

# 2019

## Primary 4 Science

1.	Ai Tong	SA2
2.	Catholic High	SA2
3.	Henry Park	SA2
4.	Maha Bodhi	SA2
5.	Maris Stella	SA2
6.	MGS Paya Lebar	SA2
7.	MGS	SA2
8.	Nan Hua	SA2
9.	Nanyang	SA2
10.	Pei Chun	SA2
11.	Red Swastika	SA2
12.	RGPS	SA2
13.	Rosyth	SA2
14.	SCGS	SA2
15.	Tao Nan	SA2



## AI TONG SCHOOL

### 2019 END-OF-YEAR EXAMINATION PRIMARY FOUR SCIENCE

(BOOKLET A)

24 OCTOBER 2019

Total time for booklets A and B : 1 h 45 min

#### INSTRUCTIONS

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Name : \_\_\_\_\_ ( )

Class : Primary 4 \_\_\_\_\_

Parent's Signature : \_\_\_\_\_

Booklet A	56
Booklet B	44
Total	100

Project Work	15
	115



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**Section A (28 x 2 marks)**

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

1. Which of the following is a living thing?

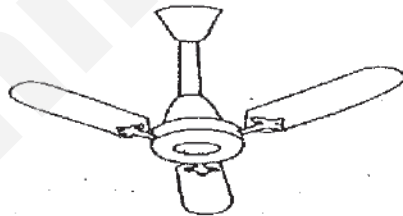
(1)



(2)



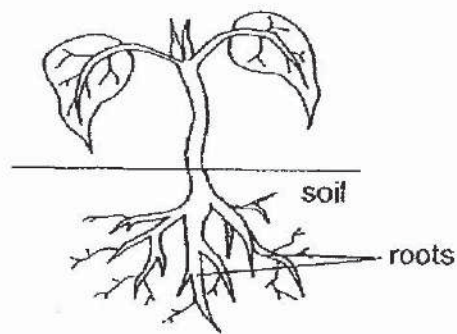
(3)



(4)



2. The diagram below shows a young plant.



The roots help the plant to \_\_\_\_\_.

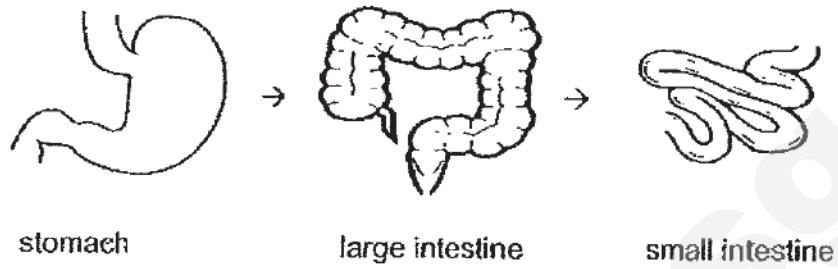
- (1) make food
  - (2) grow upright
  - (3) absorb water
  - (4) take in gases
3. Danny made the following observations on the life cycle of an animal.
- There are three stages in the life cycle.
  - The young looks like the adult.

Which animal was Danny observing?

- (1) frog
- (2) butterfly
- (3) mosquito
- (4) grasshopper

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

(1)



(2)



(3)



(4)

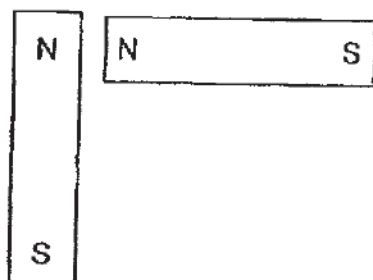


5. In which one of the following will the two magnets push each other away?

(1)



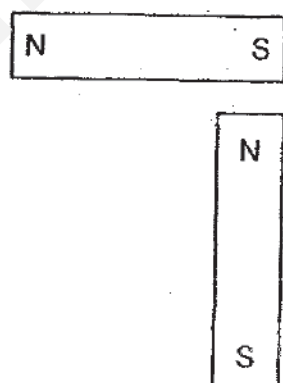
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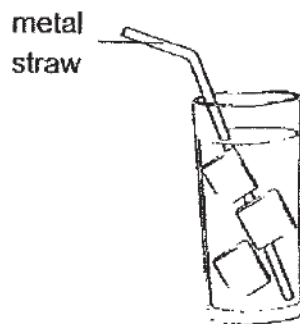
(3)



(4)



6. Jenny places a metal straw in a cup of icy cold water.



a cup of icy cold water

The straw becomes colder after a while.

Which one of the following explains this?

- (1) The cold water loses heat to the straw.
- (2) The straw loses heat to the cold water.
- (3) The cup gains heat from the cold water.
- (4) The straw gains heat from the cold water.

7. Matter is anything that has mass and occupies space.

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

- (1) soil
- (2) water
- (3) balloon
- (4) shadow

8. Which one of the following properties is true for both air and a table?

- (1) They have mass.
- (2) They can be seen.
- (3) They have fixed shapes.
- (4) They have fixed volumes.

9. Which one of the following is the best conductor of heat?

- (1) A glass cup
- (2) A metal cup
- (3) A paper cup
- (4) A plastic cup

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

(1) The moon



(2) An apple



(3) A campfire



(4) A tree



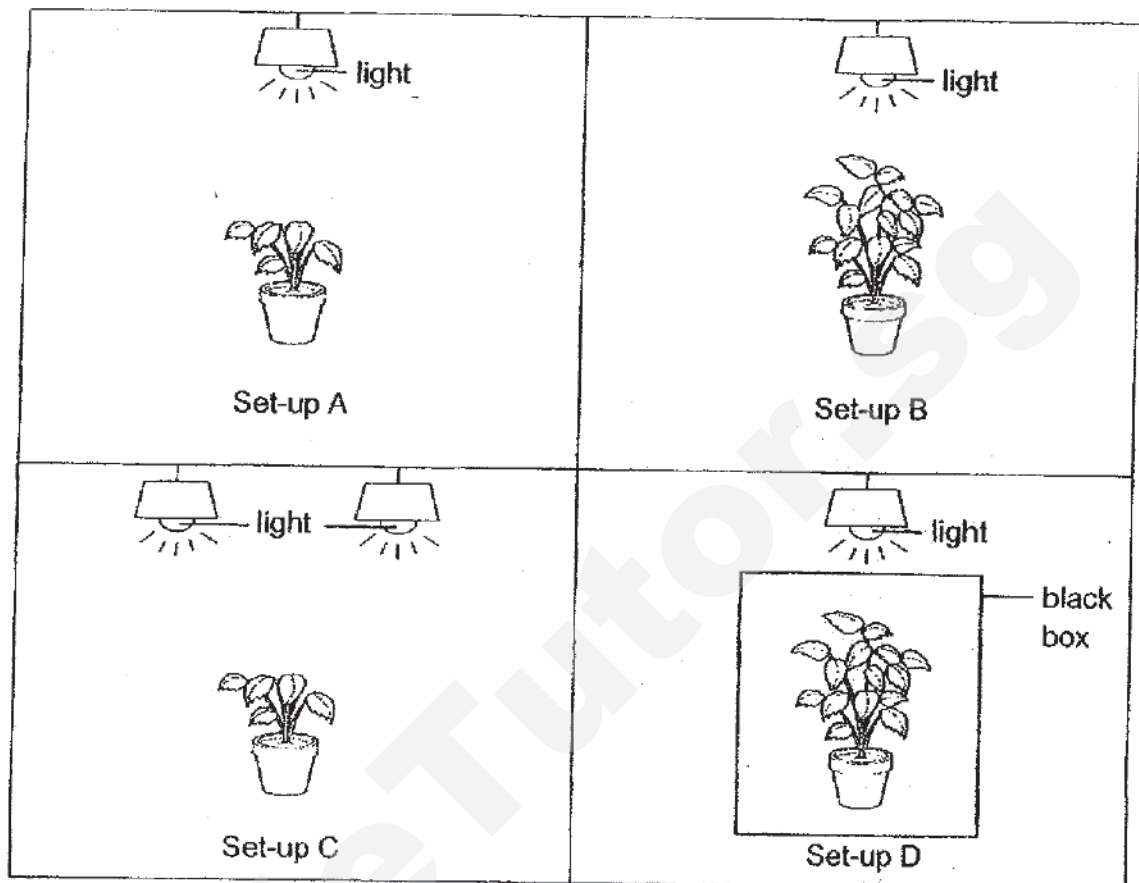
11. The table below shows characteristics of plants P, Q and R.  
A tick (✓) shows that the plant has the characteristic.

Characteristics	Plant P	Plant Q	Plant R
Has fruits	✓	✓	
Grows on land	✓		
Reproduces by spores			✓

Based on the information above, which of the following is/are flowering plant(s)?

- (1) P only
- (2) R only
- (3) P and Q only
- (4) Q and R only

12. Ella wants to find out if the presence of light affects the growth of a plant.

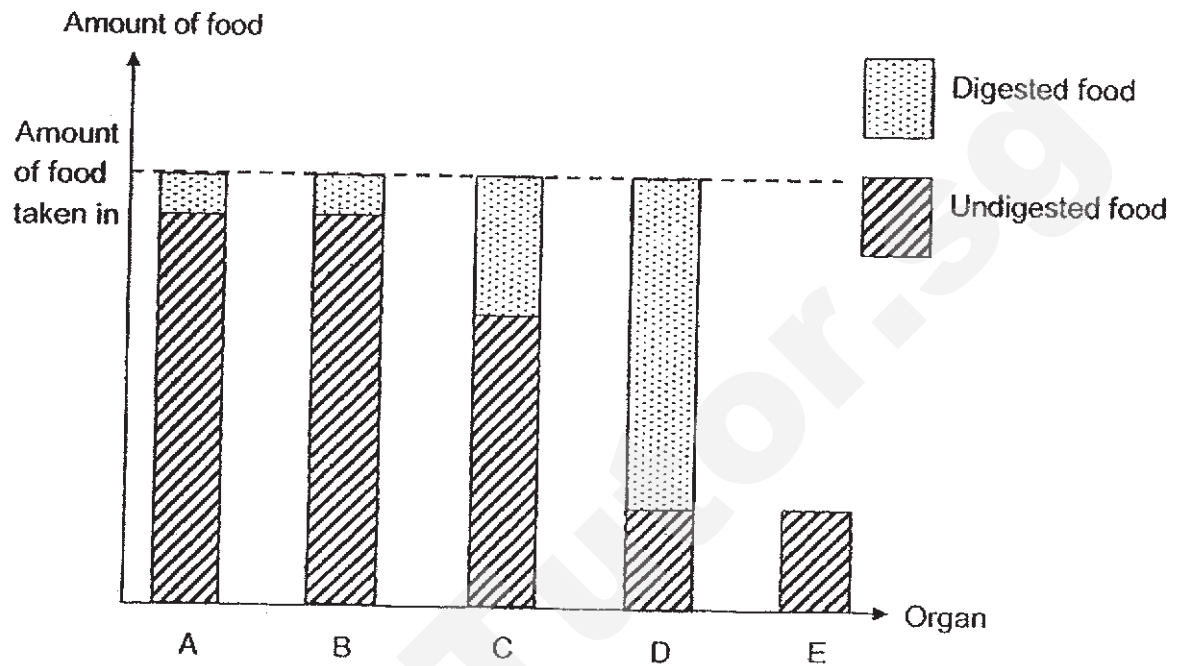


Which two set-ups should she use to carry out a fair test?

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



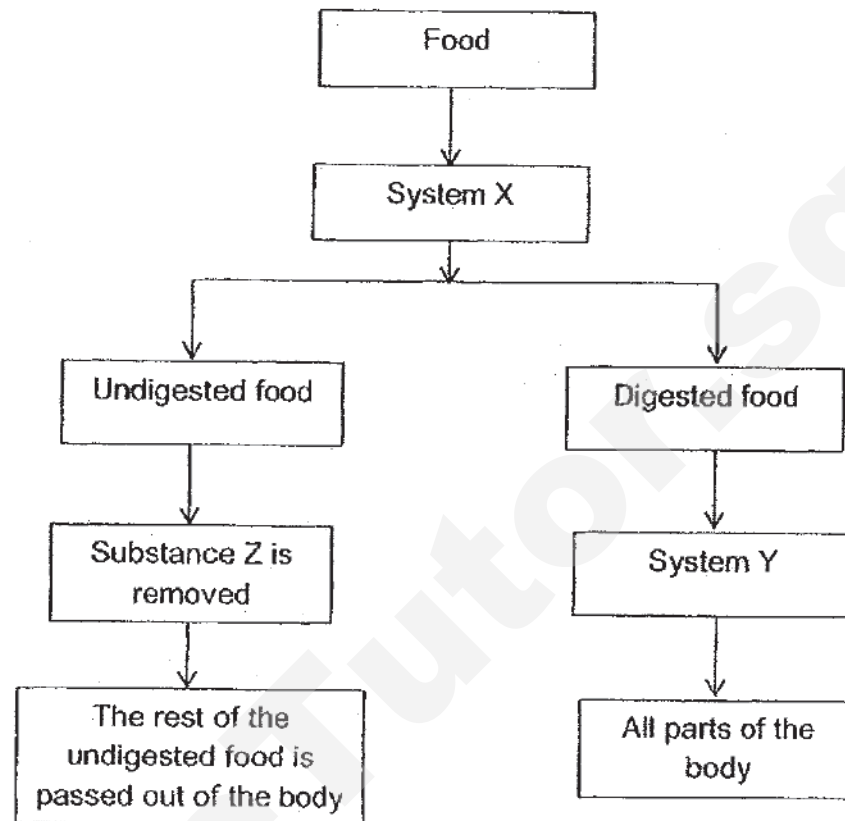
13. Food taken into the human body moves through organs, A, B, C, D and E. The graph below shows the amount of digested and undigested food in the different organs just before the food leaves each organ.



Which part(s) of the digestive system, A, B, C, D and/or E, contain(s) digestive juices?

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

14. Study the diagram below. It shows what happens to the food we eat when it enters our body.



Based on the diagram above, which of the following is/are false?

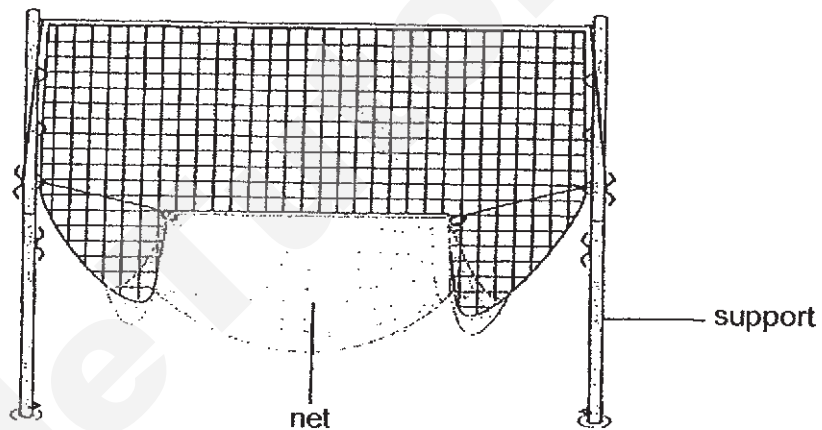
- A Substance Z represents the digested food.
- B All the food that enter system X is digested.
- C System Y transports digested food to all parts of our body.

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

15. Peter observed the properties of four materials, A, B, C and D. He recorded his observations in the table below. A tick (✓) shows that the material has the property.

Material	Flexible	Transparent	Waterproof	Strong
A	✓		✓	✓
B		✓		✓
C	✓	✓	✓	✓
D			✓	✓

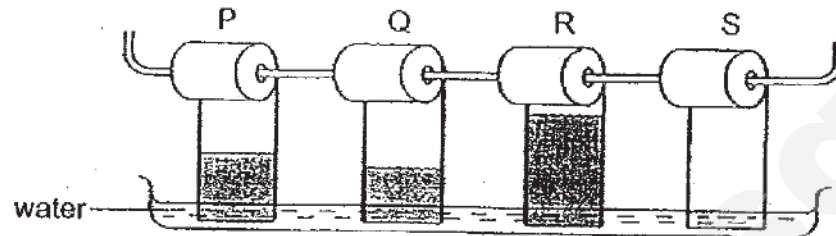
The diagram below shows part of the bouncing net in the newly opened Canopy Park in Jewel Changi Airport.



Based on the table above, which of the materials are suitable to make the following parts of the bouncing net?

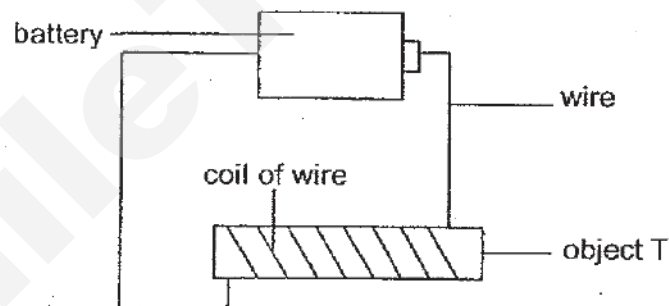
	net	support
(1)	A	D
(2)	B	C
(3)	C	A
(4)	D	B

16. Cheryl conducted an experiment with four materials, P, Q, R and S, to see which is most suitable for making a bath towel used to dry ourselves most quickly. The diagram below shows what happens after 15 minutes.



