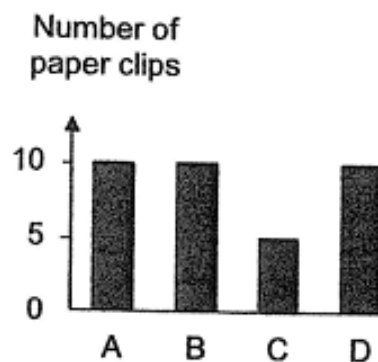
(2)



(3)

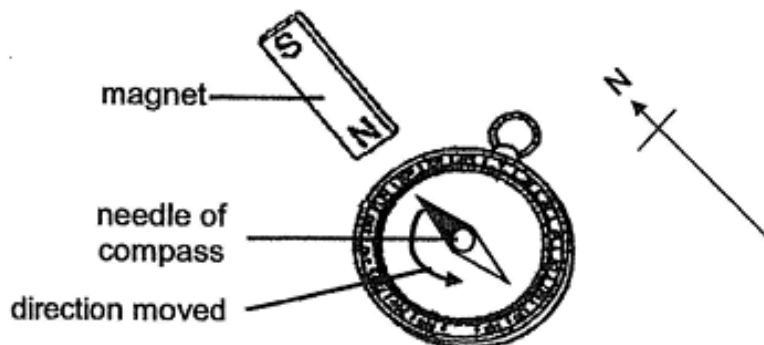


(4)





20. Sarah brought a magnet near a compass and observed that the needle of the compass moved away from the magnet as shown below by the arrow.



Which of the following shows the position of the needle when Sarah removed the bar magnet?

(1)



(2)



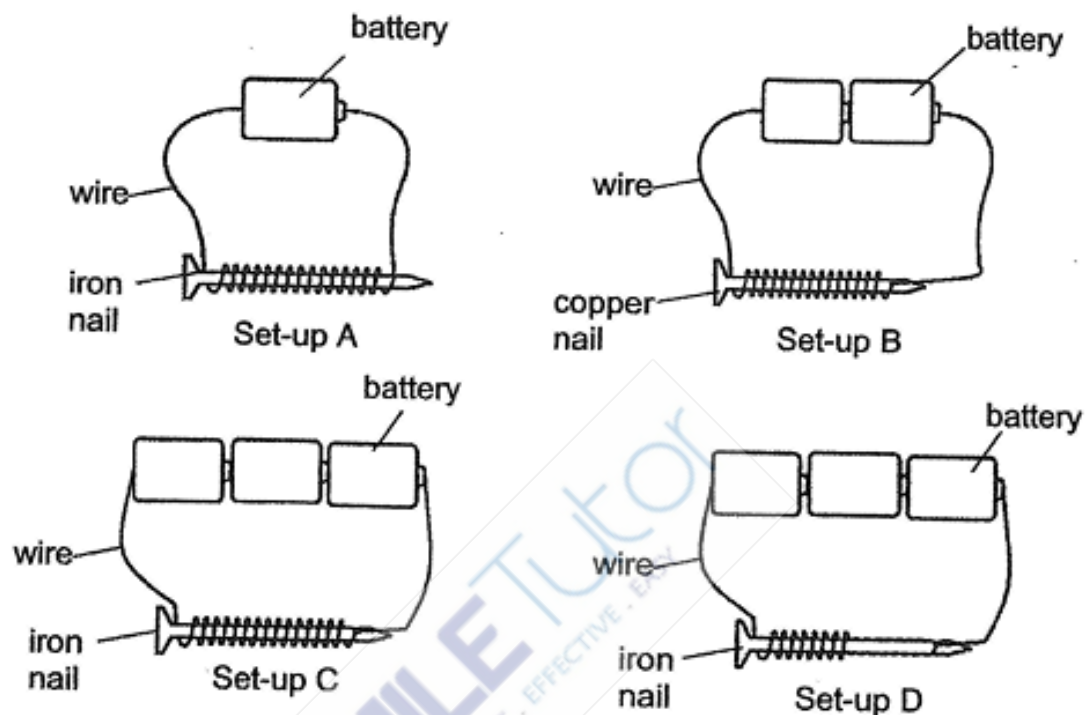
(3)



(4)



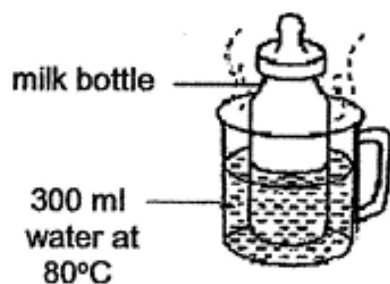
21. Ava would like to find out if the number of batteries affects the strength of the electromagnet.



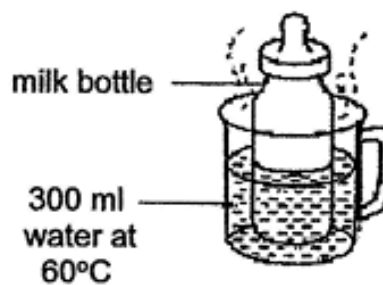
Which of the following set-ups should she use?

- (1) A and B
- (2) A and C
- (3) B and C
- (4) C and D

22. Mariah took out two identical bottles of milk from the refrigerator and placed them in two containers as shown below.



Set-up A



Set-up B

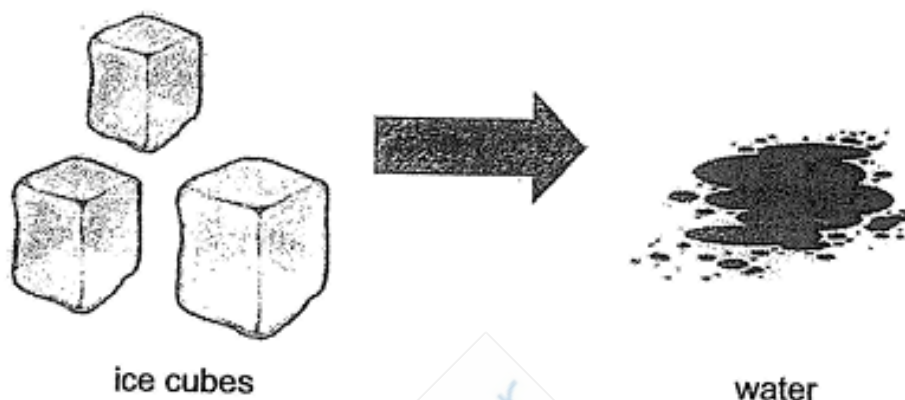
Four children observed the set-ups for 10 minutes. Each made a statement about their observations.

- John : Heat will travel from the hot water to the milk.  
 Peter : Heat will travel from the milk to the hot water.  
 Ali : There is more heat in Set-up B than Set-up A.  
 Lisa : The temperature of milk in both bottles will increase.

Who has/have made the correct statement(s)?

- (1) John only
- (2) Peter only
- (3) John and Lisa only
- (4) Peter, Lisa and Ali only

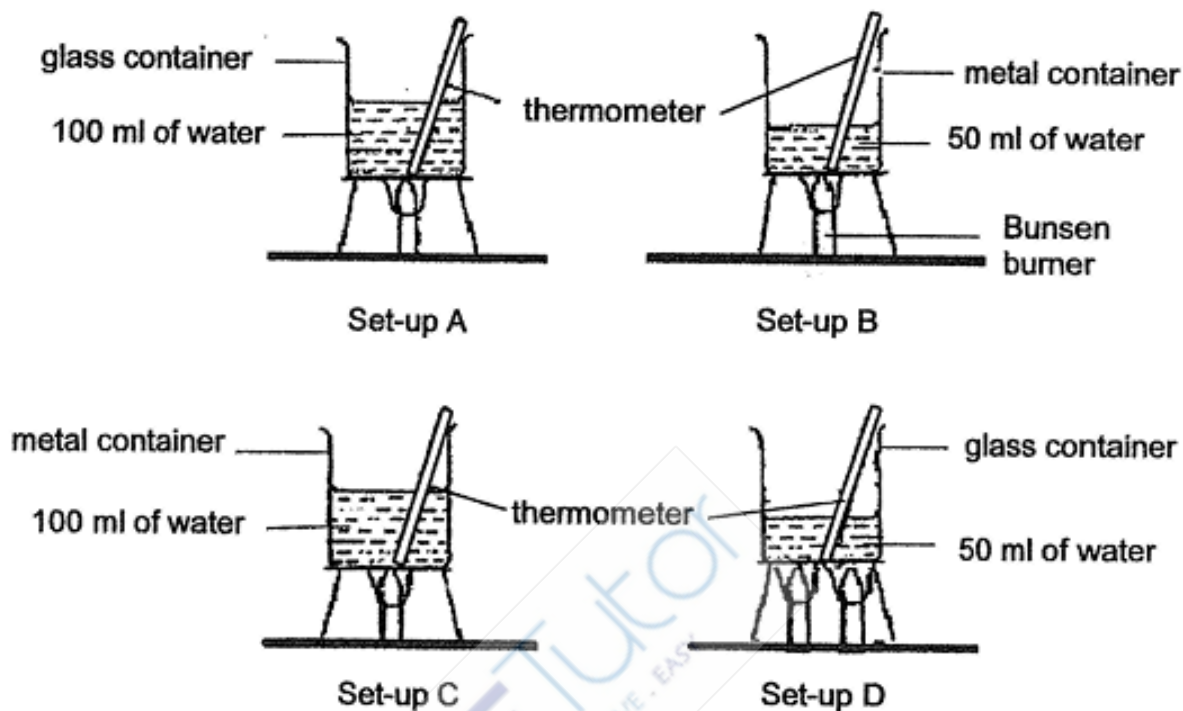
23. A few ice cubes were placed in a room. The ice cubes changed to water after 5 minutes.



Which one of the following explains what happened to the ice cubes?

- (1) The ice cubes lost heat and turned from liquid to solid.
- (2) The ice cubes gained heat and turned from solid to liquid.
- (3) The ice cubes lost coldness and turned from solid to liquid.
- (4) The ice cubes gained coldness and turned from liquid to solid.

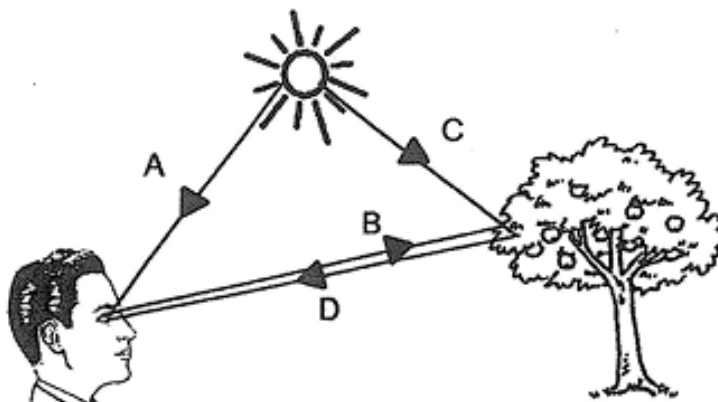
24. Sue Ann prepared four set-ups A, B, C and D. She wanted to find out whether water would boil faster in a metal or glass container.



Which two set-ups should Sue Ann use to conduct a fair test?

- (1) A and B only
- (2) A and C only
- (3) B and D only
- (4) C and D only

25. The diagram below shows some paths of light, A, B, C and D.



Which paths of light allowed the man to see the tree?

- (1) A and B only
- (2) A and D only
- (3) B and C only
- (4) C and D only

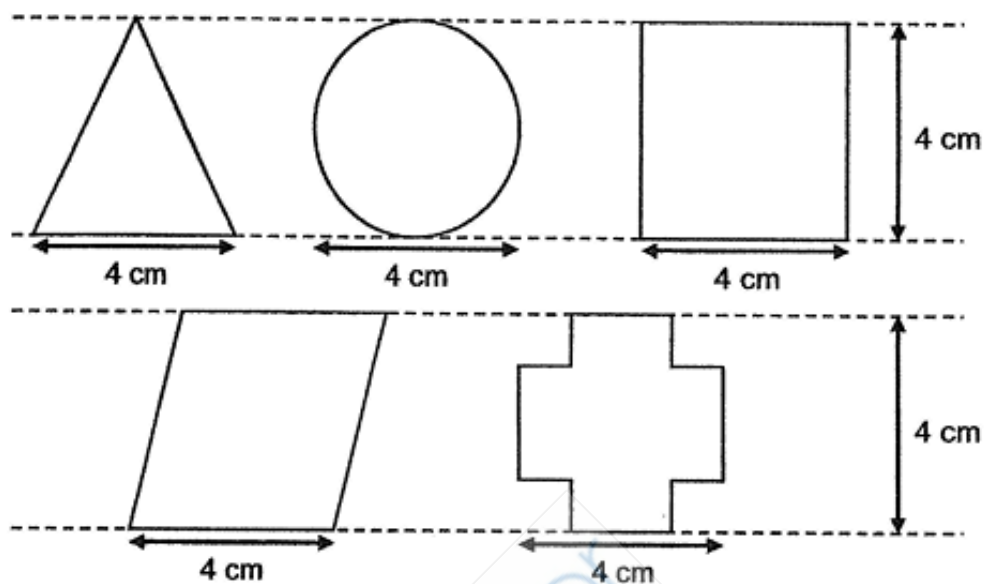
26. There are many gaps between the bricks on a footpath as shown.



Which one of the following explains the purpose of having these gaps?

- (1) To allow space for the bricks to expand on a hot day.
- (2) To allow space for the bricks to contract on a cool day.
- (3) To allow space for the air between the gaps to expand on a hot day.
- (4) To allow space for the air between the gaps to contract on a cool day.

27. James was given five pieces of cardboards in different shapes as shown below.



He then stacked some cardboards together and placed them between a torch and a screen at point X.



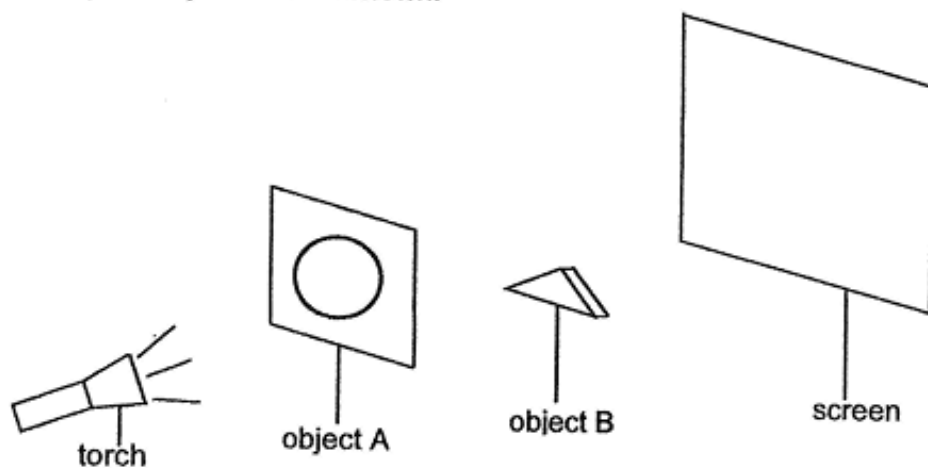
What is the most number of pieces of cardboards James could stack together and still form the following shadow on the screen?



- (1) 1
- (2) 5
- (3) 3
- (4) 4



28. Gina set up an experiment as shown.



The shadow observed on the screen is shown below.

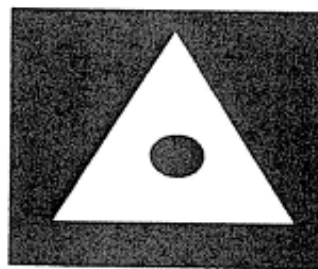


Gina moved object B closer to the screen. Which one of the following shows the shadow on the screen?

(1)



(2)



(3)



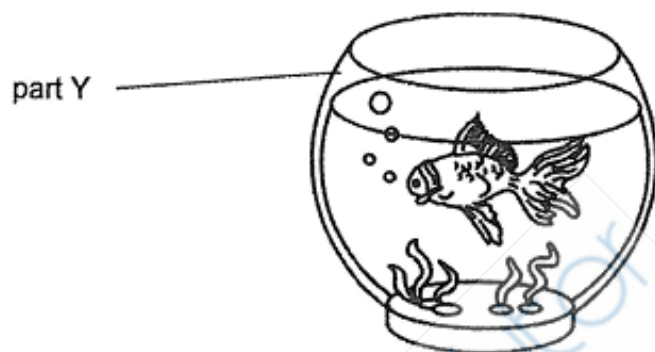
(4)



### SECTION B: 44 Marks

For questions 29 to 41, write your answers in the spaces provided.  
 The number of marks available is shown in brackets [ ] at the end of each question or part question.

29. The diagram below shows an aquarium.



Fill in the blanks using the correct words in the box.

light	steel	bends
strong	breaks	glass

Part Y is made of \_\_\_\_\_ because it allows  
 \_\_\_\_\_ to pass through so that we can see the fish.  
 However, part Y \_\_\_\_\_ easily when dropped.

[3]

30. Draw lines to match the three organ systems to their functions.

[3]

**organ systems**

**functions**

respiratory system ●

circulatory system ●

digestive system ●

● breaks down food into simpler substances

● supports our body and gives it shape

● takes air into and out of the body

● transports digested food, water and oxygen to all parts of the body



31. Look at the pictures. Tick (✓) the sources of light.

[2]

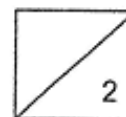
☐ eyes

☐ lamp

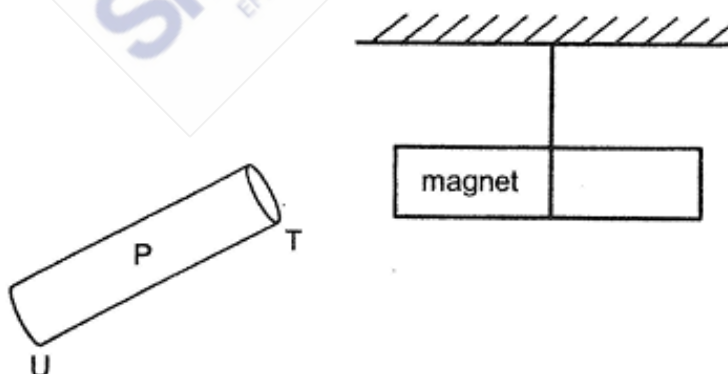


☐ Sun

☐ mirror







32. When end T of object P is brought near a magnet as shown, the magnet moves away.



(a) This shows that object P is a \_\_\_\_\_ . [1]

(b) When end U is brought near to the magnet, it \_\_\_\_\_ the magnet. [1]

33. Fauziah classified the following living things into two groups, A and B, as shown in the table below.

Group A	Group B
 moss   tree	 cat   bat

- (a) Based on the groups of living things, give suitable headings for Group A and Group B respectively. [1]

Group A: \_\_\_\_\_

Group B: \_\_\_\_\_

- (b) State the outer covering for living things in Group B. [1]

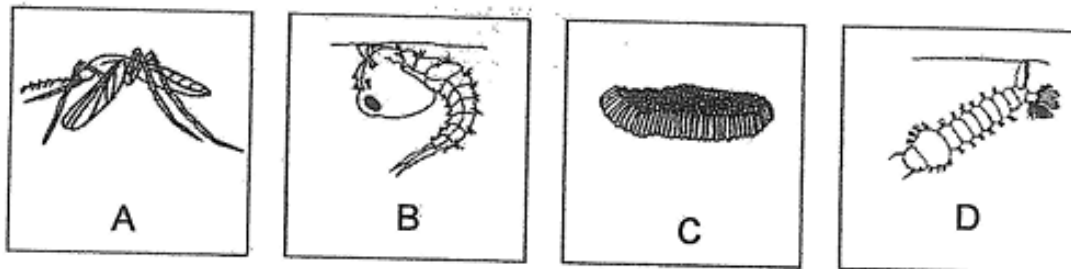
\_\_\_\_\_

- (c) State one difference between the living things in group A and group B in the way they obtain food. [1]

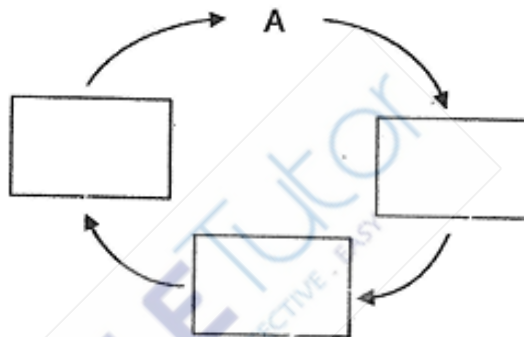
\_\_\_\_\_

\_\_\_\_\_

34. Jamal has four pictures, A, B, C and D, which show the different stages of the life cycle of insect X as shown below over a period of time.



- (a) Write the letters, B, C and D, in the correct order to show the life cycle of insect X in the diagram below. [1]



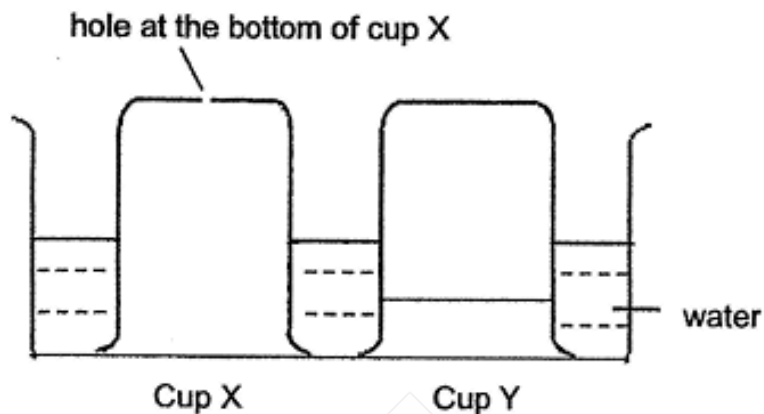
Jamal studied the number of days insect X spends at that stage. The adult of insect X usually lays its eggs in water. The female adult of insect X also sucks blood from humans and is usually considered a pest.

- (b) Jamal says the best time to get rid of insect X is at stages B, C and D. Suggest a way he can do so. Explain why. [2]

Suggestion: \_\_\_\_\_  
 \_\_\_\_\_

Reason: \_\_\_\_\_  
 \_\_\_\_\_

35. Raj pushed two inverted plastic cups, X and Y, into a basin of water as shown below. Cup X has a hole at the bottom.



- (a) Use a ruler and draw the water level in Cup X. [1]

- (b) Explain your answer in part (a) for Cup X. [2]

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- (c) Based on the observation in Cup Y, what could Raj conclude about the property of air? [1]

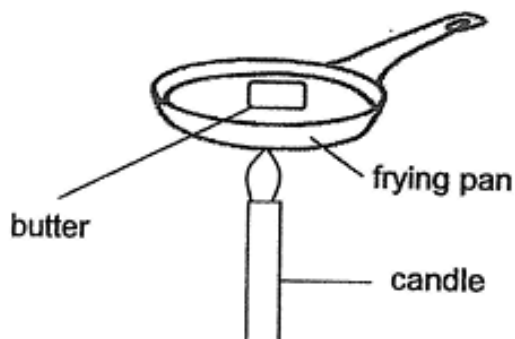
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36. Corine took out a slice of butter from the freezer. She placed and heated it in a frying pan for 5 minutes. Corine observed that the butter melted.



- (a) Name the states of the butter in the boxes below.

[2]



- (b) Based on Corine's observation, explain what happened to the butter.

[1]

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- (c) Corine said that the frying pan is made of metal. Do you agree with her? Explain why.

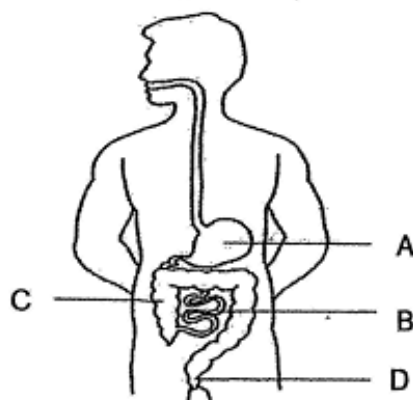
[1]

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37. The diagram below shows the different parts of the human digestive system.

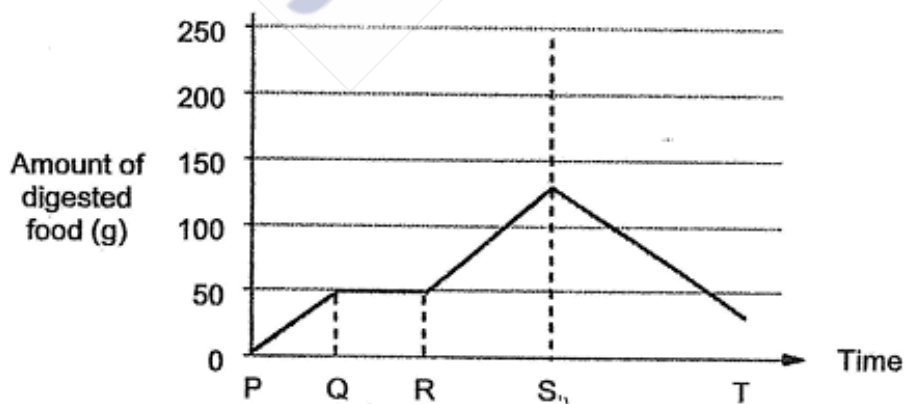


- (a) State the functions of Part A and Part C. [2]

Part A: \_\_\_\_\_  
\_\_\_\_\_

Part C: \_\_\_\_\_  
\_\_\_\_\_

The graph below shows the amount of digested food present in a person's digestive system over a period of time.



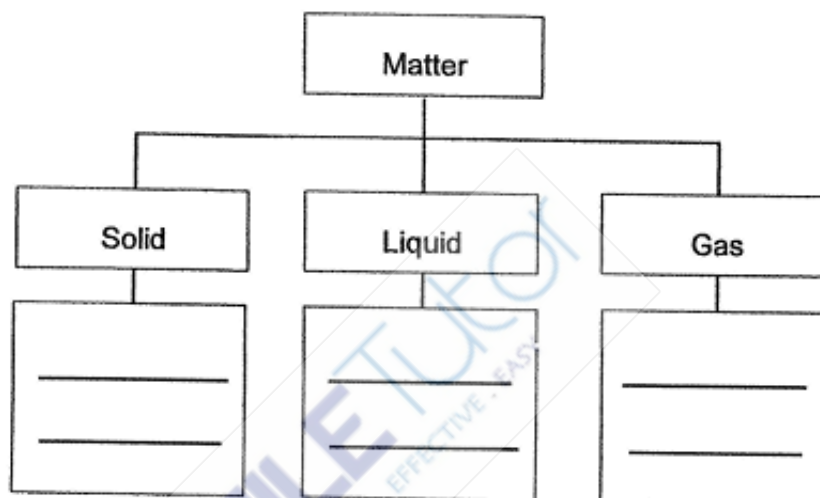
- (b) Describe how the amount of digested food changes from S to T. Explain your answer. [2]

\_\_\_\_\_  
\_\_\_\_\_

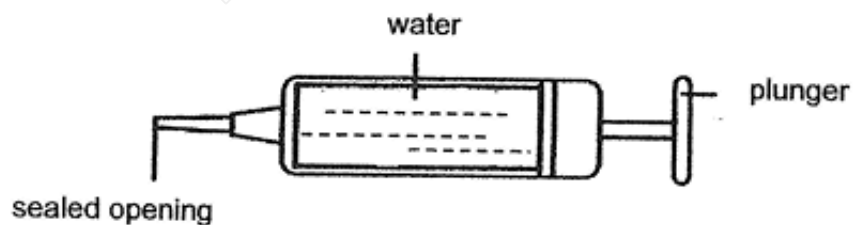
38. Four objects are listed below.

pebble	tea
air	bread

(a) Classify the four objects according to their states when they are at room temperature. [2]



(b) The syringe below contains 10 cm<sup>3</sup> of water. The opening of the syringe is sealed.



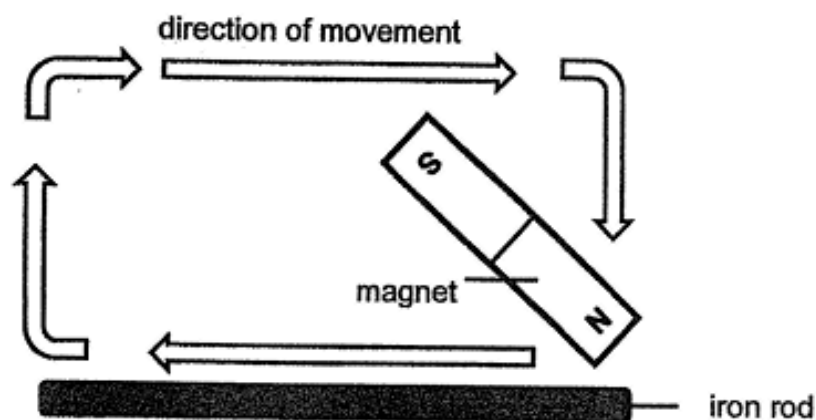
What happens to the volume of water in the syringe when the plunger is pushed? Explain why. [2]

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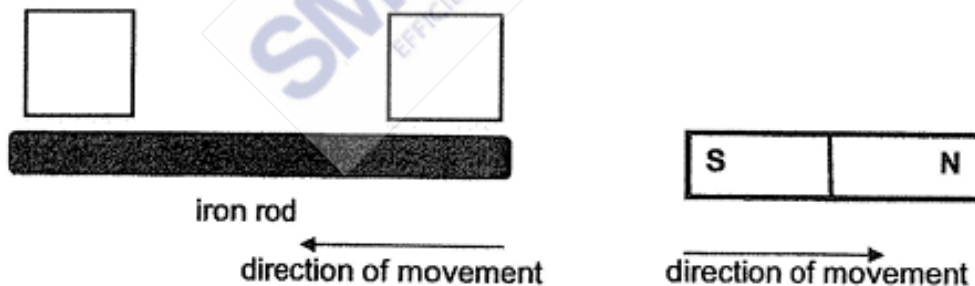
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39. Sanjay made a magnet by using a method as shown.

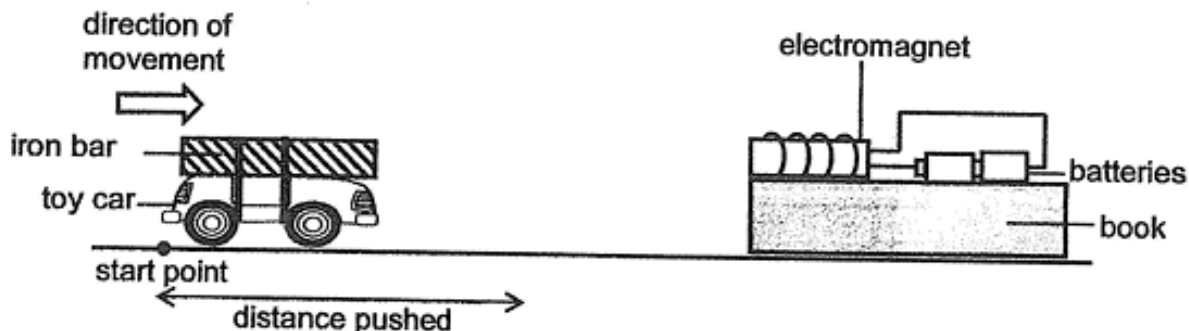


- (a) State the name of the method above. [1]

- (b) He then placed the magnetised iron rod near a bar magnet and observed the following interaction. Name the poles of the iron rod in the boxes below. [1]



Sanjay then attached the iron bar on a toy car. He placed the toy car at the start point and slowly pushed the toy car towards the electromagnet. Sanjay recorded the distance the toy car was pushed before the electromagnet could attract it.



He repeated the experiment by changing the number of batteries in the set-up each time. His results were recorded in the table as shown.

Number of batteries	Distance the toy car was pushed before being attracted by the electromagnet (cm)
2	8
3	6
4	4
5	2

- (c) Why did Sanjay use an iron bar in this experiment?

[1]

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- (d) Besides the number of batteries, suggest another way he can strengthen the electromagnet.

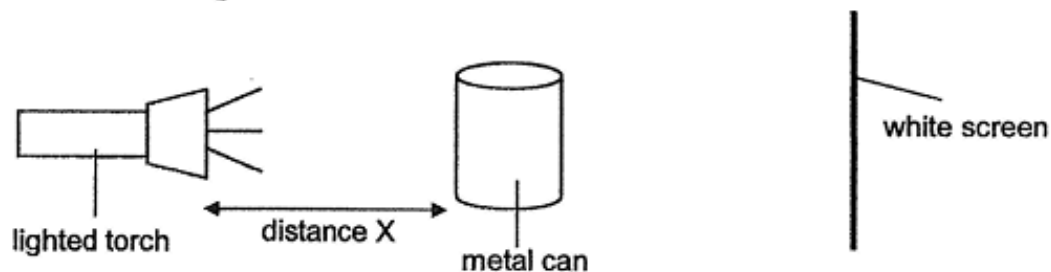
[1]

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40. Xiao Li conducted an experiment using a torch, a metal can and a white screen as shown in the diagram below.



She then changed the distance between the torch and the metal can,  $X$ , by moving the torch. She measured the height of the shadow formed on the screen for different distances of  $X$  and recorded her findings in the table below.

Distance $X$ (cm)	Height of the shadow formed on the screen (cm)
10	30
20	24
30	18
40	12

- (a) What is the variable that has changed in the above experiment? [1]

---

- (b) Based on the results in the table above, what is the relationship between distance  $X$  and the height of the shadow formed on the screen? [1]

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- (c) State distance  $X$  when the height of the shadow on the screen is 15 cm. [1]

cm

- (d) When distance  $X$  is at 10 cm, and the white screen is moved further away from the metal can, what will happen to the height of the shadow formed on the screen? [1]

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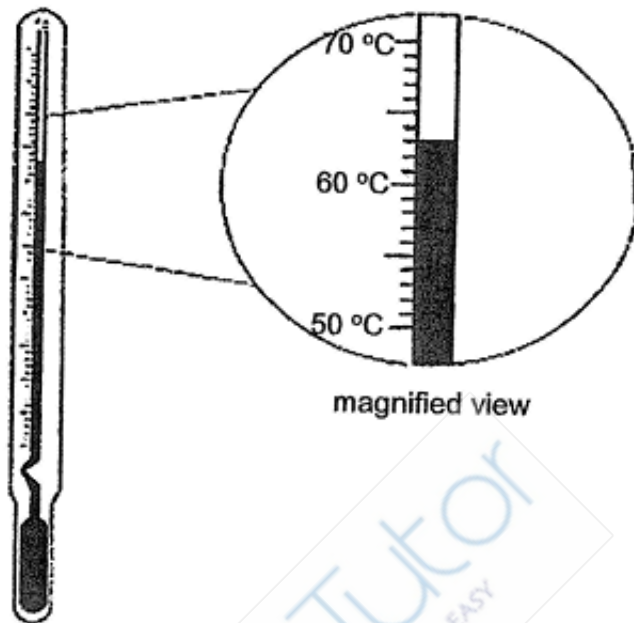


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41. Wei Chye poured the same amount of water at the same temperature into three cups of similar size and placed them on a table. The cups are made of different materials.

The diagram below shows the initial temperature of water in the three cups.

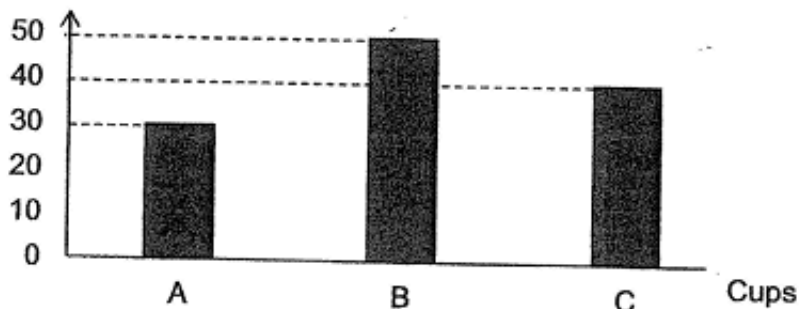


- (a) What is the reading shown on the thermometer?

[1]

After 20 minutes, he measured the temperature of the water in the three cups again. He plotted the results as shown below.

Temperature of water (°C)



- (b) Which cup (A, B or C) should he use to keep his drink hot for the longest time? Explain.

[2]



(c) Name a material for Cup B.

[1]

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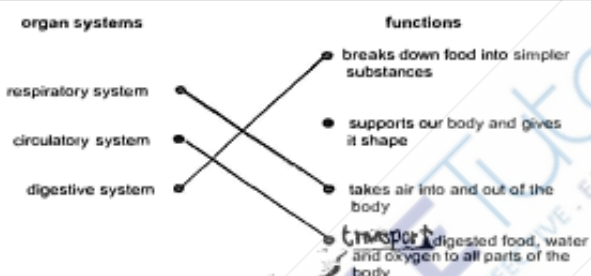


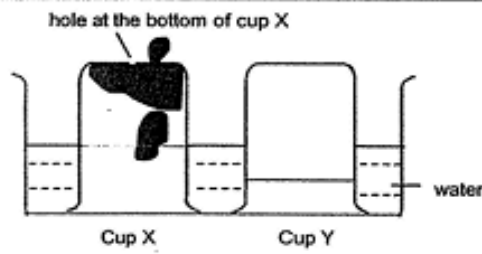
## ANSWER SHEET

### (BOOKLET A)

Q1	4	Q2	3	Q3	1	Q4	2	Q5	1
Q6	4	Q7	3	Q8	4	Q9	1	Q10	3
Q11	3	Q12	2	Q13	4	Q14	2	Q15	1
Q16	3	Q17	3	Q18	1	Q19	3	Q20	2
Q21	2	Q22	3	Q23	2	Q24	2	Q25	4
Q26	1	Q27	4	Q28	4				

### (BOOKLET B)

Q29	Part Y is made of <u>glass</u> because it allows <u>light</u> to pass through so that we can see the fish. However, part Y <u>breaks</u> easily when dropped.		
Q30	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><b>organ systems</b></p> <ul style="list-style-type: none"> <li>respiratory system</li> <li>circulatory system</li> <li>digestive system</li> </ul> </div> <div style="width: 45%;"> <p><b>functions</b></p> <ul style="list-style-type: none"> <li>breaks down food into simpler substances</li> <li>supports our body and gives it shape</li> <li>takes air into and out of the body</li> <li>transports digested food, water and oxygen to all parts of the body</li> </ul> </div> </div> 		
Q31	✓ Lamp ✓ Sun		
Q32	a)	This shows that object P is a magnet	
	b)	When end U is brought near to the magnet, it attracts the magnet.	
Q33	a)	Group A: Plants Group B: Animals	
	b)	The living things in group B have hair as their outer covering	
	c)	The living things in group A photosynthesize to make food for themselves while the living things in group B hunt for food.	
Q34	a)	B→A→C→D	
	b)	Suggestion: Jamal can clear any stagnant water. Reason: There is no water for the mosquito to lay its eggs.	

Q35	a)									
	b)	The air in cup X escaped through the hole, thus the water can occupy the space that was previously occupied by the air.								
	c)	Air occupies space.								
Q36	a)	Solid → Liquid								
	b)	The butter gained heat from the candle and melted.								
	c)	Yes. Metal is a good conductor of heat and allows heat to flow through quickly, and the butter melted quickly.								
Q37	a)	Part A: Part A breaks down partially digested food into simpler substances. Part C: Part C absorbs water from undigested food.								
	b)	The amount of digested food decreases from S to T. The digested food had been absorbed into bloodstream.								
Q38	a)	<table><tr><th>Solid</th><th>Liquid</th><th>Gas</th></tr><tr><td>Pebble bread</td><td>tea</td><td>air</td></tr></table>	Solid	Liquid	Gas	Pebble bread	tea	air		
	Solid	Liquid	Gas							
Pebble bread	tea	air								
b)	The volume of the water in the syringe will remain the same. Water has an definite volume and cannot be compressed.									
Q39	a)	Stroking method								
	b)	N	S							
	c)	Iron is a magnetic material, and only magnetic materials can be attracted by the electromagnet.								
	d)	He can increase the number of coils of wire around the electromagnet								
Q40	a)	Distance between the torch and the metal can.								
	b)	As the distance X increases, the height of the shadow formed on the screen decreases.								
	c)	35 cm								
	d)	The height of the shadow formed on the screen will increase.								
Q41	a)	63°								
	b)	B. The temperature of the water in cup B after 20 minutes was the greatest, showing that B is the poorest conductor of heat, hence, the drink will be kept hot for the longest time.								
	c)	Wood.								

## RAFFLES GIRLS' PRIMARY SCHOOL EOY PAPER

1. The leaf of plant A folds up when touched.



Plant A

This shows that plant A is a living thing because it can \_\_\_\_\_.

- (1) die
- (2) grow
- (3) respond
- (4) reproduce

2. Which of the following is not a mammal?

(1)



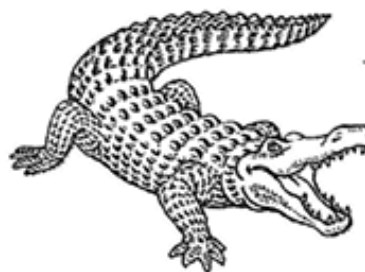
(2)



(3)



(4)



3. Which animal has a 3-stage life cycle?

(1)



Beetle

(2)



Butterfly

(3)



Hen

(4)



Mosquito

4. The diagram shows the life cycle of a plant.



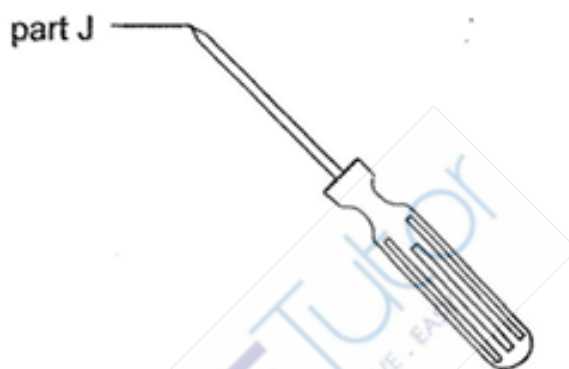
What is the stage marked X?

- (1) Egg
- (2) Seed
- (3) Adult plant
- (4) Young plant

5. In which part of the digestive system is food absorbed into the blood?

- (1) Mouth
- (2) Stomach
- (3) Large intestine
- (4) Small intestine

6. The diagram shows a screwdriver.



Metal is used to make part J because metal \_\_\_\_\_.

- (1) can reflect light
- (2) does not break easily
- (3) can bend without breaking
- (4) allows light to pass through

7. Which of the following properties is true for both air and milk?

- (1) They can be seen.
- (2) They take up space.
- (3) They have fixed shapes.
- (4) They have fixed volume.



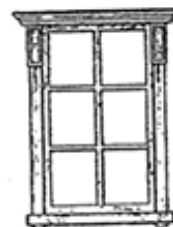
8. Which one of the following is a source of light?

(1)



The moon

(2)



A window

(3)



A lit torch

(4)

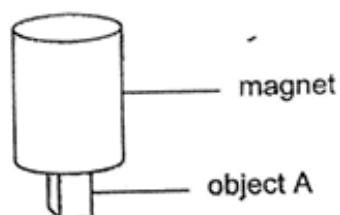


A pair of glasses

9. Which one of the following is not a source of heat?

- (1) A lighted lamp
- (2) A toaster oven
- (3) A candle flame
- (4) A woollen sock

10. Object A was attracted to the magnet as shown in the diagram.

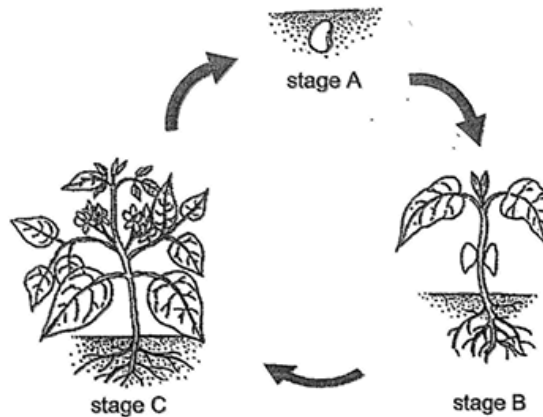


Object A is made of \_\_\_\_\_.

- (1) iron
- (2) glass
- (3) paper
- (4) cotton



11. The diagram shows the life cycle of a plant.



Which of the following statement(s) about the life cycle of the plant is/are correct?

- A The plant can make food at stage A.
- B The roots absorb food for the plant at stage C.
- C The roots absorb water for the plant at stage C.
- D The seed leaves provide food for the plant at stage B.

- (1) C only
- (2) D only
- (3) B and C only
- (4) A and D only

12. Sally observed three animals, W, X and Y, and recorded her observations in the table.

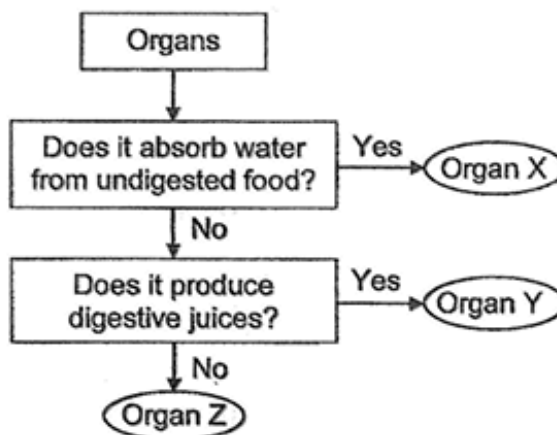
A tick (✓) indicates the presence of the observation.

Animal	Observations		
	It has four stages in its life cycle	The young resembles (looks like) the adult	It lays eggs
W	✓		✓
X		✓	✓
Y		✓	✓

Which of the following best represents these animals?

	Animal W	Animal X	Animal Y
(1)	Butterfly	Chicken	Mosquito
(2)	Butterfly	Chicken	Cockroach
(3)	Chicken	Butterfly	Cockroach
(4)	Mosquito	Butterfly	Chicken

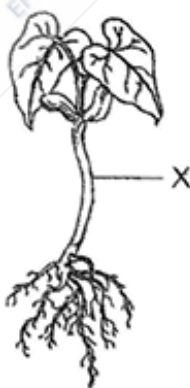
13. The flowchart shows the characteristics of organs X, Y and Z of the human digestive system.



Identify organs X, Y and Z.

	Organ X	Organ Y	Organ Z
(1)	Stomach	Large intestine	Gullet
(2)	Large intestine	Stomach	Gullet
(3)	Small intestine	Gullet	Stomach
(4)	Stomach	Gullet	Small intestine

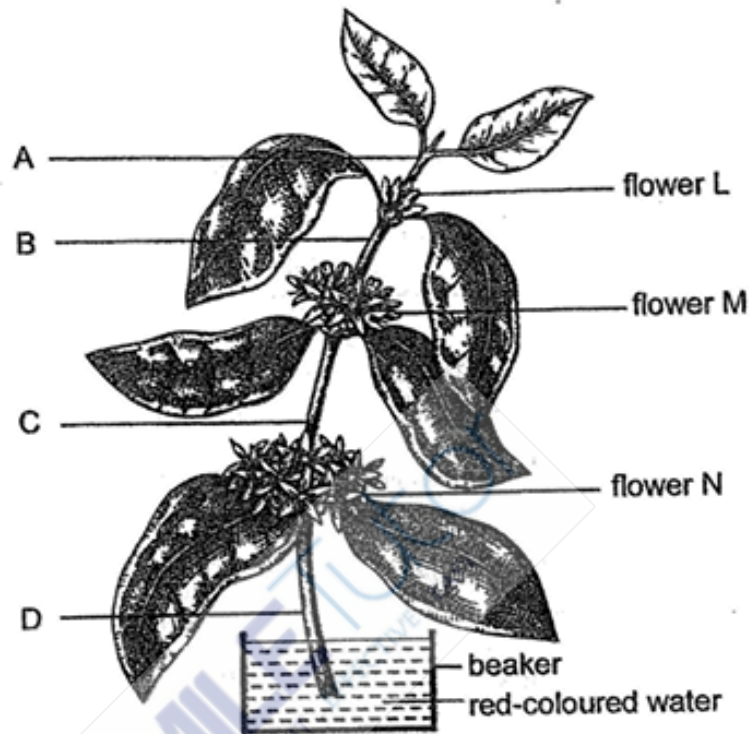
14. The diagram shows a young plant.



Part X helps the young plant to \_\_\_\_\_.

- (1) make food
- (2) absorb water
- (3) stand upright
- (4) take in and give out air

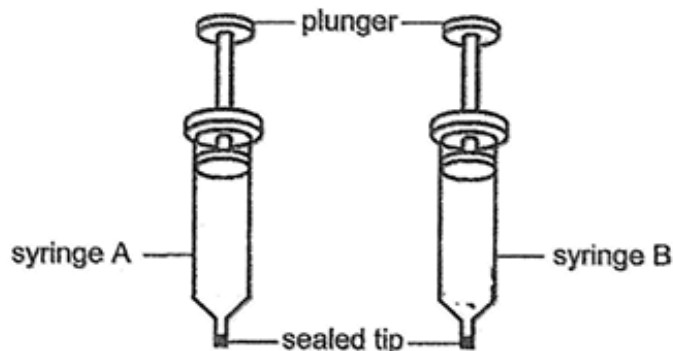
15. Stacy removed the roots of a plant. She placed the plant into a beaker of red-coloured water as shown in the diagram next to a window for two days. Part of the stem was damaged and only flower N was stained red.



Which part of the stem, A, B, C or D, was damaged?

- (1) A
- (2) B
- (3) C
- (4) D

16. Kim filled two identical syringes, A and B, with different substances of the same amount. The tips of the syringes were sealed as shown in the diagram.

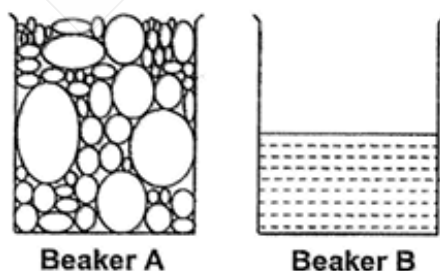


She pressed down both plungers and observed that the plunger of the syringe A could be pushed down while the plunger of syringe B could not be pushed down.

Which of the following is most likely to be the substances in syringes A and B?

	Substance in syringe A	Substance in syringe B
(1)	Air	Marbles
(2)	Apple juice	Beads
(3)	Marbles	Apple juice
(4)	Beads	Air

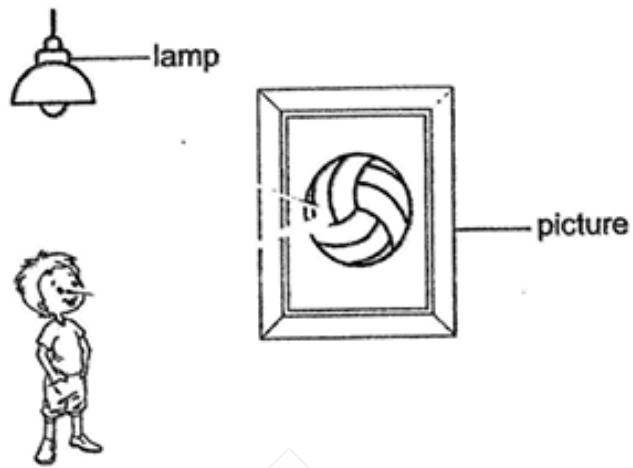
17. Beaker A is filled with pebbles as shown in the diagram. When water from beaker B is poured into beaker A, George observed that the water does not overflow in beaker A.



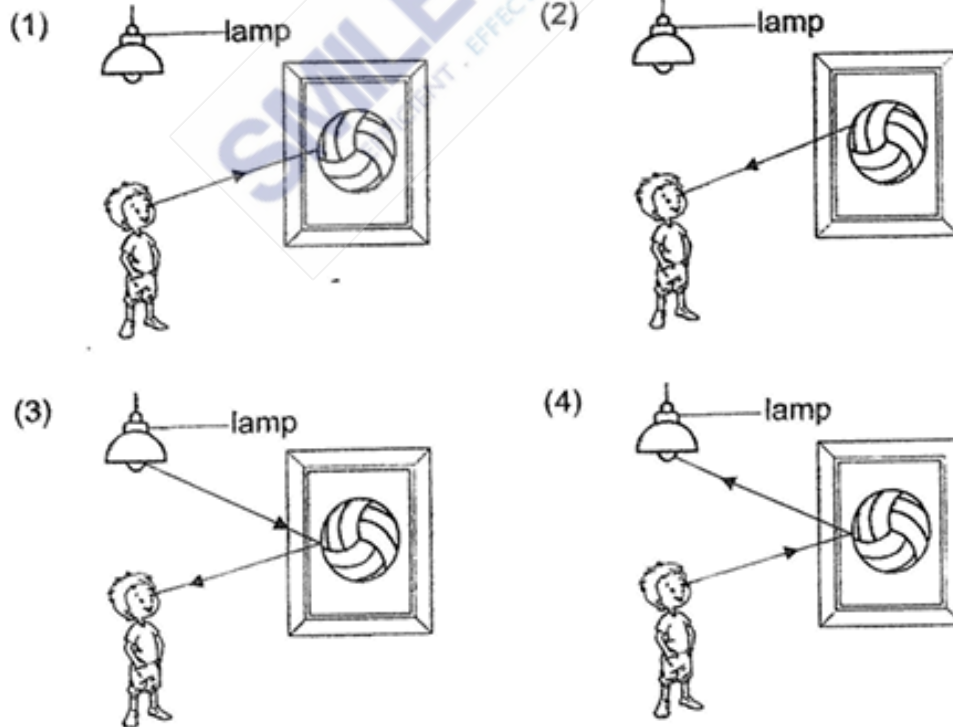
Which of the following shows the correct explanation for his observation?

- (1) The pebbles in the beaker A have a definite mass.
- (2) Water from beaker B does not have a definite volume.
- (3) The pebbles in beaker A took the place of water from beaker B.
- (4) Water from beaker B occupied the space in between the pebbles in beaker A.

18. The diagram shows a boy looking at a picture.

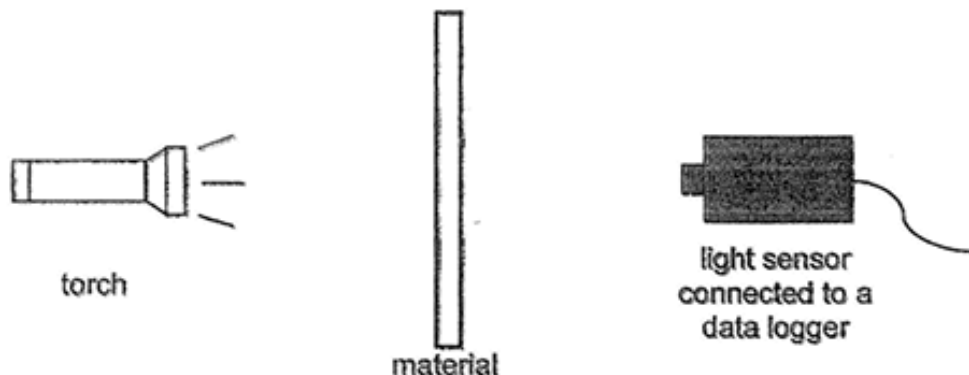


Which of the following correctly shows how the boy can see the picture?





19. Alan prepared a set-up as shown in the diagram to measure the amount of light that passed through a sheet of material X in a dark room.



Alan replaced the sheet of material X with sheets Y and Z of the same size and thickness, one at a time.

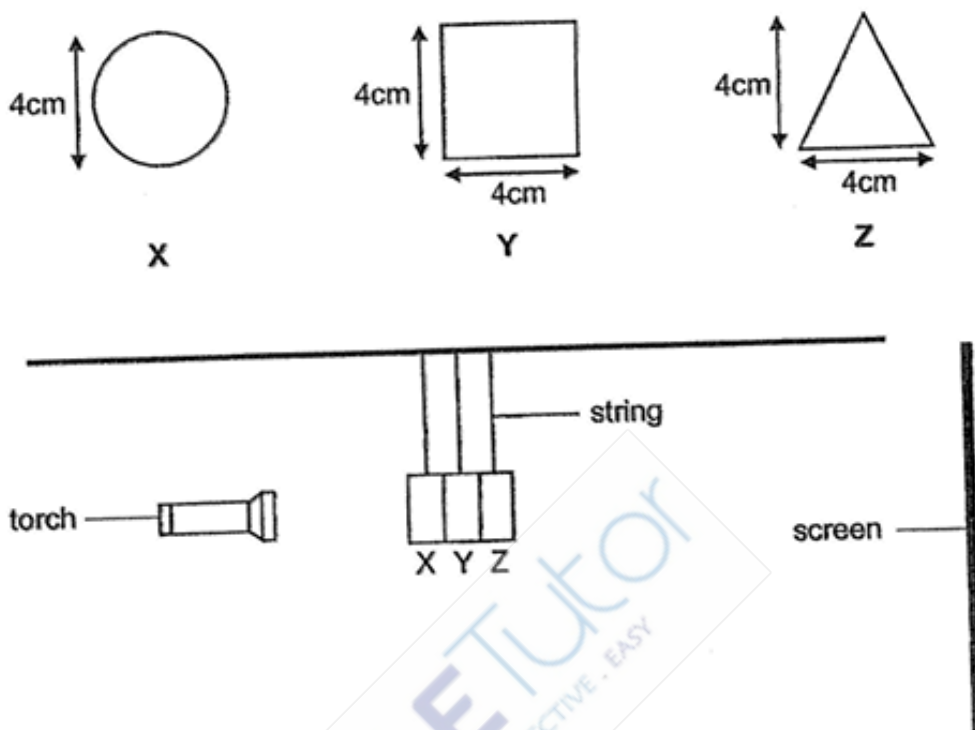
He recorded the amount of light detected by the light sensor in the table below. The amount of light from the torch was 1300 lux.

Materials	Amount of light passing through (lux)
X	1100
Y	0
Z	400

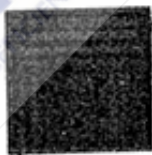
Using the information from the table, which of the following correctly represents materials X, Y and Z?

	X	Y	Z
(1)	Clear plastic	Wood	Tracing paper
(2)	Wood	Clear plastic	Tracing paper
(3)	Clear plastic	Tracing paper	Wood
(4)	Tracing paper	Clear plastic	Wood

20. Jason prepared an experimental set-up using three shapes X, Y and Z made of different materials as shown in the diagram. He shone a lighted torch on the shapes and observed the shadow on the screen.



The shadow observed on the screen is as shown below.



Based on the observation of the shadow, which of the following best describes the amount of light passing through shapes X, Y and Z?

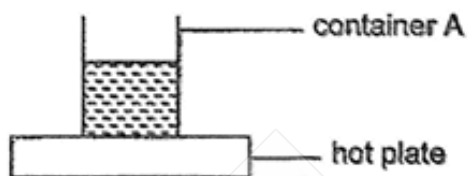
	X	Y	Z
(1)	Allow most light to pass through	Allow some light to pass through	Does not allow any light to pass through
(2)	Allow some light to pass through	Not possible to tell	Does not allow any light to pass through
(3)	Does not allow any light to pass through	Allow some light to pass through	Allow most light to pass through
(4)	Allow most light to pass through	Does not allow any light to pass through	Not possible to tell



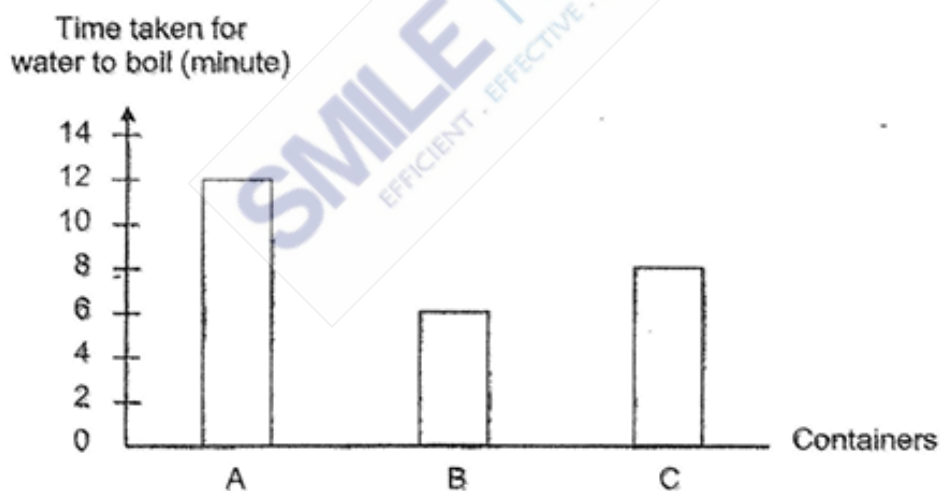
21. Which of the following is true about temperature?

- (1) Temperature is a form of energy.
- (2) Temperature is the degree of hotness of an object.
- (3) Temperature is the amount of hotness of an object.
- (4) Temperature of object increases and the object will contract.

22. George boiled some water in container A as shown in the diagram.



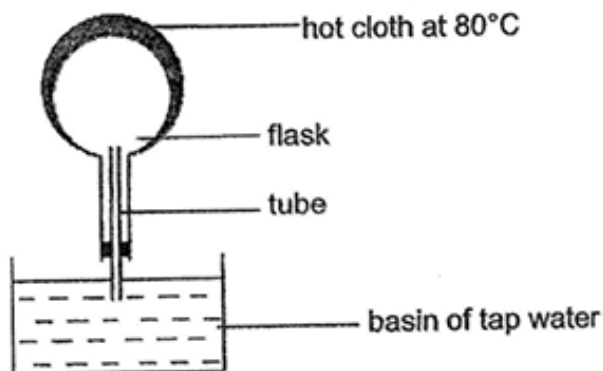
He repeated his experiment using identical containers, B and C, using different amounts of water each time. He recorded the time taken for the water to boil in each container in the bar chart.



Based on the results of his experiment, which of the following is correct?

- (1) Container B contained the least amount of water.
- (2) The temperature of water in container A rose the fastest.
- (3) The water in container A gained heat the fastest from the hot plate.
- (4) The water in all the containers had the same amount of heat when they started to boil.

23. Study the set-up as shown in the diagram.



Which of the following statement(s) is/are true?

- A Air bubbles are seen at the mouth of the tube in the water.
- B The hot cloth gains heat from the surrounding air.
- C The air in the flask gains heat from the cloth.
- D Water loses heat to the air in the flask.

- (1) A only
- (2) D only
- (3) A and C only
- (4) B and D only

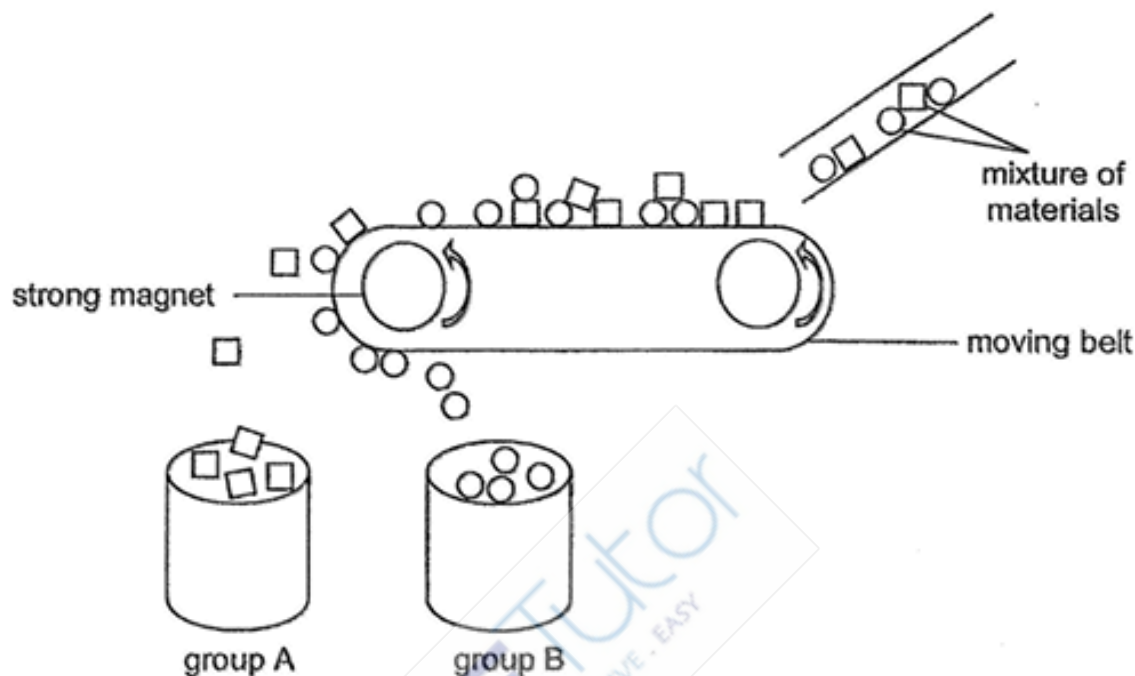
24. Farah made electromagnets from four similar iron bars, P, Q, R and S using different number of coils of wire and batteries as shown in the table.

Iron bar	Number of coils of wire around the nail	Number of batteries used
P	15	1
Q	5	1
R	20	2
S	20	1

She then placed the electromagnets, one at a time, near four similar boxes of paper clips. Which of the following statements is most likely to be correct?

- (1) Iron bar Q has the weakest magnetic strength.
- (2) Iron bar S has the strongest magnetic strength.
- (3) Iron bar P attracts more paper clips than iron bar R.
- (4) Iron bar P and Q will attract the same number of paper clips.

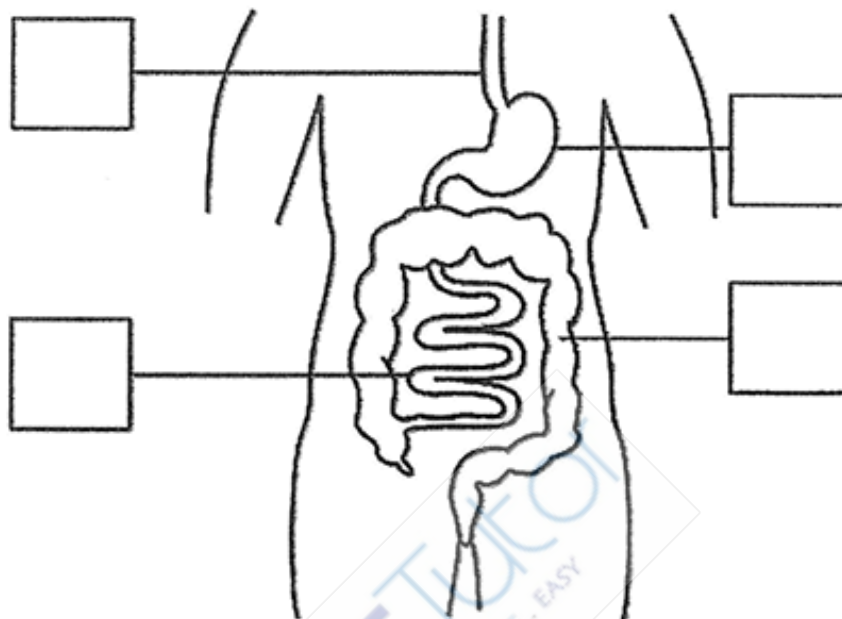
25. A mixture of materials moves through a moving belt fitted with a strong magnet. The materials will then be separated into two groups, A and B, as shown.



Which of the following is most likely to be correct?

- (1) Group A contains materials made of aluminium.
- (2) Group B contains materials that are non-metallic.
- (3) Group A contains materials that can be made into a magnet.
- (4) Group B contains materials that cannot be attracted by the magnet.

26. (a) The diagram shows part of the human digestive system. Tick one box to show where the gullet is. [1]



- (b) Fill in the blank using the following helping words. [1]

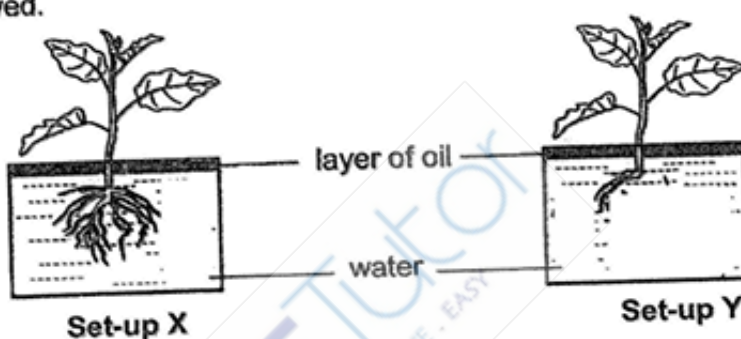
large intestine	stomach	small intestine	mouth
-----------------	---------	-----------------	-------

Food from the gullet is next passed on to the \_\_\_\_\_.

27. (a) Fill in the correct parts of a plant in the table. [2]

Function of plant part	Plant part
It helps the plant to make food.	(i)
It holds the plant upright.	(ii)

- (b) Jason conducted an experiment with two set-ups, X and Y, using identical plants, as shown in the diagram. Most of the roots in set-up Y have been removed.



Both set-ups were left near an open window for two days.

- (i) In which set-up would the water level be lower after two days? Explain your answer. [2]

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The plant in set-up X was accidentally broken as shown in the diagram.



- (ii) Would the plant shown above still survive? Explain your answer. [1]

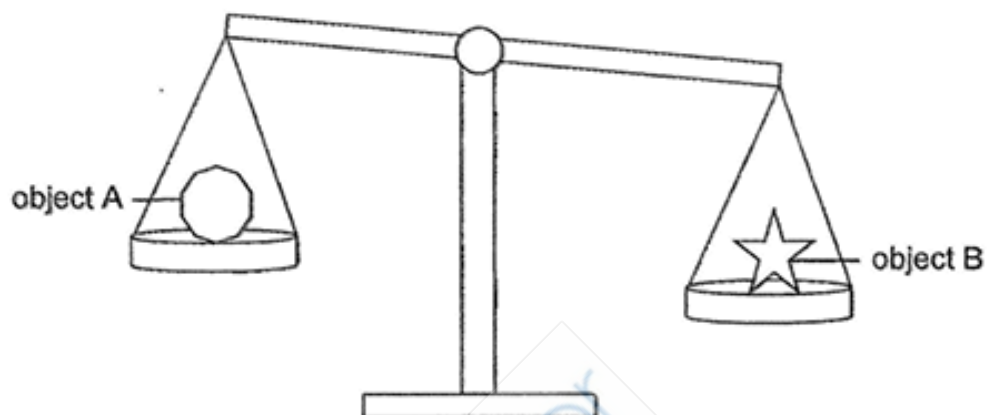
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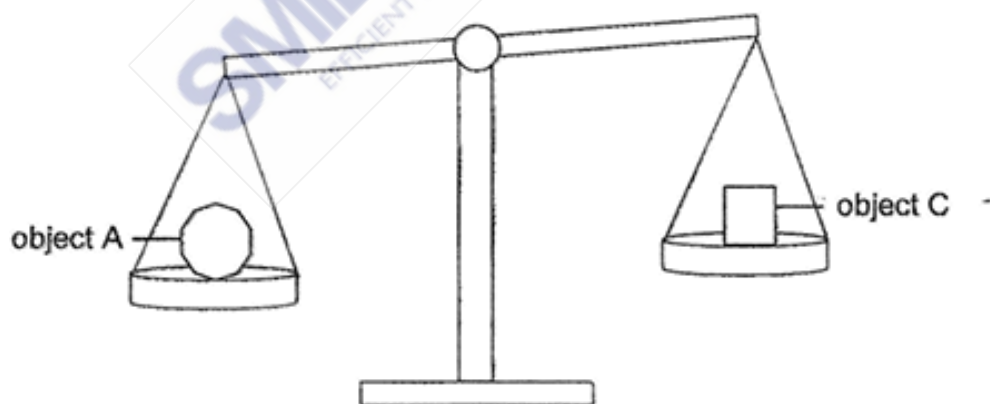
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- 28. Bala compared the mass of three objects.

Study the diagrams below and circle the correct comparisons.



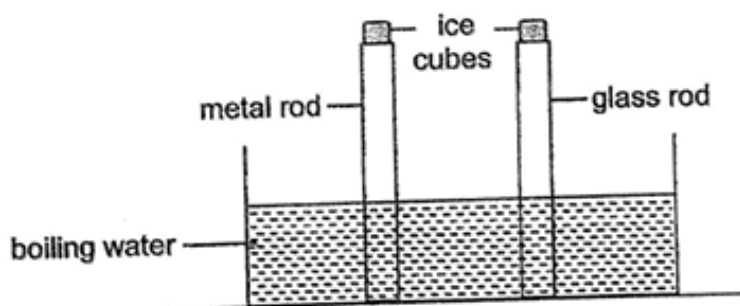
- (a) Object A is lighter than / has the same mass as / is heavier than object B. [1]



- (b) Object A is lighter than / has the same mass as / is heavier than object C. [1]



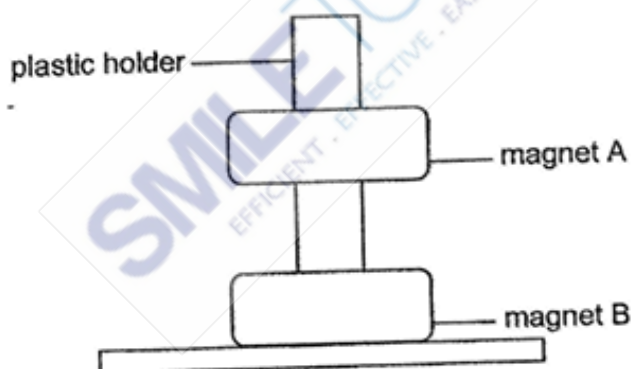
29. Jann placed a metal and a glass rod into a tank of boiling water. Identical pieces of ice cubes were placed on both rods as shown.



What would Jann observe and why? [2]

The ice cube on the glass rod melts \_\_\_\_\_ than the ice cube on the metal rod as glass is a \_\_\_\_\_ conductor of heat than metal.

30. Two magnets were placed together through a plastic holder as shown.



- (a) The holder was made of plastic and did not attract the magnet. [1]

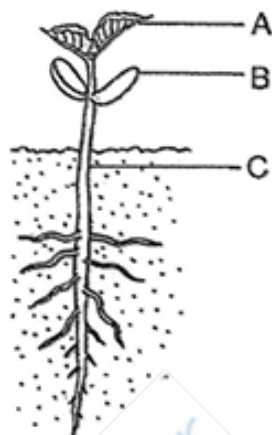
Plastic is a \_\_\_\_\_ material.

- (b) Why was magnet A floating on top of magnet B? [1]

Magnet B was \_\_\_\_\_ magnet A.



31. The diagram shows a young seedling.



The mass of one part of the plant (A, B or C) was measured over eight days. The results were recorded in the table.

Day	Mass (g)
1	8
4	5
6	(b) _____
8	2

- (a) Using the data from the table above, which part of the plant, A, B or C, was the mass being measured? Explain your answer. [2]

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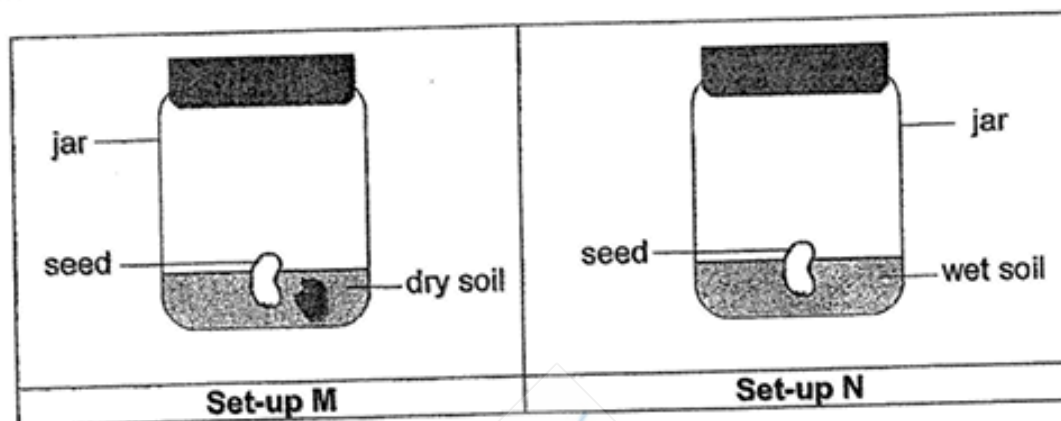


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- (b) What would be the mass of the plant part identified in your answer in (a) on day 6? Write your answer in the table above. [1]

Continued from page 20

Joshua prepared two set-ups as shown in the diagram. He left them in a dark room for a week.



- (c) In which set-up would the seed germinate?  
Explain your answer.

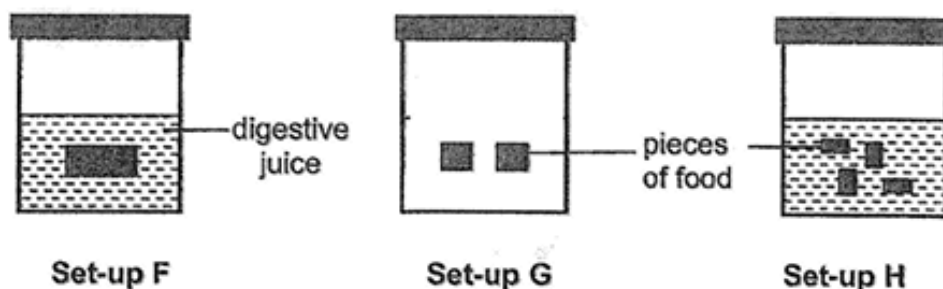
[1]

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32. Shawn wanted to find out if the size of the food affects the rate of digestion. He placed identical amount of food into three beakers as shown in the diagrams. He then placed digestive juice into the three beakers.



- (a) In the diagram above, draw a line in the beaker to show the correct amount of digestive juice Shawn had put in set-up G, in order to conduct a fair test. [1]

Shawn recorded the time taken for the food to be digested completely in the table.

Set-up	Time taken for digestion to complete (s)
F	150
G	(b) _____
H	100

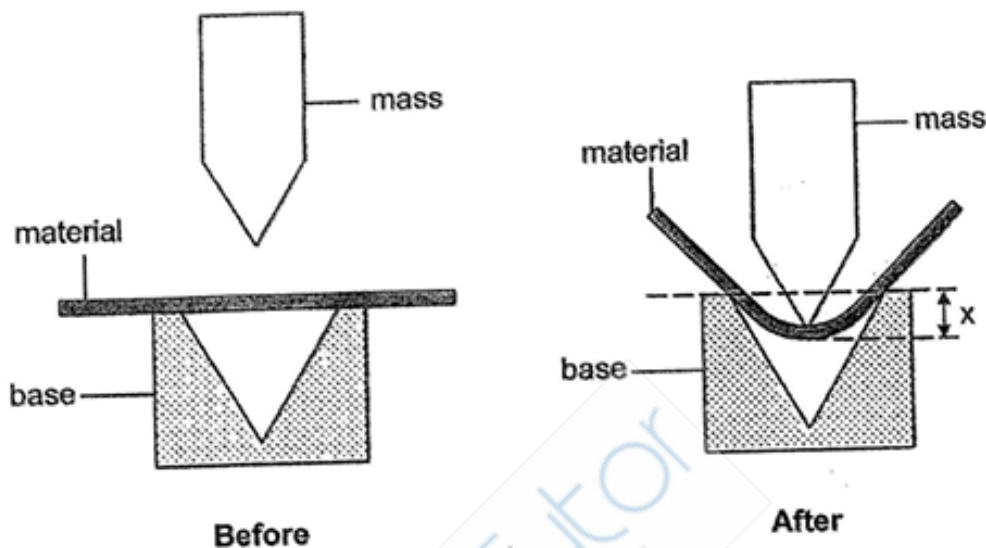
- (b) What is likely to be the time taken to complete the digestion in set-up G? Write your answer in the table above. [1]
- (c) Explain your answer in (b) in comparison with set-up F. [1]

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33. Tony set up an experiment as shown in the diagrams to compare the property of four strips, A, B, C and D, which were made of different materials but of the same thickness.



He attached the strip on a base and placed a mass on it as shown in the diagram above. He recorded the distance,  $x$ , in the table below.

Material	Distance $x$ (cm)
A	0
B	9
C	30
D	10

- (a) Based on the results, which strip, A, B, C or D, is most suitable for making a belt? Explain your answer. [2]

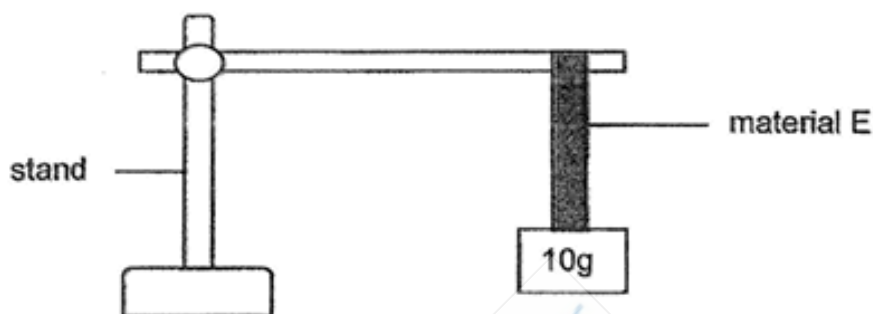
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Continued from page 23

Tony then wanted to make a hook strong enough to hang a calendar on the wall. The calendar has a mass of 110g. He hung a strip of material E as shown in the diagram.



A 10g-mass was added one at a time to the end of the material E until the material started to break. Material E started to break when a 100g-mass was hung on it.

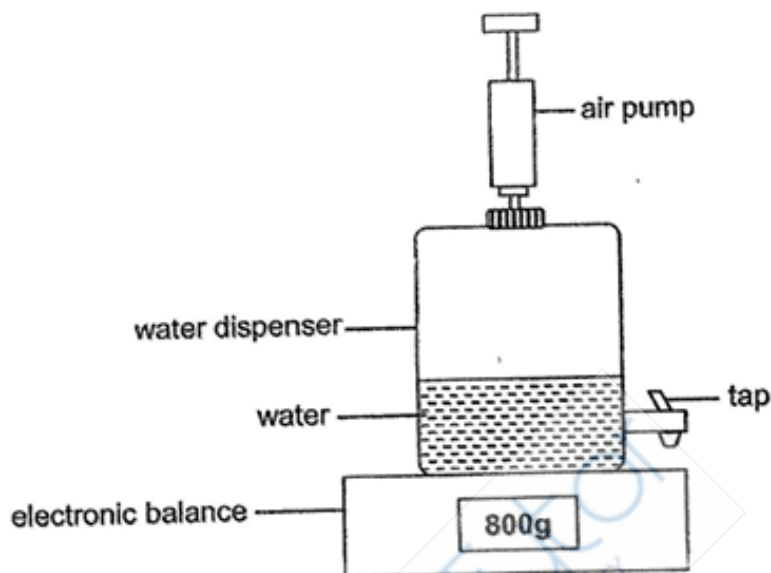
- (b) Tony said that material E is suitable to use to make the hook. Do you agree with him? Explain your answer.

[2]

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34. Calvin prepared an experiment set-up by placing a water dispenser which had an attached air pump on an electronic balance as shown in the diagram. He filled the water dispenser with some water and recorded the mass of the water dispenser.



Then he pumped more air into the same water dispenser and recorded its mass again.

- (a) State what happened to the reading on the electronic balance after some air was pumped into the water dispenser. [1]

---

- (b) Give a reason for your answer in (a). [1]

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- (c) Using the same set-up and without pumping in more air, suggest one way to increase the volume of air in the water dispenser filled with some water. Explain your answer. [2]

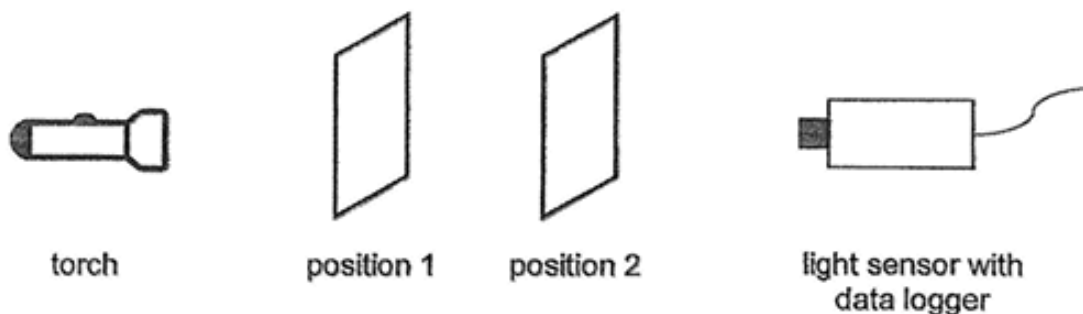
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35. Jeremy conducted an experiment in a dark room to investigate the properties of materials P, Q, R and S. He placed different materials at positions 1 and 2 respectively each time.