Based on the results, which material is most suitable for making the bath towel?

- (1) P
  - (2) Q
  - (3) R
  - (4) S
17. Object T was placed in a coil of wire connected to a battery as shown in the diagram below. Object T did not become an electromagnet.



Which of the following are possible reasons why object T did **not** become an electromagnet?

- A Object T was made of iron.
  - B Object T was made of aluminium.
  - C The number of batteries was not enough.
  - D The number of turns the wire was coiled around object T was too much.
- (1) A and D only
  - (2) B and C only
  - (3) A, B and C only
  - (4) B, C and D only

18. Caroline wanted to find out whether the number of times an iron nail is stroked by a magnet affects the number of paper clips attracted by the iron nail.

Which of the following variables must she change to conduct her experiment?

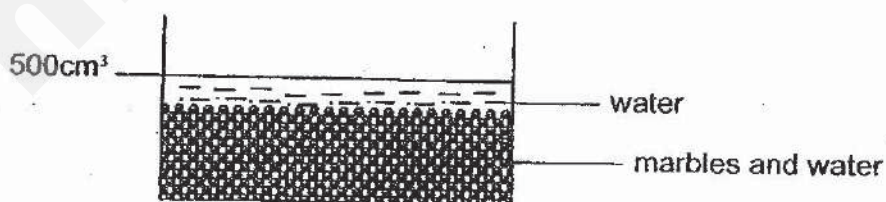
- (1) Type of magnet
- (2) Number of magnets
- (3) Number of paper clips attracted
- (4) Number of strokes on the iron nail by the magnet

19. The diagram below shows what happens when four metal bars, A, B, C and D, are suspended on strings.



Based only on the diagram above, which of the following is **definitely** correct?

- (1) D is a magnet.
  - (2) Both B and C are magnets.
  - (3) A is not made of a magnetic material.
  - (4) Both A and D are not magnetic materials.
20. Michelle poured  $300\text{cm}^3$  of water into a tank of marbles and observed the following.

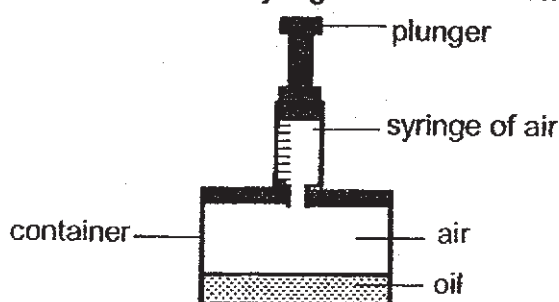


She then poured another  $100\text{cm}^3$  of water into the same tank.

Which of the following gives the new water level in the tank?

- (1)  $300\text{cm}^3$
- (2)  $400\text{cm}^3$
- (3)  $500\text{cm}^3$
- (4)  $600\text{cm}^3$

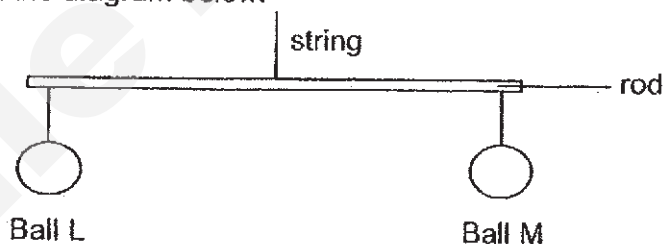
21. The diagram below shows a syringe filled with air attached to a container.



Which of the following is correct after the plunger is pushed into the syringe?

	volume of air in the container	volume of oil in the container	total volume of air and oil in the container
(1)	decreased	remained the same	increased
(2)	increased	increased	increased
(3)	remained the same	remained the same	remained the same
(4)	remained the same	increased	remained the same

22. Pierson hung two identical metal balls, L and M, to a rod which is also suspended on a string as shown in the diagram below.

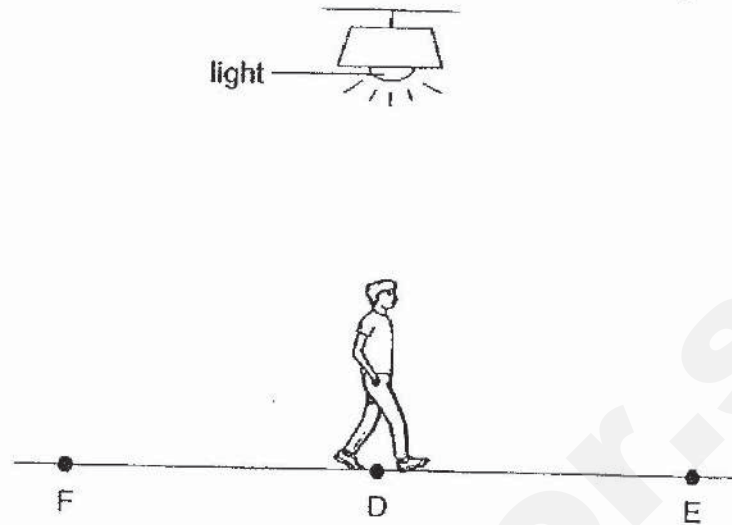


Ball L was placed in a tub of ice cold water while Ball M was heated over a flame at the same time for 10 minutes.

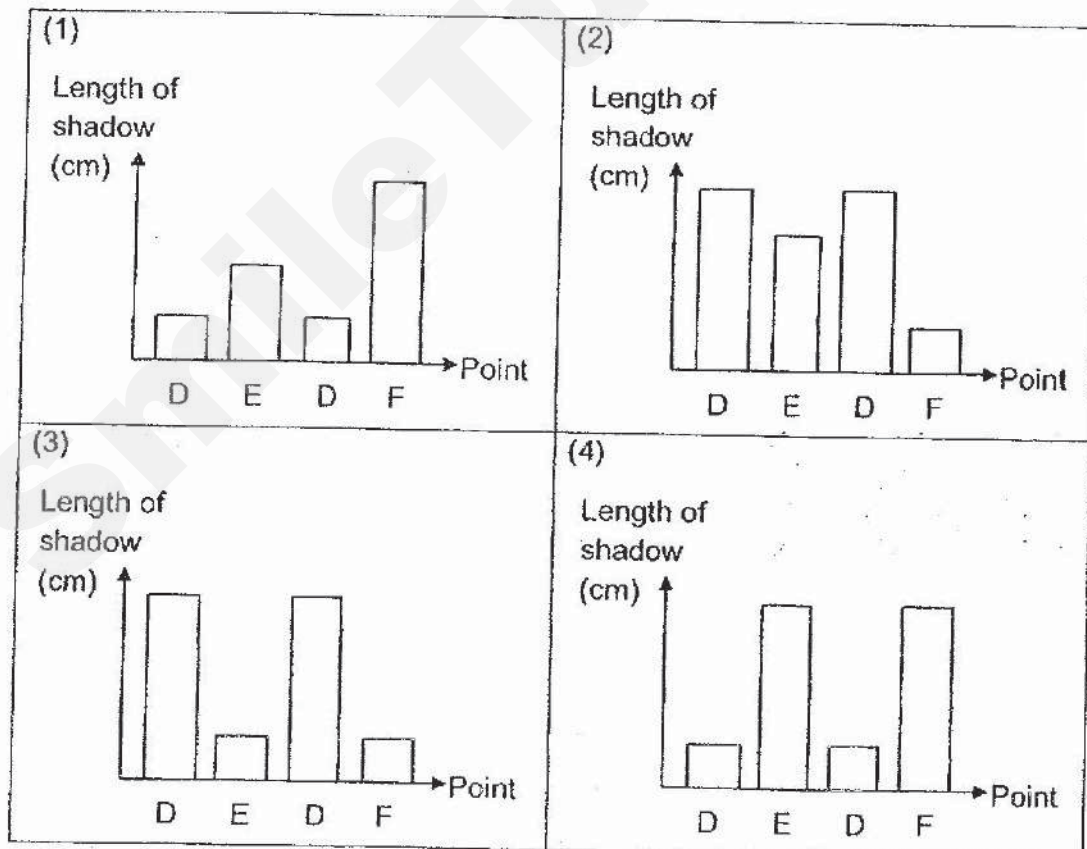
Which of the following correctly describe(s) what would happen after 10 minutes?

- A Ball M increased in mass.
  - B Ball L decreased in volume.
  - C The rod will tilt downwards at the end where ball M is attached to.
- (1) B only  
 (2) B and C only  
 (3) A and C only  
 (4) A, B and C

23. Gerald walked in a straight line from point D to E and back to F. The distance between points D and E is the same as the distance between points D and F.

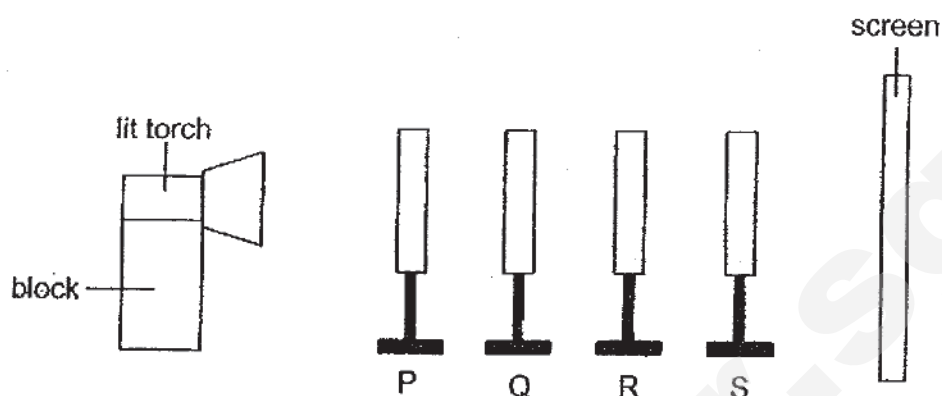


Based on the diagram above, which one of the following bar graphs shows how the length of his shadow would change during his walk?





24. Four sheets of different materials, P, Q, R and S, were placed in a straight line in a dark room as shown in the diagram below.



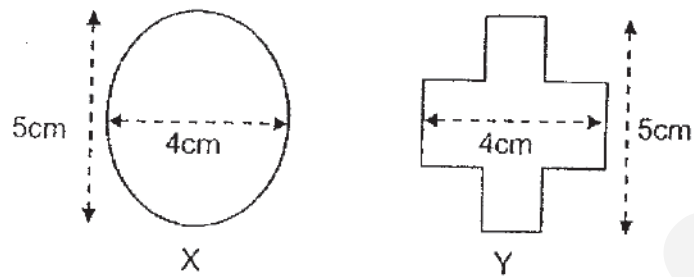
When the torch was switched on, a patch of light was seen on sheet R only. Nothing was seen on the screen.

Which one of the following best describes the properties of the materials that sheets P, Q, R and S, are made of?

	allows light to pass through	does not allow light to pass through	not possible to tell
(1)	P and Q	R	S
(2)	P and Q	R and S	none
(3)	P, Q and R	none	S
(4)	P, Q and R	S	none



25. The diagram below shows two objects, X and Y.



The two objects were arranged in a set-up such that the following shadow was seen on the screen.

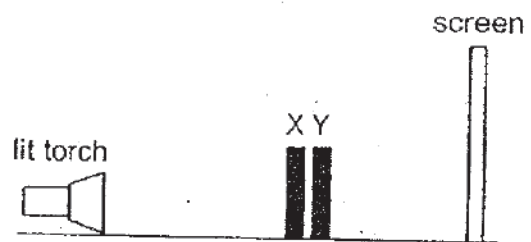


Which one of the following correctly shows where X and Y were placed between the lit torch and the screen?

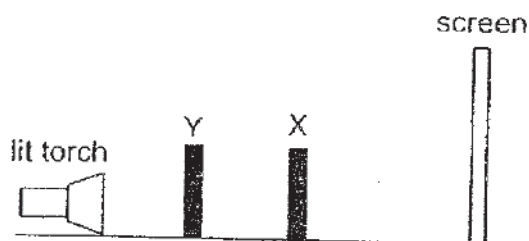
(1)



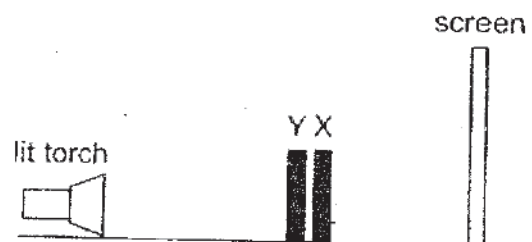
(2)



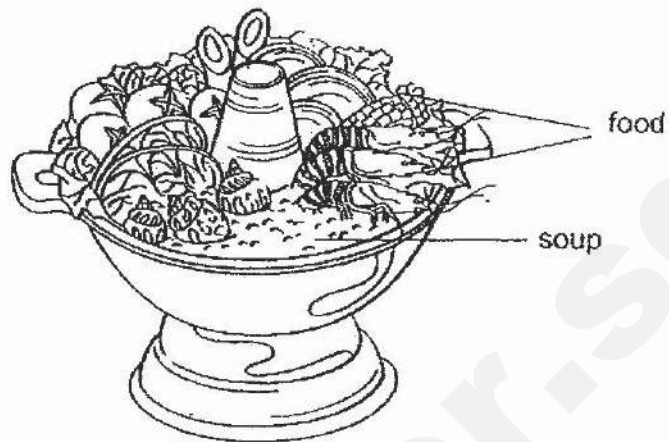
(3)



(4)



26. The diagram below shows a hot pot. Food is only added when the soup starts to boil.

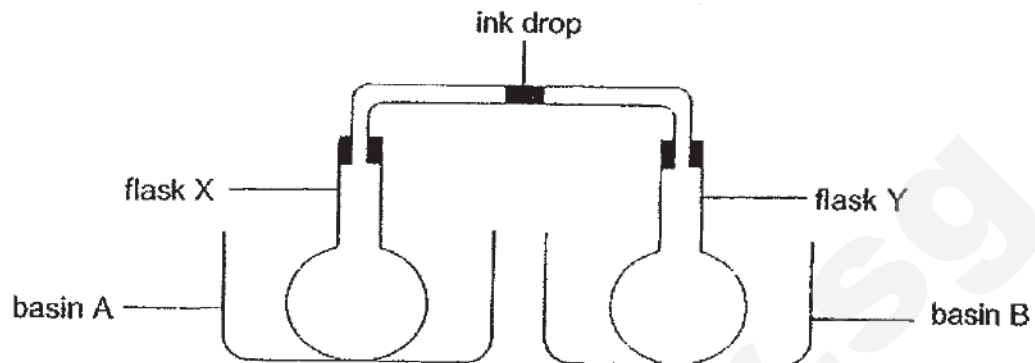


Ariel observed that the soup stopped boiling for a while when the frozen food was added in.

Which of the following best explains Ariel's observation?

- (1) The temperature of the soup increased.
- (2) The temperature of the soup decreased.
- (3) The temperature of the soup remained the same.
- (4) The temperature of the soup increased, then decreased.

27. Rachel had two identical basins, A and B. She placed two identical empty flasks, X and Y, into the basins as shown in the diagram below.



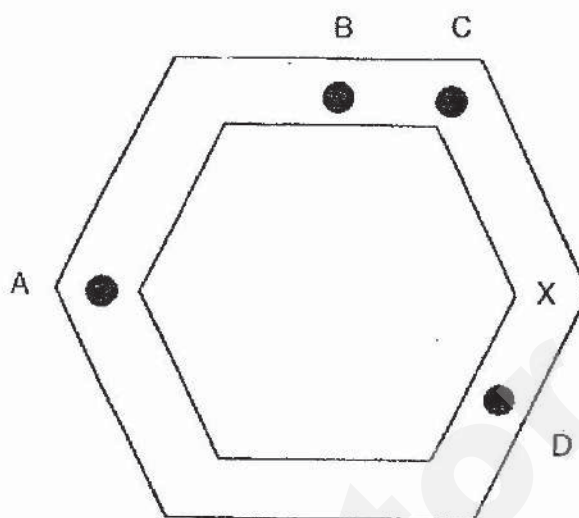
She poured water into each basin and the set-up was left in a room of temperature  $30^{\circ}\text{C}$ .

After 10 minutes, Rachel observed that the ink drop moved from the center of the tube towards flask Y.

Which of the following best represents the volume and temperature of water added into the two basins?

	volume of water in basin A ( $\text{cm}^3$ )	temperature of water in basin A ( $^{\circ}\text{C}$ )	volume of water in basin B ( $\text{cm}^3$ )	temperature of water in basin B ( $^{\circ}\text{C}$ )
(1)	200	60	10	60
(2)	200	30	10	30
(3)	10	60	200	60
(4)	10	30	200	30

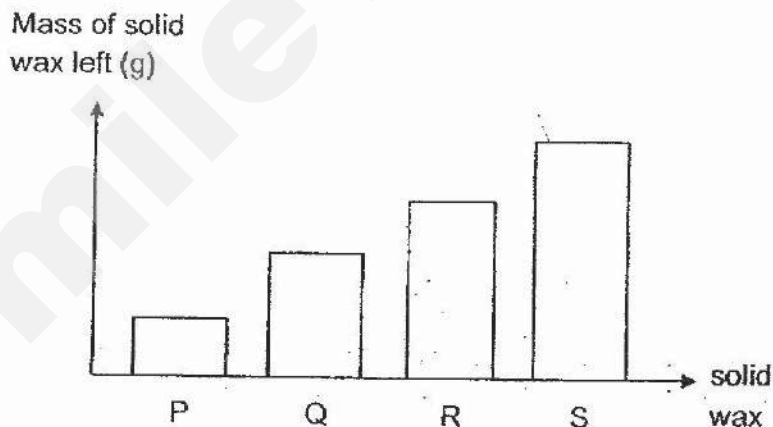
28. Four pieces of wax of the same mass were placed at different positions, A, B, C and D, on a hexagonal metal frame as shown in the diagram below.



Henry heated the metal frame only at point X.

After heating for five minutes, he quickly separated the solid wax from the liquid wax for each of the four pieces of wax. He then measured the mass of solid wax left.

The results were shown in the graph below.



Which graph best represents the piece of wax placed at position B?

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

End of Booklet A

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**AI TONG SCHOOL**  
**2019 END-OF-YEAR EXAMINATION**  
**PRIMARY FOUR SCIENCE**  
**(BOOKLET B)**

**24 OCTOBER 2019**

**Total time for booklets A and B : 1 h 45 min**

**INSTRUCTIONS**

**Do not turn over this page until you are told to do so.**

**Follow all instructions carefully.**

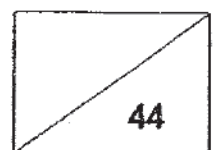
**Answer all questions.**

**Write your answers in this booklet.**

**Name : \_\_\_\_\_ ( )**

**Class : Primary 4 \_\_\_\_\_**

**Parent's Signature : \_\_\_\_\_**

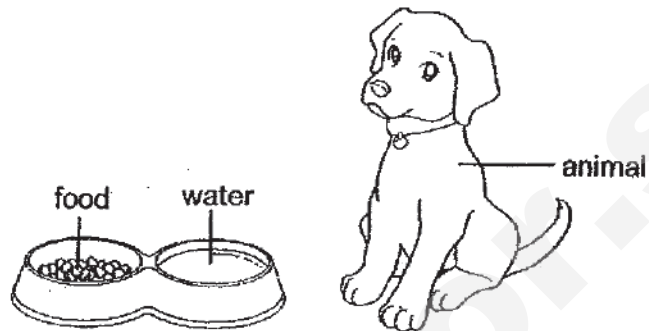


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**Section B: 44 marks**

**Read the questions carefully and write down your answers in the spaces provided.**

29. Study the diagram below.



- (a) After a few days, will the amount of water in the bowl *increase, decrease* or *remain the same*? [1]

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- (b) Based on the diagram above, name one substance this animal needs so that it remains alive. [1]

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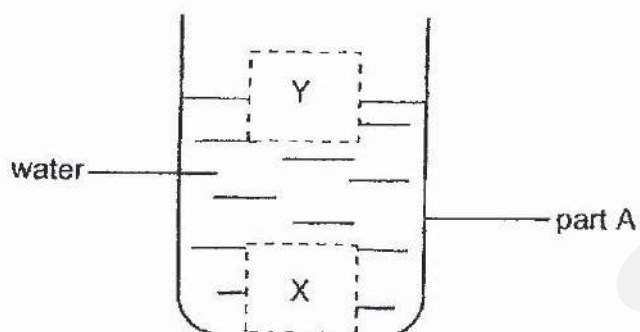
- (c) The animal becomes bigger after some time. This shows that it can

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 [1]



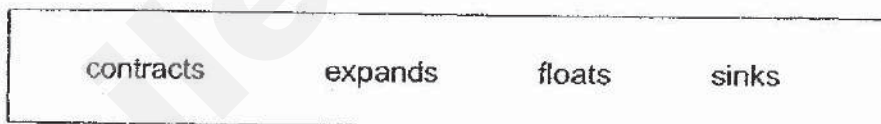
30. Andy placed two different blocks, P and Q, into a beaker of water as shown below.



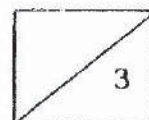
- (a) Part A of the beaker is made of glass because it allows \_\_\_\_\_ to pass through so that Andy can see what is inside the beaker. [1]

Block P was found at position Y, while block Q was found at position X.

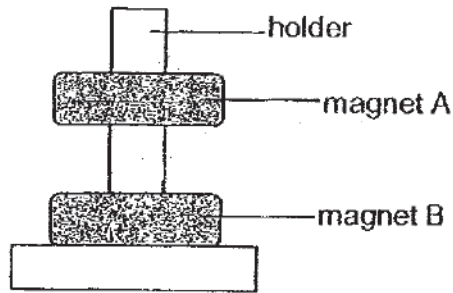
Fill in the blanks using the correct words in the box.



- (b) This shows that block P \_\_\_\_\_ in water, and block Q \_\_\_\_\_ in water. [2]



31. Marcus placed two ring magnets, A and B, through a holder as shown below.



- (a) The holder was made of wood and did not attract the magnets.

Wood is a \_\_\_\_\_ material.

[1]

- (b) Why was magnet A floating above magnet B?

Magnet B was \_\_\_\_\_ magnet A.

[1]

32. The diagram below shows a bottle of milk.

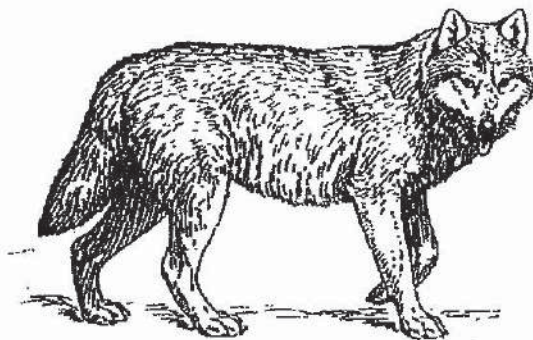


Complete the sentences to state if the parts are solid, liquid or gas.

- (a) The cover is a \_\_\_\_\_ [1]

- (b) Milk is a \_\_\_\_\_ [1]

33. Study the pictures of organisms X and Y below.



organism X



organism Y

- (a) Write down one observable physical difference between the two organisms that makes organism Y able to move in a different way from organism X. [1]

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- (b) State one characteristic of organism Y that helps people classify it as an insect. [1]

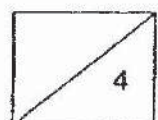
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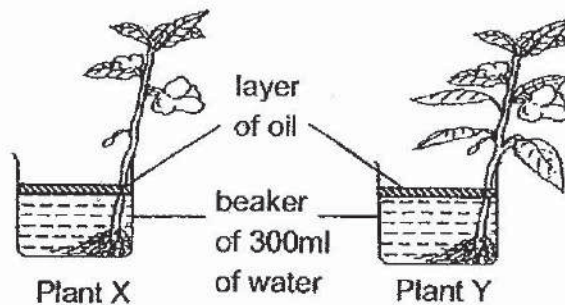
- (c) Organism X has a thick coat of fur to trap air. Explain how this would help the organism during winter. [2]

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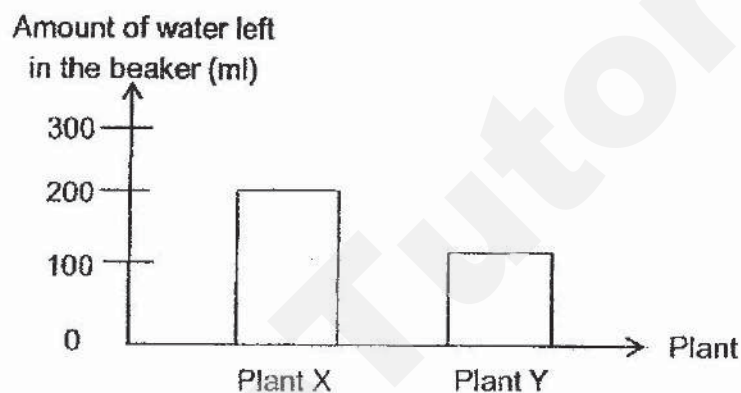
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34. Simon set up an experiment as shown below. Both plants had the same amount of water in the beaker at the start of the experiment. Some leaves were removed from plant X.



After two days, the amount of water left in each beaker was represented in the graph below.



- (a) Simon wanted to find out more about plants through his experiment. From the information above, what is the aim of his experiment? [1]

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- (b) Based on the graph above, what can Simon conclude about plants? [1]

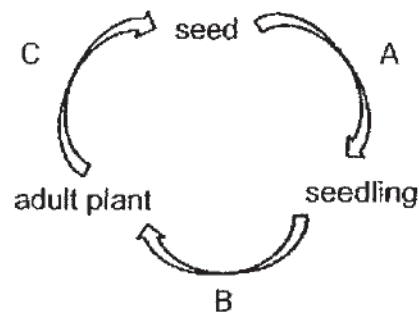
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- (c) State a function of the leaves of a plant. [1]

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35. The diagram below shows a life cycle of a plant.



- (a) Merlin says that the above shows the life cycle of a fern. Do you agree with him? Explain your answer. [1]

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- (b) A, B and C are processes that happen in the life cycle above. Which process, A, B or C represents germination? [1]

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- (c) Some seeds were placed in a container of damp soil and kept in a dark cupboard for a few days. The soil was kept damp all the time. Explain why the seeds could still germinate despite being in a dark cupboard. [1]

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36. Emma wanted to find out how her mouth helps in digestion. She used the same amount of chocolate and biscuit for her experiment. She placed the piece of chocolate in her mouth and chewed on it for ten seconds before making her observations. She repeated the same procedure with the biscuit. Her observations were recorded in the table below.

Type of food	Amount of food (g)	Time taken to chew food (seconds)	Appearance before chewing	Appearance after chewing
Chocolate	10	10	Soft	Mushy
Biscuit	10	10	Dry, hard	Mushy

- (a) Why is it important to use the same amount of chocolate and biscuit in the experiment? [1]

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- (b) Other than the amount of food, state one other variable that was kept the same in the experiment described above. [1]

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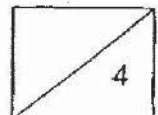
- (c) State the substance present in the mouth that caused the food to appear mushy after chewing. [1]

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- (d) Explain how chewing helps in speeding up the digestion process. [1]

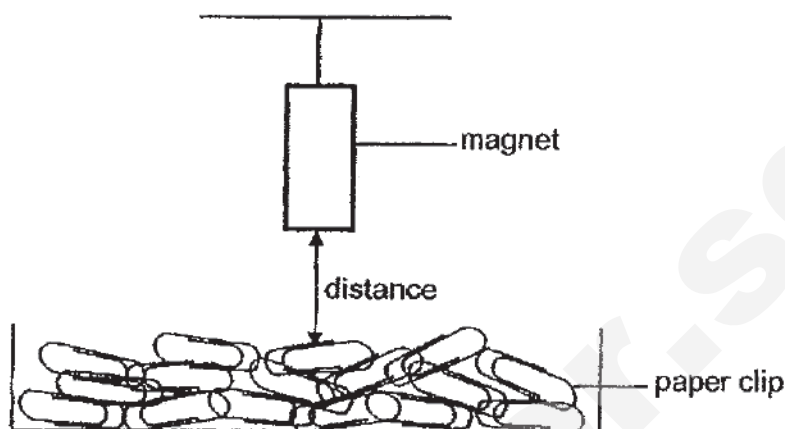
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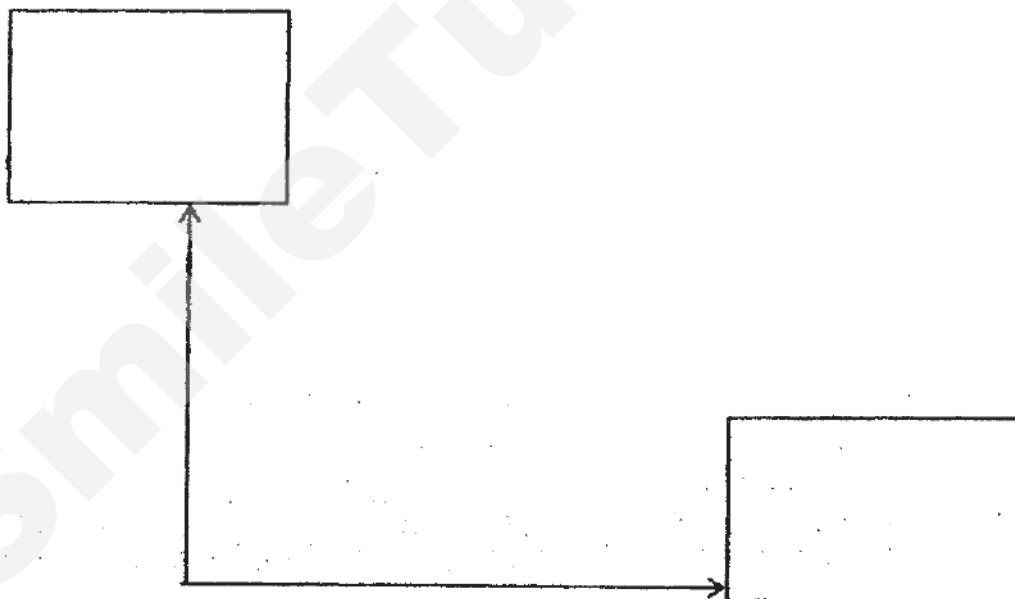




37. Claudia set up the experiment below to find out how the distance between the magnet and paper clips affects the number of paper clips it attracts. It is observed that the number of paper clips attracted reduces when the distance between the magnet and paper clips increases.



- (a) Label the axes and draw a line graph to show the relationship between the two variables stated. [2]

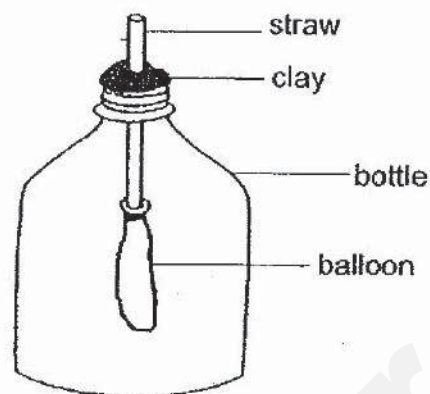


- (b) Claudia found some paper clips that are made of copper. Would the magnet be able to attract the copper paper clips? Explain your answer. [2]

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38. The diagram below shows a balloon attached to a straw and placed inside an empty bottle. The opening of the bottle is sealed with clay.



- (a) What will you observe when air is blown through the straw? Explain your answer.

[2]

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- (b) If the bottle is completely filled with water, would the observation be the same as part (a) when air is blown through the straw again? Explain your answer.

[2]

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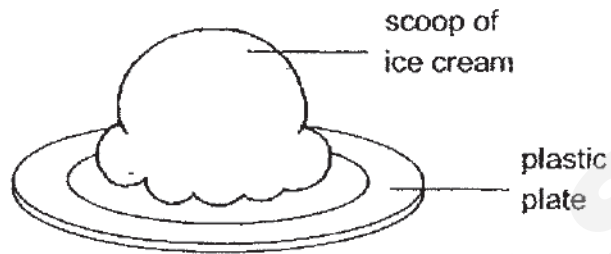
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39. Karen wanted to serve a scoop of ice cream on a paper plate. Her mother said that she should use a plastic plate instead of paper plate.



- (a) State a difference in the property of paper and plastic and explain why that difference makes a plastic plate better for serving ice cream. [2]

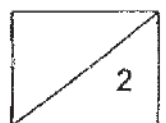
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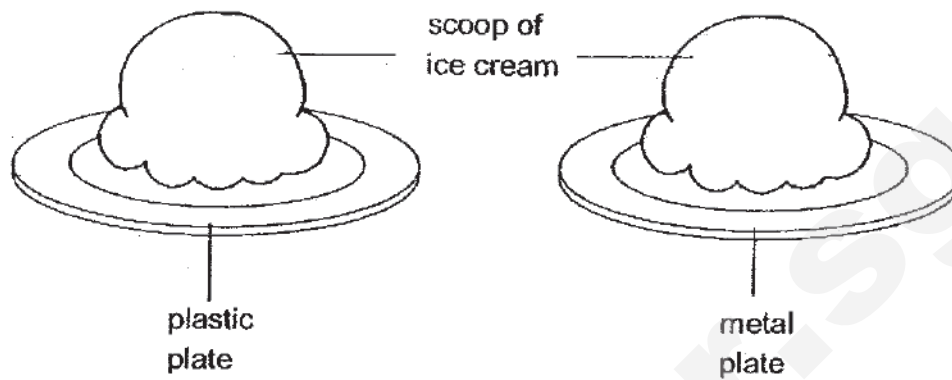
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**Question 39 continues on the next page.**



Question 39 continues on this page.