The amount of light detected by the light sensor was recorded as shown in the table.

Material at position 1	Material at position 2	Amount of light detected (lux)
P	Q	2000
Q	R	0
R	S	0
S	P	300

- (a) Using the information from the table, which one of the materials, P, Q, R or S, would be most suitable to make a bedroom curtain that keeps the room totally dark during the day? Explain your answer. [2]

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- (b) Give a reason why Jeremy conducted the experiment in a dark room. [1]

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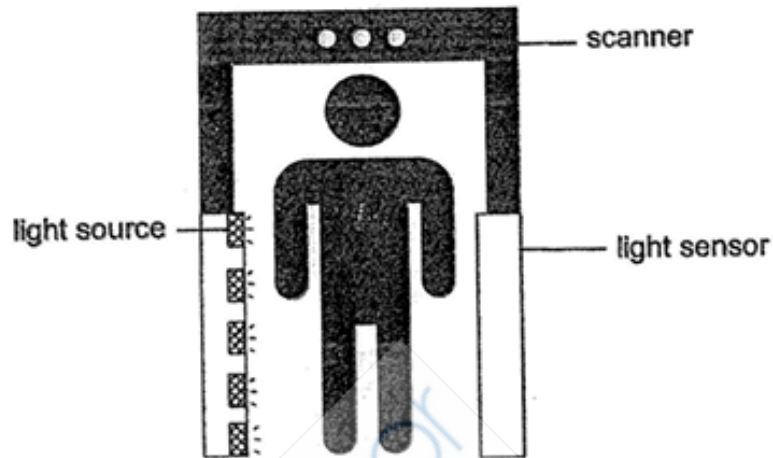


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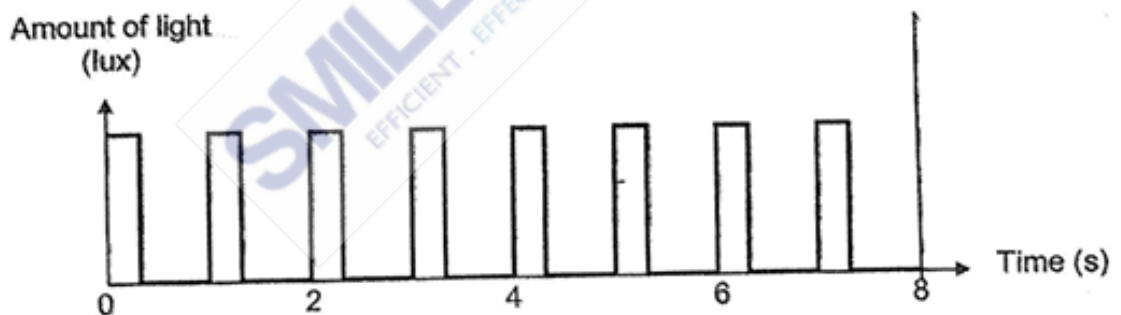


Continued from page 26

The diagram shows a scanner that counts the number of people entering a concert hall. A light sensor and light source were placed on the scanner as shown. The light sensor detects the light coming from the light source.



The scanner is only wide enough for one person to pass through at a time. The graph shows the readings from the light sensor.



- (c) Based on the graph, how many people passed through the scanner within eight seconds? [1]

36. David filled two identical mugs with equal amounts of chocolate drink and milk with a temperature  $50^{\circ}\text{C}$  and  $27^{\circ}\text{C}$  respectively. Then he placed the mugs of drink in the refrigerator overnight.

Next morning, David took the mugs out of the refrigerator and he immediately measured the temperature of the chocolate drink and milk at the same time.

The temperatures of the chocolate drink and milk are shown in the table.

Drink	Temperature ( $^{\circ}\text{C}$ )
Chocolate drink	(a) _____
Milk	3

- (a) Complete the table with the correct temperature of the <sup>Chocolate drink</sup> ~~milk~~ after it was taken out from the refrigerator. [1]

- (b) Explain your answer in (a). [2]

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David touched the mug of milk which was taken out of the refrigerator as shown in the diagram.



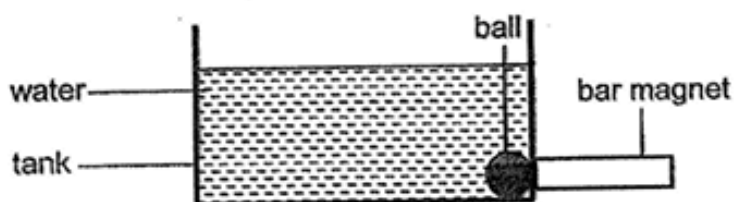
- (c) He commented that his hand felt cold. Explain why his hand felt cold. [1]

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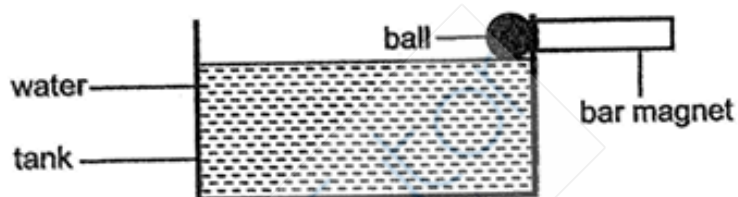


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37. Helen used a magnet to remove a ball that had dropped inside a tank. She placed the bar magnet against the tank, near the ball as shown in the diagram.



Then, Helen moved the bar magnet and ball upwards as shown below.

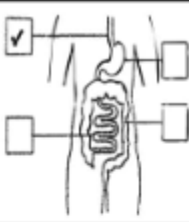


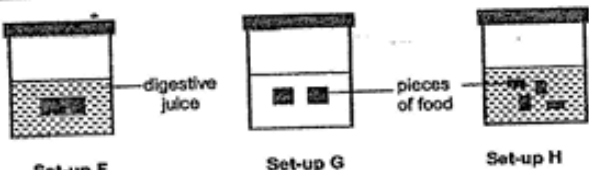
- (a) State the property of the tank that enabled the ball to move up together with the magnet? [1]
- 
- (b) Suggest an example of a material that the tank can be made of. [1]
- 
- (c) Explain how Helen was able to remove the ball from the tank. [2]
- 
-

## ANSWER SHEET

Q1	3
Q2	4
Q3	3
Q4	4
Q5	4
Q6	2
Q7	2
Q8	3
Q9	4
Q10	1
Q11	1
Q12	2
Q13	2
Q14	3
Q15	3

Q16	1
Q17	4
Q18	3
Q19	1
Q20	4
Q21	2
Q22	1
Q23	3
Q24	1
Q25	1

Q26	 <p>a) <input checked="" type="checkbox"/>           b) Food from the gullet is next passed on to the stomach</p>
Q27	<p>a) i) leaf          ii) stem</p> <p>b) i) Set-up X. The plant for Set-up X had more roots than the plant for Y. Thus, set-up X's plant was able to absorb more water through its roots for the plant.          ii) Yes. It has <u>leaf</u> to make food and roots to absorb water.</p>
Q28	<p>a) *is lighter than*          b) *is heavier than*</p>
Q29	The ice cube on the glass rod melts slower than the ice cube on the metal rod as glass is a poorer conductor of heat than metal.
Q30	<p>a) Plastic is a non-magnetic material.          b) Magnet B was repelling magnet A.</p>
Q31	<p>a) Part B, the mass of part B decreases as the plant grows. The baby plant uses, absorbs nutrients from part B as the plant grows.          b) 3          c) The seed in set-up N. The seed has air, water, warmth. These factors are required for the seed to germinate.</p>

Q32	a)	 <p>Set-up F                      Set-up G                      Set-up H</p>
	b)	140
	c)	The pieces of food in Set-up G is smaller than Set-up F, so it has a larger surface <sup>area</sup> are in contact with the digestive juices, resulting in a faster rate of digestion.
Q33	a)	Strip C. It could bend the greatest distance. Hence, it is the most flexible to make it into a belt as I can wrap, bend around the waist of a person.
	b)	No. Material E started to break when a mass of 100g was hung on it. Hence it is not strong enough to with stand the weight of the calendar which is heavier than 100g.
Q34	a)	The reading on the electronic balance would increase after some air was pumped into the water dispenser.
	b)	There is more air in the water dispenser which has mass
	c)	Remove some water from the water dispenser. The air will occupy the space previously occupied by the water. As air does not have a definite volume.
Q35	a)	Material R. No light was detected by the light sensor when R was placed on either position 1 or 2. Thus, no light can pass through Material R so it can be used to make a curtain that blocks all light from entering.
	b)	Jeremy conducted the experiment in a dark room to ensure that the light detected by the light sensor is only from the light source, which is the torch, and not from some other light source in the room.
	c)	8
Q36	a)	3
	b)	The chocolate drink lost heat to the cold air in the fridge until it reached the same temperature as the cold air in the fridge.
	c)	His hand lost heat to the cold mug of milk.
Q37	a)	Non-magnetic material
	b)	Plastic
	c)	The magnet's magnetic force passes through the tank which is non-magnetic. The magnet attracted the ball and moved it up.



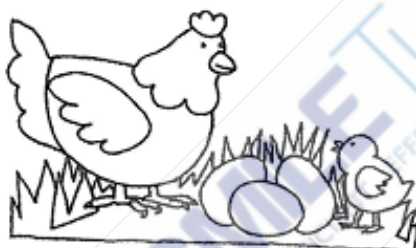
## RED SWASTIKA SCHOOL MYE PAPER

For Questions 1 to 24, choose the most suitable answer and shade its number in the OAS provided.

1. Which one of the following is a similarity between plants and animals?

- (1) Both are non-living things.
- (2) Both need light to make food.
- (3) Both need air, food and water to survive.
- (4) Both are able to move freely from one place to another.

2. A chicken lays eggs which hatch into chicks.



Which characteristic of living things does this show?

- (1) Living things can die.
- (2) Living things can breathe.
- (3) Living things can reproduce.
- (4) Living things can respond to changes.

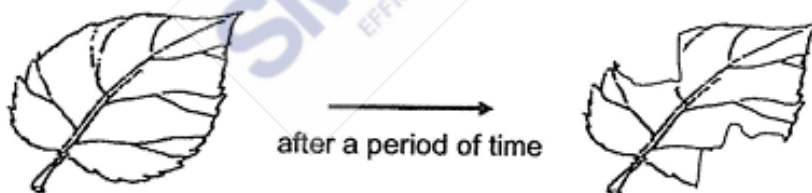
3. The table below shows the characteristics of four things, A, B, C and D. A tick (✓) indicates that the thing has the characteristic.

Characteristics	A	B	C	D
Has two wings	✓		✓	
Can reproduce	✓			✓
Has four legs		✓		
Has three body parts			✓	✓

Which one of the following is an insect?

- (1) A
- (2) B
- (3) C
- (4) D

4. Shawn observed how a leaf on a plant changed over a period of time.

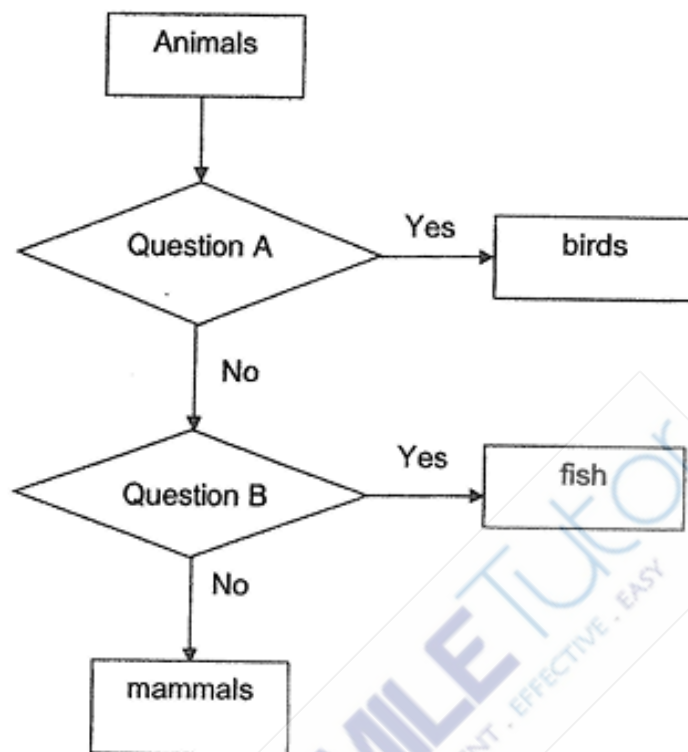


He noted that the change in the leaf was caused by a butterfly in one of its stages. Which stage was it?

- (1) egg
- (2) larva
- (3) pupa
- (4) adult



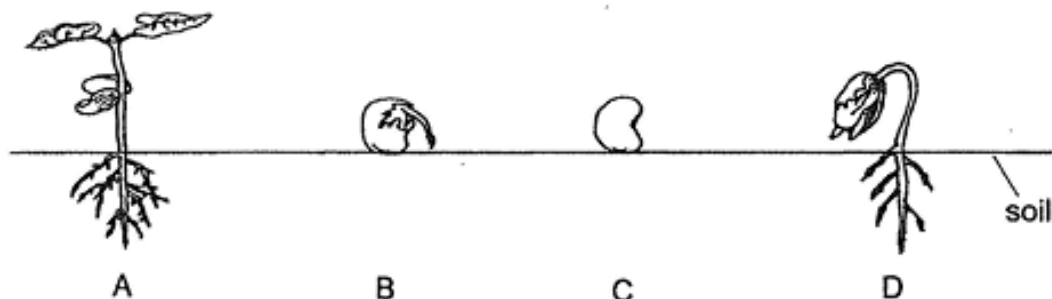
5. Study the flowchart below.



Which of the following best represent questions A and B?

	Question A	Question B
(1)	Does it have hair?	Does it have scales?
(2)	Does it have hair?	Does it have moist skin?
(3)	Does it have feathers?	Does it have moist skin?
(4)	Does it have feathers?	Does it have scales?

6. The diagram shows the different stages in the life cycle of the green bean plant.



Which one of the following shows the correct order of growth of the seed?

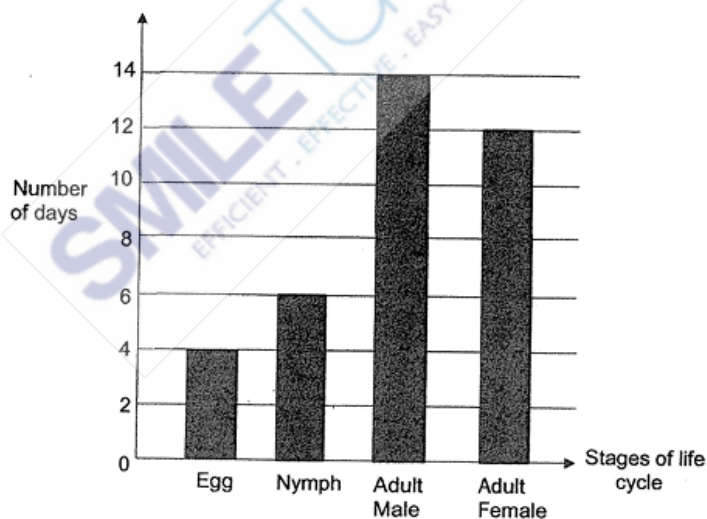
- (1) B → C → A → D
  - (2) C → D → A → B
  - (3) C → B → D → A
  - (4) A → C → B → D
7. What are the similarities between the life cycles of the cockroach and the cat?
- A: Their life cycles contain a seed stage.
  - B: Their young do not look like the adult.
  - C: There are three stages in their life cycles.
  - D: All the stages of their life cycles are spent on land.
- (1) A only
  - (2) C and D only
  - (3) A, B and C only
  - (4) A, B, C and D

8. Four mealworms, R, S, T and V, were placed in four different containers. 10 g of food was placed in each container. The amount of food left in the containers was recorded after five days.

Mealworm	Amount of food at the start of the experiment	Amount of food left after five days
R	10 g	10 g
S	10 g	7 g
T	10 g	3 g
V	10 g	1 g

Which mealworm is likely to be in the pupa stage?

- (1) R
  - (2) S
  - (3) T
  - (4) V
9. The graph below shows the number of days in each stage of the life cycle of insect X.

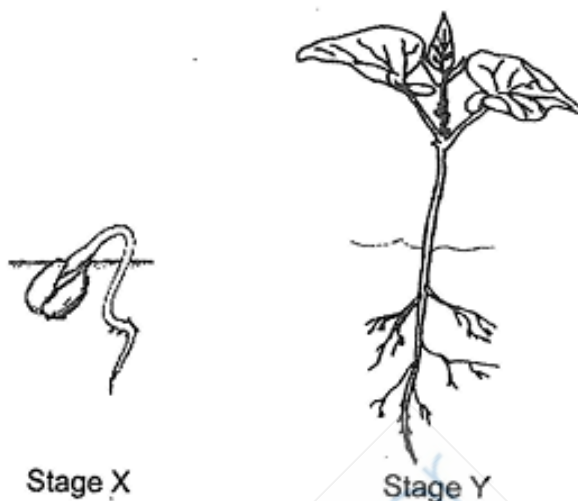


Based on the graph above, which of the following statements about the life cycle of insect X is/are correct?

- A: Insect X lives for 6 days as a nymph.  
 B: Insect X has 4 stages in its life cycle.  
 C: Insect X can only survive 6 days after hatching.

- (1) A only
- (2) A and B only
- (3) B and C only
- (4) A, B and C only

10. The diagram below shows two different stages of growth of a bean plant.



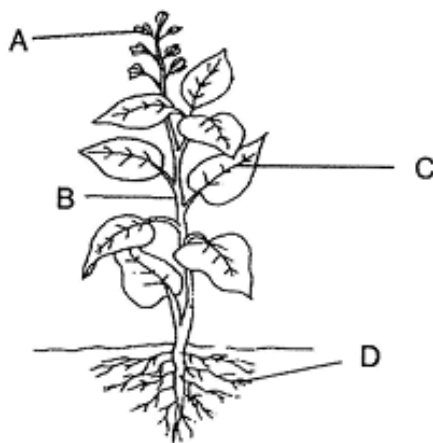
Which of the following statement(s) is/are true about the bean plant at stage X and stage Y?

- A: Both need to absorb sunlight to grow.
- B: Both can absorb water through their roots.
- C: Both have green leaves to make their own food.

- (1) A only
- (2) B only
- (3) B and C only
- (4) A, B and C

**ARE EXAMS COMING?**  
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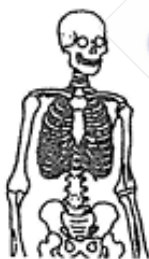
11. Look at the diagram below.



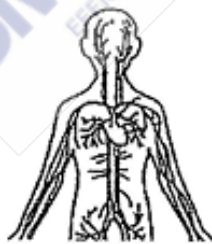
Which part of the plant holds it firmly to the ground?

- (1) A
- (2) B
- (3) C
- (4) D

12. The picture below shows two different body systems, P and Q.



System P

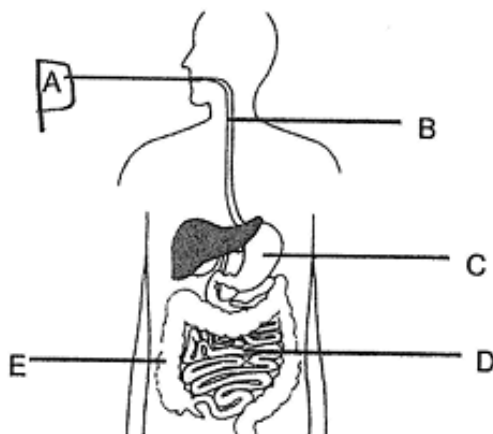


System Q

Which of the following correctly identifies P and Q?

	P	Q
(1)	Skeletal	Muscular
(2)	Muscular	Skeletal
(3)	Muscular	Circulatory
(4)	Skeletal	Circulatory

13. The diagram below shows the human digestive system.



Which parts of the digestive system produce digestive juices?

- (1) A and B only
  - (2) A, C and D only
  - (3) B, C and E only
  - (4) A, C, D and E only
14. Huiling carried out an experiment to find out if seeds need water to grow into seedlings. She put some seeds in each pot and watered them daily as shown below.

Pot	Amount of water given daily (cm <sup>3</sup> )	Number of seeds in each pot
A	100	10
B	None	20
C	None	10
D	200	30

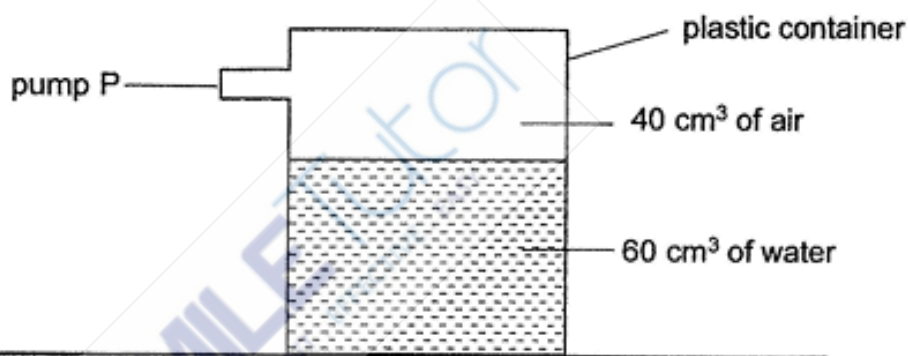
In order for the experiment to be fair, which two pots should Huiling use to find out if water is necessary for the seeds to grow into seedlings?

- (1) A and C
- (2) B and C
- (3) B and D
- (4) C and D

15. Which one of the following properties is true for both air and a pen?

- (1) They can be seen.
- (2) They take up space.
- (3) They have definite shapes.
- (4) They have definite volumes.

16. Study the set-up below. The volume of the container is  $100\text{ cm}^3$ .

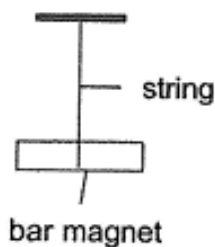


Brenda pumped an additional  $20\text{ cm}^3$  of air using pump P into the container. What would be the final volume of air in the container?

- (1)  $40\text{ cm}^3$
- (2)  $60\text{ cm}^3$
- (3)  $100\text{ cm}^3$
- (4)  $120\text{ cm}^3$



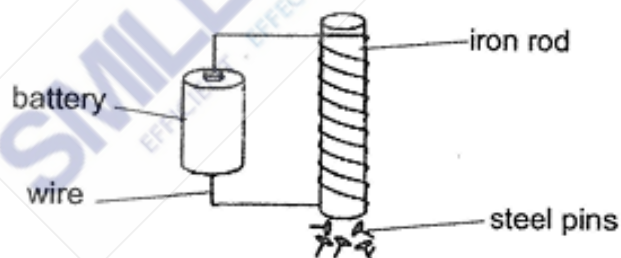
17. Sam tied a string to a bar magnet and allowed it to suspend freely.



In which direction will the freely-suspended bar magnet point to when it comes to rest?

- (1) South-East
- (2) South-West
- (3) North-West
- (4) North-South

18. Donny set up an electromagnet as shown in the diagram below.



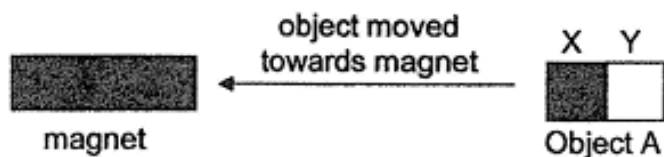
Which of the following can make the electromagnet attract more steel pins?

- A: Add one battery.
- B: Change the iron rod to a plastic rod.
- C: Increase the number of turns of wire around the iron rod.
- D: Decrease the number of turns of wire around the iron rod.

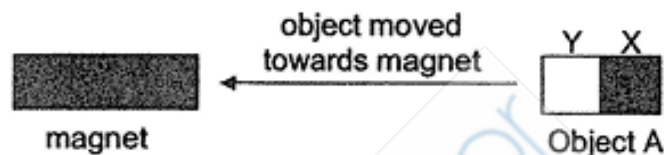
- (1) A only
- (2) B only
- (3) A and C only
- (4) B and D only

19. Jason brought object A towards a magnet as shown in step 1 and 2.

Step 1: He brought part X of Object A near to the magnet.



Step 2: He flipped Object A and brought part Y of Object A near to the magnet again.



He repeated step 1 and 2 with objects B and C and recorded his observations in the table below.

	Position X	Position Y
<b>Object A</b>	Attracted to magnet	Attracted to magnet
<b>Object B</b>	Did not move	Did not move
<b>Object C</b>	Attracted to magnet	Repelled away

What could objects A, B and C be?

	A	B	C
(1)	Magnetic object	Non-magnetic object	Magnet
(2)	Magnetic object	Magnet	Non-magnetic object
(3)	Magnet	Non-magnetic object	Magnetic object
(4)	Magnet	Magnetic object	Magnet

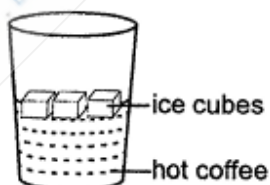
20. Which of the following statements about heat and temperature are true?

	Heat	Temperature
(1)	Heat is not a matter.	Temperature is a matter.
(2)	Heat is a form of energy.	Temperature is a measurement of how hot an object is.
(3)	Heat flows from a hotter place to a colder place.	Temperature is a form of energy.
(4)	Heat flows from a colder place to a hotter place.	Hot objects have a higher temperature.

21. Which of the following is a source of heat?

- (1) Pot
- (2) Moon
- (3) Spoon
- (4) Burning candle

22. Mark put some ice cubes into his cup of hot coffee.

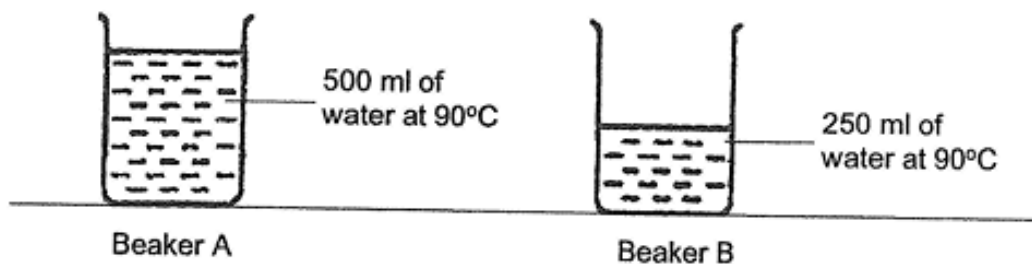


Which of the following changes will most likely take place?

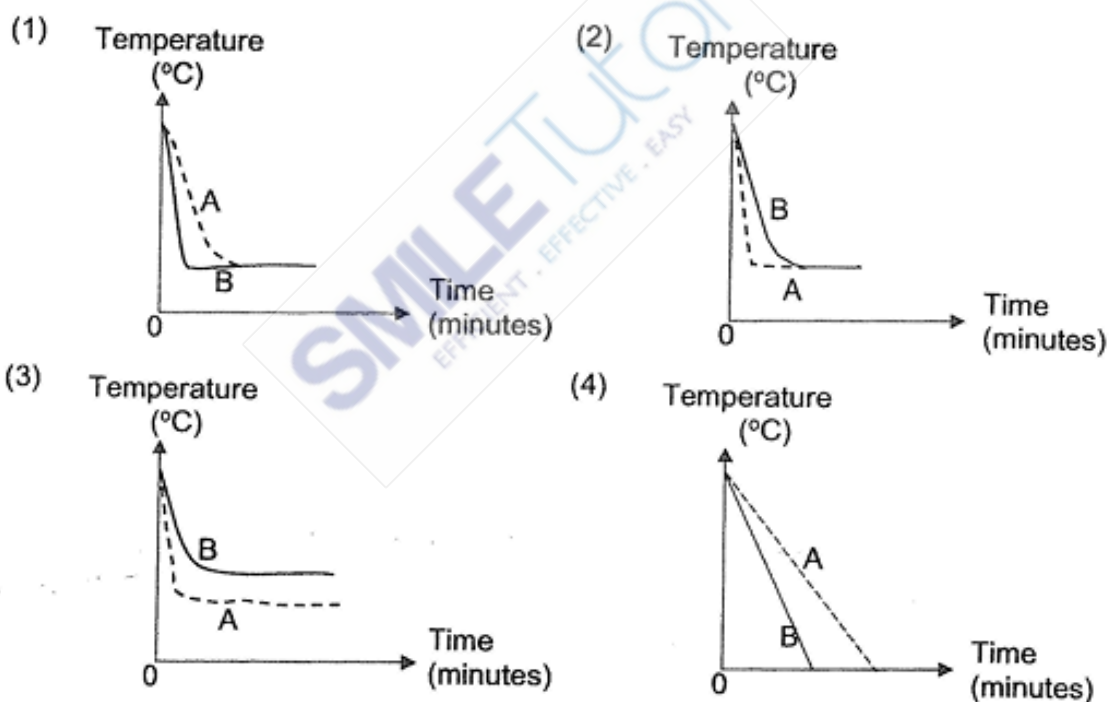
- A: The ice cubes gain heat.
- B: The hot coffee loses heat.
- C: The temperature of the coffee remains the same.
- D: The ice cubes change its state from solid to liquid state.

- (1) A and C only
- (2) B and C only
- (3) A, B and D only
- (4) B, C and D only

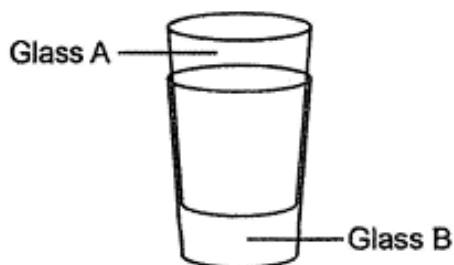
23. Two identical beakers, A and B, were filled with some water at  $90^{\circ}\text{C}$  as shown in the diagram below. They were placed on the table for some time.



Which of the following graphs shows correctly the decrease in temperature of the water in beakers A and B over a period of time?



24. Willy found two glasses, A and B, stuck together as shown in the diagram below. Glass A was inside Glass B.



Which one of the following is the best possible way for him to separate the two glasses?

- (1) Pour hot water into glass A and put glass B into hot water.
- (2) Pour hot water into glass A and put glass B into cold water.
- (3) Pour cold water into glass A and put glass B into hot water.
- (4) Pour cold water into glass A and put glass B into cold water.

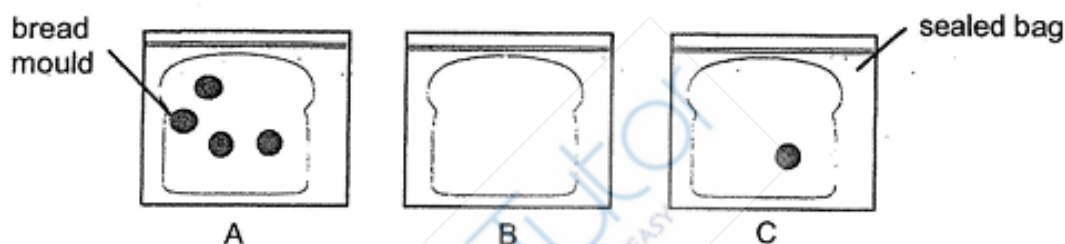
**End of Booklet A**

**Answer all the questions in the space provided.**

25. Mrs Tay carried out an experiment to observe the amount of mould growing on a bread. She prepared three similar slices of bread in sealed bags and placed them in 3 different locations as shown in the table below.

Location	air-conditioned room	freezer	cupboard
Temperature (°C)	17	0	32

She recorded her observations after one week and found that each slice of bread had different amounts of mould as shown below.



- (a) How does mould reproduce? (1m)

---

- (b) Which group of living things can mould be classified under? (1m)

---

- (c) Mrs Tay observed that bread A has the most amount of bread mould growing on it. Which location could bread A be possibly placed in? Explain your answer. (2m)

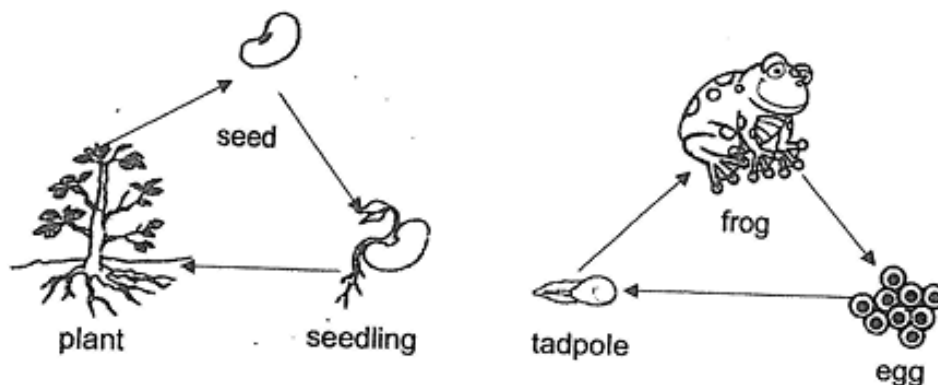
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26. The diagrams below show the life cycle of a bean plant and a frog.



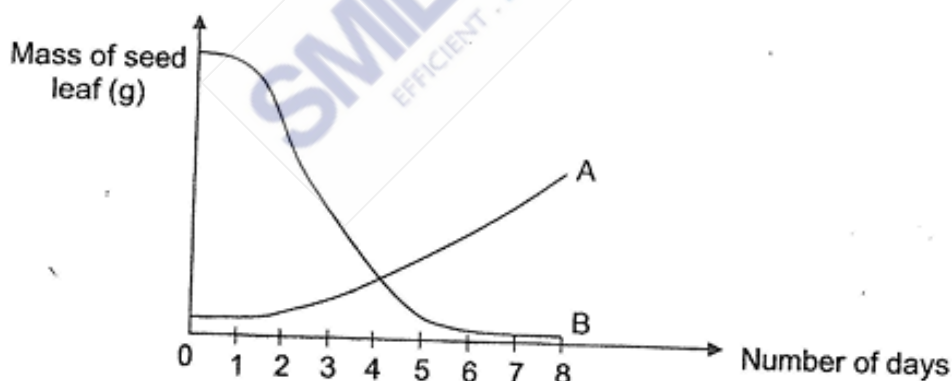
- (a) Based on the diagrams above, state one similarity between the life cycles of a bean plant and a frog? (1m)

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Ethan planted a seed in his garden. He observed the growth of his seedling every day and recorded the mass of the seed leaf in the graph shown below.



- (b) Which line, A or B, shows how the mass of the seed leaf changes during the experiment? Give a reason for your answer. (1m)

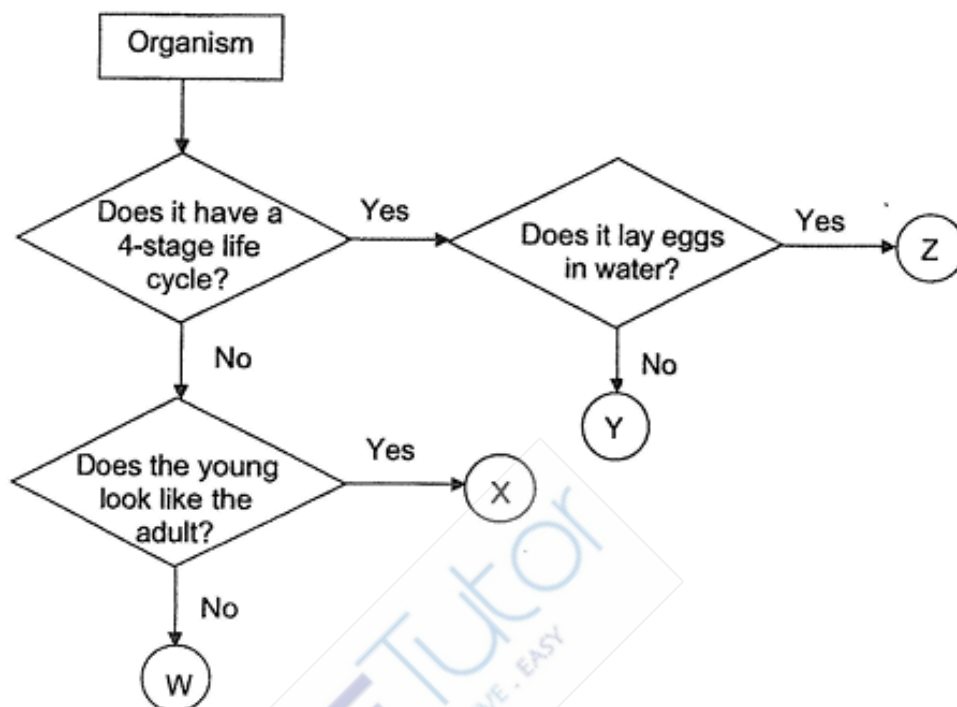
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27. Study the flow chart below.



- (a) Based on the flow chart, which letter (W, X, Y or Z) represents a chicken and a butterfly? (2m)

chicken: \_\_\_\_\_

butterfly: \_\_\_\_\_

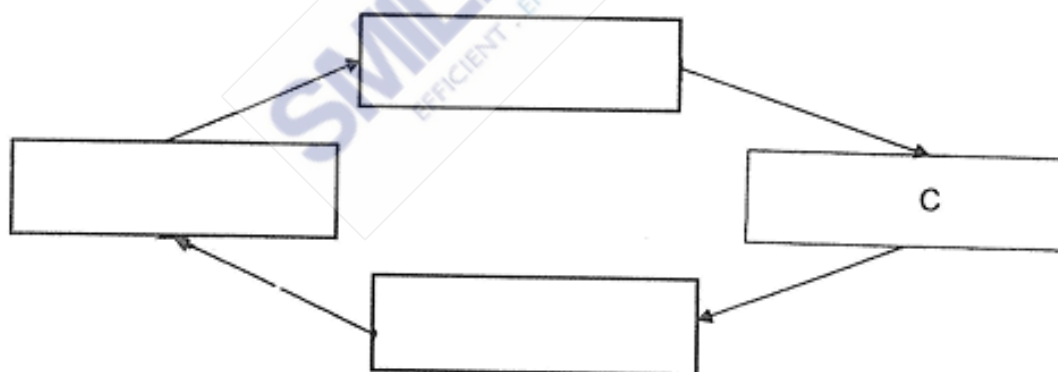
27. Daniel described the stages in the life cycle of Animal X as shown below.



Animal X

- Stage A: It moults several times and eats a lot.  
 Stage B: It emerges with wings and feeds on blood.  
 Stage C: Eggs are laid in water.  
 Stage D: It does not move or eat at all.

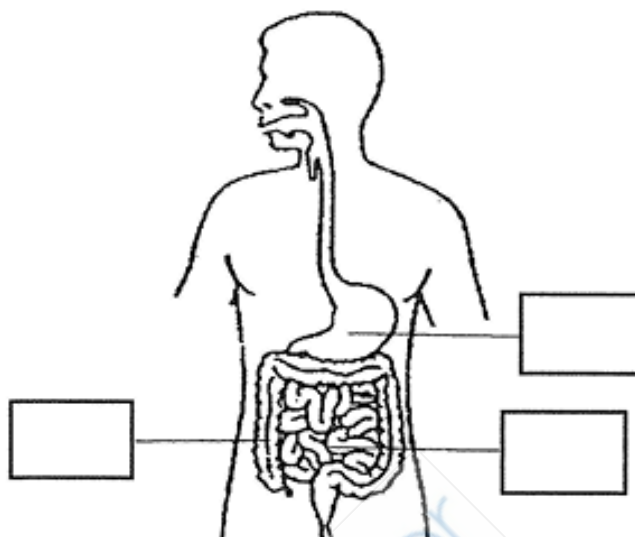
- (b)(i) Arrange the stages in the life cycle of Animal X in the correct order. (1m)



- (ii) Based on the life cycle above, at which stage does the animal not live in water? (1m)

Stage \_\_\_\_\_

28. The diagram below shows the human digestive system.



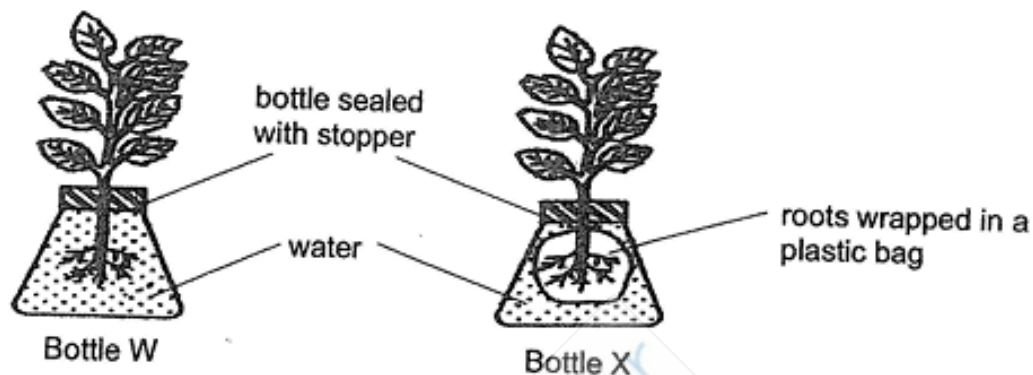
- (a) On the above diagram, put a tick (✓) in the box that shows digestion being completed. (1m)
- (b) The following statements describe the process in digesting an apple in different parts of the digestive system.

- A: Here, the digested food is passed into the blood stream.  
 B: The undigested parts of the apple are stored here to be removed from the body.  
 C: The apple is broken into smaller pieces through chewing motion.  
 D: The apple travels down a muscular tube.

Arrange the processes (A, B, C and D) in the correct order of sequence. (2m)



29. Yianwei placed two similar plants into bottle W and bottle X. The roots of the plant in bottle X was wrapped with a plastic bag. He sealed each bottle with a stopper as shown below. After a week, Yianwei observed that the water level in one bottle remained the same, while the water level in the other bottle decreased.



- (a) Based on the set-ups above, what was the aim of Yianwei's experiment? (1m)

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- (b) In which bottle did the water level remain the same? (1m)

Bottle \_\_\_\_\_

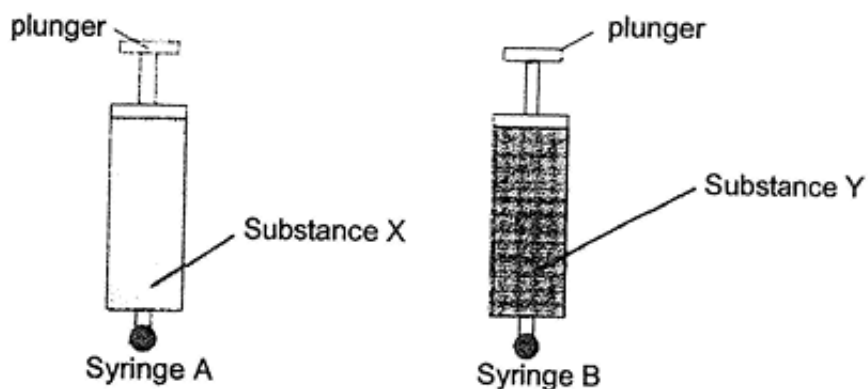
- (c) Give a reason for your answer in (b). (1m)

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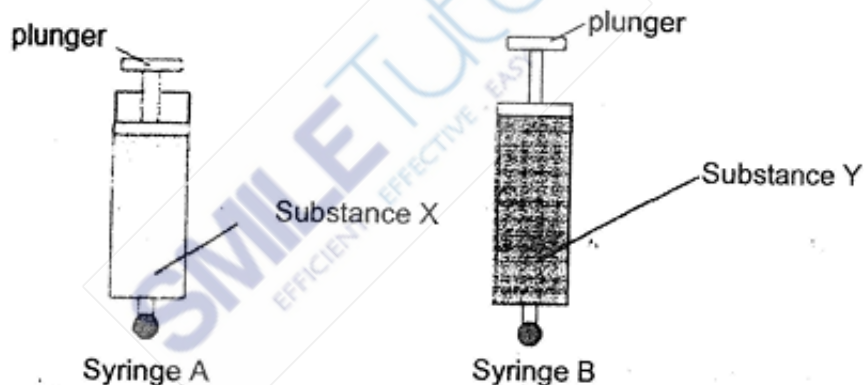
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30. Sam filled syringes A and B with substances X and Y respectively in diagram 1.



**Diagram 1 (before the plunger was pushed)**

When Sam pushed the plungers, he could push the plunger of Syringe A but could not push the plunger of Syringe B as shown in diagram 2.



**Diagram 2 (after the plunger was pushed)**

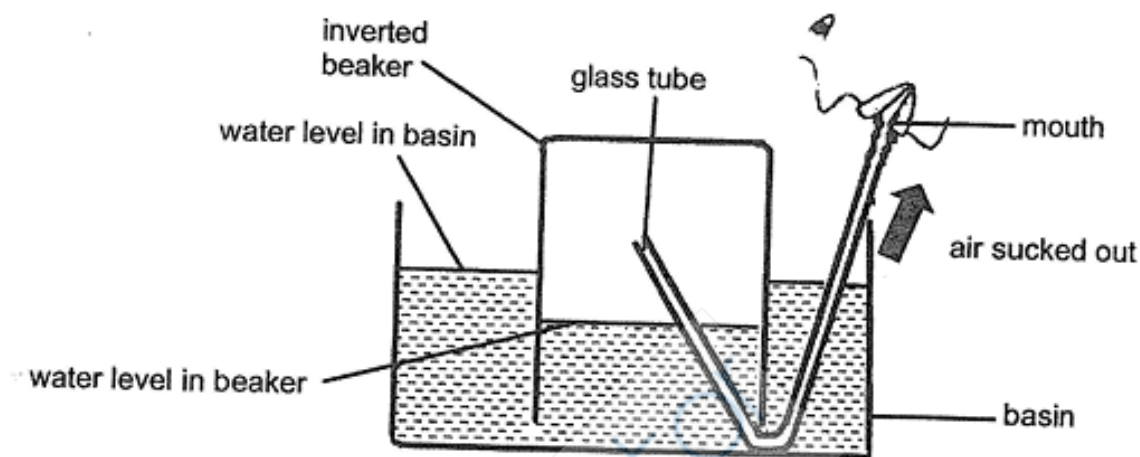
- (a) Based on the diagram 2 above, name the correct state of matter of Substance X.  
(1m)

Substance X: \_\_\_\_\_

- (b) State a property of substance X that allows you to obtain your answer in (a).  
(1m)

\_\_\_\_\_

31. A beaker was inverted into a basin of water. One end of a glass tube was placed under the beaker as shown below.



- (a) The water level in the beaker increased when the air was sucked out from the beaker using the glass tube. Explain why this happened. (2m)

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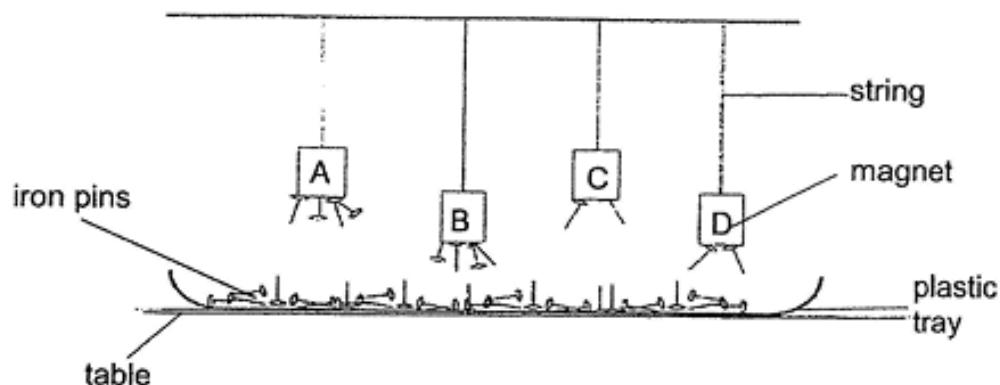
- (b) Without changing the set-up or adding more water, what can be done to increase the water level in the basin? (1m)

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32. Lilian used four similar magnets A, B, C and D to find out which magnet could attract more iron pins in the set-up below.



Iron pins were placed below the magnets and different numbers of iron pins were attracted to the magnets.

- (a) Based on the diagram, which magnet has the greatest magnetic strength? (1m)

---

- (b) Explain your answer in (a). (1m)

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- (c) Lilian repeated the experiment by replacing the tray of iron pins with aluminium pins.

Predict the number of aluminium pins attracted to the magnets. Explain your answer. (2m)

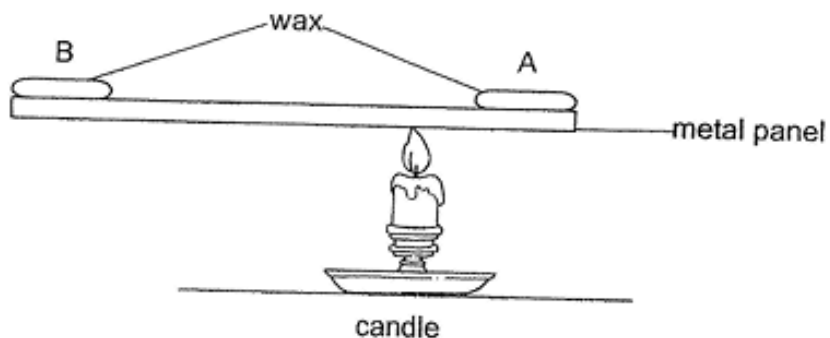
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33. Eileen heated the metal panel with a candle. There were two pieces of wax, A and B, on the metal panel as shown below.

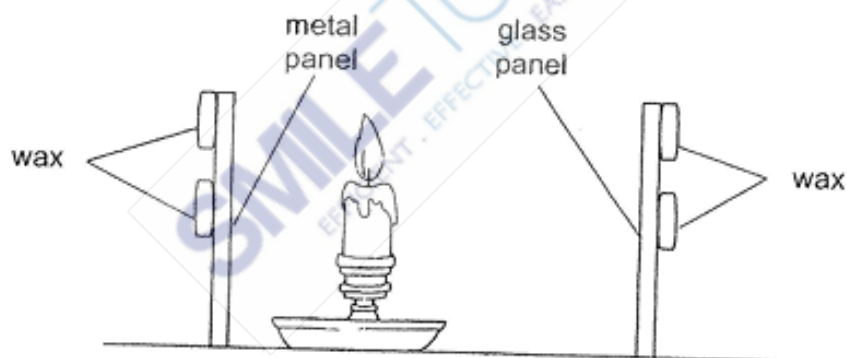


- (a) Which wax would be the first to melt? Explain your answer. (2m)

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- (b) Eileen set up another experiment as shown above to find out if the material of panels would affect the time taken for the wax to melt. Her friend, Ella, said that the set-up was unfair.

Suggest how she could make the experiment a fair one. (1m)

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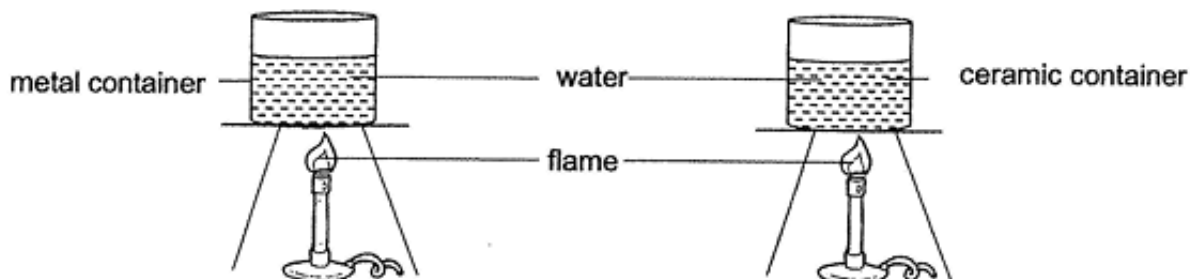


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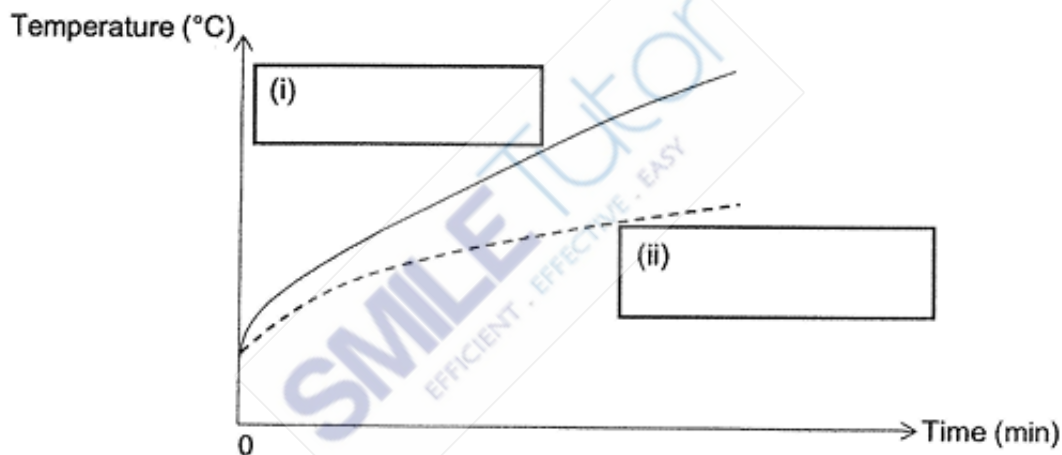
34.



The set-up below shows two similar containers made of different materials. The containers were of the same size and thickness. They were filled with the same amount of water and were heated over a flame.



The temperatures of the water in both containers were measured every minute for some time. The results of the experiment were recorded in the graph below.



- (a) In the graph above, fill in the appropriate boxes with the words "metal" or "ceramic". (2m)
- (b) Mrs Tan cooked some soup for her daughter. She wanted to use a container that would keep the soup warm for a longer time.  
Based on the answer in part(a), which material of the bowl should Mrs Tan choose and why? (2m)

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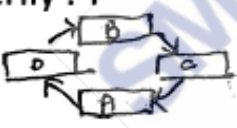
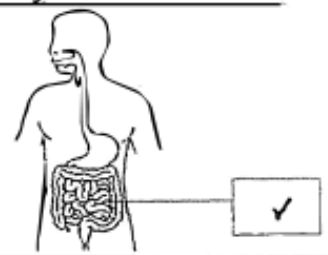
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## ANSWER SHEET

### Booklet A

Q1	3	Q2	3	Q3	4	Q4	2	Q5	4
Q6	3	Q7	2	Q8	1	Q9	1	Q10	2
Q11	4	Q12	4	Q13	2	Q14	1	Q15	2
Q16	1	Q17	4	Q18	3	Q19	1	Q20	2
Q21	4	Q22	3	Q23	1	Q24	3		

### Booklet B

Q25	(a) It reproduces by spores. (b) Fungi (c) In the cupboard. It has the highest temperature which allows the most amount of mould to grow.	
Q26	(a) Both the bean plant and the frog have 3 stages in their life cycle. (b) Line B. The food stored in the seed leaf was eaten so the plant can grow.	
Q27	(a) Chicken : X Butterfly : Y  (b)(i) (ii) Stage B	<div style="border: 1px solid black; padding: 5px;"> <div style="display: flex; justify-content: space-between;"> <span>28a</span> <span>Key Idea: Able to ide</span> </div>  </div>
Q28	(a) (b) C -> D -> A -> B	
Q29	(a) To find out if roots absorbs water. (b) Bottle X (c) The roots were wrapped and could not absorb water.	
Q30	(a) Substance X : Gas (b) Air can be compressed	
Q31	a) When the air was sucked out from the inverted beaker,	

	<p>water entered the beaker to take up the space previously occupied by the air.</p> <p>(b) He could blow air through the glass tube into the inverted beaker.</p>
Q32	<p>(a) Magnet A</p> <p>(b) Magnet A attracted the most number of pins from the furthest distance.</p> <p>(c) Aluminium is a non-magnetic material so the aluminium pins cannot be attracted to the magnet.</p>
Q33	<p>(a) Wax A will melt first. Since it is nearest to the candle flame than Wax B, it will gain heat faster and melt.</p> <p>(b) The distance between the candle to each panel should be the same.</p>
Q34	<p>(a)(i) metal</p> <p>(ii) ceramic</p> <p>(b) Ceramic as it is a poorer conductor of heat than metal.</p>

## RED SWASTIKA SCHOOL EOY PAPER

For questions 1 to 28, choose the most suitable answer and shade its number in the OAS provided.

1. A millipede curls itself up when touched.



a millipede  
(before touching)



a millipede curls up  
(after touching)

This shows that the millipede is a living thing because it can \_\_\_\_\_.

- (1) die
- (2) move
- (3) respond
- (4) reproduce

2. Which one of the following objects can be bent easily without breaking?

(1)



A glass cup

(2)



A shirt

(3)



A plastic fork

(4)



A wooden ruler

3. Which one of the following shows the correct order when food moves through some parts of the digestive system?

(1)



stomach

small intestine

large intestine

(2)



large intestine

small intestine

stomach

(3)



small intestine

stomach

large intestine

(4)

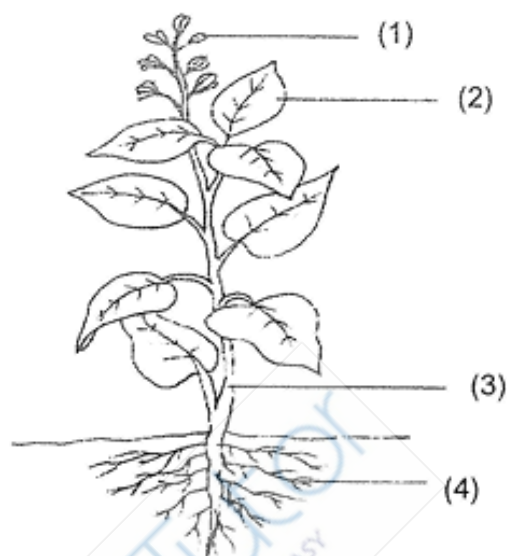


stomach

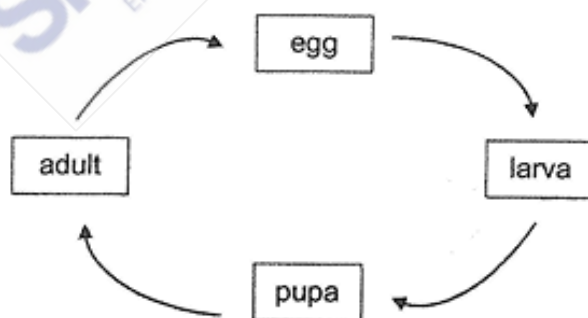
large intestine

small intestine

4. Which part (1), (2), (3) or (4) takes in water for the plant?



5. The diagram below shows the life cycle of an animal.

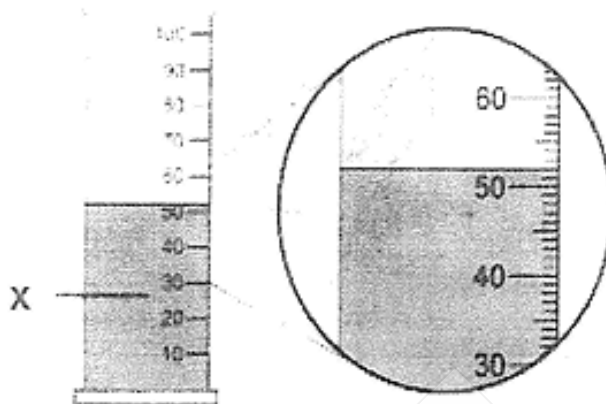


Which animal is most likely to have the life cycle as shown above?

- (1) frog
- (2) beetle
- (3) chicken
- (4) grasshopper



7. In the diagram, what is the volume of liquid X?



- (1) 51 ml
- (2) 52 ml
- (3) 62 ml
- (4) 68 ml

8. Which one of the following is a source of light?

(1)



a fire

(2)



a mirror

(3)



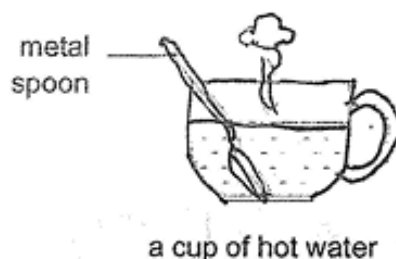
a moon

(4)



an apple

9. Rahman places a metal spoon into a cup of hot water.

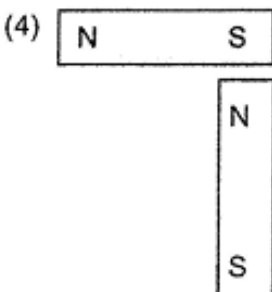
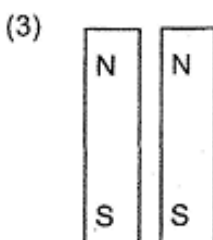
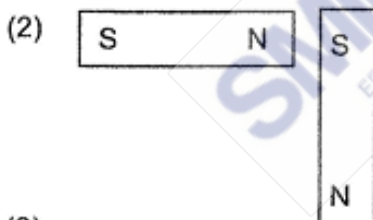
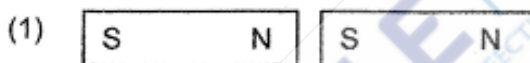


The spoon becomes hotter after a while.

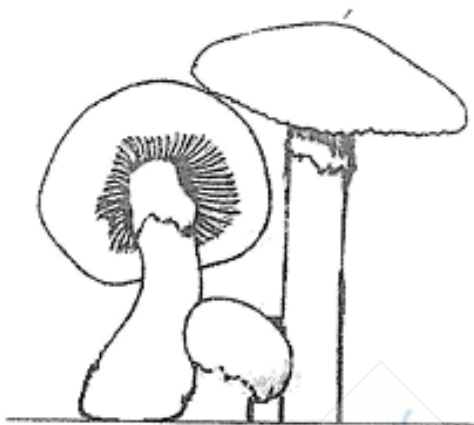
Which one of the following explains this?

- (1) The cup loses heat to the hot water.
- (2) The spoon loses heat to the hot water.
- (3) The spoon gains heat from the hot water.
- (4) The hot water gains heat from the spoon.

10. In which one of the following will the two magnets push each other away?



11. Ben found the following type of organism growing in the school field.



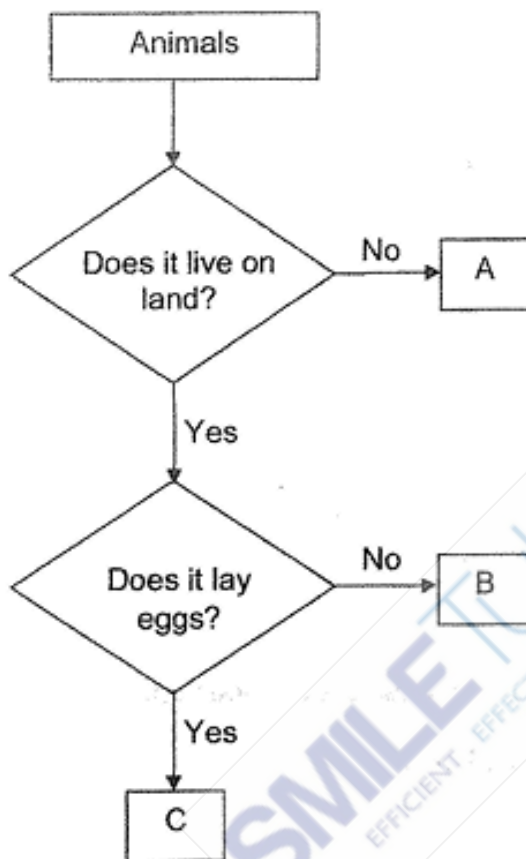
He made the following statements about the organism.

- A : They are fungi.
- B : They can reproduce.
- C : They are plants without leaves.
- D : They are non-flowering plants because they contain spores.

Which of the following statements is/are correct?

- (1) A only
- (2) A and B only
- (3) B and D only
- (4) C and D only

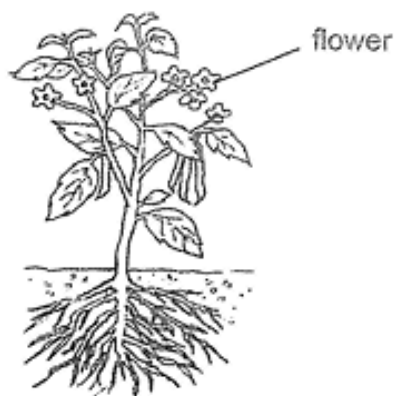
12. Study the flowchart below.



Which of the following shows the correct animal groups for A, B and C?

	A	B	C
(1)	insect	mammal	fish
(2)	mammal	fish	insect
(3)	fish	insect	mammal
(4)	fish	mammal	insect

13. Heidi observed two plants in her school garden.

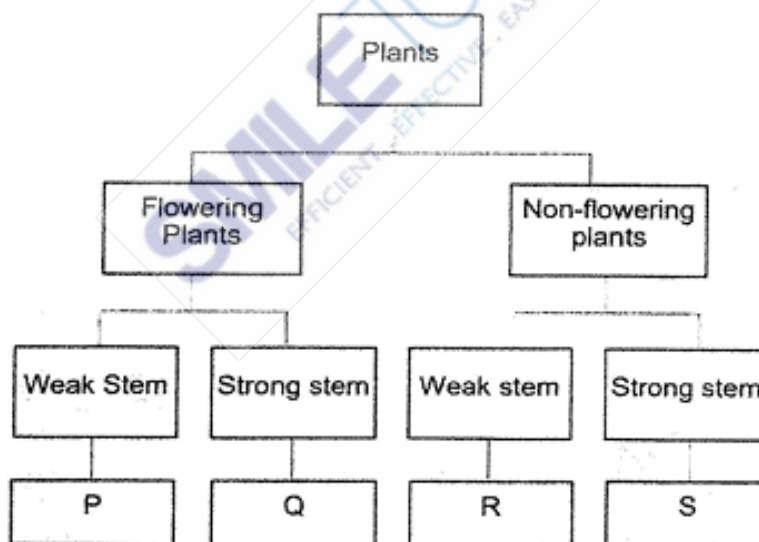


**Plant A**



**Plant B**

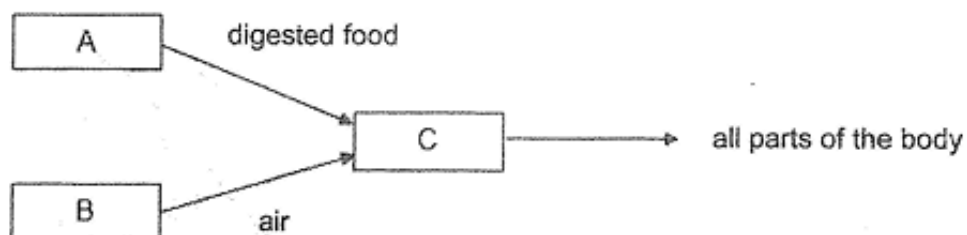
Based on her observations, she classified both plants into the classification chart below.



Which letters, P, Q, R, and S in the chart best represent Plant A and Plant B?

	Plant A	Plant B
(1)	Q	R
(2)	Q	S
(3)	P	S
(4)	S	Q

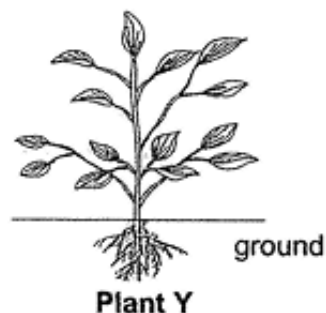
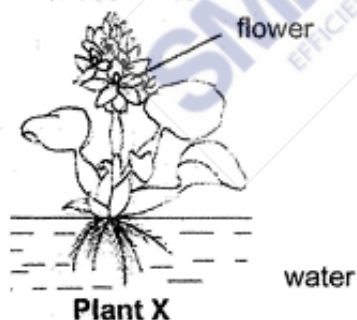
14. The diagram below shows how three body systems, A, B and C, work together to transport digested food and air to all parts of the body.



Which one of the following identifies systems, A, B and C correctly?

	A	B	C
(1)	digestive	respiratory	circulatory
(2)	digestive	circulatory	respiratory
(3)	circulatory	digestive	muscular
(4)	skeletal	digestive	circulatory

15. Observe the two plants carefully.

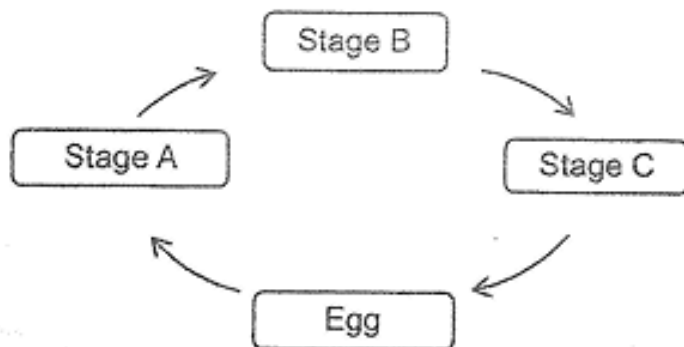


Based on your observations, which of the following statements about the two plants are true?

- A Plant X has flowers but plant Y does not.
- B Both plant X and plant Y have roots.
- C Both plant X and plant Y are land plants.

- (1) A and B only
- (2) A and C only
- (3) B and C only
- (4) A, B and C

16. The diagram shows the life cycle of a butterfly.



Which one of the following shows stages A, B and C correctly?

	Stage A	Stage B	Stage C
(1)	Adult	Larva	Pupa
(2)	Pupa	Adult	Larva
(3)	Pupa	Larva	Adult
(4)	Larva	Pupa	Adult

17. Seeds W, X, Y and Z from a plant are placed under the conditions as shown.

seed	conditions			
	water	air	light	Temperature (°C)
W	√	X	√	25
X	√	√	X	25
Y	X	√	X	5
Z	X	√	√	5

Key

√ : present

X : absent

Which seed can germinate?

- (1) W
- (2) X
- (3) Y
- (4) Z



18. Diagram 1 below shows 3 substances, R, S and T, placed in identical containers on a table.

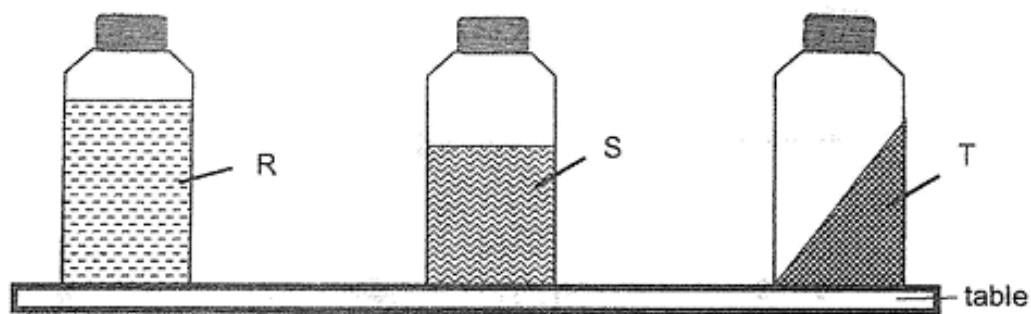


Diagram 1

These containers are then placed in a different position as shown in diagram 2 below.

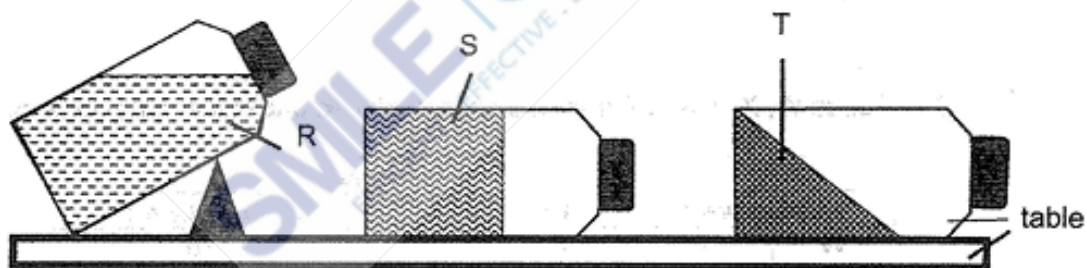


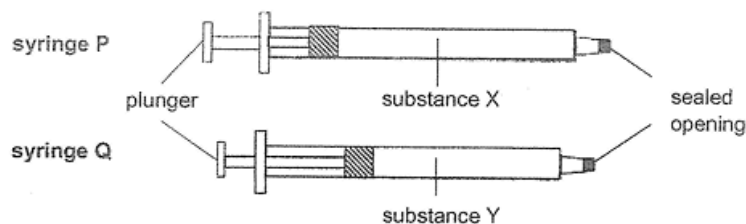
Diagram 2

Based on the two diagrams, which of the following conclusions about the substances are correct?

- A : Substance R is a liquid.
- B : Substance T is a solid.
- C : Only substances S and T have definite shapes.
- D : Only substances S and T have definite volumes.

- (1) A and D only
- (2) B and C only
- (3) A, B and C only
- (4) A, B, C and D

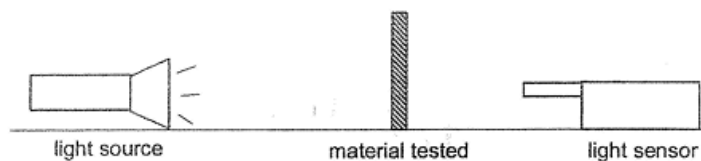
19. Two identical syringes, P and Q, contain substances X and Y respectively. One end of each syringe is sealed. The plunger in syringe P could not be pushed in while the plunger in syringe Q could be pushed in slightly as shown in the diagram below.



Which of the following substances are X and Y most likely to be?

	X	Y
(1)	air	water
(2)	carbon dioxide	oxygen
(3)	water	oil
(4)	water	air

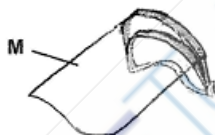
20. Four different materials A, B, C and D of equal length and thickness were used in an experiment set-up shown below.



A light sensor was used to measure the amount of light that can pass through each material. The results are shown in the table below.

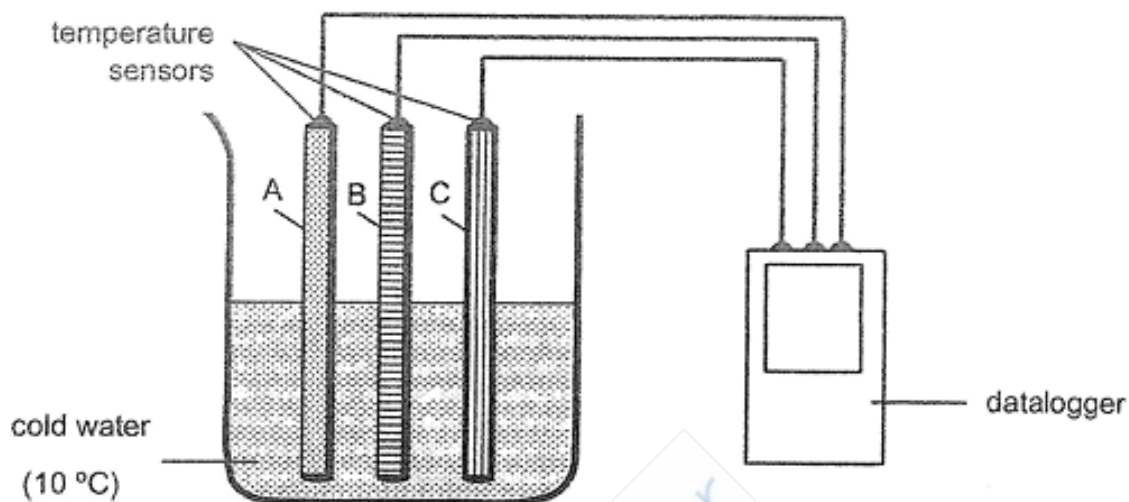
Material	Amount of light (units)
No material	5000
A	4800
B	390
C	2500
D	25

Based on the picture, which material A, B, C or D is most suitable for making part M of a face shield?



- (1) A
- (2) B
- (3) C
- (4) D

21. Three rods made of different materials are placed into a beaker of cold water.



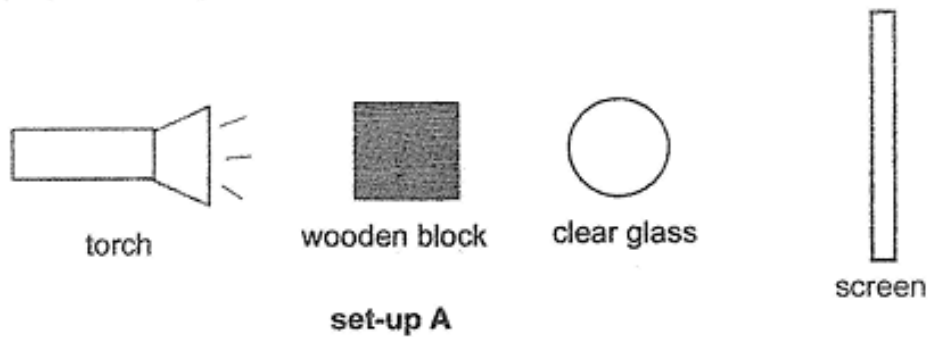
The table below shows how the temperature of each rod changed after ten minutes.

Rod	Temperature of rods (°C)	
	Before being placed in the cold water (°C)	After being placed in cold water (°C)
A	25	15
B	25	22
C	25	19





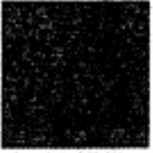



Based on the results above, arrange the rods according to how well they conduct heat, starting from the best to the poorest conductor of heat.

	best	→	poorest
(1)	A	B	C
(2)	B	C	A
(3)	A	C	B
(4)	C	B	A

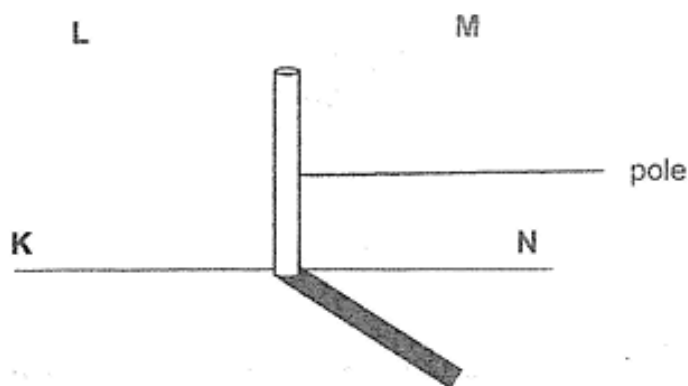
22. Mrs Tan demonstrated to her students how shadows were formed. She prepared set-ups A and B as shown below.



What would the students see on the screen of each set-up?

	set-up A	set-up B
(1)		
(2)		
(3)		
(4)		

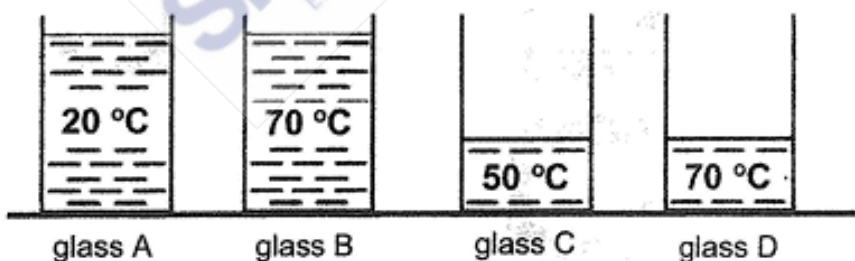
23. Study the diagram below. There is only one light source shining on the pole.



Based on the diagram above, which position, K, L, M or N best represents the position of the light source?

- (1) K
- (2) L
- (3) M
- (4) N

24. Ramesh carried out an experiment to find out how the volume of water affects the time taken for the water to be heated up to  $100^{\circ}\text{C}$ .



In order for the experiment to be fair, which two glasses should he use for his experiment?

- (1) A and B
- (2) A and D
- (3) B and C
- (4) B and D



25. Ben took an ice cube from the freezer and put it in a bowl. He left the bowl on the kitchen table for an hour. After that, he placed the bowl of water into the refrigerator. The temperature of the ice and water are recorded.

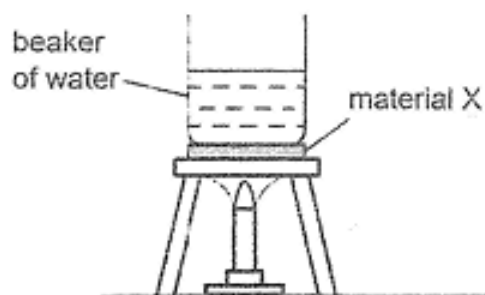


Which one of the following correctly describes what happens during X and Y?

	X	Y
(1)	The ice cube loses heat to the surroundings.	Water gains heat from the surroundings.
(2)	The ice cube gains heat from the surroundings.	Water loses heat to the surroundings.
(3)	The ice cube gains heat from the surroundings.	Water gains heat from the surroundings.
(4)	The ice cube loses heat to the surroundings.	Water loses heat to the surroundings.



26. Daniel poured 100 ml of water at room temperature into a beaker. He then placed material X below the beaker as shown below.



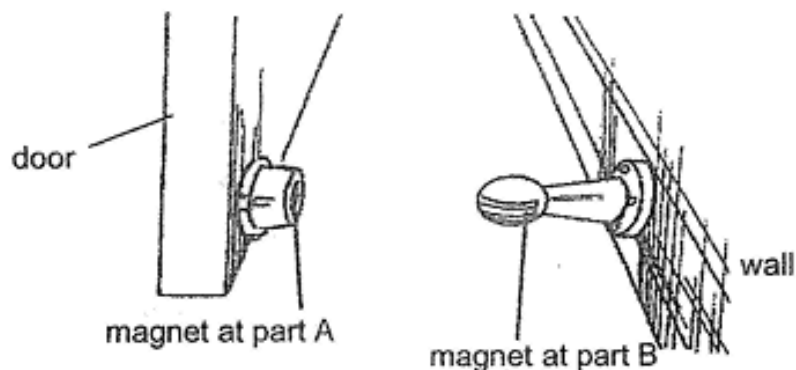
He heated the water in the beaker using a heat source. He then repeated the experiment with different materials, Y and Z that are of equal thickness. He recorded the time taken for the beaker of water to boil in the table below.

Material	Time taken for the water to boil (min)
X	2
Y	8
Z	5

Which one of the following statements is true?

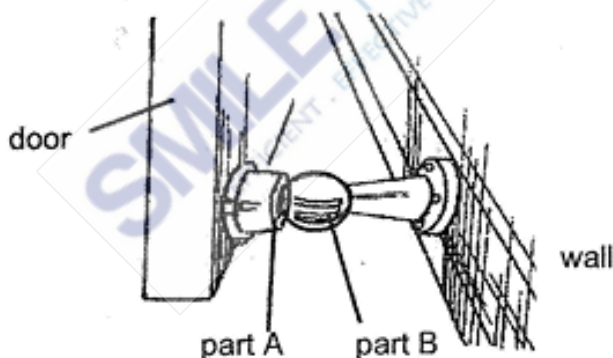
- (1) Material Y is the best conductor of heat.
- (2) Materials X, Y and Z can conduct heat equally well.
- (3) Material X is a better conductor of heat than Material Z.
- (4) Material Z is a poorer conductor of heat than Material Y.

27. Diagram 1 shows a magnetic doorstopper that has a magnet each at part A and part B.



**Diagram 1**

In order to keep the door open, part A and part B have to be in contact as shown below in diagram 2.

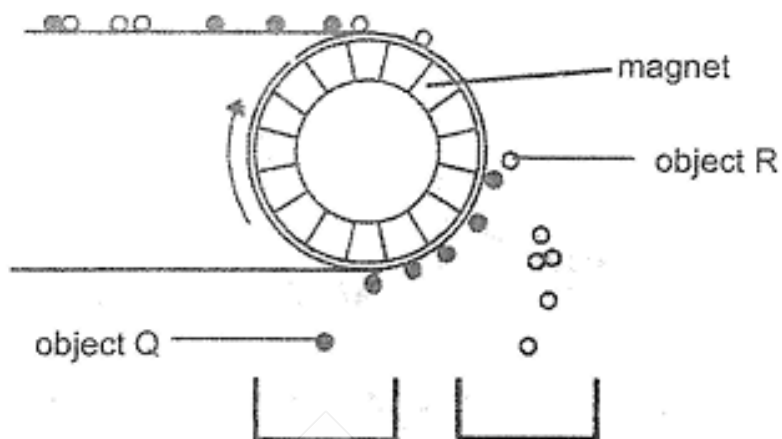


**Diagram 2**

Which one of the following statements explain how the magnets work together to keep the door open?