- (b) If a similar scoop of ice cream was also placed on a metal plate, which scoop of ice cream, the one on the plastic plate or the one on the metal plate, would melt faster? Explain your answer. [2]

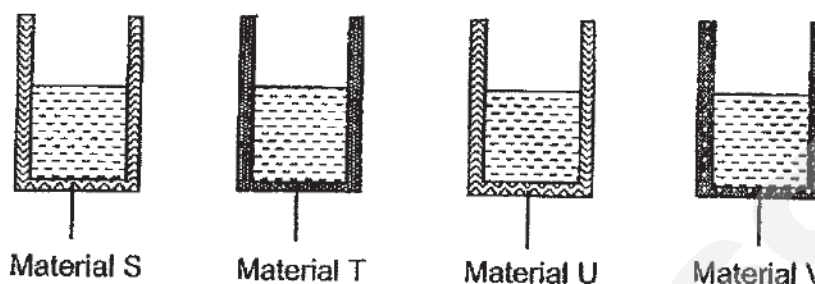
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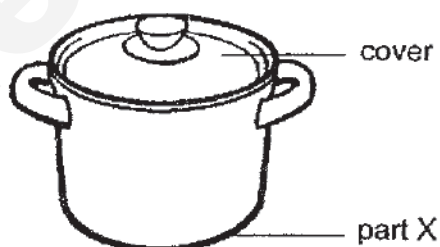
40. The diagram below shows four containers made of different materials. Each container contains the same volume of boiling water at 100 °C.



After twenty minutes, the temperature of the water in the four containers is recorded in the table below.

Material that container is made of	Temperature of water after twenty minutes (°C)
S	28
T	50
U	83
V	45

The diagram below shows a cooking pot. Part X is the base of the cooking pot.



- (a) Based on the table above, which material, S, T, U or V, is best to make part X of the cooking pot so that food can be cooked the fastest? Explain your answer. [2]

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Question 40 continues on the next page.

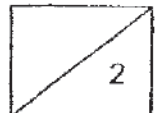
**Question 40 continues on this page.**

- (b) The cover is made of glass so that you would be able to see the food inside the pot without opening the cover. Explain how light travels to enable us to see the food inside. [2]

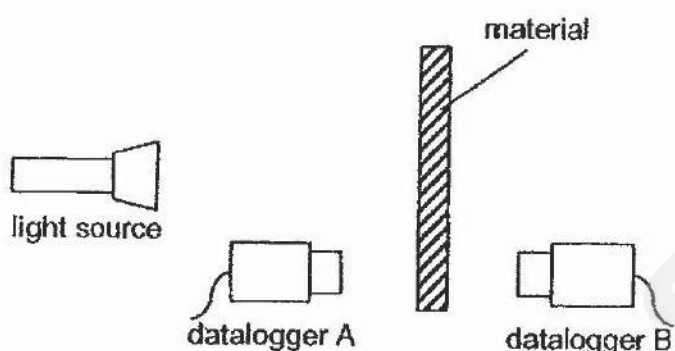
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41. Mr Tan set up the following experiment in a dark room. He tested materials, X, Y and Z, one at a time.



He recorded his results in the table below.

Material	Amount of light detected by datalogger A (units)	Amount of light detected by datalogger B (units)
X	100	0
Y	2100	0
Z	30	800

- (a) Based on the table above, what can you say about materials X and Y? [1]

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- (b) What property of light allows it to be detected by the sensor of datalogger A? [1]

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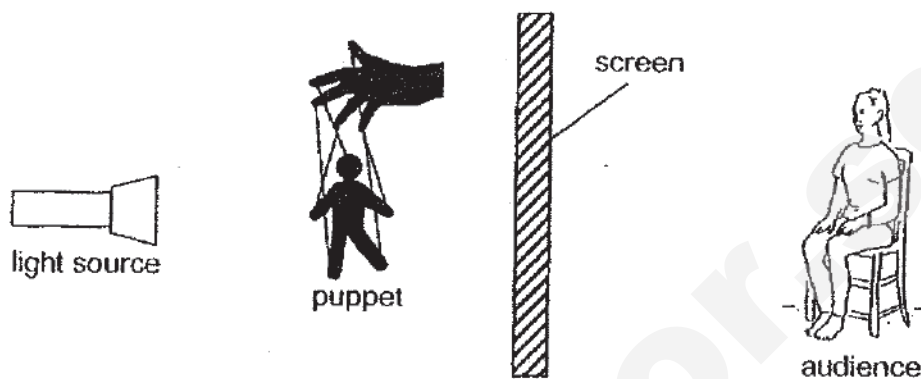


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*Question 41 continues on the next page.*

**Question 41 continues on this page.**

The diagram below shows the set-up of a shadow puppet show.



- (c) Which material, X, Y or Z, is most suitable for making the screen so that the audience can see the shadow of the puppets? Explain your answer. [1]

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- (d) Without moving the screen, how can we make the shadow of the same puppet formed on the screen bigger? [1]

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**END OF PAPER**

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**SCHOOL : AITONG PRIMARY SCHOOL**

**LEVEL : PRIMARY 4**

**SUBJECT : SCIENCE**

**TERM : 2019 SA2**

**SECTION A**

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
4	3	4	2	2	1	4	1	2	3

Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
3	3	3	3	1	3	2	4	1	4

Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28
3	1	4	1	3	2	1	3

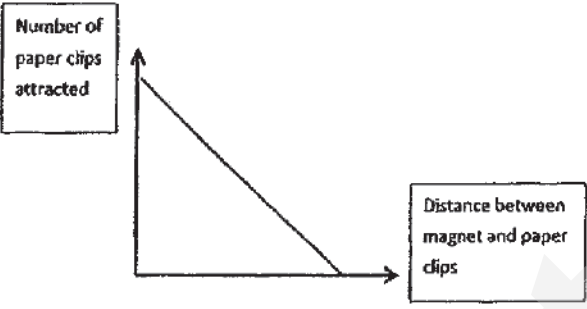
**SECTION B**

Q29)	a)decrease b)water c)grow
Q30)	a)light b)floats / sinks
Q31)	a)non-magnetic b)repelling
Q32)	a)solid b)liquid



**P4 Science End of Year Examination 2019**

	Answer	Common mistakes
33a)	X has <u>no wings</u> but Y has _____	<ul style="list-style-type: none"> <li>Only stating the number of legs.</li> <li>X crawls but Y flies.</li> </ul>
33b)	Y has <u>six</u> legs / <u>three</u> body parts.	
33c)	Point 1: Air is a <u>poor conductor</u> of <u>heat</u>  Point 2: Air will <u>slow</u> down the <u>heat transfer</u> from <u>organisms X</u> to the <u>surroundings</u>	<ul style="list-style-type: none"> <li>Wrong direction of heat transfer.</li> <li>Air traps heat.</li> </ul>
34a)	To find out if the <u>number</u> of <u>leaves</u> affect the <u>amount</u> of <u>water absorbed</u> by the plant/roots.	<ul style="list-style-type: none"> <li>To find out if the roots of the plant absorb water.</li> <li>To find out if the number of leaves affects the amount of water <u>a plant needs</u>.</li> </ul>
34b)	The <u>more</u> the <u>number</u> of <u>leaves</u> , the more <u>water</u> the roots <u>absorb</u> .	<ul style="list-style-type: none"> <li>The more leaves a plant has, the lesser the amount of water left in the beaker.</li> </ul>
34c)	To <u>make food</u> for the plant.	
35a)	No. Fern is a <u>non-flowering</u> plant and reproduce by <u>spores</u> .	
35b)	<u>A</u>	
35c)	Seeds do not need <u>light</u> to <u>germinate</u>	<ul style="list-style-type: none"> <li>Seeds only need water, air and warmth to germinate.</li> </ul>
36a)	To ensure a <u>fair test</u> , only <u>one</u> variable was changed which is the <u>type</u> of <u>food</u> and not any other variables	
36b)	<u>Time taken</u> to chew food.	<ul style="list-style-type: none"> <li>Size of food</li> </ul>

36c)	Saliva	
36d)	<p>Point 1: To <u>break up</u> the food into <u>smaller pieces</u>.</p> <p>Point 2: so as to <u>increase</u> the <u>exposed surface</u> area in contact with the <u>saliva / digestive juices</u></p>	<ul style="list-style-type: none"> <li>To break down into <u>simpler substances</u>.</li> </ul>
37a)		<ul style="list-style-type: none"> <li>Wrong cause and effect.</li> <li>Wrong trend for graph.</li> </ul>
37b)	No. Copper is a <u>non-magnetic</u> material, and <u>cannot</u> be <u>attracted</u> by the <u>magnet</u>	<ul style="list-style-type: none"> <li>Copper will not be able to attract.</li> </ul>
38a)	<p>Point 1: The balloon will be <u>inflated</u>.</p> <p>Point 2: Air <u>takes up</u> space in the <u>balloon</u> because</p> <p>Point 3: air in the <u>bottle</u> can be <u>compressed</u>.</p>	<ul style="list-style-type: none"> <li>Balloon expands. (Expansion is due to heat, for example, metal expands when heated or air expands when heated.)</li> </ul>
38b)	<p>Point 1: <u>No</u>, it will <u>not</u> <u>inflate</u>.</p> <p>Point 2: Water has a <u>definite volume</u> / cannot be <u>compressed</u>.</p> <p>Point 3: Hence, water has taken up <u>all</u> the <u>space</u> in the <u>bottle</u>. /</p> <p>Hence, there is <u>no more space</u> for air to enter the balloon.</p>	<ul style="list-style-type: none"> <li>Bottle is filled with water. (Already given in the question)</li> <li>Water takes up space. (without mentioning <b>all space</b>)</li> </ul>
39a)	<p>Point 1: Paper is <u>not waterproof</u> but plastic is.</p> <p>Point 2: When ice cream melts, the paper plate would <u>absorb</u> the melted ice cream but the plastic would not.</p>	<ul style="list-style-type: none"> <li>Ice cream will spill.</li> <li>Plate will get wet. (Being wet does not imply it is absorbed.)</li> </ul>



39b)	<p>The one on the metal plate.</p> <p>Point 1: <u>Metal</u> is a <u>better conductor</u> of heat than <u>plastic</u>. (Note: Must use comparative word here because you are comparing two materials)</p> <p>Point 2: It would <u>transfer heat faster</u> from the <u>surrounding</u> to the <u>ice cream</u>.</p>	<ul style="list-style-type: none"> <li>• Metal is a good conductor of heat.</li> <li>• Miss out the direction of heat transfer or wrong direction of heat transfer.</li> </ul>
40a)	<p>Point 1: Material <u>S</u>. The <u>temperature</u> of water in material <u>S</u> after twenty minutes is the <u>lowest</u>.</p> <p>Point 2: This shows that it is the <u>best</u> conductor of heat and it will <u>transfer</u> heat <u>fastest</u> from the <u>heat source</u> to the <u>food</u>.</p>	<ul style="list-style-type: none"> <li>• Material U.</li> <li>• Comparing more than 2 materials, so must use the superlatives, eg: lowest, highest, fastest, best, etc</li> <li>• Miss out the direction of heat transfer or wrong direction of heat transfer.</li> </ul>
40b)	<p>Point 1: Light can <u>pass through</u> the glass / glass is <u>transparent</u>.</p> <p>Point 2: Light <u>shines on</u> the food inside</p> <p>Point 3: and the food <u>reflects</u> the light to our <u>eyes</u>.</p>	<ul style="list-style-type: none"> <li>• Light shines on the cover and the cover reflects the light into our eyes.</li> </ul>
41a)	<p>Both materials X and Y are <u>opaque</u> / They do <u>not allow</u> any light to <u>pass through</u></p>	<ul style="list-style-type: none"> <li>• X has less light detected by data logger than Y.</li> </ul>
41b)	<p>Light can be <u>reflected</u></p>	<ul style="list-style-type: none"> <li>• Light travels in a straight line.</li> <li>• The object reflects light.</li> </ul>
41c)	<p>Material <u>Z</u>. It is <u>translucent</u> / allows <u>some</u> light to pass through.</p>	<ul style="list-style-type: none"> <li>• It allows <b>most</b> light to pass through. (Definition for transparent object)</li> </ul>
41d)	<p>Move the <u>puppet</u> nearer to the <u>light source</u>.</p>	<ul style="list-style-type: none"> <li>• Move the puppet nearer to the screen.</li> </ul>

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**CATHOLIC HIGH SCHOOL**  
**END-OF-YEAR EXAMINATION (2019)**  
**PRIMARY FOUR**  
**SCIENCE**  
**BOOKLET A**

Name: \_\_\_\_\_ ( )

Class: Primary 4 - \_\_\_\_\_

Date: 31 October 2019

28 questions

56 marks

Total Time for Booklets A and B: 1 hour 30 minutes

**INSTRUCTIONS TO CANDIDATES**

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Shade your answers in the Optical Answer Sheet (OAS) provided.

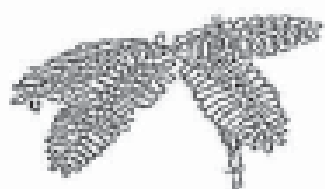
This booklet consists of 18 printed pages, excluding the cover page.

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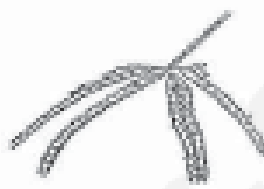
**Booklet A (28 × 2 marks)**

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 your answer on the Optical Answer Sheet. (56 marks)

- 1 A mimosa plant closes its leaves quickly when touched.



Before someone touched it



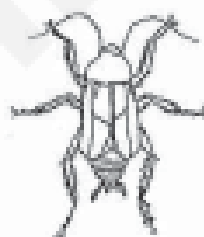
After someone touched it

This shows that the mimosa plant is a living thing because it can

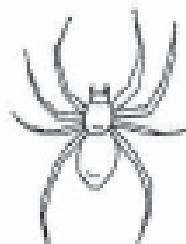
- (1) grow
- (2) breathe
- (3) respond
- (4) reproduce

- 2 Which one of the animals shown below is not an insect?

(1)



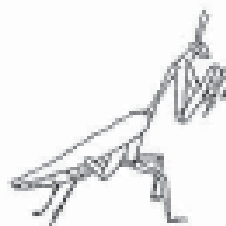
(2)



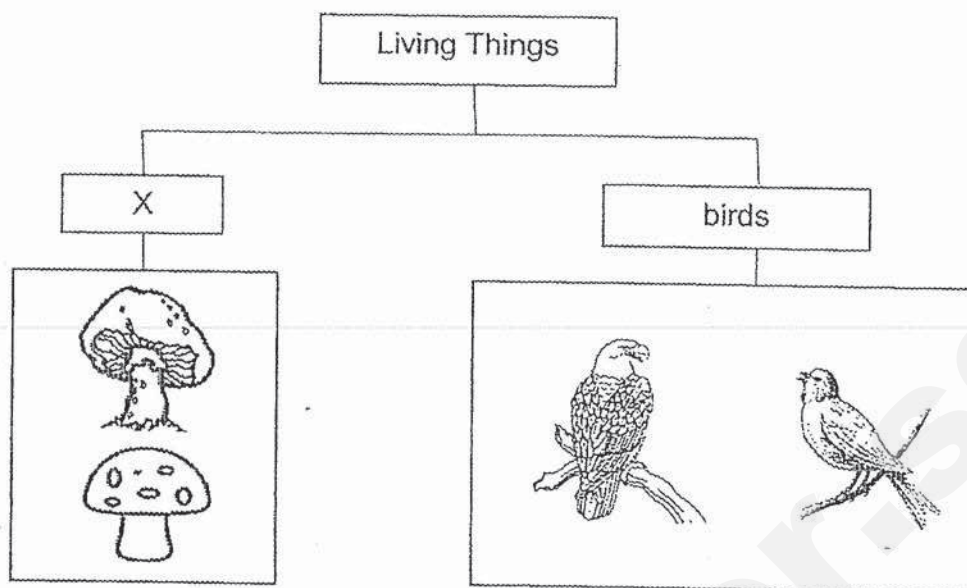
(3)



(4)



- 3 The chart below shows how some living things can be grouped.



Which one of the following is the most suitable heading for group X?

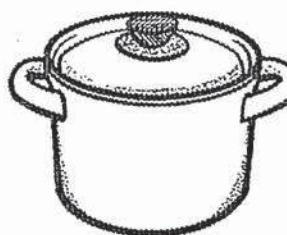
- (1) fern
  - (2) fungi
  - (3) insects
  - (4) bacteria
- 4 Which one of the following objects can be bent easily without breaking?

(1)



a plastic fork

(2)



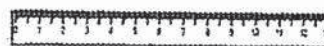
a metal pot

(3)



a rubber glove

(4)



a wooden ruler



- 5 In which part of the digestive system is food absorbed into the bloodstream?
- (1) gullet
  - (2) stomach
  - (3) large intestine
  - (4) small intestine
- 6 Which one of the following can be attracted by a magnet?
- (1) steel ball
  - (2) plastic ball
  - (3) rubber ball
  - (4) aluminium ball
- 7 Samuel 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 Samuel observing?

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

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

(1)



the moon

(2)



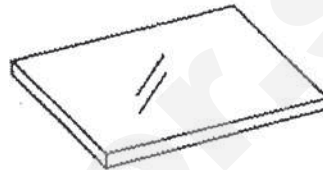
a mirror

(3)



a candle

(4)



a sheet of glass

9 Calista places a metal spoon in a cup of hot coffee.

metal spoon



a cup of hot coffee

The spoon becomes hot after a while.

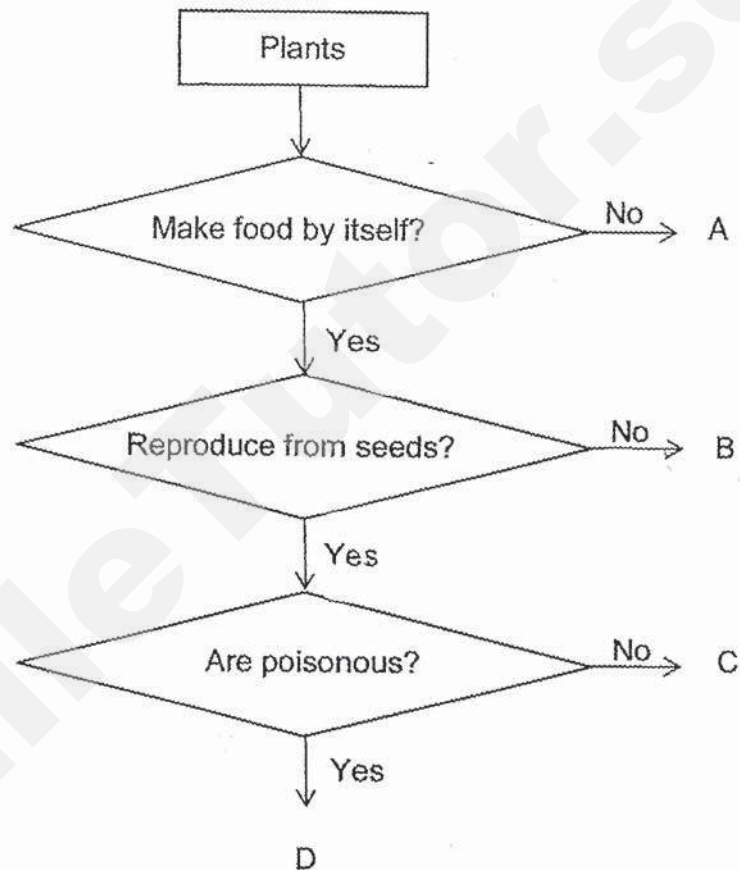
Which one of the following explains this?

- (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.

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

- (1) A metal plate
- (2) A paper plate
- (3) A plastic plate
- (4) A wooden plate

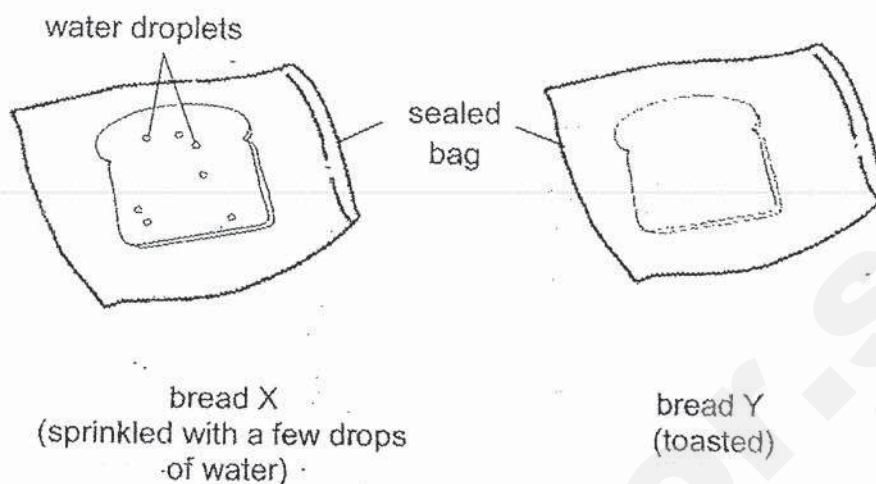
11 Study the chart below.



Which one of the following best represents the fern?

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

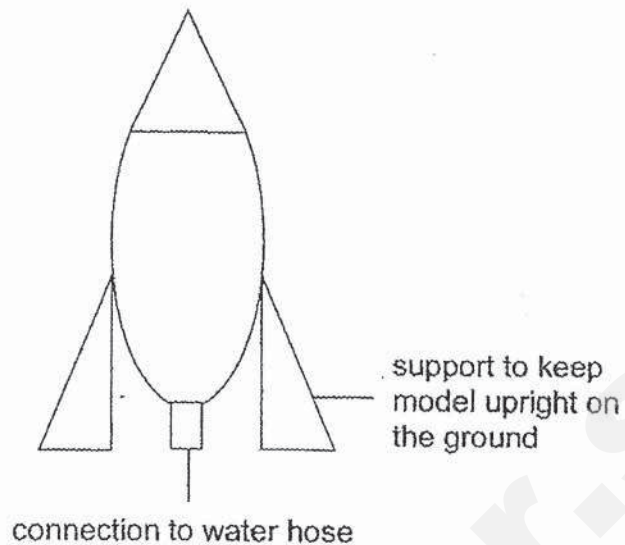
- 12 Khalid had two similar pieces of bread X and Y. He sprinkled a few drops of water on bread X and toasted bread Y. After bread Y had cooled down, he put bread X and bread Y into a sealed bag each. He left them on a table for a few days.



What would Khalid observe a few days later?

- (1) Black patches were found on bread X but not on bread Y.
- (2) Black patches were found on bread Y but not on bread X.
- (3) There were no changes observed on both pieces of bread.
- (4) There were more black patches on bread Y than on bread X.

- 13 Min Cher wanted to build a flying model as shown in the diagram below.



He wanted to conduct a test launch where the flying model would fly to a height of at least two metres when filled with water and its parts would still remain intact when it landed on the ground.

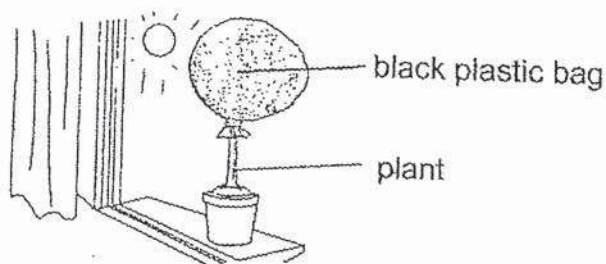
Which of the following properties must he consider while selecting the material to build the flying model?

- A strength
- B flexibility
- C waterproof
- D transparency
- E ability to sink in / float on water

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



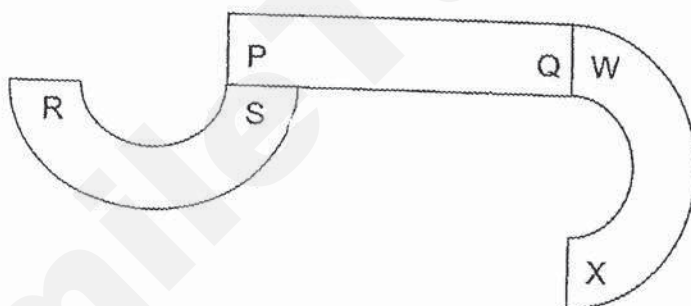
- 14 Alisha tied a black plastic bag around the top part of a plant. She placed it on the window ledge and watered it everyday.



After a few days, the plant died.

Which one of the following parts could not carry out its function and caused the plant to die?

- (1) leaf
  - (2) root
  - (3) stem
  - (4) flower
- 15 The diagram shows three magnets.

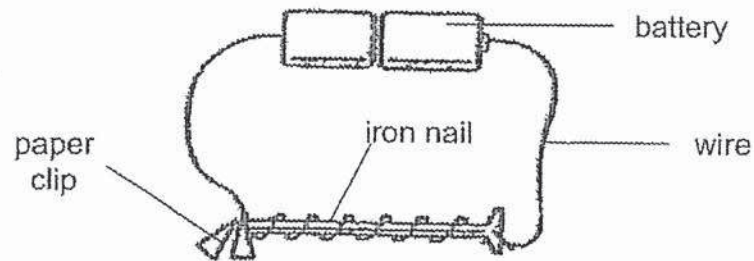


Based on the diagram above, which statement(s) about the poles of the magnets is/are incorrect?

- A S and W are like poles.
- B X will repel Q and be attracted to P.
- C W will repel P and be attracted to S.

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

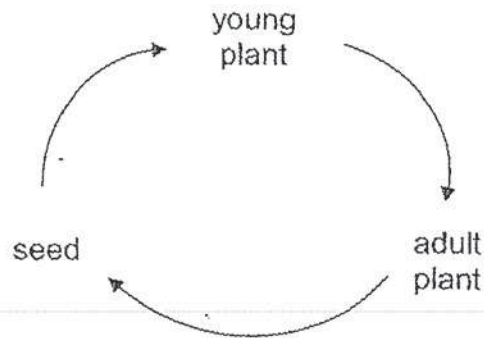
16 The diagram below shows an electromagnet.



What could be done to the electromagnet in order for it to attract more paper clips?

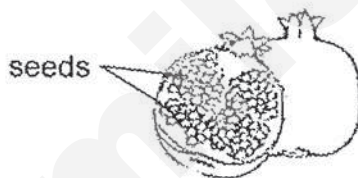
- A Add one more battery to the set-up.
  - B Remove one battery from the set-up.
  - C Replace the iron nail with a copper rod.
  - D Increase the number of turns of wire around the iron nail by ten turns.
- (1) A only
- (2) A and D only
- (3) B and C only
- (4) B, C and D only

- 17 The diagram below shows the life cycle of a plant.



Which one of the following statements about the life cycle of the plant is incorrect?

- (1) It is the life cycle of a flowering plant.
  - (2) The life cycle of the plant consists of three stages.
  - (3) The life cycle of the plant ensures the continuity of its kind.
  - (4) Sunlight is needed at every stage of the life cycle of the plant.
- 18 Four pupils made the following statements about the seeds of a fruit and the spores of a fern.



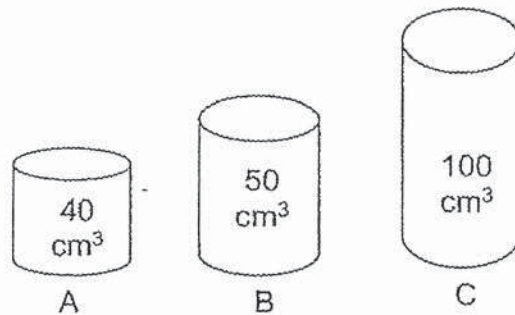
- A Both grow into flowers.
- B Both are flowering plants.
- C Both grow into young plants.
- D Both are part of the life cycle of plants.

Who made the correct statements?

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

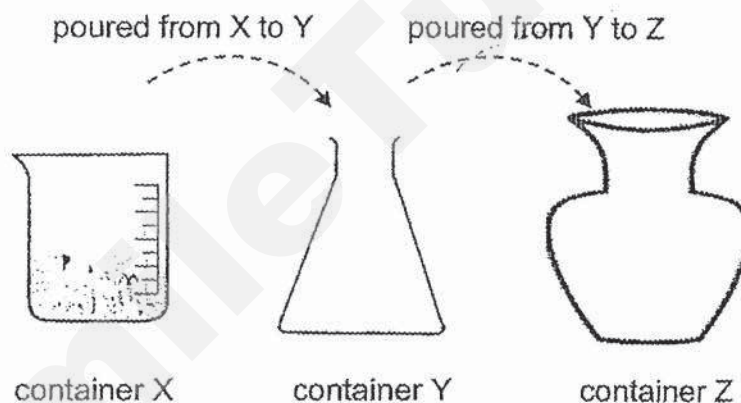


- 19 Joshua wants to transfer  $40 \text{ cm}^3$  of gas X from a gas tank into another container.



Which container(s) can he use to hold gas X?

- (1) A only
  - (2) C only
  - (3) A and B only
  - (4) A, B and C
- 20 Study the diagram below. Container X has 400 ml of water.

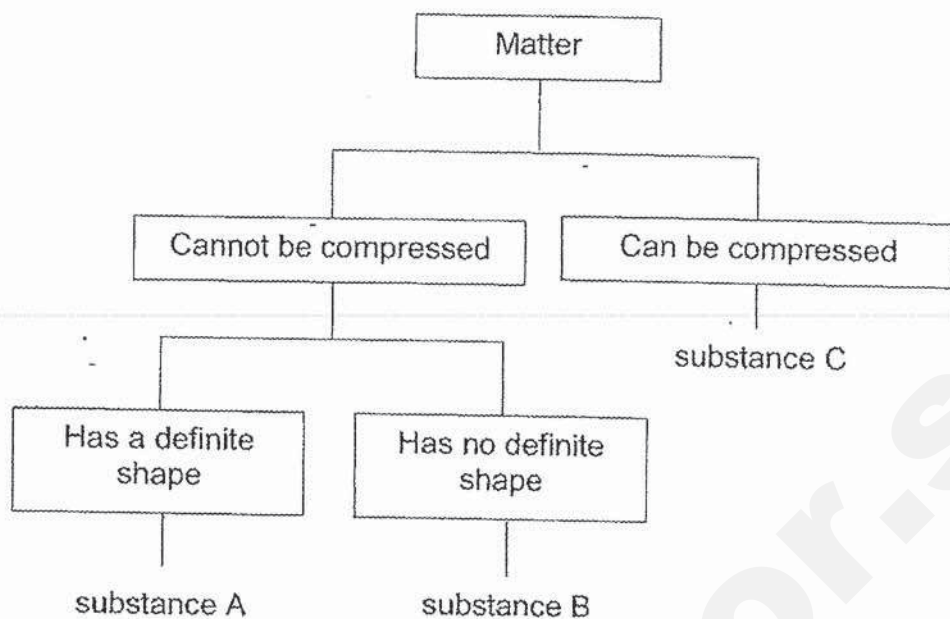


Which of the following will remain the same when all the water is poured from container X to container Y and then to container Z, with no loss of water?

- A mass of water
- B shape of water
- C volume of water

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

21 Study the chart below.

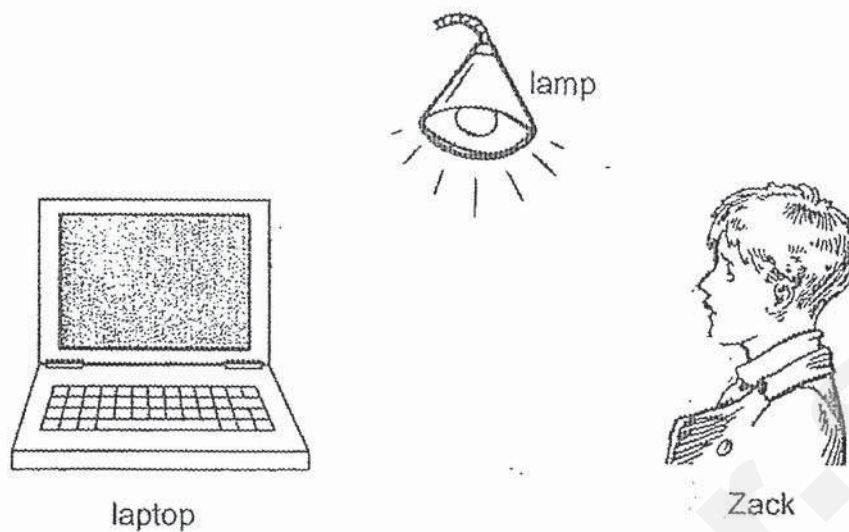


A 1-litre glass bottle contains  $800 \text{ cm}^3$  of substance C and  $200 \text{ cm}^3$  of substance B.

If another  $100 \text{ cm}^3$  of substance C is added to the bottle, what is the volume of substance C in the bottle now?

- (1)  $800 \text{ cm}^3$
- (2)  $900 \text{ cm}^3$
- (3)  $1000 \text{ cm}^3$
- (4)  $1100 \text{ cm}^3$

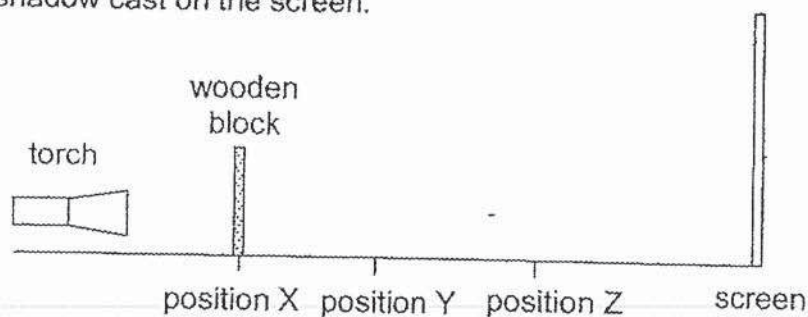
22 Study the diagram below. Zack can see the laptop in a lighted room.



Which one of the following shows correctly the path of light that makes it possible for Zack to see the laptop?