- (1) The like poles of both magnets repel each other.
- (2) The like poles of both magnets attract each other.
- (3) The unlike poles of both magnets repel each other.
- (4) The unlike poles of both magnets attract each other.

28. The diagram below shows a magnet is used to separate objects Q and R.



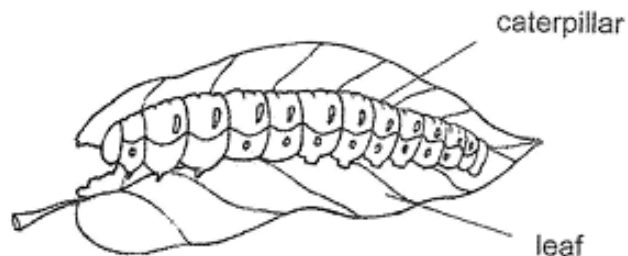
Which of the following materials are most likely to be Q and R?

	Q	R
(1)	plastic	aluminium
(2)	iron	plastic
(3)	aluminium	iron
(4)	iron	steel

**END OF BOOKLET A**

Answer all the questions in the space provided.

29. The diagram below shows a caterpillar.

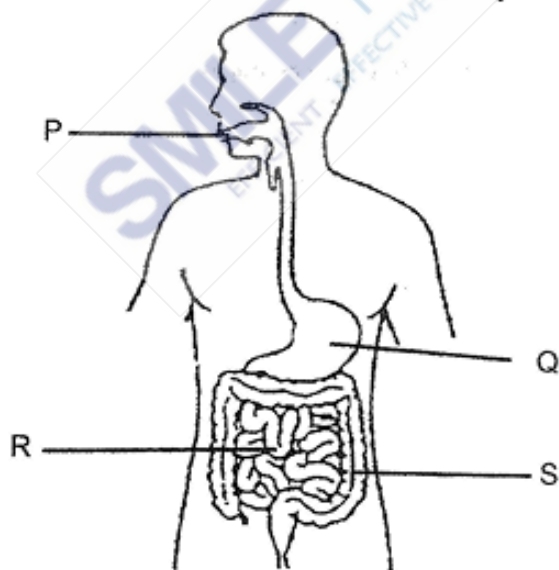


(a) The caterpillar needs air, food and \_\_\_\_\_ to survive. (1m)

(b) The caterpillar eats leaves and becomes bigger after some time.

This shows that it can \_\_\_\_\_ (1m)

30. The diagram below shows the human digestive system.

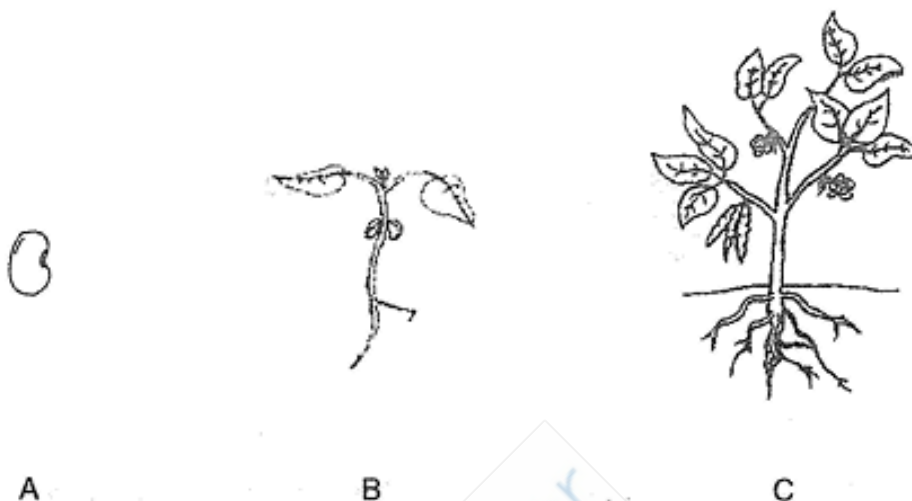


Identify the part (P, Q, R, S) where

(a) digestion is completed: \_\_\_\_\_ (1m)

(b) there is no digestion: \_\_\_\_\_ (1m)

31. The diagram below shows the stages in the life cycle of a plant.



Choose the correct words from the box to answer the question below.

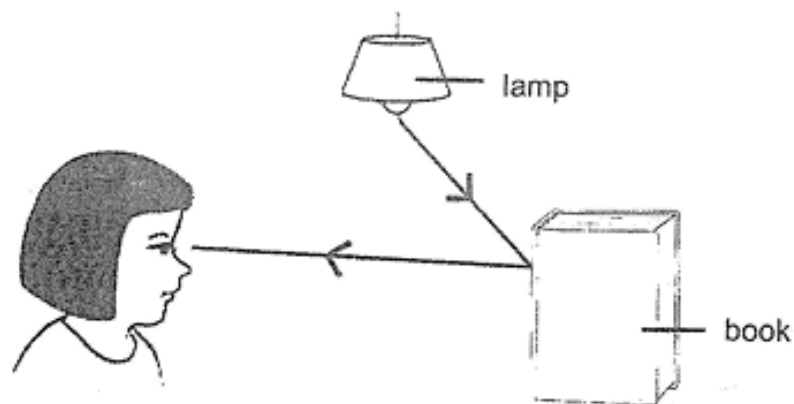
egg	seed	young plant	adult plant
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Name the stages A and B in the life cycle of the plant. (2m)

A: \_\_\_\_\_

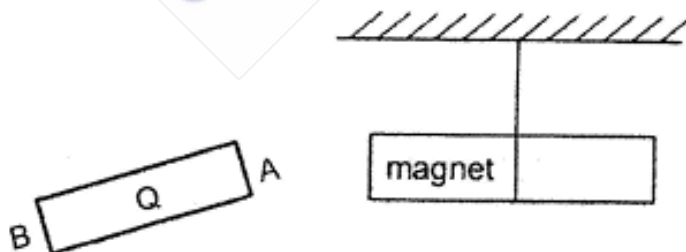
B: \_\_\_\_\_

32. The diagram below shows how Hui Li sees the book.



The \_\_\_\_\_ from the lamp is \_\_\_\_\_ by the book and enters Hui Li's eyes. (2m)

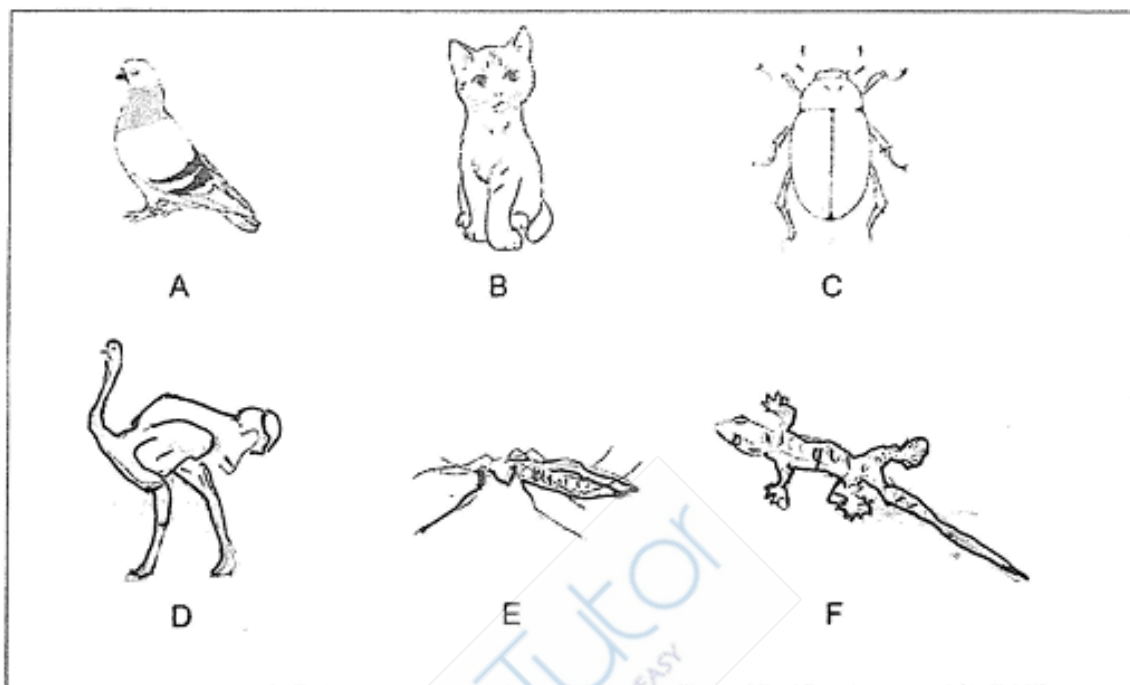
33. When end A of object Q is brought near a magnet as shown, the magnet moves away.



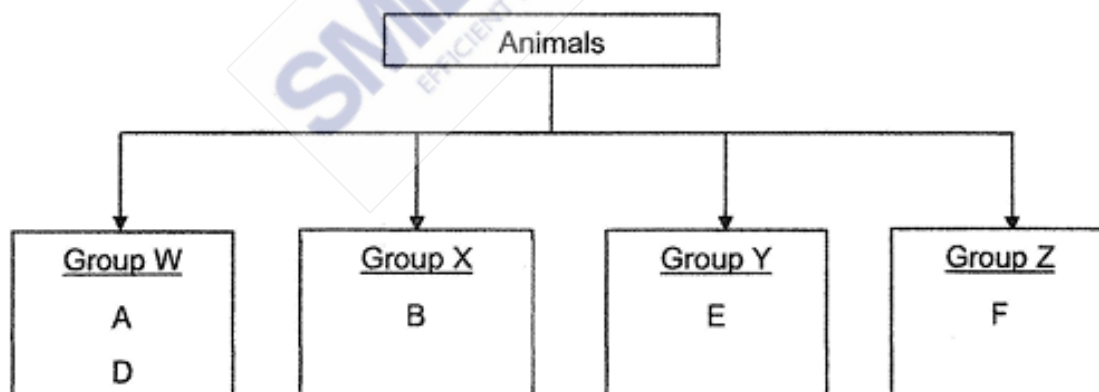
(a) This shows that object Q is a \_\_\_\_\_. (1m)

(b) When end B of object Q is brought near the magnet, it \_\_\_\_\_ the magnet. (1m)

34. Study the animals shown.



Isabel classified the animals into four groups as shown below.



(a) In which group should animal C be placed in? (1m)

Group \_\_\_\_\_

(b) Write the heading of group W. (1m)

\_\_\_\_\_



Isabel made the following observations about animal K:

- Lives in water
- Has short hair
- Breathes through lungs

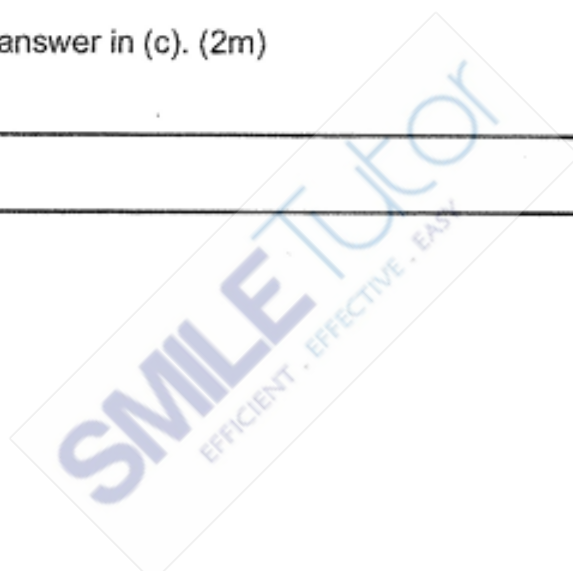
(c) Based on the information given above, in which group, 'Fish' or 'Mammals', does animal K belong to? (1m)

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(d) Explain your answer in (c). (2m)

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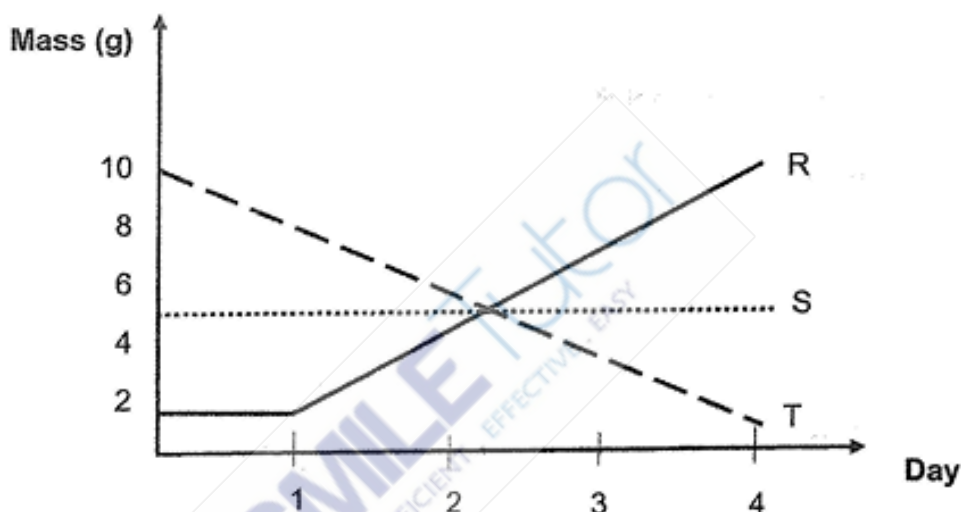
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35. Aminesh observed the growth of the young plant shown below.



She plotted a graph to show the changes in the mass of its seed leaf over four days in a graph, as shown below.



(a) Which line, R, S or T, best represents the mass of the seed leaf during the experiment? (1m)

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(b) Give a reason for your answer in (a). (1m)

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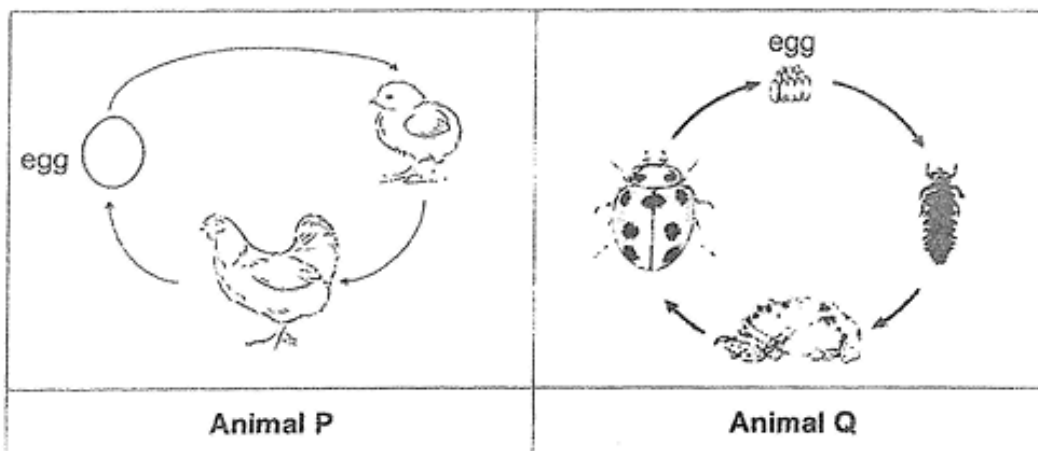
(c) Describe how the plant receives its food after day 4. (1m)

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36. The diagrams below show the life cycle of animals P and Q.



(a) Based on the above, state one similarity and one difference between the two life cycles. (2m)

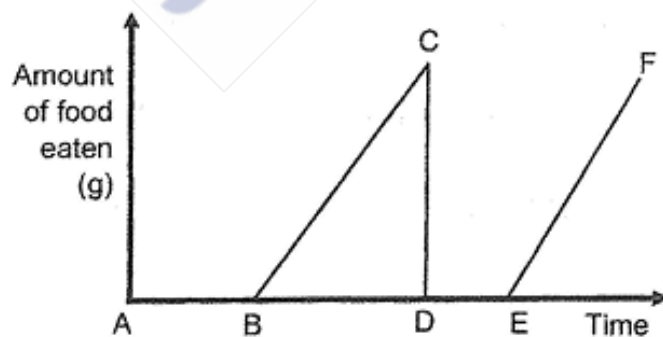
Similarity: \_\_\_\_\_

\_\_\_\_\_

Difference: \_\_\_\_\_

\_\_\_\_\_

The graph below shows the amount of food eaten by animal Q during its life cycle.

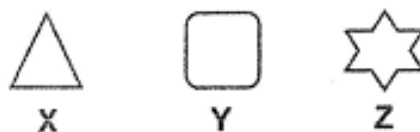


(b) Which part of the graph (BC or DE) represents the amount of food eaten by Q in the pupa stage? Give a reason for your answer. (2m)

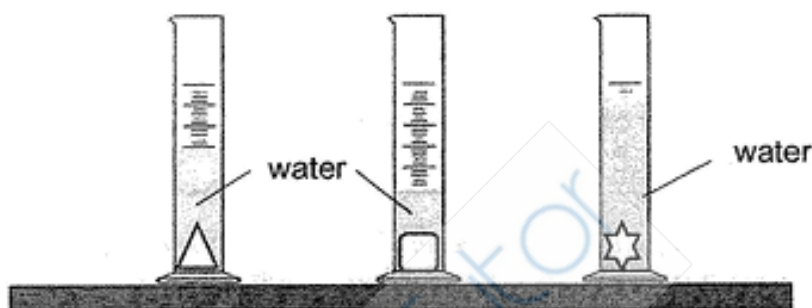
\_\_\_\_\_

\_\_\_\_\_

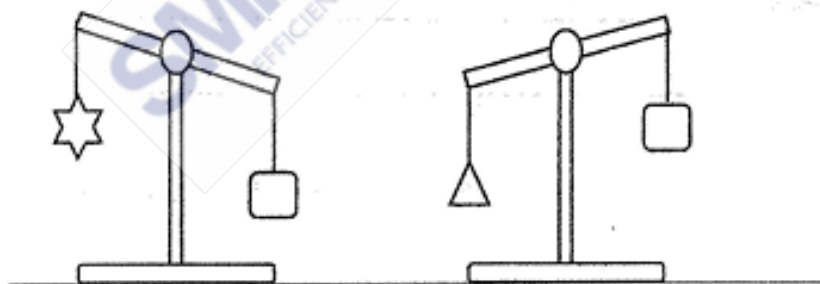
37. Lily has three objects X, Y and Z as shown below.



She placed the three objects into three similar containers, each containing the same amount of water, as shown below.



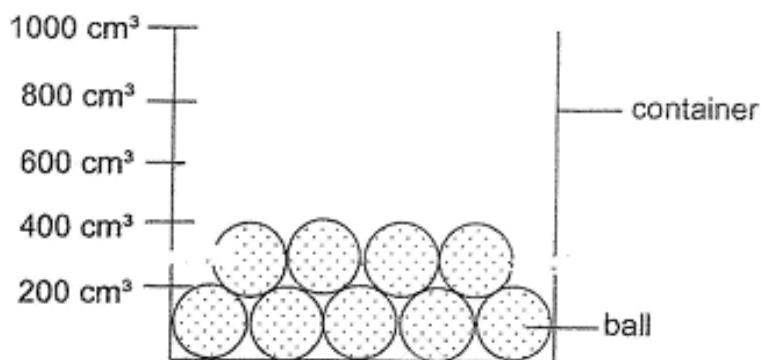
She compared the masses of the three objects using a lever balance as shown below.



(a) Write the letters, X, Y or Z, in the table below. (2m)

Smallest volume	Smallest mass
(i)	(ii)

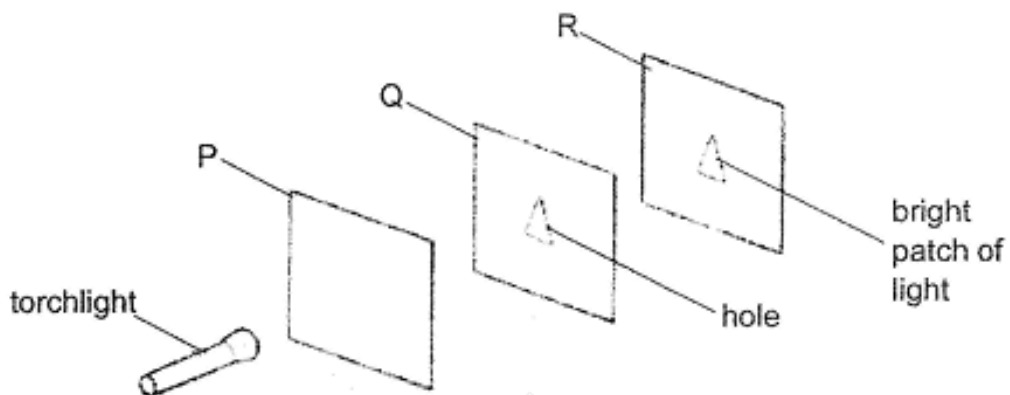
37. Lily placed nine identical balls into the container as shown in the diagram below. She poured  $400 \text{ cm}^3$  of water into the container and she observed that some water flowed into the spaces between the balls.



- (b) Name one property of water that enabled the water to be able to flow into the spaces between the balls. (1m)
- 
- (c) **Using a pencil and a ruler**, draw the possible water level of the water in the container. (1m)
- (d) How can Lily find the volume of the nine balls? Put a tick (✓) in the box that shows the correct method. (1m)

Method	Description	Tick the correct option
<b>A</b>	Subtract $400 \text{ cm}^3$ of water from the final volume of both the water and the balls.	
<b>B</b>	Add $400 \text{ cm}^3$ of water to the final volume of both the water and the balls.	

38. Charlie carried out an experiment in a dark room. Sheets P, Q and R were arranged in a straight line.

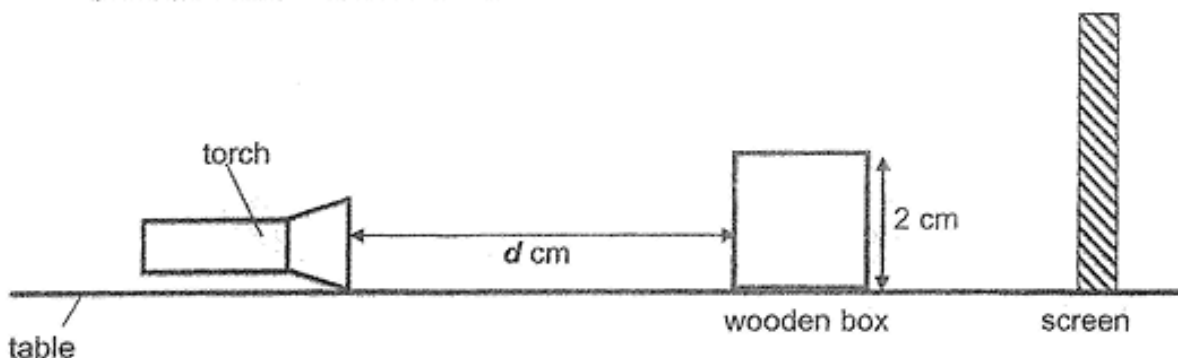


When the torch was switched on, a bright patch of light is seen on sheet R only

- (a) Put a tick (✓) in the table below to show the correct properties of sheets P and Q. (2m)

	Sheet	Does not allow light to pass through	Allows some light to pass through	Allows most light to pass through
(i)	P			
(ii)	Q			

38. Jayan shone a torch on a wooden box as shown below. A shadow of the wooden box was formed on the screen.



Jayan measured the height of the shadow formed on the screen as he moved the torch towards the wooden box. He recorded the results in the table as shown below.

Distance between torch and wooden box, $d$ (cm)	Height of the shadow formed on the screen (cm)
10	3
8	4
6	6

- (b) How was the shadow formed? (1m)

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- (c) What is the aim of the experiment? (1m)

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- (d) Jayan used the same box in this experiment. State one other variable that he must keep constant. (1m)

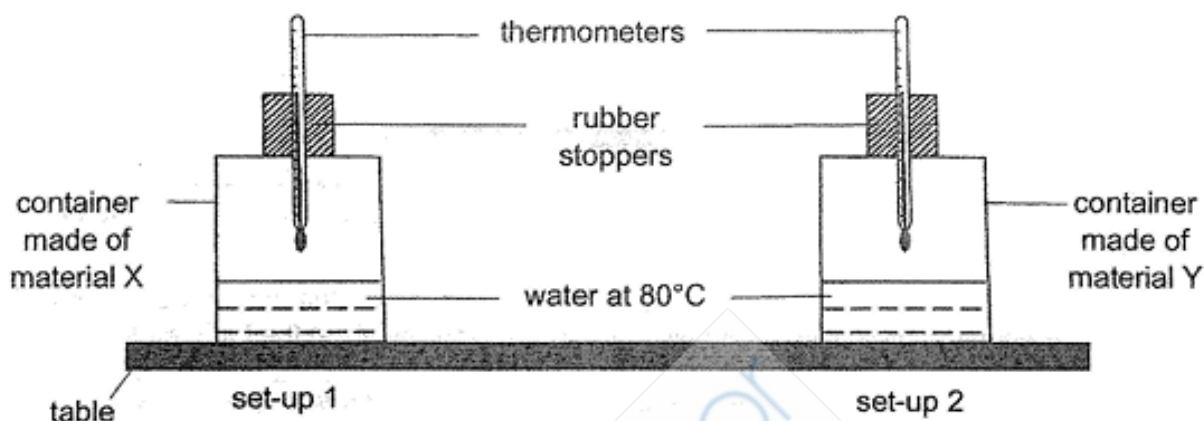
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39. Sherman set up an experiment using two containers with different materials, X and Y as shown below. Both containers were sealed with a rubber stopper.



After 20 minutes, he recorded the temperature in the containers as shown in the table below.

Material of the container	Temperature in the container (°C)	
	Start of experiment	After 20 minutes
X	80	40
Y	80	60

- (a) Based on the experiment, which material (X or Y) is a better conductor of heat? (1m)

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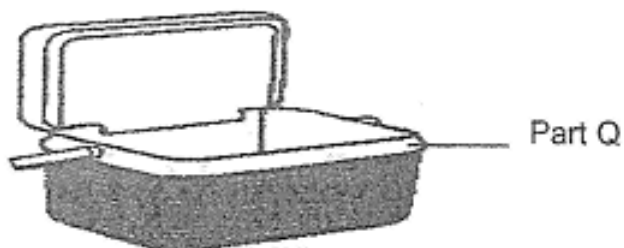
- (b) Explain your answer in (a). (1m)

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39. Sherman wants to use a cooler box to keep his packet drinks cold for a longer period of time.



**cooler box**

- (c) Based on the results from the experiment, which material, X or Y, is more suitable to make part Q of the cooler box? (1m)

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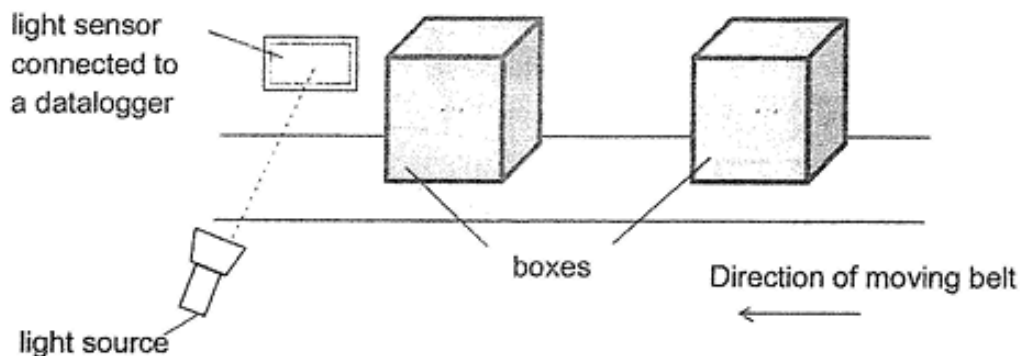
- (d) Explain your answer. (2m)

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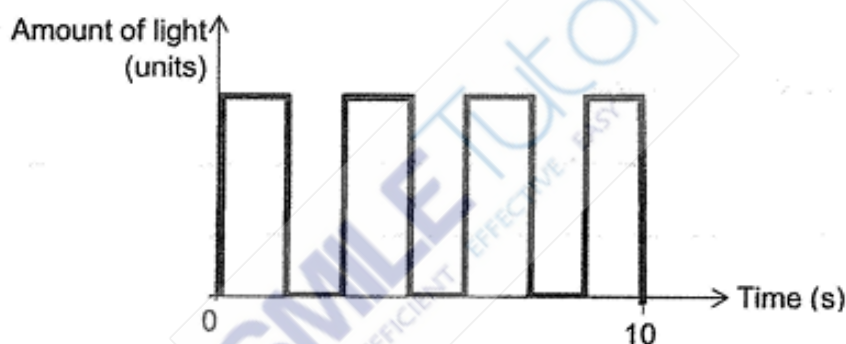


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40. Desmond set up a light sensor and a light source as shown. He wanted to count the number of boxes moving on a belt. The boxes are similar in shape and size.



When the boxes moved past the light sensor, there would be a decrease in the amount of light detected. The following results were recorded by the datalogger.



- (a) Based on the above graph, how many boxes have moved past the light sensor in the first 10 seconds? (1m)

\_\_\_\_\_ boxes

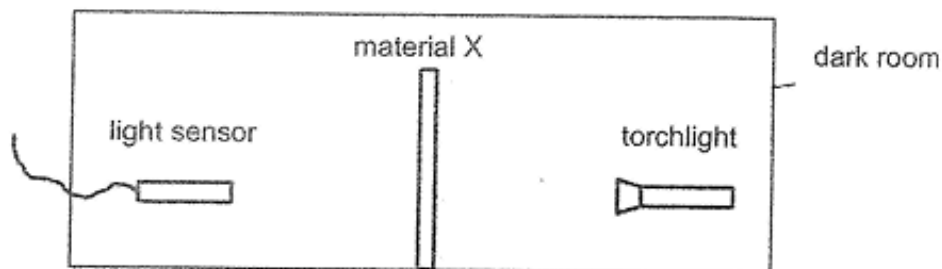
- (b) In order for the set-up to work, give an example of the material for the box. (1m)

\_\_\_\_\_

- (c) In order for the set-up to work, what property must the material in part (b) have? (1m)

\_\_\_\_\_

- 40 Desmond wanted to find out how the thickness of material can affect the amount of light passing through it. He carried out an investigation in a dark room as shown below.



He placed material X between the light source and the light sensor and recorded the amount of light passing through it. He repeated the investigation using material X of different thickness and the results are shown in the table below. The amount of light recorded by the sensor without any material was 1000 units.

Thickness of Material X (mm)	Amount of light passing through (units)
2	600
4	450
8	250
16	50

- (d) State the relationship between the thickness of material X and the amount of light passing through it. (1m)

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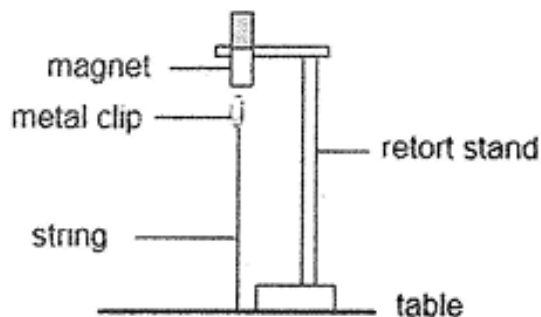
- (e) Desmond conducted the experiment in a dark room. Give a reason why this helped to make the experiment a fair test. (1m)

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41. Rahman set up an experiment as shown below.



(a) Explain why the metal clip did not drop onto the table. (1m)

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(b) When Rahman replaced the metal clip with a plastic clip, he observed that the plastic clip dropped onto the table immediately. Why did the plastic clip drop? (1m)

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**End of Booklet B**

**Please check your answers.**

## ANSWER SHEET

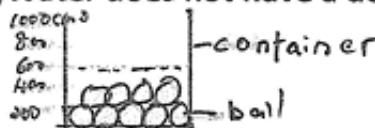
### Booklet A

Q1	3	Q2	2	Q3	1	Q4	4	Q5	2
Q6	4	Q7	2	Q8	1	Q9	3	Q10	3
Q11	2	Q12	4	Q13	1	Q14	1	Q15	1
Q16	4	Q17	2	Q18	3	Q19	4	Q20	1
Q21	3	Q22	3	Q23	2	Q24	4	Q25	2
Q26	3	Q27	4	Q28	2				

### Booklet B

Q29	(a) water (b) grow
Q30	(a) R (b) S
Q31	A : seed B : young plant
Q32	light, reflected
Q33	(a) magnet (b) attracted
Q34	(a) Y (b) birds (c) <del>mamals</del> mammals (d) Mammals breathes through lungs, has short hair and can live in water.
Q35	(a) T (b) The food stored in the seed leaves is used up by the plant everyday till it has no more food thus T is the mass of the seed leaf. (c) The plant developed leaves and the leaves make food for the plants.
Q36	(a) Similarity : Both life cycles starts with an egg. Difference : Animal P has a three stage life cycle while animal Q has a four stage life cycle.



	(b) DE. No food is consumed during the pupa stage thus since DE has 0 food eaten it is the pupa stage.
Q37	(a)(i) Y (ii) Z (b) Water does not have a definite shape.  (c) (d) Method B A
Q38	(a)(i) Tick : Allows most light to pass through (ii) Tick : Does not allow light to pass through (b) When the path of light is blocked by an opaque object. (c) To find out if the distance of the torch and the wooden box affects the height of the shadow formed on the screen. (d) The size of the wooden box.
Q39	(a) X (b) X based on the table, the temperature of the water after twenty minutes is lower than Y. This shows that X is a better conductor of heat which conducts heat in the container to the surroundings at a faster rate. (c) Y (d) Y's temperature after 20 minutes is higher, this shows that Y is a poorer conductor of heat so it will be more suitable to be the material of a cooler bag as heat from the surrounding will take a longer time to be conducted to the packet drinks, keeping it cooler for a longer period of time.
Q40	(a) 3 (b) The box can be cardboard. (c) It does not allow light to pass through. (d) The thicker the material, the lesser the amount of light passing through. (e) It is so that the torchlight is the only light source the light sensor is sensing to ensure a fair test.
Q41	(a) The magnet is attracting the metal clip since the metal clip is a magnetic material. (b) The plastic clip is a non-magnetic material and will not be attracted by the magnet.



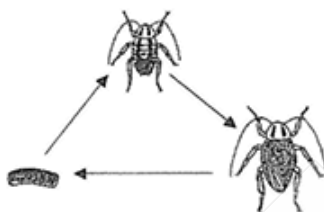
## TAO NAN SCHOOL MYE PAPER

### Booklet A (22 x 2 marks)

For each question from 1 to 22, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet.

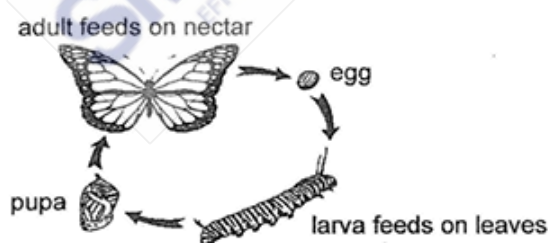
(44 marks)

1. The diagram below shows the life cycle of animal X.



Which statement can be concluded based on the diagram above?

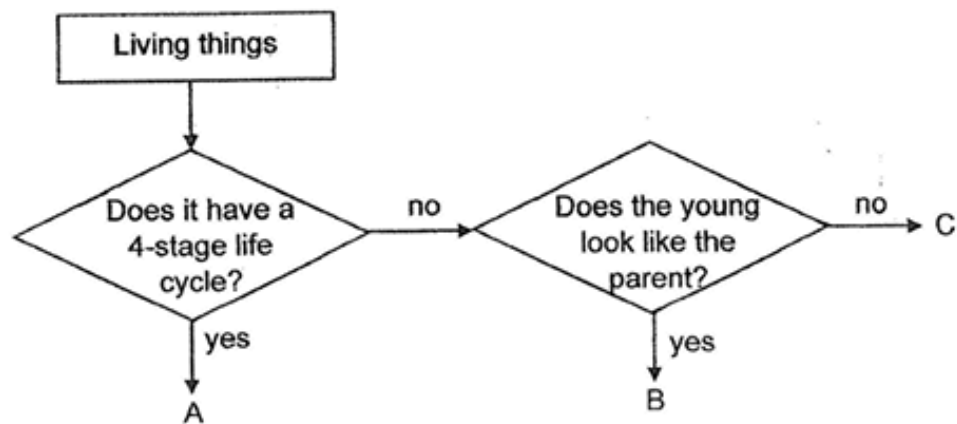
- (1) Animal X has a 3-stage life cycle.
  - (2) Animal X has all its stages in water.
  - (3) The young of animal X does not feed.
  - (4) The young of animal X does not look like the adult.
2. Study the diagram below.



Which stage of the life cycle of the above butterfly would cause a problem to farmers growing vegetables?

- (1) egg
- (2) larva
- (3) pupa
- (4) adult

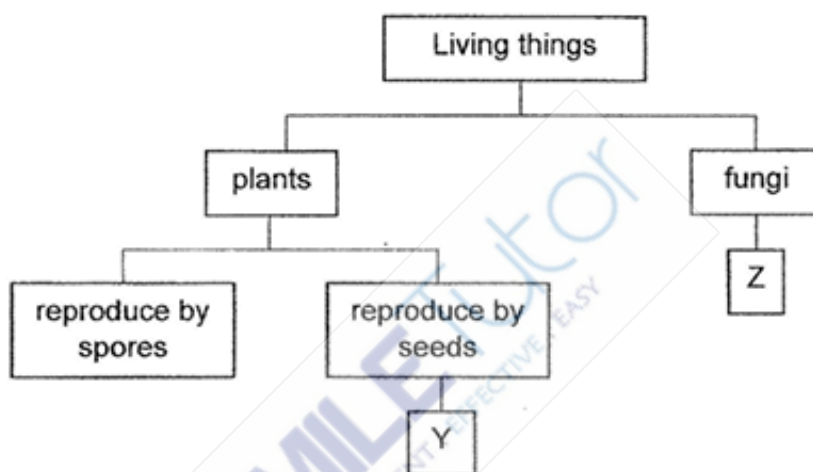
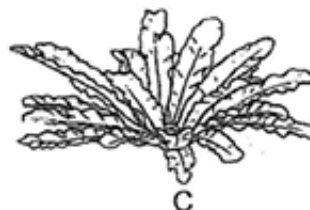
3. Study the flow chart below.



Which one of the followings represents living things, A, B and C?

	A	B	C
(1)	mealworm beetle	chicken	frog
(2)	mosquito	frog	chicken
(3)	frog	mosquito	mealworm beetle
(4)	chicken	frog	mosquito

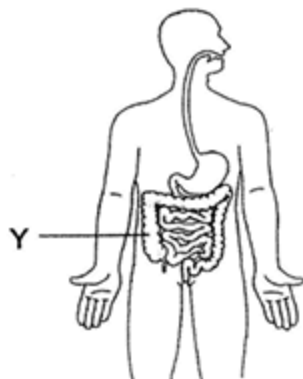
4. Study the classification chart and the three living things, A, B and C.



Which of the following shows the correct classification of the living things in boxes Y and Z?

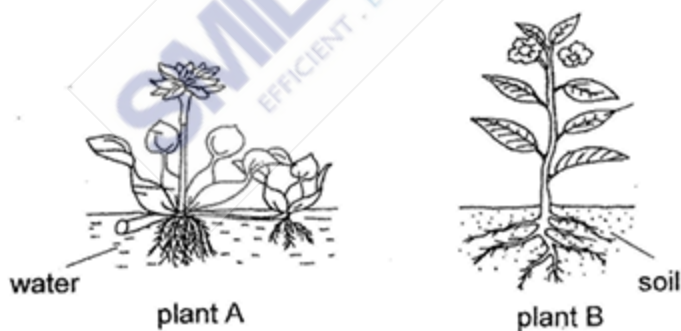
	Y	Z
(1)	B	C
(2)	C	B
(3)	A	B
(4)	A	C

5. The diagram below shows the digestive system of a human.



What is the function of part Y?

- (1) digests food
  - (2) absorbs water
  - (3) absorbs digested food
  - (4) produces digestive juice
6. The diagrams below show two plants, A and B.

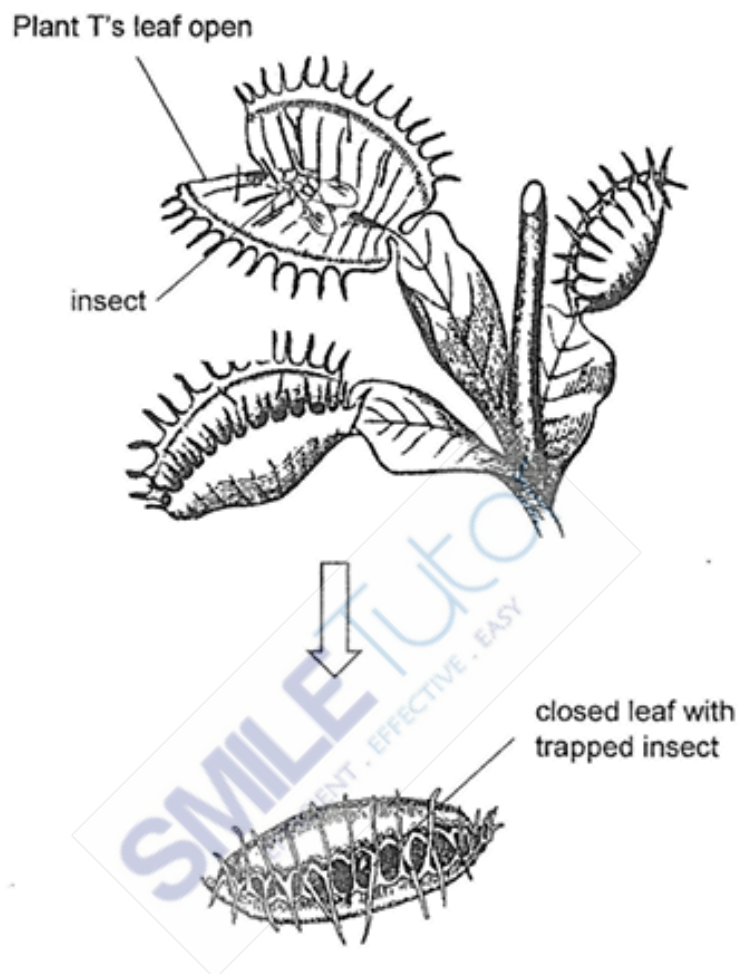


Plant A lives in water and plant B lives on land.

Which of the following is a similar function of the roots of both plants A and B?

- (1) makes food for plants A and B
- (2) holds plants A and B firmly to the soil
- (3) holds plants A and B upright
- (4) takes in water and minerals for plants A and B

7. Plant T is a living thing that uses its leaves to catch insects. Its leaf will close when an insect walks onto it as shown in the diagram below.

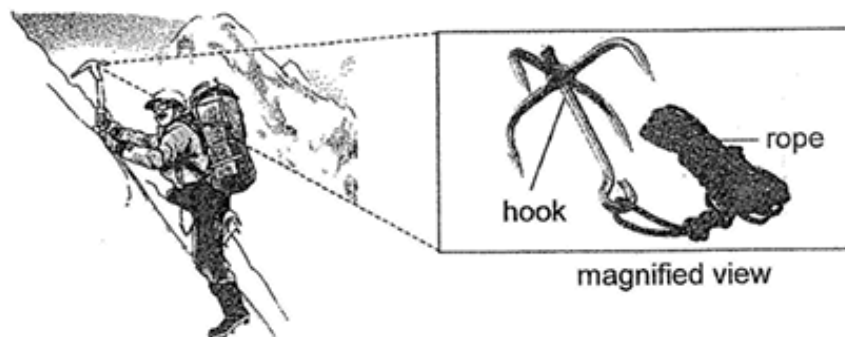


The closed leaf can carry out the two processes, digestion and absorption.

Which organ, in the human digestive system, has similar functions as the closed leaf of plant T?

- (1) mouth
- (2) gullet
- (3) stomach
- (4) small intestine

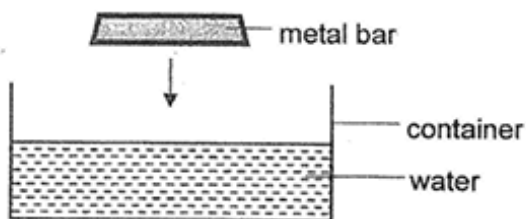
8. The diagram below shows a tool the mountaineers use during their attempts to climb mountains.



Which of the following shows the properties of the materials of the hook and rope necessary for the use shown above?

	hook	rope
(1)	strong	flexible
(2)	strong	can float
(3)	flexible	flexible
(4)	flexible	can float

9. The diagram below shows a container with some water in it.



What will happen to the water level and the volume of water in the container when a metal bar is placed gently into the container of water?

	water level in the container	volume of water in the container
(1)	decrease	remain the same
(2)	decrease	increase
(3)	increase	increase
(4)	increase	remain the same

10. Study the substances, C and D, in the table below.

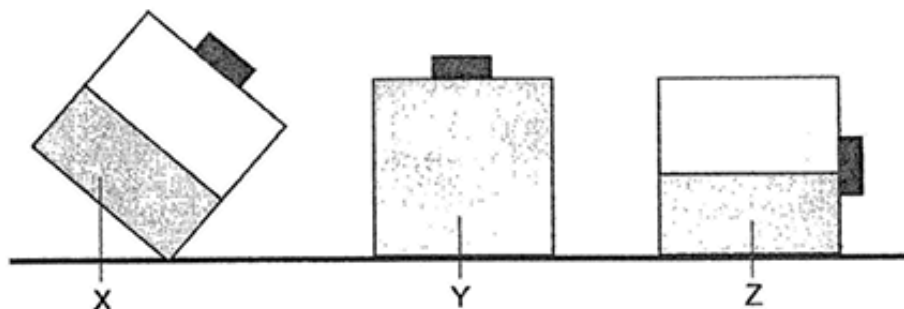
substance	has a definite shape	has a definite volume
C	✓	✓
D		✓

Which of the following about substances C and D are correct?

	substance C	substance D
(1)	is a gas	is a liquid
(2)	is a solid	is a liquid
(3)	cannot be compressed	can be compressed
(4)	takes the shape of a container	does not take the shape of a container



11. The diagram below shows three substances, X, Y and Z, in three identical containers.



Based on the diagram above, which of the sentence(s) is/are definitely correct?

A: Substance X is a solid.

B: Substance Y is a liquid.

C: Substances Y and Z have definite shape.

- (1) A only
- (2) C only
- (3) A and B only
- (4) B and C only

12. The picture below shows an object Q.



object Q

Which of the following instruments can be used to measure the volume of object Q? (The apparatus are not drawn to scale)



measuring cylinder  
(1)



weighing scale  
(2)

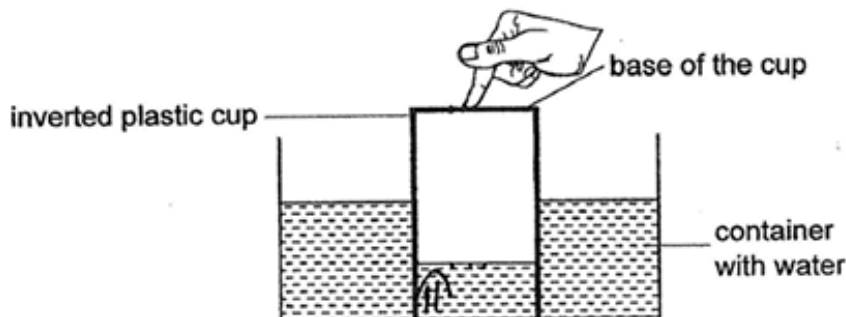


balance scale  
(3)



syringe  
(4)

13. Joshua pushed an inverted plastic cup into a container of water until the mouth of the plastic cup touched the bottom of the container. He pressed the cup firmly as shown in the diagram below.



Then, Joshua poked a hole at the base of the cup. The water level in the cup rose slowly. What can Joshua do to make the water level rise **faster**?

- (1) Press the cup harder.
- (2) Seal up the hole with a tape.
- (3) Remove some water from the container.
- (4) Make another hole at the base of the cup.

14. Jack filled the tyre of his bicycle wheel with air using a pump as shown below.



Even though the tyre looks inflated, Jack could pump in another four more pumps of air. Which properties of air allowed him to pump more air into the tyre?

- (1) Air has mass.
- (2) Air can be compressed.
- (3) Air has a definite shape.
- (4) Air has a definite volume.

15. Which of the following is a source of light?



fire  
(1)



glass bottle  
(2)

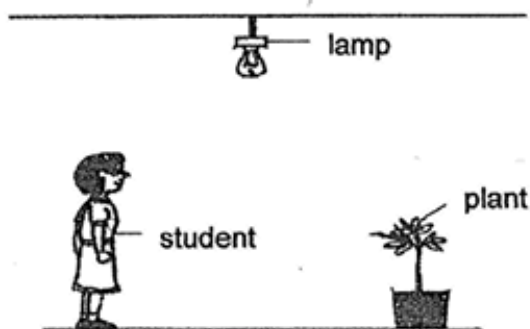


diamond ring  
(3)

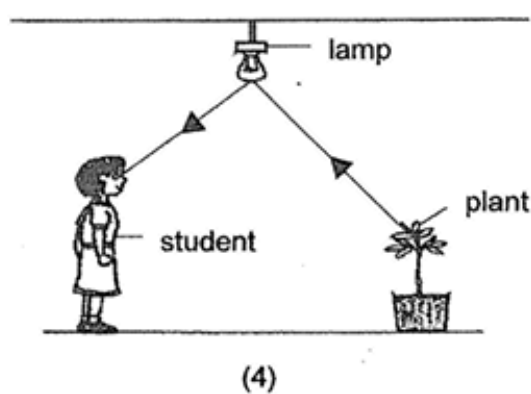
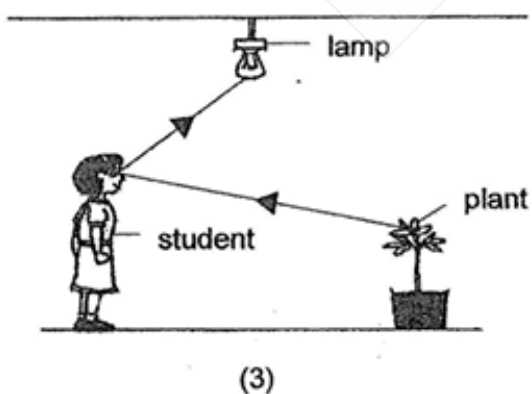
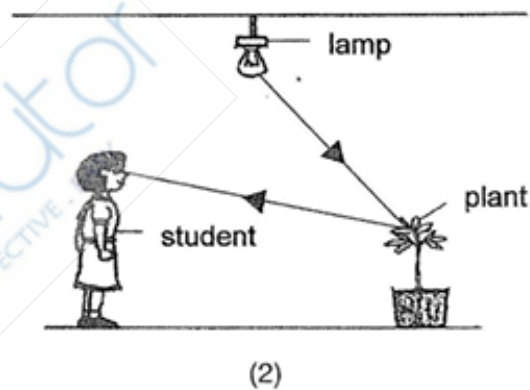
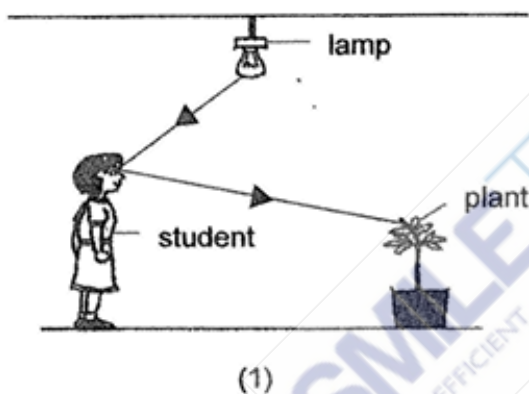


mirror  
(4)

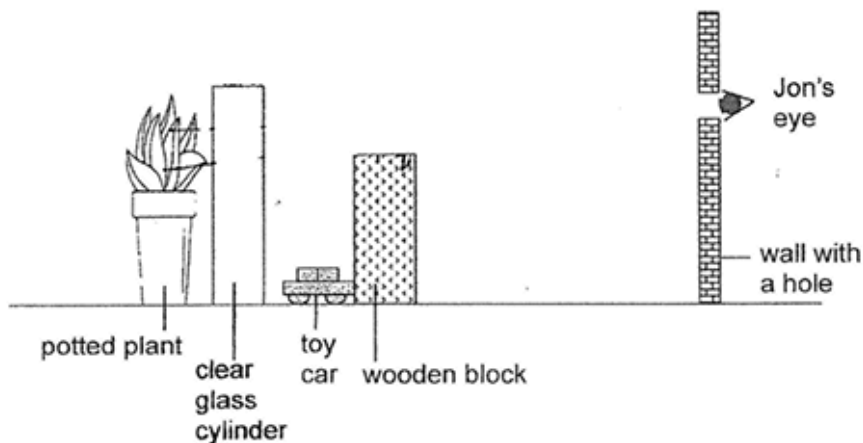
16. Study the diagram below.



Which of the following shows the path of light that makes it possible for the student to see the plant when the lamp is switched on?



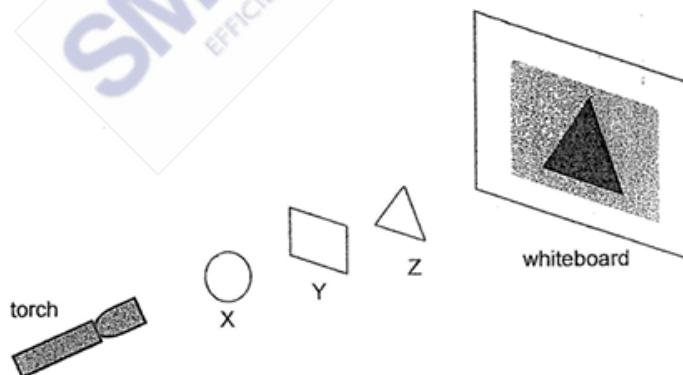
17. In a lit room, Jon tried to peep through a hole to look at the items on the other side of the wall as shown below.



Besides the wooden block, what other item(s) could he see through the hole?

- (1) clear glass cylinder only
- (2) toy car and clear glass cylinder only
- (3) clear glass cylinder and potted plant only
- (4) toy car, clear glass cylinder and potted plant

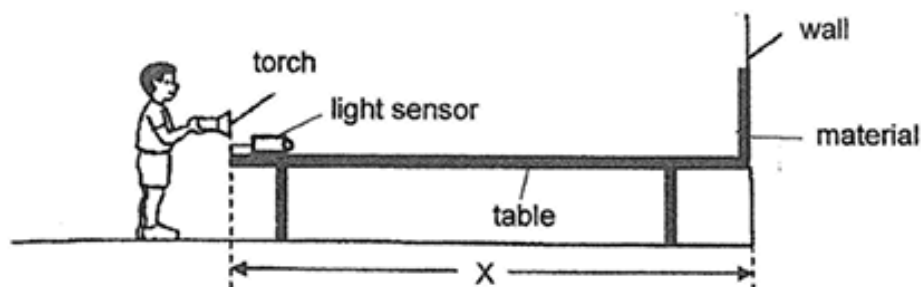
18. A torch and three objects, X, Y and Z, of equal heights were arranged in a straight line in front of a whiteboard as shown below.



What property should objects X, Y and Z have in order to cast the shadow shown on the whiteboard?

	allows no light to pass through	allows some light to pass through	allows most light to pass through
(1)	X	Y	Z
(2)	X	Z	Y
(3)	Z	X	Y
(4)	Z	Y	X

19. The diagram below shows an experiment Jack conducted in a dark room.



Jack wanted to find out which material, S, T, U and V, could reflect the most light. His results are shown below.

Material	S	T	U	V
light sensor reading (unit)	500	1000	1500	800

Traffic cones are used to block off the road at a road construction site as shown in the diagram below.



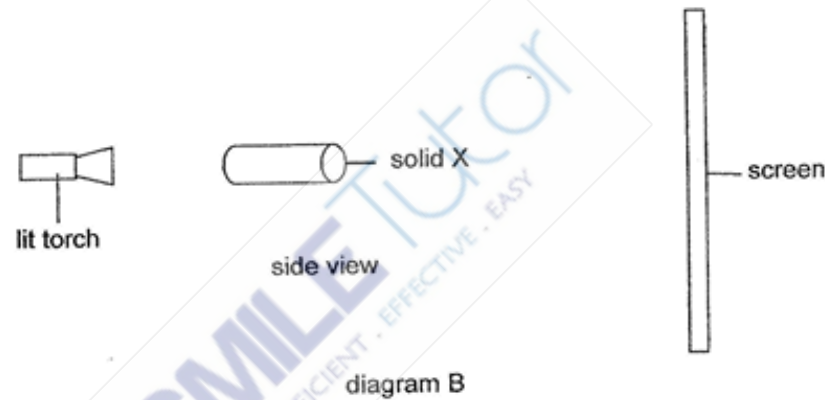
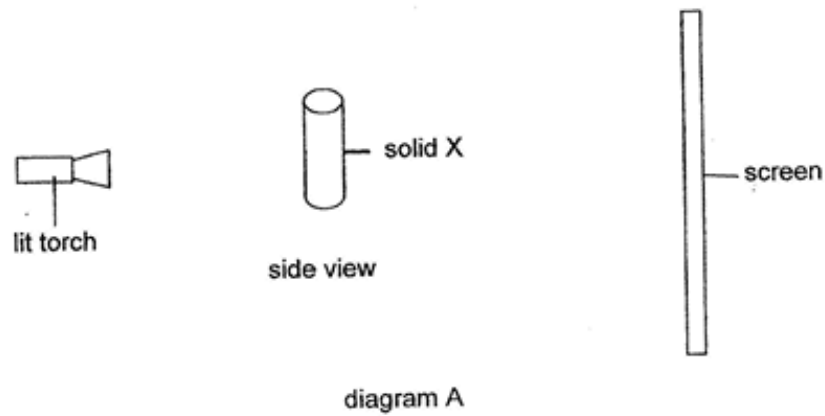
These cones have reflective bands to alert drivers of dangers from afar.

Based on Jack's results, which material should be used to make the reflective bands on the cones?

- (1) S
- (2) T
- (3) U
- (4) V



20. Xavier shone a torch at solid X which was placed at different positions as shown in diagrams A and B below.



Which of the following shadows can be formed by solid X?



A



B



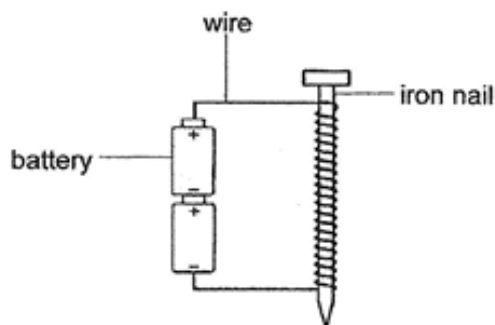
C



D

- (1) A and C  
(2) A and D  
(3) B and C  
(4) B and D

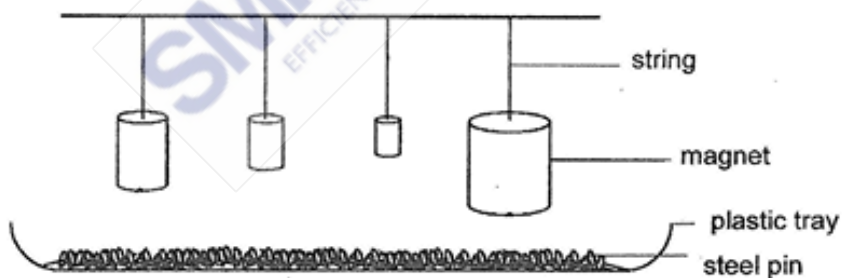
21. The diagram below shows an electromagnet.



Which of the following can increase the strength of the electromagnet?

- (1) Use a longer nail.
  - (2) Remove one battery.
  - (3) Increase the number of turns of wire around the nail.
  - (4) Increase the length of wire, keeping the number of turns around the nail the same.
22. Mr Tan carried out the following experiment to find out how the size of a magnet affects the number of pins it could attract.

The pins were distributed evenly on the tray.



However, Mr Tan realised his experiment was unfair.

Which of the following variable should he have kept the same?

- (1) size of magnets
- (2) length of strings
- (3) number of steel pins attracted
- (4) distance between the base of the magnets and steel pins

End of Booklet A

**Booklet B (36 marks)**

For questions 23 to 34, write your answers clearly in this booklet.





The number of marks available is shown in brackets [ ] at the end of each question or part question.

(36 marks)

23. Jiayi indicated the characteristics of animals, P, Q, R and S, with a (√) as shown in the table below.

Animals	has scales	has hair	has six legs	lives in water	lives on land
P	√				√
Q			√		√
R		√			√
S				√	√

Use the information above to match against the animals in the table below. Fill in P, Q, R or S in the correct box. [2]

			
bee	dog	tree snake	frog

24. Peter wanted to find out if the amount of water affects the growth of bread mould. The table below shows the different types of bread which were placed under different conditions.

set-up	type of bread	amount of water sprinkled on the bread (ml)	location of bread
A	white bread	0	in the cupboard
B	wholemeal bread	5	in the cupboard
C	white bread	5	in the cupboard
D	white bread	10	in the freezer
E	wholemeal bread	10	in the freezer

- (a) Which two set-ups, A, B, C, D or E, should Peter use to conduct the experiment fairly? [1]

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- (b) What should Peter be observing to make a conclusion on the experiment? [1]

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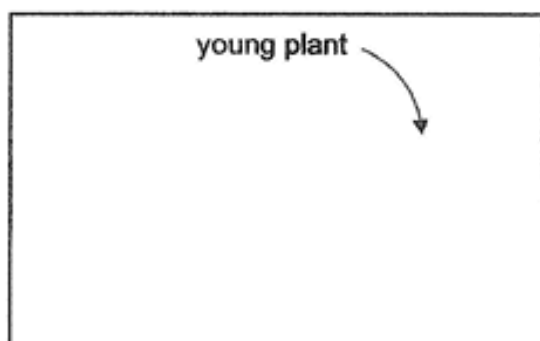


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- (c) Besides water, what else must be present for the mould to grow? [1]

---

25. The diagram below shows part of the life cycle of a mango plant.



- (a) Complete the life cycle of the mango plant above. [1]

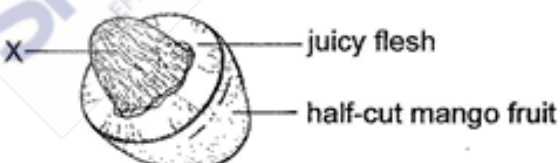
- (b) At which stage(s) of the life cycle of the mango plant can it make its own food? Explain why. [1]

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The picture below shows a half-cut mango fruit.



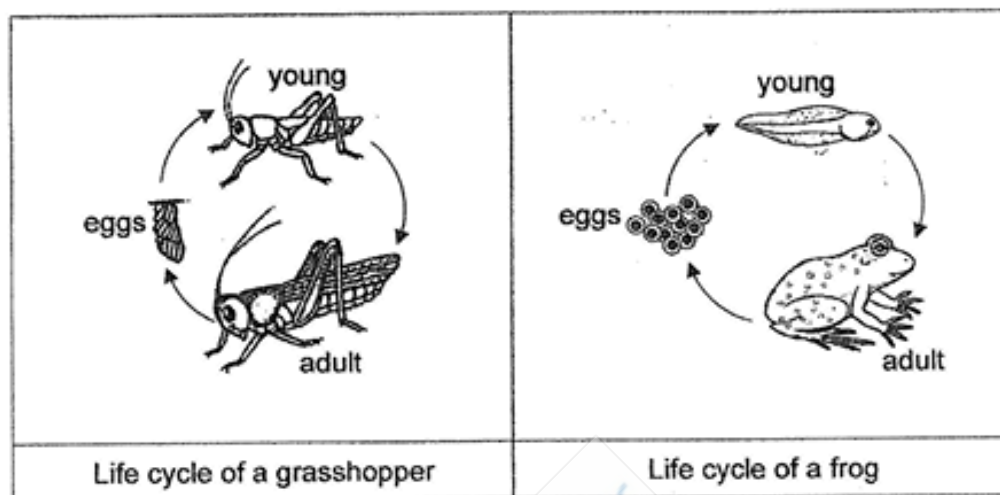
- (c) Identify X and explain its function. [1]

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26. Study the life cycle of the grasshopper and the frog as shown below.



(a) State two similarities between the life cycle of the grasshopper and the frog. [2]

similarity 1: \_\_\_\_\_

similarity 2: \_\_\_\_\_

(b) State one difference between the life cycle of the grasshopper and the frog. [1]

\_\_\_\_\_

\_\_\_\_\_

(c) What is the reason that the grasshoppers and the frogs both lay many eggs? [1]

\_\_\_\_\_

\_\_\_\_\_

27. The diagram below shows the life cycle of a mosquito.



- (a) State one difference between the characteristics of P and R. Do not compare the number of legs and their size. [1]

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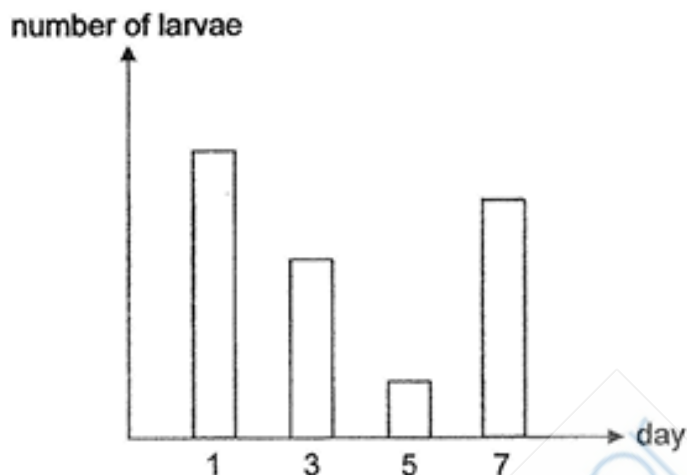
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- (b) Sammy noticed that there are mosquitoes breeding in the drain of his house. He poured a layer of oil over the water in the drain. Which stage(s), P, Q or R is/are Sammy trying to get rid of? [1]

---



Samy caught some Aedes mosquito larvae and observed them for 7 days. He provided the larvae with enough food and water to ensure their survival during his experiment. The bar graph below shows the number of larvae over the 7 days.



- (c) Give a possible reason for the decrease in the number of mosquito larvae from day 1 to day 5, assuming that none of the larvae died during his experiment. [1]

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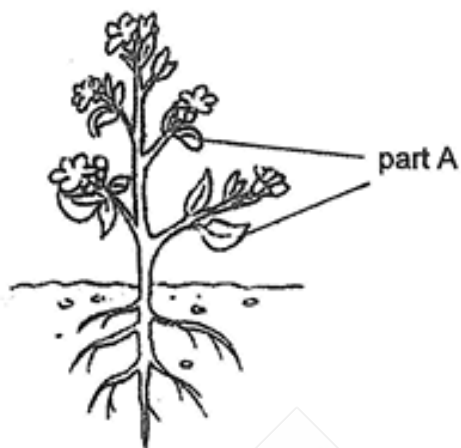
- (d) The number of mosquito larvae increased on day 7 even though Samy did not add any larvae to his experiment. Give a possible reason for the increase. [1]

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28. The diagram below shows a plant that is watered daily.



(a) Identify part A: \_\_\_\_\_

[1]

Later, many caterpillars were found on the plant. They ate up part A of the plant and the plant soon died.

(b) Explain why without part A, the plant would die.

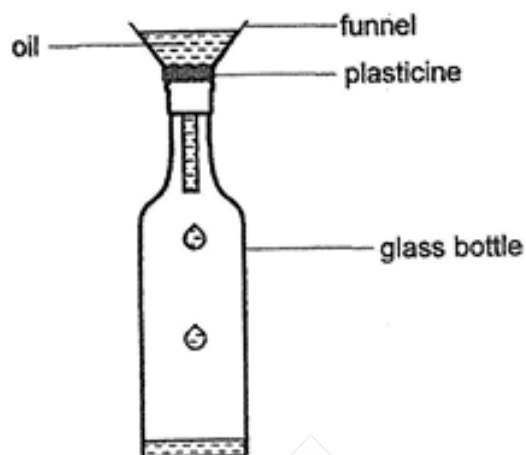
[1]

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29. Thomas poured some oil into a glass bottle using a funnel as shown in the diagram below.



- (a) Thomas noticed that the oil flowed into the glass bottle very slowly and then stopped flowing after some time. Explain why the oil stopped flowing. [2]

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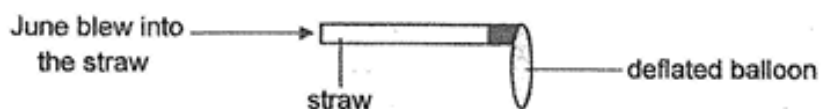
- (b) Without using additional apparatus and without damaging the glass bottle, what could Thomas do to make the oil flow faster into the glass bottle? [1]

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30. June tied a deflated balloon to one end of a straw as shown in the diagram below.



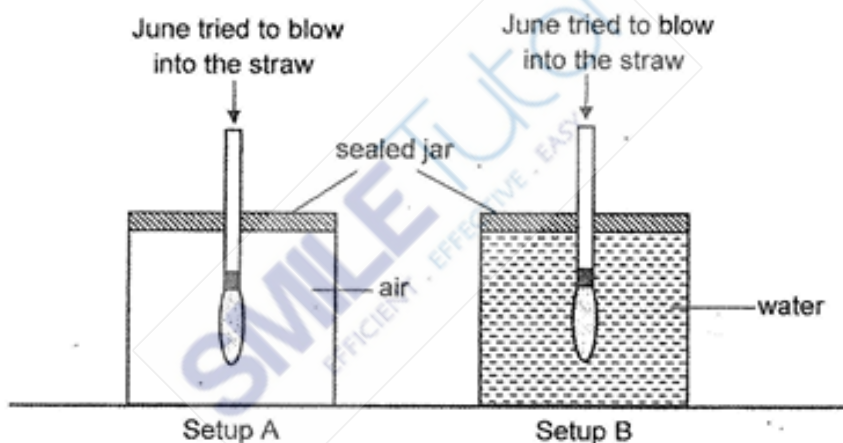
- (a) What would happen to the balloon when June blew into the straw? [1]

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June then inserted the straw with the deflated balloon into a jar filled with air as shown in Setup A and she tried to blow into the straw. She repeated the same steps in the jar filled with water as shown in Setup B.



- (b) What is the difference in the size of the balloon between setup A and B? [1]

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- (c) Explain the difference you have stated in (b).

[2]

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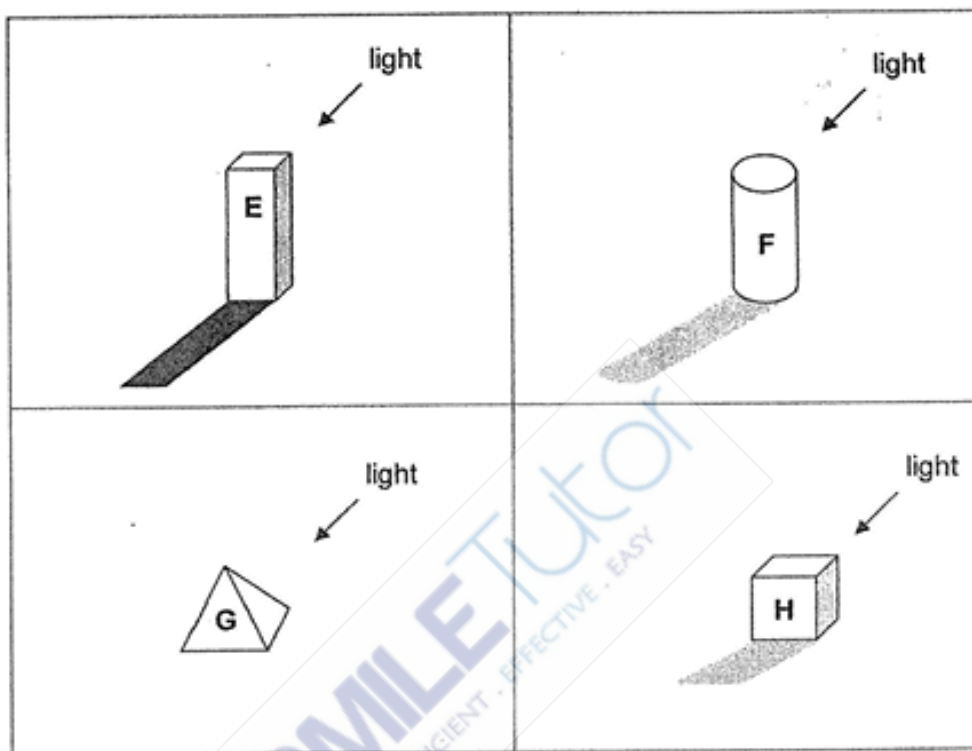
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31. Joyce placed four objects on the floor in a dark room.

The diagrams below show the observations made when the same light source was shone on the objects E, F, G and H.



Based on the observations made, classify objects E, F, G and H, and write them under the correct headings in the table below. [2]

allows most light to pass through	allows some light to pass through	allows no light to pass through

32. Cecilia wanted to investigate how the positions of the lit lamp and Max affect the size of the shadow formed on the screen.

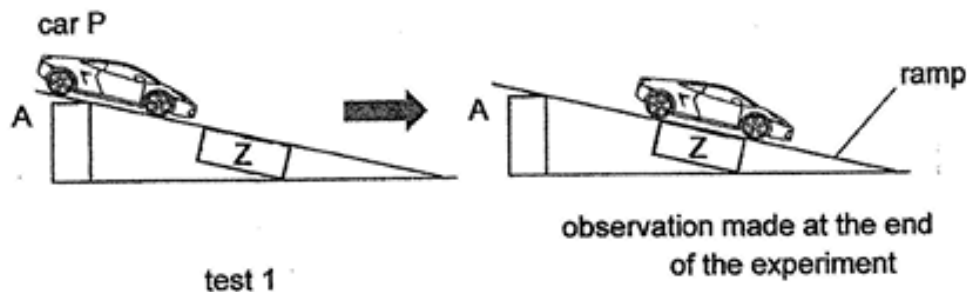
She conducted her experiment as shown below and outlined Max's shadow.



Without moving the screen, suggest two ways for Cecilia to get a bigger shadow of Max. [2]

- (i) \_\_\_\_\_  
 \_\_\_\_\_
- (ii) \_\_\_\_\_  
 \_\_\_\_\_

33. Raja released car P, made of iron, at A on a wooden ramp with object Z attached to the underside of the wooden ramp. His observation is shown below.



- (a) (i) Based on the observation made, what could object Z be? [1]

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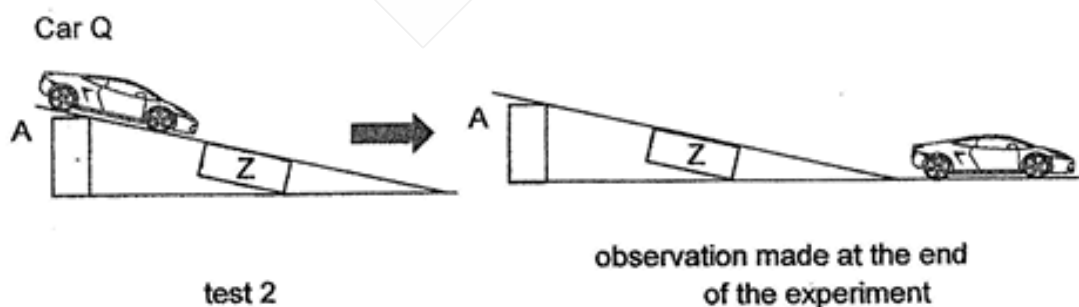
- (ii) Explain why car P stopped above object Z. [1]

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Raja replaced car P with car Q and released it on the same wooden ramp. His observation is shown below.



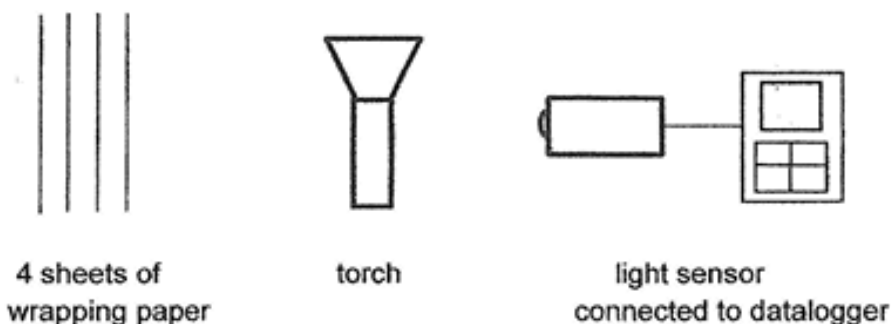
- (b) State one material that car Q could be made of. [1]

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34. Jill wanted to conduct an experiment to measure how the number of sheets of wrapping paper affects the amount of light passing through them.

She was given the following items as shown below.



Listed below are steps A, B, C and D to be carried out in the experiment, but they are not in the correct order.

- A Shine the lit torch at the light sensor at a certain distance away.
- B Repeat the earlier steps using 2, 3, then 4 sheets of wrapping paper and record the results.
- C Measure the amount of light passing through the wrapping paper using the datalogger.
- D Place a sheet of wrapping paper between the torch and the light sensor.

- (a) What is the correct order of the steps she should take to carry out her experiment? Write down A, B, C and D in the boxes below. [1]

→→→

- (b) State two variables which must be kept constant for the experiment to be a fair test. [2]

- (i) \_\_\_\_\_
- (ii) \_\_\_\_\_

After conducting the experiment, the table below shows the results that she obtained.

Number of sheets of wrapping paper	Amount of light (unit)
0	80
1	50
2	20
3	0
4	0

(c) Besides making changes to the wrapping paper, suggest another change to the set-up that could allow light to pass through 4 sheets of wrapping paper.

[1]

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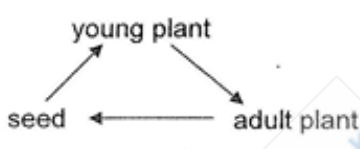
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**End of paper**

## ANSWER SHEET

Q1	1
Q2	2
Q3	1
Q4	3
Q5	2
Q6	4
Q7	4
Q8	1
Q9	4
Q10	2
Q11	1

Q12	1
Q13	4
Q14	2
Q15	1
Q16	2
Q17	3
Q18	4
Q19	3
Q20	1
Q21	3
Q22	4

Qn	Suggested Answer	
23	<b>Animals</b>	<b>Animal</b>
	Q	bee
	R	dog
	P	tree snake
	S	frog
24a	Bread A and C	
b	He should be observing for the presence/amount of mould.	
c	warmth, air	
25a	 <pre> graph TD     seed --&gt; young_plant[young plant]     young_plant --&gt; adult_plant[adult plant]     adult_plant --&gt; seed           </pre>	
b	Adult and young stage. The plant has leaves to make food.	
c	Seed. It helps the plant to reproduce.	
26a	Both have an egg stage / a young stage / an adult stage. Both are a 3-stage life cycle.	
b	The young of a frog does not resembles the adult but the young of the grasshopper resembles the adult.	
c	To increase the chance of the eggs <b>hatching / growing into adult</b> .	
27a	The pupa lives in the water but the adult mosquito lives on land. The adult mosquito have wings but the pupa does not.	
b	P and Q	
c	Most/Some of the larvae have turned into pupae or/and adult.	
d	The adult mosquitos reproduced.	
28a	Leaves	

b	Without leaves/Part A, the plant would not be able to make food/ carry out gaseous exchange.								
29a	The air <u>in the bottle</u> occupies space (cause) and could not be compressed any further (effect).								
b	Lift the funnel higher.								
30a	The balloon would be inflated.								
b	The size of the balloon in setup B is smaller.								
c	In setup A, air can enter the balloon because the air <u>in the jar</u> can be compressed.  In setup B, the air cannot enter the balloon because the water has a definite volume and so cannot be compressed.								
31	<table><tr><td><b>allows most light to pass through</b></td><td><b>allows some light to pass through</b></td><td><b>allows no light to pass through</b></td></tr><tr><td>G</td><td>F &amp; H</td><td>E</td></tr></table>	<b>allows most light to pass through</b>	<b>allows some light to pass through</b>	<b>allows no light to pass through</b>	G	F & H	E		
<b>allows most light to pass through</b>	<b>allows some light to pass through</b>	<b>allows no light to pass through</b>							
G	F & H	E							
32	Move the lamp nearer to Max/ the screen. (Moving light source) Move Max nearer to lamp/ Move Max further from the screen. (Moving object)								
33a(i)	Magnet								
(a)(ii)	Iron is a magnetic material. Hence, it can be attracted by the magnet, Z.								
b	Wood/ plastic/ ceramic								
34a	A, D, C, B      or      D, A, C, B								
b	<u>Some possible answers:</u> Distance between torch and wrapping paper/ wrapping paper and light sensor/ torch and light sensor. Intensity of light Thickness of wrapping paper								
c	Move the torch closer to the wrapping paper								

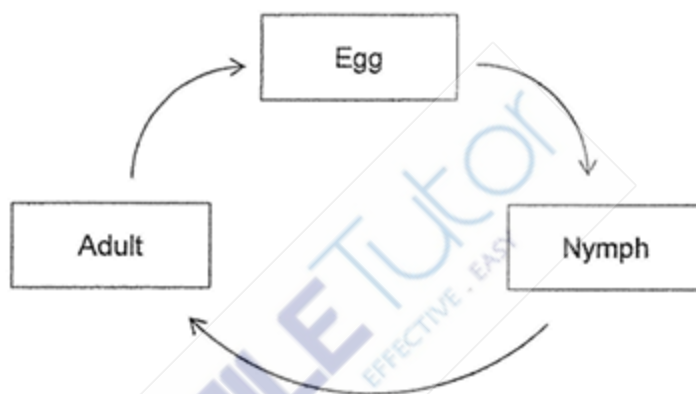
## TAO NAN SCHOOL EOY PAPER

Booklet A (22 x 2 marks)

For each question from 1 to 22, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet.

(44 marks)

1. The diagram below shows the life cycle of an animal.



Which animal is likely to have the life cycle as shown above?

- (1) beetle
  - (2) chicken
  - (3) butterfly
  - (4) cockroach
2. In which part of the human digestive system is the digestion of food completed?
- (1) gullet
  - (2) stomach
  - (3) small intestine
  - (4) large intestine

3. A snail hides itself in its shell when touched.



This shows that the snail is a living thing because it can \_\_\_\_\_.

- (1) grow
- (2) breathe
- (3) respond
- (4) reproduce

4. Which of the following objects can be bent easily without breaking?



wooden spoon

(1)



ceramic cup

(2)



a sheet of glass

(3)

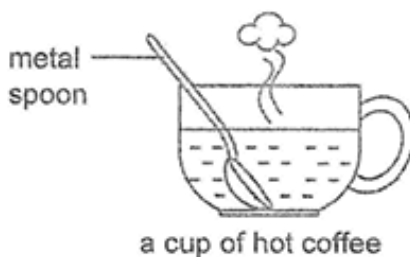


rubber gloves

(4)



5. Thomas places a metal spoon into a cup of hot coffee.

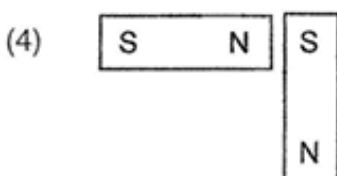
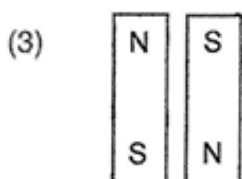
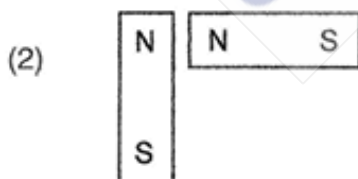
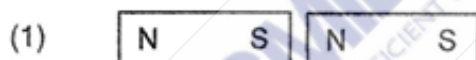


The spoon becomes hotter after a while.

Which of the following explains this?

- (1) The cup loses heat to the hot coffee.
- (2) The spoon loses heat to the hot coffee.
- (3) The hot coffee gains heat from the spoon.
- (4) The spoon gains heat from the hot coffee.