- (1) From lamp to laptop to Zack's eyes
- (2) From lamp to Zack's eyes to laptop
- (3) From laptop to Zack's eyes to lamp
- (4) From laptop to lamp to Zack's eyes

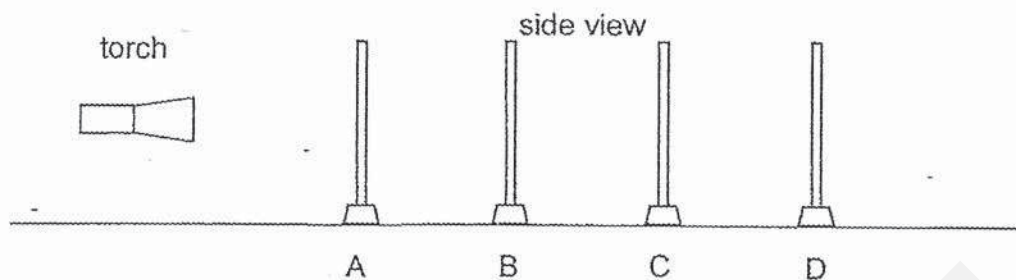
- 23 Paul placed a wooden block at positions X, Y and Z which were at different distances from the screen. At each position, he measured the length of the shadow cast on the screen.



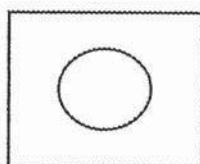
Which one of the following shows correctly the length of the shadows Paul had recorded for positions X, Y and Z?

Length of shadow cast on screen (cm)			
	position X	position Y	position Z
(1)	16	18	20
(2)	18	16	20
(3)	18	18	18
(4)	20	18	16

- 24 Micheala carried out the experiment as shown below in a dark room. She placed sheets A, B, C and D in a straight line.



A circle was cut out from sheet A as shown in the front view below.



When the torch was switched on, a bright patch of light in the form of a circle was seen only on sheet C as shown below.

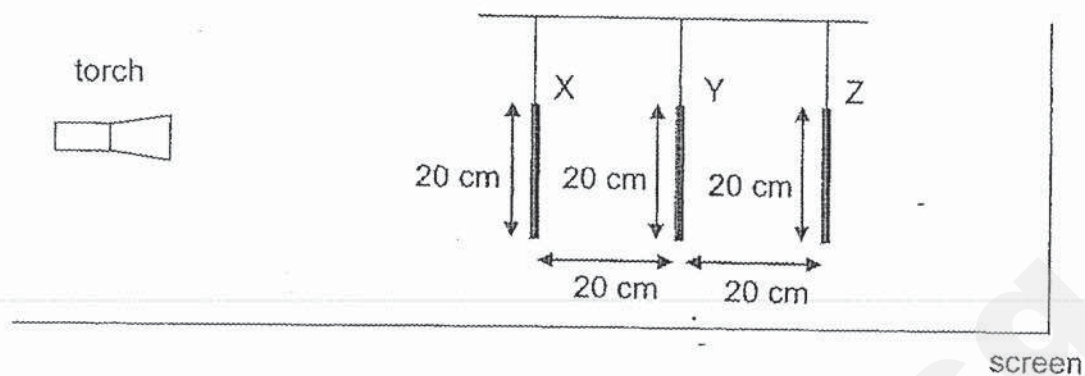


Which of the following correctly shows the ability of each sheet A, B, C and D to allow light to pass through?

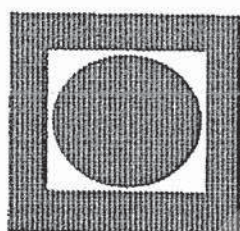
	Allows most amount of light to pass through	Does not allow light to pass through	Not possible to tell
(1)	A	C	B and D
(2)	B	A and C	D
(3)	A and B	C	D
(4)	B and C	D	A



- 25 Three objects X, Y and Z, made of similar materials, are arranged in a straight line as shown below.



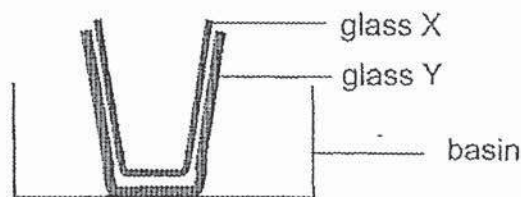
The diagram below shows the shadow formed on the screen.



Which one of the following shows the arrangement of the objects X, Y and Z?

	X	Y	Z
(1)			
(2)			
(3)			
(4)			

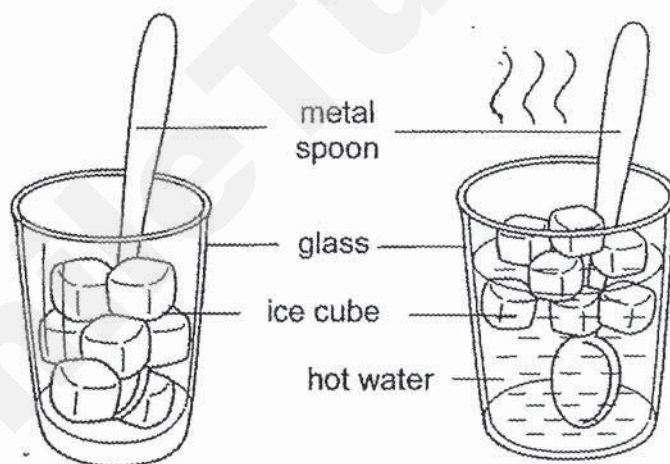
- 26 Glasses X and Y are stuck together as shown below.



What can we do to separate the two glasses in the basin?

- (1) Put cold water into the basin.
  - (2) Pour cold water into glass X and put ice in the basin.
  - (3) Pour cold water into glass X and pour hot water into the basin.
  - (4) Pour hot water into glass X and pour cold water into the basin
- 27 Lucien placed a metal spoon and several ice cubes into a glass at the beginning of an experiment as shown below.

Then he added hot water into the glass.



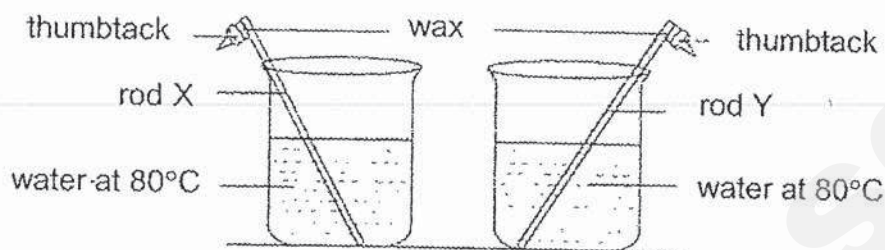
Before hot water was added

After hot water was added

Which of the following is incorrect about the transfer of heat in the above set-up?

	Matter	Before hot water was added	After hot water was added
(1)	glass	lost heat	gained heat
(2)	ice cubes	gained heat	gained heat
(3)	metal spoon	lost heat	gained heat
(4)	surrounding air	lost heat	lost heat

- 28 Oliver wanted to investigate how well rod X and rod Y conduct heat. He used the same amount of wax to attach a thumbtack at the end of each rod. He placed rod X and rod Y into identical beakers of warm water at  $80^{\circ}\text{C}$  as shown in the diagram below. The same length of rod X and rod Y was placed in the warm water.



The time taken for each thumbtack to drop off the rods was recorded in the table below.

Rod	Time taken for the thumbtack to drop (min)
X	2
Y	6

Based on the results above, which statements are correct?

- A Rod X gained heat faster than rod Y.
  - B Rod Y gained heat faster than rod X.
  - C Rod X is a better conductor of heat than rod Y.
  - D Rod Y is a better conductor of heat than rod X.
- (1) A and C only  
(2) A and D only  
(3) B and C only  
(4) B and D only

End of Booklet A





**CATHOLIC HIGH SCHOOL**  
**END-OF-YEAR EXAMINATION (2019)**  
**PRIMARY FOUR**  
**SCIENCE**  
**BOOKLET B**

Name: \_\_\_\_\_ ( )

Class: Primary 4 - \_\_\_\_\_

Date: 31 October 2019

Parent's Signature: \_\_\_\_\_

Booklet A	56
Booklet B	44
Total	100

13 questions

44 marks

Total Time for Booklets A and B: 1 hour 30 minutes

**INSTRUCTIONS TO CANDIDATES**

Do not turn over this page until you are told to do so.  
Follow all instructions carefully.  
Answer all questions.  
Write your answers in this booklet.

This booklet consists of 14 printed pages, excluding the cover page.

**Booklet B (44 marks)**

For questions 29 to 41, write your answers in this booklet.

The number of marks available is shown in brackets [ ] at the end of each question or part question. (44 marks)

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



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

repel    absorb    waterproof    magnetic

- (a) The raincoat does not \_\_\_\_\_ water. [1]
- (b) The raincoat is made of a \_\_\_\_\_ material. [1]

Ahmad conducted several tests on materials A, B and C. His results were recorded in the table below.

Property	A	B	C
Can bend	No	Yes	No
Breaks when dropped	Yes	No	No
Is waterproof	Yes	Yes	Yes

- (c) Which one of the above materials A, B or C would he use to make a raincoat? Explain your answer. [2]

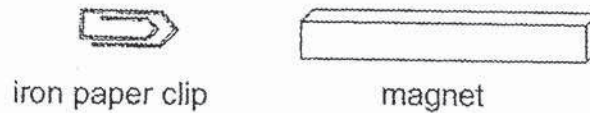
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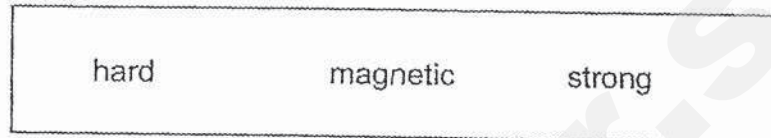
SCORE	4
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- 30 Raoul places a magnet near an iron paper clip.



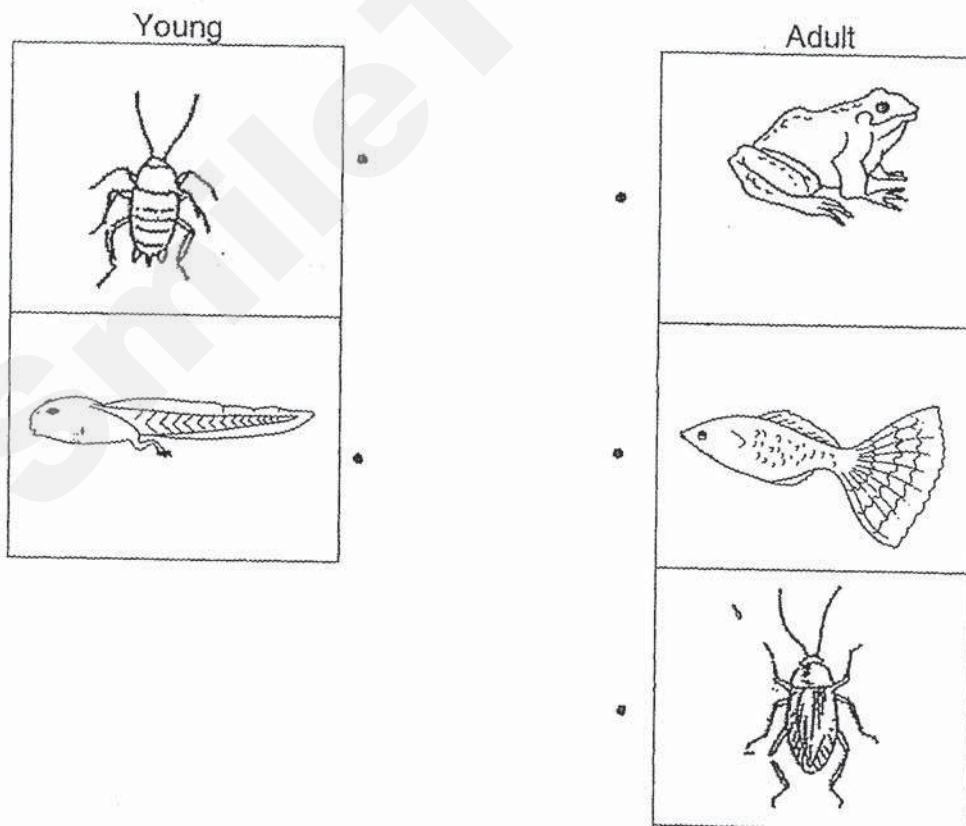
- (a) The iron paper clip moves towards the magnet. The magnet exerts a \_\_\_\_\_ on the iron paper clip. [1]

- (b) Choose the correct word from the box to answer the question below.

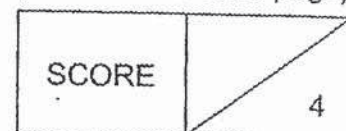


Raoul's observation shows that iron is a \_\_\_\_\_ material. [1]

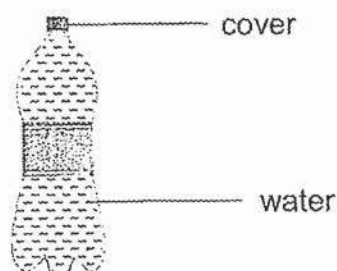
- 31 The diagram below shows the young and adult of some organisms. Match the young to the correct adult. [2]



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- 32 The diagram below shows a bottle filled with water.

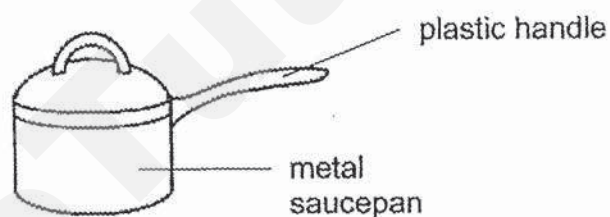


Fill in the blanks with "solid", "liquid" or "gas".

(a) The cover is a \_\_\_\_\_ [1]

(b) Water is a \_\_\_\_\_ [1]

- 33 The diagram below shows a metal saucepan.



(a) The handle is made of plastic because it is a \_\_\_\_\_ conductor of heat. [1]

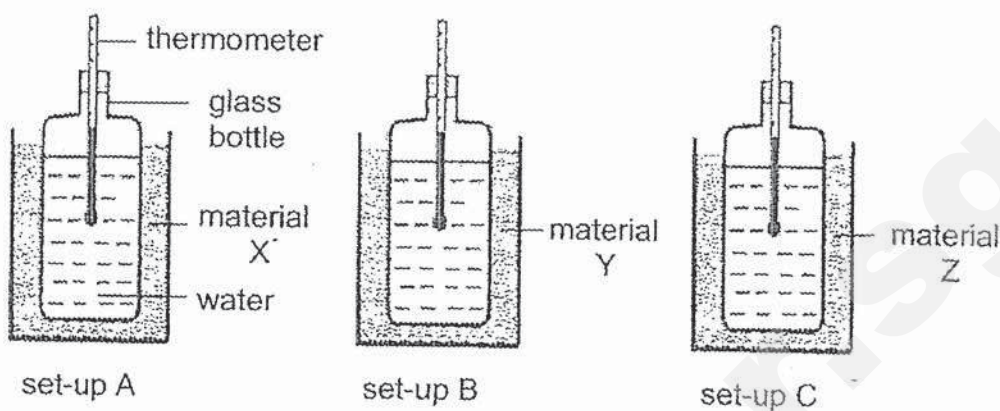
(b) The saucepan is made of metal because it is a \_\_\_\_\_ conductor of heat. [1]

(Go on to the next page)

SCORE	4
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Paul wanted to find out which material is the best conductor of heat. He filled three identical glass bottles with 200 ml of water at 80°C, and wrapped the glass bottle with a layer of material X, Y and Z respectively.



He recorded the time taken for the temperature of water to fall to 60°C. His results were shown below.

Material	Time taken (min)
X	15
Y	30
Z	10

Paul wanted to bring hot food and cold drinks for a picnic. He wanted to keep the food hot and the cold drinks cold.

- (c) Which materials X, Y and Z would be most suitable to make the containers? Write your answer in the boxes below.

[1]

(i)	Material for container carrying hot food	
(ii)	Material for container carrying cold drinks	

- (d) Explain your answer in (cii).

[1]

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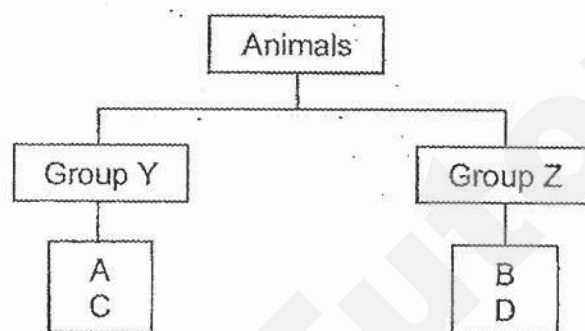
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SCORE	2
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- 34 The characteristics of four animals A, B, C and D are given in the table below.

Characteristics	Animal A	Animal B	Animal C	Animal D
Ability to fly	cannot fly	can fly	can fly	cannot fly
Outer covering	hair	feathers	hair	feathers
Number of legs	4	2	2	2
Number of wings	0	2	2	2

The animals are classified into two different groups Y and Z as shown in the diagram below.



- (a) Which groups of animals are represented by Y and Z? [1]

Group Y : \_\_\_\_\_

Group Z : \_\_\_\_\_

- (b) Give one difference between animal A and animal C. [1]

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

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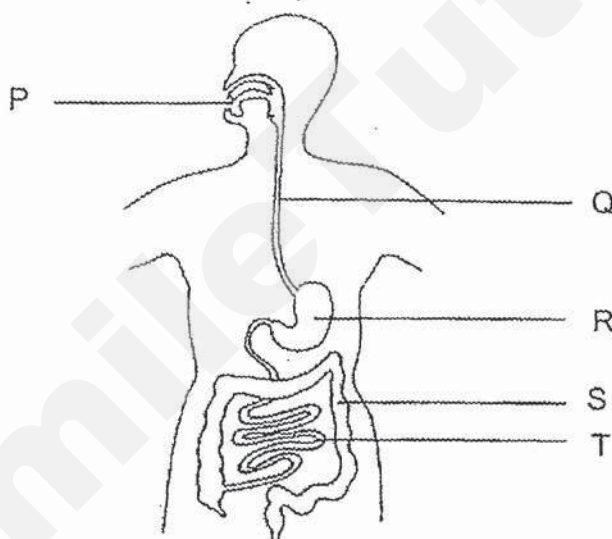
- 35 Amber wanted to find out if the size of biscuits would affect the rate of digestion. She put some biscuits into two containers of digestive juices and recorded the time taken for the biscuits to break down into simple substances.

- (a) Indicate with a tick (✓) in the table below, the variables that Amber should keep the same or change.

[2]

Variables	keep the same	change
size of biscuits		
type of biscuits		
amount of digestive juices		
duration of the experiment		

The diagram below shows parts of the human digestive system.



- (b) Which part(s) of the human digestive system P, Q, R, S or T, as shown above, do/does digestion take place?

[1]

---

- (c) State the function of the teeth inside P.

[1]

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(Go on to the next page)

SCORE	4
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- 36 Kingston was given an iron bar, a bar magnet and a bowl of iron filings as shown below. He tried to pick up the iron filings from a bowl using the iron bar. He realised the iron bar could not pick up any iron filings.



iron bar



bar magnet



a bowl of iron filings

- (a) Explain how he could magnetise the iron bar using the bar magnet so that he could pick up the iron filings from the bowl. [2]

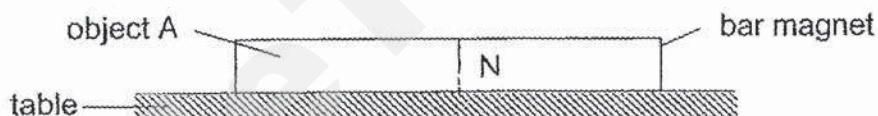
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Kingston was given an object A. He put the bar magnet and object A near to each other. He observed that object A was attracted to the bar magnet as shown in the diagram below.



- (b) Kingston concluded that object A was a magnet. Do you agree with him? Give a reason for your answer. [1]

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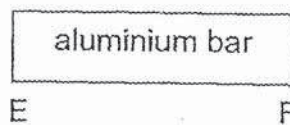
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SCORE	3
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Continue from Question 36

Kingston wanted to magnetise an aluminium bar EF using the north pole of a bar magnet as shown below. He stroked the aluminium bar with the bar magnet using the correct "Stroke" method thirty times in one direction.

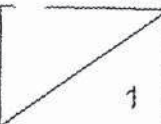


- (c) Give a reason why aluminium bar EF could not be magnetised. [1]

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SCORE	
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- 37 Ali planted some beans and observed the growth of the beans. He recorded the mass of the seed leaves in the tables shown below.

Table A				
Day	2	4	6	8
Average mass of the seed leaves (g)	5	7	10	11

Table B				
Day	2	4	6	8
Average mass of the seed leaves (g)	4	3	2	1

- (a) State three necessary conditions for the beans to germinate.

[1]

---

- (b) Based on the results above, which Table A or B correctly shows the changes in the mass of the seed leaves? Explain your answer.

[2]

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- (c) How did the seedling get its food for growth after Day 8?

[1]

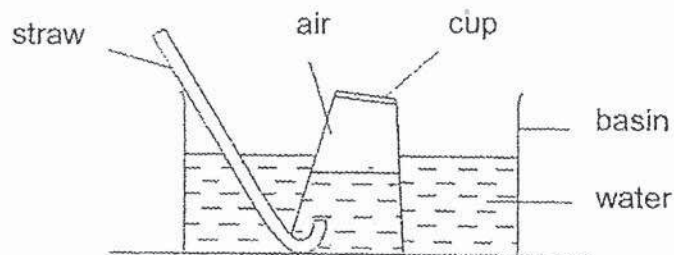
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SCORE	4
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- 38 Ambrose set up an experiment as shown below. He used a straw to blow air into the inverted cup.



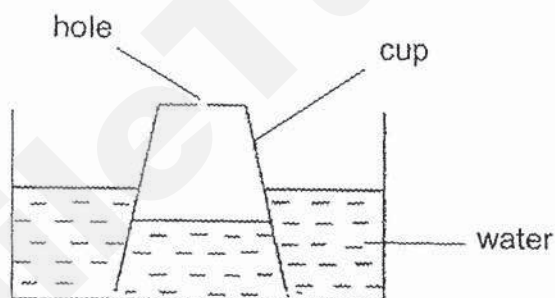
- (a) He observed that the water level in the cup decreased once he started blowing air into the cup. Explain his observation. [2]

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Ambrose conducted a second experiment as shown below. He removed the straw and made a hole on the top of the plastic cup.



- (b) What would happen to the water level in the cup after the hole was made? [1]

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- (c) Explain your answer in (b). [1]

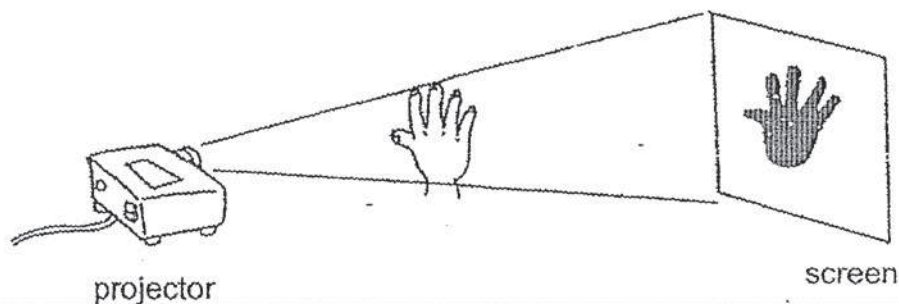
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SCORE	4
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- 39 Geraldine placed her hand in front of the projector as shown in the set-up.



- (a) How was the shadow of Geraldine's hand formed on the screen? [1]

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- (b) What is the relationship between the size of the shadow and the distance of her hand from the projector? [1]

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---

- (c) Geraldine placed a tracing paper between the projector and the screen. Would there be a shadow formed? Explain your answer [1]

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- (d) Is shadow a matter? Why? [1]

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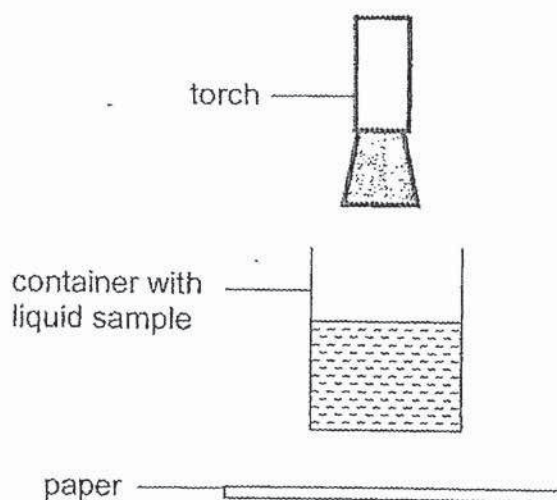
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SCORE	4
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- 40 Melvin collected three samples of liquids X, Y and Z from three different sources. He placed each liquid in a container. He shone a torch through each container of liquid and placed a sheet of paper below the container as shown in the diagram below.



Melvin observed how much light fell on the sheet of paper when each of the three liquid samples X, Y and Z was in the container. He recorded his observations in the table below.

Liquid Sample	Observation
X	Bright patch of light on paper
Y	Dim patch of light on paper
Z	No light on paper

- (a) What is the aim of Melvin's experiment?

[1]

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- (b) Which liquid sample is the muddiest? Why?

[2]

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- (c) State one variable that must be kept constant for the experiment to be a fair test.

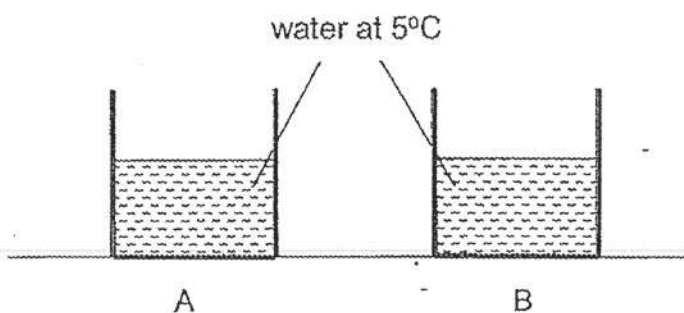
[1]

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- 41 Containers A and B, each made of a different material, were filled with the same amount of water at  $5^{\circ}\text{C}$  at the same time. Container A felt colder than B when touched.



Both containers were left in a classroom at  $25^{\circ}\text{C}$ . The temperature of water in the beaker was measured every five minutes.

The table below shows the temperature of water in container B over a period of 20 minutes.

Time (min)	0	5	10	15	20
Temperature of water in container B ( $^{\circ}\text{C}$ )	5	8	10	14	18

- (a) Would the temperature of water in container A at the 20<sup>th</sup> minute be more than, less than or equal to  $18^{\circ}\text{C}$ ? [1]

\_\_\_\_\_

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

\_\_\_\_\_

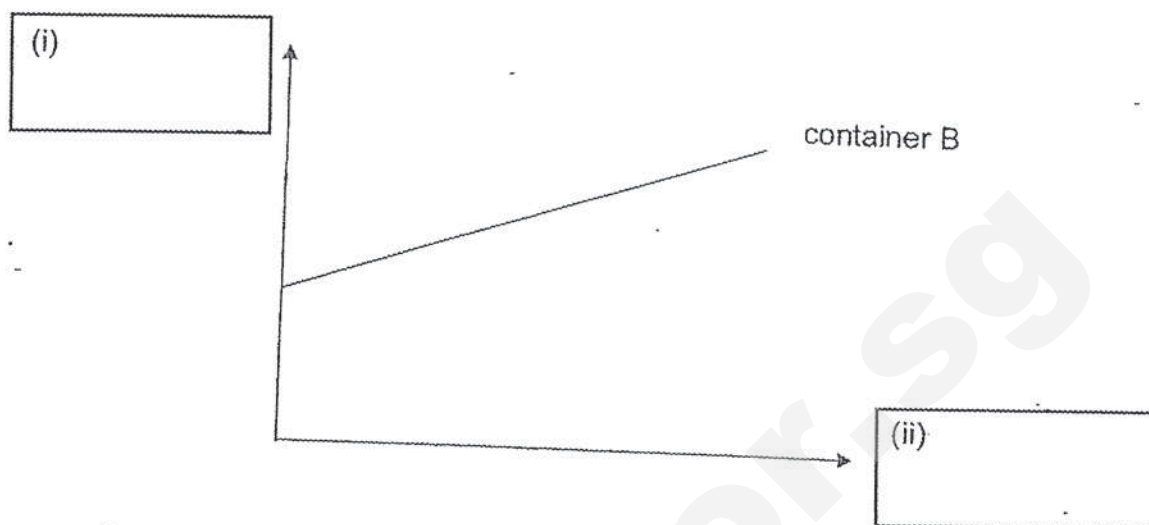
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SCORE	3
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Continue from Question 41

The graph below shows the temperature changes of the water in container B over a period of time.



(c) Label (i) and (ii) clearly in the boxes provided.

[1]

End of Booklet B



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## ANSWER KEY

YEAR : 2019  
LEVEL : PRIMARY 4  
SCHOOL : CATHOLIC HIGH SCHOOL  
SUBJECT : SCIENCE  
TERM : END YEAR EXAMINATION

### BOOKLET A

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

### BOOKLET B

Q29a) absorb

Q29b) waterproof

Q29c) B. It can bend easily and does not break when dropped. It is also waterproof.

Q30a) pull

Q30b) magnetic

Q31) (1<sup>st</sup> pic on the left to pair with 3<sup>rd</sup> pic on the right, 2<sup>nd</sup> pic on left to pair with 1<sup>st</sup> pic on the right)

Q32a) solid

Q32b) liquid

Q33a) poor

Q33b) good

Q33c) Y, Y

Q33d) Material Y. Y is the poorest conductor of heat as it took the longest time for the water in it to lose heat to the surroundings.

Q34a) Group Y: Mammals  
Group Z: Birds

Q34b) Animal C can fly but animal A cannot.

Q35a)

Variables	Keep the same	Change
Size of biscuits		✓
Type of biscuits	✓	
Amount of digestive juices	✓	
Duration of experiment	✓	

Q35b) Parts P, R, T

Q35c) Food is chewed into smaller pieces.

Q36a) He can stroke the iron bar with one pole of the bar magnet in the same direction several times.

Q36b) No. Only magnets can repel each other but object A did not repel the bar magnet. It was attracted to it.

Q36c) Aluminium is not a magnetic material.

Q37a) The beans need air, water and warmth to germinate.

Q37b) Table B. The young plant obtained food stored in the seed leaves, so the mass of the seed leaves decreased, as per table B.

Q37c) The seedling would have grown leaves by day 8 and can make food on its own.

Q38a) When he blew air into the cup, the air occupied the space inside the cup and pushed the water in the cup out.

Q38b) It would increase.

Q38c) Air in the cup can escape through the hole and water can enter the cup.

Q39a) Geraldine's hand blocked light coming out of the projector and her hand's shadow was formed.

Q39b) The nearer her hand was to the projector, the larger the shadow.

Q39c) Yes. However, the shadow formed will be very light as the tracing paper does not block much light.

Q39d) Shadow is not a matter. A shadow does not occupy space nor have mass, but matter does.

Q40a) To find out which liquid sample was transparent.

Q40b) Z. It allows no light to pass through.

Q40c) The same amount of liquid sample.

Q41a) More than

Q41b) As container A felt colder than B when touched at  $5^{\circ}\text{C}$ , container A was a better conductor of heat than B and would gain heat from the surrounding air quicker than container B.

Q41c) i: temperature ( $^{\circ}\text{C}$ )

ii: time (min)

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**HENRY PARK PRIMARY SCHOOL**

**SECOND SEMESTRAL ASSESSMENT 2019**

**PRIMARY 4**

**SCIENCE**

**SECTION A (56 MARKS)**

**INSTRUCTIONS TO CANDIDATES**

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Shade your answers on the Optical Answer Sheet (OAS) provided.

Name: \_\_\_\_\_ (      )

Class: Primary 4 (      )

Date: 22 October 2019

Total Time: 1 h 45 min

Section	Marks
<b>A</b>	/ 56
<b>B</b>	/ 44
<b>Total (A+B)</b>	/ 100

Parent's Signature: \_\_\_\_\_



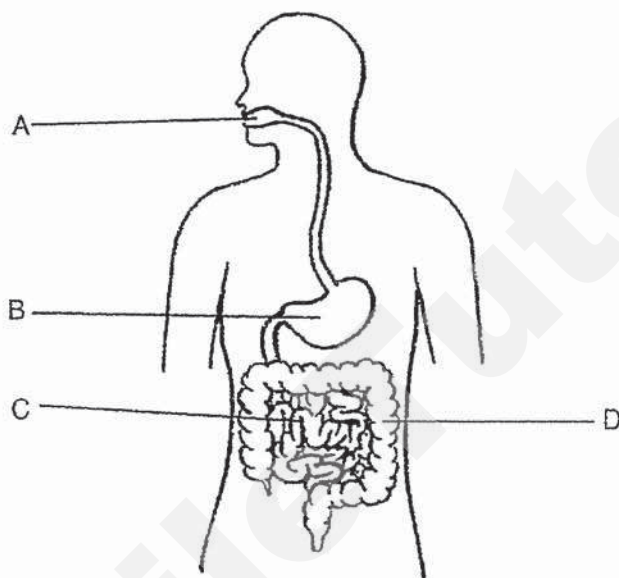
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**Booklet A (56 marks)**

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. The diagram shows the human digestive system.

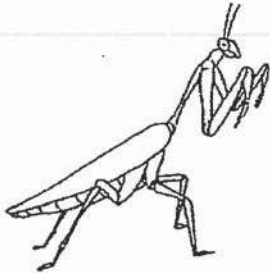


Which of the following is correct?