6. In which one of the following will the two magnets push each other away?



7. Which one of the following is a source of light?

(1)



burning matchstick

(2)



moon

(3)



cat's eyes

(4)



coins

8. Which one of the following substances has a fixed shape?

(1) oil

(2) air

(3) milk

(4) stone

9. Which one of the following is the function of the roots of a plant?

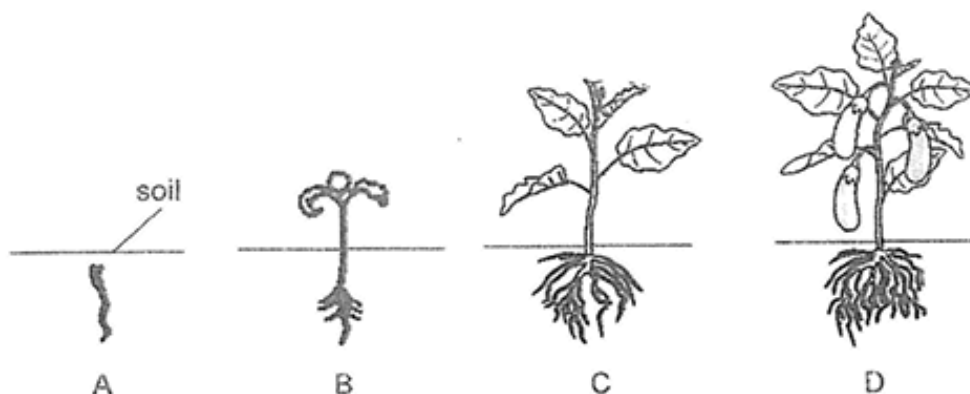
(1) makes food

(2) takes in water.

(3) absorbs sunlight

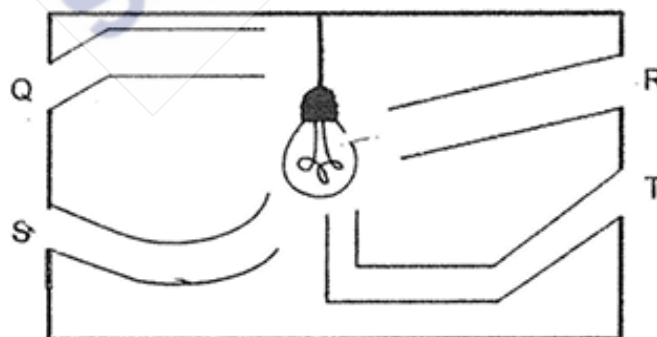
(4) holds the plant upright

10. The diagram below shows the stages in the growth of plant X.



At which stage is plant X an adult plant?

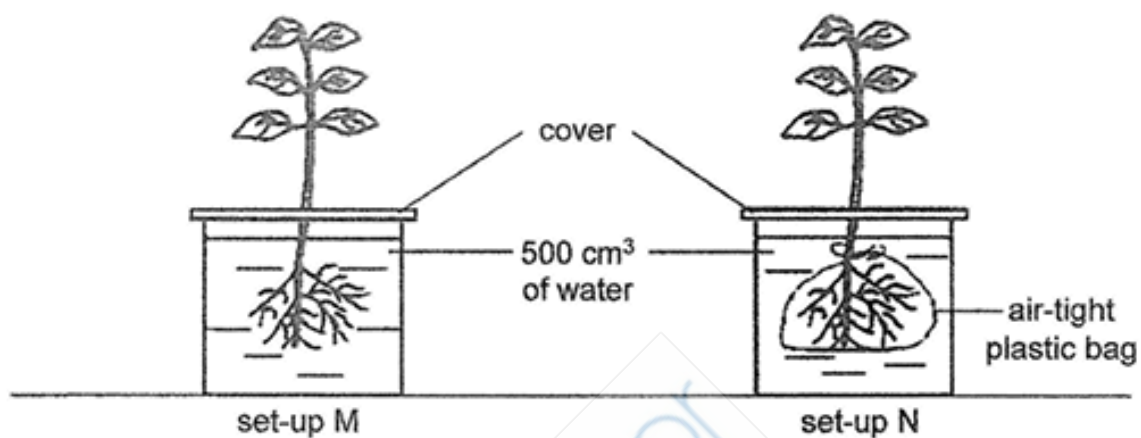
- (1) A
  - (2) B
  - (3) C
  - (4) D
11. A lighted bulb was placed in the middle of a cardboard box as shown below. Four rubber tubes, Q, R, S and T, were placed in the box.



Which of the following tubes could be used to see the bulb?

- (1) Q
- (2) R
- (3) S
- (4) T

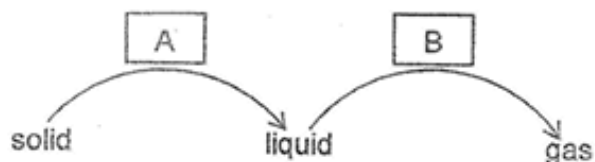
12. Ken wanted to find out if plants take in water through their roots. He had plants of the same type in set-ups M and N with the same amount of water.



What should Ken measure or observe to find out if roots take in water?

- (1) length of root
- (2) number of roots
- (3) amount of water left
- (4) temperature of water

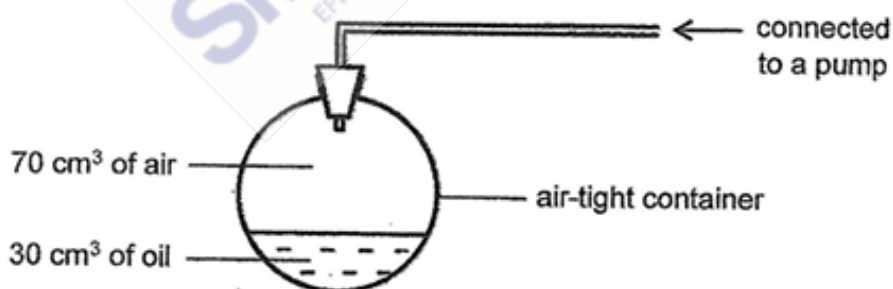
13. The diagram below shows the changes in the state of matter.



Which of the following correctly shows the heat gain or heat loss of a substance when changing from one state to another?

	A	B
(1)	heat gain	heat gain
(2)	heat gain	heat loss
(3)	heat loss	heat loss
(4)	heat loss	heat gain

14. Study the set-up below. The volume of the air-tight container is  $100 \text{ cm}^3$ .

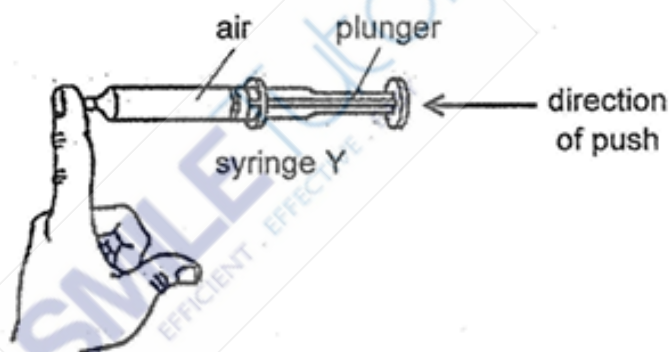
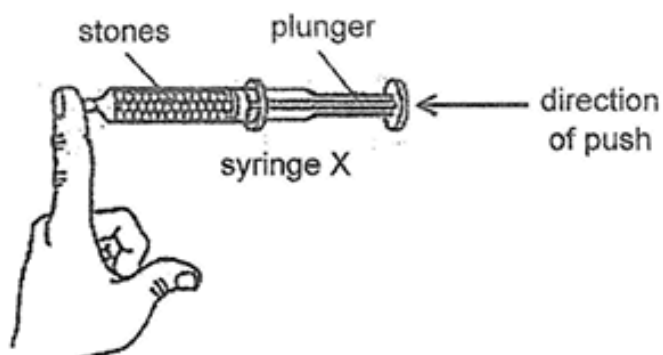


Using the pump,  $10 \text{ cm}^3$  of oil and  $20 \text{ cm}^3$  of air are added into the above set-up.

What is the final volume of air in the container?

- (1)  $40 \text{ cm}^3$
- (2)  $60 \text{ cm}^3$
- (3)  $70 \text{ cm}^3$
- (4)  $90 \text{ cm}^3$

15. Daniel filled two identical syringes, X and Y, with the same volume of stones and air as shown below. He covered each syringe with one finger.



When Daniel pushed the plunger of each syringe, he observed that the plunger of syringe X could not be moved while the plunger of syringe Y moved in a little.

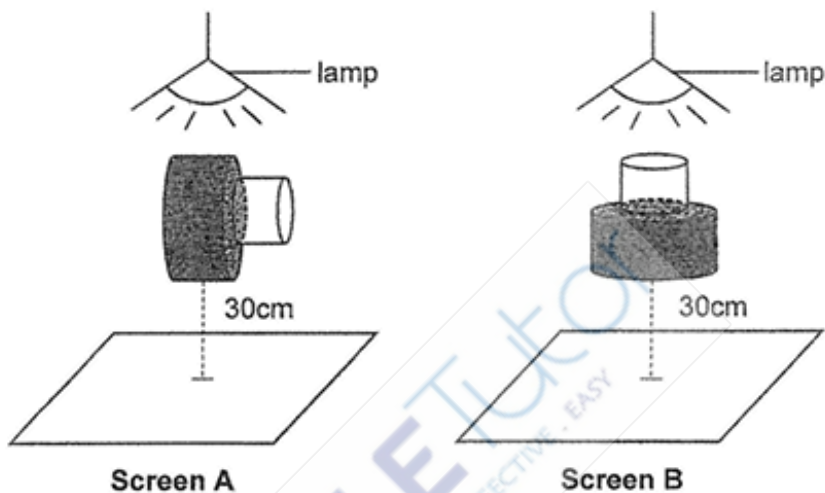
Based on Daniel's observations above, which of the following conclusions could he make?

- (1) Air is a matter.
- (2) Air has no definite volume.
- (3) Stones can be compressed.
- (4) Stones have a definite mass.









16. Jack placed the following two objects of different sizes and materials under two identical lamps.



He placed them in two different positions as shown below.

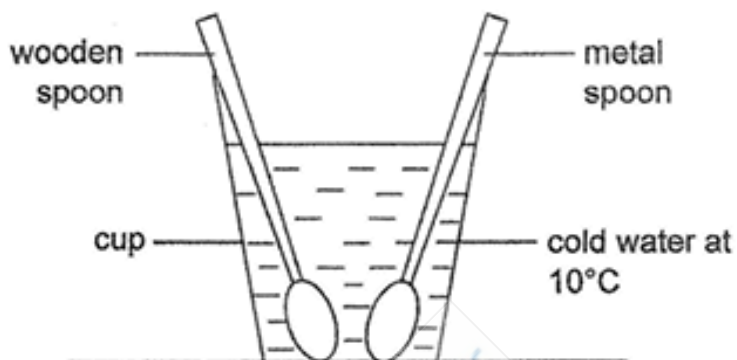


Which of the following shadows would be observed on each screen?

	Screen A	Screen B
(1)		
(2)		
(3)		
(4)		



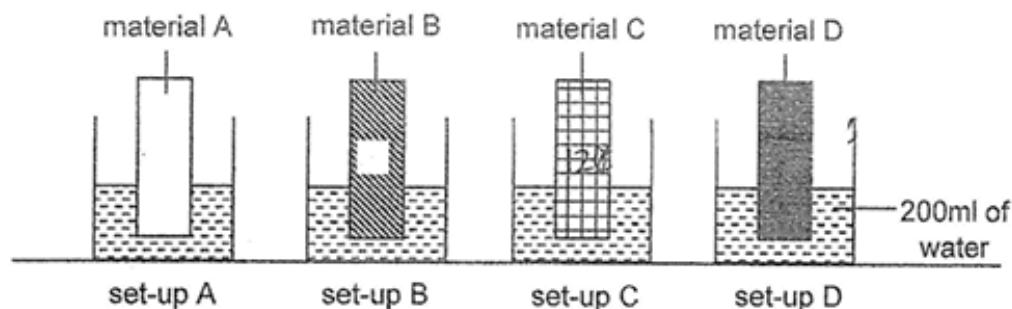
17. A wooden spoon and a metal spoon of the same size, which were both originally at  $30^{\circ}\text{C}$ , were placed into a cup of cold water at the same time.



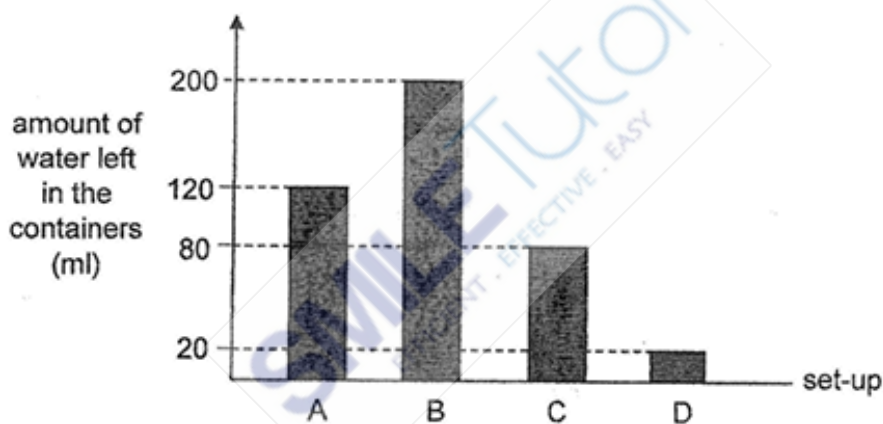
What is most likely the temperature of both spoons after two minutes?

Temperature ( $^{\circ}\text{C}$ )		
	Wooden spoon	Metal spoon
(1)	25	18
(2)	12	28
(3)	30	30
(4)	10	10

18. Sally placed four materials, A, B, C and D into four similar containers. Each container had 200 ml of water as shown below.



After 10 minutes, she removed the materials from the containers. She measured the amount of water left in the containers and recorded her observations in the graph below.

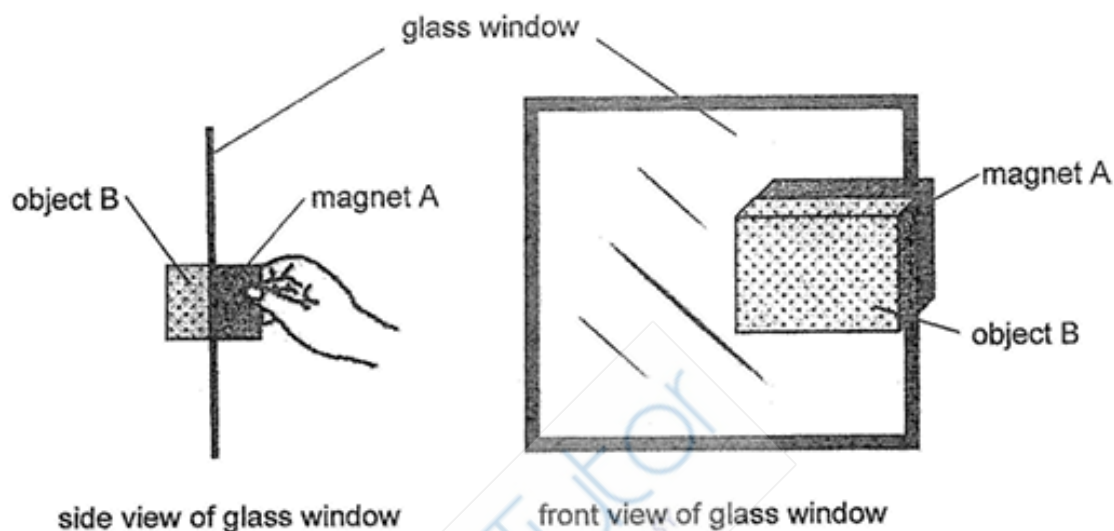


Based on the graph above, which of the materials, A, B, C or D, is the most suitable to make the sole of a shoe shown below?



- (1) A
- (2) B
- (3) C
- (4) D

19. Tabitha used a wiper that consisted of magnet A and object B to clean both sides of a glass window. She put magnet A on one side of the glass window and object B on the other side as shown below.

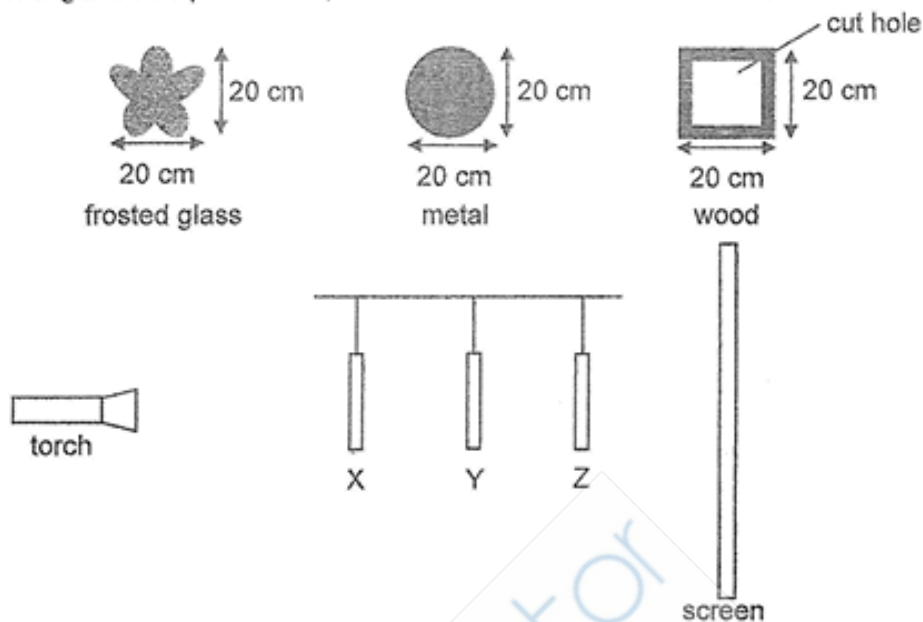


As Tabitha moved magnet A, object B also moved in the same direction.

Which of the following statements is definitely true?

- (1) Object B is repelling magnet A.
- (2) Object B is attracting magnet A
- (3) Magnet A is attracting object B.
- (4) Object B can be made of any type of metal.













20. Three objects made of different materials and different shapes, are arranged in a straight line at positions X, Y and Z in a dark room as shown below.



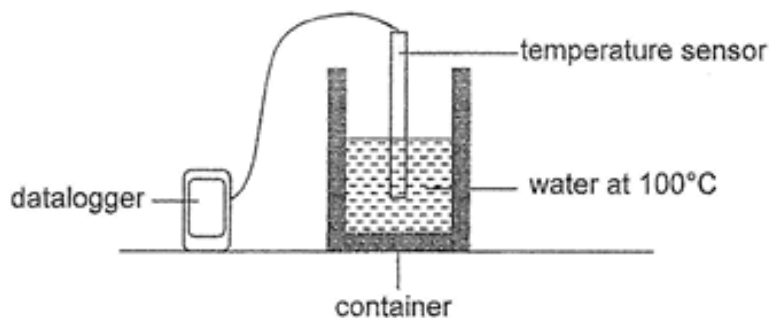
The diagram below shows the shadow formed on the screen when the torch is switched on.



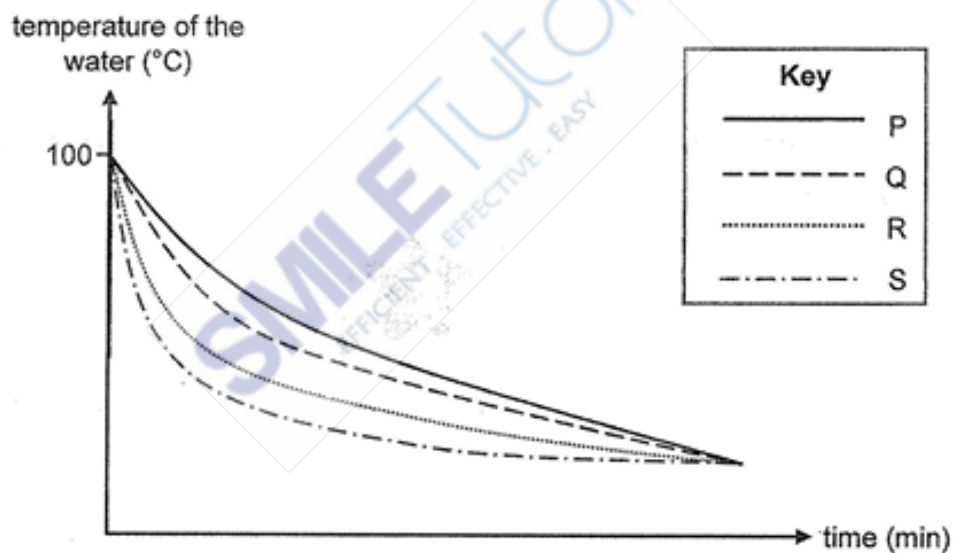
Which one of the following shows the correct objects at positions X, Y and Z?

	X	Y	Z
(1)			
(2)			
(3)			
(4)			

21. Four containers, P, Q, R and S, made of different materials, are set up as shown below and placed in a room at room temperature. Each container contains equal volume of water at  $100^{\circ}\text{C}$ .



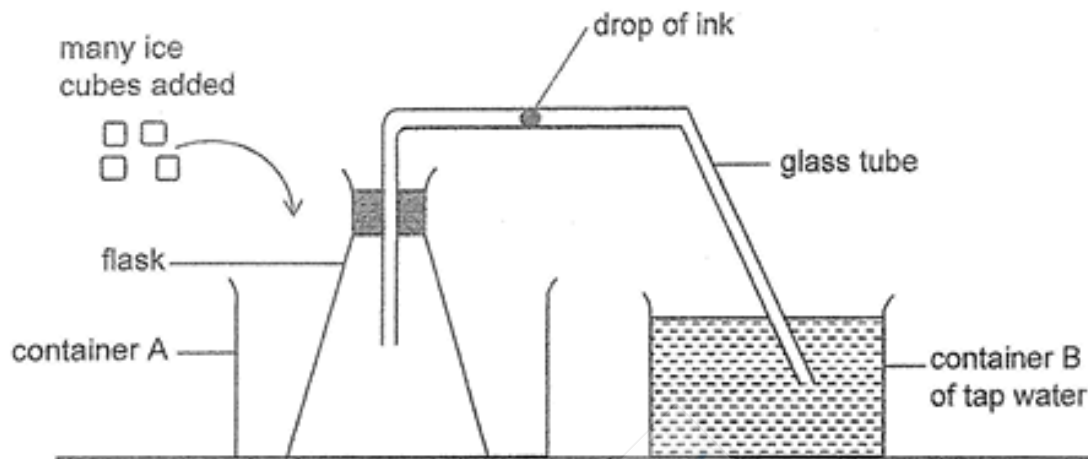
A temperature sensor is placed in the container of water to measure the change in temperature of the water over some time.



Which container is most suitable to keep ice cubes cold for the longest period of time?

- (1) P
- (2) Q
- (3) R
- (4) S

22. An experiment was set up as shown below.



Which of the following is a possible observation after many ice cubes were added to fill container A?

- (1) The water level in container B rises.
- (2) The water level rises in the glass tube.
- (3) The drop of ink moves away from the flask.
- (4) There are bubbles seen leaving the glass tube.

### Booklet B (36 marks)

For questions 23 to 34, write your answers clearly in this booklet.

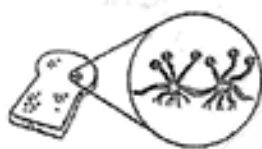
The number of marks available is shown in brackets [ ] at the end of each question or part question.

(36 marks)

23. Classify the following living things under the correct headings in the table below. [2]



fern



mould



mushroom



tree

Plants	Fungi



24. The diagram below shows a plant.



(a) Name part K.

[1]

K: \_\_\_\_\_

(b) The leaf absorbs sunlight to make \_\_\_\_\_ for the plant.

[1]

25. The picture below shows a pan with some oil in it.



Circle the correct state for the following things.

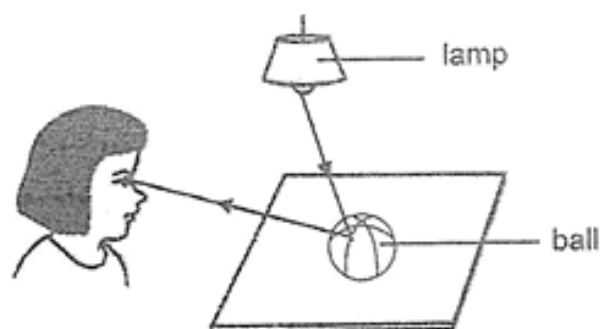
(a) pan:    solid   /   liquid   /   gas

[1]

(b) oil:    solid   /   liquid   /   gas

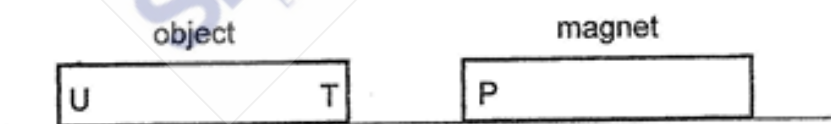
[1]

26. The diagram below shows how Rani sees a ball.



The \_\_\_\_\_ from the lamp is \_\_\_\_\_ by the ball and enters Rani's eyes. [2]

27. Sally brought end P of a magnet near end T of an object as shown below. She observed that the object moves away from the magnet.



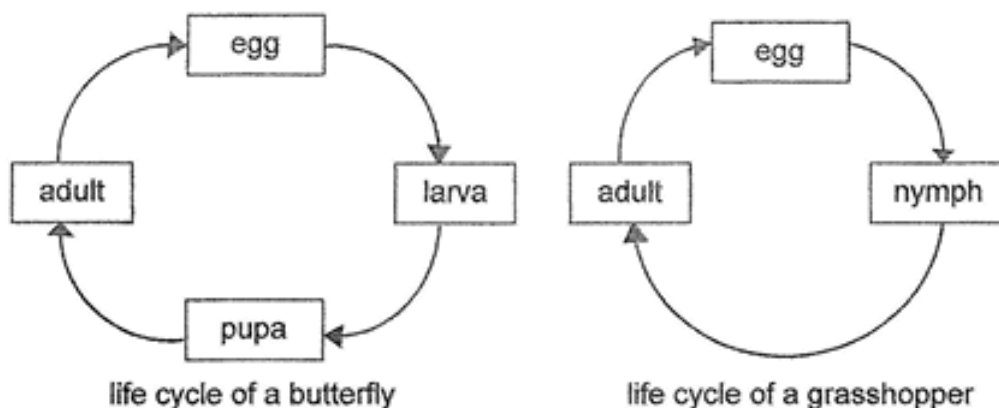
- (a) Based on her observations, what can Sally conclude about the object? [1]

---

- (b) What will happen if Sally brings end P of the magnet near end U of the object? [1]

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28. The diagram below shows the life cycles of a butterfly and a grasshopper.



(a) Based on the diagrams above, state two differences between the life cycles of the butterfly and grasshopper. [2]

Difference 1:

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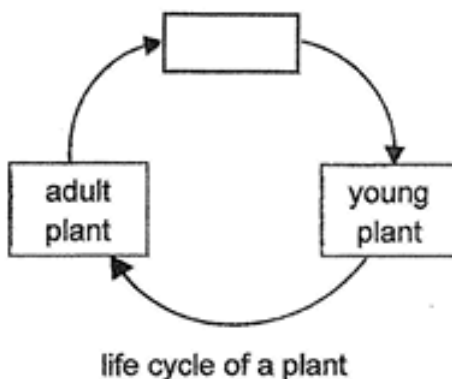
Difference 2:

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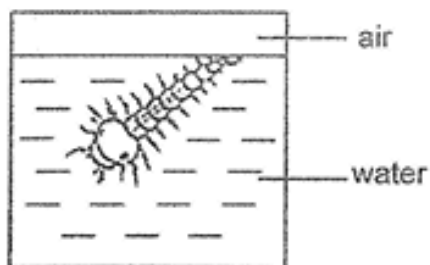


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(b) The diagram below shows the life cycle of a plant. Fill in the missing stage in the box below. [1]



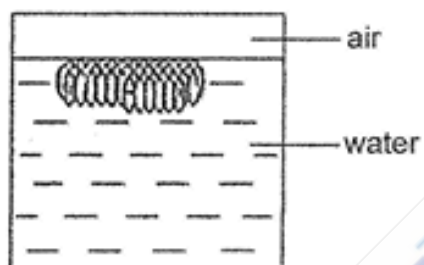
29. Study the different stages of a mosquito shown below.



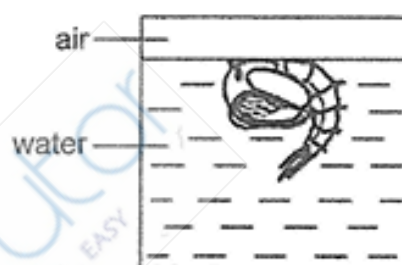
A



B

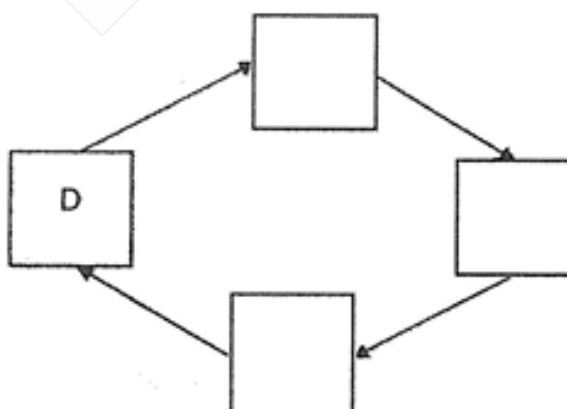


C



D

- (a) Based on the above diagrams, fill in the boxes below with the letters, A, B and C, to complete the life cycle of the mosquito. [1]



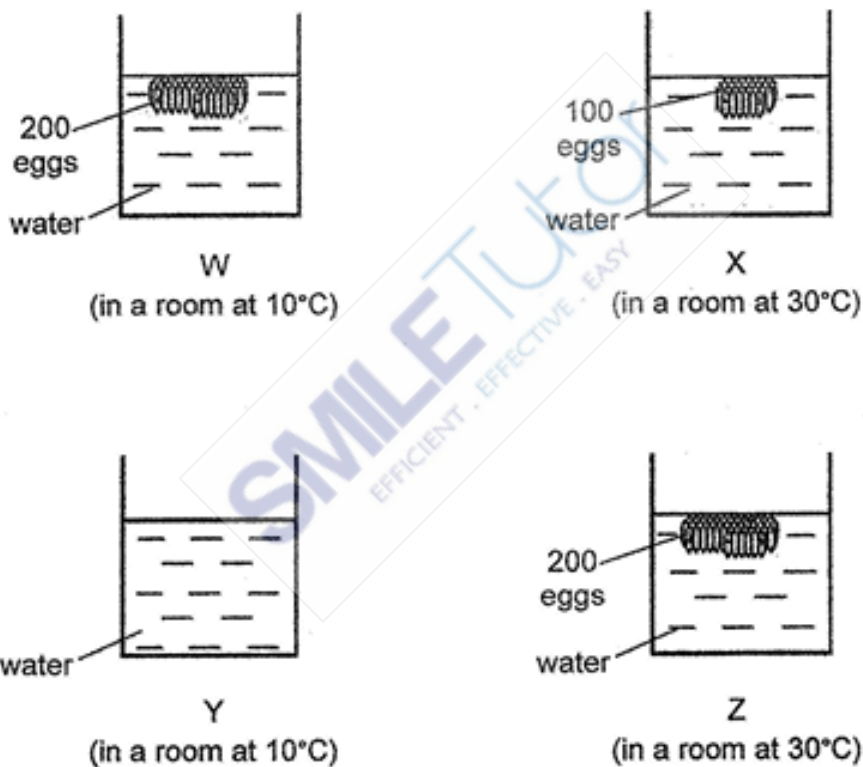
- (b) At which stage of the life cycle, A, B, C or D, does the mosquito moult several times? Explain why. [1]

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Jill prepared four similar set-ups, W, X, Y and Z, as shown in the diagram below.

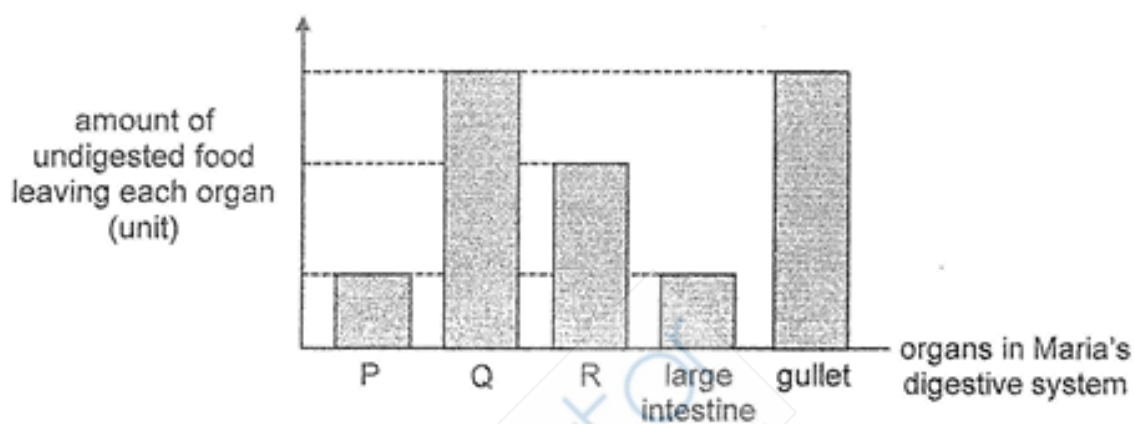


She wanted to find out if the surrounding temperature affects the number of eggs that hatch.

- (c) Which two set-ups, W, X, Y and Z, should Jill use to ensure a fair test? [1]

Set-up \_\_\_\_\_ and Set-up \_\_\_\_\_

30. Maria ate a plate of chicken rice. The graph below shows the amount of undigested food leaving each organ of her digestive system, P, Q, R, large intestine and gullet, after a meal. (The organs are not placed in sequence.)



- (a) Identify organs P and Q. [1]

P: \_\_\_\_\_

Q: \_\_\_\_\_

- (b) Explain why the amount of undigested food leaving organ P and the large intestine are the same. [1]

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Maria cut up her cooked chicken meat into smaller pieces before eating.



100 g of cooked  
chicken meat



100 g of cooked chicken  
meat cut into pieces

(c) Explain how cutting up the chicken meat affects the rate of digestion. [2]

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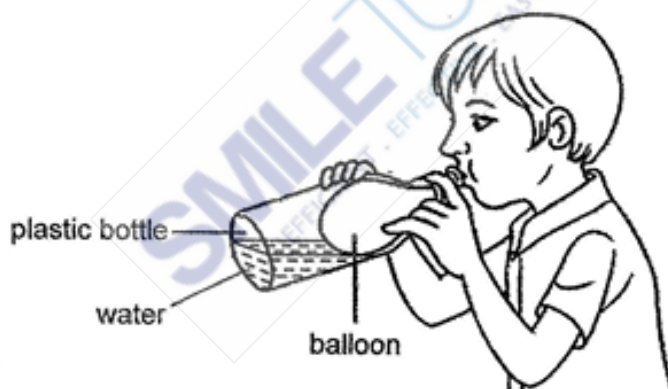
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31. Henry inserted a balloon into a plastic bottle which contained some water. He stretched the opening of the balloon over the mouth of the bottle as shown in the diagram below.



He then tried to blow into the balloon as shown below.



- (a) He found it very difficult to blow into the balloon. Explain why. [2]

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Henry cut a hole into the same plastic bottle as shown below. He used an identical balloon and tried to blow into the balloon.



- (b) In the diagram above, draw an arrow (  $\rightarrow$  ) to show what happens to the air in the bottle when Henry blows air into the balloon. [1]

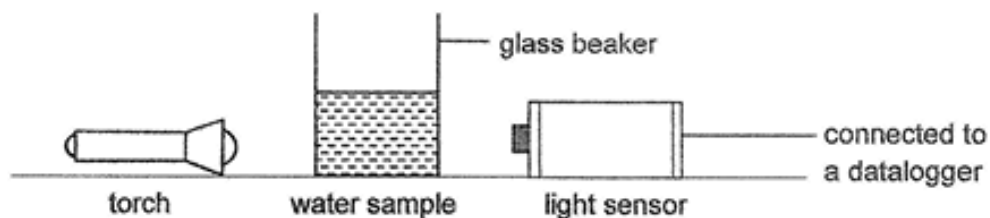
Henry noticed that the balloon inflated to a bigger size easily. He also observed that the water level rose.

- (c) Why did the water level rise in the bottle? [1]

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32. There are different amounts of dirt particles found in the water of ponds A, B and C. Tom collected equal volume of water from ponds A, B and C. He set up the following experiment in a dark room as shown below.



He used the same torch and light sensor to shine light through the identical beakers for the different samples of water. He used the light sensor to measure the amount of light that passed through the water.

Water sample	Amount of light recorded by sensor (units)
None	600
A	350
B	580
C	100

- (a) Explain why the amount of light recorded is the lowest in water sample C. [1]

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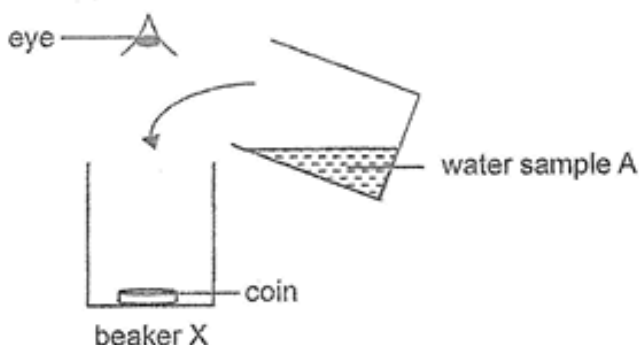


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- (b) State another variable Tom should keep constant in his experiment. [1]

---

Tom did another experiment where he placed the coin at the bottom of beaker X as shown below. He then poured water from water sample A into beaker X.

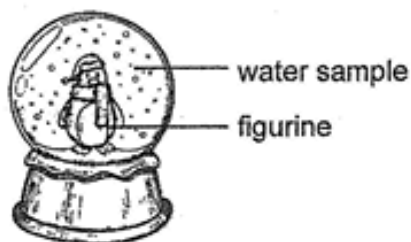


Tom stopped pouring when he could no longer see the coin from the top of the beaker. He measured the amount of water in beaker X before repeating this for water samples B and C.

- (c) Based on the results in the previous table, fill in either water samples 'A', 'B' or 'C' in the boxes below. [1]

Water sample	Amount of water poured until the coin could not be seen (ml)
<input type="text"/>	950
<input type="text"/>	550
<input type="text"/>	300

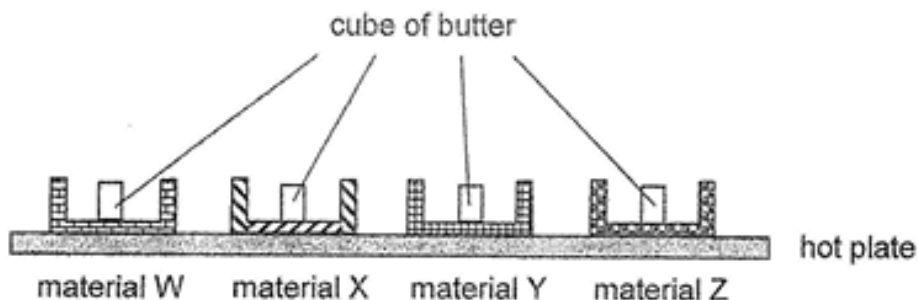
- (d) The diagram below shows a glass snow globe with a figurine inside.



Based on the table given on page 12, which water sample, A, B or C, would be the most suitable to fill the snow globe for users to see the figurine most clearly? [1]

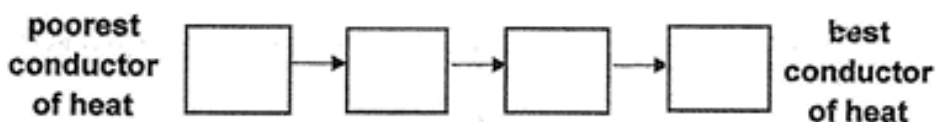
Water sample \_\_\_\_\_

33. Desmond conducted an experiment using four different materials, W, X, Y and Z, as shown below. Each material had a cube of identical sized butter placed in it. The materials were then placed on a hot plate at the same time.



Material	Time taken for the butter to melt completely (min)
W	10
X	7
Y	2
Z	5

- (a) Arrange the four materials, W, X, Y and Z, from the poorest conductor of heat to the best conductor of heat. [1]



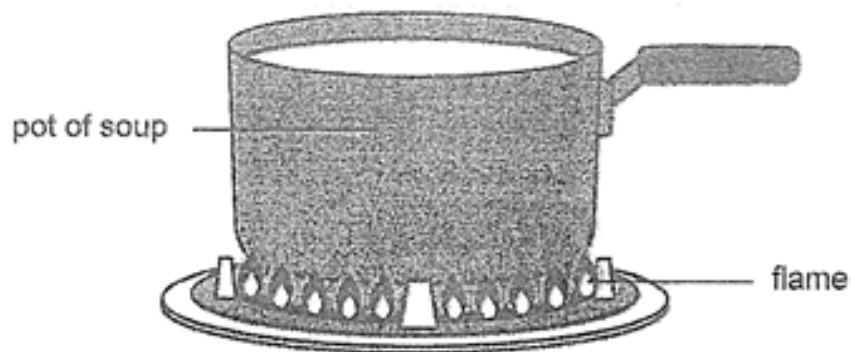
- (b) What can Desmond do to ensure that the results of the experiment are reliable? [1]

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Desmond wanted to have his soup boiled the fastest over a flame.



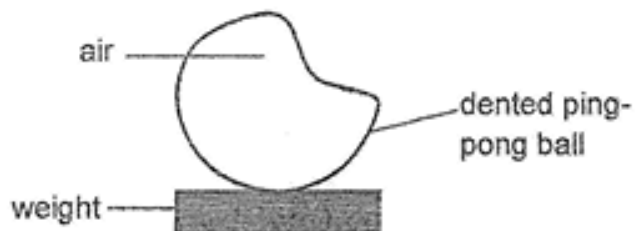
- (c) Based on the results of his experiment, which material, W, X, Y or Z, is most suitable to make the base of the pot? Explain why. [2]

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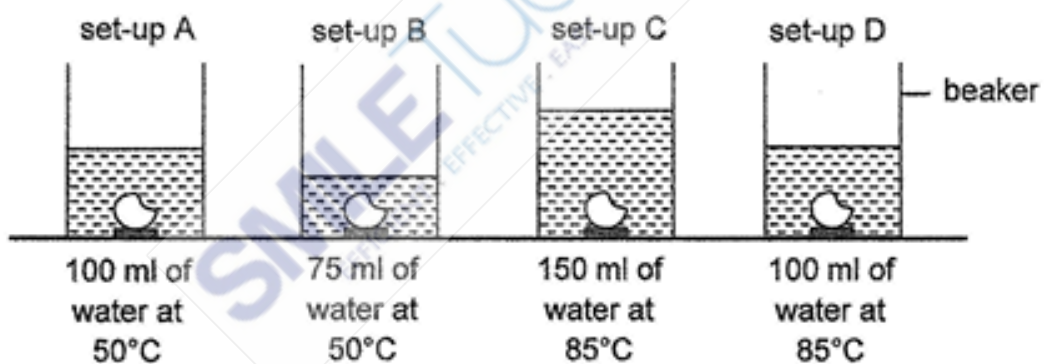
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34. Melissa wanted to find out the fastest way to remove a dent on a plastic ping-pong ball. A weight was attached to the ping-pong ball.



She conducted an experiment using the four set-ups, A, B, C and D as shown below. Four ping-pong balls with dents of equal size were taken from a room at room temperature. Each ball was placed into a beaker of water as shown below.



- (a) Explain why the dent on the ping-pong ball could be removed using the above method. [1]

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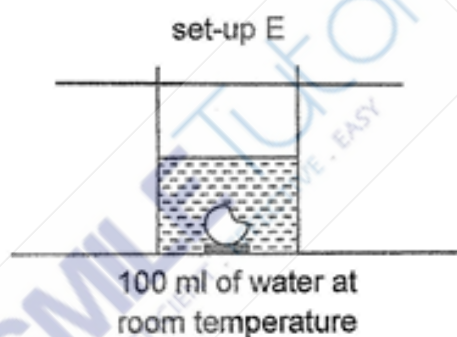
- (b) Melissa observed that the dent on the ping-pong ball in set-up C was removed the fastest. Explain why. [2]

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Melissa repeated the experiment with 100 ml of water at room temperature for set-up E as shown below.



- (c) Explain why the dent in the ping-pong ball could not be removed using set-up E above. [1]

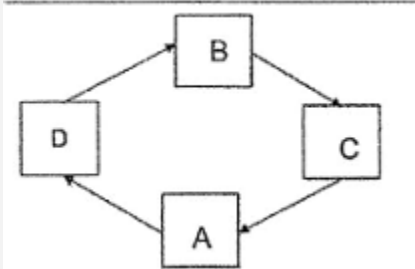
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**End of Paper**

## ANSWER SHEET

01. 4	11. 2	21. 1
02. 3	12. 3	22. 2
03. 3	13. 1	
04. 4	14. 2	
05. 4	15. 2	
06. 2	16. 2	
07. 1	17. 1	
08. 4	18. 2	
09. 2	19. 3	
10. 4	20. 3	

<b>Q23</b>	Plant: tree, fern Fungi: mould, mushroom
<b>Q24</b>	a) Park K: Root(s) b) food
<b>Q25</b>	a) Pan: solid b) Oil: liquid
<b>Q26</b>	light, reflected
<b>Q27</b>	a) The object is a magnet b) The magnet will attract end U of the object.
<b>Q28</b>	a) The butterfly has four stages in its life cycle while the grasshopper has three stages in its life cycle. The young of the grasshopper looks like its adult but the young of butterfly does not. The butterfly has a pupa stage that does not feed but the grasshopper does not have this stage. b) Seed
<b>Q29</b>	a) 

	b) A/ Larval stage/ Larva. The mosquito larva moults to grow in size. c) W and Z
<b>Q30</b>	a) P: small intestine, Q: mouth b) Digestion is completed in the small intestine (P). OR The large intestine does not have digestion. c) Cutting up the chicken meat increases the (exposed) surface area of the meat to the digestive juices (c), hence increasing the rate of digestion (e).
<b>Q31</b>	a) The air and the water in the bottle occupy space (c). After some blowing, the air in the bottle cannot be compressed further (e).

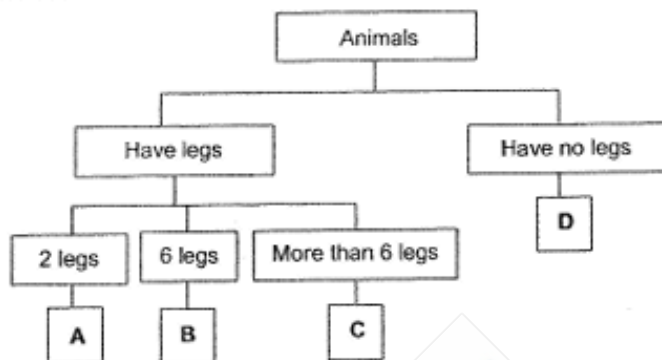
									
c	The balloon occupied the space previously occupied by the water. or The balloon displaced the water in the bottle.								
32a	Water sample C had the <b>most</b> * dirt which blocked <b>most</b> * light preventing it from passing through.								
b	Distance between the torch and light sensor (2 reference points are needed)								
c	<table border="1"> <thead> <tr> <th>Water sample</th><th>Amount of water poured until the coin is not seen (ml)</th></tr> </thead> <tbody> <tr> <td>B</td><td>950</td></tr> <tr> <td>A</td><td>550</td></tr> <tr> <td>C</td><td>300</td></tr> </tbody> </table>	Water sample	Amount of water poured until the coin is not seen (ml)	B	950	A	550	C	300
Water sample	Amount of water poured until the coin is not seen (ml)								
B	950								
A	550								
C	300								
d	Water sample B								
33a	W, X, Z, Y								
b	He can redo the experiment several times.								
c	Material Y Material Y is the <b>best</b> conductor of heat (given in part (a)). ( <u>Claim – Property</u> ) The time taken for butter to melt completely is the <b>shortest</b> ( <u>Evidence from data</u> ) the soup will <b>gain heat the fastest/the most from the flame</b> [heat source] ( <u>Reason – application to scenario</u> )								
34a	<b>The air in the ping-pong ball gains heat from the hot water (c) and expands (e)</b>								
b	Set-up C had the <b>most</b> amount of water at the <b>highest</b> temperature. (c) OR The water had the most heat. r. Hence, the air in the ping-pong ball will gain heat the <b>fastest</b> from the hot water (e) and expand the <b>fastest</b> .								
c	The temperature of the water and (the air in) the ping pong ball are the same. ( <u>C- Temperature difference</u> ) There was <b>no heat gain</b> by the air in the ping-pong ball from the water ( <u>e- heat transfer</u> )								

## ANGLO-CHINESE SCHOOL (JUNIOR) SA2 PAPER

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade your answer on the Optical Answer Sheet.

(56 marks)

1. Study the chart.

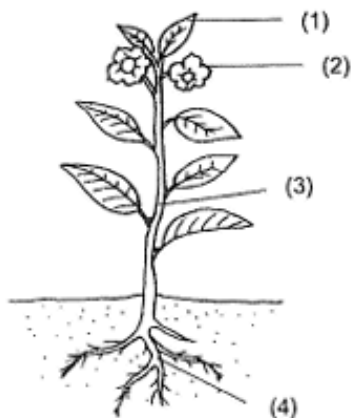


Where would you put this animal in the chart?



- (1) A
- (2) B
- (3) C
- (4) D

2. Which part, (1), (2), (3), or (4), supports the plant?



3. Which of the following objects is not made of waterproof material?

(1) wooden fork



(2) ceramic pot



(3) towel



(4) rubber gloves



4. Which of the following is a source of light?

(1) a lighted torch



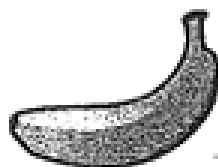
(2) the moon



(3) eyes



(4) a banana



5. Which organ system is shown in the diagram?



- (1) skeletal system
- (2) muscular system
- (3) circulatory system
- (4) respiratory system

6. Ivan made the following observations on the life cycle of an animal.

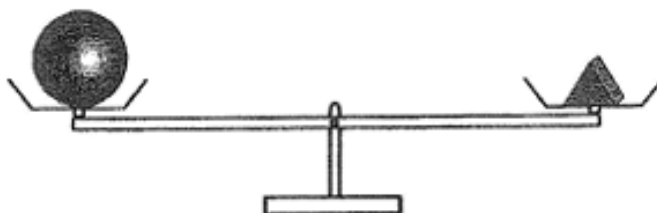
- There are four stages in the life cycle.
- The young does not look like the adult.

Which animal was Ivan observing?

- (1) frog
- (2) beetle
- (3) chicken
- (4) cockroach



7. Study the diagram.



Which of the following statement about the two objects is true?

- (1) They have the same size.
  - (2) They have the same mass.
  - (3) They have the same shape.
  - (4) They have the same volume.
8. Hazel boiled some water in the kettle shown.



She is able to hold the kettle of boiling water using the plastic handle. This is because plastic is a \_\_\_\_\_.

- (1) light material
  - (2) flexible material
  - (3) poor conductor of heat
  - (4) good conductor of heat
9. The diagram shows a magnet brought near a plastic block.



What will happen to the plastic block?

- (1) It will move up.
- (2) It will not move.
- (3) It will move to the left.
- (4) It will move to the right.

10. Richard places a metal spoon in a bowl of hot soup.



The spoon becomes hotter after a while.

Which one of the following explains this?

- (1) The bowl loses heat to the hot soup.
- (2) The spoon loses heat to the hot soup.
- (3) The hot soup gains heat from the spoon.
- (4) The spoon gains heat from the hot soup.

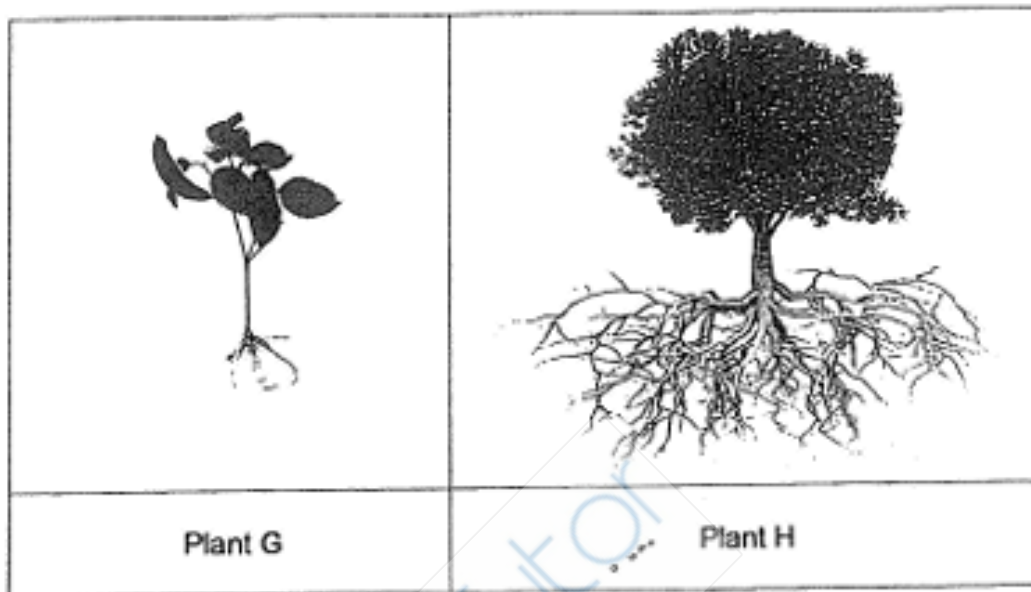
11. The diagram shows a germinating seed.



Which part, W, X, Y or Z, of the seed grows out first during germination?

- (1) W
- (2) X
- (3) Y
- (4) Z

12. The pictures show two plants, G and H.



Four students made comments about the plants.

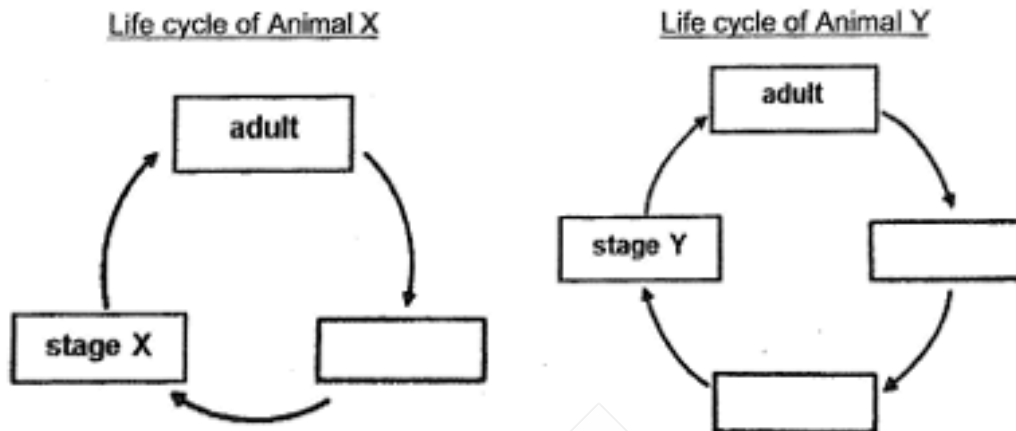
- Aminah: Only the roots of Plant H anchor the plant firmly to the ground.  
 Bala: Plant G will be uprooted more easily during a storm.  
 Caden: Plant H can make more food than Plant G.  
 David: The roots of Plant H absorb more water and mineral salts from the soil than the roots of Plant G.

Whose comments are true?

- (1) Bala and David
- (2) Aminah and Caden
- (3) Bala, Caden and David
- (4) All four students

13. The diagram shows the stages in the life cycle of two animals, X and Y.

Each box represents a stage of the life cycle.



What are stages X and Y?

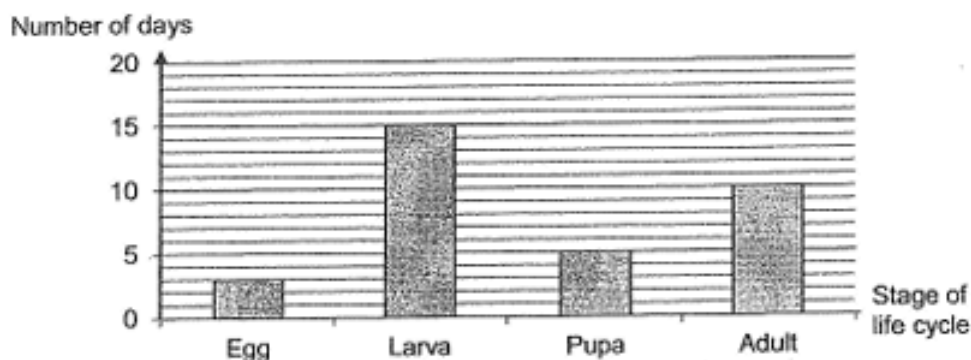
	stage X	stage Y
(1)	pupa	larva
(2)	nymph	pupa
(3)	nymph	larva
(4)	larva	pupa

14. Which of the following describes the larva of the butterfly?

- A It eats a lot.
- B It does not move.
- C It looks like the adult.
- D It moults several times.

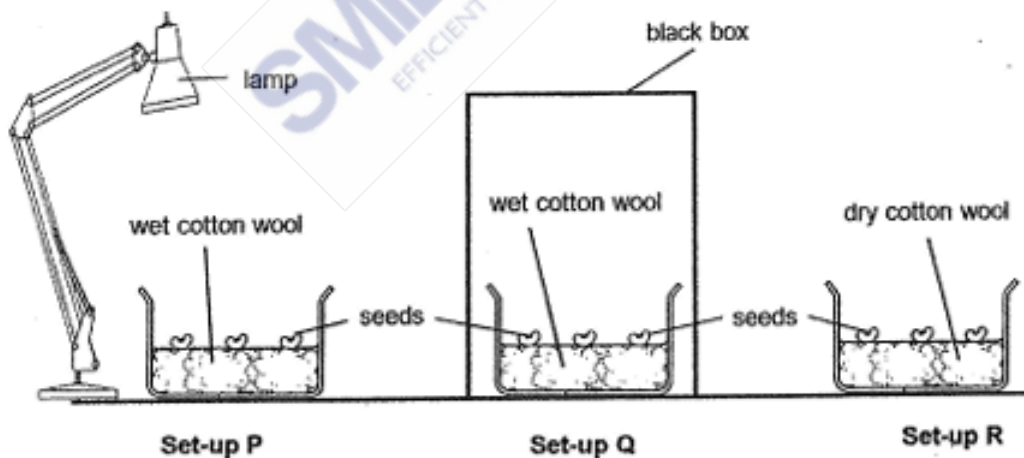
- (1) A and D only
- (2) B and C only
- (3) A, C and D only
- (4) A, B, C and D

15. The graph shows the number of days Animal X was at the different stages of its life cycle.



Based on the graph, which of the following statements about Animal X is correct?

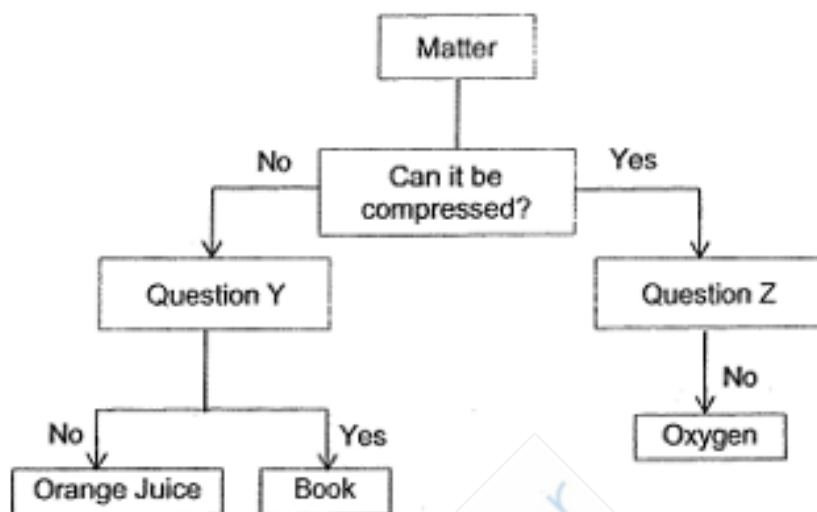
- (1) It has a three-staged life cycle.
  - (2) The egg hatched on the 5<sup>th</sup> day.
  - (3) The pupa became an adult after 5 days.
  - (4) It was a pupa for more days than a larva.
16. Ethan prepared three set-ups, P, Q and R, to investigate the conditions needed for seeds to germinate. All the set-ups were placed in the classroom at 30°C.



In which of the set-up(s) would the seeds germinate?

- (1) P only
- (2) P and Q only
- (3) Q and R only
- (4) P, Q and R

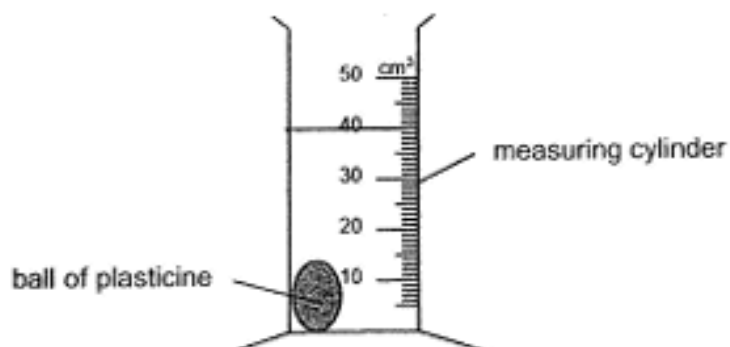
17. Study the flowchart.



What are the most suitable questions for Y and Z?

	Question Y	Question Z
(1)	Can it be seen?	Does it have a definite shape?
(2)	Does it have mass?	Does it have a definite shape?
(3)	Does it have a definite shape?	Can it be seen?
(4)	Can it be seen?	Does it have mass?

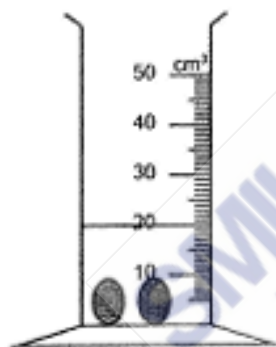
18. Asher placed a ball of plasticine into a measuring cylinder. He noticed that the water level rose to the  $40 \text{ cm}^3$  mark as shown in the diagram.



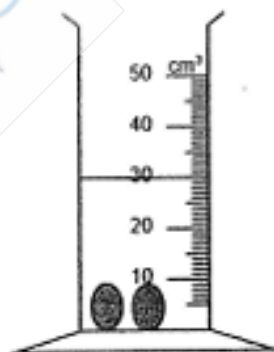
He then took the ball of plasticine out of the water, cut it into two pieces and lowered them gently into the water again.

Which of the following diagrams show the correct water level in the measuring cylinder?

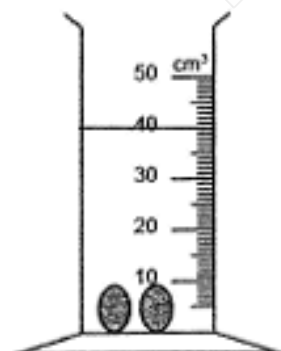
(1)



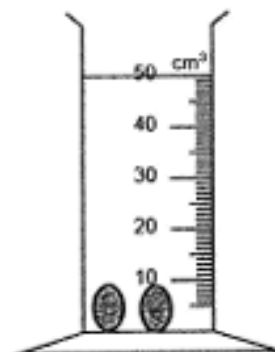
(2)



(3)

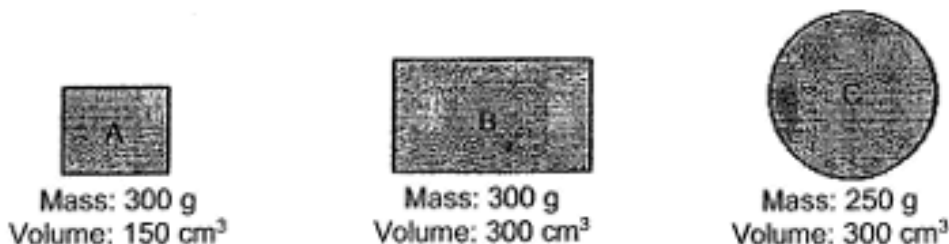


(4)



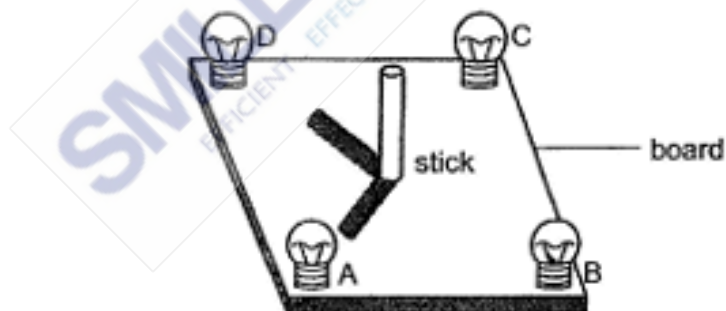


19. The diagram shows three objects, A, B and C.



Based on the information given, which of the following statements is true?

- (1) Object A has a smaller mass than object B.
  - (2) Object A occupies more space than object B.
  - (3) Object B occupies more space than object C.
  - (4) Object B and object C occupy the same amount of space.
20. A stick is placed in the middle of a square board.



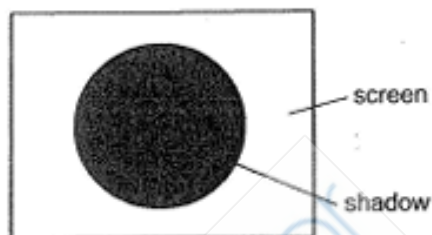
Which two bulbs are switched on to form the shadows on the board?

- (1) A and D
- (2) A and B
- (3) B and C
- (4) C and D

21. The diagram shows three objects A, B and C.

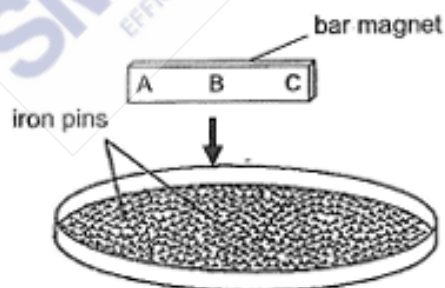


Which object(s), A, B and/or C, can cast the shadow as shown?



- (1) B only
- (2) A and C only
- (3) B and C only
- (4) A, B and C

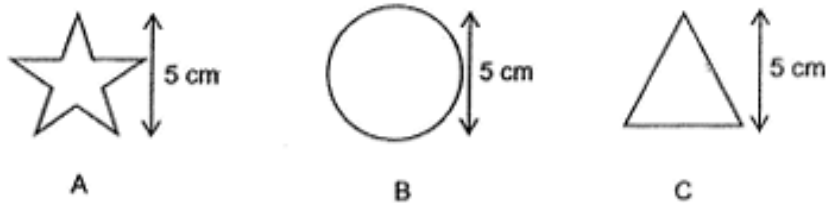
22. A bar magnet was lowered into a tray of iron pins as shown.



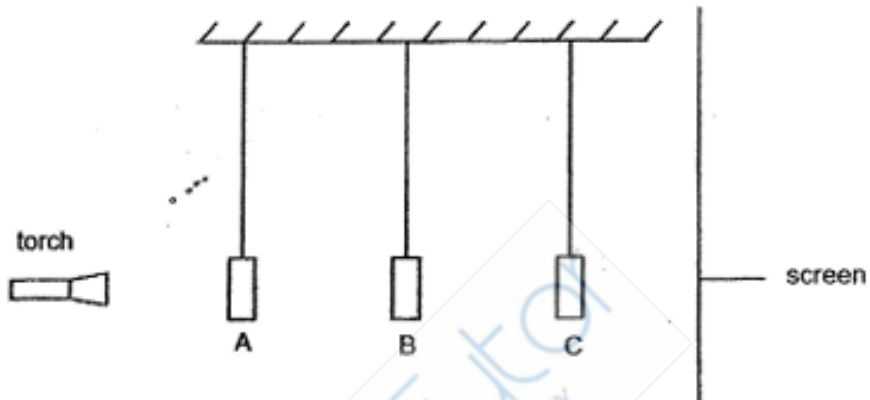
Which of the following most likely shows the number of iron pins attracted to the bar magnet at positions A, B and C?

	A	B	C
(1)	2	10	2
(2)	10	10	10
(3)	10	2	10
(4)	10	10	2

23. Tim cut out three objects, A, B and C, which are made of different materials as shown.



He hung the three shapes in different positions as shown in the set-up below.



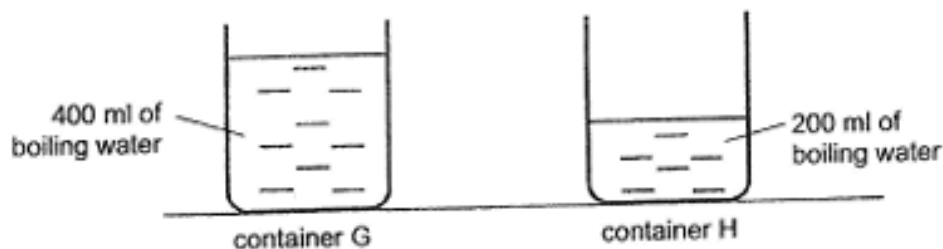
The following diagram shows the shadows formed on the screen when the torch was switched on.



Based on the shadows formed, which of the following correctly matches the objects A, B and C to their properties?

	Does not allow light to pass through	Allows some light to pass through	Not possible to tell
(1)	A	B	C
(2)	B	A	C
(3)	B	C	A
(4)	C	B	A

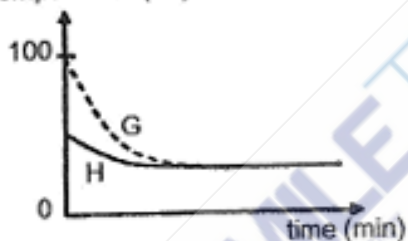
24. Hema placed two identical empty containers, G and H, both initially at room temperature, on a table. She poured 400 ml of boiling water into container G and 200 ml of boiling water into container H.



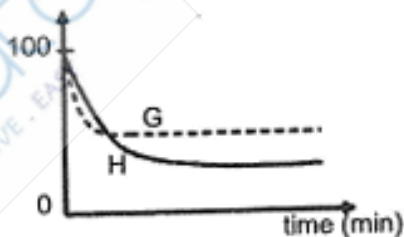
She recorded the temperatures of the water in G and H every minute for some time in a graph.

Which graph shows the correct results?

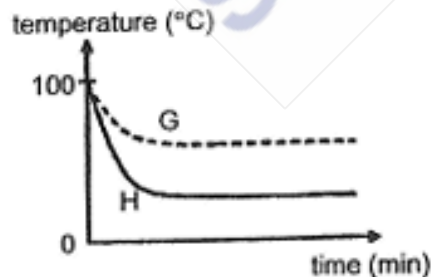
(1) temperature ( $^{\circ}\text{C}$ )



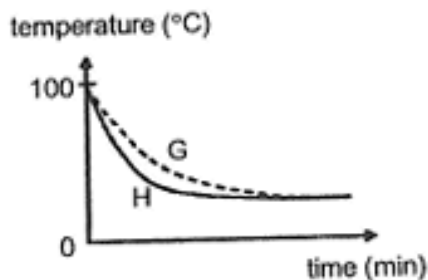
(2) temperature ( $^{\circ}\text{C}$ )



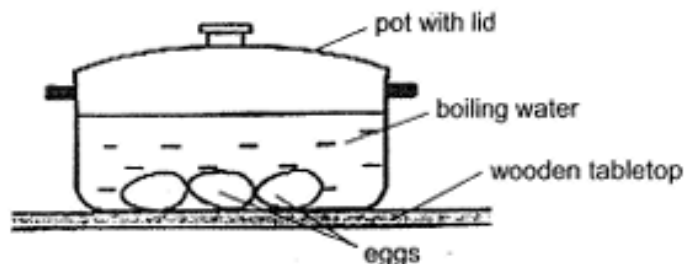
(3)



(4)



25. Samantha wanted to cook some eggs with boiling water. She covered the pot with a lid for 10 minutes.

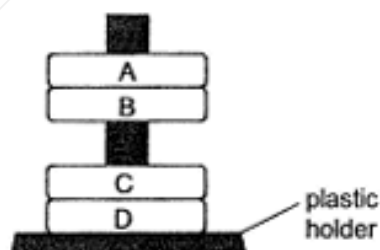


What can Samantha do to make sure that the water in the same pot would be kept as hot as possible?

- A Remove the lid on the pot.
- B Place the pot on a rubber mat.
- C Place the pot in an air-conditioned room.
- D Add some boiling water to the pot every two minutes.

- (1) A and C only
- (2) B and D only
- (3) C and D only
- (4) A, B and D only

26. Four rings, A, B, C and D, are placed one at a time on a plastic holder. Among the four rings, two are ring magnets and two are steel rings. The observation is as shown.



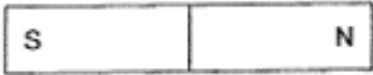

Which two are the steel rings?



- (1) A and B
- (2) A and D
- (3) B and C
- (4) C and D



27. The diagram shows a compass.

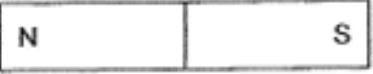



Which of the following show(s) the correct observation when a bar magnet is placed beside the compass?

**A**  

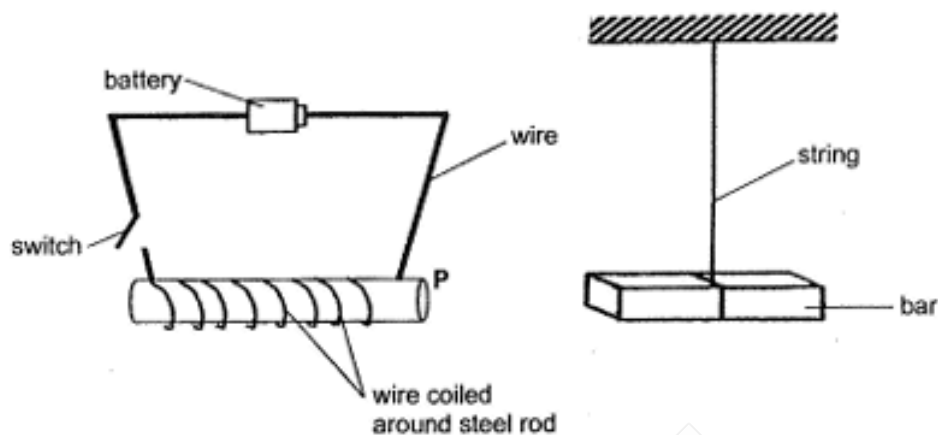
**B**  

**C**  

**D**  

- (1) B only
- (2) C only
- (3) A and D only
- (4) B and C only

28. George prepared the set-up as shown. When he closed the switch, the bar swung towards point P.



Which conclusion(s) can be made from his observation?

- A The bar is a magnet.
- B The bar is made of a magnetic material.
- C The bar will swing away from point P if there were more coils of wires around the steel rod.

- (1) A only
- (2) B only
- (3) A and B only
- (4) B and C only

**End of Booklet A**



For questions 29 to 41, write your answers in this booklet.

The number of marks available is shown in the brackets [ ] at the end of each question or part question. (44 marks)

29. Classify the following into matter and non-matter.

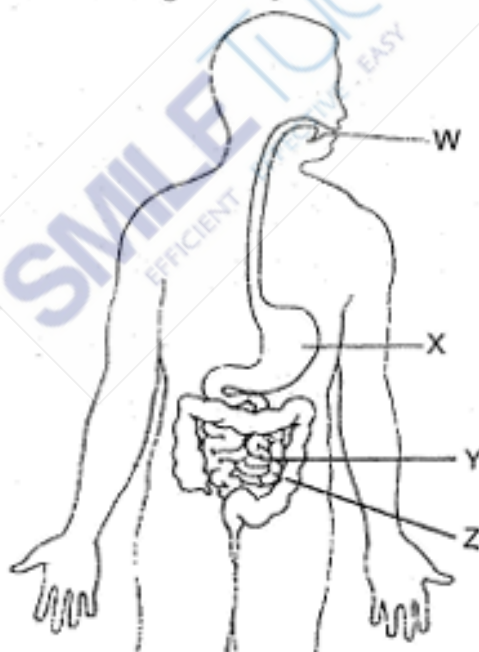
[3]

water	air	shadow
-------	-----	--------

matter	non-matter

30. The diagram shows the human digestive system.



Using the letters, W, X, Y or Z, identify the part where

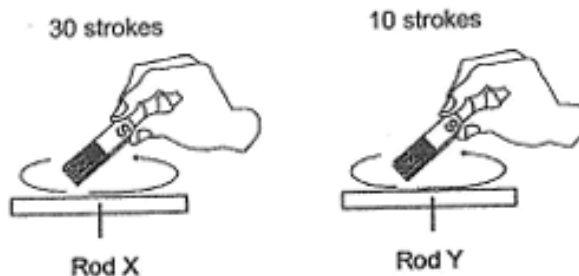
(a) digestion of food is completed: \_\_\_\_\_

[1]

(b) there is no digestion of food: \_\_\_\_\_

[1]

31. Joshua stroked two similar iron rods X and Y with the same magnet as shown.



Both rods became magnets and were used to attract similar pins.

- (a) Circle the correct answer.

[1]

Rod X attracted ( less pins than / the same number of pins as / more pins than ) rod Y.

- (b) Choose the correct word from the box to complete the statement.

[1]



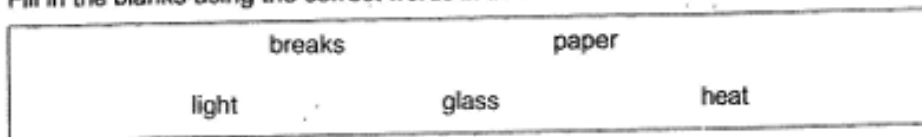
Joshua's observation shows that rods X and Y are \_\_\_\_\_ materials.

32. The diagram shows a photo frame.



Fill in the blanks using the correct words in the box.

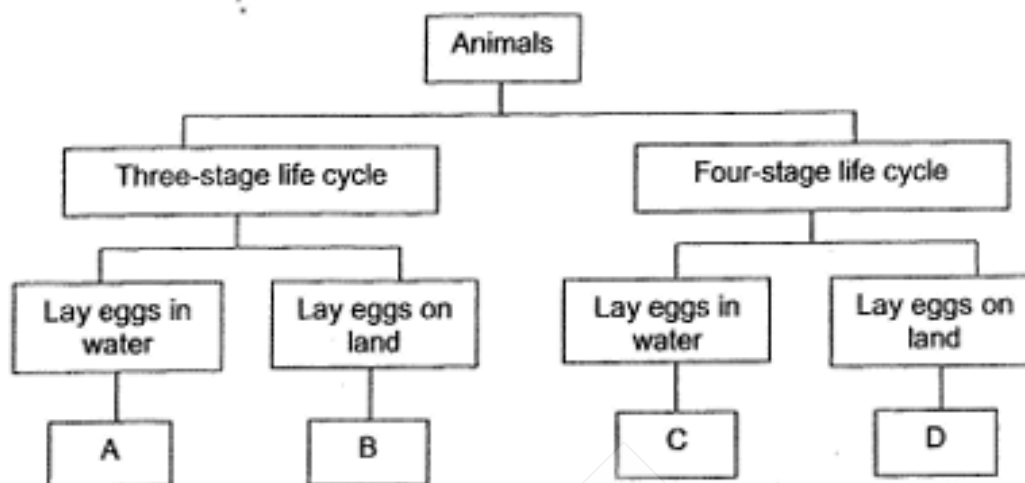
[3]



Part X is made of \_\_\_\_\_ because it allows \_\_\_\_\_ to pass through so that we can see the photograph. However, part X \_\_\_\_\_ easily when dropped.

(Go on to the next page)

33. Study the classification chart carefully.



(a) Based on the classification chart, state all the characteristics of Animal D. [1]

---



---

(b) Give an example of animal A and animal B. [1]

A: \_\_\_\_\_

B: \_\_\_\_\_

(c) Based on the classification chart, which animal, A, B, C or D, best represents a mosquito? [1]

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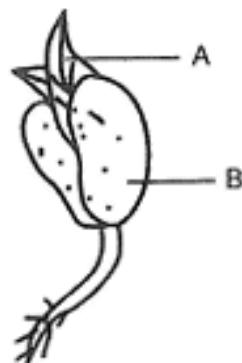
(d) Name the stage of the life cycle of a mosquito at which it is considered harmful to humans. Give a reason for your answer. [1]

---



---

34. Amy observed the different stages in the life cycle of a bean plant. During the first few days of growth of the bean plant, the seedling appeared as shown.



- (a) Name part A and state its function. [1]

Part A: \_\_\_\_\_

Function: \_\_\_\_\_

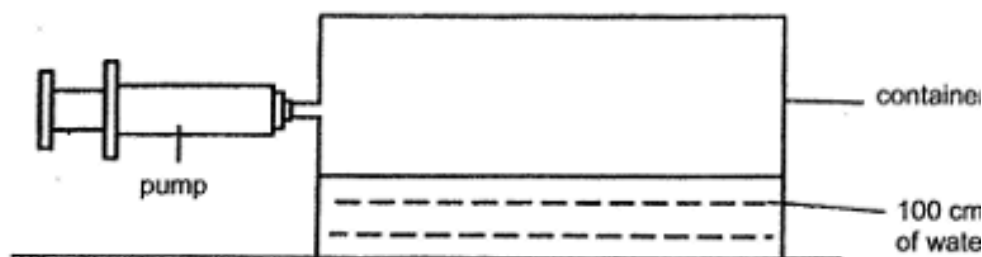
- (b) As the seedling develops into a young plant, the mass of part B decreases. Explain why. [1]

\_\_\_\_\_  
 \_\_\_\_\_

- (c) Name the stage of the life cycle of the bean plant that Amy will observe fruits. [1]

\_\_\_\_\_

35. Peter has a container with a volume of  $300 \text{ cm}^3$  and filled it with  $100 \text{ cm}^3$  of water. He connected a pump to the container and pumped in  $50 \text{ cm}^3$  of air into the container.



- (a) State the volume of air in the container after air was pumped into the container.

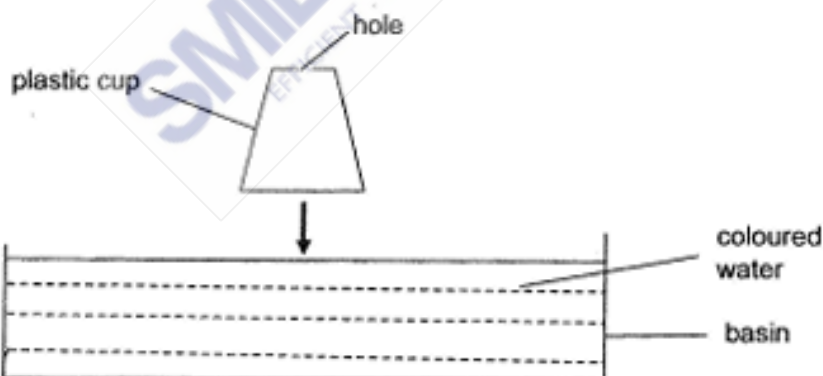
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- (b) What property of air is shown in this experiment?

---

Peter conducted another experiment. He made a small hole at the bottom of a transparent plastic cup. He then lowered the cup into a basin of coloured water as shown in the diagram, until it touched the bottom of the basin.

He observed some bubbles rising from the hole in the cup as he lowered the cup into the water.



- (c) Explain why bubbles were observed.

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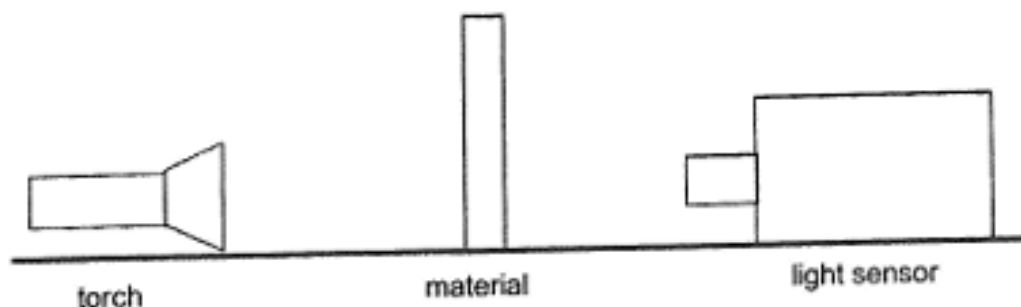


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36. James set up an experiment as shown. He wanted to find out how much light can pass through different materials A, B, C and D. The light sensor is used to measure the amount of light that passes through the materials.



The results are recorded in the table.

Materials	Amount of light detected by the light sensor (units)
A	1000
B	400
C	900
D	0

- (a) State the property of light that allows the light from the torch to be detected by the light sensor. [1]

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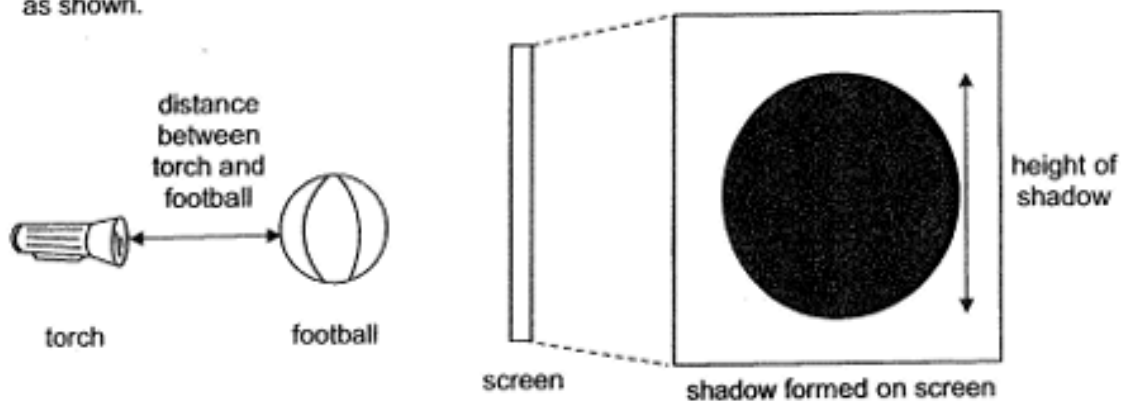
- (b) Based on the results, which material, A, B, C or D, should James use to make a curtain so that his room will be completely dark during daytime? Give a reason for your answer. [2]

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37. Joshua wanted to find out how the distance between the torch and the football affects the height of the shadow formed on the screen. He set up an experiment as shown.



He recorded his results in the table.

Distance between torch and football (cm)	Height of shadow formed (cm)
20	7
15	9
10	11
5	13

- (a) How does the distance between the torch and the football affect the height of shadow formed? [1]

---



---

- (b) State the possible height of the shadow formed if the distance between the torch and the football is 8 cm. [1]

Height of shadow: \_\_\_\_\_

- (c) Without moving the torch or the football, state one change that Joshua can make to the set-up to form a taller shadow. [1]

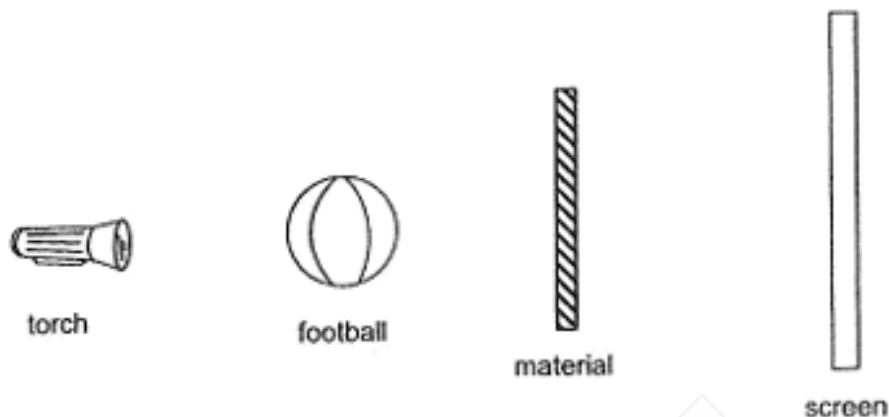
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Joshua then decided to find out if different types of materials affected the shadow of the football formed on the screen. He placed each material, X, Y and Z, in between the football and the screen as shown.



His observations are recorded in the table.

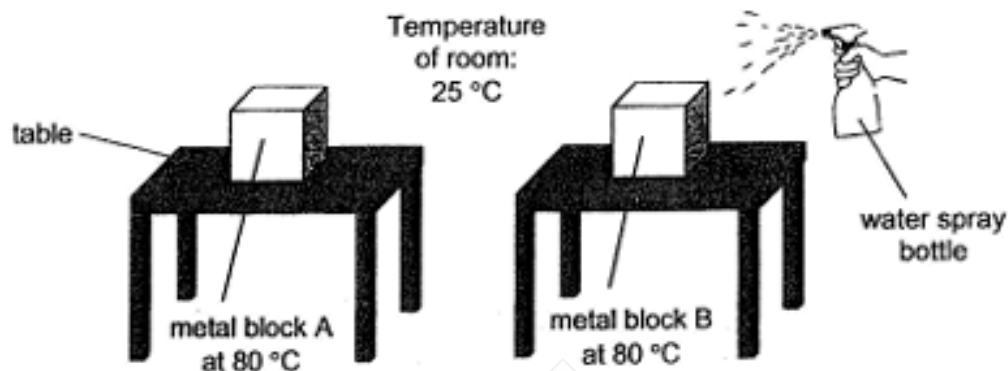
Material	Shadow of football formed on screen
X	Dark shadow
Y	Light shadow
Z	No shadow formed

- (d) The three types of materials that Joshua used were glass, wood and tracing paper. Based on his observations, match the type of materials that he used by writing X, Y, or Z in the boxes provided.

[1]

Type of Material	Material (X, Y or Z)
wood	
glass	
tracing paper	

38. Callen wanted to find out if the presence of water on a metal block affects how fast the temperature of the metal block changes. He left two identical metal blocks A and B, which were heated up to  $80^{\circ}\text{C}$ , in a room as shown.



He sprayed some water on metal block B and used a heat sensor to take the temperature of the metal blocks over 10 minutes and recorded his results in the table.

Time (min)	0	2	4	6	8	10
Temperature of metal block A ( $^{\circ}\text{C}$ )	80	66	56	49	45	43
Temperature of metal block B ( $^{\circ}\text{C}$ )	80	59	47	39	34	30

- (a) Based on the results of the experiment, what can Callen conclude? [1]

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- (b) State the temperature of the metal blocks after two hours. [1]

Metal block A: \_\_\_\_\_ Metal block B: \_\_\_\_\_

- (c) State another variable that must be kept constant for the experiment to be fair. [1]

Variable to keep constant: \_\_\_\_\_

- (d) Elephants spray water on their bodies to keep cool especially on hot days.



Based on Callen's experiment, explain how elephants keep themselves cool when they spray water on their bodies.

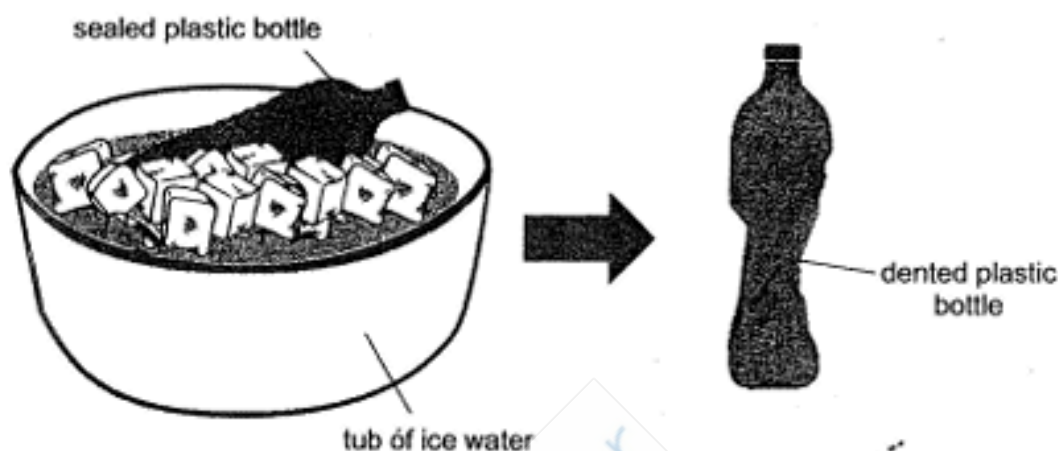
[1]

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39. Xavier placed a sealed empty plastic bottle in a tub of ice water and removed the bottle from the ice water after ten minutes. He observed that the plastic bottle was dented as shown.



- (a) Explain why the sealed plastic bottle was dented after placing it in ice water. [2]

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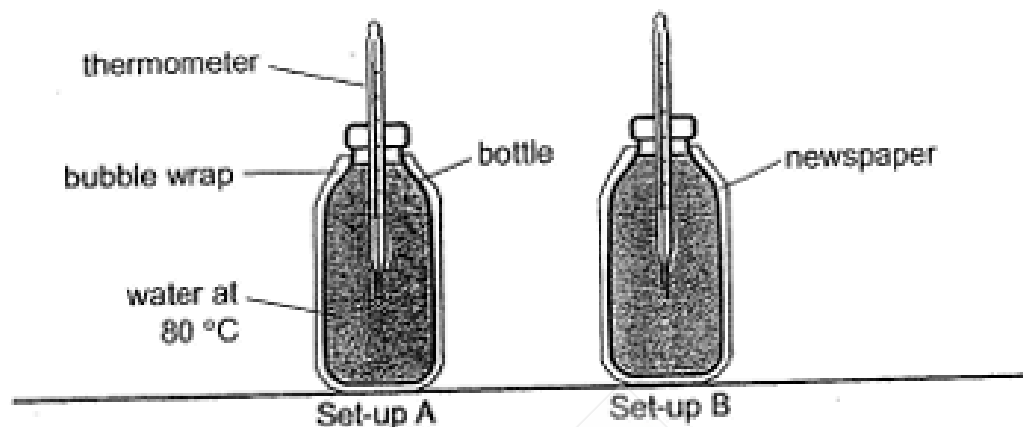
- (b) Xavier then placed the sealed dented plastic bottle into a tub of warm water. State what would happen to the dented plastic bottle. [1]

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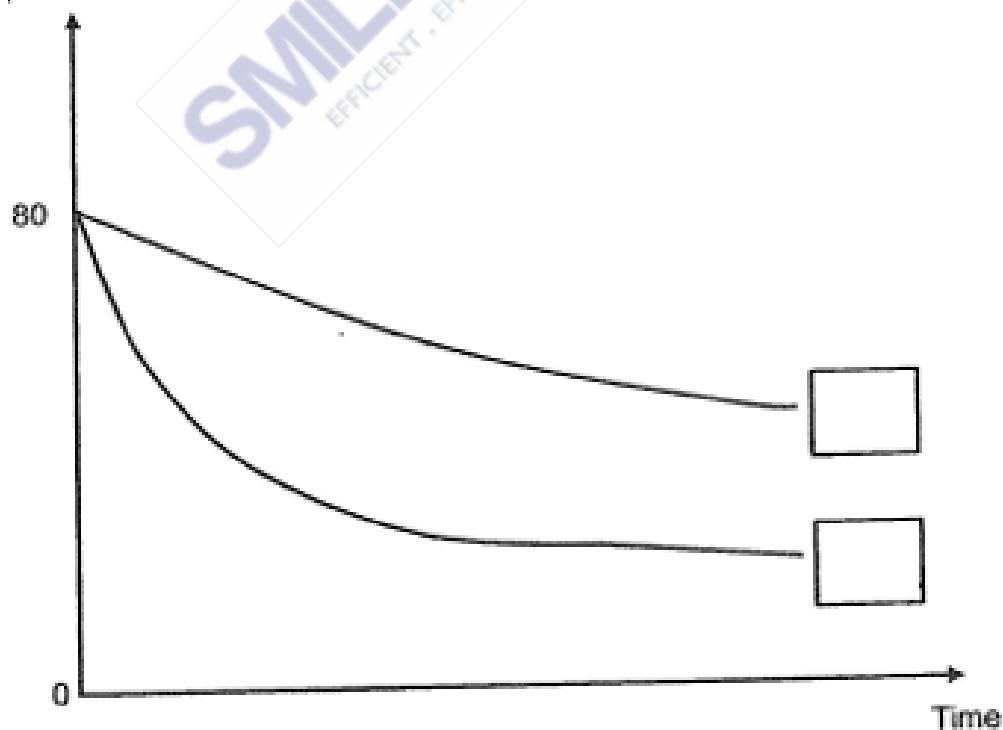
- (c) Xavier prepared set-ups A and B using two identical bottles filled with water at  $80^{\circ}\text{C}$  as shown. The bottles were wrapped with two different materials of the same size and left on the same table.



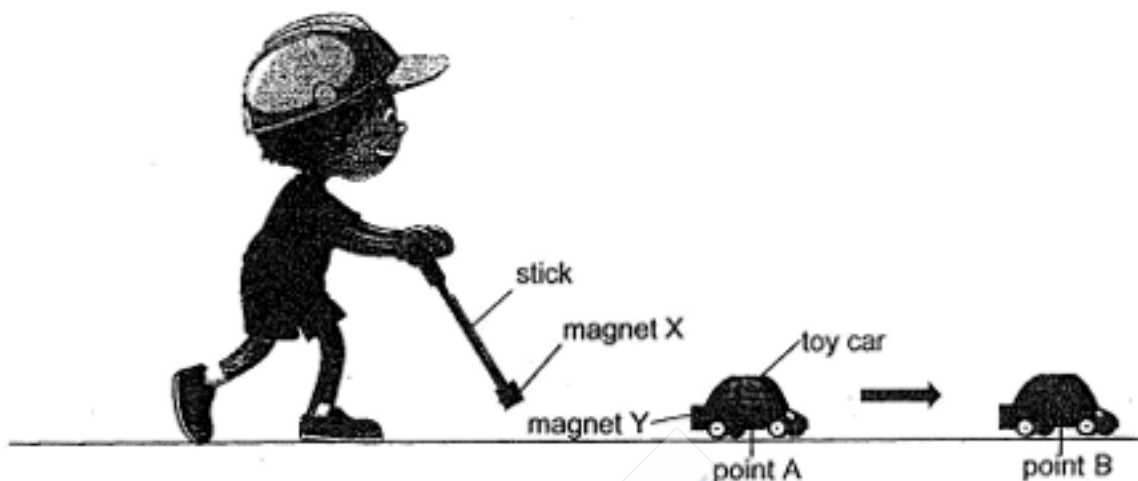
Label the line graphs with letters A and B to match them to the temperature of water in the bottle in each set-up over a period of time.

[1]

Temperature of water ( $^{\circ}\text{C}$ )



40. When Alvin brings the stick close to the toy car positioned at point A, the toy car moves away from the stick and stops at point B as shown.



- (a) Explain why the toy car moves away from the stick. [2]

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- (b) State what Alvin would observe about the toy car if he replaces magnet X with a stronger magnet before bringing the stick close to the toy car at point A. [1]

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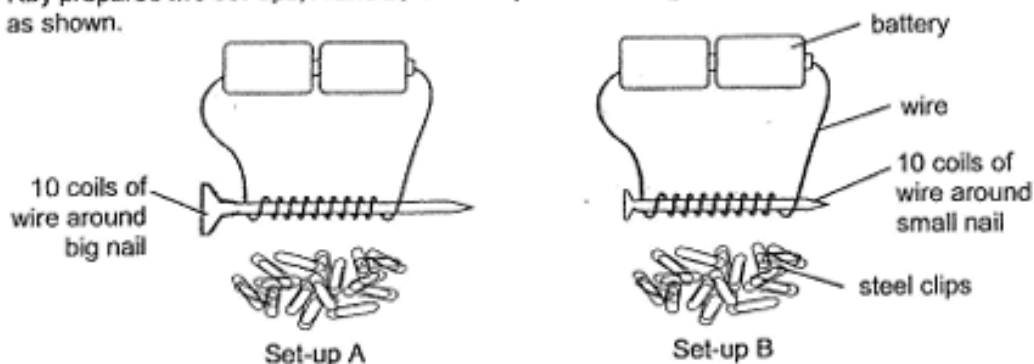
- (c) Alvin then replaces the magnet on the stick with an aluminium bar. He brings the stick close to the toy car at point A and observed that the toy car did not move towards point B. Give a reason why. [1]

---



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41. Roy prepared two set-ups, A and B, for his experiment using similar batteries and steel clips as shown.



He placed the electromagnets near some steel clips and observed how many steel clips the electromagnets attracted.

- (a) What was Roy trying to find out in his experiment?

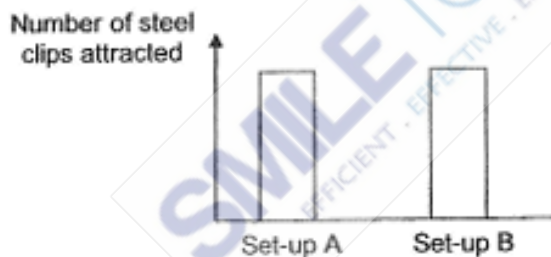
[1]

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He recorded the results of his experiment in the graph as shown.



- (b) Based on the results of the experiment, what can Roy conclude?

[1]

---



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- (c) Suggest what Roy can do to the batteries in both set-ups to increase the number of steel clips attracted by the electromagnets.

[1]

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- (d) Suggest two changes Roy needs to make to set-up A if he wants to find out how the number of coils of wire around the iron nail affects the number of steel clips it attracts. [1]

Change 1: \_\_\_\_\_

Change 2: \_\_\_\_\_

**END OF PAPER**



## ANSWER SHEET

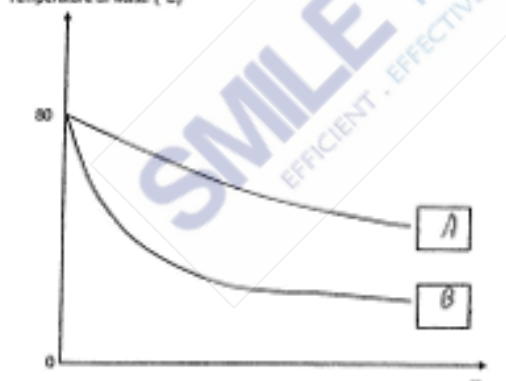
### (BOOKLET A)

Q1	3	Q2	3	Q3	3	Q4	1	Q5	1
Q6	2	Q7	2	Q8	3	Q9	2	Q10	4
Q11	4	Q12	3	Q13	2	Q14	1	Q15	3
Q16	2	Q17	3	Q18	3	Q19	4	Q20	3
Q21	3	Q22	3	Q23	2	Q24	4	Q25	2
Q26	2	Q27	4	Q28	2				

### (BOOKLET B)

Q29	<b>matter</b>	<b>non-matter</b>	
	water air	shadow	
Q30	a)	Y	
	b)	Z	
Q31	a)	*more pins than*	
	b)	magnetic	
Q32	Part X is made of <u>glass</u> because it allows <u>light</u> to pass through so that we can see the photograph. However, part X <u>breaks easily</u> when dropped		
Q33	a)	Animal D has a four-stage life cycle and lays egg on land.	
	b)	A: Frog B: Cockroach	
	c)	C	
	d)	Adult stage it can spread diseases	
Q34	a)	Part A: leaf Function: to trap in light energy and allow for photosynthesis to make food to occur.	
	b)	It contains stored food which is used up by the seedling as it.	
	c)	Adult stage.	
Q35	a)	200cm <sup>3</sup>	
	b)	Air can be compressed	
	c)	The coloured water in the basin displaced the air in the air in the cup escaped through the hole as bubbles.	
Q36	a)	Light travels in a straight line.	
	b)	D as it does not allow any light to pass through, making it perfect for his room to be completely dark during daytime.	

Q37	a)	As the distance between the torch and the football decreases, longer the height of the shadow.		
	b)	12cm		
	c)	Move the screen further away from the football.		
	d)	wood	Z	
	glass	X		
	tracing paper	Y		
Q38	a)	Water on the metal block causes the temperature of the metal block to decrease faster.		
	b)	Metal block A: 25°C      Metal block B: 25°C		
	c)	Type of table		
	d)	Elephants lose heat faster because water gains heat from the elephants bodies.		

Q39	a)	Air in the bottle lost heat to the cold water and contracted.		
	b)	The warm water will cause the plastic bottle and the air inside it to expand, causing it to return to its original state.		
	c)	<p>Temperature of water (°C)</p>  <p>Time</p>		
Q40	a)	Like poles of the magnets X and Y were facing each other.		
	b)	The toy car would move towards point B faster.		
	c)	Aluminium bar cannot attract or repel magnet Y as it is a non-magnetic material.		
Q41	a)	To find out if the size of the nail affects the number of steel clips attracted by the electromagnet.		
	b)	The size of the nail does not affect the strength of the electromagnet.		
	c)	Use batteries with higher voltage		
	d)	Change 1: Make the size of set-up A's nail the same size as Set-up B's nail. Change 2: Add more coils of wire around the iron nail		

## METHODIST GIRLS' SCHOOL SA2 PAPER

1 Which one of the following is **not** a living thing?

(1)



(2)



(3)



(4)



2 The diagram below shows a dog barking at a butterfly.



This shows that the dog is a living thing because it can \_\_\_\_\_.

- (1) grow
- (2) breathe
- (3) respond
- (4) reproduce

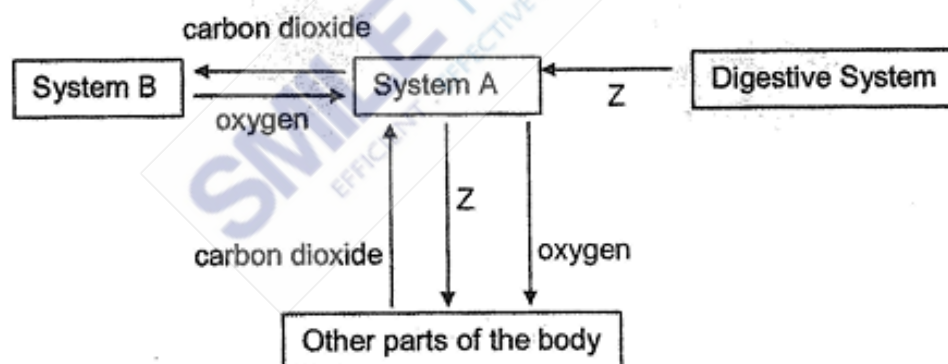
- 3 The diagram below shows a water hose connected to a tap.



Water can flow through the coiled water hose because it \_\_\_\_\_.

- (1) has mass.
- (2) has definite volume.
- (3) has no definite shape.
- (4) cannot be compressed.

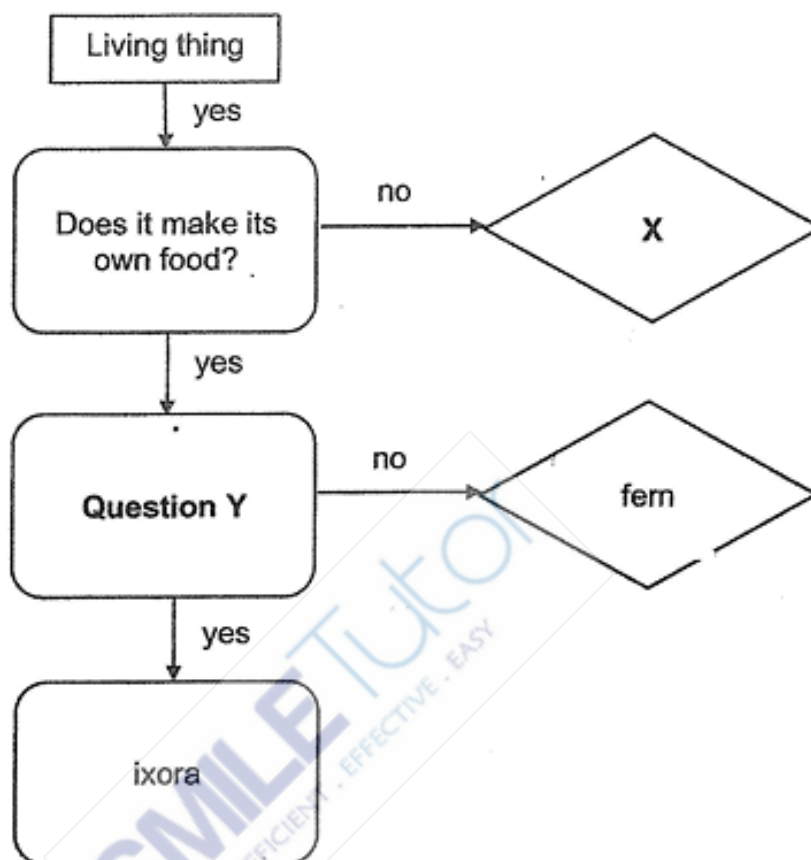
- 4 The chart below shows how substance Z, oxygen and carbon dioxide are transported in a human body.



What are systems A and B and substance Z?

	System A	System B	Substance Z
(1)	respiratory	circulatory	digested food
(2)	circulatory	respiratory	digested food
(3)	muscular	circulatory	oxygen
(4)	circulatory	respiratory	carbon dioxide

5 Study the chart below.



- (1)
- (2)
- (3)
- (4)

Which one of the following is correct?

	X	Question Y
(1)	mould	Does it produce seeds?
(2)	mushroom	Does it have roots?
(3)	moss	Does it have fruits?
(4)	rose	Does it need water?

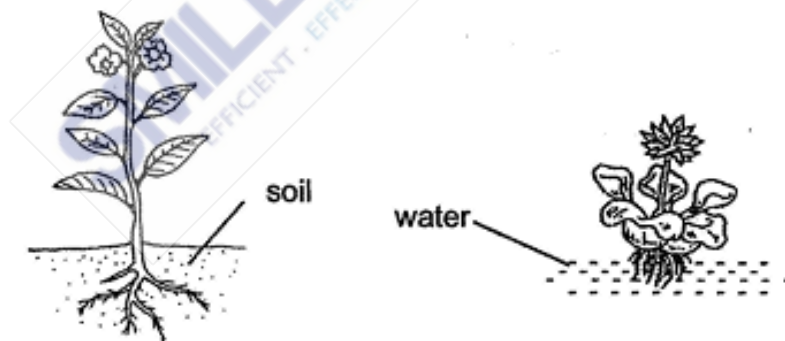
6 Which part of the human digestive system listed below absorbs all the digested food?

- (1) stomach
- (2) small intestine
- (3) large intestine
- (4) anus

7 Which one of the following is not matter?

- (1) star
- (2) sound
- (3) smoke
- (4) sponge

8 The diagram below shows two plants.

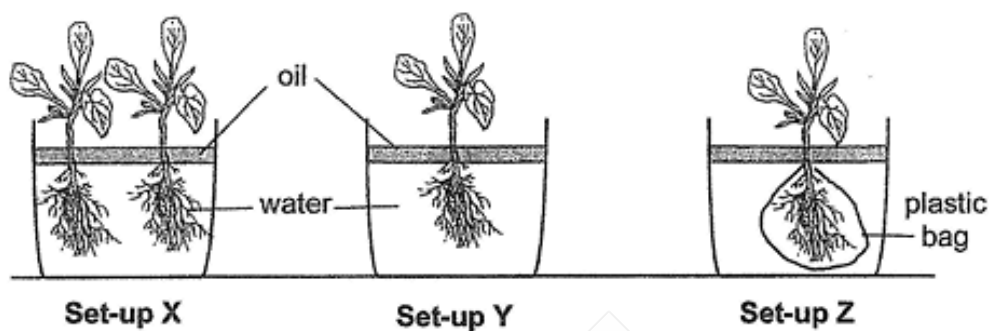


Which one of the following statements explains correctly the function of roots for **both** the plants above?

- (1) The roots support the plants upright.
- (2) The roots take in mineral salts for the plants.
- (3) The roots hold the plants firmly to the ground.
- (4) The roots spread out to receive more sunlight.

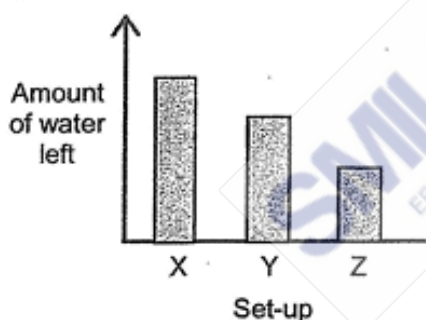


- 9 Ms Tan prepared three set-ups, X, Y and Z, using identical plants as shown in the diagram below. Each container had the same amount of water and a layer of oil. Ms Tan placed the three set-ups near a window and observed the amount of water left in the beaker after a week.

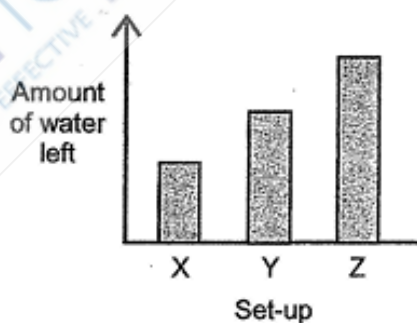


Which one of the following most likely shows the amount of water left in each container at the end of a week?

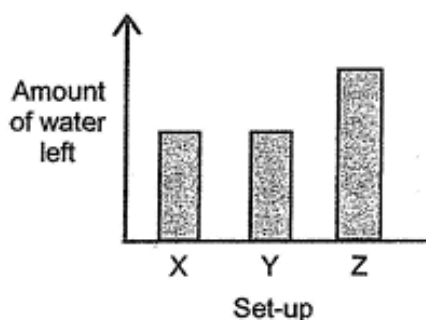
(1)



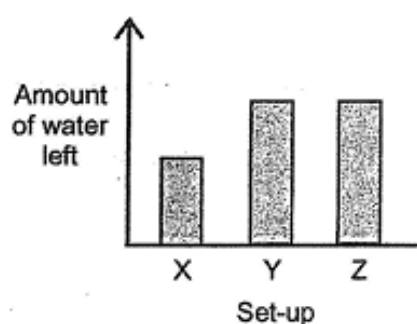
(2)



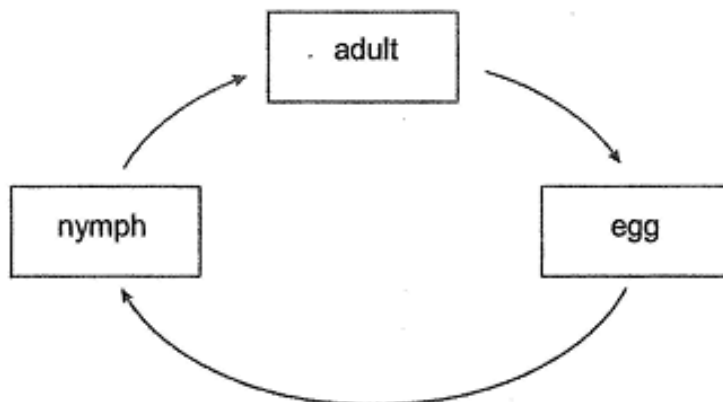
(3)



(4)



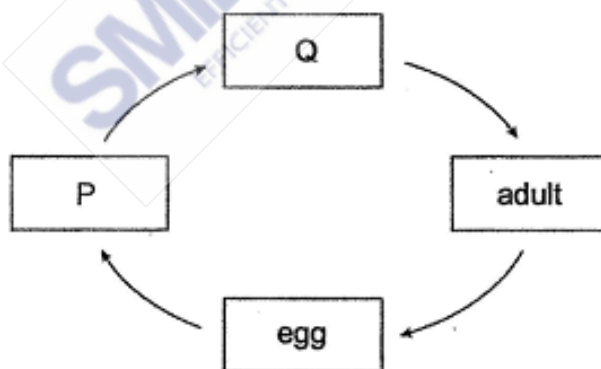
- 10 The diagram below shows the life cycle of an animal.



Which animal is likely to have the life cycle as shown above?

- (1) chicken
- (2) frog
- (3) housefly
- (4) cockroach

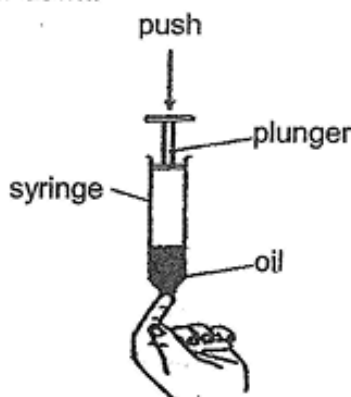
- 11 The diagram below shows stages in the life cycle of an insect.



Which of the following correctly describes the insect at stages P and Q?

	Stage P	Stage Q
(1)	moves a lot	does not move
(2)	looks like adult	does not look like adult
(3)	does not moult	moults several times
(4)	able to fly	unable to fly

- 12 John filled a syringe with some oil and air. He covered one end of the syringe and tried to push the plunger down.



John could not push in the plunger completely. Which of the following explain his observation?

- A Air takes up space.
- B Oil has a definite volume.
- C Oil has no definite shape.
- D Air has no definite shape.

- (1) A and B only
- (2) A and D only
- (3) B and C only
- (4) C and D only

- 13 The animals are classified into two groups as shown below.

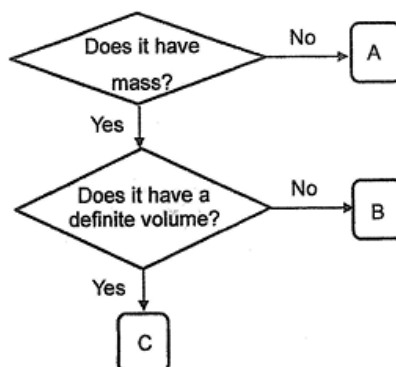
Group Y	Group Z
mosquito	grasshopper
mealworm beetle	chicken

What is/are the possible heading(s) for groups Y and Z?

	Group Y	Group Z
A	The young do not resemble adult	The young resemble adult
B	Have wings in the adult stage	Do not have wings in the adult stage
C	Spend part of the life cycle in water	Spend the whole life cycle on land

- (1) A only
- (2) B only
- (3) B and C only
- (4) A and C only

14 Study the flowchart below.



Which one of the following best represents A, B and C?

	A	B	C
(1)	air	oxygen	ice
(2)	heat	water	air
(3)	shadow	oxygen	ice
(4)	light	ice	air

15 The diagram below shows a shelf.



Metal is used to make the shelf because metal \_\_\_\_\_.

- (1) is shiny
- (2) can reflect light
- (3) does not break easily
- (4) is a good conductor of heat

16 Which one of the following can be attracted by a magnet?

- (1) steel ruler
- (2) rubber ball
- (3) glass marble
- (4) wooden spoon

17 Which one of the following is a source of light?

(1)



a mirror

(2)



a lamp

(3)



an apple

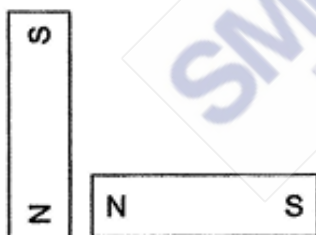
(4)



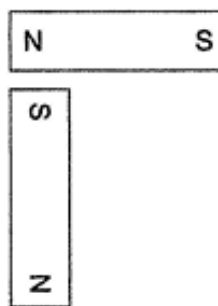
the moon

18 Which diagram below shows repulsion between two magnets?

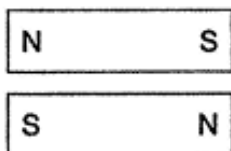
(1)



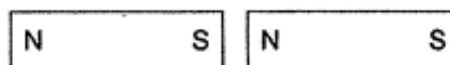
(2)



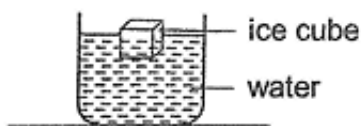
(3)



(4)



- 19 Zakiah placed an ice cube into a cup of water as shown below.

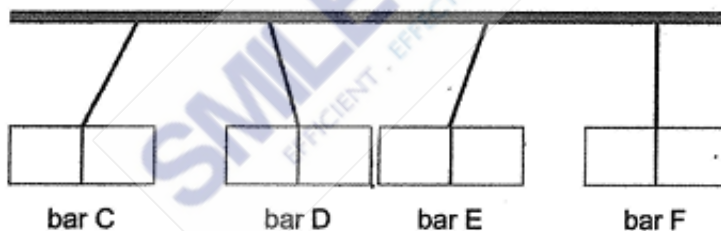


The ice melted after a while.

Which one of the following explains Zakiah's observation?

- (1) The cup loses heat to the water.
- (2) The water gains heat from the ice.
- (3) The ice cube gains heat from the water.
- (4) The ice cube loses heat from the water.

- 20 Bars C, D, E and F were hung on a rod and the observations are shown below.

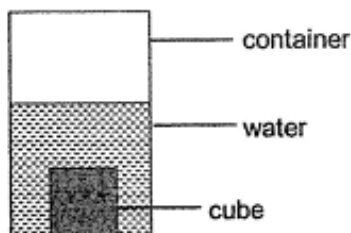


Which of the following statements are true?

- W Bar C is a magnet.  
 X Bar D is made of copper.  
 Y Bar E can be a magnetic material.  
 Z Bar F can be a non-magnetic material.

- (1) W and Z only
- (2) X and Y only
- (3) W, Y and Z only
- (4) All of the above

- 21 Four identical cubes made of different materials A, B, C and D were weighed before they were placed into four containers containing equal amount of water.



After 10 minutes, each cube was weighed again. Their masses were recorded in the table below.

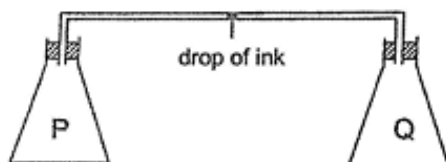
Material	Mass at the beginning (g)	Mass after 10 minutes
A	12	14
B	7	14
C	13	18
D	10	10

Which material is the most suitable to make a raincoat and towel?

	Raincoat	Towel
(1)	A	C
(2)	B	D
(3)	C	D
(4)	D	B



- 22 Two empty flasks, P and Q, are connected by a glass tube as shown below. There is a drop of ink in the tube.

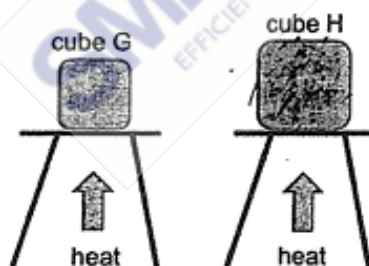


Which of the following actions will cause the drop of ink to move towards flask P?

- W Place flask P in a basin of ice.
- X Place flask Q in a basin of ice.
- Y Place flask P in a basin of hot water.
- Z Place flask Q in a basin of hot water.

- (1) W and X only
- (2) X and Y only
- (3) W and Z only
- (4) Y and Z only

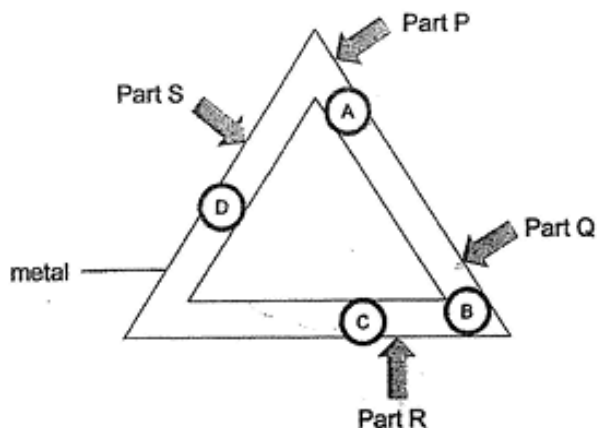
- 23 Melting heated cube G and H to the same temperature as shown below. Cube G and H are made of the same material.



Which one of the following statements is correct?

- (1) Cube G has more heat energy as it gained heat faster.
- (2) Cube G has less heat energy as compared to cube H.
- (3) Cube H has less heat energy as compared to cube G.
- (4) Cube H has more heat energy as it lost heat faster.

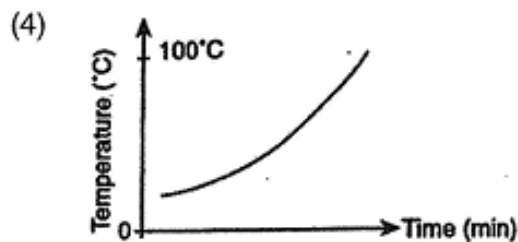
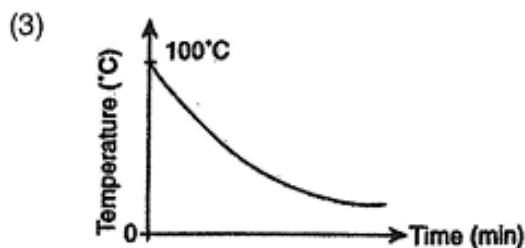
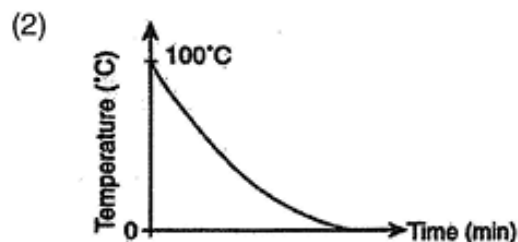
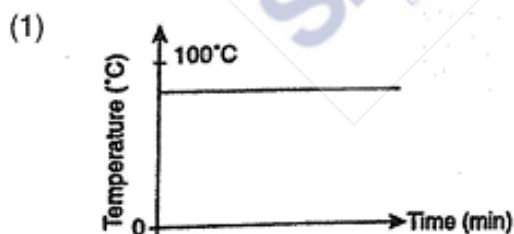
- 24 The diagram below shows blobs of wax, A, B, C and D, which are placed onto a triangular piece of metal.



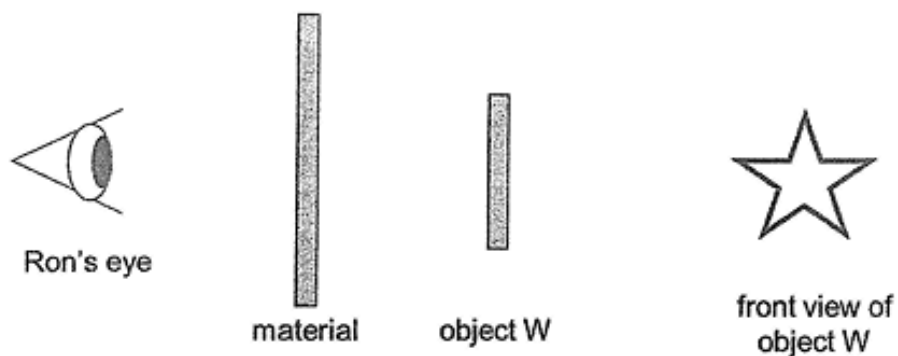
When a certain position of the metal piece is heated, the blobs of wax melt in the order of B, C, A, D. Which position, P, Q, R or S, is the metal piece heated?

- (1) P
- (2) Q
- (3) R
- (4) S

- 25 A cup of hot chocolate was left in a room for 40 minutes. Which one of the graphs represents the changes in temperature that took place in the cup of hot chocolate?



26 Ron placed object W behind three different materials, R, S and T.



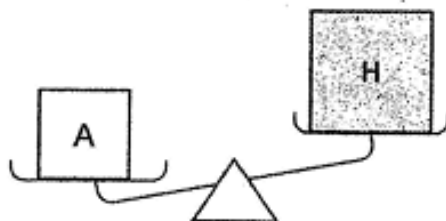
He drew what he could see as shown below.



Which one of the following properties describe the materials correctly?

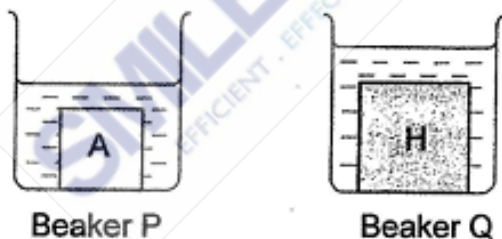
	No light can pass through	Some light can pass through	Most light can pass through
(1)	R	S	T
(2)	T	R	S
(3)	S	R	T
(4)	T	S	R

- 29 Two objects, A and H, made of different materials were placed on a balance as shown below.



What could be concluded based on the above set-up using the balance?  
 Circle the correct answers for (a).

- (a) The **mass** / **volume** of the Object A is [1]  
**greater than** / **the same as** / **smaller than** Object H. [1]
- (b) Then, the two objects were placed into two identical beakers, P and Q, containing the same amount of water as shown below.



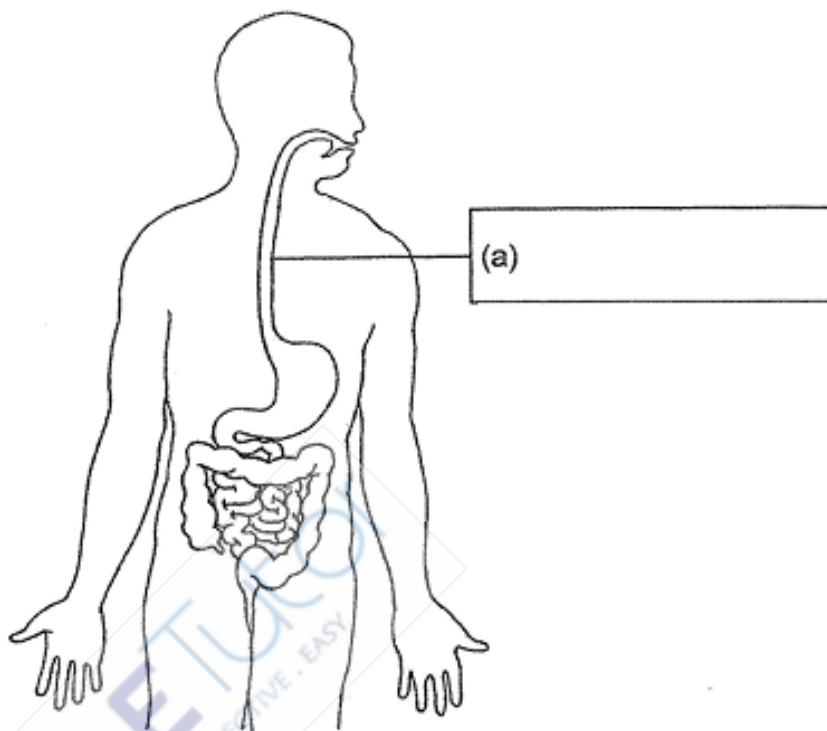
Why is the water level in beaker Q higher than the water level in beaker P? [1]

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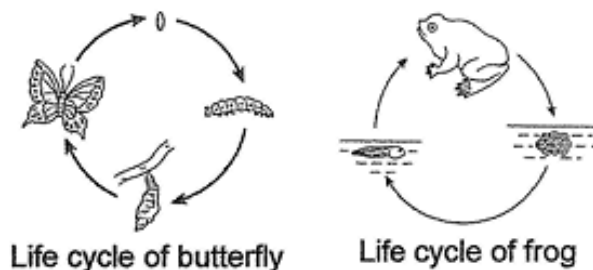
30 The diagram below shows the human digestive system.



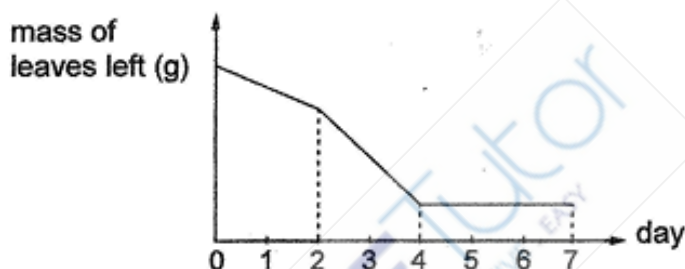
- (a) Name the organ in (a) by writing your answer in the box above. [1]
- (b) Name another organ where digestion does not take place. [1]

---

- 31 Study the life cycle of the butterfly and frog as shown below.



- (a) Siti placed a caterpillar into a tank filled with leaves. She left the caterpillar in the tank until it developed into a butterfly. She measured the mass of leaves left in the tank and recorded her results as shown in the graph below.



When did the caterpillar turned into a pupa? Explain your answer clearly. [2]

---



---



---

- (b) It had not been raining for many months and the pond in Siti's garden was drying up. Siti noticed that there were fewer frogs in the pond. Based on the life cycle of frog given above, give a reason for Siti's observation. [1]

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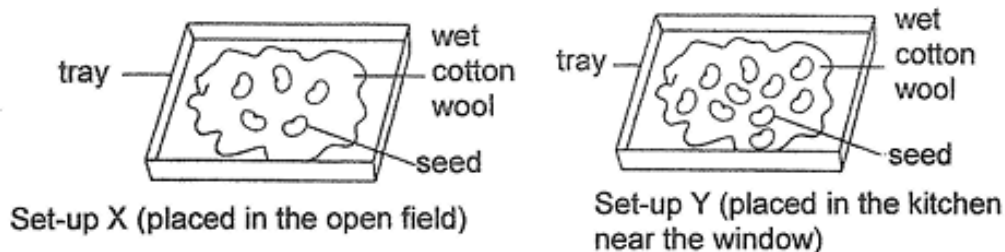


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- 32 Bala conducted an experiment as shown below to find out if the amount of light affects the growth of seeds. He placed one of the set-ups in the open field and the other in the kitchen.



Bala's sister told him that his experiment was not fair. Suggest two changes that Bala should make to set-up Y so that the experiment is fair. [2]

Suggestion 1: \_\_\_\_\_

\_\_\_\_\_

Suggestion 2: \_\_\_\_\_

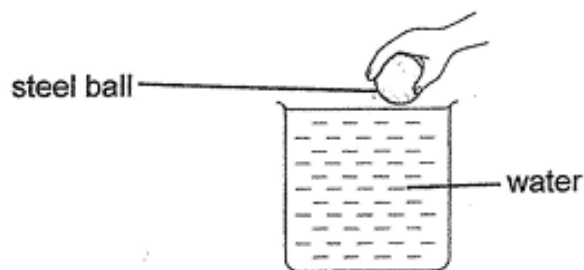
\_\_\_\_\_

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- 33 Wenli filled a beaker with water to the brim as shown in the diagram below. She then dropped a steel ball into the beaker.



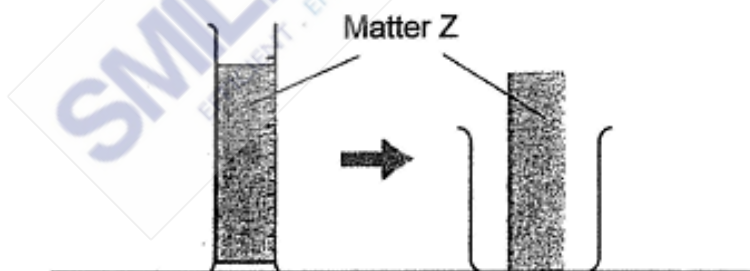
- (a) What property of matter was shown in the experiment above? [1]

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Wenli transferred a Matter Z from the measuring cylinder to a beaker as shown below and she observed the following result.



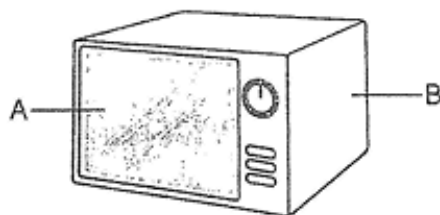
- (b) What is the state of Matter Z? Explain your answer. [2]

---



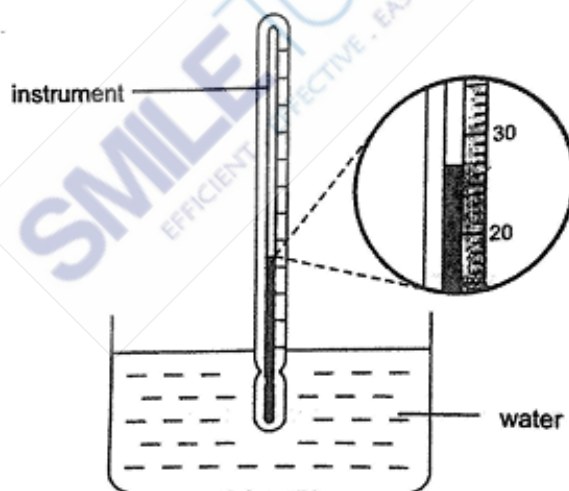
---

34 The diagram below shows an oven.



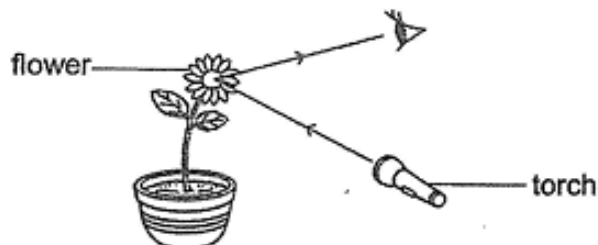
- (a) Part A is made of glass because it allows \_\_\_\_\_ to pass through so that the user can see the dish inside. [1]
- (b) Part B is made of \_\_\_\_\_, because it needs to be strong. [1]

35 Bala used an instrument to measure the temperature of water in a beaker.



- (a) What is the instrument called? [1]  
 \_\_\_\_\_
- (b) What is the temperature of the water in the beaker? [1]  
 \_\_\_\_\_ °C

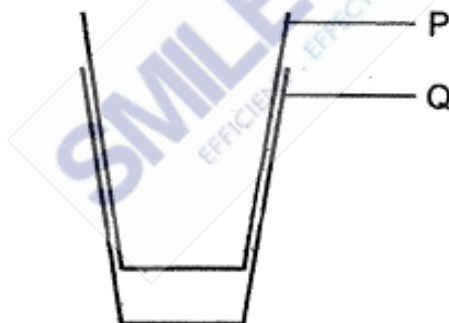
- 36 The diagram below shows how a person sees the flower.



The \_\_\_\_\_ from the torch is \_\_\_\_\_ by the flower and enters the person's eye.

[2]

- 37 Janet took out two glasses, P and Q, from her cupboard and she found that the glasses were stuck together.



Janet decided to pour hot water on glass P to separate them but it did not work. Explain why.

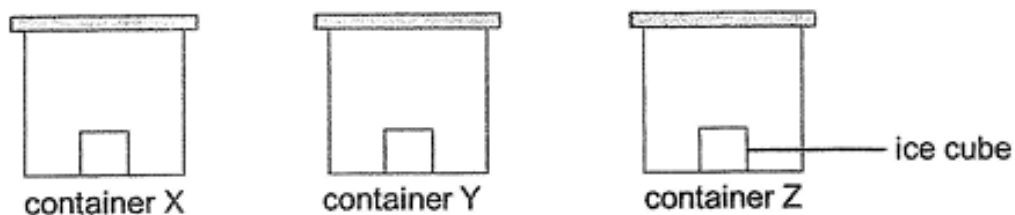
[2]

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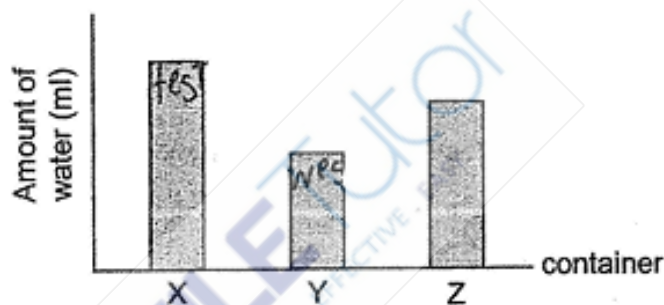


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- 38 An experiment was set up as shown below. One ice cube of equal volume was placed in container X, Y and Z at room temperature. Container X, Y and Z are made of different materials.

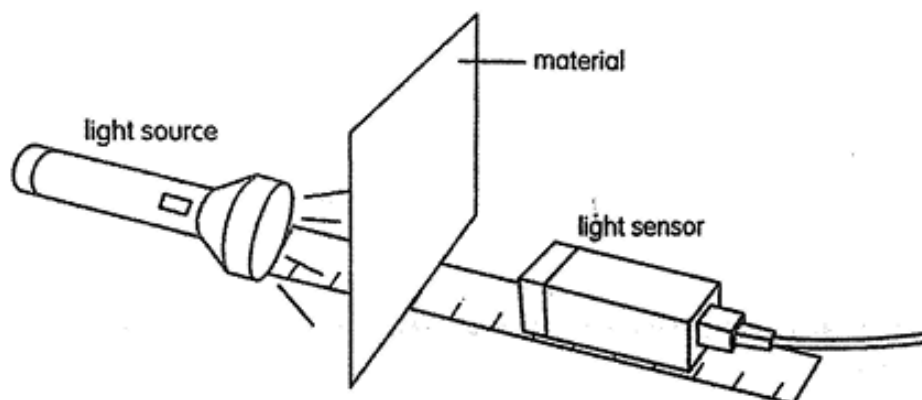


After 30 minutes, the ice cubes were removed from each container. The amount of water collected in each container was measured. The results are shown in the graph below.



- (a) Which container, X, Y or Z caused the ice cubes to melt the slowest? Explain your answer based on the graph above. [1]
- 
- 
- (b) What property of the container you have chosen in (a) caused the ice cube to melt the slowest? [1]
-

- 39 The diagram below shows a set up to measure the amount of light that could pass through different materials, R, S and T.



The table below shows the amount of light that passed through different materials, R, S and T.

Material	Amount of light (units)
no material	100
R	0
S	60
T	98

The picture below shows a pair of sunglasses.



- (a) Based on the results, which material R, S or T, would be suitable to make Part A of the sunglasses? [1]

Material \_\_\_\_\_

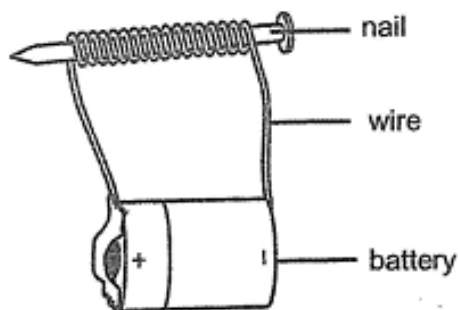
- (b) Explain your answer based on the results above. [1]

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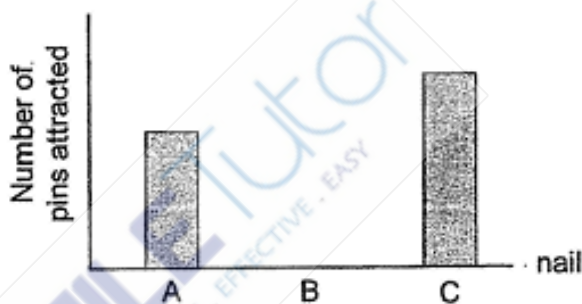


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- 40 Roy prepared an electromagnet set-up as shown below.



He used nails made of different types of materials, A, B and C, to find out how many pins they could attract. The results are shown below.



- (a) Which nail, A, B or C, should Roy choose if he wanted to make a stronger electromagnet? Explain your answer. [1]

---



---

- (b) What could nail B be made of? Explain your answer. [2]

---



---

## ANSWER SHEET

### BOOKLET A

Q1	2	Q2	3	Q3	3	Q4	2	Q5	1
Q6	2	Q7	2	Q8	2	Q9	2	Q10	4
Q11	1	Q12	1	Q13	1	Q14	3	Q15	3
Q16	1	Q17	2	Q18	1	Q19	3	Q20	3
Q21	4	Q22	3	Q23	2	Q24	2	Q25	3
Q26	2								

### BOOKLET B

Q29	(a) mass greater than (b) Object H has a larger volume than object A.
Q30	(a) gullet (b) large intestine
Q31	(a) Day 4. The mass of leaves left stayed the same for days 4-7, and the pupa does not feed, therefore, the caterpillar turned into a pupa on day 4. (b) The frog lays eggs in the water and the eggs hatch in water, if the pond dried up, the adult frogs could not lay the eggs, causing the number of frogs in the pond to decrease.
Q32	(a) Suggestion 1 : Make the number of seeds on the cotton wool equal. Suggestion 2 : Place set-up Y in a dark cupboard.
Q33	(a) Matter occupies space (b) Solid. It cannot take the shape of the container and thus having a definite shape hence solid.
Q34	(a) most light (b) metal
Q35	(a) thermometer (b) 27°C
Q36	light, reflected
Q37	Glass P gained heat from the hot water and expanded, thus increasing in volume.



Q38	(a) Container Y. It collected the least amount of water. (b) Poor heat conductivity
Q39	(a) Material S (b) Material S only allows some light to pass through thus it is good for reducing the amount of sunlight going into the users eyes.
Q40	(a) Nail C. It attracted the most number of pins and therefore has the strongest magnetism. (b) Aluminium. Aluminium is made of a non-magnetic material and it cannot be magnetised thus not able to attract the pins hence B is made up of aluminium.



## ROSYTH SCHOOL SA2 PAPER

- 1 The diagram below shows the life cycle of a plant.



What is the stage marked M?

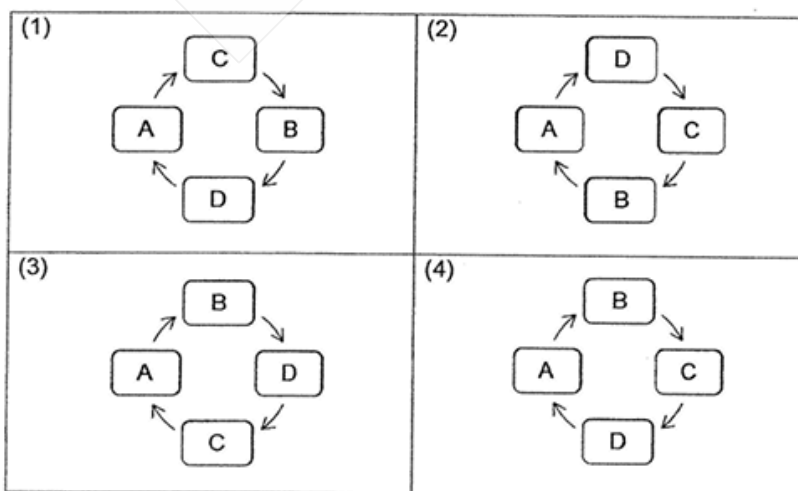
- (1) egg
- (2) seed
- (3) adult plant
- (4) young plant

( )

- 2 A, B, C and D are the various stages in the life cycle of a mosquito.

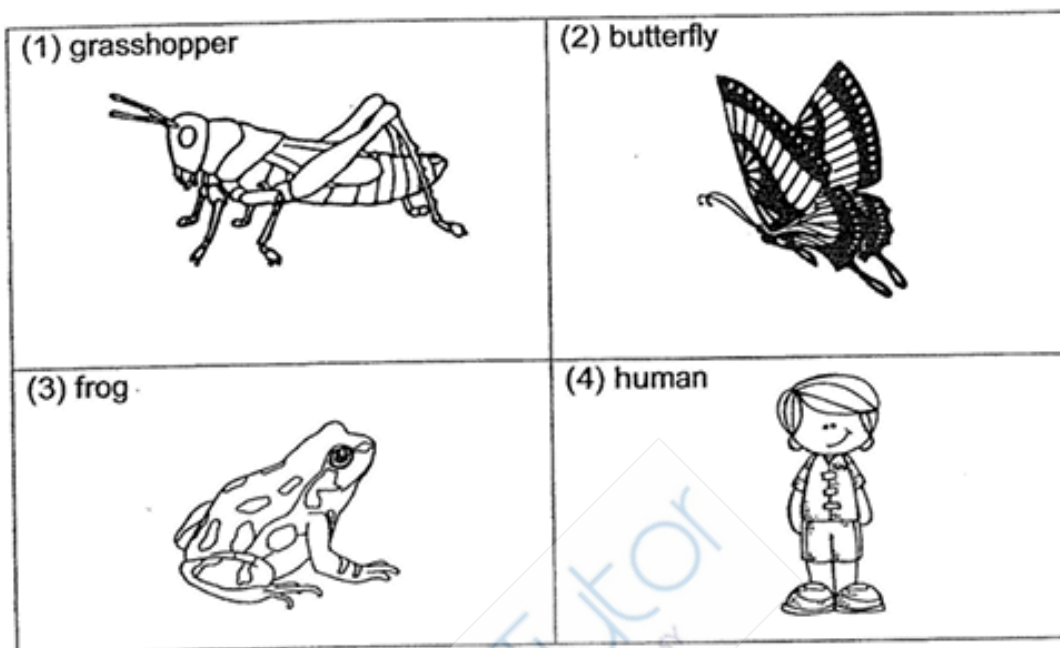


Which of the following correctly shows the life cycle of a mosquito?



( )

3 Which of the following animals has a 4-stage life cycle?



( )

4 Which one of the following properties is true for both air and a pencil?

- (1) They can be seen.
- (2) They take up space.
- (3) They have fixed shapes.
- (4) They have fixed volumes.

( )

5 Which one of the following substances has a fixed shape?

- (1) oil
- (2) water
- (3) stone
- (4) orange juice

( )

6 Charlene made the following observations on the life cycle of an animal.

- The young resembles the adult.
- There are three stages in the life cycle.

Which of the animals was Charlene observing?

- A: cockroach  
 B: grasshopper  
 C: mealworm beetle

(1) C only

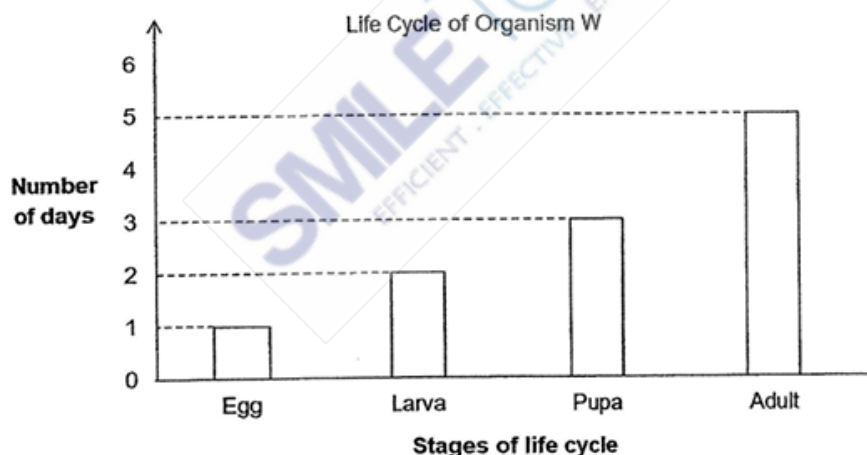
(2) A and B only

(3) B and C only

(4) A, B and C

( )

7 Ravi studied the life cycle of Organism W. He then recorded the number of days of each stage of Organism W in the graph below.

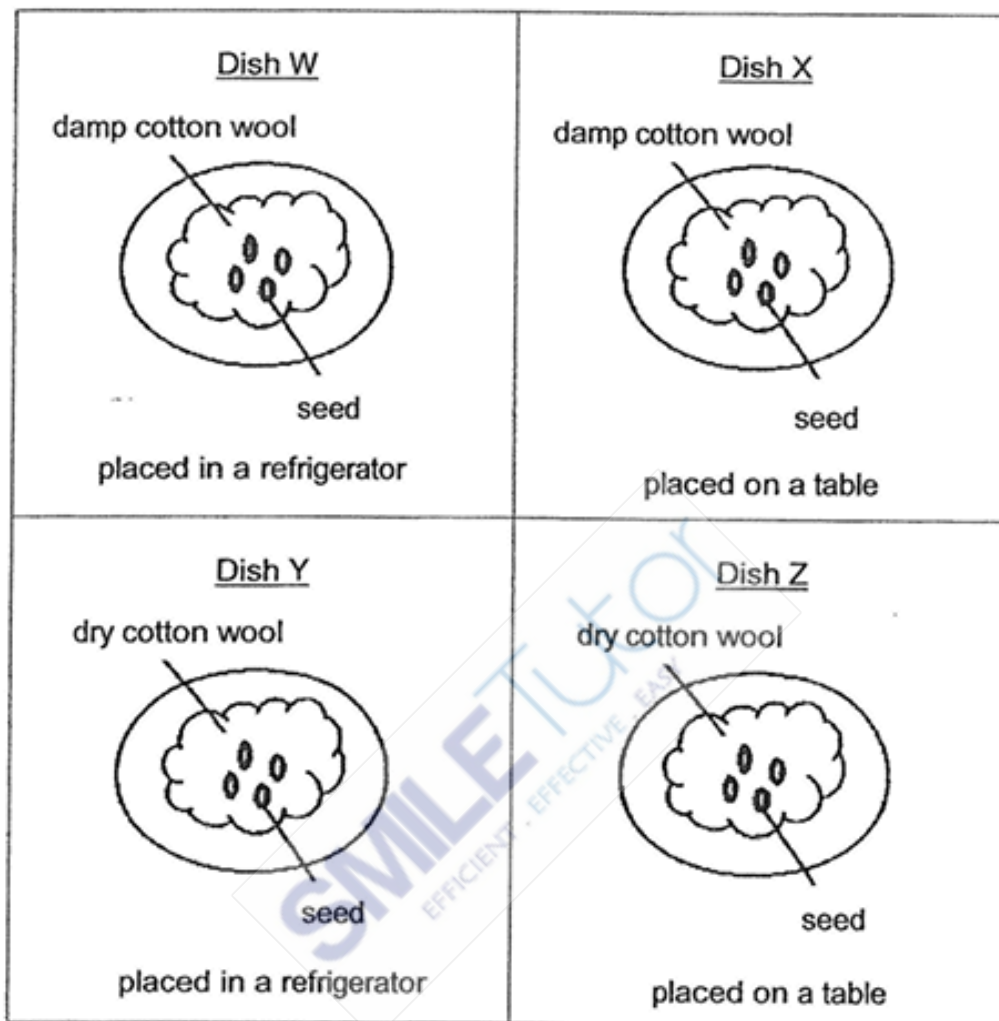


Based on the information above, which one of following statements about Organism W is correct?

- (1) Organism W eats for two days only.  
 (2) Organism W took five days to lay eggs.  
 (3) Organism W does not eat for three days after the pupal stage.  
 (4) Organism W took three days to become an adult after the larva stage.

( )

8 Julaiha set up an experiment as shown below.

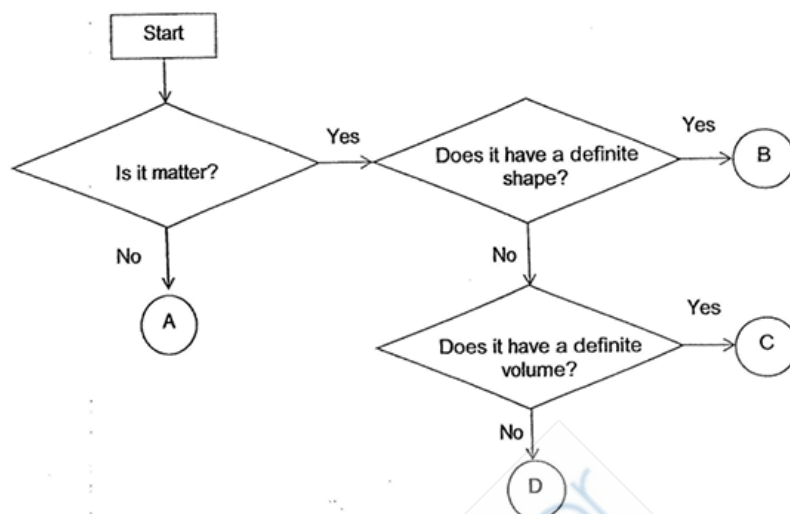


Only the seeds in Dish X germinated. Which factors of germination can be confirmed using the above experiment?

- (1) oxygen and water only
- (2) water and warmth only
- (3) oxygen and water only
- (4) oxygen, water and warmth

(     )

- 9 The following flowchart shows the properties of four substances A, B, C and D at 50°C.

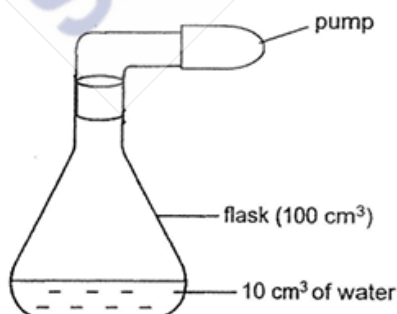


Which substance will escape if it is not stored in a sealed container at 50°C?

- (1) A
- (2) B
- (3) C
- (4) D

( )

- 10 Peter carried out an experiment using the set-up shown below.



A 100 cm³ flask containing 10 cm³ of water was connected to a pump. Peter first added 20 cm³ of air to the flask using the pump. He then added another 40 cm³ of air to the flask.

What is the final volume of air in the flask?

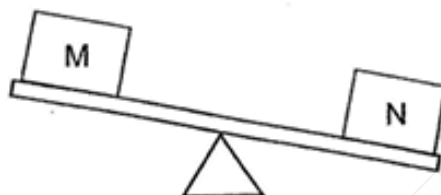
- (1) 60 cm³
- (2) 90 cm³
- (3) 100 cm³
- (4) 140 cm³

( )

11 The table below shows the mass and volume of four balls, A, B, C and D.

Ball	A	B	C	D
Mass (g)	70	100	100	100
Volume (cm <sup>3</sup> )	100	70	100	70

The diagram below shows what happened when two of the balls were placed into two identical boxes, M and N, on each end of a balance.



Based on the information given in the table above, identify which two balls were placed in boxes M and N.

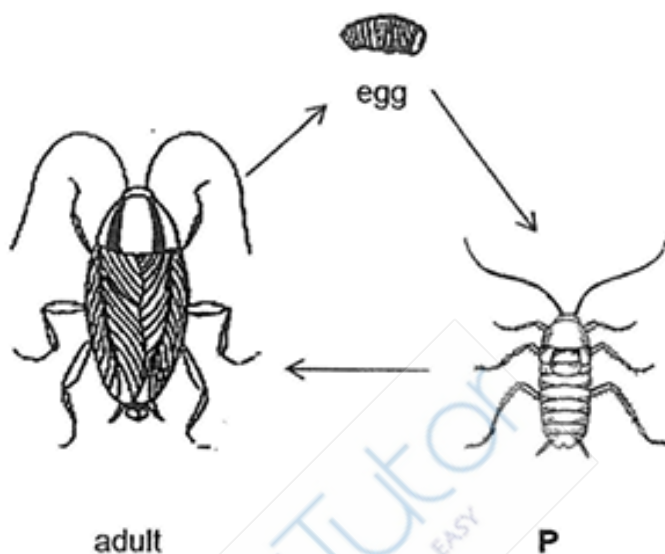
	Box M	Box N
(1)	A	B
(2)	D	A
(3)	C	B
(4)	D	C

( )



For questions 12 to 16, write your answers in the blanks provided. (18 marks)

12 The diagram below shows the life stages in the life cycle of a cockroach.



(a) Name stage P. [1]

\_\_\_\_\_

(b) State two other animals that have a similar life cycle as a cockroach. [2]

\_\_\_\_\_

\_\_\_\_\_

**13** Tick (✓) in the box if each of the following has  
 (i) a definite shape

(ii) a definite volume

[3]

	(i) has a definite shape	(ii) has a definite volume
(a) air	<input type="checkbox"/>	<input type="checkbox"/>
(b) water	<input type="checkbox"/>	<input type="checkbox"/>
(c) metal spoon	<input type="checkbox"/>	<input type="checkbox"/>

14 Look at the diagrams below.



frog



chicken

- (a) State one similarity and one difference between the life cycle of a frog and a chicken. [2]

Similarity:

---



---

Difference:

---



---

In a farm, a farmer recorded the number of chicken eggs that hatched at different temperatures. The table below shows his recordings.

Temperature (°C)	Number of eggs hatched
35.0	0
35.5	15
36.0	24
36.5	50
37.0	71

- (b) Based on the recordings shown above,
- (i) what is the most suitable temperature for the chicken egg to hatch? [1]
- \_\_\_\_\_ °C
- (ii) state the relationship between the temperature and the number of eggs hatched. [1]

---



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15(a) During germination, the root appears first. Explain why.

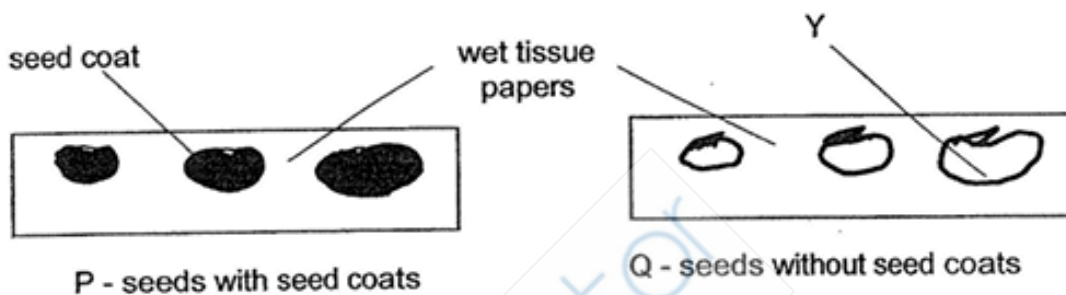
[1]

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Jamie carried out an experiment on two sets of seeds, P and Q. P has seeds with seed coats and Q has seeds without seed coats. The seeds were placed on wet tissue papers as shown below.



Jamie placed the containers on a table in her room and observed their growth over a period of three weeks.

(b) Name Part Y.

[1]

---

(c) What is the aim of Jamie's experiment?

[1]

---



---

(d) Which set(s) of seeds would become seedlings? Explain why.

[1]

---



---

**16** Fill in the blanks.

(a) Matter is anything that has \_\_\_\_\_ and \_\_\_\_\_  
\_\_\_\_\_ [2]

(b) Ron bought a drink in container X as shown below.



Ron held container X and found that it was filled to the brim with liquid.

If he inserted a metal straw into container X, state one observation he would make about the liquid in the container. Explain your answer. [2]

- b) Observation: \_\_\_\_\_  
\_\_\_\_\_
- c) Explanation: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## ANSWER SHEET

<b>Q1</b>	4
<b>Q2</b>	3
<b>Q3</b>	2
<b>Q4</b>	2
<b>Q5</b>	3
<b>Q6</b>	2
<b>Q7</b>	4
<b>Q8</b>	2
<b>Q9</b>	4
<b>Q10</b>	2
<b>Q11</b>	1

<b>Q12</b>	a) Nymph b) grasshopper frog
<b>Q13</b>	a) No tick b) Has a definite volume c) Has a definite shape, has a definite volume
<b>Q14</b>	a) Similarity: Both have a 3 stage life cycle Difference: The chicken's young resembles the adult but the frog's young does not resemble the adult b) i) 37.0 ii) As the temperature increases, the number of eggs hatched increases.
<b>Q15</b>	a) The root appears first so it can absorb water for the plant b) Seed leaf c) To find out if the seed can grow without a seed coat. d) Both P and Q. <u>the seed still have</u> seed leaf to provide it with food for growth.
<b>Q16</b>	a) Mass, occupies space b) Observation: the liquid will leak c) When he poked the straw in, the cup was already full and the liquid leaked to make space for the metal straw because it occupies space.

# SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)

## SA2 PAPER

### Part I (56 marks)

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). **Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.**

1. Which one of the following is a living thing?

1)



3)



2)



4)



2. Which one of the following is **not** a source of heat?

1) The Sun

3) A candle flame

2) A lighted bulb

4) A woollen sweater

3. Which one of the following properties is true for both air and a pen?

1) They have definite volumes.

2) They can be seen.

3) They take up space.

4) They have definite shapes.

4. Which one of the animals shown below is **not** an insect?

1)



3)



2)

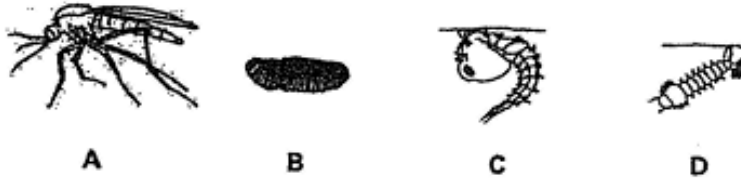


4)

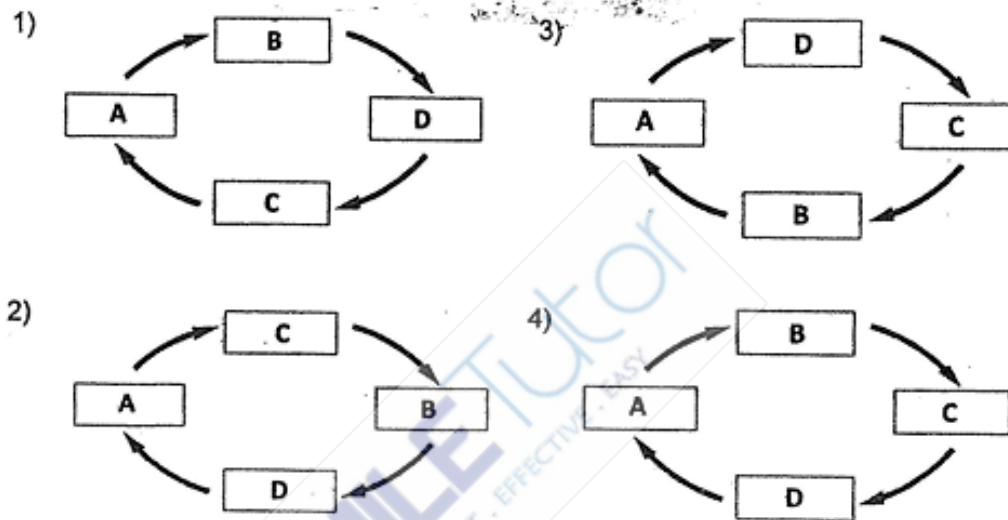




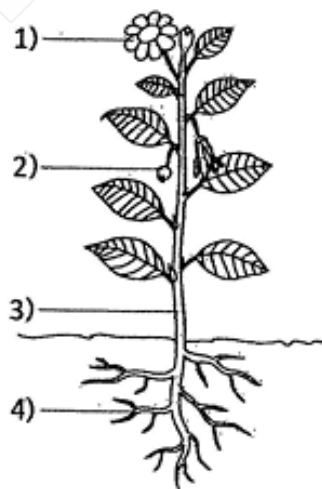
5. A, B, C and D are the various stages in the life cycle of a mosquito.



Which of the following correctly shows the life cycle of a mosquito?

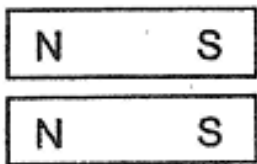


6. The diagram shows a plant.  
Which part, 1, 2, 3 or 4 is the stem?

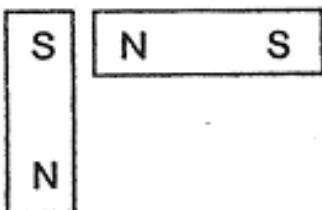


7. In which one of the following will the two magnets push each other away?

1)



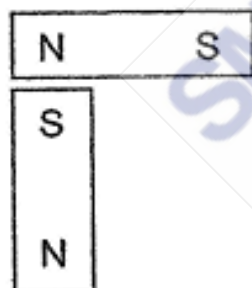
2)



3)



4)



8. Which one of the following is a source of light?

1)



A campfire

3)



The moon

2)



An apple

4)



A twig

9. The diagram shows a clock hanging on a wall on a nail.

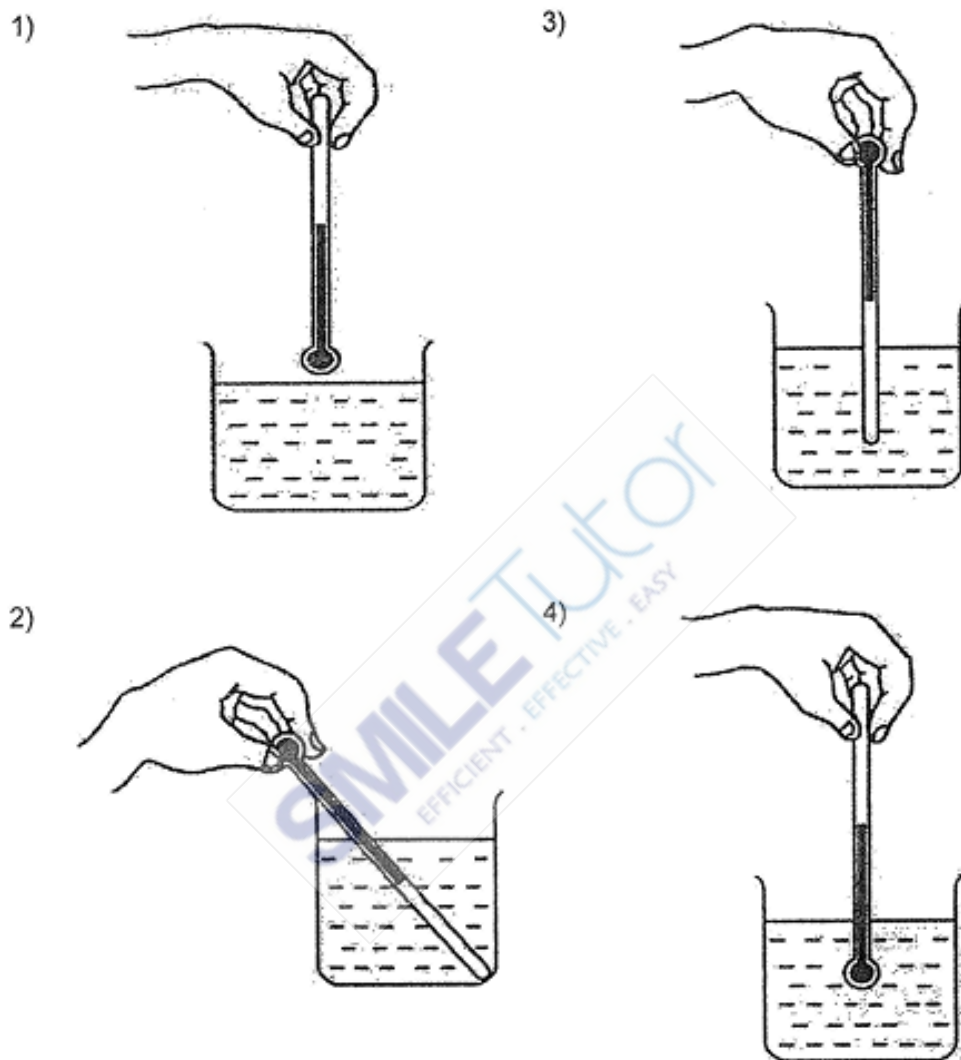


Iron is used to make nails because iron \_\_\_\_\_.

- 1) is shiny
- 2) is strong
- 3) sinks in water
- 4) conducts heat well

10. Alvin wants to measure the temperature of hot water in a beaker.

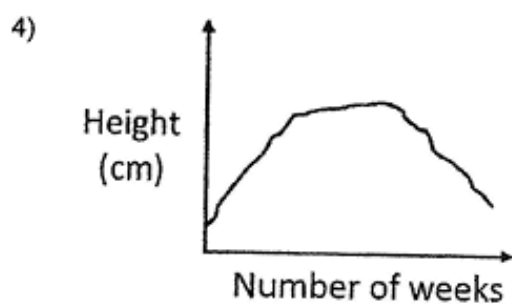
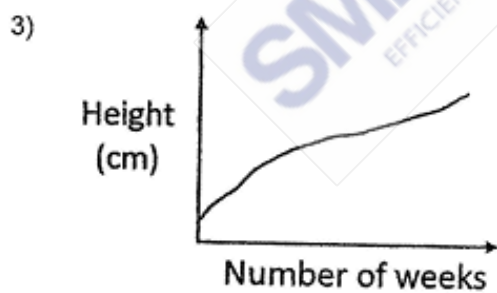
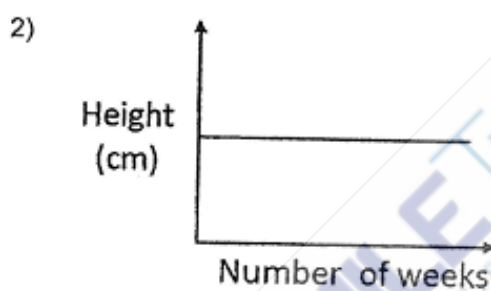
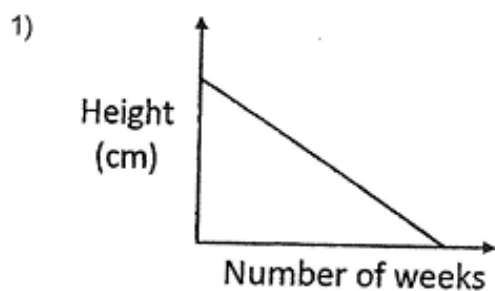
Which one of the following diagrams shows the correct position of the thermometer when taking the temperature reading?



11. Which of the following systems work together so that the whole body can receive oxygen?

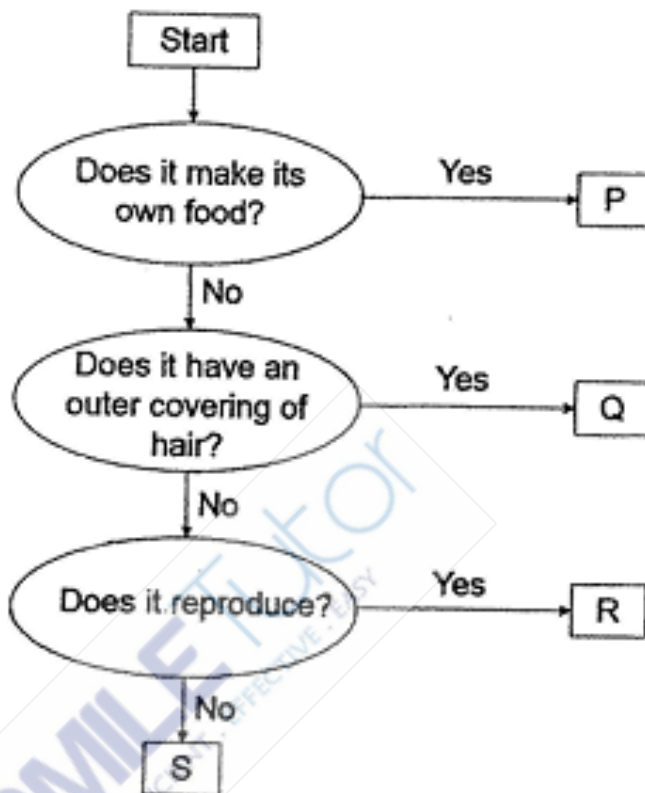
- 1) Circulatory and digestive system
- 2) Digestive and muscular system
- 3) Circulatory and respiratory system
- 4) Respiratory and muscular system

12. Which one of the following graphs shows the change in height as the seedling grows into an adult plant?





15. Study the flow chart below.



What conclusions can be made from the information given?

- A: P is a plant.
- B: Q is a mammal.
- C: R may be a fungi.
- D: S is not a living thing.

- |                 |                    |
|-----------------|--------------------|
| 1) A and B only | 3) A, B and D only |
| 2) B and C only | 4) A, B, C and D   |



16. Linda had four magnets, D, E, F and G. To compare the strength of the magnets, she brought each of the magnets near a pile of pins.

The table below shows the number of pins attracted by the magnets, D, E, F and G, from various distances.

Magnet	Distance between magnet and pins (cm)	Number of pins attracted
D	4	11
E	3	11
F	5	10
G	3	12

Which one of the following statements is definitely correct?

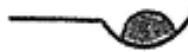
- 1) Magnet D is as strong as magnet E.
  - 2) Magnet F is the strongest magnet.
  - 3) Magnet G is stronger than Magnet E.
  - 4) Magnet D is weaker than Magnet G.
17. Four similar spoons were used to hold an object each as shown in the diagram below.



Substance A



Substance B



Substance C



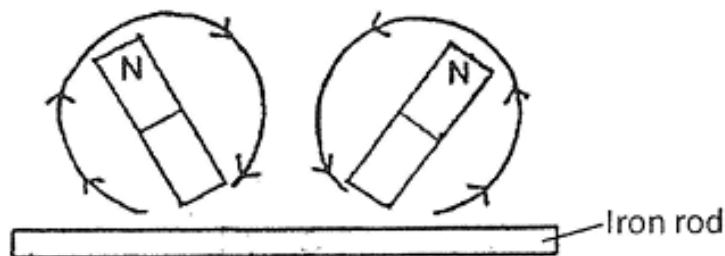
Substance D

Which one of the following substances is most likely not a solid?

- 1) Substance A
- 2) Substance B
- 3) Substance C
- 4) Substance D



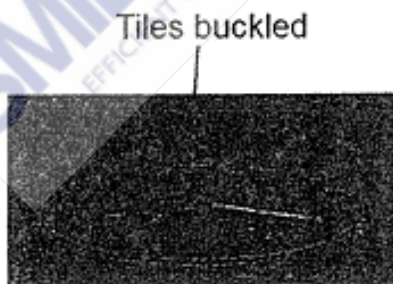
20 What will happen to the iron rod if it is stroked thirty times by each of the two magnets?



The iron rod will \_\_\_\_\_.

- 1) not become a magnet
- 2) become a magnet with two different poles
- 3) become a magnet with two north-seeking poles
- 4) become a magnet with two south-seeking poles

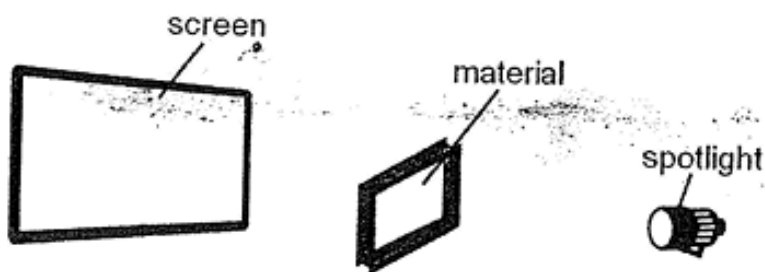
21. When Ginny reached home on a hot day, she realised that the tiles on her floor in her home had buckled.



The tiles buckled because the \_\_\_\_\_.

- 1) tiles contracted too much
- 2) gaps between the tiles were too big
- 3) rates of expansion between the tiles were different
- 4) tiles were of different shapes

22. Issac wanted to find out which materials allowed light to pass through using the following set-up as shown below.



Which of the following variables should he keep the same in order to conduct a fair test?

- A: Type of material  
 B: Thickness of material  
 C: Distance between the material and the screen
- 1) B only  
 2) A and B only  
 3) A and C only  
 4) B and C only

23. Dynamic Rope Company produces ropes for all purposes.

A climber made a list of the type of rope she needs:

- It can be coiled up easily.
- It will not weigh her down.
- It will not break if she falls.

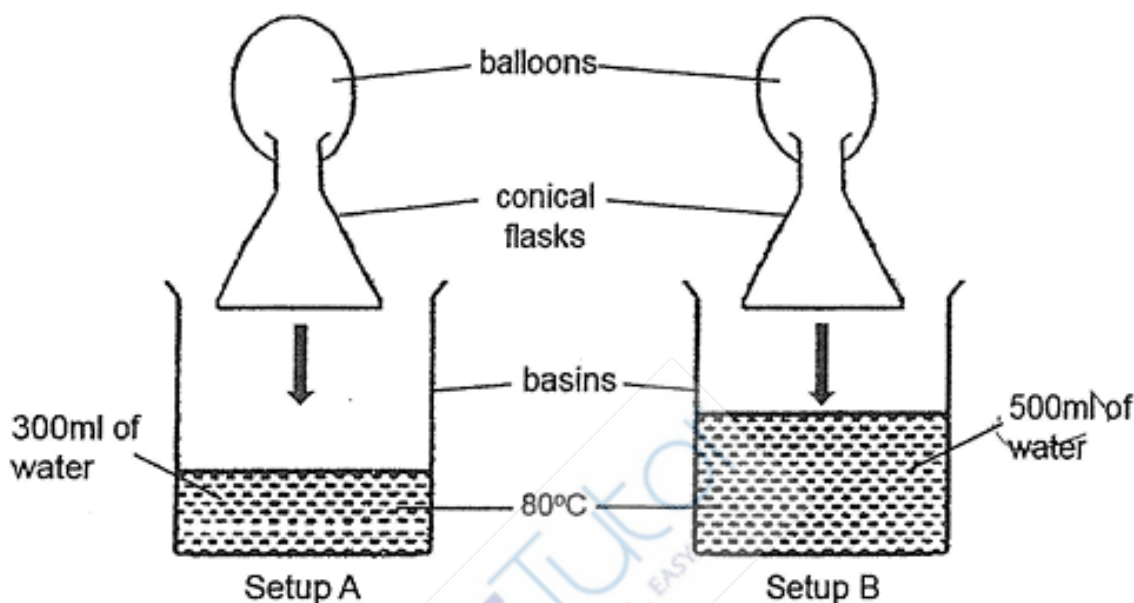
The table below shows 4 types of ropes that the company produces and their properties.

Property \ Rope	Apex	Beta	Delta	Kappa
Flexibility	High	Low	Medium	Low
Weight	Low	Medium	Low	Low
Strength	High	High	Low	High

Which rope should the climber purchase?

- 1) Apex  
 2) Beta  
 3) Delta  
 4) Kappa

24. Ronaldo set up an experiment using similar balloons, basins and conical flasks as shown below.



After five minutes, the balloon in setup B was more inflated than the balloon in setup A.

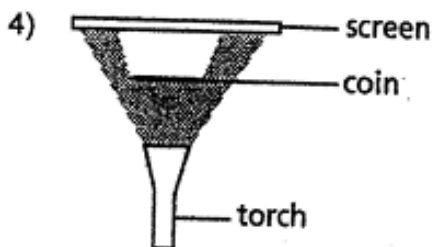
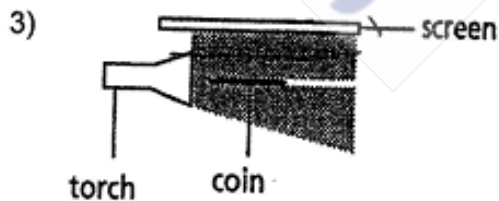
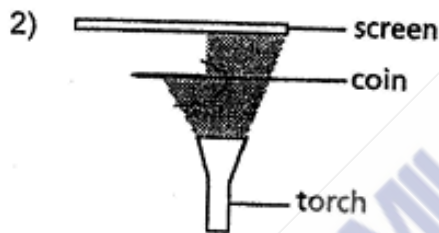
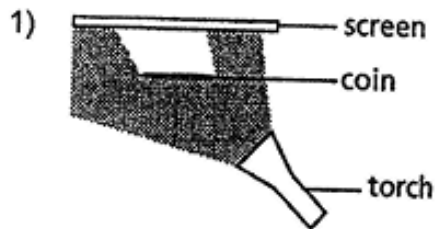
Which one of the following conclusions could Ronaldo make from his experiment?

- 1) Colder water was used in setup A than in setup B.
- 2) Water in setup B contained more heat than the water in setup A.
- 3) The conical flask in setup A lost more heat than the one in setup B.
- 4) The conical flask in setup B conducted heat faster than the one in setup A.

25. Which of the following torch positions would create an oval shadow of the 20-cent coin on the screen?

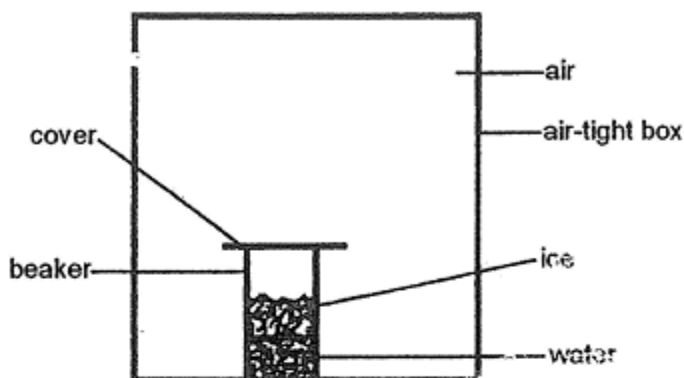


20-cent coin



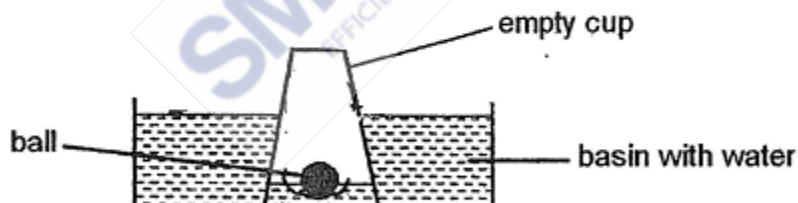


27. Iris put a beaker of water with ice cubes in an air-tight box as shown in the diagram below.



Which one of the following statements is correct about the air in the box?

- 1) The air will gain heat and expand.
  - 2) The air will lose heat and become cooler.
  - 3) The air will gain heat and become warmer.
  - 4) Coldness is transferred from the ice to the air.
28. Gina lowered an empty cup and a small ball into a basin of water until the cup touched the bottom of the basin. She observed that the water level inside the cup was not the same as the water level in the basin. The ball still floated on the water as shown in diagram below.



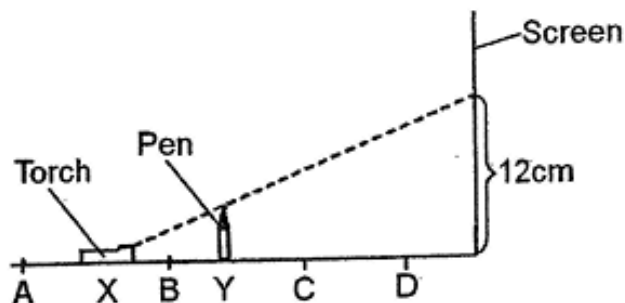
What could be the main reason for the difference in the water level inside and outside the cup?

- 1) The air trapped in the cup occupied space.
- 2) The ball pushed the water out from the cup.
- 3) The air trapped in the cup dissolved in the water.
- 4) The ball in the cup occupied space.

~ End of Booklet A ~



26. Jasmy wanted to find out if the position of the torch and the pen would affect the length of the shadow cast on the screen. She marked 6 points on the table in front of the screen and placed a torch at X and a pen at Y, as shown in the diagram below.



When she switched on the torch, she observed a 12cm long shadow of the pen cast on the screen. Jasmy then placed the torch and the pen at different positions and recorded her observations in the table as shown below.

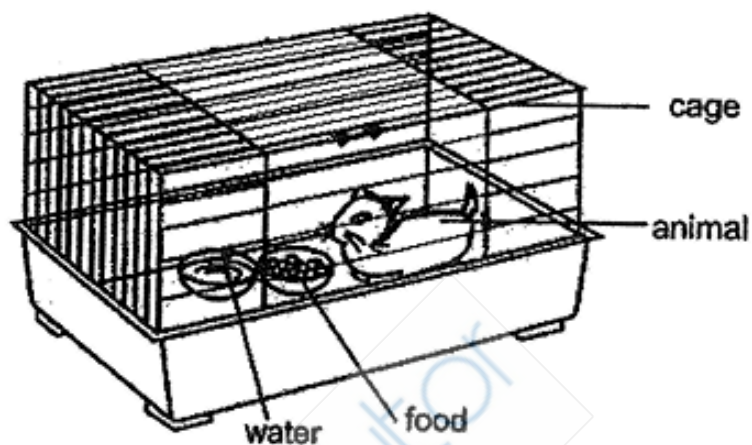
Which of the following could she have observed?

	Position of torch	Position of pen	Length of the shadow cast (cm)
1)	A	Y	15
2)	B	Y	10
3)	X	B	10
4)	X	C	8

**Part II (44 marks)**

Answer all the following questions.

29. Study the diagram below.



- a) <sup>Circle</sup> ~~Circle~~ what happened to the <sup>amount</sup> of food in the bowl after a few days. [1]

increase	decrease	remain the same
----------	----------	-----------------

- b) Based on the diagram above, name one substance this animal needs so that it remains alive. [1]

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30. Classify the following animals according to the number of stages in their life cycles. [2]



frog



grasshopper



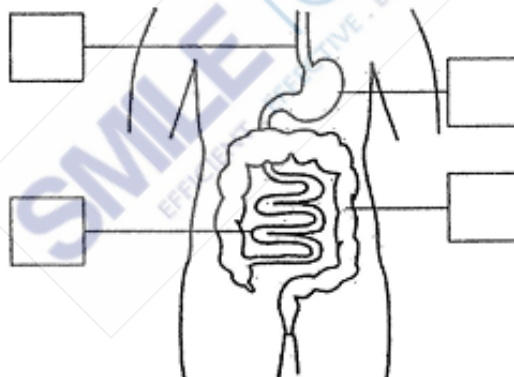
beetle



duck

Three stages	Four stages

31. The diagram shows part of the human digestive system.



- a) Tick one box to show where the stomach is. [1]
- b) Fill in the blank below using the following helping words. [1]

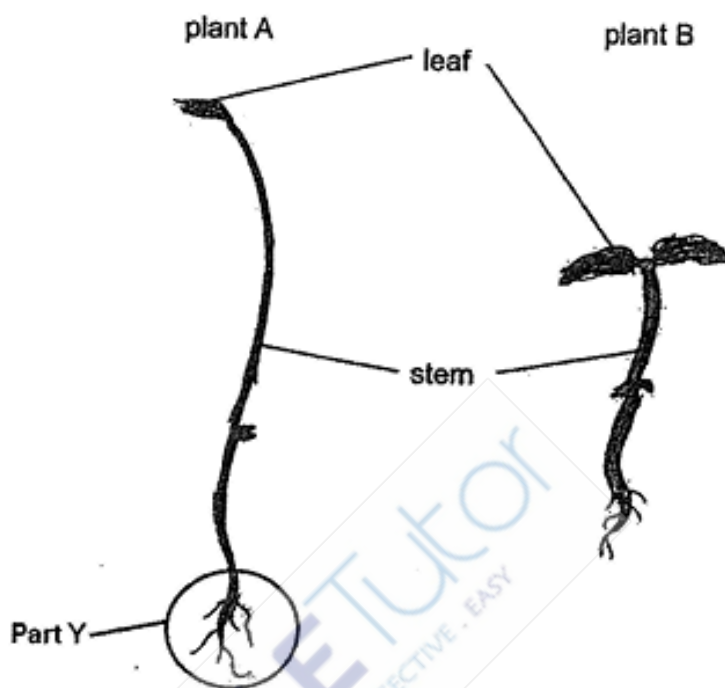
small intestine	large intestine	gullet	mouth
-----------------	-----------------	--------	-------

Food from the stomach is next passed on to the \_\_\_\_\_

- c) Name any 2 parts of the system where digestive juices are produced. [1]

\_\_\_\_\_

32. The diagram below shows two plants.



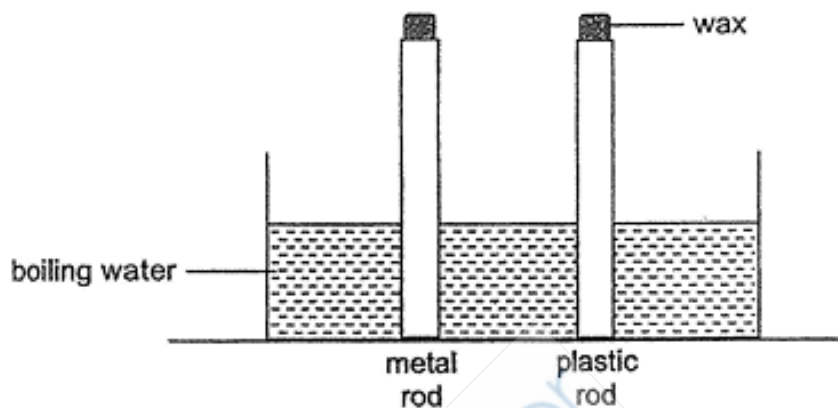
- a) What is one difference between the stem of plant A and the stem of plant B?  
The stem of plant A is \_\_\_\_\_ than the stem of the plant B. [1]
- b) The leaves help both plants make \_\_\_\_\_ in the light. [1]
- c) When part 'Y' is removed, the plant died. Explain. [1]

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33. Yan Hui placed a metal rod and a plastic rod into a tank of boiling water as shown below. Equal amounts of wax were put on both rods.



- a) What would she observe and why? [2]

The wax on the metal rod melted \_\_\_\_\_ than the wax on the plastic rod as metal is a \_\_\_\_\_ conductor of heat.

- b) Yan Hui wants her ice cream to remain frozen for as long as possible. Should she use a metal or plastic container to keep her ice cream in?

Explain your answer. [2]

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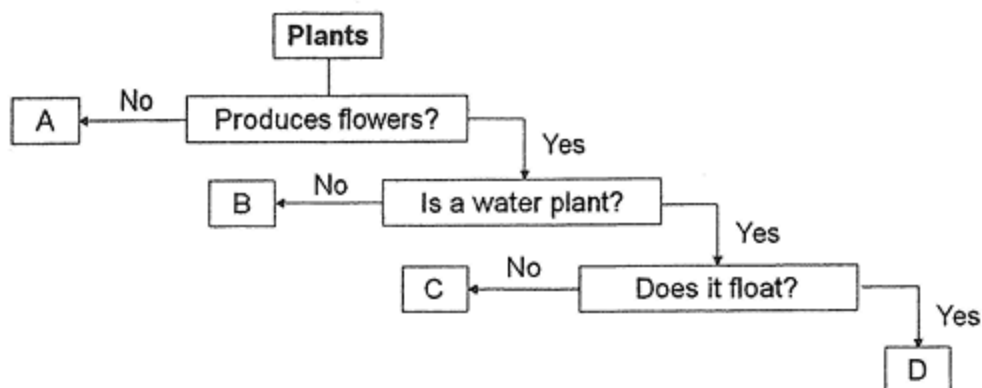
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34. Ahmad left a plate of mee rebus in a warm place at the kitchen. Ahmad noticed that the plate of mee rebus looked the same but gave off a bad sour smell the next day. It had turned bad.



- a) Which group of living things caused the mee rebus to turn bad? [1]
- \_\_\_\_\_
- b) What would happen if Ahmad had put the plate of mee rebus in the refrigerator instead? Explain your answer. [2]
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

35. The flow chart below shows the characteristics of Plants A, B, C and D.



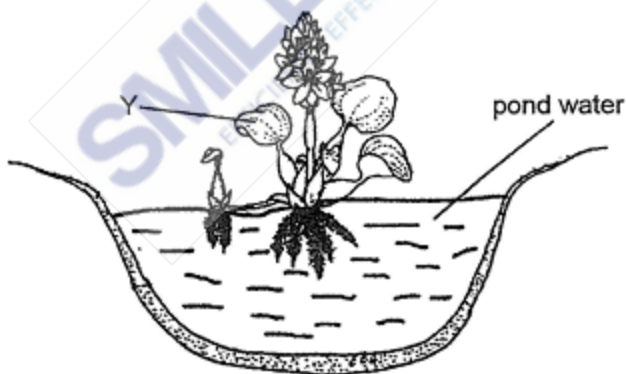
Felicia observed a living thing, X, and recorded her observations in her notebook.

- X grows in water.
- X does not produce flowers.

a) Which plant, A, B, C or D is X most likely to be? [1]

---

Felicia found another plant, Y, growing in the school garden as shown below.



b) Which plant, A, B, C or D can Plant Y be grouped with? [1]

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c) Based on the flow chart above, explain your answer in (b). [1]

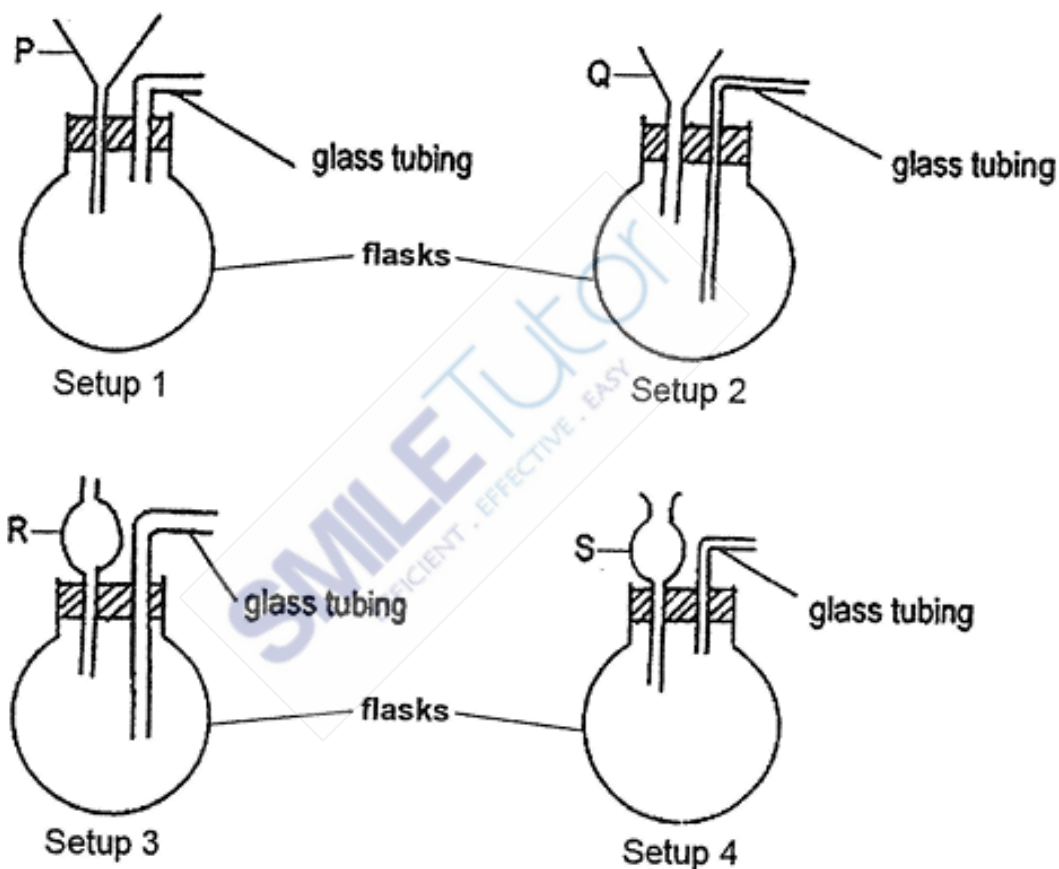
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36a. Mary was given four funnels, labelled P, Q, R and S. She was asked to find out which one of these funnels would allow water to flow through it most quickly. She poured some water into each funnel using the following set-ups and started the stop watch to find out how long the water took to flow into each flask.



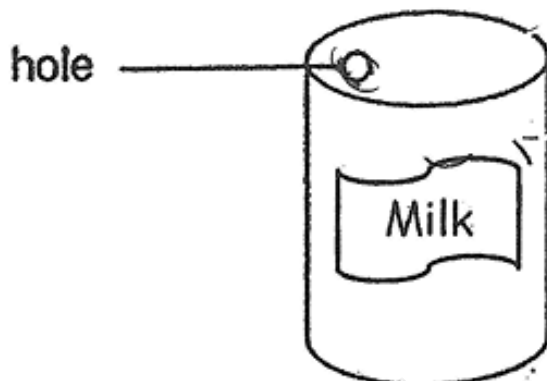
Mary's teacher told her to use the glass tubing of the same size for all setups so that it would be a fair test. Why is this so? [1]

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36b. Jason made a hole on the top of a milk can so that he can pour out the milk.



Jason tried pouring the milk out but found that it flowed out very slowly.

- (i) Without enlarging the hole or opening the can, what could Jason do so that the milk could flow out faster? [1]

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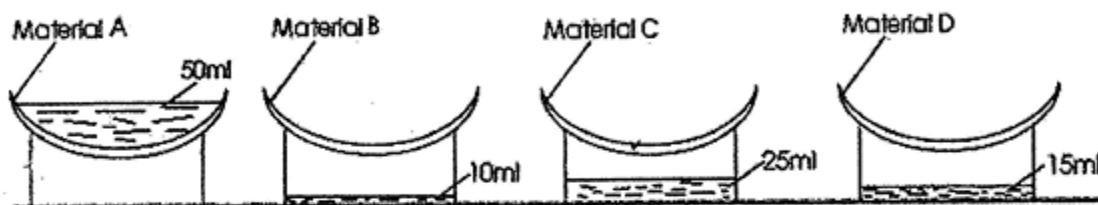
- (ii) Explain how the suggestion in (a) would allow the milk to flow out more easily? [2]

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37. Mrs Lee wanted to find out which one of the 4 materials, A, B, C or D is able to absorb the most amount of water. She placed the 4 materials over 4 water troughs respectively and poured 50ml of water onto each of the materials. The diagrams below show the amount of water that was able to pass through the materials after 30 minutes.



- a) Arrange the materials according to how well they absorb water.

Write down A, B, C and D in the boxes below.

[2]

Most absorbent	→			Least absorbent

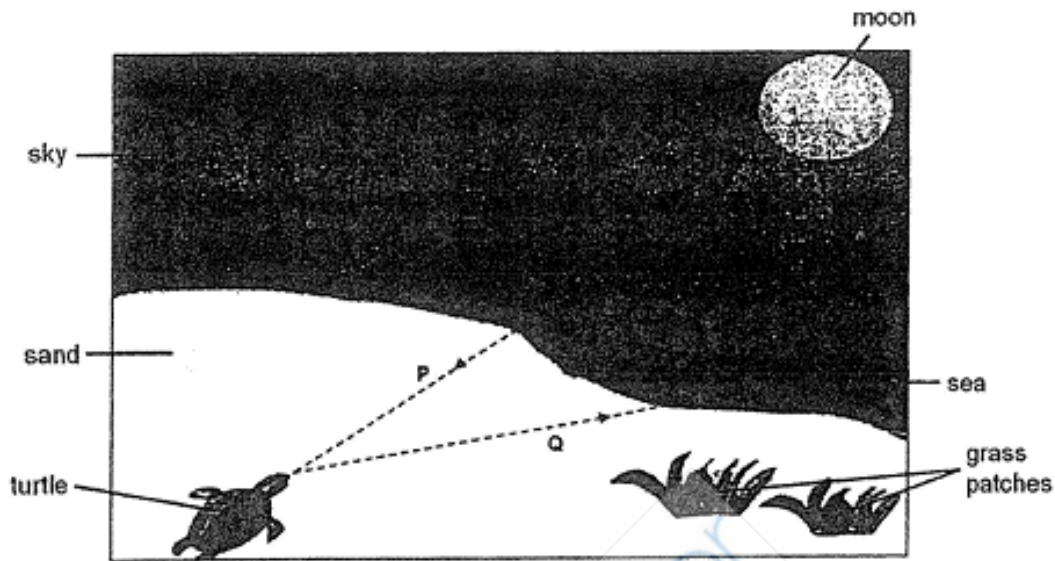
- b) Based on your answer in (a), which material, A, B, C or D, is most suitable to make part J and K? Give a reason for your answer.

[2]



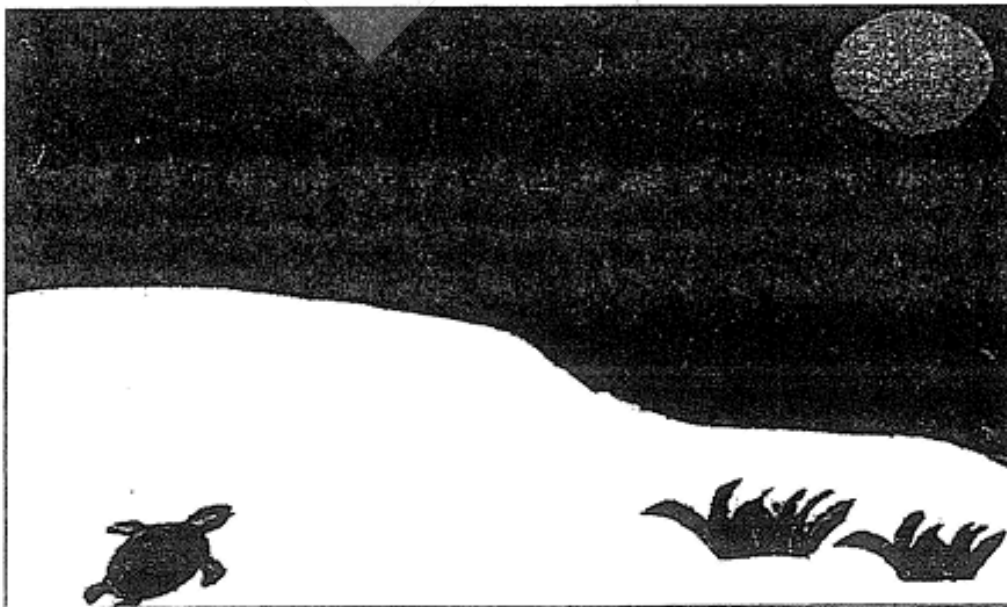
Part	Material used	Reason
J		
K		

38. On a beach one night, Rahim observed a turtle moving on the sand.

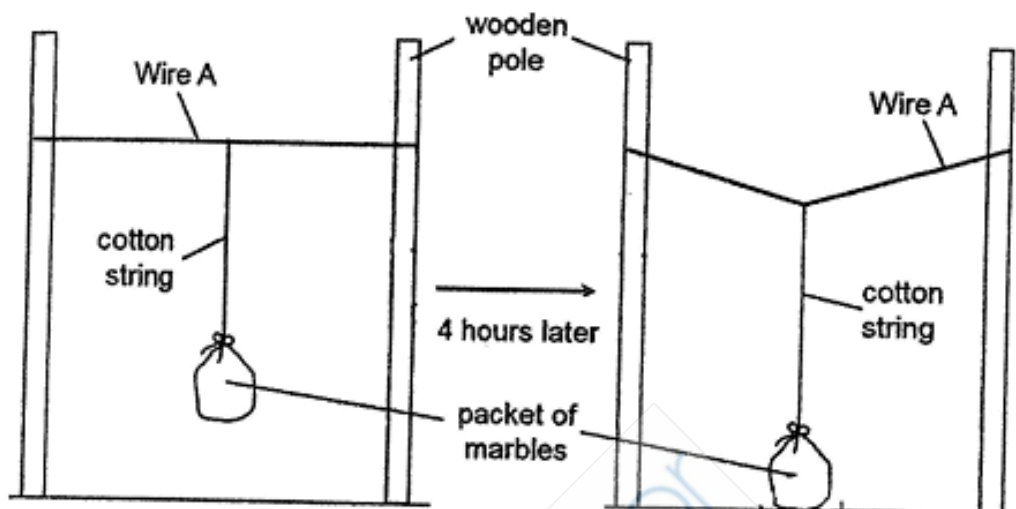


- a) Which set of arrows, P or Q, correctly shows how the turtle could see the moon? [1]

- b) Draw another set of arrows to show how the turtle can see the grass in the moonlight in the diagram below. [1]



39. Jay tied a packet of marbles on Wire A on a hot day and observed it every hour. After four hours, he observed that the packet of marbles touched the ground as shown in the diagram below.



- a) The next day, he repeated the experiment by replacing Wire A with Wire B under the same conditions. However, the packet of marbles did not touch the ground. What was Jay trying to find out? [1]

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- b) Tick **two** variables that do not affect the results of the experiment. [2]

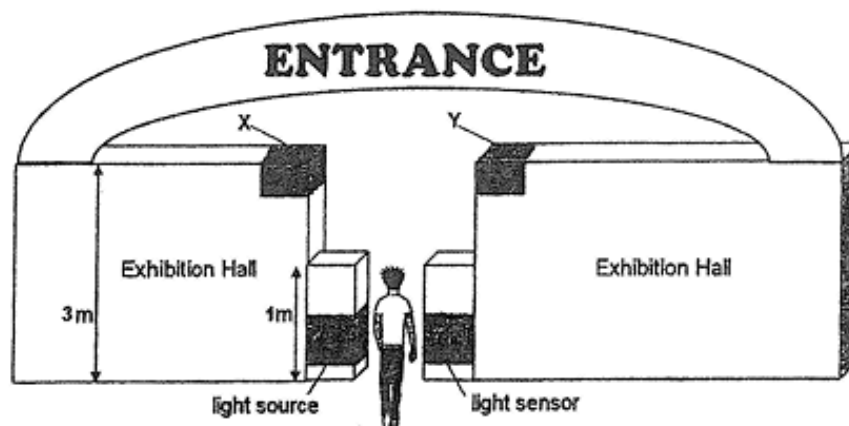
Variable	Will not affect results
Length of wire	
Mass of marbles	
Thickness of wire	
Colour of marbles	
Colour of the wooden poles	

- c) Which wire, A or B, should Jay use to make an outdoor clothes line? [1]

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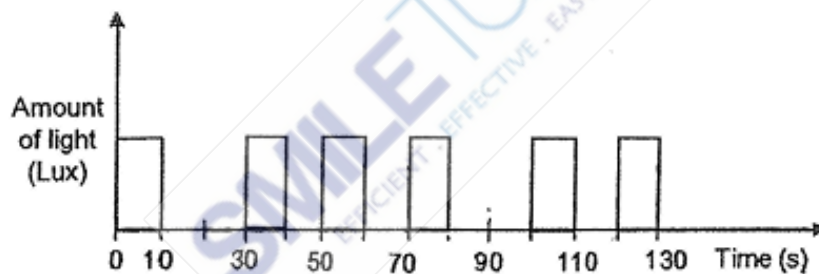


40. The diagram below shows a light sensor which is used to count the number of people entering an exhibition hall.



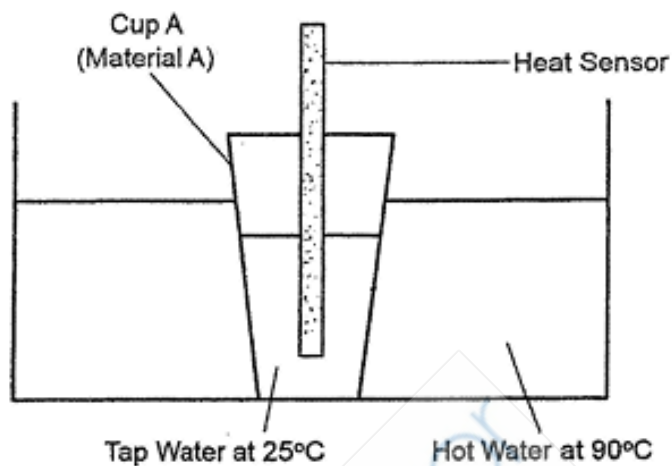
The space between the light source and sensor only allows one person to enter the exhibition hall each time.

When the person enters the exhibition hall, the light is blocked. The readings of the sensor are recorded in the graph below.



- a) How many people have gone into the exhibition hall in the first 80 seconds? [1]
- 
- b) If the sensor and light source are moved to Part X and Part Y, the sensor cannot accurately record the number of people entering the exhibition hall. Why? [2]
- 
- 
- c) Which property of light allows this light sensor to work? [1]
-

- b) In the diagram below, draw an arrow to show how heat is transferred between the water in the basin and the water in the cup. [1]

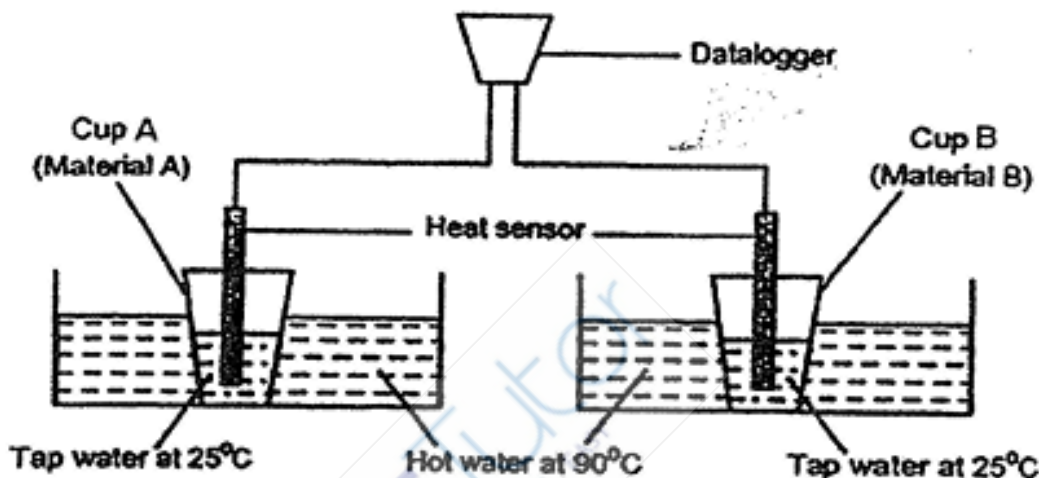


- c) When will the heat transfer between the hot water in the basin and the water in the cup stop? [1]

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41. Mrs Fong carried out an experiment using two cups, A and B, made of different materials, A and B, respectively. She filled both cups with the same amount of water at a temperature of  $25^{\circ}\text{C}$  and placed them each into a basin of hot water at  $90^{\circ}\text{C}$  as shown in the diagram below.



Mrs Fong then used a datalogger to measure and recorded the temperature of water inside cups A and B for ten minutes. The results are shown below.

Cup	Temperature of water inside the cup		
	0 min	5 min	10 min
A	$25^{\circ}\text{C}$	$40^{\circ}\text{C}$	$50^{\circ}\text{C}$
B	$25^{\circ}\text{C}$	$35^{\circ}\text{C}$	$75^{\circ}\text{C}$

- a) Which material, A or B, is a better conductor of heat? Explain your answer using the results.

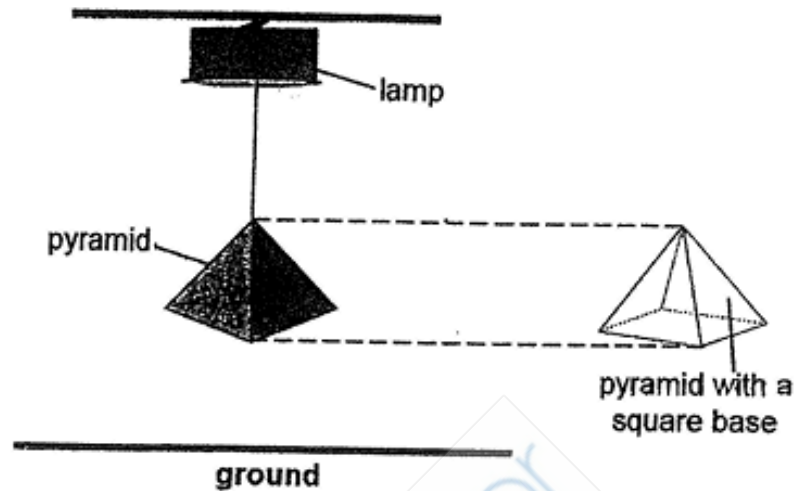
[1]

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42. In the diagram below, Lynn hangs a wooden pyramid with a square base directly below a lamp which is fixed on the ceiling.



- a) Draw how the shadow would look like on the ground in the box below. [1]



- b) To make a bigger shadow on the ground, what can Lynn do to the string?  
**Circle** your answer. [1]

Cut the string	Lengthen it	Shorten it
----------------	-------------	------------

- c) When the pyramid is turned upside down, its distance from the ground remains the same as in (a). Will its shadow be bigger, smaller or the same as in (a)? [1]

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~ End of Booklet B ~

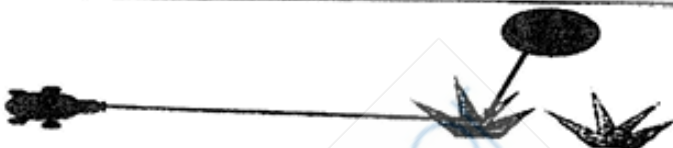
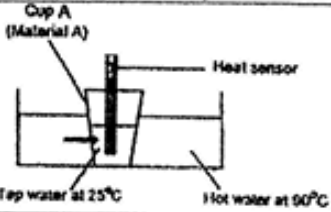

## ANSWER SHEET

### BOOKLET A

Q1	2	Q2	4	Q3	3	Q4	3	Q5	1
Q6	3	Q7	1	Q8	1	Q9	2	Q10	4
Q11	3	Q12	3	Q13	4	Q14	2	Q15	4
Q16	3	Q17	4	Q18	2	Q19	2	Q20	1
Q21	3	Q22	4	Q23	1	Q24	2	Q25	1
Q26	4	Q27	2	Q28	1				

### BOOKLET B

Q29	a)	Decrease
	b)	Air/Water/Food
Q30	Three stages	
	Four stages	
	Frog	
	Duck	
	Grasshopper	
Q31	a)	
	b)	small intestine
	c)	mouth, stomach and small intestine
Q32	a)	taller / thinner / longer
	b)	food
	c)	The plant has no roots to take in /absorb
Q33	a)	faster/sooner/quicker in shorter, better conductor of heat.
	b)	Plastic
Q34	a)	Bacteria/Decomposers/Fungi
	b)	Mee Reebus will not turn sour OR Bacteria/ Fungi/ Decomposers will not grow. AND Bacteria/ Fungi /Decomposers need warmth to grow but the fridge is too cold.

Q35	a)	A
	b)	D
	c)	Y produces flowers, is a water plant and can float on water.
Q36	a)	The width of the glass tubing can affect the amount of air in the flask that escape / the speed the water flows through the funnel.
	b)i	Make an extra hole.
	c)ii	The extra hole will allow air to enter the can and push milk out / occupy the space of the milk so that the milk can come out.
Q37	a)	B D C A
	b)	J – B. It is able to absorb the most water. K – A. It is <b>waterproof</b> / cannot absorb any water.
Q38	a)	P
	b)	
Q39	a)	To find out if Wire A or Wire B expands more upon heating.
	b)	Tick only: • Colour of marbles • Colour of wooden poles
	c)	Wire B
Q40	a)	3 Count the dips – that is when light is blocked.
	b)	Many people are too short to block the light of the sensor. OR The sensors are too high for its lights to be blocked by people.
	c)	Light travels in a straight line.
Q41	a)	B. B is a better conductor of heat because tap water/ water in the cup gained heat faster to reach a higher temperature at the end of the experiment.
	b)	 <div style="border: 1px solid black; padding: 5px; margin-left: 20px;">         Any arrow from the water in the basin to the tap water.       </div>
	c)	When both tap water and hot water in basin reach the same temperature.
Q42	a)	square 
	b)	Shorten it
	c)	Bigger

## **NANYANG PRIMARY SCHOOL PRACTICE PAPER**

### **Section A**

For each question from 1 to 28, four options are given. One of them is the correct answer. Indicate your choice in this booklet (1, 2, 3 or 4).

Shade the correct oval on the Optical Answer Sheet provided.

1. Germaine observed some worms in a dish.



She wrote down some statements about the worms in her Science Journal.

- A They ate the food in the dish.
- B They are light brown in colour.
- C They grew bigger after a week.
- D They moved away when touched.
- E They have many legs and many body parts.

Which of Germaine's observations are characteristics found in all living things?

- |                     |                     |
|---------------------|---------------------|
| (1) A, B and E only | (2) A, C and D only |
| (3) B, C and D only | (4) B, C and E only |

2. Study the classification table below.

Living Things	Non-Living Things
goldfish	table
monkey	bottle
elephant	mould

Which one of the following items above has been classified wrongly?

- (1) bottle
- (2) mould
- (3) monkey
- (4) goldfish



3. The characteristics of plants X and Y are listed below.

Characteristics	Plant X	Plant Y
Able to make its own food	Yes	Yes
Reproduce by spores	No	Yes
Bear fruits	Yes	No

Three children made the following statements.

Anna : Plant X is a flowering plant.  
 Brian : Plant Y reproduce by seeds.  
 Charlie : Only Plant X absorbs sunlight to make food.

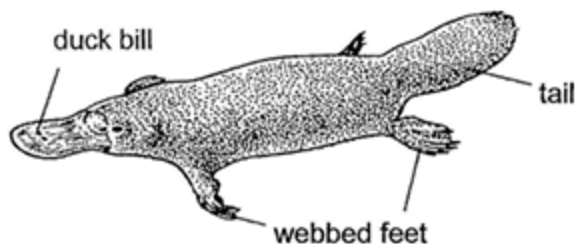
Which of the statements above are correct?

- (1) Anna only                      (2) Anna and Charlie only  
 (3) Brian and Charlie only    (4) Anna, Brian and Charlie
4. Jeremy found an animal that he had never seen before at the pond.  
 Which one of the following characteristics can he use to classify it correctly as an amphibian?

- (1) It lays eggs  
 (2) It has moist skin.  
 (3) It suckles its young.  
 (4) It needs air, food and water.

5. The diagram below shows animal P. It is a unique animal with the following characteristics:-

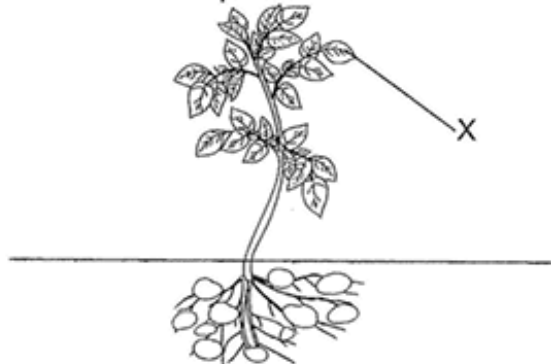
- It has fur as an outer covering.
- It lays eggs, and it suckles its young.
- It has lungs and nostrils for breathing.
- it has a duck bill, webbed feet and a tail for swimming.



Which one of the following characteristics helps us classify animal P as a mammal?

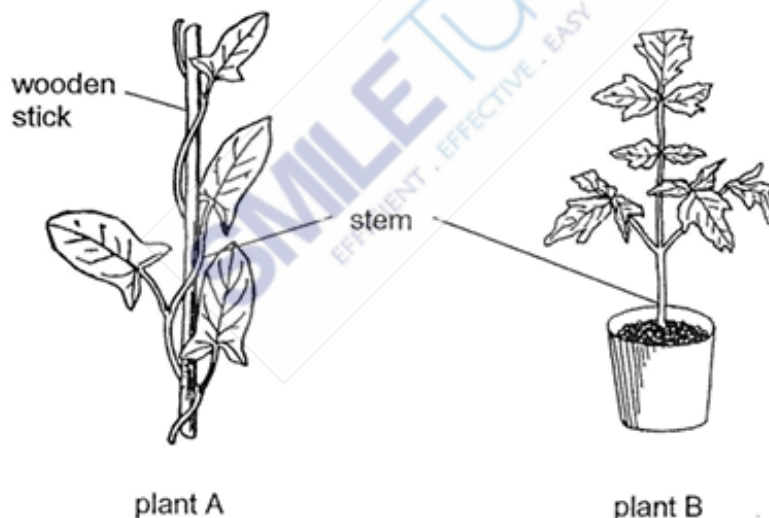
- (1) It lays eggs.  
 (2) It has a duck bill.  
 (3) It suckles its young.  
 (4) It has webbed feet and a tail.

6. The diagram below shows a plant.



Which one of the following shows the function of part X?

- (1) It helps the plant to reproduce
  - (2) It anchors the plant firmly to the ground.
  - (3) It holds the plant upright to get more sunlight
  - (4) It absorbs sunlight and makes food for the plant.
7. Rezal observed 2 different plant stems. He wrote down some observations about the stems.



Which one of the following observations is true?

- (1) Plant B will grow faster than plant A.
- (2) Plant A has a stronger stem than plant B stem.
- (3) The stems of both plant help the plant to grow upright to obtain sunlight.
- (4) The stems of both plant only help to transport water from the roots to the leaves.

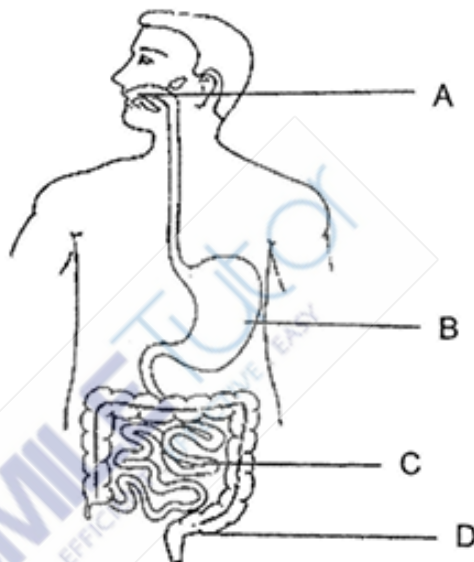


8. Alan observed some plants in school which did not have any flowers. However, he still concluded that they were flowering plants.

Which one of the following could have helped him to make this conclusion?

- (1) The plant had flower-shaped leaves.
- (2) The plant had a strong and sturdy stem.
- (3) The plants had small fruits hanging on branches.
- (4) There were spores on the underside of the leaves.

9. The diagram below shows the human digestive system.



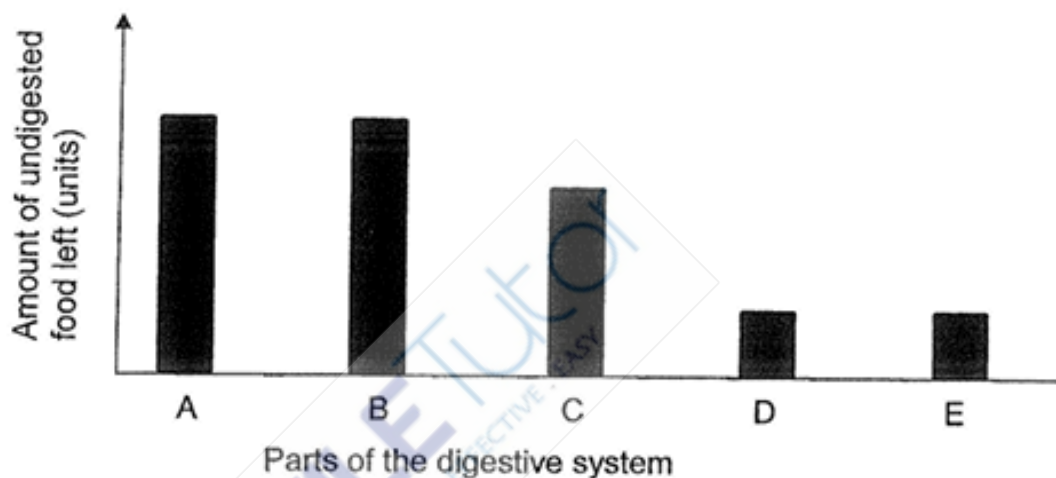
In which part does the food start getting broken down into smaller pieces?

- |       |       |
|-------|-------|
| (1) A | (2) B |
| (3) C | (4) D |
10. Which one of the following systems directly help humans to take in air from the surroundings?
- (1) Skeletal system
  - (2) Digestive system
  - (3) Circulatory system
  - (4) Respiratory system

11. Which one of the following is not a part of the skeletal system?

- (1) Skull
- (2) Ribcage
- (3) Stomach
- (4) Backbone

12. The graph below shows the amount of undigested food leaving different parts of the digestive system.



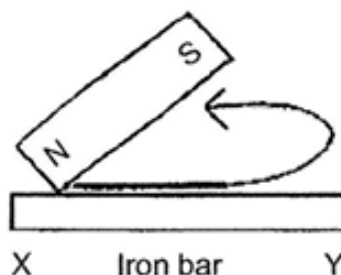
Which one of the following organs most likely represent organ B?

- (1) gullet
- (2) stomach
- (3) small intestine
- (4) large intestine

13. Which one of the following statements about magnets is **true**?

- (1) Magnetic strength of a magnet is weakest at the poles.
- (2) The like poles of 2 magnets facing each other will repel each other.
- (3) The bigger the size of a magnet, the stronger its magnetic strength is.
- (4) The unlike poles of 2 magnets facing each other will repel each other.

14. Dinesh turned an iron bar into a temporary magnet as shown below and was able to attract 10 paper clips with it.



What can he do next to increase the number of paper clips attracted by the iron bar?

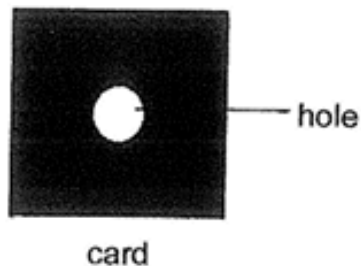
- (1) Use a bigger iron bar.
  - (2) Use the south pole to stroke the magnet.
  - (3) Increase the number of strokes of magnet.
  - (4) Decrease the number of strokes of magnet.
15. Study the classification table below.

Objects that give out light	Objects that do not give out light
Sun	battery
star	wires
cloud	matchbox

Which one of the following objects was classified wrongly?

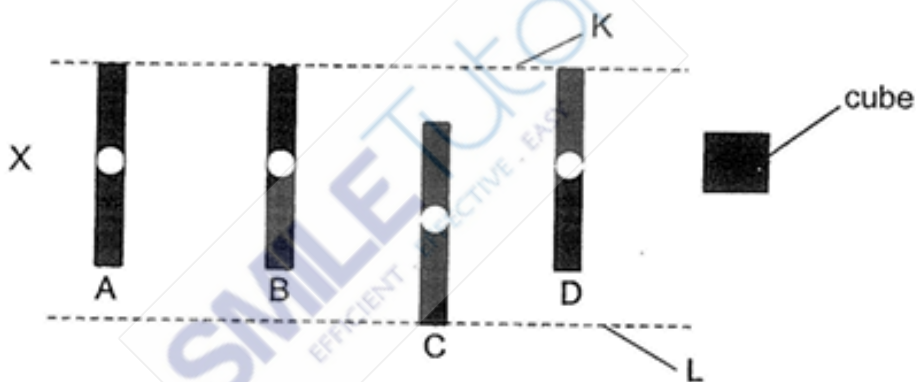
- (1) star
- (2) wire
- (3) cloud
- (4) matchbox

16. Macy cut out a hole from the middle of a card as shown in the diagram below.



She placed 4 identical cards in front of a cube and stood at position X. She could not see the cube from her position.

The diagram below shows the top view of her set-up.

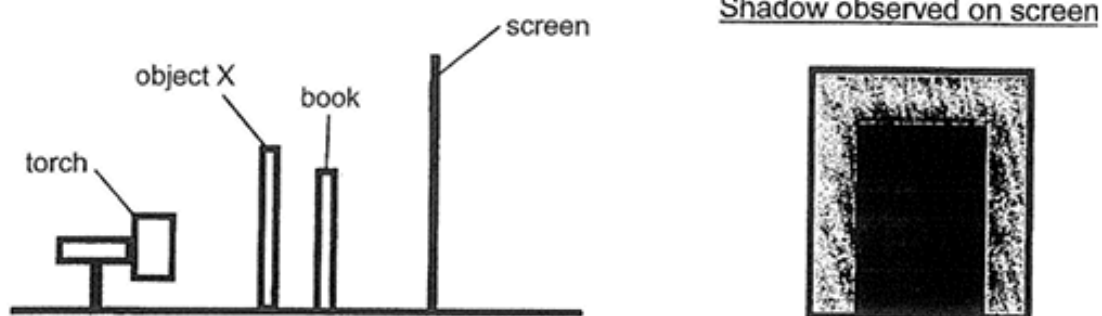


Which one of the following actions should Macy do to enable her to see the cube?

- (1) Move card C upwards to touch dotted line K.
- (2) Move card B downwards to touch dotted line L.
- (3) Move cards B, D downwards to touch dotted line L.
- (4) Move cards A, B and D downwards to touch dotted line L.



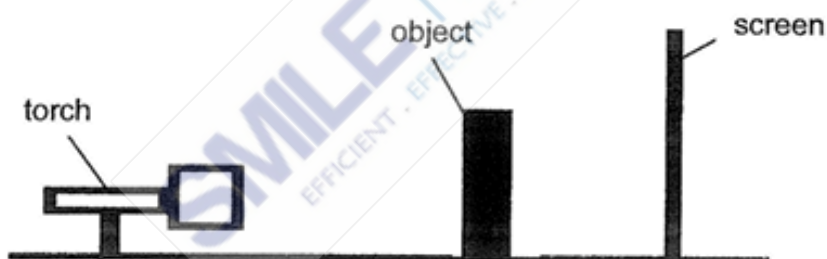
19. Jason did an experiment with object X and a book. He placed the book behind object X as shown below.



Based on Jason's observation, which one of the following could object X be?

- (1) Tracing paper
- (2) Wooden board
- (3) Aluminium sheet
- (4) Clear plastic sheet

20. Study the set-up as shown below.

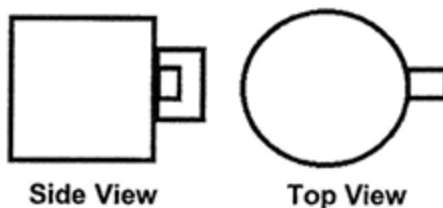


Which of the following changes should be made in order to observe a smaller shadow on the screen?

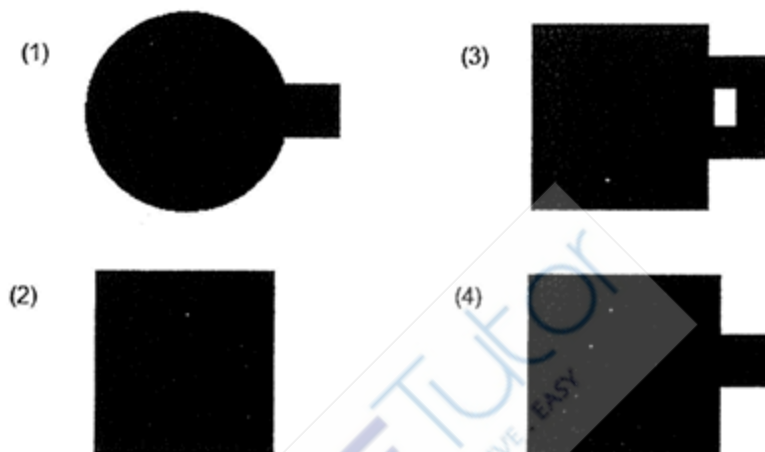
- A Use a brighter torch.
  - B Move the object nearer to the torch.
  - C Move the torch away from the object.
  - D Move the object nearer to the screen.
- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>(1) A and B only</li> <li>(3) B and C only</li> </ol> | <ol style="list-style-type: none"> <li>(2) A and D only</li> <li>(4) C and D only</li> </ol> |
|--|--|



21. Mick used a torch and shone at a cup from various positions. The cup is as shown below.



Which one of the following shadows **cannot** be caused by the cup?



22. Study the diagram below.



Which of the following properties of light explain how the person can see the dark painting?

- A Light can be reflected.
- B Light was given out by the painting.
- C Light can pass through transparent object.

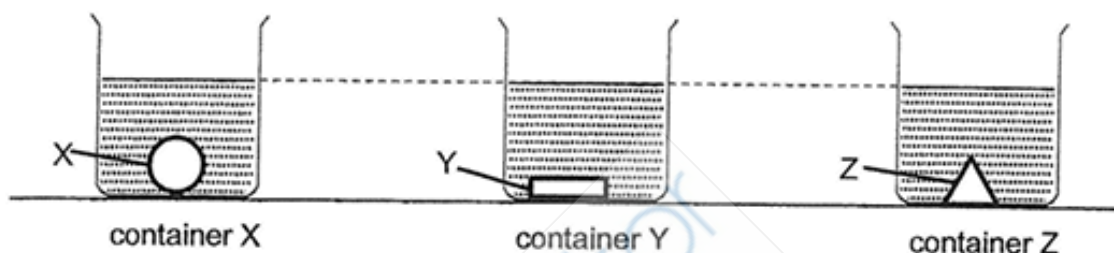
- |                  |                  |
|------------------|------------------|
| (1) A only       | (2) B only       |
| (3) A and C only | (4) B and C only |



23. Which one of the following statements about the properties of water and air is **incorrect**?

- (1) Water and air have definite mass.
- (2) Water and air do not have a definite shape.
- (3) Water takes up space but air does not take space.
- (4) Water cannot be compressed but air can be compressed.

24. Xihan placed 3 objects, X, Y and Z, into 3 identical containers, X, Y and Z. She then filled up the tank with water to reach the same level as shown in the diagram below.



She then removed the 3 objects from the containers and the amount water left in each container is shown below.

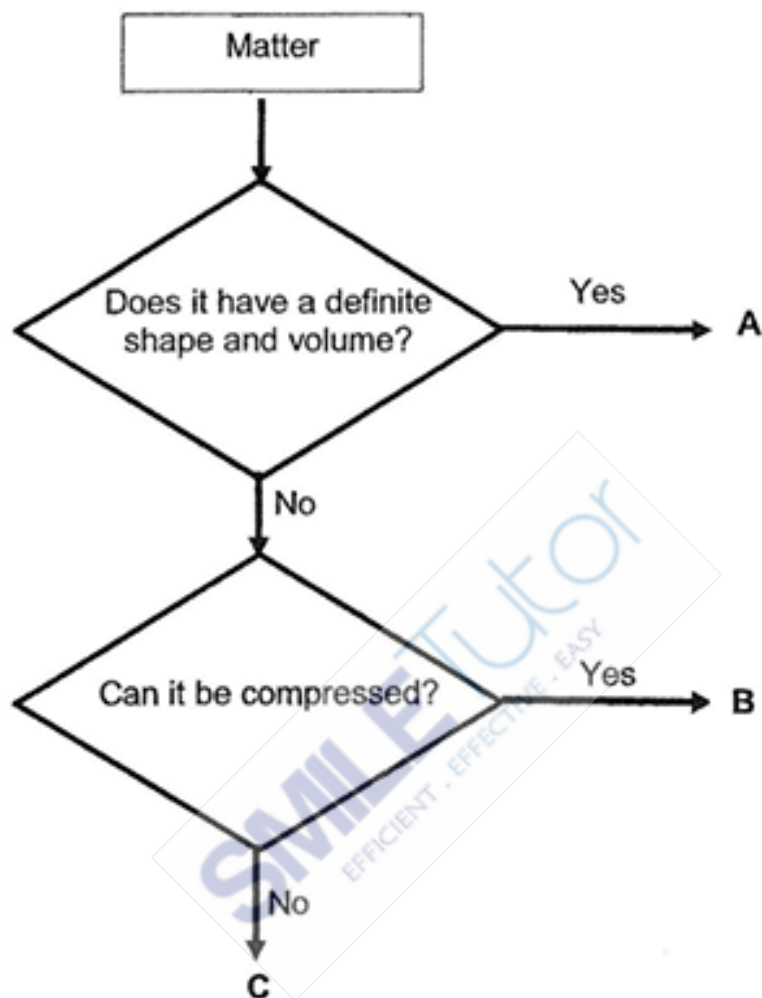


Based on the diagrams above, which of the following statements are correct?

- A Object Y has the largest volume.
- B The 3 objects have definite volume.
- C The 3 objects have the same volume.
- D Object X has a bigger volume than object Z.

- (1) A and B only
- (2) A and C only
- (3) B and D only
- (4) C and D only

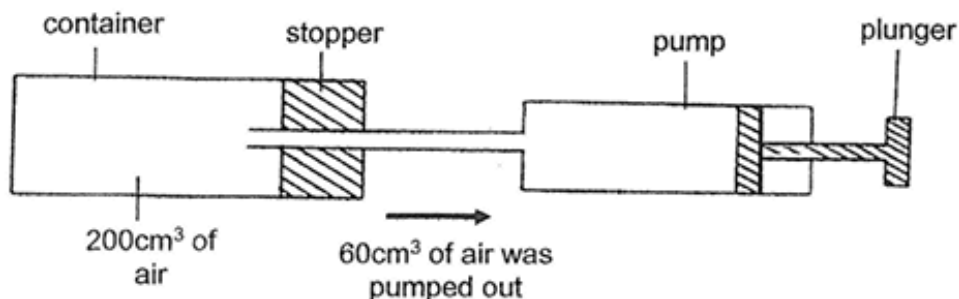
25. Study the flowchart below.



Which one of the following correctly represents A, B and C?

	<b>A</b>	<b>B</b>	<b>C</b>
(1)	paper clip	air	oil
(2)	milk	apple	oxygen
(3)	fork	water	Air
(4)	nail	honey	book

26. The container shown below has a capacity of  $200\text{cm}^3$  and was filled with air. Ashley inserted a pump into the container and pumped out  $60\text{cm}^3$  of air. The pump has a capacity of  $100\text{cm}^3$ .



Which one of the following correctly shows the final volume of air in the container and the pump?

	Volume of air in container ( $\text{cm}^3$ )	Volume of air in pump ( $\text{cm}^3$ )
(1)	140	60
(2)	140	100
(3)	200	60
(4)	200	100

27. Bing Hong has 3 identical soccer balls which are inflated. Each soccer ball has the same mass at first. He then pumped in different volumes of air into each soccer ball.



He observed that the size of the soccer ball remained the same.

Which one of the following statements is **incorrect** after Bing Hong pumped in different volumes of air into the 3 soccer balls?

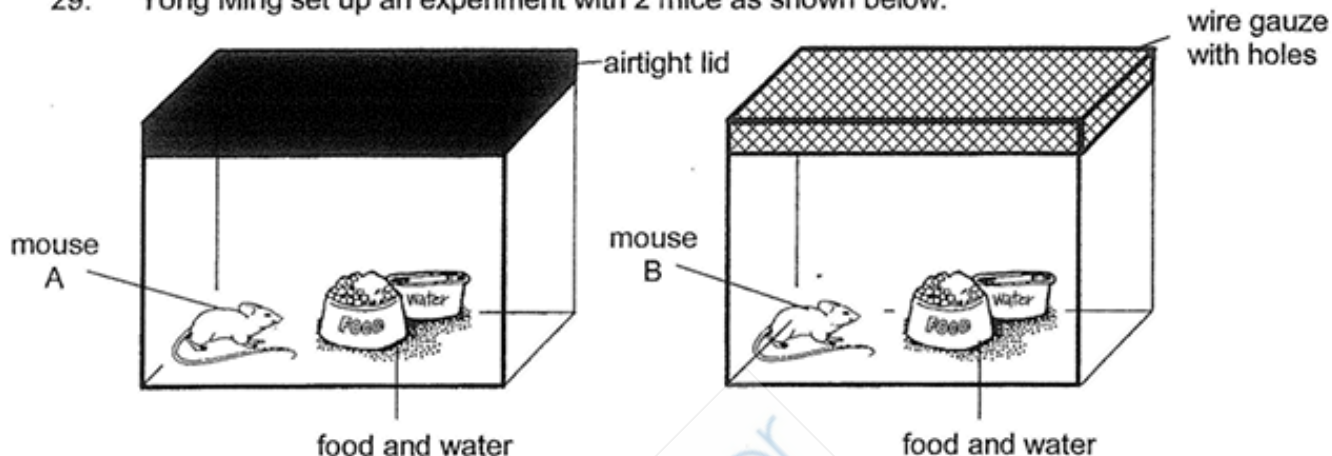
- (1) With every pump of air into the soccer ball, the mass of the soccer ball increases.
- (2) The 3 soccer balls have the same mass since the size of the soccer ball remains the same.
- (3) The 3 soccer balls have the same volume of air since the size of the soccer ball remains the same.
- (4) The ball with the biggest mass is the one which Bing Hong pumped in the greatest volume of air.



### Section B

Write your answers to questions 29 to 40 in the spaces provided.

29. Yong Ming set up an experiment with 2 mice as shown below.



- (a) Explain why mouse A died after a few days but not mouse B. [2]

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- (b) Which characteristic of living things does this experiment show? [1]

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- (c) State another characteristic of living things which is not shown in the experiment. [1]



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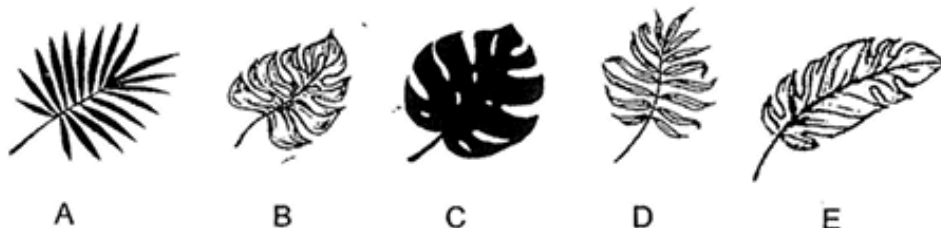
30. Four plants have been classified in a table as shown below.

- (a) Observe the plants and complete the headings in the plant classification table below. [1]

(i) _____	(ii) _____
	

- (b) Describe another method, not stated in part (a), to classify all plants. [1]

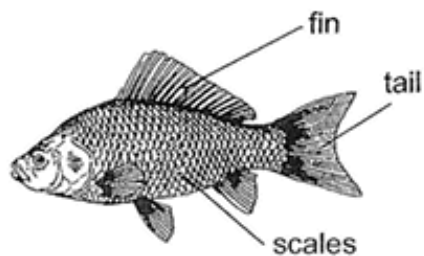
- (c) A science class gathered some leaves together. Observe the leaves below and group them based on similarities in their characteristics. [1]



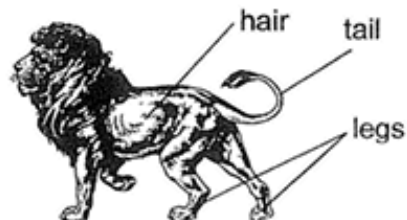
Group 1	Group 2



31. The diagram below shows 2 animals



animal X



animal Y

- (a) State the animal group which animal Y belongs to. [1]

---

- (b) Based only on what you can observe in the diagram state 2 differences between animal X and animal Y. [2]

- (i) 

---

---

- (ii) 

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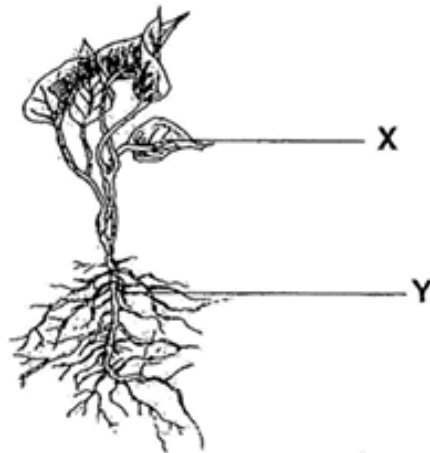
---

- (c) What is the function of the scales on animal X? [1]

---



32. Study the plant diagram below.



(a) Name the plant parts labelled X and Y. [1]

X: \_\_\_\_\_

Y: \_\_\_\_\_

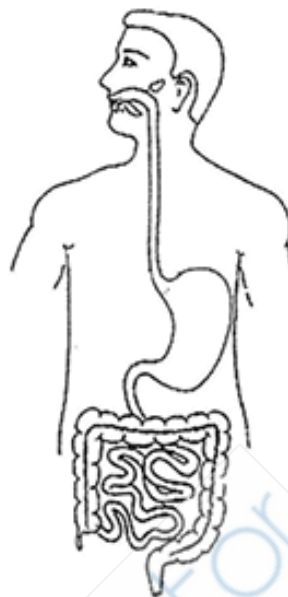
(b) Explain why the plant died several days after all of part Y were removed. [1]

\_\_\_\_\_  
\_\_\_\_\_

(c) State another function of part Y. [1]

\_\_\_\_\_  
\_\_\_\_\_

33. The diagram below shows the human digestive system.



- (a) In the diagram above, label [2]  
(i) X, where digestion starts  
(ii) Y, where digestion ends

- (b) State the function of the large intestine. [1]

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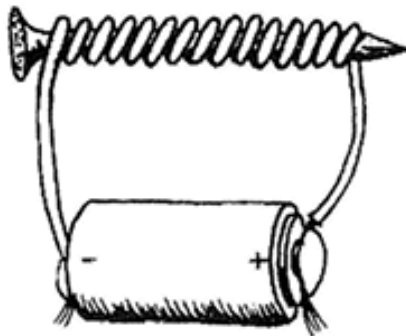
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- (c) How does chewing our food help in the process of digestion? [1]

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34. Benjamin set up the experiment below and created a temporary magnet that was able to attract 10 steel clips.



- (a) What type of magnet did Benjamin create? [1]

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- (b) Suggest 2 ways for Benjamin to increase the number of steel clips that the magnet attracted. [2]

- (i) 

---

---

- (ii) 

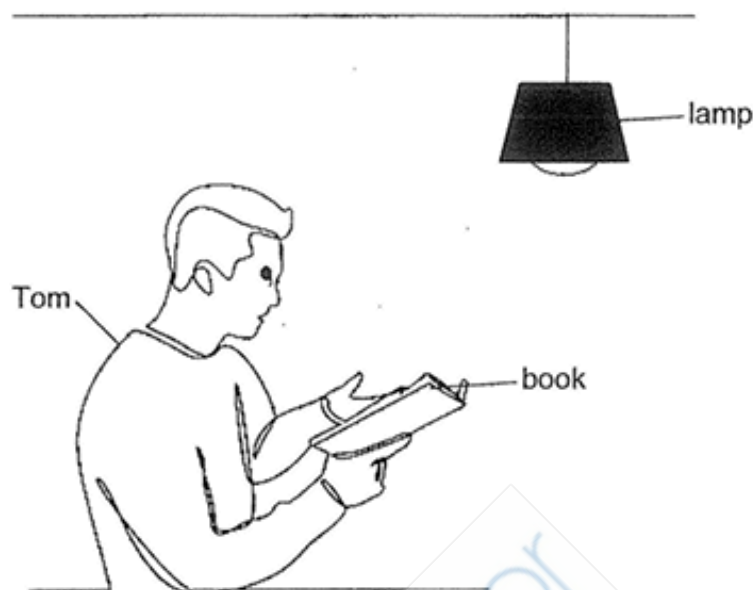
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- (c) State **another** way to create a temporary magnet. [1]

---

35. Study the diagram below.



- (a) In the diagram above, **draw and indicate** the direction of the light ray which enables Tom to read the book. [1]

The diagram below shows a safety vest with reflective part X.



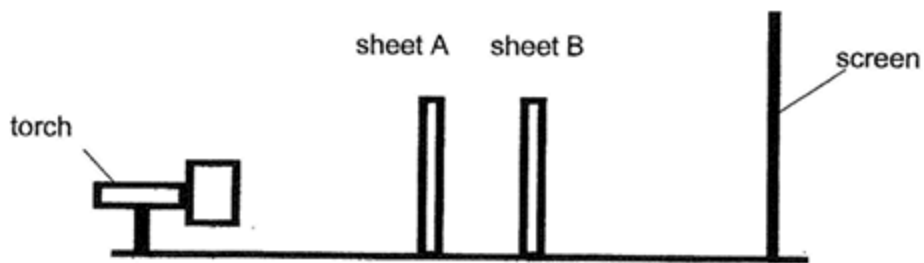
- (b) Explain why we can see part X better than the rest of the vest when a torch was shone at the vest. [1]

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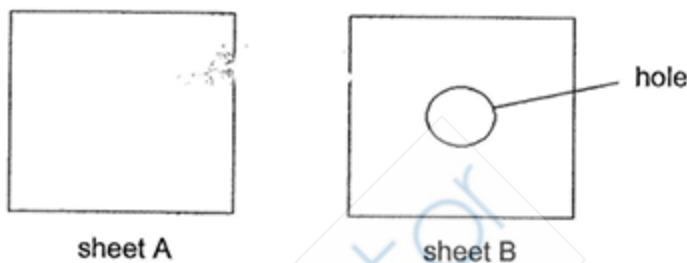


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36. Jason carried out an experiment as shown below.



Two sheets made of different materials, A and B, were used. They are of equal size and thickness. The diagram below shows the front view of the two sheets.



When the torch was switched on, Jason observed the following shadow on the screen.



- (a) Based on his observation, circle the material which most likely represent sheets A and B. [2]

Sheet A: wood / clear glass / tracing paper

Sheet B: wood / clear glass / tracing paper

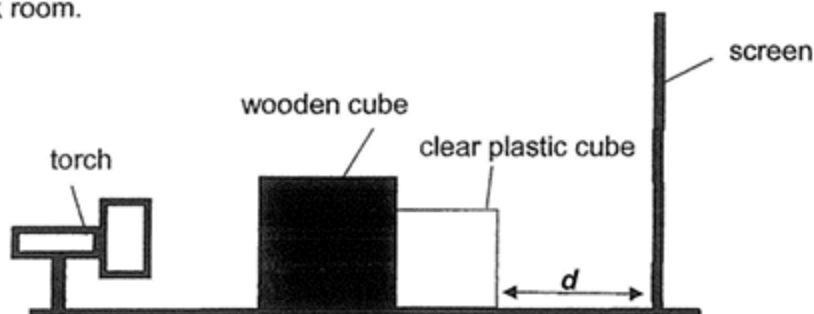
- (b) Explain why it is important for Jason to use only one torchlight in his experiment. [1]

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
37. Mark set-up an experiment as shown below. The experiment was carried out in a dark room.



- (a) In the space below, draw what Mark would most likely observe on the screen. [2]



Mark repeated the experiment by changing distance  $d$  and measuring the height of the shadow. He recorded the height of the shadow in the table shown below.

Distance, $d$ (cm)	Height of Shadow (cm)
5	15
6	(i) 
7	19

- (b)(i) In the table above, state what would be the height of the shadow when the distance,  $d$  is 6cm. [1]
- (ii) Without moving the cubes and the screen, suggest a change that Mark can make if he wants to observe a bigger shadow. [1]

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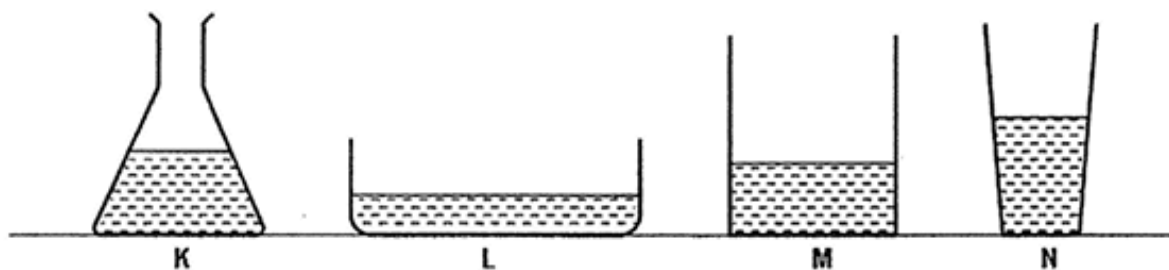
- (c) Mark replaced the wooden cube with a similar cube made of tracing paper. He observed that the shadow on the screen is now lighter. Explain his observation. [1]

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38. Mei Ling has 4 different containers, K, L, M and N. Each container was filled with 200 ml of water.



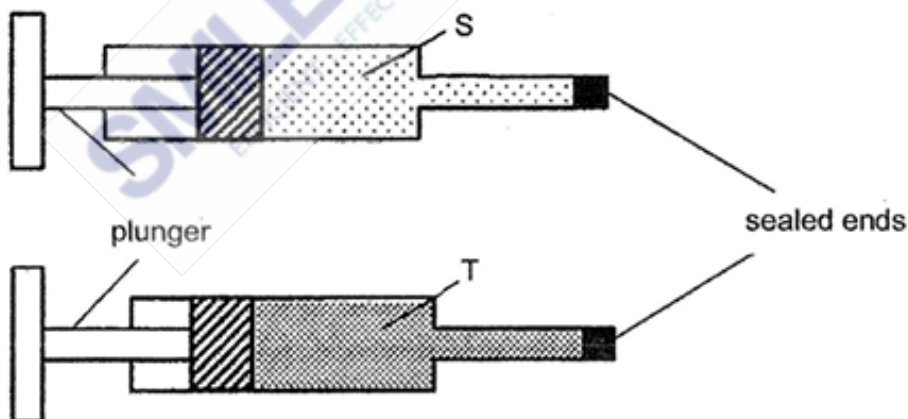
- (a) State a property of liquids that is shown in the diagram above. [1]

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Mei Ling carried out another experiment with 2 identical syringes. She filled each syringe with different substances, S and T, and sealed the ends of the syringes. She then tried to push the plunger of each syringe further. She discovered that she could push the syringe containing substance S but not the syringe containing substance T.



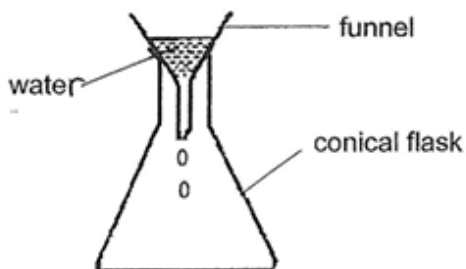
- (b) Identify the **state** of substances, S and T. [2]

S : \_\_\_\_\_

T : \_\_\_\_\_



39. Naim placed a funnel on a conical flask and poured some water in quickly.



He noticed that the water did not flow into the flask quickly as expected. Instead, the water in the funnel dripped into the flask slowly.

- (a) (i) Give a reason why the water dripped down slowly. [1]

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Naim's mother told him to lift the funnel up so that the water in the funnel would flow quickly into the flask.



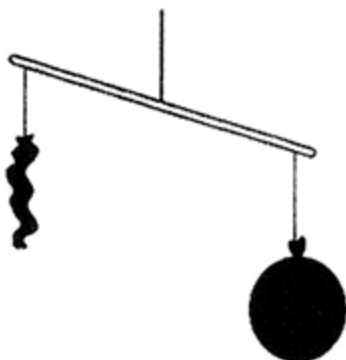
- (ii) Explain why the water in the funnel flowed quickly into the flask when the funnel was lifted. [1]

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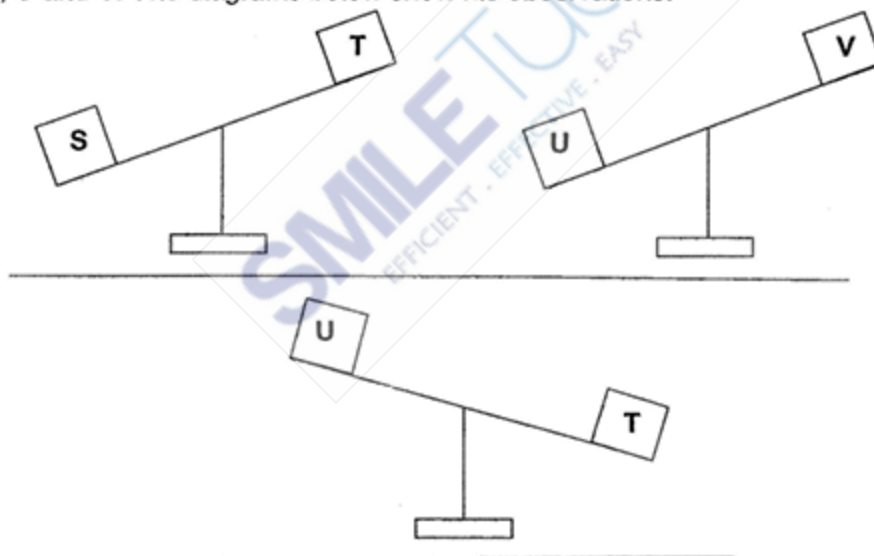
Arif balanced 2 inflated balloons on a balance. He then deflated one of the balloons and observed the results in the diagram below.



- (b) What conclusion can Arif make about the property of air from the observation above? [1]

---

Arif then used another lever balance to carry out an experiment with 4 different blocks, S, T, U and V. The diagrams below show his observations.

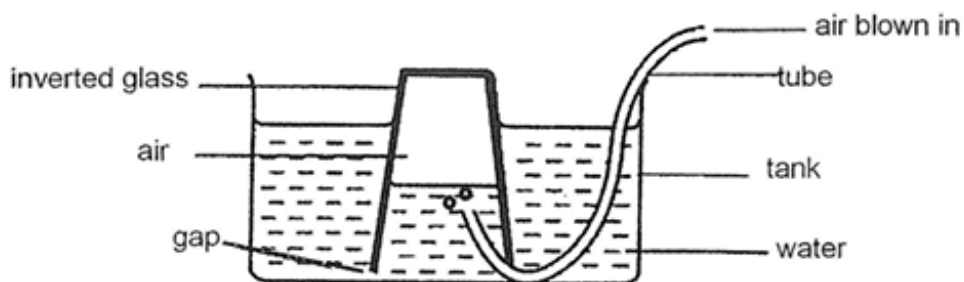


- (c) Arrange the objects, S, T, U and V from the object with the greatest mass to the one with the smallest mass. [1]

Greatest mass  $\longrightarrow$  Smallest mass

,,,

40. Kimberly set up an experiment as shown in the diagram below.



Kimberly then blew air into the tube. She noticed that the water level in the inverted glass decreased.

(a) Explain why the water level in the glass decreased. [2]

---



---

(b) What will she observe about the water level in the tank? [1]

---

(c) Explain what will happen to the total volume of water in the whole set-up. [1]

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(d) Based on the experiment above, state a property of matter. [1]

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~ END OF BOOKLET B ~

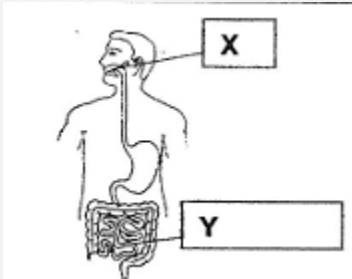
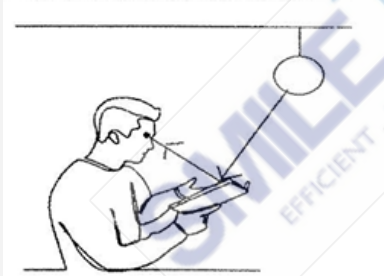
## ANSWER SHEET


### Section A

1	2	8	3	15	3	22	1
2	2	9	1	16	1	23	3
3	1	10	4	17	4	24	3
4	2	11	3	18	4	25	VOID
5	3	12	1	19	1	26	3
6	4	13	2	20	4	27	2
7	3	14	3	21	4	28	1

### Section B

Qn No	Acceptable Answers								
29. a	Mouse <b>A did not have enough air to survive</b> as the tank was covered with an air-tight lid but mouse <b>B had air</b> , food and water <b>to survive</b> as air could enter the wire gauze with holes.								
b	Living things <b>need air</b> (food and water) <b>to survive</b> .								
c	Living things <b>grow / reproduce</b> .								
30. a	<b>Flowering plants / Non-flowering plants</b> or <b>Reproduce by seeds / Reproduce by spores</b>								
b	<b>Weak stem and strong stem</b> or <b>Grow on land and grow in water</b>								
c	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Group 1</td><td>Group 2</td></tr> <tr> <td><b>A</b></td><td><b>B</b></td></tr> <tr> <td><b>D</b></td><td><b>C</b></td></tr> <tr> <td></td><td><b>E</b></td></tr> </table>	Group 1	Group 2	<b>A</b>	<b>B</b>	<b>D</b>	<b>C</b>		<b>E</b>
Group 1	Group 2								
<b>A</b>	<b>B</b>								
<b>D</b>	<b>C</b>								
	<b>E</b>								
31. a	<b>Mammals</b>								
bi	<b>Animal X does not have legs, but animal Y has legs.</b> or <b>Animal X has fins but animal Y does not have fins.</b>								
bii	<b>Animal X has scales but animal Y has hair.</b>								
c	The scales <b>protect</b> the soft body of <b>the animal</b> .								

<b>Q32</b>	<p>a) X: lead, Y: root</p> <p>b) The plant died because it does not have root/part Y to absorb water and mineral salts for survival.</p> <p>c) Roots/Part Y anchor the plant firmly to the ground.</p>
<b>Q33</b>	 <p>a)</p> <p>b) To absorb water from the undigested food</p> <p>c) It breaks down food into smaller pieces, increasing the surface area of the food to mix with the digestive juices so that digestion can take place faster.</p>
<b>Q34</b>	<p>a) Electromagnet</p> <p>b) i) Increase the number of batteries to the setup ii) Increase the number of coils of the same wire around the nail.</p> <p>c) The stroke method.</p>
<b>Q35</b>	 <p>a)</p> <p>b) Part X reflects more light into our eyes.</p>
<b>Q36</b>	<p>a) Sheet A: clear glass Sheet B: wood</p> <p>b) To ensure that only one shadow is formed.</p>

37.	
a	
bi	<b>17cm</b> (answer ranges from 15.1cm to 18.9cm)
bii	<b>Move the torch closer to the cubes.</b>
c	<b>More light can pass through the cube made of tracing paper.</b> Hence, the shadow appears to be lighter.
38.	
a	Liquid <b>has no definite shape.</b>
b	S: <b>gas</b> T: <b>liquid</b>
39.	
ai	There is <b>air in the conical flask</b> that <b>occupies space.</b>
aii	When he lifted the funnel, <b>air in the flask will be able to escape</b> to allow the water in the funnel to <b>occupy the space previously occupied by the air quickly.</b>
b	<b>Air has mass.</b>
c	<b>S, T, U, V</b>
40.	
a.	When Kimberly blew air into the glass, the <b>air occupied space in the glass</b> and <b>water is being pushed out of the glass</b> , causing the water level in the glass to decrease.
b.	The water level in the tank <b>increased.</b>
c.	The total volume will <b>remain the same</b> because <b>no water was added or removed.</b>
d.	<b>Matter occupies space.</b>




## ANGLO-CHINESE SCHOOL (JUNIOR) SA1 PAPER

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet.  
 (56 marks)

1. The table shows the characteristics of three animals, A, B and C. A tick (✓) indicates the presence of the characteristic.

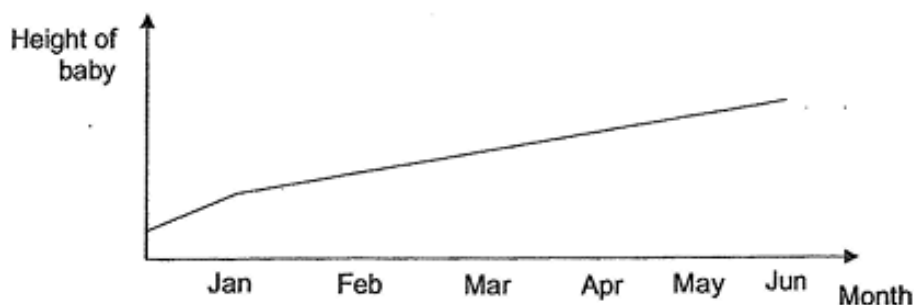
Animal	Number of legs		Lay eggs	Has hair
	2	4		
A	✓		✓	
B		✓	✓	
C	✓			✓

Which animals, A, B or C, could be the bat, peacock and crocodile?

	 bat	 peacock	 crocodile
(1)	A	B	C
(2)	C	B	A
(3)	C	A	B
(4)	A	C	B

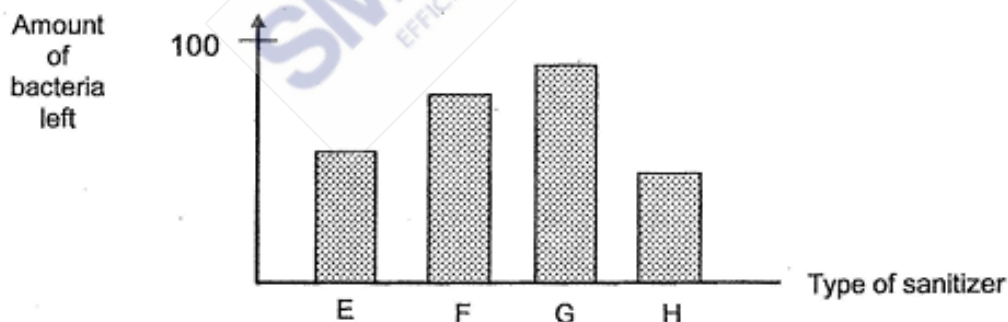


2. Mrs Leela recorded the height of her new-born baby on the first day of each month in the table as shown.



The table shows that living things \_\_\_\_\_.

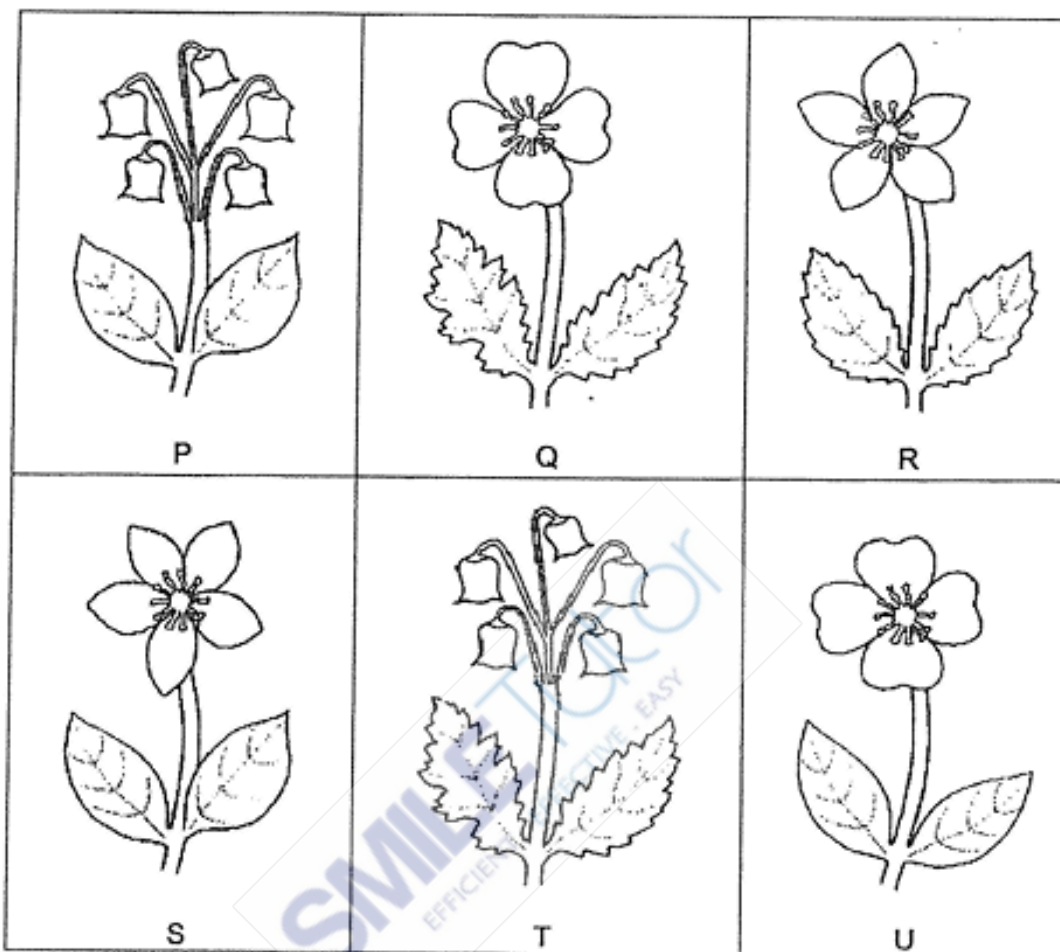
- (1) grow
  - (2) reproduce
  - (3) need air and water
  - (4) move by themselves
3. Dr Goh carried out an experiment using sanitizers E, F, G and H. She placed the same amount of sanitizer on 100 units of bacteria for the same period of time. At the end of the experiment, she recorded the amount of bacteria left in the graph.



Which sanitizer is most effective in killing bacteria?

- (1) E
- (2) F
- (3) G
- (4) H

4. The diagrams show plants P, Q, R, S, T and U.



Alice classified the plants into three groups.

Group 1	Group 2	Group 3
P, T	Q, U	R, S

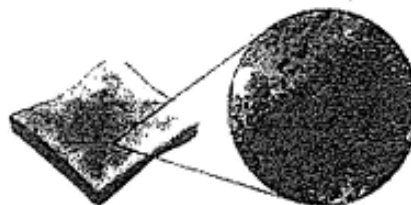
The plants were classified according to \_\_\_\_\_.

- (1) the type of leaves
- (2) the type of flowers
- (3) the number of leaves
- (4) the number of flowers

5. Study the pictures.



bracket fungi growing on tree



mould growing on bread

What is true about both the bracket fungi and the mould?

- A They are microorganisms.
- B They reproduce by spores.
- C They are able to make their own food.

- (1) A only
- (2) B only
- (3) A and B only
- (4) A, B and C

6. Study the pictures.



aquarium



food container

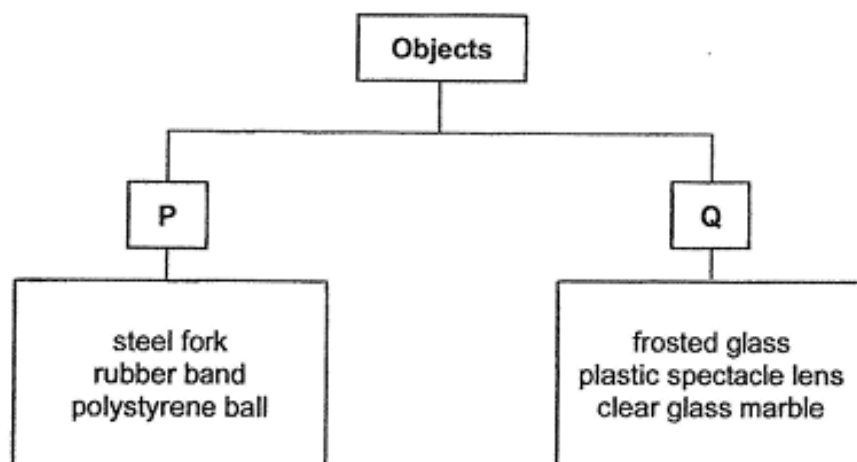


bag

Based on the purpose of the objects, which material could be used to make all three objects?

- (1) glass
- (2) brass
- (3) wood
- (4) plastic

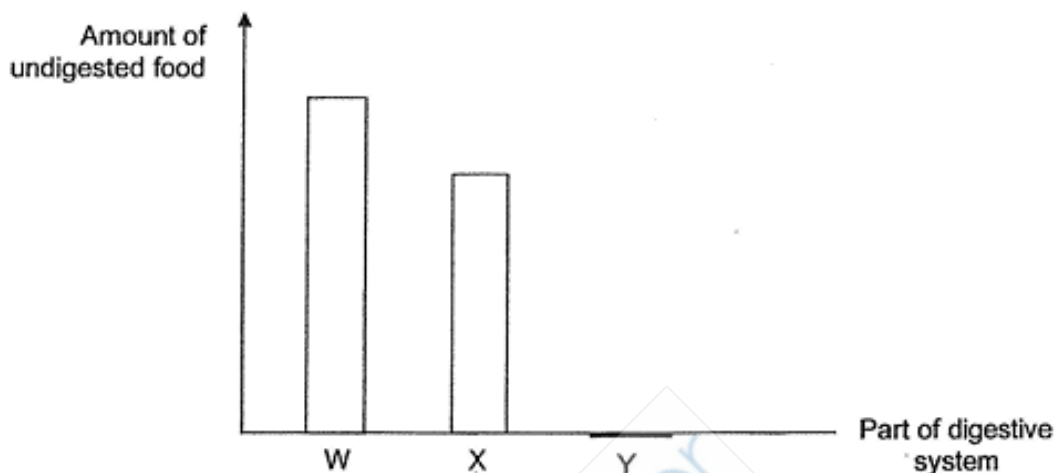
7. Ahmad conducted an investigation on six objects. Based on the results, he classified them into two groups, P and Q.



What did he do to each of the six objects during his investigation?

- (1) Bend them.
  - (2) Place weights on them.
  - (3) Shine a torchlight at them.
  - (4) Place them in a tank of water.
8. Which of the following shows the correct order in which food moves through the digestive system?
- (1) stomach → large intestine → small intestine
  - (2) large intestine → stomach → small intestine
  - (3) stomach → small intestine → large intestine
  - (4) small intestine → large intestine → stomach

9. Gwen had a few slices of bread for breakfast. The graph shows the amount of undigested food in various parts of her digestive system while having her breakfast.



Which parts of the digestive system are W, X, and Y?

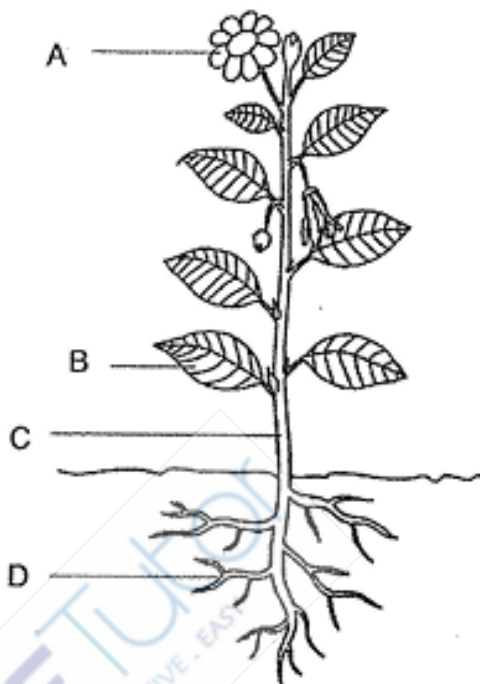
	W	X	Y
(1)	stomach	mouth	large intestine
(2)	mouth	small intestine	stomach
(3)	mouth	stomach	large intestine
(4)	large intestine	mouth	stomach

10. Grace wanted to find out how the amount of digestive juices affects how fast food digests. Which of the following variables should Grace keep constant to ensure a fair test?

- A Type of food
- B Amount of food
- C Amount of digestive juices
- D Time taken for the food to be broken down completely

- (1) C only
- (2) A and B only
- (3) A and D only
- (4) B, C and D only

11. The diagram shows a plant with parts A, B, C and D.



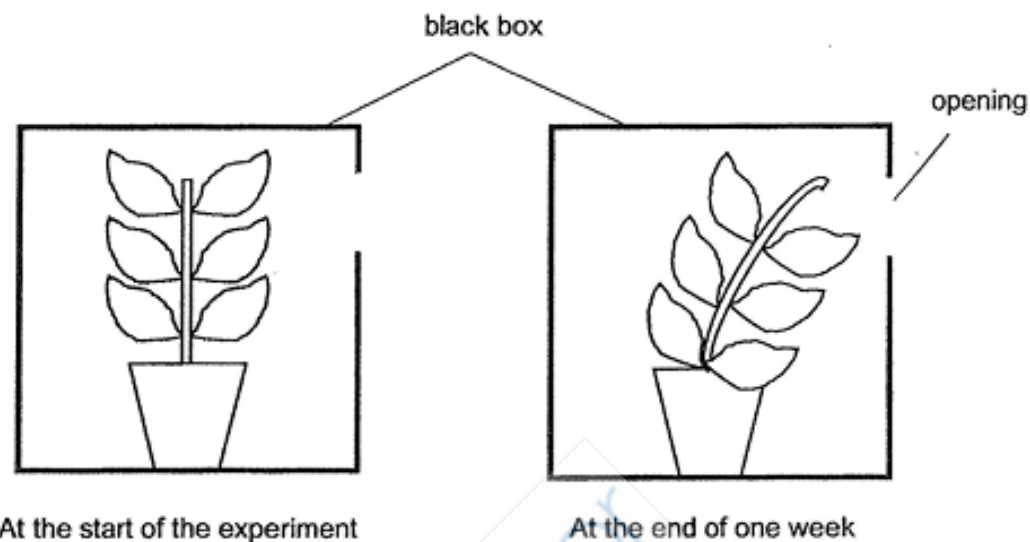
Which of the following statements about the parts are correct?

- A Part A will develop into a fruit that contains seeds
- B Part B uses sunlight to make food for the plant
- C Part C takes in water and mineral salts.
- D Part D supports the leaves and stem.

- (1) A and B only
- (2) C and D only
- (3) A, B and D only
- (4) All of the above



12. Gideon placed a plant in a black box with an opening and watered it daily. The diagrams show the condition of the plant at the start of the experiment and at the end of one week.



Which of the following explains the change(s) to the plant?

- (1) It needs water.
- (2) It has a weak stem.
- (3) It needs more sunlight.
- (4) It was blown by the wind.



13. Observe the plants as shown.



Plant A



Plant B

Based on your observation, which statement is true?

- (1) Both are aquatic plants.
- (2) Both have similar shaped leaves.
- (3) Plant A has a strong stem while Plant B has a weak stem.
- (4) Plant A is a non-flowering plant while Plant B is a flowering plant.

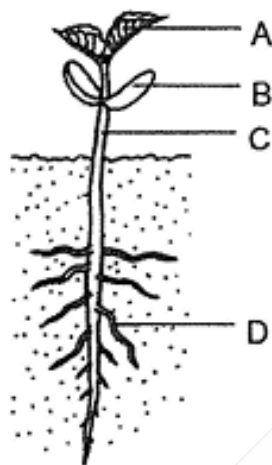
14. The table shows the characteristics of three animals X, Y and Z.

Characteristics	X	Y	Z
The adult has wings.	Yes	Yes	Yes
The adult lays its eggs in water.	Yes	No	No
The young resembles the adult.	No	No	Yes

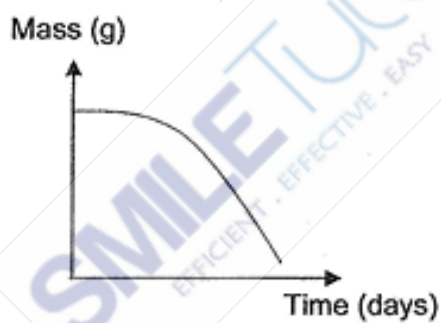
Which animals X, Y and Z are likely to have a four-stage life cycle?

- (1) X and Y only
- (2) X and Z only
- (3) Y and Z only
- (4) X, Y and Z

15. The diagram shows a seedling that grew healthily for a few days.



The graph shows the mass of a part of the seedling during its growth.



Which part of the seedling is represented by the graph?

- (1) A
- (2) B
- (3) C
- (4) D

16. The table shows how the surrounding temperature affects the life cycle of a mosquito.

Temperature (°C)	Number of days for one complete cycle
12	34
22	22
28	18
32	11

Which is the best temperature to ensure that the mosquitoes cannot breed easily?

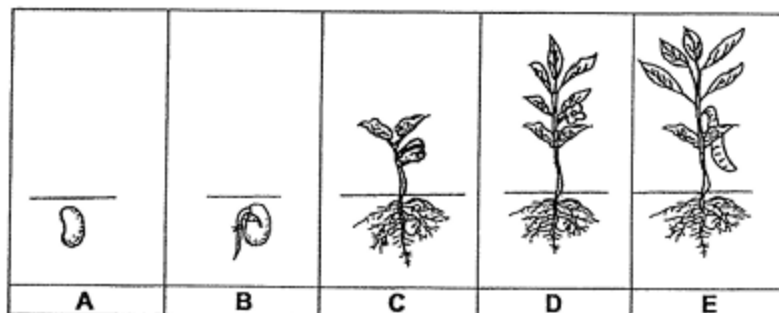
- (1) 12°C
  - (2) 22°C
  - (3) 28°C
  - (4) 32°C
17. The diagram shows the life cycle of a frog.



Which of the following descriptions of the stages is **incorrect**?

- (1) At stage A, it is found on land and in water.
- (2) At stage B, it breathes through its gills.
- (3) At stage C, it lives both on land and in water.
- (4) At stage C, it breathes through its lungs and moist skin.

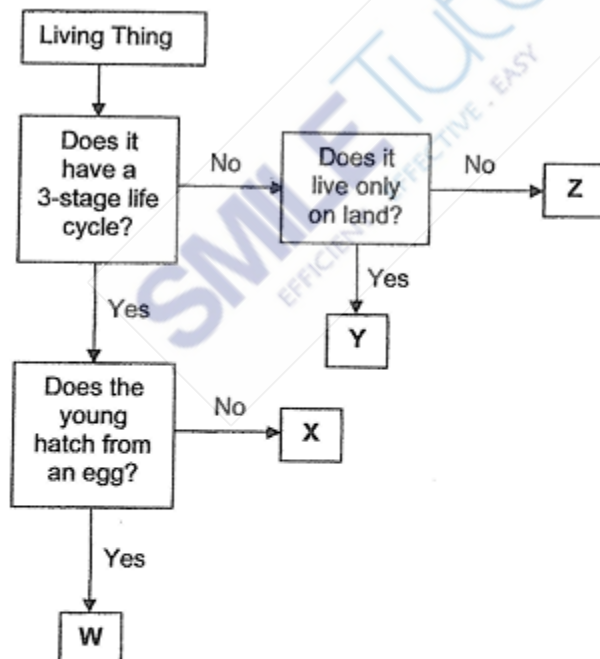
18. The picture shows the development of a bean seed from A to E.



When is sunlight necessary for it to survive?

- (1) B and E only
- (2) A, B and C only
- (3) C, D and E only
- (4) A, B, C, D and E

19. Study the flow chart.



Which of the following could be living thing X and Y?

	X	Y
(1)	Grasshopper	Mosquito
(2)	Mosquito	Grasshopper
(3)	Mealworm beetle	Lemon tree
(4)	Lemon tree	Mealworm beetle

20. Which of the following is **not** part of a cycle?

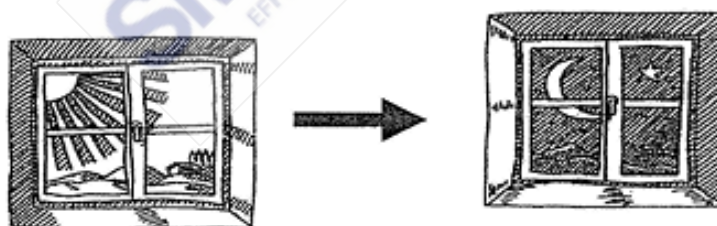
(1) From autumn to winter



(2) From crescent moon to full moon



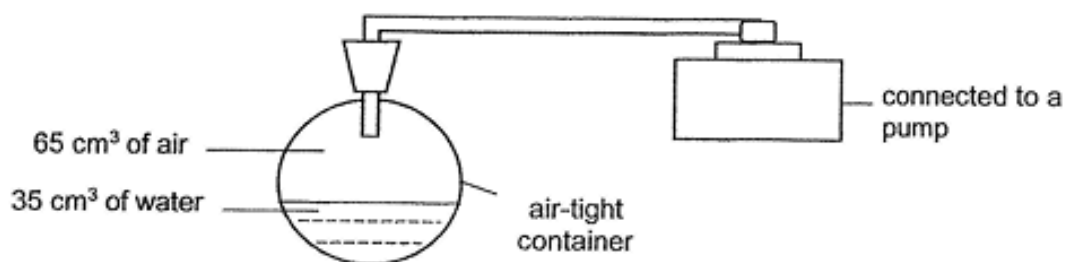
(3) From day time to night time



(4) From rainfall to rainbow



21. Study the set-up. The total volume of the air-tight container is  $100 \text{ cm}^3$ .



An additional of  $20 \text{ cm}^3$  of water and  $15 \text{ cm}^3$  of air are added into the container using a pump. What is the final volume of air in the container?

- (1)  $20 \text{ cm}^3$
  - (2)  $45 \text{ cm}^3$
  - (3)  $65 \text{ cm}^3$
  - (4)  $80 \text{ cm}^3$
22. Tina and her classmate were playing table tennis when she accidentally stepped on the ping pong ball and made a dent as shown.



Which of the following observation is correct?

	Mass of ping pong ball	Volume of air in ping pong ball
(1)	remains the same	Increase
(2)	increases	remains the same
(3)	remains the same	decreases
(4)	decreases	remains the same



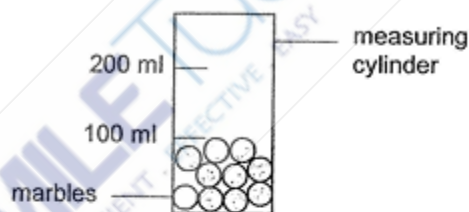
23. The table shows the properties of substances A, B and C. A tick (✓) indicates that the substance has the property.

Substance	Property		
	Has a definite shape	Has a definite volume	Can be compressed
<b>A</b>	✓	✓	
<b>B</b>		✓	
<b>C</b>			✓

Which of the following best represents substances A, B and C?

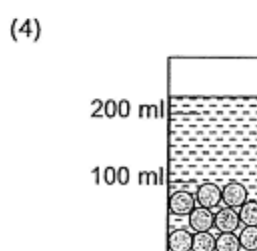
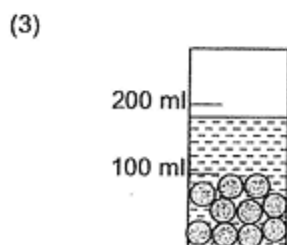
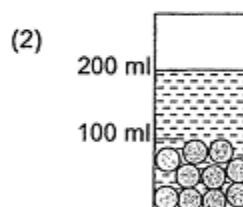
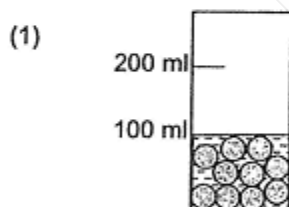
	<b>A</b>	<b>B</b>	<b>C</b>
(1)	Stone	Air	Oil
(2)	Oil	Stone	Air
(3)	Stone	Oil	Air
(4)	Air	Oil	Stone

24. Mary filled an empty measuring cylinder up to the 100 ml mark with marbles as shown in the diagram.



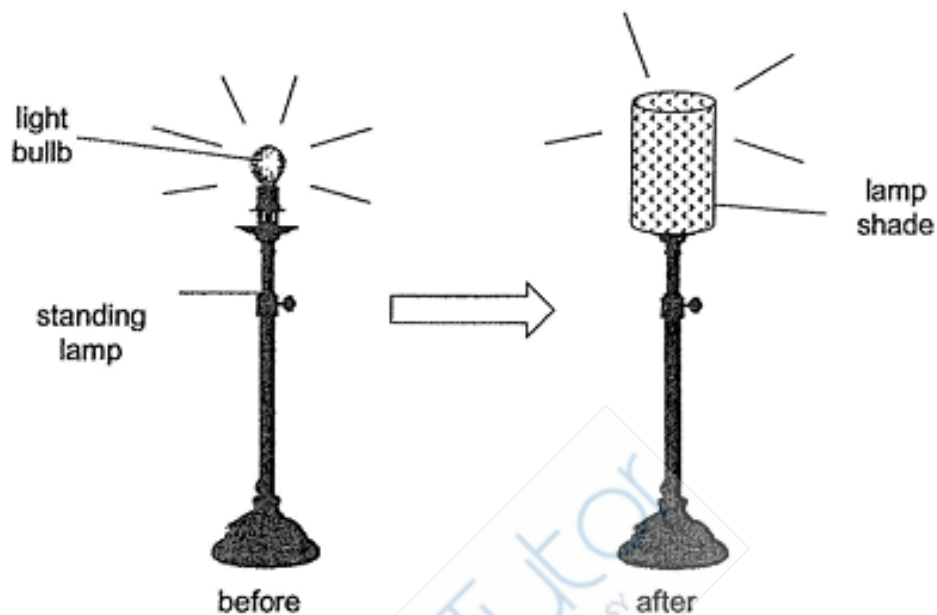
She then poured 100 ml of water into the measuring cylinder containing the marbles.

Which of the following most likely shows the water level in the measuring cylinder?





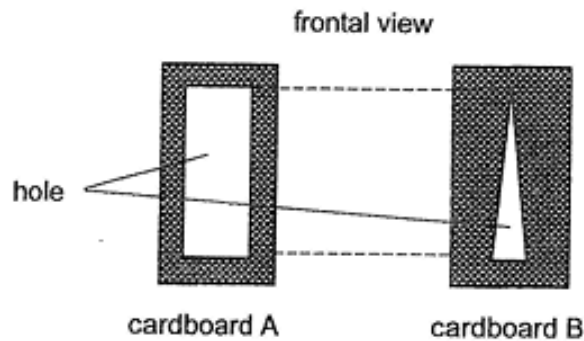
25. Mrs Tan walked into a dark room and switched on her standing lamp. Then, she placed a lamp shade on the bulb.



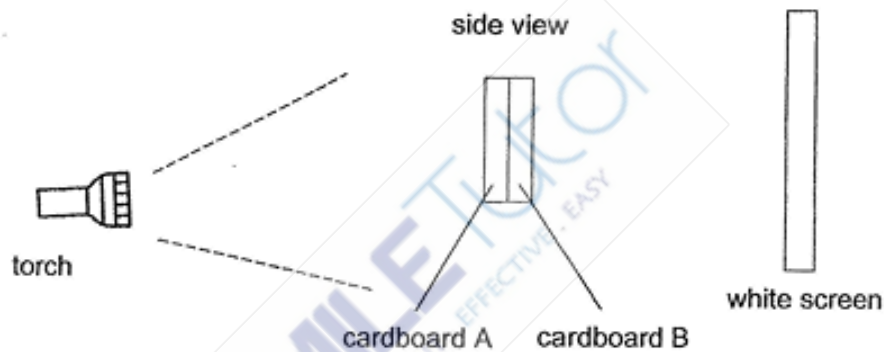
Which of the following explains why the room became less bright after she placed the lamp shade over the light bulb?

- (1) The lamp shade blocks some light from the bulb.
- (2) Light from the bulb is reflected to the lamp shade.
- (3) No light is reflected from the bulb into Mrs Tan's eyes.
- (4) The shadow of the lamp shade on the floor blocks light.

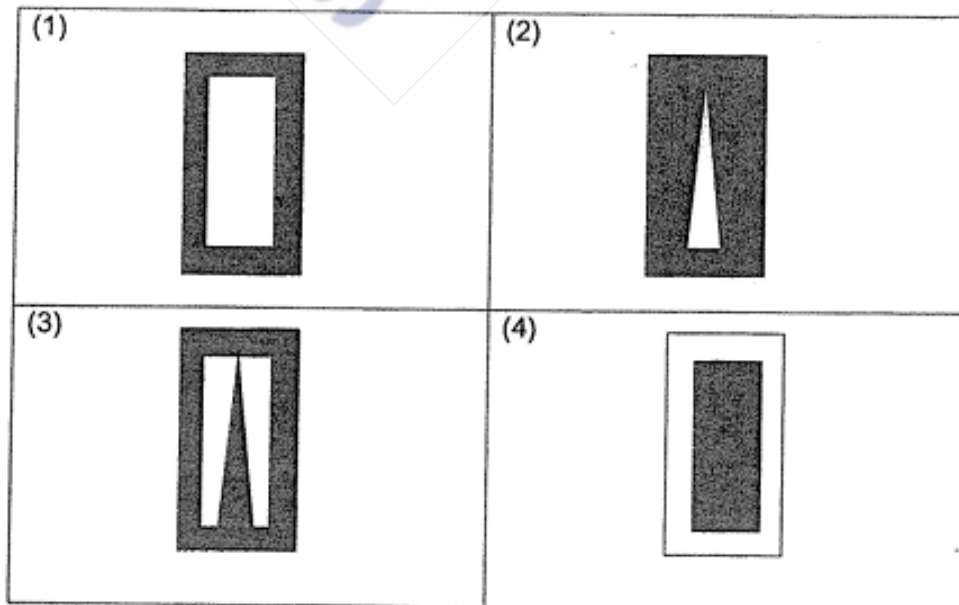
26. Jane wanted to create shadows using two identical cardboards. She cut out a rectangle and a triangle shape from each of the cardboard pieces, leaving behind a hole in the middle as shown.



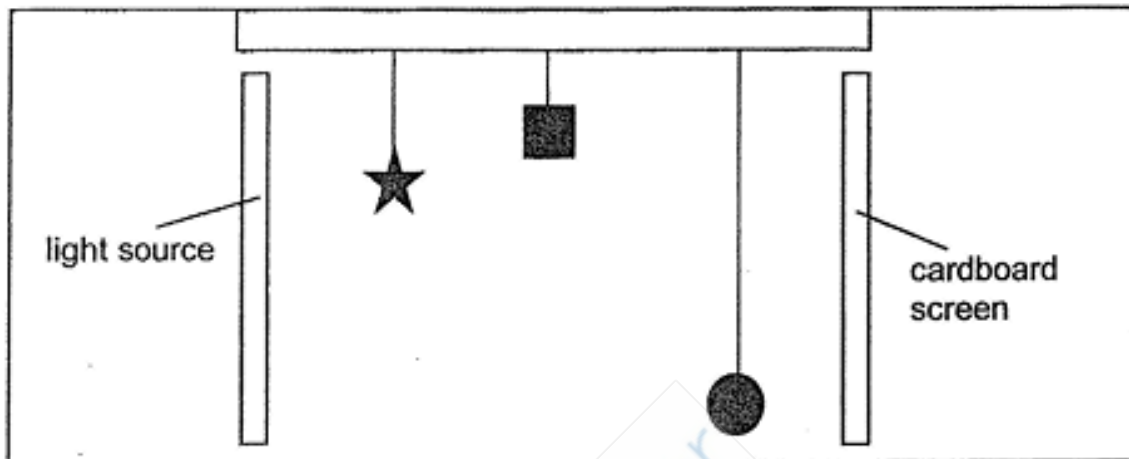
Then, she placed cardboards A and B together in a straight line, between a screen and a lit torchlight.



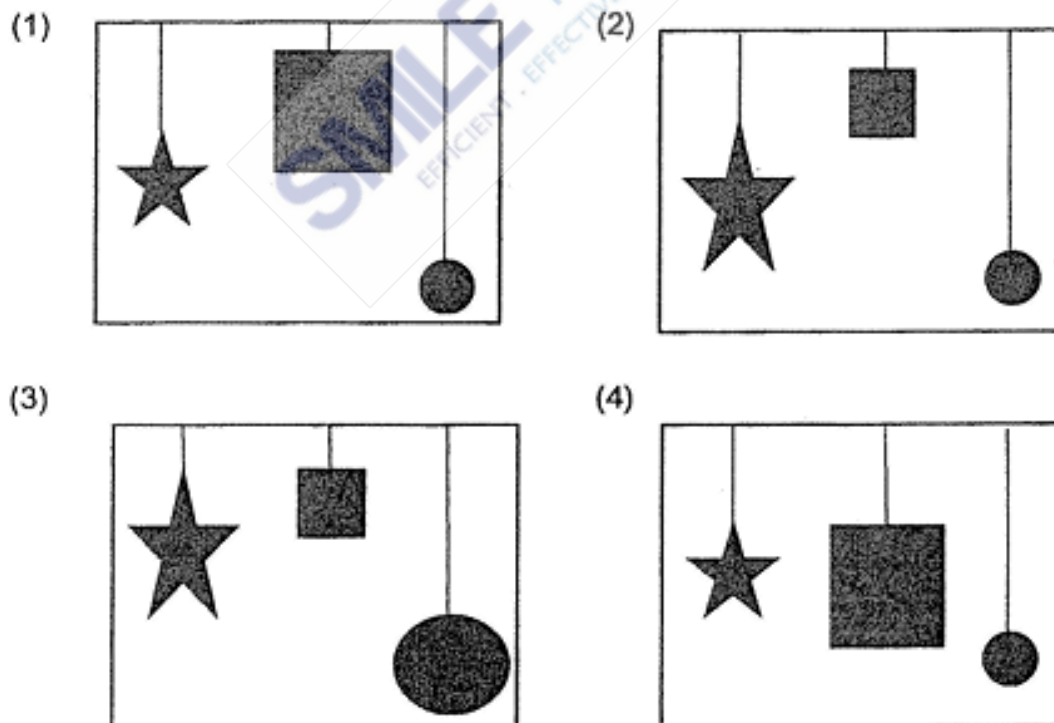
Which of the following shadows will be formed on the screen?



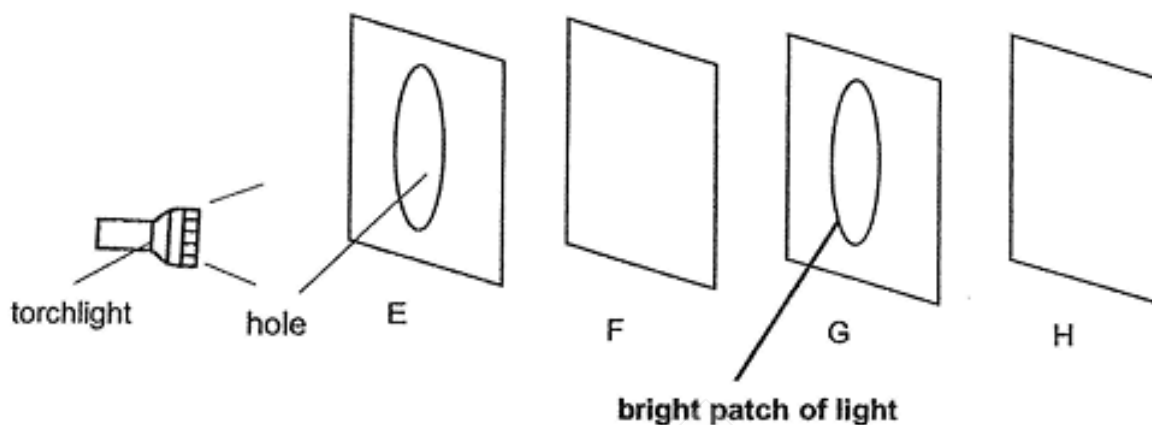
27. Sulin placed three wooden objects in a dark room as shown. All three objects have the same length and breadth and were hung at different heights above the ground.



Which of the following shows the correct shadows on the cardboard screen?



28. Cindy set-up the following experiment using four sheets E, F, G and H made of different materials. When the torchlight was switched on, a small bright round patch of light was seen on sheet G only.

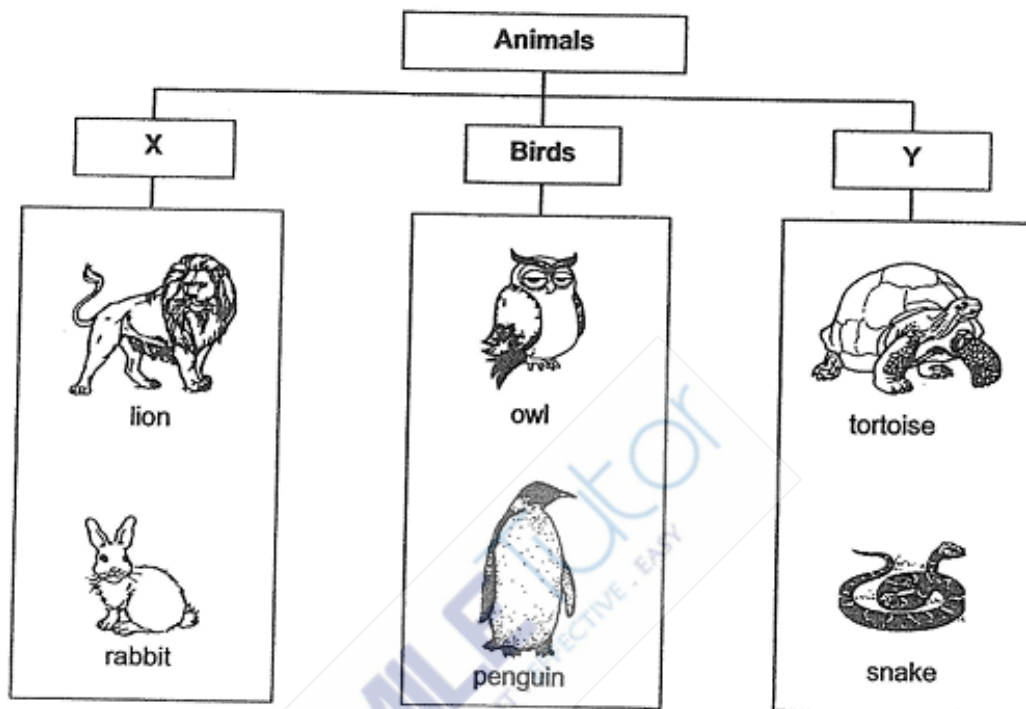


Which of the following best describes the properties of the materials, E, F, G, H?

	Does not allow any light to pass through	Allow most light to pass through	Not possible to tell
(1)	G	E and F	H
(2)	E and G	F	H
(3)	F	E	G and H
(4)	E	F	G and H

For questions 29 to 41, write your answers in this booklet.  
 The number of marks available is shown in the brackets [ ] at the end of each question or part question.  
 (44 marks)

29. The diagram shows how some animals are classified into groups.



- (a) Give suitable sub-headings for X and Y. [1]

(i) X: \_\_\_\_\_

(ii) Y: \_\_\_\_\_

- (b) Compare the outer covering of birds and the animals in group Y.

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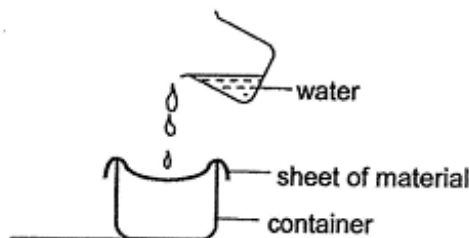
- (c) What is similar about the body temperature of birds and the animals in group X? [1]

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30. Teng Hui carried out an experiment using materials P, Q and R. He prepared the set-up shown in the diagram, poured 80 ml of water onto each sheet and measured the amount of water collected in each container after 5 minutes.



He recorded the results in a table.

	Amount of water collected in the container (ml)
Container with material P	5
Container with material Q	0
Container with material R	55

- (a) Tick (✓) the variables that must be kept the same to ensure that the experiment is a fair test.

[1]

Variable	Keep the same
Type of material	
Duration of experiment	
Size of sheet of material	

- (b) Based on the results of the experiment, what can Teng Hui conclude about material P and material R?

[1]

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- (c) One of the materials Teng Hui used was aluminium. Which material, P, Q or R was the aluminium? Explain based on the results of the experiment.

[1]

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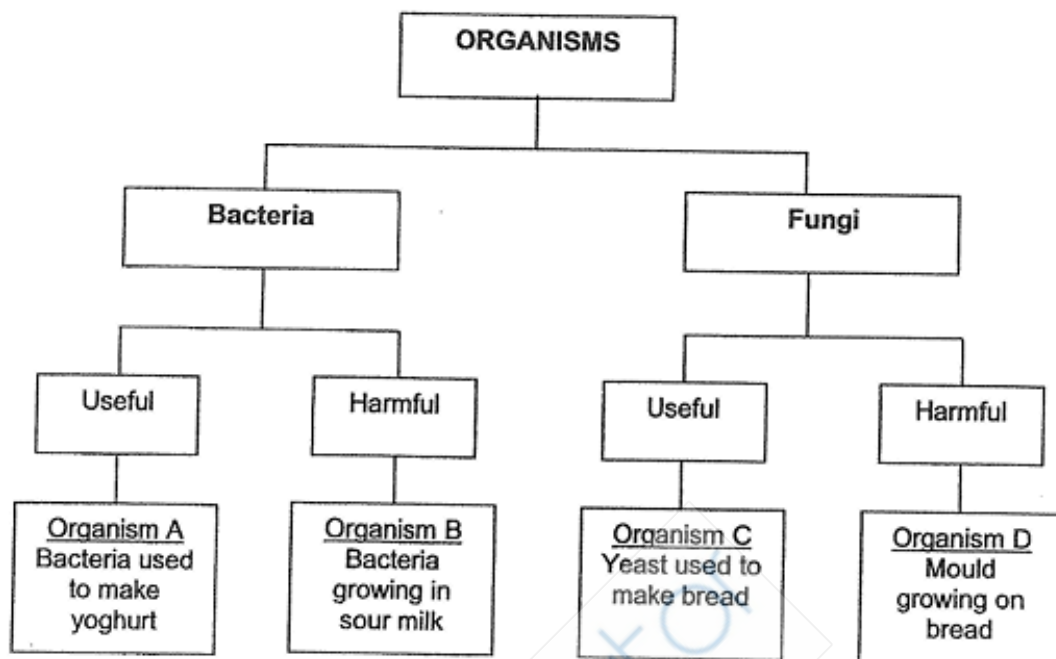
- (d) Teng Hui said that material R can be used to make into a towel because it is soft, strong and able to soak up water. What is another characteristic that material R must have?

[1]

---



31. The diagram shows how bacteria, yeast and mould can be classified.



- (a) (i) Can organisms A, B, C and D be seen clearly with our naked eye? [½]

---

- (ii) What do we call organisms that cannot be seen clearly with the naked eye? [½]

---

- (b) Based on the diagram, in what way is organism B similar to organism D. [1]

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- (c) Give another example of how fungi can be useful. [1]

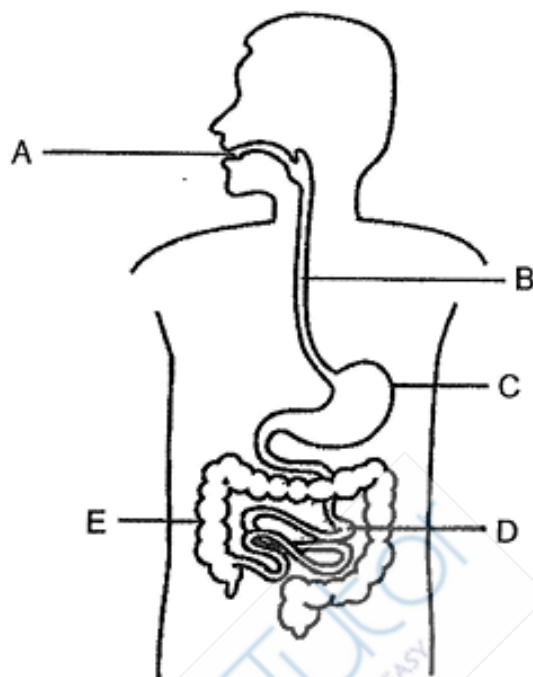
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32. The diagram shows the human digestive system.



- (a) Where, A, B, C, D and/or E, are digestive juices produced? [1]

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- (b) What happens to the partially digested food at Part C? [1]

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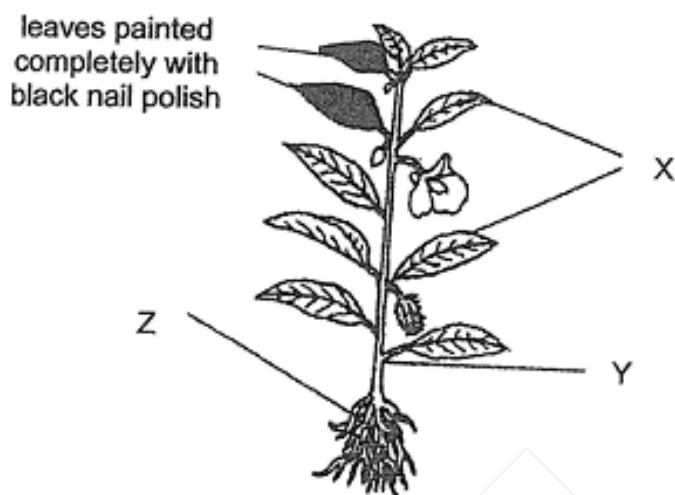
- (c) At which part(s) of this human system, A, B, C, D and/or E is water removed from the undigested food? Name the part. [1]

---



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33. The diagram shows a balsam plant.



(a) What is the function of part Z?

[1]

---

(b) Gerald decides to conduct an experiment on the balsam plant. He paints two of its leaves completely with black nail polish.

What will happen to these two leaves after a week? Explain why.

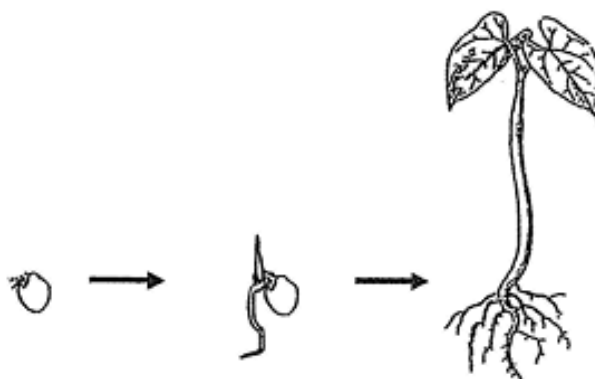
[2]

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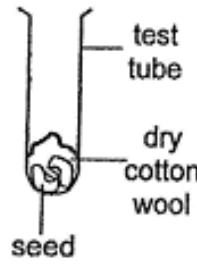
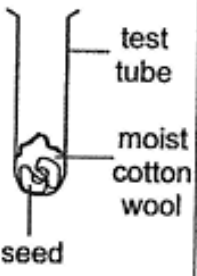
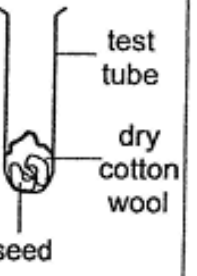
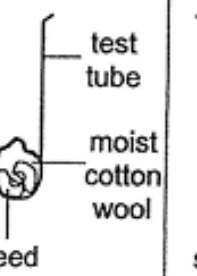
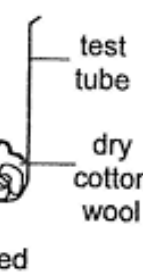
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34. The diagram shows the development of a seed to a young plant.



- (a) In the diagram, label the part that provides food for the seed to germinate. [1]
- (b) Name the part that grows first when the seed germinates. [½]
- \_\_\_\_\_
- (c) Name the next stage in the development of the seed shown above. [½]
- \_\_\_\_\_
- (d) In what way is the stage mentioned in (c) different from the young plant? (Do not mention about the leaves, stem, branches or roots.) [1]
- \_\_\_\_\_
- \_\_\_\_\_

35. Charlie prepared the following set-ups using similar green bean seeds.

Set-up				
A	B	C	D	E
 <p>test tube dry cotton wool seed</p>	 <p>test tube moist cotton wool seed</p>	 <p>test tube dry cotton wool seed</p>	 <p>test tube moist cotton wool seed</p>	 <p>test tube dry cotton wool seed</p>
Placed next to a window	Placed next to a window	Placed inside a dark cupboard	Placed inside a shoe box	Placed in the refrigerator

- (a) In which set-ups would the seeds be able to grow into young plants? [1]

\_\_\_\_\_

- (b) Compare set-ups C and D. What changes must Charlie make to set-ups C and D if he wants to find out if warmth is needed for a seed to grow into a young plant. (Write one change for each set-up.) [2]

Set-up C : \_\_\_\_\_

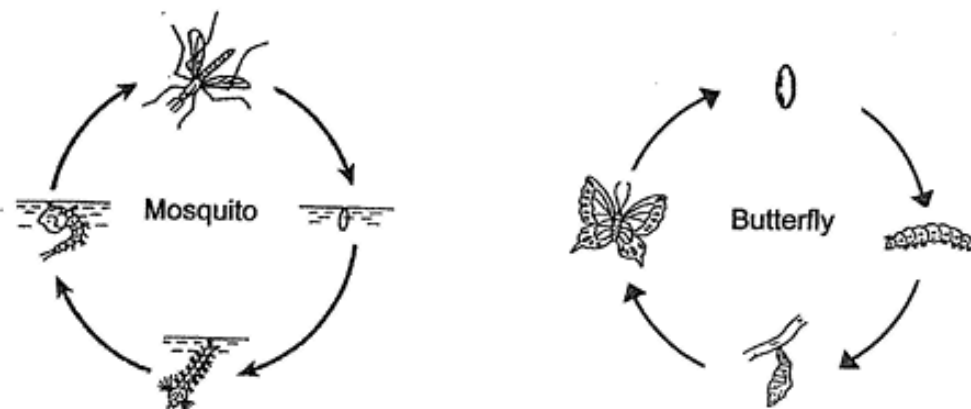
Set-up D : \_\_\_\_\_

- (c) Charlie uses set-ups A and B for another experiment. What is the aim of his experiment? [1]

\_\_\_\_\_

\_\_\_\_\_

36. The diagrams show the life cycles of a mosquito and a butterfly.



- (a) Compare the larva stage of the mosquito and the butterfly. State one similarity and one difference. [2]

Similarity : \_\_\_\_\_




Difference : \_\_\_\_\_

- (b) In the diagrams, circle the stage of each animal when it is a pest or cause diseases. [1]

- (c) Name another example of an animal with a similar life cycle as the butterfly. [1]

\_\_\_\_\_

37. Terry collected and recorded some information on the life cycles of Animals P, Q and R in the table.

	 Animal P	 Animal Q	 Animal R
Number of eggs laid by the female adult each time	1	1200	150
Number of days taken for the egg(s) to hatch	21	14	30
Number of weeks spent as a young	16	12	6

- (a) Which animal, P, Q or R takes the shortest time to become an adult after the egg has hatched? [½]

\_\_\_\_\_

- (b) Which animals, P, Q and/or R, have a 3-stage life cycle which takes place completely on land? [1]

\_\_\_\_\_

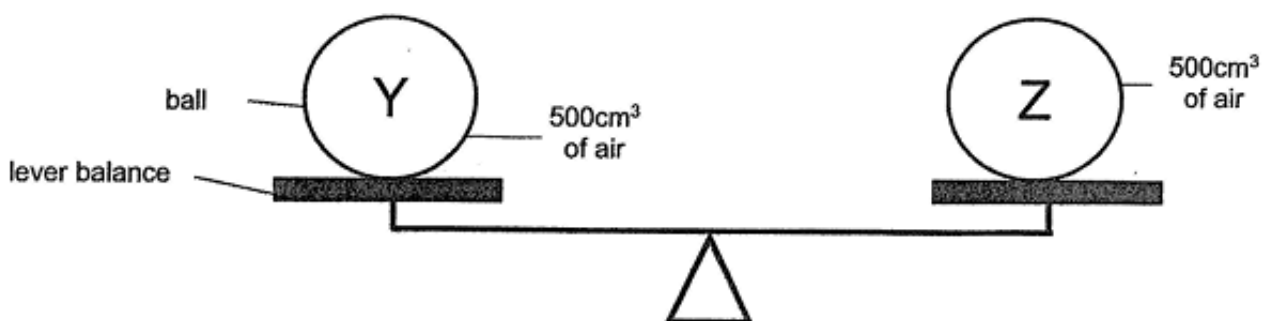
- (c) (i) Which animal P, Q or R lays the most eggs each time? [½]

\_\_\_\_\_

- (ii) Explain why some animals lay many eggs each time. [1]

\_\_\_\_\_  
 \_\_\_\_\_

38. Gina conducted an experiment using two identical rubber balls, Y and Z, each with a volume of  $500\text{cm}^3$ . She placed them on a lever balance as shown.



- (a) Gina pumped in another  $300\text{cm}^3$  of air into ball Z. She then placed ball Z onto the same lever balance again.

What would the volume of air in ball Z be after she had pumped in another  $300\text{cm}^3$  of air? Give a reason.

[1]

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- (b) What will happen to the lever balance when the air from ball Z is let out?

[1]

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- (c) What does your answer in (b) show about air?

[1]

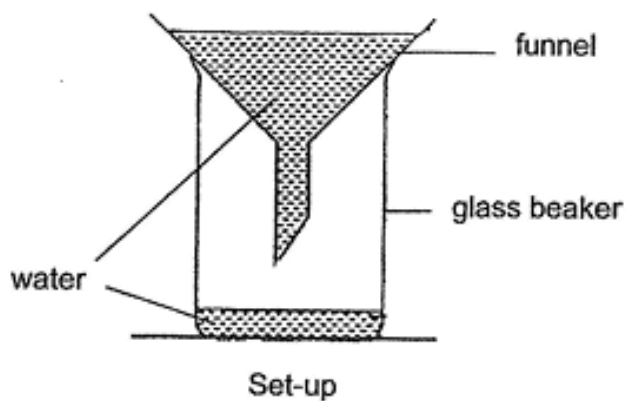
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39. Gregory placed a funnel on a glass beaker and poured some water into it.



He realized that the water flowed very slowly from the funnel into the glass beaker.

- (a) Without changing the apparatus or adding anything to the set-up, what can Gregory do, to allow the water in the funnel to flow into the glass beaker faster?

[1]

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- (b) Explain your answer in (a).

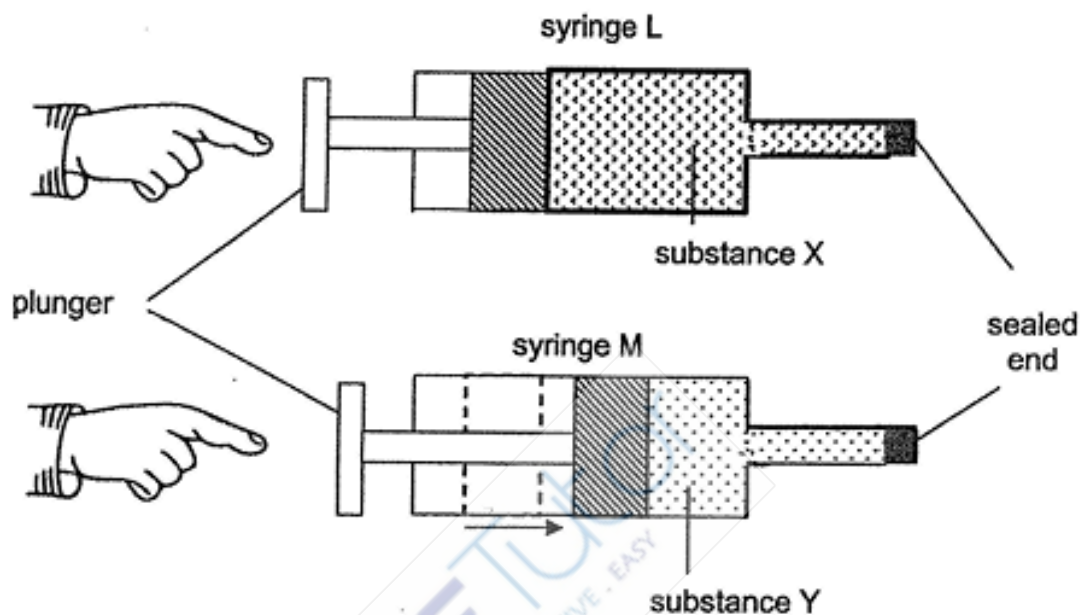
[2]

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- (c) Gregory filled two syringes, L and M, with two different substances and sealed the end of each syringe. When he pushed both plungers, only syringe M could be pushed in.



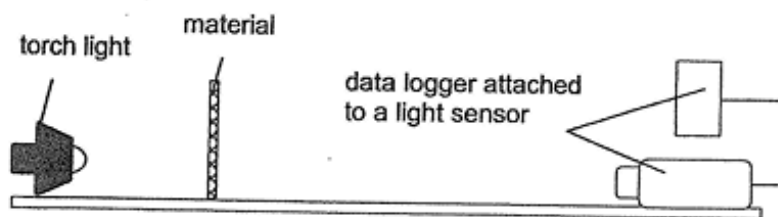
What is most likely to be the state of matter of substances X and Y?

[1]

Substance X : \_\_\_\_\_

Substance Y : \_\_\_\_\_

40. Simon wanted to find out the degree of transparency of materials W, X, Y and Z. He prepared the set-up and placed each material in between the torch light and the light sensor as shown.



He recorded the amount of light detected by the light sensor in the table.

Material	Amount of light detected by the light sensor (unit)
W	250
X	800
Y	0
Z	1000

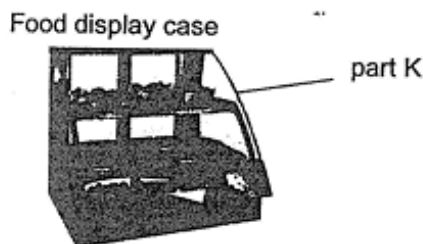
- (a) Arrange the materials W, X, Y and Z, in order of their degree of transparency, starting with the opaque material to the most transparent material.

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Opaque
Most transparent

- (b) What will happen to the amount of light detected by the light sensor for each material if the torch light was moved further away from the materials? [1]

- (c) Simon's dad is a hawker at a food centre. He displayed his cooked dishes in a heated food display case as shown so that his customers are able to see the food they would like to order.



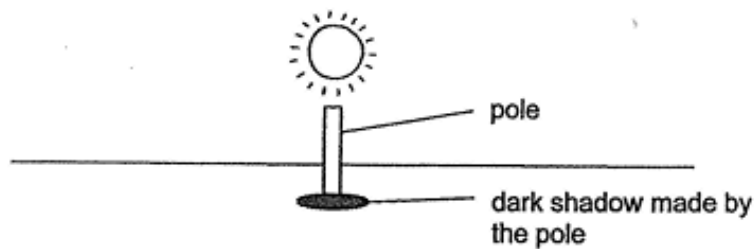
- Based on Simon's results in the table, which material, W, X, Y or Z is most suitable for making part K of the food display case? Explain your answer. [1]

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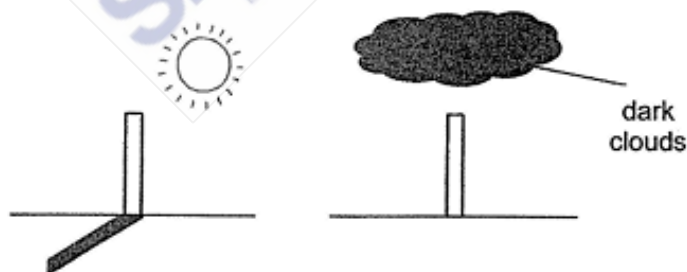
41. Joanne wanted to find out how the length of the shadow of a pole changes at different times of the day. She placed a pole in her open school field on a clear sunny day.



She measured and recorded the length of the dark shadow of the pole on the ground every hour in the table.

Time of the day	10am	11am	12noon	1pm	2pm	3pm
Length of the dark shadow (cm)	16	8	?	6	11	17

- (a) What could be the length of the dark shadow cast by the pole at 12 noon? [1]
- \_\_\_\_\_
- (b) What is the property of the pole that enables Joanne to obtain the results? [1]
- \_\_\_\_\_
- (c) Joanne noticed that when a huge, dark and thick cloud passed by the school field, the shadow of the pole on the ground disappeared.



Explain why the shadow of the pole disappeared. [2]

\_\_\_\_\_

\_\_\_\_\_

End of Paper

## ANSWER SHEET

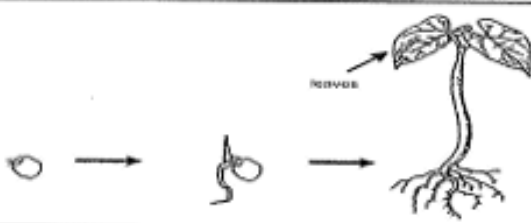
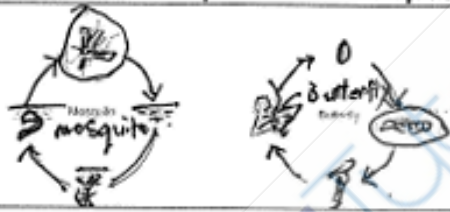
### (BOOKLET A)

Q1	3	Q2	1	Q3	4	Q4	2	Q5	2
Q6	4	Q7	3	Q8	3	Q9	3	Q10	2
Q11	1	Q12	3	Q13	3	Q14	1	Q15	2
Q16	1	Q17	1	Q18	3	Q19	4	Q20	4
Q21	2	Q22	3	Q23	3	Q24	3	Q25	1
Q26	2	Q27	2	Q28	2				

### (BOOKLET B)

Q29	a)	(i) X : mammals (ii) Y : reptiles
	b)	Birds have feathers as their outer covering but reptiles have scales as their outer covering.
	c)	They are both warm
Q30	a)	Duration of experiment Size of sheet of material
	b)	Material P and R are both not waterproof.
	c)	Q. It is because aluminium is a metal that does not allow water to pass through and Q has 0 water collected.
	d)	Material R must be flexible.
Q31	a)	(i) No (ii) Microorganism
	b)	Organism B and D are both harmful.
	c)	Fungi can be used to make food.
Q32	a)	A, C and D
	b)	The partially digested food will be mixed with digestive juices.
	c)	E. The large intestine
Q33	a)	Part Z absorbs water and mineral salts.
	b)	Those two leaves will wither and die. It is because the two leaves cannot make food for itself.



Q34	a)	
	b)	roots
	c)	adult
	d)	The adult plant grows fruits and flower but the young plant does not grow fruits and flower.
Q35	a)	B and D
	b)	Set-up C : replace moist cotton wool Set-up D : Place in the refrigerator
	d)	Charlie wants to find out if seeds need water to grow into a young plant.
Q36	a)	Similarity : They both have a worm look alike Difference : Mosquito larvae are aquatic but butterfly larvae is on land
	b)	
	c)	mealworm beetle
Q37	a)	R
	b)	P and R
	c)	(i) Q (ii) It is because even if some predators eat some of the eggs, there will spill some eggs which hatch.
Q38	a)	500cm <sup>3</sup> . Solid has a definite volume
	b)	Ball Y will go up and ball Z would go down.
	c)	Air has mass

Q39	a)	lift the funnel upwards.
	b)	When you lift the funnel upwards it will allow the air in the beaker into escape to the funnel making the water flow faster.
	c)	Substance X: Liquid Substance Y : Gas
Q40	a)	Y , W, X, Z
	b)	The amount of light detected would be lesser.
	c)	Z. It is because people will need to see the food for Part K and the light also can heat the food.
Q41	a)	4 cm
	b)	It is opaque
	c)	The dark clouds blocked the sun causing the shadow to disappear because if there is no light, there is no shadow.

## **ANGLO-CHINESE SCHOOL (PRIMARY) SA1 PAPER**

For each question from 1 to 28, four options are given. One of them is the correct answer.  
Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet.

(56 marks)

- 1 A scientist discovered a new animal and made some notes about it.

- It has four legs.
- It has moist skin.
- It reproduces by laying eggs.

Which of the following groups does this animal most likely belong to?

- (1) Birds
- (2) Insects
- (3) Mammals
- (4) Amphibians

- 2 Which of the following metal(s) can be made into a magnet?

- A steel
- B copper
- C aluminium

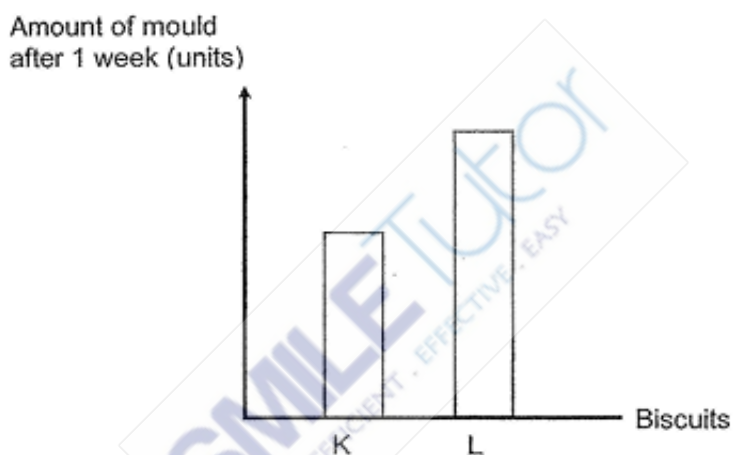
- (1) A only
- (2) A and B only
- (3) B and C only
- (4) A, B and C



- 3 Andy has two similar biscuits, K and L. The table below shows the condition and the place where he left each biscuit.

Biscuits	Was it moist?	Where was it placed?
K	Yes	Near the window
L	Yes	In the classroom cupboard

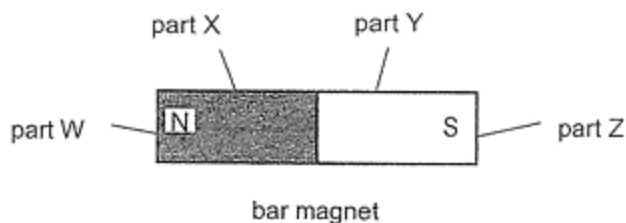
After a week, he drew a graph of the amount of mould growing on each biscuit.



Based on his results, which of the statements is correct?

- (1) Mould grows faster in a dry place.
- (2) Mould does not need food to grow.
- (3) Mould grows faster in darker places.
- (4) Mould grows faster in brighter places.

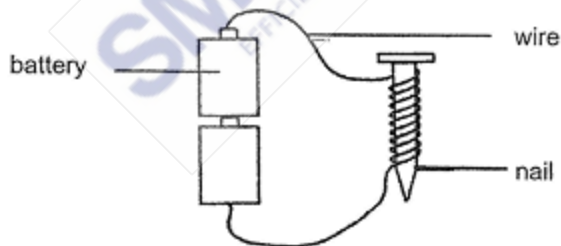
- 4 A bar magnet is brought close to some paper clips. The number of paper clips attracted by part W of the bar magnet is 10.



Which of the following shows the likely number of paper clips attracted by parts, X, Y and Z, of the bar magnet?

	part X	part Y	part Z
(1)	5	10	5
(2)	10	10	10
(3)	10	5	5
(4)	5	5	10

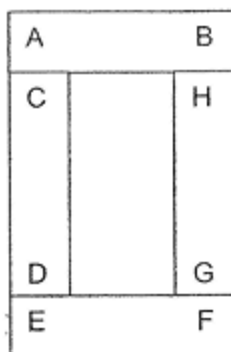
- 5 The set-up shows how a nail made of magnetic material can become an electromagnet.



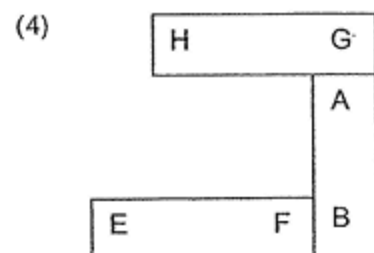
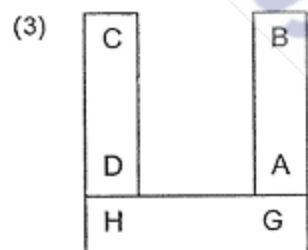
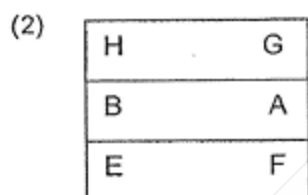
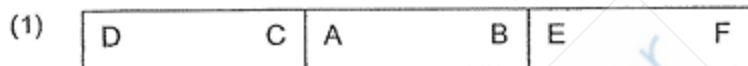
Which of the following methods would make the electromagnet stronger?

- (1) Increase the length of the nail.
- (2) Increase the number of batteries.
- (3) Decrease the thickness of the nail.
- (4) Decrease the number of coils of wire around the nail.

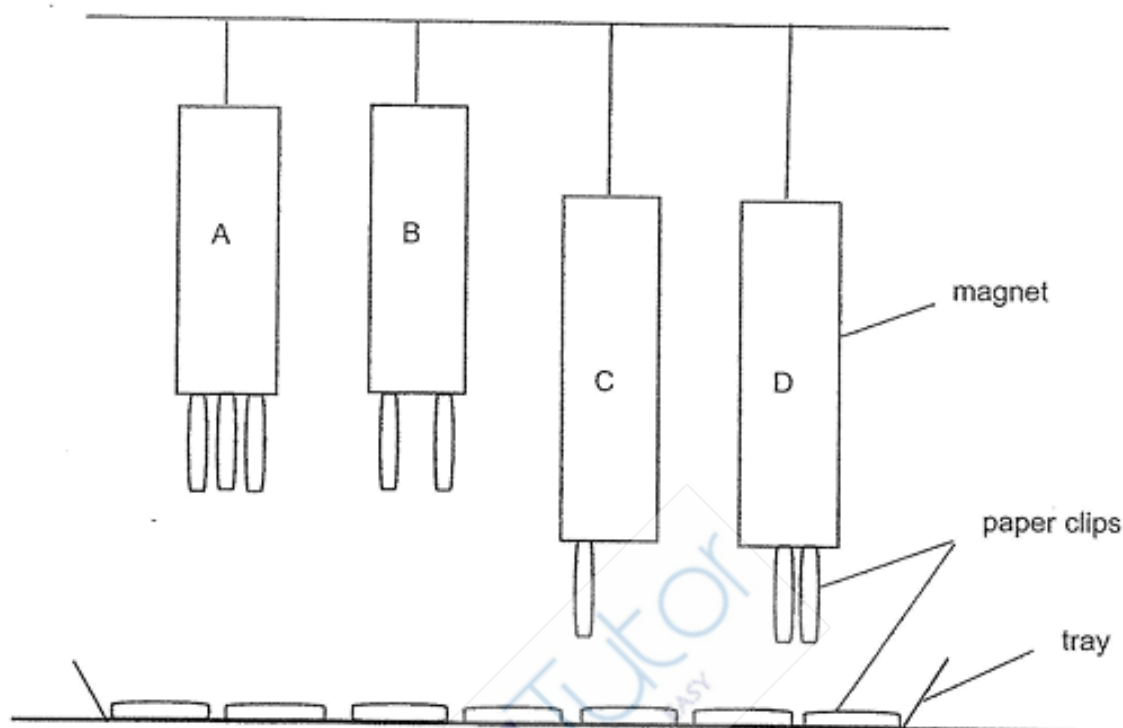
- 6 Four bar magnets, AB, CD, EF and GH, can be arranged as shown:



Which of the following arrangements of the magnets is possible when three of the magnets are brought close together?



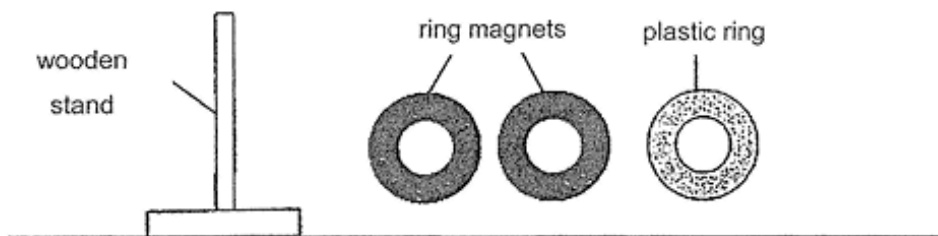
- 7 Four magnets, A, B, C and D, were suspended over a tray of paper clips as shown.



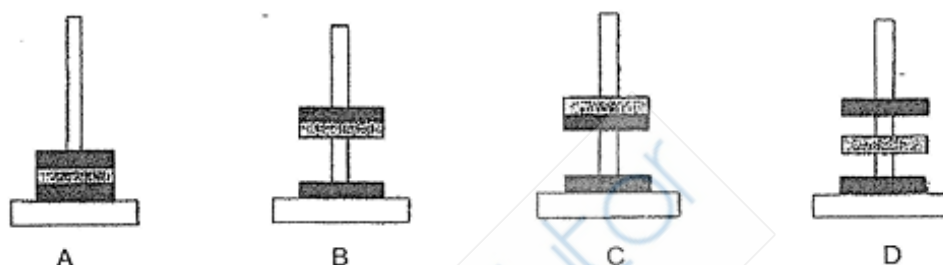
Based on the diagram, which of the arrangements correctly shows the strength of the magnets, from the weakest to the strongest?

	weakest magnet	→			strongest magnet
(1)	A	B	D	C	
(2)	A	D	B	C	
(3)	C	B	D	A	
(4)	C	D	B	A	

- 8 Study the following objects shown carefully.



Which of the following correctly shows how the ring magnets and plastic ring can be slotted through the wooden stand?



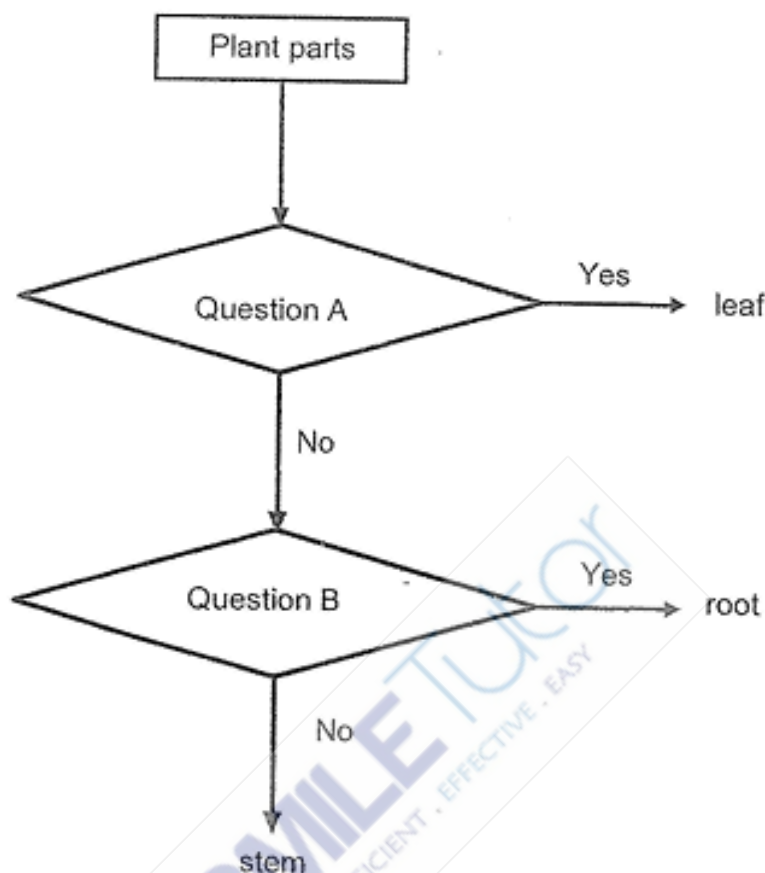
- (1) A and B only  
 (2) A and C only  
 (3) C and D only  
 (4) B and D only
- 9 A pot of plant is well-watered and placed in an open field.



All of plant part X were then completely removed. Which of the following explains what will happen to the plant a few weeks later?

- (1) The plant will grow well as it has leaves.  
 (2) The plant will die as it is unable to make food.  
 (3) The plant will grow well as it has air and water.  
 (4) The plant will die as it is unable to keep itself upright.

10 Study the flow chart below.



Which of the following best represents questions A and B?

	Question A	Question B
(1)	Makes food for the plant?	Absorbs water and minerals?
(2)	Makes food for the plant?	Transports water to all parts of the plant?
(3)	Absorbs water and minerals?	Transports water to all parts of the plant?
(4)	Absorbs water and minerals?	Makes food for the plant?

- 11 Wendy wanted to find out if a plant grows better when planted in garden soil or sandy soil. Which of the condition(s) should she keep the same to ensure a fair test?

- A Type of soil given
- B Type of water given
- C Amount of water given
- D Place where the plants are grown

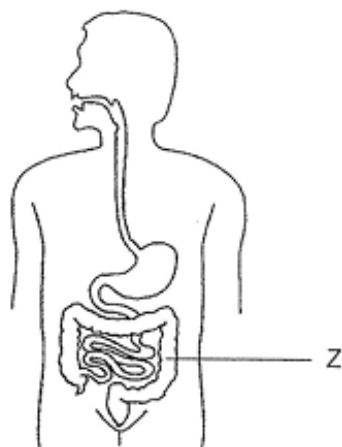
- (1) A only
- (2) A and C only
- (3) B, C and D only
- (4) A, C and D only

- 12 Where does digestion take place in the following parts of the digestive system?

- (1) gullet, stomach, anus
- (2) mouth, small intestine, anus
- (3) gullet, stomach, small intestine
- (4) mouth, stomach, small intestine



- 13 The diagram shows the human digestive system.



Which of the statement(s) about part Z is/are correct?

- A Digestion of food is completed in part Z.
- B Part Z absorbs water from undigested food.
- C Undigested food is further digested in part Z.

- (1) A only
- (2) B only
- (3) A and B only
- (4) B and C only

- 14 Which of the statement(s) about the gullet in the human digestive system is/are true?

- A Breaks down food into simple substances.
- B Absorbs substances to be used by the body.
- C Passes food from the mouth to the stomach.

- (1) A only
- (2) C only
- (3) B and C only
- (4) A and C only

- 15 Four beakers of water, A, B, C and D, were placed at the same location. The amount of water and temperature of water in each beaker are recorded in the table.

Beaker	A	B	C	D
Amount of water / ml	10	50	90	10
Temperature of water / °C	50	90	50	90

Which beaker of water has the least amount of heat energy?

- (1) A
- (2) B
- (3) C
- (4) D

- 16 Which one of the following is not a source of heat energy?

(1)



fire

(2)



blanket

(3)



Sun

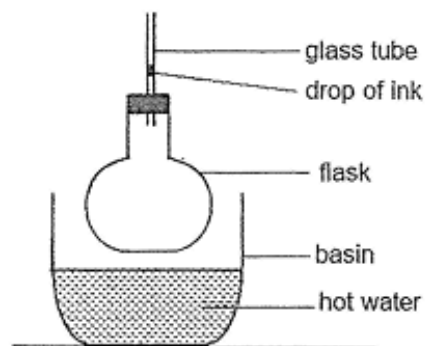
(4)



iron (switched on)



- 19 John prepared a set-up by inserting a glass tube into a flask. The glass tube contained a drop of ink as shown.



He placed the flask into a basin of hot water. The drop of ink moved down slightly before moving up. What could have caused the drop of ink to move down slightly at first?

- (1) The flask lost heat to the hot water and contracted.
  - (2) The flask gained heat from the hot water and expanded.
  - (3) The air in the flask lost heat to the hot water and contracted.
  - (4) The air in the flask gained heat from the hot water and expanded.
- 20 A mat made of material Z was first placed on a table. A pot of hot soup was then placed on top of the mat as shown below.

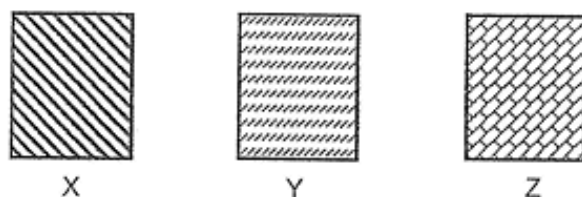


After five minutes, the pot of hot soup and the mat were removed.

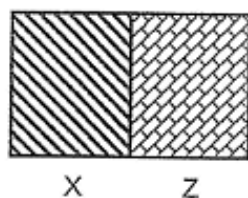
Which of the following best explains why the table top in contact with the mat did not feel hot when touched?

- (1) Material Z gained heat from the table.
- (2) Material Z is a poor conductor of heat.
- (3) Material Z lost heat to the surroundings.
- (4) Material Z and the pot are good conductors of heat.

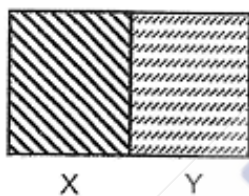
- 21 Three objects, X, Y and Z, have the same shape and size but different temperatures.



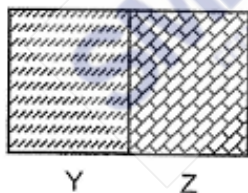
When the objects touch each other, the following observations were recorded.



When X touches Z, X gains heat.



When X touches Y, Y loses heat.



When Y touches Z, Y gains heat.

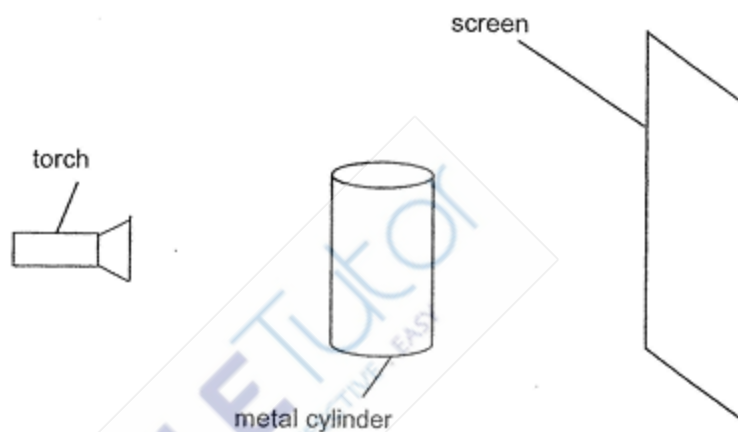
Based on the results above, which of the following correctly shows the objects with the highest and lowest temperature at the start of the experiment?

	Object at highest temperature	Object at lowest temperature
(1)	X	Y
(2)	Y	Z
(3)	Z	X
(4)	Z	Y

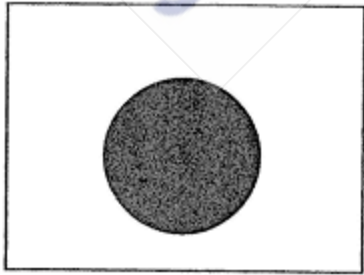
22 Which of the following is a source of light?

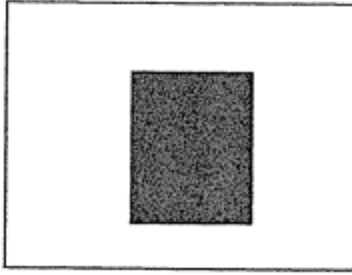
- (1) mirror
- (2) compass
- (3) lightning
- (4) The Moon

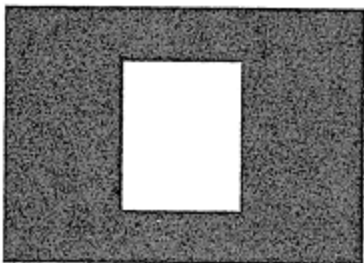
23 Paul shines a torch on a metal cylinder as shown.

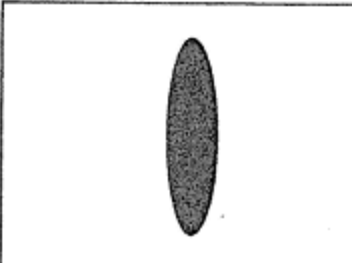


Which of the following would likely be seen on the screen?

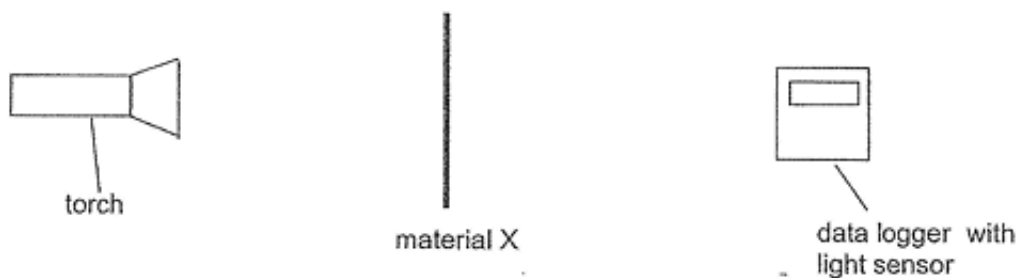
- (1) 

(2) 

(3) 

(4) 

- 24 Jack conducted an experiment in a dark room. He recorded the amount of light on the data logger as he increased the number of sheets of material X.



He recorded his results in the table below.

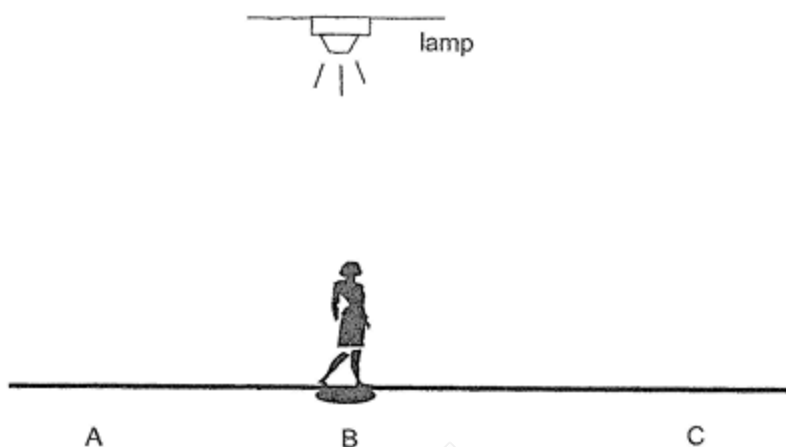
Number of sheets of material X	Amount of light detected (units)
5	100
10	84
15	52
20	18
25	0
30	0

Based on the above results, which of the following number of sheets of material X would most likely not allow any light to be detected by the sensor?

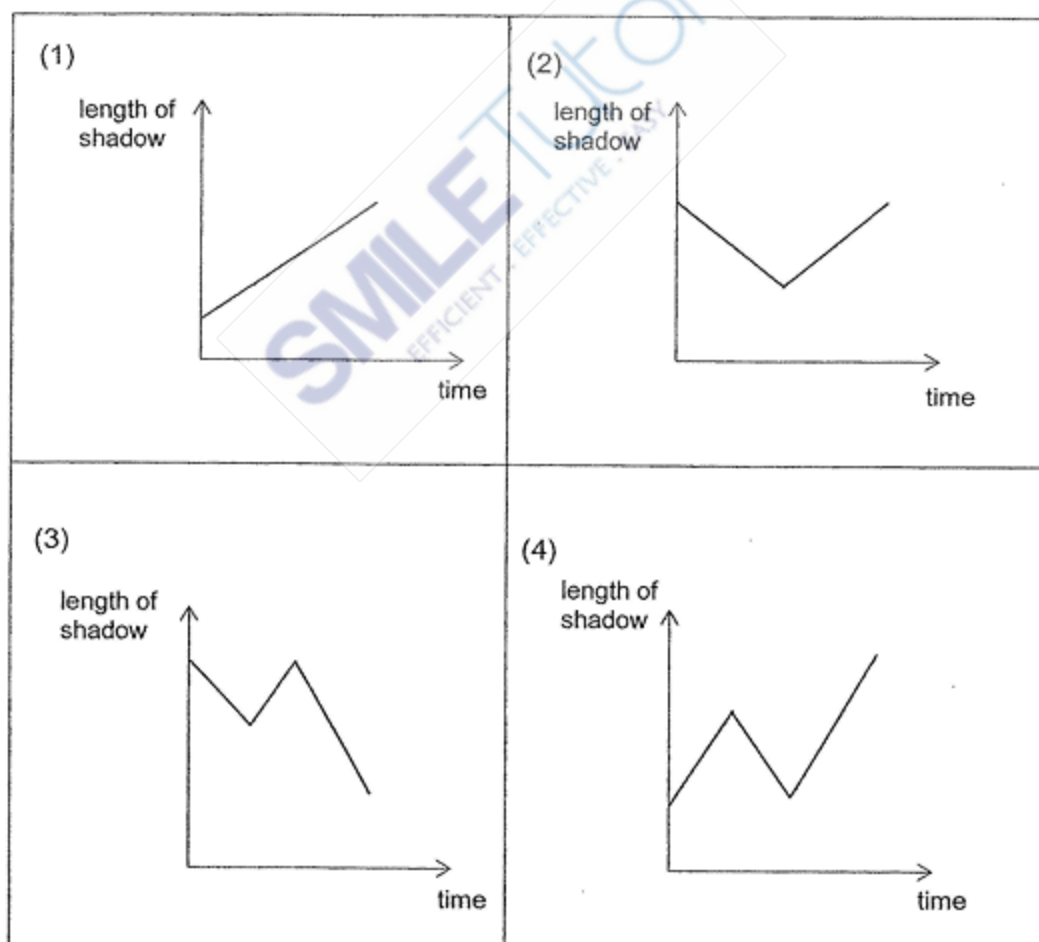
- (1) 3
- (2) 12
- (3) 20
- (4) 27



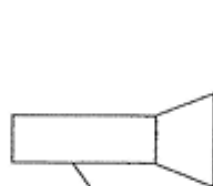
- 25 Mrs Tan stood under a lamp as shown. She walked from position B to position A, and then to position C in a straight line.



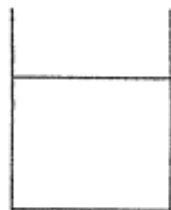
Which graph shows how the length of her shadow changed during this time?



- 26 Ali wants to find out which liquid, X or Y, allows the most amount of light to pass through.



torch



container of liquid

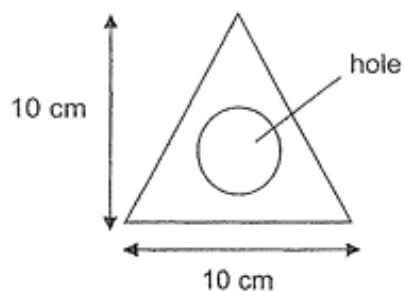


data logger with light sensor

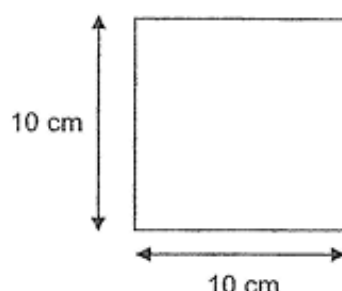
Which of the following represents the variables to be changed and measured?

	Variable to be changed	Variable to be measured
(1)	Amount of light from the torch	Amount of light detected by the light sensor
(2)	Distance between torch and liquid	Amount of liquid
(3)	Type of liquid	Amount of light detected by the light sensor
(4)	Amount of liquid	Amount of light shone from the torch

- 27 The diagram below shows the front view of two blocks of wood of different shapes.

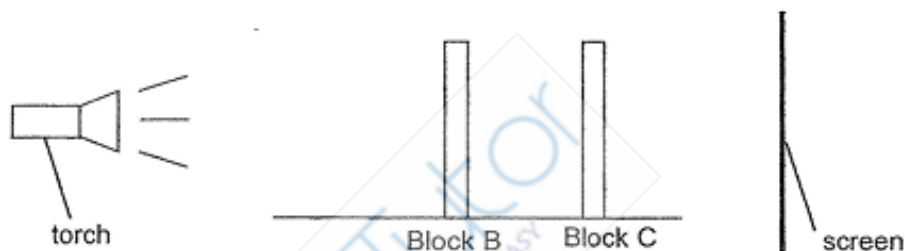


Block B



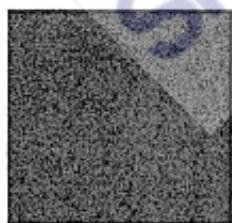
Block C

The blocks of wood are arranged in a straight line between a torch and a screen as shown.

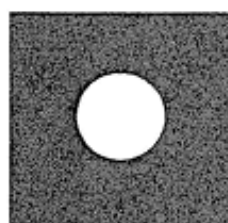


Which of the shadows is possible when the torch is switched on?

(1)



(2)



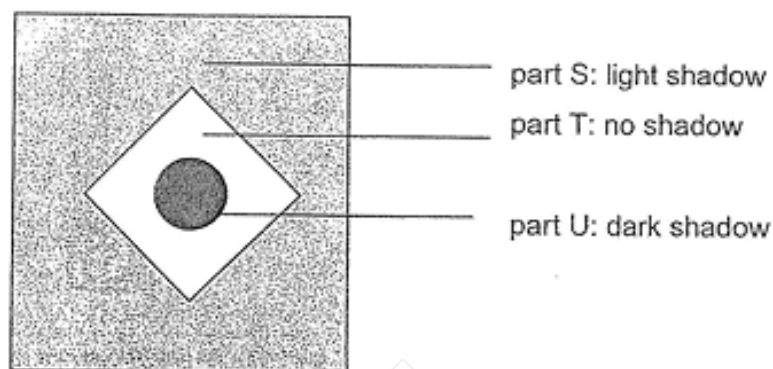
(3)



(4)



- 28 Object X is made of three different types of materials. When a torch is shone at object X, a shadow was formed as shown below.



shadow of object X

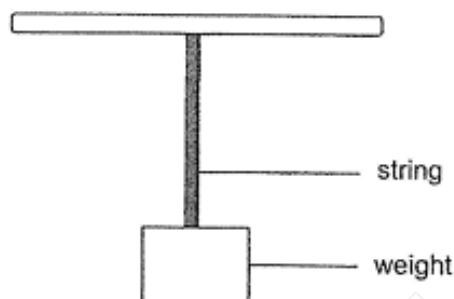
Which of the materials will parts S, T and U be most likely made of?

	part S	part T	part U
(1)	frosted glass	aluminium	clear glass
(2)	tissue paper	frosted glass	aluminium
(3)	clear plastic	tracing paper	tissue paper
(4)	tracing paper	clear plastic	cardboard

**End of Booklet A**  
**Please go on to booklet B**

For questions 29 to 41, write your answers in the spaces provided in this booklet.  
 The number of marks available is shown in brackets [ ] at the end of each question or part question.  
 (44 marks)

- 29 James set up an experiment as shown in the diagram below. He used strings made of different material, P, Q, R and S. The strings had the same thickness and length.



He added more weights until each string broke. He recorded his results in the table shown.

Material of string	Mass of weights (g)
P	60
Q	10
R	5
S	30

- (a) Based on the experiment above, what property of material was tested? [1]
- \_\_\_\_\_
- (b) Using a fishing line, James caught a fish that weighs 50 g. Based on the results above, which material, P, Q, R or S, was the fishing line made of? Explain. [2]
- \_\_\_\_\_
- \_\_\_\_\_
- (c) Keeping the variables constant, give a reason why James repeated the same experiment three times. [1]
- \_\_\_\_\_

- 30 Three identical magnets, A, B and C, each attracted 20 pins. Amir used a hammer to hit each magnet over a period of time and then recorded the number of pins each magnet could attract again. The results of his experiment are shown in the table.

Magnet	Number of times the magnet is hit	Number of pins attracted	
		Before hitting	After hitting
A	15	20	14
B	30	20	9
C	60	20	2

- (a) Which magnet, A, B or C, was the strongest at the end of the experiment? [1]

---

- (b) Based on the results above, state the relationship between the number of times a magnet is hit by a hammer and the number of pins attracted. [1]

---



---

- (c) Next, Amir brought another bar magnet near object T. He observed that object T was attracted to the bar magnet when Q faced X as shown in the diagram below.



- (i) What is the next step Amir should take to test whether that object T is a magnet? [1]

Put a tick (✓) in the correct box ☐ below.

☐ Turn object T around and bring Y near to Q

☐ Turn both objects T and the bar magnet around and bring P near to Y.

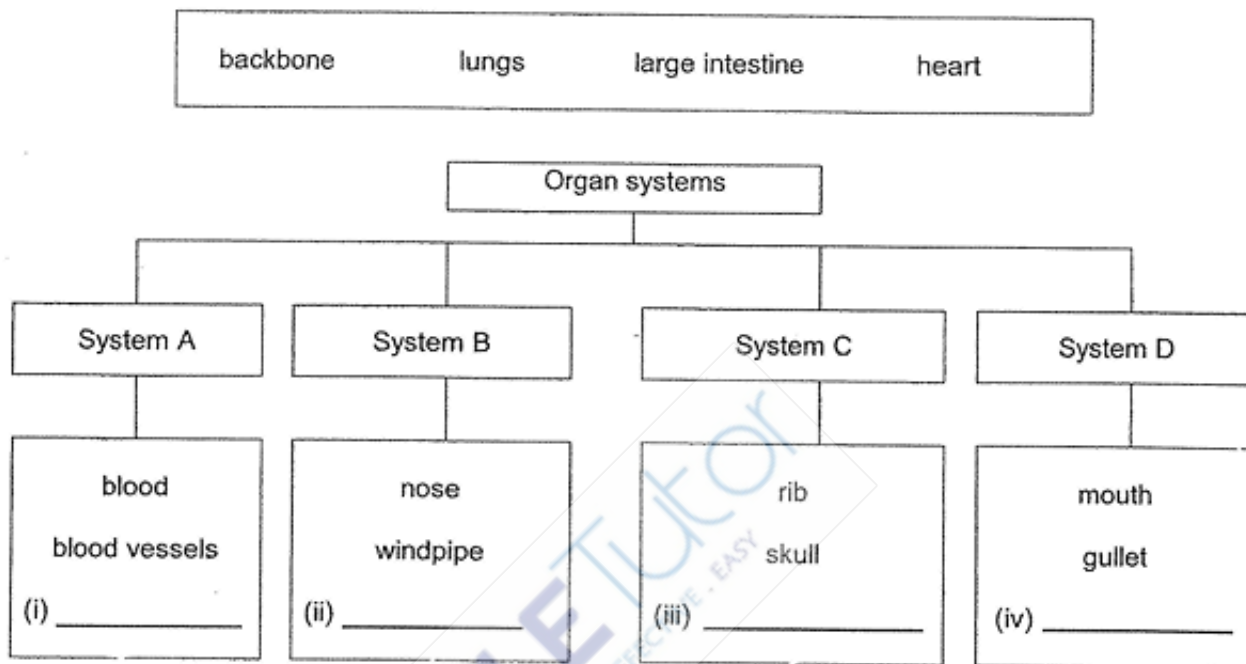
Based on the step chosen above, what observation should he make to conclude that Object T is a magnet? [1]

- (ii) 

---

31 Study the classification table below.

- (a) Using only the words given in the box below, fill in the spaces (i), (ii), (iii) and (iv) in the table. [2]



- (b) Name System B. [1]

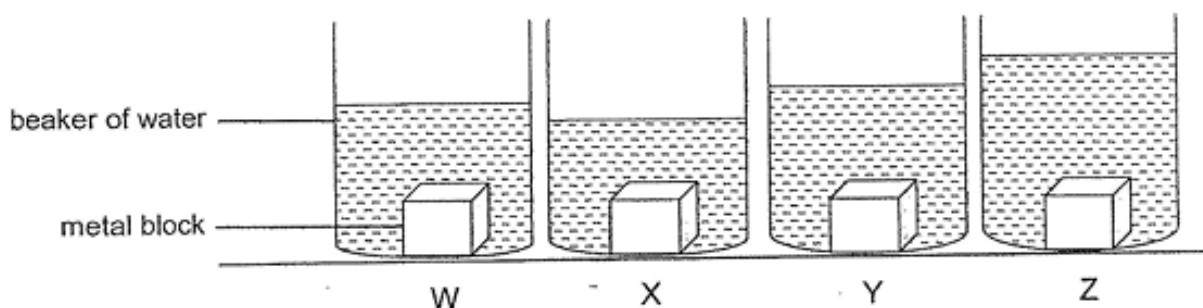
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- (c) Which organ system A, B, C or D, carries waste materials away from different parts of the body? [1]

---



- 32 Different amount of water at  $40^{\circ}\text{C}$  was added into four identical beakers W, X, Y and Z. Four identical metal blocks at  $80^{\circ}\text{C}$  were then placed into each beaker as shown.



The temperature of the water in each beaker was measured after ten minutes.

- (a) Describe how the temperature of each metal block changed after it was placed into the beaker of water. [1]

---

- (b) In which beaker, W, X, Y or Z, would the water show the smallest increase in temperature after ten minutes? [1]

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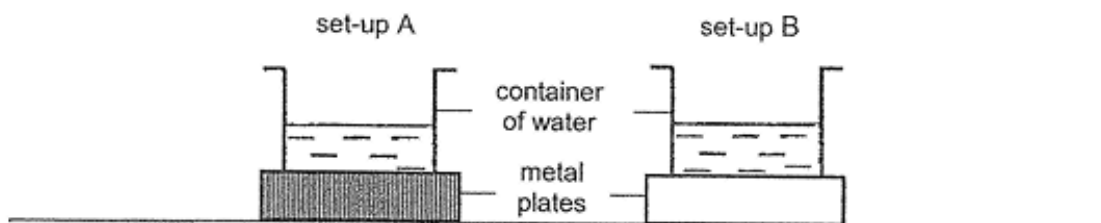
- (c) Give a reason for your answer in part (b). [1]

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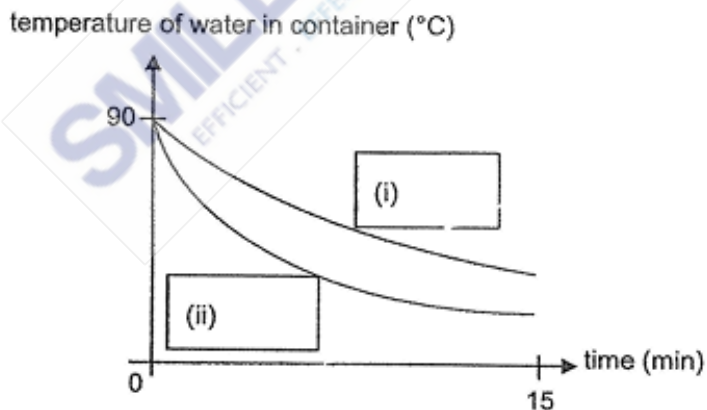
- 33 Devi poured the same amount of water at  $90^{\circ}\text{C}$  into two similar containers. The two containers were placed on two similar-sized plates made of two different types of metal as shown. The temperature of the room was  $30^{\circ}\text{C}$ .



Devi measured the temperature of water in both containers over 15 minutes and recorded her results in the table below.

Time (min)	Temperature of water in set-up A ( $^{\circ}\text{C}$ )	Temperature of water in set-up B ( $^{\circ}\text{C}$ )
0	90	90
5	55	65
10	40	55
15	30	45

- (a) Using only the letters, A and B, label the two graphs in the boxes below. [1]



- (b) Which metal plates, in set-up A or B, is a better conductor of heat? [1]

- (c) Based on the results in the table above, explain your answer in (b). [2]

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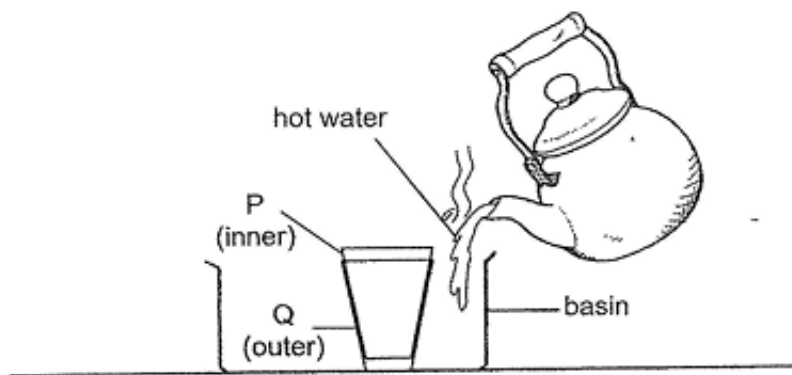


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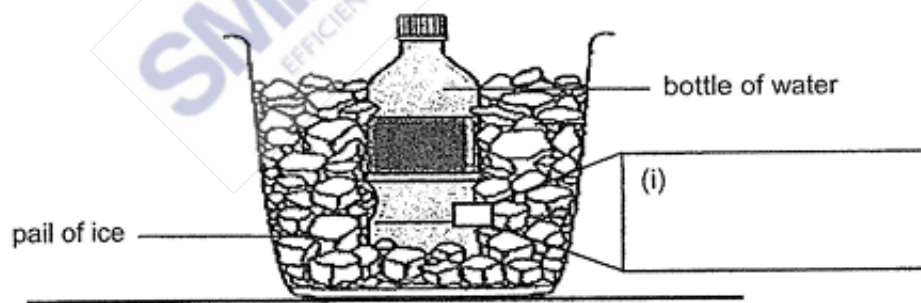
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- 34 Two glasses, P and Q, were stuck together and could not be separated. Ravi poured hot water into the basin and placed the glasses upright into it. After a minute, he could separate the two glasses P and Q easily.



- (a) Explain why this happened. Circle the correct answer.
- (i) Both glasses will ( gain heat from / lose heat to ) the hot water. [1]
- (ii) The glasses separated easily as glass Q will expand ( more / less ) than glass P at first. [1]

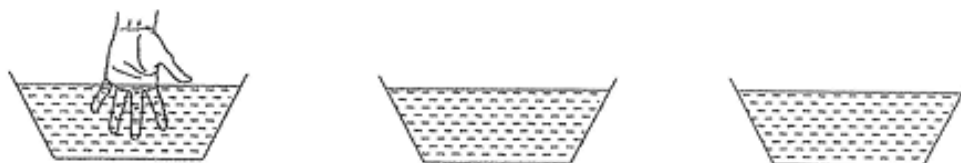
In another experiment, Ravi placed a bottle of water at room temperature into a pail of ice as shown.



After some time, he found that all the ice in the pail had turned into a liquid and the bottle of water felt cold.

- (b) Draw an arrow (← or →) in the box (i) above to show the direction of heat flow between the ice and the bottle of water. [1]

- 35 Joe was given three bowls of water, each containing the same amount of water at a different temperature. To find out which bowl of water was the hottest, he placed his hand into each bowl one at a time as shown in the diagram below. Joe's teacher told him that his method of measuring was not accurate.



- (a) What instrument should Joe use to measure the temperature of water accurately? [1]
- \_\_\_\_\_
- (b) How can Joe tell from his instrument which bowl of water is the hottest? [1]
- \_\_\_\_\_

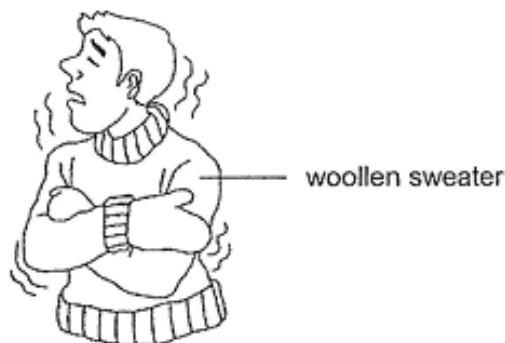
In another experiment, Joe wanted to find out how the temperature of water affects the time taken for ice cubes to melt. He prepared four set-ups with different conditions as listed in the table below.

	set-up P	set-up Q	set-up R	set-up S
Temperature of water ( $^{\circ}\text{C}$ )	30	70	30	70
Amount of water (ml)	200	300	100	200
Number of ice cubes added	5	3	3	5

- (c) Which two set-ups should Joe use to ensure a fair test? [1]

Set-ups \_\_\_\_\_ and \_\_\_\_\_.

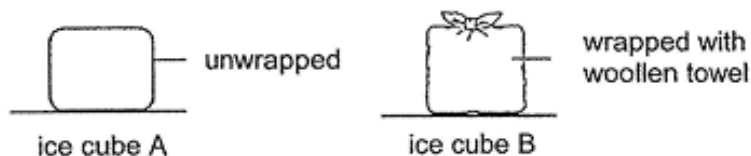
- 36 Tom put on a woollen sweater on a very cold night as shown in the picture. There is air trapped in between the wool that is used to make this sweater.



- (a) Read each statement below carefully. For each statement, put a tick (✓) in the correct box to show if it explains how the woollen sweater helped to keep Tom warm. [2]

	Statement	True	False
i.	Tom gains heat from the woollen sweater.		
ii.	Air in woollen sweater is a poor conductor of heat.		
iii.	With the sweater, heat is conducted away from Tom slower.		
iv.	Temperature of the surroundings is higher than Tom's body.		

Tom had two identical ice cubes, A and B. He left ice cube A unwrapped and ice cube B wrapped with a woollen towel as shown in the diagram below. He observed that ice cube B took a longer time to melt than ice cube A.



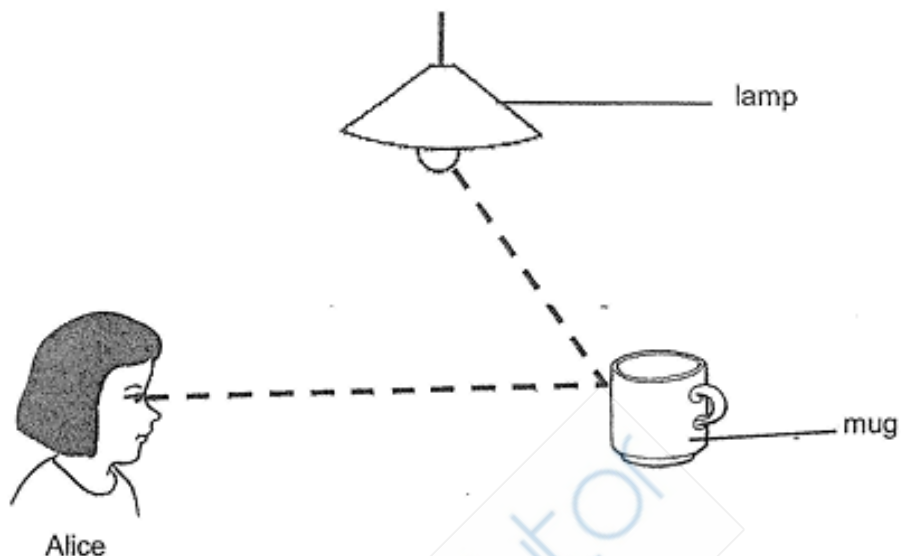
- (b) Explain why ice cube B took a longer time to melt than ice cube A. [1]

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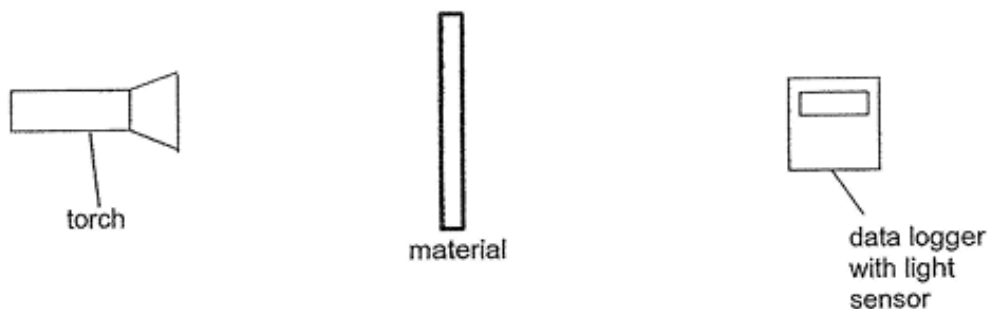
- 37 Alice is in a room which is lighted up only by a lamp as shown below. There are no windows in the room.



- (a) In the diagram above, the dotted lines show the light rays without the arrowheads. Draw arrowheads ( $\rightarrow$ ,  $\leftarrow$ ) on the dotted lines to show how Alice is able to see the mug. [1]
- (b) State the property of light as shown in part (a) above. [1]
- 
- (c) Alice's father came into the room and said that if he switched off the lamp, he would be able to see a shadow of the mug. Is he correct? Explain your answer. [1]
- 
-



- 38 Ali used a data logger to measure how much light can pass through materials W, X, Y and Z, of similar size and thickness.



He recorded the results as shown.

Material	W	X	Y	Z
Data logger reading (units)	35	60	3	120

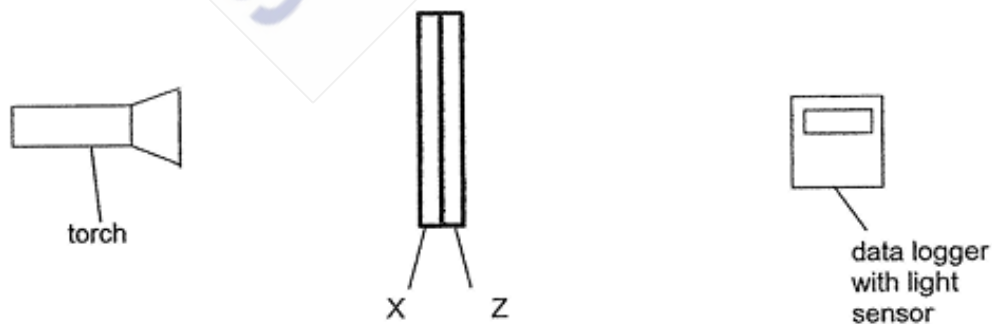
- (a) Based on the results, which material, W, X, Y or Z, is suitable to make a curtain that blocks out the most light? Explain your answer. [2]

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After recording the results above, Ali placed both materials X and Z back to back together in front of the data logger.

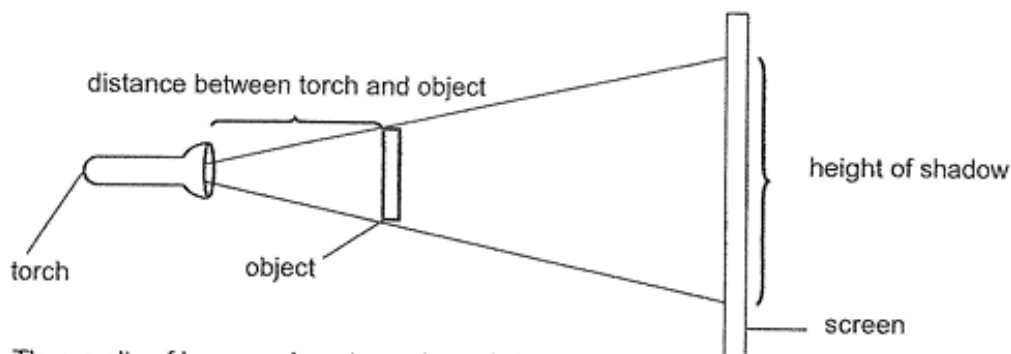


- (b) State the brightness recorded in the data logger. [1]

\_\_\_\_\_ units



39 Sulin conducted an experiment as shown.



The results of her experiment are shown below.

Distance between torch and object (cm)	Height of shadow on screen (cm)
10	11
15	9
20	7

(a) State the aim of the experiment. [1]

---



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(b) What is the relationship between the distance between torch and object and the height of shadow formed on the screen? [1]

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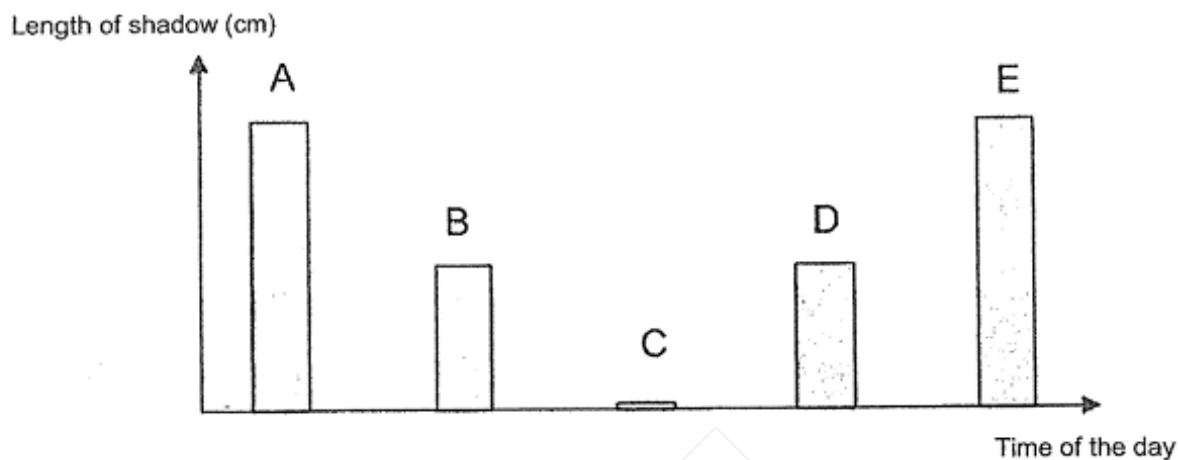
(c) Tick (✓) the correct variable(s) Sulin should keep the same in the table below. [1]

Variable	To keep the same
Type of torch	
Size of object	
Distance of object and screen	

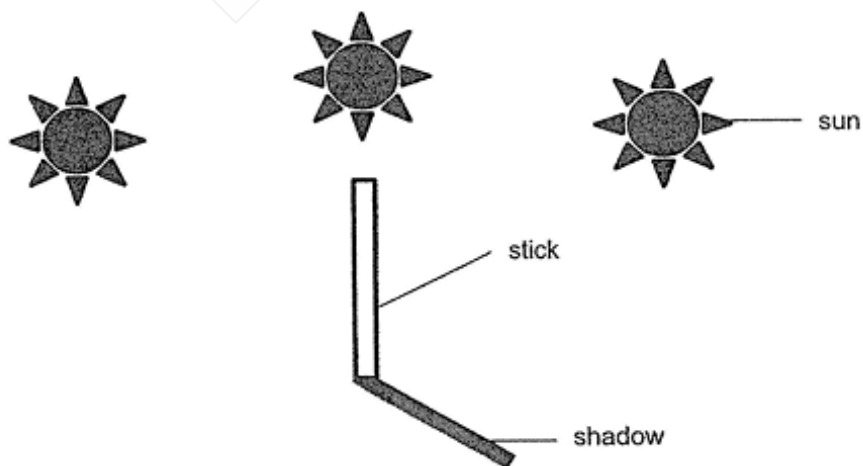
(d) Without moving the torch and the object, what can Sulin do to decrease the height of the shadow formed on the screen? [1]

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- 40 A stick was placed vertically in the middle of a field. The length of the shadow formed by the stick at different times of the day was measured. The graph below shows the information collected.



- (a) How is a shadow formed? [1]
- \_\_\_\_\_
- (b) From the graph, which bar, A, B, C, D or E, most likely represents the shadow formed by the stick at noon? [1]
- \_\_\_\_\_
- \_\_\_\_\_
- (c) In the diagram below, circle the position of the sun that caused the formation of the shadow. [1]





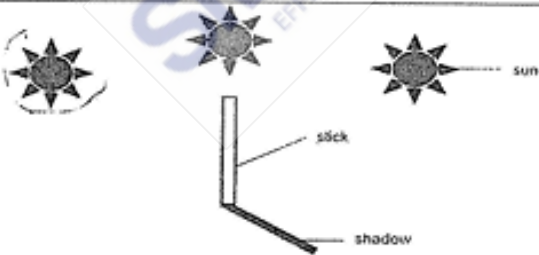
## ANSWER SHEET

### (BOOKLET A)

Q1	4	Q2	1	Q3	3	Q4	4	Q5	2
Q6	4	Q7	4	Q8	2	Q9	2	Q10	1
Q11	3	Q12	4	Q13	2	Q14	2	Q15	1
Q16	2	Q17	3	Q18	1	Q19	2	Q20	2
Q21	3	Q22	3	Q23	2	Q24	4	Q25	4
Q26	3	Q27	1	Q28	4				

### (BOOKLET B)

Q29	a)	Strength
	b)	Material P. Material P is the strongest.
	c)	To ensure reliable results.
Q30	a)	Magnet A
	b)	As the number of times the magnet is hit by a hammer <u>increase</u> , the number of pins attracted decreased.
	c)	(i) Turn object T around and bring Y near to Q. (ii) Object T repelled the magnet.
Q31	a)	(i) Heart (ii) Lungs (iii) Backbone (iv) Large intestine
	b)	Respiratory system
	c)	Organ system A
Q32	a)	The temperature of the metal block decreased.
	b)	Beaker Z
	c)	Beaker Z contains the largest amount of water.
Q33	a)	(i) B (ii) A
	b)	Metal plate in A
	c)	Temperature of water in set-up A decreased more than in set-up B. Metal plate in set-up A conducted heat away faster from the water and so it is a better conductor of heat.
Q34	a)	(i) gain heat from (ii) more
	b)	→

Q35	a)	Thermometer
	b)	The reading has the highest value.
	c)	Set-up P and S
Q36	a)	(i) False (ii) True (iii) True (iv) False
	b)	Air in the woolen towel is a poor conductor of heat so ice cube B gained heat slower from the surrounding air than ice cube A.
Q37	a)	lamp → mug → eyes
	b)	Light travels in a straight line.
	c)	No. If there is no light source, he would not be able to see anything.
Q38	a)	Material Y. It allows the least amount of light to pass through.
	b)	Accept any number between 50 - 60
Q39	a)	To find out how distance between torch and object affects height of shadow formed.
	b)	When the distance between the torch and object increases, the height of shadow formed on the screen decreases.
	c)	Tick – type of torch, size of object
	d)	Move the screen nearer to the object.
Q40	a)	A shadow is formed when light is completely or partially blocked by an object.
	b)	Bar C
	c)	
Q41	a)	Sheet allows most light to pass through – Q Sheet allows no light to pass through – R
	b)	Q, S, R OR S, Q, R
	c)	Set-up 2

## CATHOLIC HIGH SCHOOL MYE PAPER

### Booklet A (24 × 2 marks)

For each question from 1 to 24, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade your answer on the Optical Answer Sheet. (48 marks)

1 Which of the following is a non-living thing?

(1)



(2)



(3)



(4)



2 Which of the following is **not** a plant?

(1)



(2)



(3)



(4)

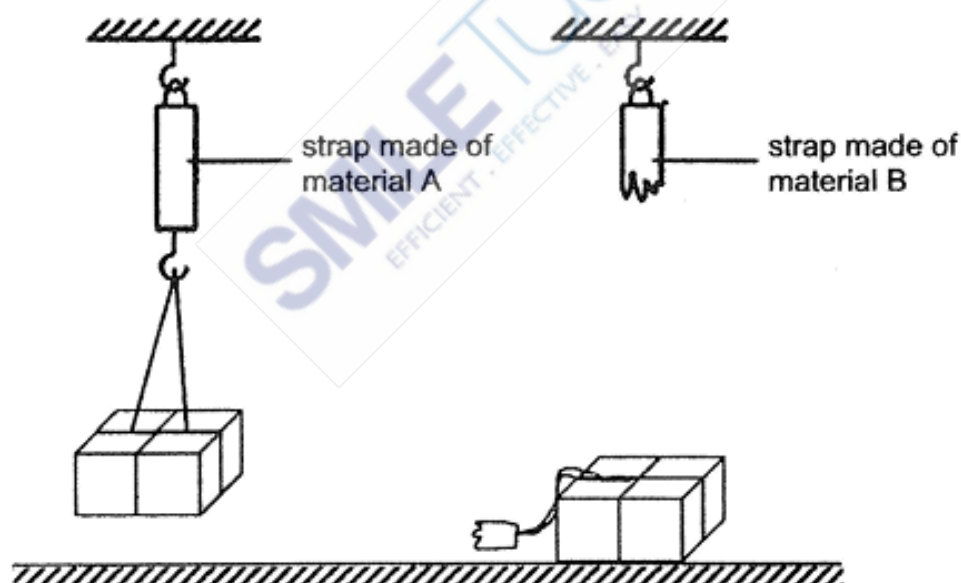


3 Which statements about yeast and bacteria are correct?

- A They are fungi.
- B They feed on living things, dead or alive.
- C A microscope is needed to see them clearly.

- (1) A and B only
- (2) A and C only
- (3) B and C only
- (4) A, B and C

4 Aaron used the set-ups below to study a certain property of material. He used straps made of different materials A and B and hung boxes of the same mass on them. The results are shown below.



What can be concluded from the experiment?

- (1) Material A is stronger than material B.
- (2) Material B is stronger than material A.
- (3) Material A is more flexible than material B.
- (4) Material B is more flexible than material A.

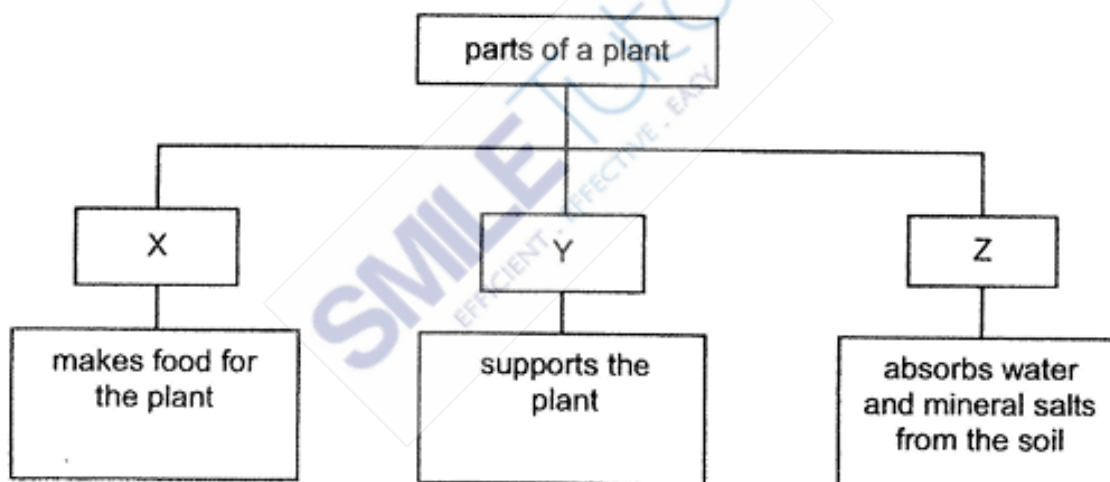


5 Which statements about the respiratory system are correct?

- A The system takes in food and water into the body.
- B The system takes in and removes air from the body.
- C The system consists of the heart and blood vessels.
- D The system consists of the nose, windpipe and lungs.

- (1) A and C only
- (2) A and D only
- (3) B and C only
- (4) B and D only

6 The diagram below shows the function of different parts of a plant.



Which of the following correctly identifies parts X, Y and Z of the plant?

	X	Y	Z
(1)	leaf	stem	roots
(2)	stem	roots	leaf
(3)	roots	stem	leaf
(4)	leaf	roots	stem

- 7 The objects below are grouped based on whether they are attracted to a magnet.

Objects	
Group A	Group B
aluminium foil	steel rod

Which of the following correctly shows the objects placed in Group A and B?

	Group A	Group B
(1)	copper wire	plastic ring
(2)	copper wire	iron nail
(3)	iron nail	plastic ring
(4)	iron nail	copper wire

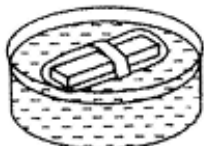
- 8 Balvan used a compass to locate the direction of the North pole and found the needle pointing in the direction as shown below.



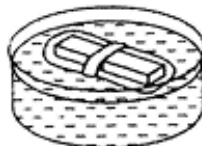
He placed a bar magnet on a plastic strip and floated it in a basin of water.

Which of the following correctly represents the position of the bar magnet when it comes to rest?

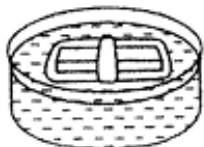
(1)



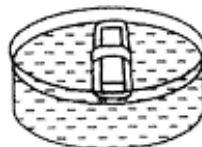
(2)



(3)

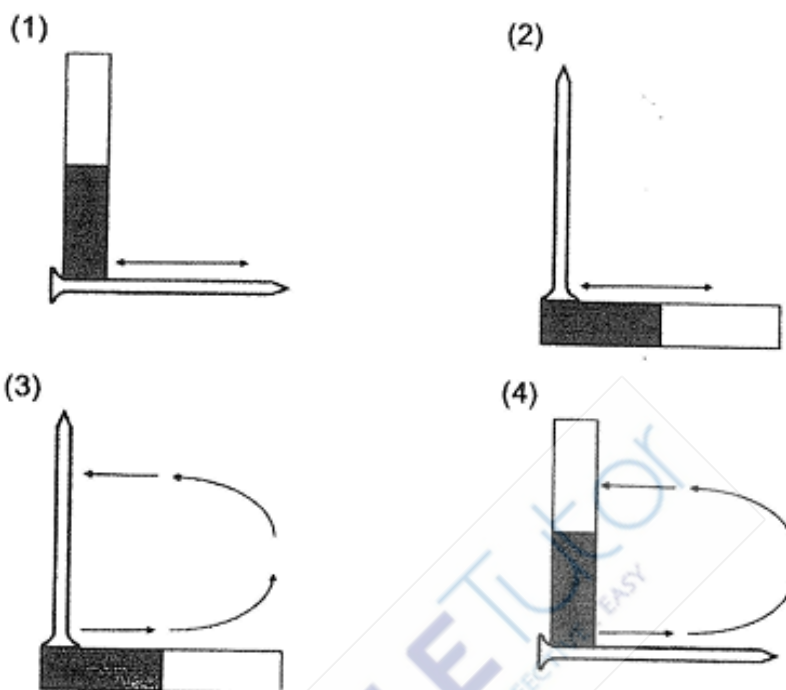


(4)

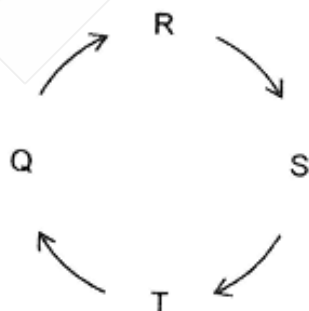


- 9 The arrows show the direction of movement of the magnet.

Which of the following correctly shows how an iron nail is magnetised using the stroke method?



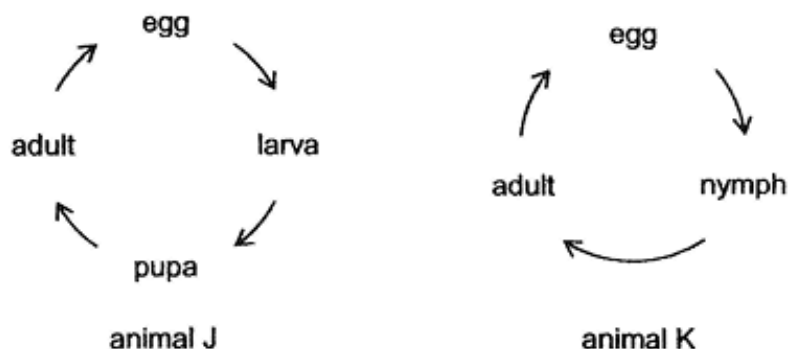
- 10 The diagram below shows the life cycle of a mealworm beetle.



If T represents the adult stage, at which stage(s) would the mealworm beetle eat a lot and moult several times?

- (1) Q only
- (2) R only
- (3) R and S only
- (4) S and T only

11 Study the life cycles of animals J and K.



Based on the diagrams above, which statements are correct?

- A Both animals reproduce by laying eggs.
- B Animal J has more stages in its life cycle than animal K.
- C Animal J takes a longer time than animal K to develop from an egg to an adult.

- (1) A and B only
- (2) A and C only
- (3) B and C only
- (4) A, B and C

12 Muthu observed two animals P and Q. He then recorded his observations in the table below.

Observation	animal P	animal Q
has 6 legs		✓
lays eggs in water	✓	✓
has a 3-stage life cycle	✓	

Which of the following correctly identifies animals P and Q?

	animal P	animal Q
(1)	chicken	frog
(2)	frog	mosquito
(3)	mosquito	beetle
(4)	beetle	chicken

- 13 The table below shows the development of a flowering plant over a period of time.

Stage	Development of flowering plant
W	Leaves develop to make food.
X	Roots grow downwards.
Y	Flowers appear on the plant.
Z	Shoot grows upwards.

Which of the following correctly shows the order of development?

- (1)  $Z \rightarrow W \rightarrow X \rightarrow Y$
- (2)  $Z \rightarrow X \rightarrow Y \rightarrow W$
- (3)  $X \rightarrow Z \rightarrow W \rightarrow Y$
- (4)  $X \rightarrow W \rightarrow Z \rightarrow Y$

- 14 Which statement is correct?

- (1) All plants grow from spores.
- (2) A young plant has a similar life cycle to its parent.
- (3) A young plant has more leaves than an adult plant.
- (4) The life cycle of a plant comes to an end when the plant becomes an adult.

- 15 Which is matter?

- (1) wind
- (2) music
- (3) sound
- (4) shadow

16 Which of the following is the most suitable to measure 15 ml of water?

(1)



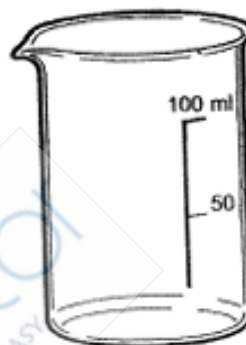
(2)



(3)



(4)



17 Gareth placed a deflated ball on an electronic balance and recorded its mass. Then, he pumped air into the deflated ball and placed it on the electronic balance again.

deflated ball



inflated ball



Based on the diagrams above, what can we say about the property of air?

- (1) Air has mass.
- (2) Air has a definite shape.
- (3) Air does not occupy space.
- (4) Air does not have a definite volume.



- 18 Ashley has two packets of snacks A and B.



packet A

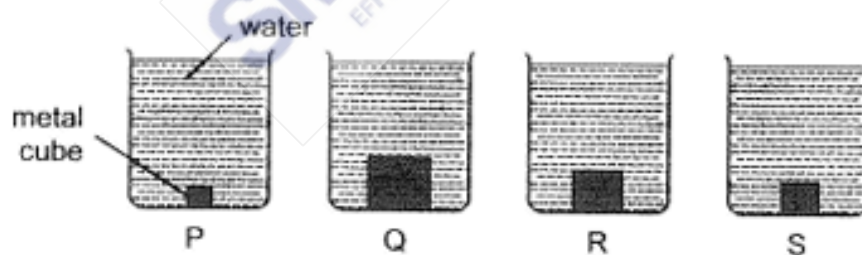


packet B

Based on the diagram, which of the following best describes the packets?

- (1) Packet A has a greater mass than packet B.
- (2) Packet B has a greater mass than packet A.
- (3) Packet A has a greater volume than packet B.
- (4) Packet B has a greater volume than packet A.

- 19 Zhi Wen placed metal cubes of different sizes into each of the beakers P, Q, R and S as shown below. He then filled each beaker with water to the same level.



Which beaker had the least amount of water?

- (1) P
- (2) Q
- (3) R
- (4) S



20 The table below shows the properties of substances A and B.

Properties	substance A	substance B
definite volume	yes	no
definite shape	no	no
has mass	yes	yes

A 1-litre bottle contains  $300\text{ cm}^3$  of substance A and  $700\text{ cm}^3$  of substance B.

If another  $100\text{ cm}^3$  of substance B is added to the bottle, what is the volume of substance B in the bottle now?

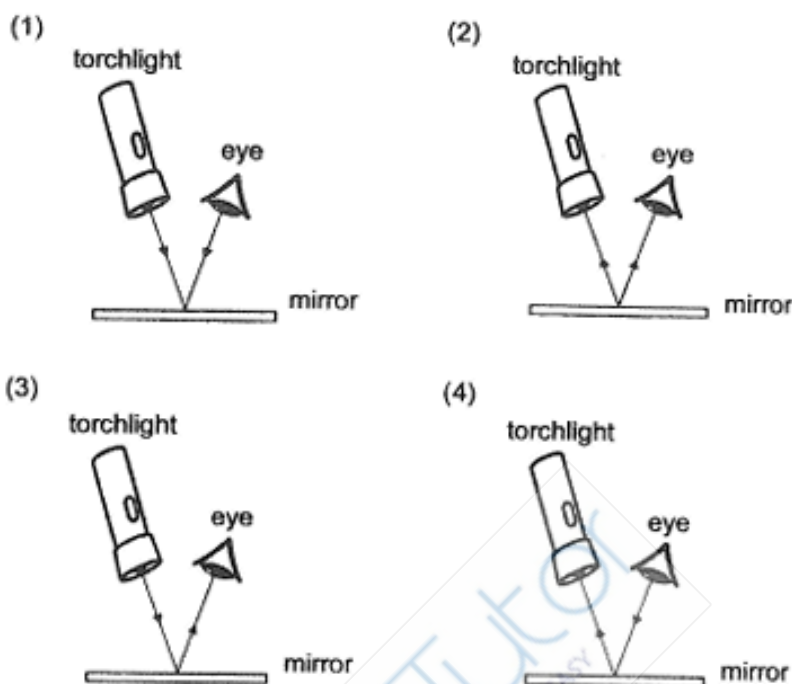
- (1)  $600\text{ cm}^3$
- (2)  $700\text{ cm}^3$
- (3)  $800\text{ cm}^3$
- (4)  $1000\text{ cm}^3$

21 Which is a source of light?

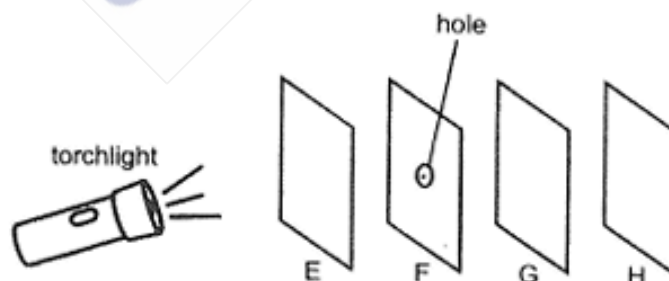
- A a star
- B the Sun
- C the Moon
- D a candle flame

- (1) B and D only
- (2) C and D only
- (3) A, B and C only
- (4) A, B and D only

22 Which arrows best show how light is reflected into the eye?



23 In a completely dark room, four sheets E, F, G and H were arranged in a straight line as shown below. When the torch was turned on, a bright circular patch of light was observed only on sheet G.

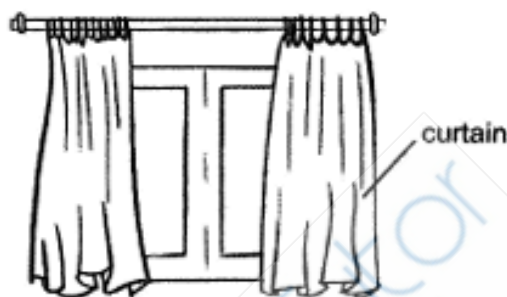


Based on the information above, which statement is correct?

- (1) Sheets E and F allowed light to pass through them.
- (2) Sheets G and H allowed light to pass through them.
- (3) Sheets E and H did not allow any light to pass through them.
- (4) Sheets F and G did not allow any light to pass through them.

- 24 The table below shows the different amounts of light that can pass through material W, X, Y and Z.

Material	Amount of light (units)
W	300
X	150
Y	0
Z	450



Which is the best material to make a curtain to ensure that the room is completely dark?

- (1) W
- (2) X
- (3) Y
- (4) Z

**End of Booklet A**

**Booklet B (32 marks)**

For questions 25 to 35, write your answers in this booklet.

The number of marks available is shown in brackets [ ] at the end of each question or part question. (32 marks)

25 The diagram below shows animal A.



Give two reasons why animal A is not an insect.

[2]

Reason 1:

\_\_\_\_\_

\_\_\_\_\_

Reason 2:

\_\_\_\_\_

\_\_\_\_\_

26 Study the diagram.



- (a) State the similarity between materials K and M. [1]

---



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- (b) Based on the diagram above, which material J, K, L or M is most suitable to make a lock? Give reasons for your answer. [1]

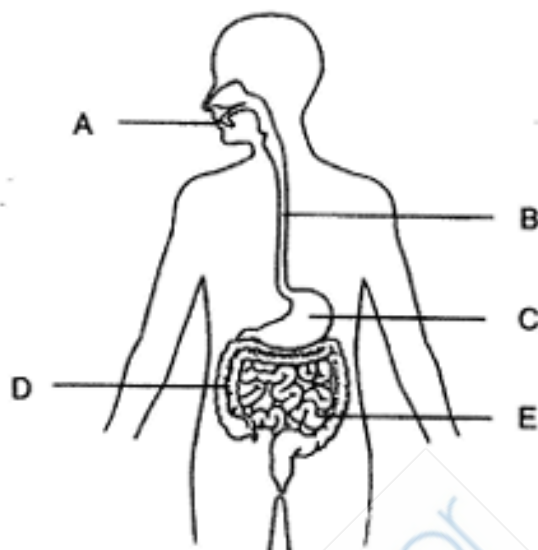



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27 The diagram below shows parts of the human digestive system.



(a) Name parts B and E.

[1]

part B: \_\_\_\_\_

part E: \_\_\_\_\_

(b) Which parts A, B, C, D or E of the digestive system are digestive juices produced?

[1]

\_\_\_\_\_

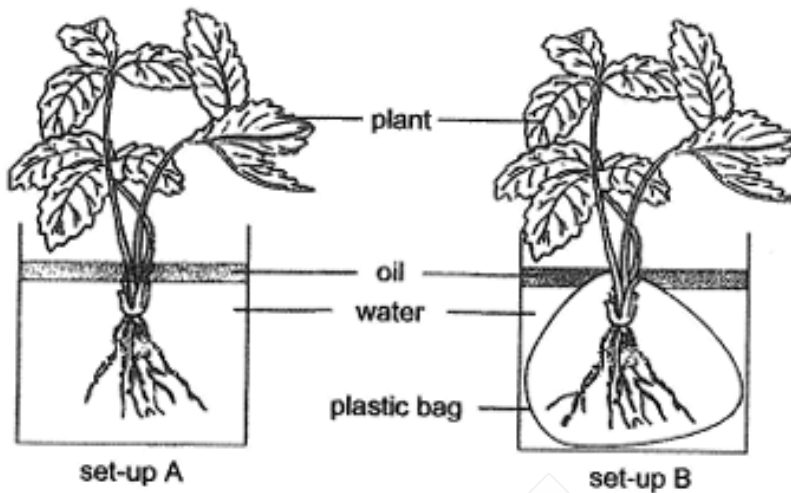
(c) How do the teeth help in the process of digestion?

[1]

\_\_\_\_\_

\_\_\_\_\_

- 28 Boon Hwee conducted an experiment using two similar set-ups A and B. In set-up B, he wrapped the roots of the plant in a plastic bag.



- (a) Compare the water levels in the two containers after a few days. [1]

---



---

- (b) Based on the answer in (a), what could Boon Hwee conclude from the above experiment? [1]

---



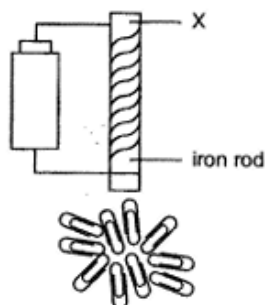
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- (c) Put a tick (✓) in the correct boxes below to indicate if the following three variables should be changed or kept the same. [1]

Variables	Changed	Kept the same
type of plant		
number of leaves		
location of set-ups		



- 29 Lincoln wanted to find out the strength of an electromagnet using the set-up below.



His results are as shown.

Number of turns of wire	Numbers of paper clips attracted
10	0
20	1
30	4

- (a) Explain why no paper clips were attracted to the electromagnet with 10 turns of wire around the iron rod. [1]

---



---

- (b) How could Lincoln show that end X of the rod was a North pole using a bar magnet? [1]

---



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*Continue from Question 29*

- (c) What would happen to the number of paper clips attracted when the iron rod was replaced with a wooden rod? [1]

---



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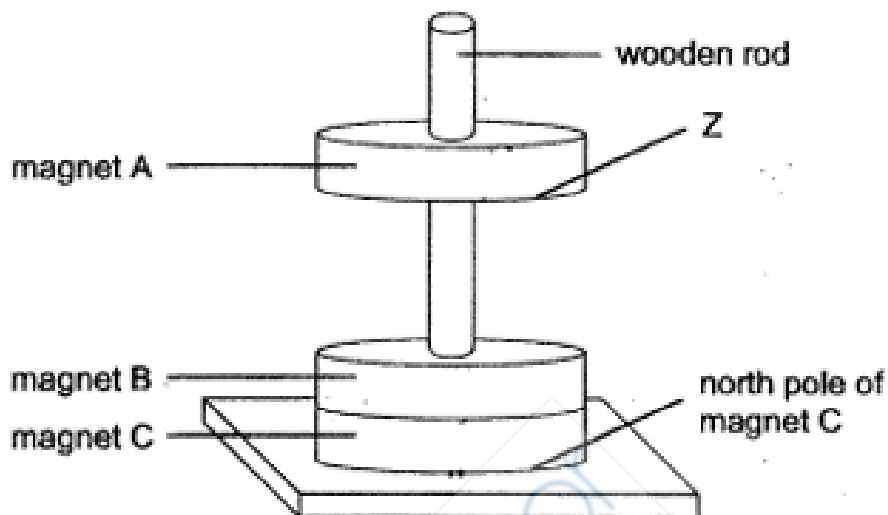
- (d) Give a reason for your answer in (c). [1]

---



---

- 30 The set-up below consists of three ring magnets supported by a wooden rod.



- (a) Identify the pole of magnet A, labelled Z, that is facing magnet B in the set-up above. [1]

---

- (b) Explain why magnet A is 'floating' in the air. [2]

---

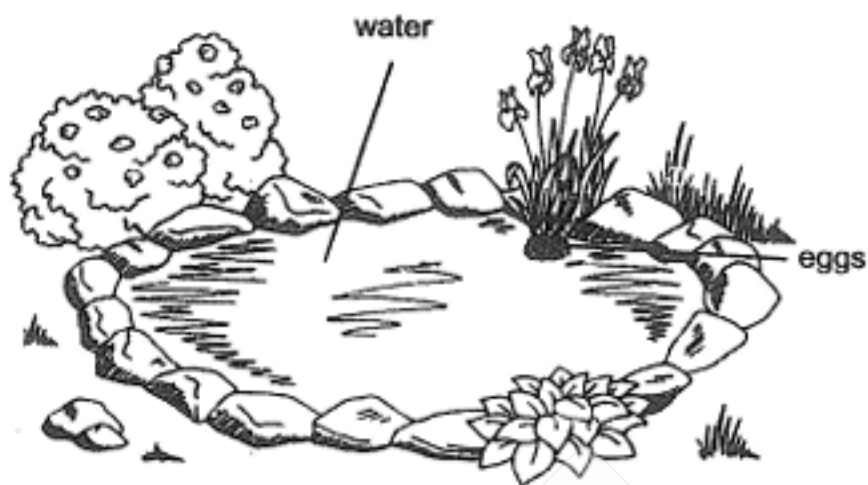


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- 31 A mosquito lays eggs in water. Its larvae eat microorganisms that are found in the water. The larvae are food for other living things in the pond.



- (a) Suggest a reason why the mosquito lays eggs in water. [1]

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- (b) How does laying many eggs help in the survival of mosquito? [1]

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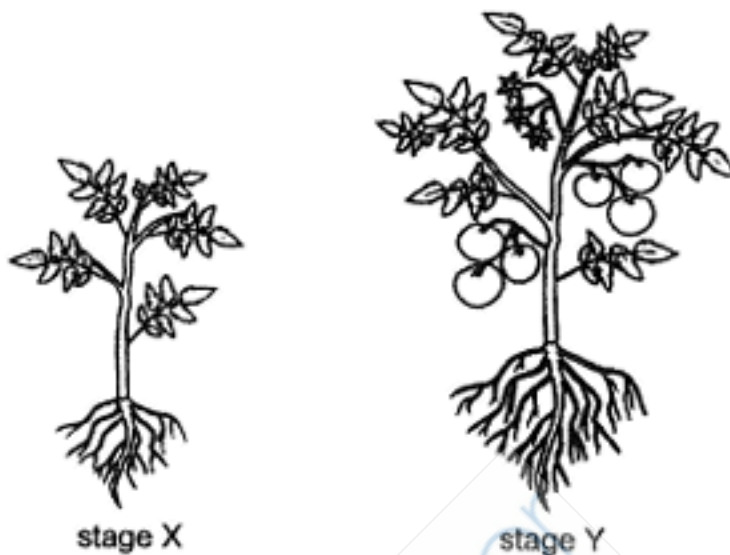
- (c) At which stage of the life cycle of a mosquito would it be most difficult to get rid of? Give a reason. [1]

---



---

32 The diagrams below show a plant at different stages of its life cycle.



- (a) Name stages X and Y. [1]

stage X: \_\_\_\_\_

stage Y: \_\_\_\_\_

- (b) State a difference between the two stages in (a).  
 (Do not compare size and colour.) [1]

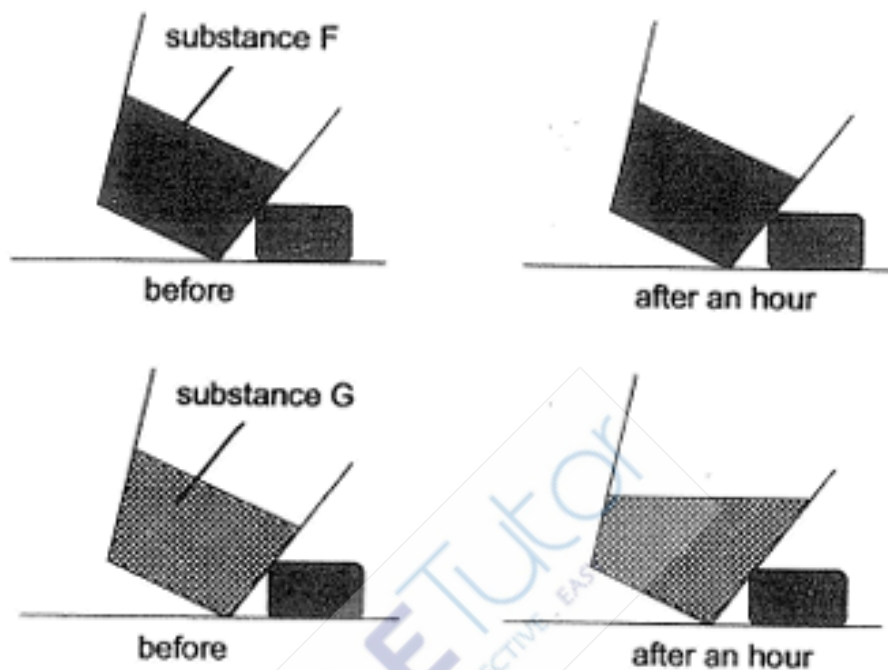
\_\_\_\_\_

\_\_\_\_\_

- (c) How does the plant above reproduce? [1]

\_\_\_\_\_

- 33 Fatimah conducted an experiment in a room by placing substances F and G in two similar containers, tilted to one side. The diagrams below show what happened to the substances after an hour.



- (a) Name the states of substances F and G after an hour.

[1]

state of substance F: \_\_\_\_\_

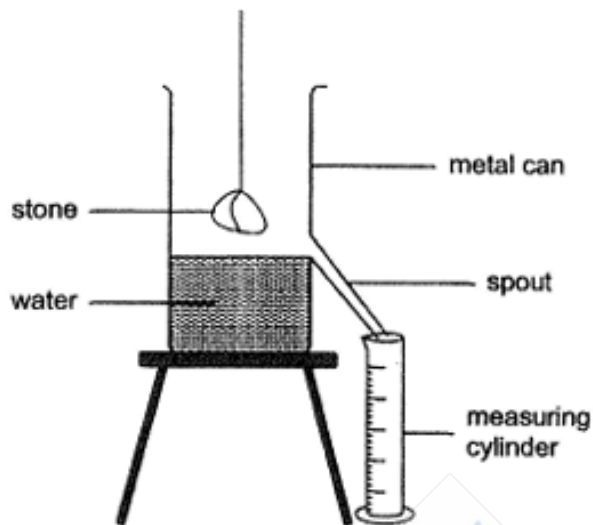
state of substance G: \_\_\_\_\_

- (b) Suggest what substance G could be at the start of the experiment.

[1]

\_\_\_\_\_

34 The diagram below shows a metal can with a spout filled with water.



- (a) What will be observed when a stone is lowered into the metal can as shown? [1]

---



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- (b) What does this experiment show about the property of the stone? [1]

---



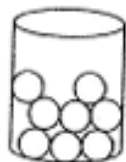
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- (c) Based on the diagram above, what can be obtained using the measuring cylinder? [1]

Tick (✓) the correct box.

- ☐ mass of the stone  
☐ shape of the stone  
☐ volume of the stone

- 35 Meimei conducted an experiment using three similar cups made of different materials X, Y and Z. She placed 8 similar balls into each cup.



X



Y



Z

She recorded her observation in the table below.

Material	Observation
X	can see the balls in the cup clearly
Y	cannot see the balls in the cup clearly
Z	cannot see the balls in the cup at all

- (a) The diagram below shows a car.

windscreen



Which material X, Y or Z is the most suitable for making the windscreen of a car? Explain your answer.

[2]

---



---



---

- (b) Based on the results of the experiment, classify the objects below using the table.

[2]

clear glass	tracing paper
metal spoon	wooden ruler

material X	material Y	material Z



## ANSWER SHEET

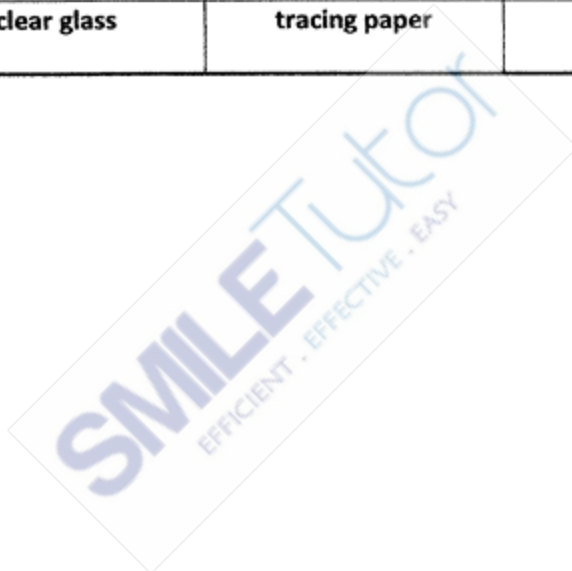
### (BOOKLET A)

Q1	3	Q2	4	Q3	3	Q4	1	Q5	4
Q6	1	Q7	2	Q8	1	Q9	4	Q10	2
Q11	1	Q12	2	Q13	3	Q14	2	Q15	1
Q16	3	Q17	1	Q18	4	Q19	2	Q20	2
Q21	4	Q22	3	Q23	4	Q24	3		

### (BOOKLET B)

Q25	Reason 1: It does not have six legs but four. Reason 2: Insects has three body parts and does not have a hard outer body covering.			
Q26	a)	Both K and M is a strong material.		
	b)	Material L. A lock must be strong, waterproof and not flexible like material L.		
Q27	a)	part B: Gullet part E: Small intestine		
	b)	A, C and E		
	c)	It helps to chew the food into smaller pieces for easy swallowing.		
Q28	a)	The water level in set-up A is lower than the water level insect-up B.		
	b)	Roots absorb water for the plant.		
	c)	Variables	Changed	Kept the same
		type of plant		
		number of leaves		
		location of set-ups		
Q29	a)	The electromagnet was not strong enough to attract any paper clips.		
	b)	Place a magnet with its North Pole facing point X. If they repel, point X is the North pole of the electromagnet, if they are attracted, point X is the South pole.		
	c)	No paper clips would be attracted to the wooden rod.		
	d)	Wood is a non-magnetic material hence, it cannot be magnetized.		
Q30	a)	South pole		
	b)	The poles of magnet A and B facing each other are like poles, like poles repel.		
Q31	a)	So the young of the mosquito has food when given birth as it feeds on tiny organisms.		
	b)	So that it increases the chances of a mosquito survive until adulthood as it could have been eaten by predators.		
	c)	At the adult stage. During adult stage, mosquitos has wings and flying		

		around preventing predators.		
Q32	a)	stage X: seedling stage Y: adult plant		
	b)	The adult plant has fruits whereas the young plant does not have fruits.		
	c)	It reproduces by seeds		
Q33	a)	state of substance F: Solid state of substance G: Liquid		
	b)	Ice		
Q34	a)	The water will overflow and be collected in the measuring cylinder.		
	b)	Stone occupies space		
	c)	volume of the stone		
Q35	a)	X. The windscreen on a car is supposed to allow most light to pass through and the balls can be seen most clearly and most light to pass through, thus, making it suitable.		
	b)	material X	material Y	material Z
		clear glass	tracing paper	metal spoon wooden ruler



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