	Organ not involved in digestion of food	Organ involved in absorption of food
(1)	A	B
(2)	B	A
(3)	C	D
(4)	D	C

2. Which one of the following is not a living thing?

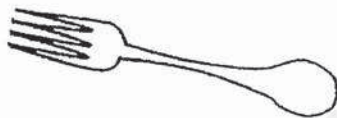
(1)



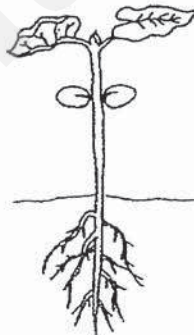
(2)



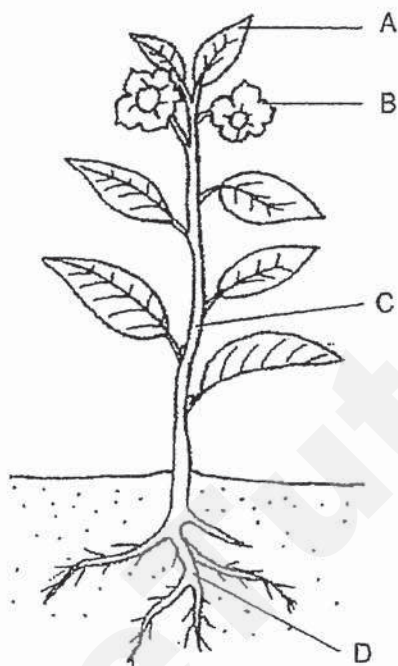
(3)



(4)



3. Study the diagram below.



Which one of the following statements about the parts A, B, C and D is **not** correct?

- (1) Part A needs sunlight to make food.
- (2) Part B is found in all plants.
- (3) Part C holds the plant upright to get sunlight.
- (4) Part D absorbs water and minerals from the soil.

4. Sam 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 Sam observing?

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

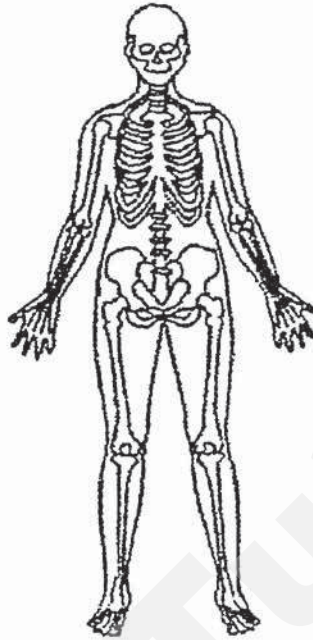
5. The arrows (→) in the diagram show the direction of movement of a substance in plants.

roots → stem → leaves

What is this substance?

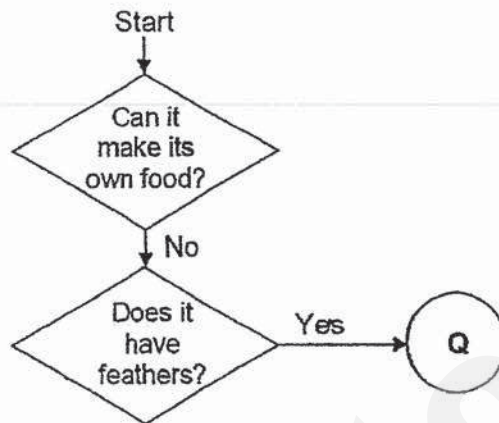
- (1) air
- (2) soil
- (3) food
- (4) water

6. Which organ system is shown in the diagram?



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

7. Study the diagram below.

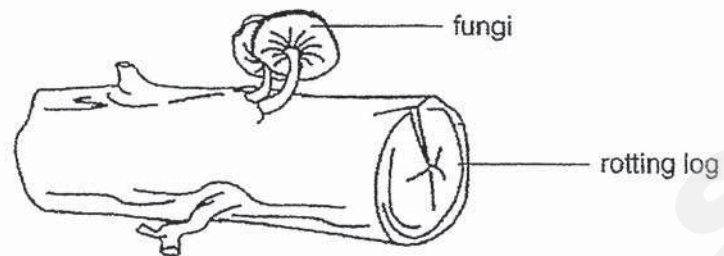


What could Q be?

- (1) bird
- (2) fish
- (3) fern
- (4) reptile



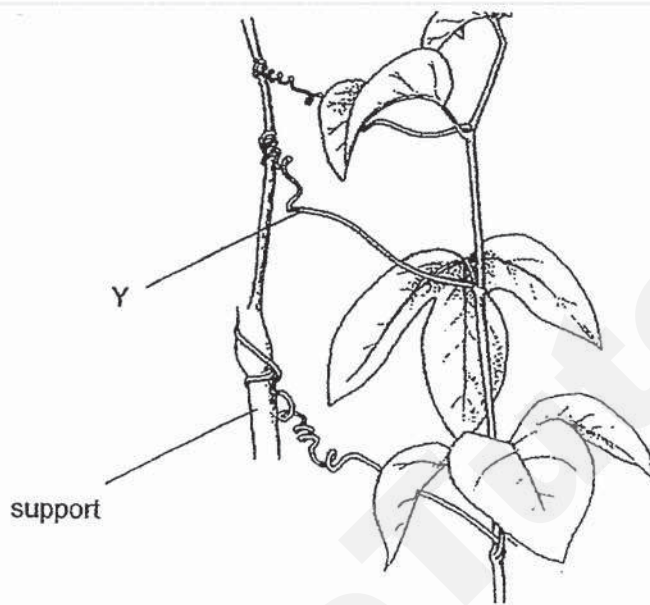
8. The diagram below shows fungi growing on a rotting log.



How do the fungi benefit from growing on a rotting log?

- (1) Fungi get more sunlight.
- (2) Fungi feed on the rotting log.
- (3) Fungi obtain more air from the rotting log.
- (4) Fungi provide the log with nutrients.

9. The diagram below shows part of a plant.



Which one of the following shows the correct function for part Y of the plant?

- (1) It produces fruits.
- (2) It holds the plant firmly into the ground.
- (3) It absorbs water and minerals.
- (4) It helps the plant to be upright.

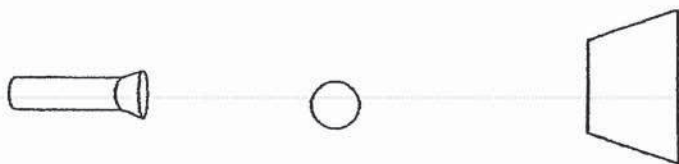
10. The characteristics of three organisms, X, Y and Z, are given in the table below.

	Organism		
Characteristic	X	Y	Z
Needs light to make food	Yes	No	No
Depends on other organisms for food	No	Yes	Yes
Reproduces by spores	Yes	Yes	No

From the table above, which of the following could organisms X, Y and Z be?

	Bird	Fern	Mould
(1)	X	Y	Z
(2)	Y	Z	X
(3)	Z	X	Y
(4)	Z	Y	X

11. The set-up below shows light shining on a wooden ball.



Which one of the following would likely be seen on the screen?



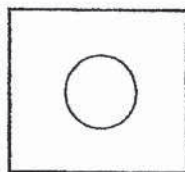
(1)



(2)



(3)



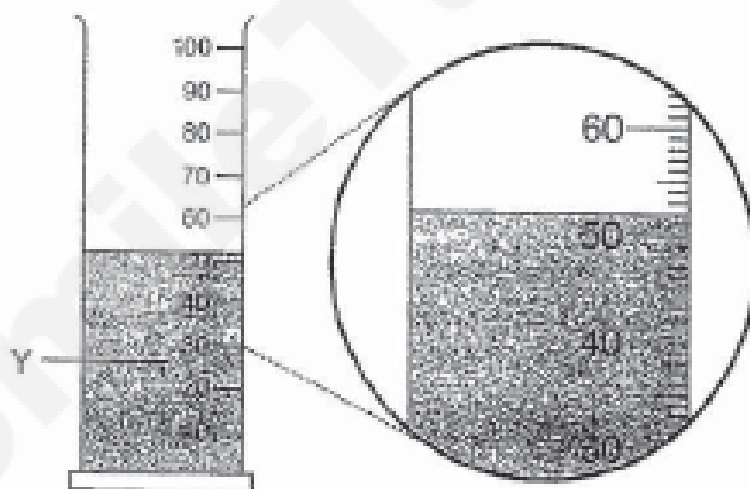
(4)

12. Which one of the following is the best conductor of heat?

- (1) A paper cup
- (2) A metal cup
- (3) A plastic cup
- (4) A wooden cup

(     )

13. In the diagram, what is the volume of liquid Y?



- (1) 50 ml
- (2) 52 ml
- (3) 54 ml
- (4) 68 ml

(     )

14. The diagram shows a magnet brought near a steel block.

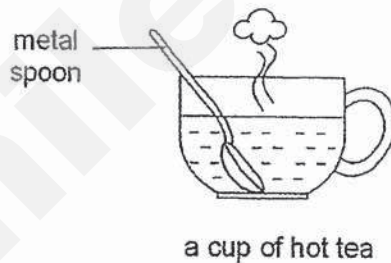


What will happen to the steel block?

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

( )

15. Ronald places a metal spoon in a cup of hot tea.



The spoon becomes hotter after a while.

Which one of the following explains this?

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

( )



16. Six items are classified into two groups, A and B, as shown below.

Group A	Group B
magnet	water
pencil	paint
ice cube	oxygen

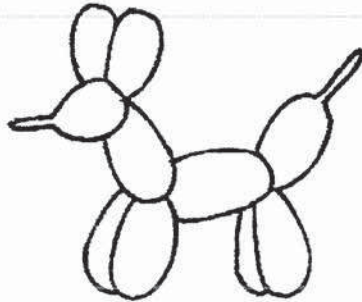
Which one of the following is a suitable heading for groups A and B?

	A	B
(1)	Solid	Liquid
(2)	Solid	Gas
(3)	Has fixed shape	Has no fixed shape
(4)	Has fixed volume	Has no fixed volume

(     )

17. Richard fills a balloon with air.

He then twists and squeezes it until it is shaped like an animal as shown below.

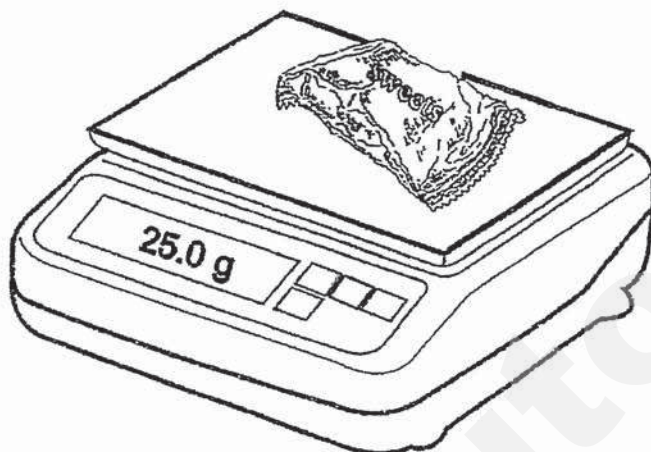


Which property of air allows Richard to change the shape of the balloon?

- (1) Air has mass.
- (2) Air is a matter.
- (3) Air has no fixed volume.
- (4) Air does not occupy space.

(     )

18. Leonard measured the mass of a sealed packet of sweets using an electronic balance as shown below.



He recorded the results as shown below.

Mass of sealed packet of sweets = 25 g
Mass of one sweet = 1 g

He expected to find 25 sweets in the sealed packet. However, he found that there were only 22 sweets in the sealed packet.

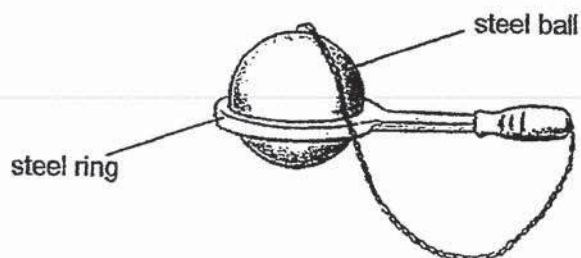
Which of the following is / are likely to be the reason(s) for not having 25 sweets in the packet?

- A The wrapper has mass.
- B Air inside the wrapper has volume.
- C The wrapper has a definite shape.

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

( )

19. Mr. Wee wanted to put a steel ball through a steel ring. The steel ball is just too big to fit into the hole of the steel ring.

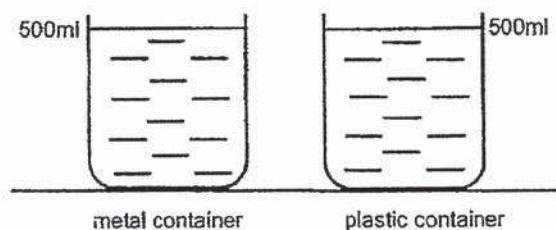


How can Mr Wee put the ball through the ring?

- (1) Cool the ball and then place it through the ring.
- (2) Cool the ring and the ball to the same temperature and then push the ball through the ring.
- (3) Cool the ring and then push the ball through the ring.
- (4) Heat the ball and then push the ball through the ring

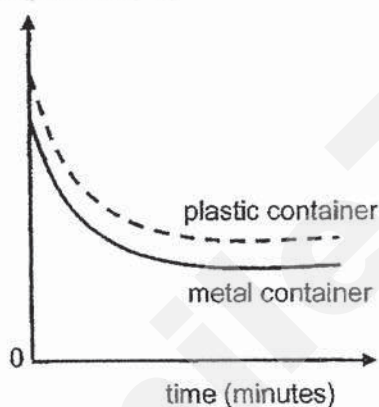
( )

20. Samy placed two empty containers, one made of metal and the other made of plastic, both at room temperature, on a table. He poured 500 ml of boiling water into both containers.

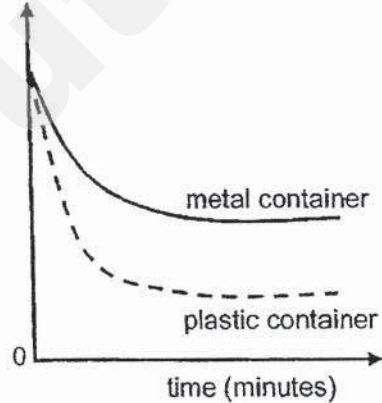


The temperature of water in both containers were recorded every 5 minutes for some time. Which one of the following shows the correct graph for his results?

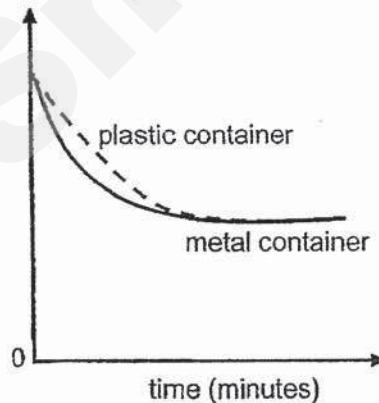
(1) temperature ( $^{\circ}\text{C}$ )



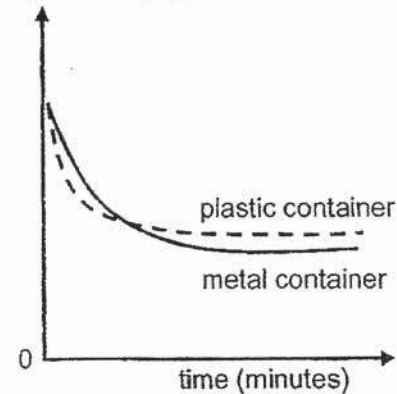
(2) temperature ( $^{\circ}\text{C}$ )



(3) temperature ( $^{\circ}\text{C}$ )

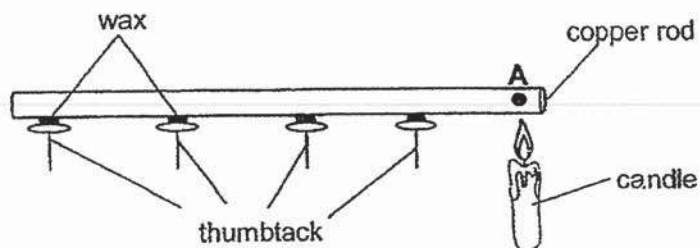


(4) temperature ( $^{\circ}\text{C}$ )



( )

21. Four thumbtacks, 1, 2, 3 and 4, were attached to different parts of a copper rod with wax.



A candle flame was used to heat up spot A on the copper rod as shown in the diagram above. The four thumbtacks dropped from the metal rod in the following order: 1, 4, 3 and 2.

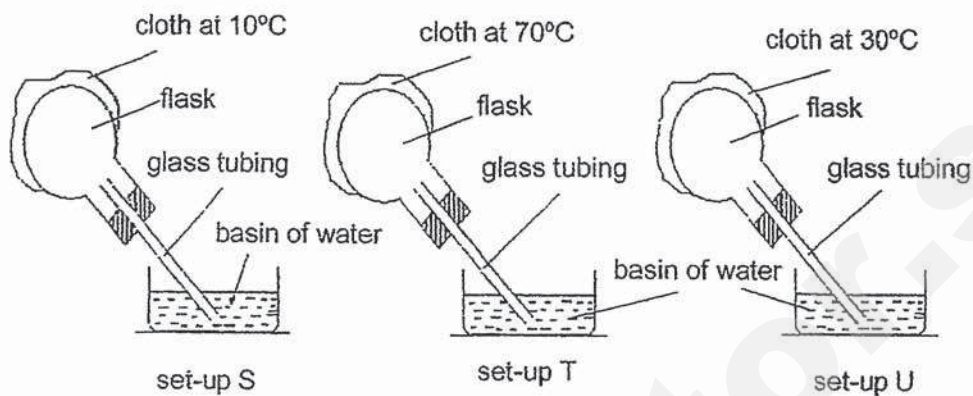
Which one of the following sets of measurement could be the distance of each thumbtack from spot A?

Thumbtacks				
	1	2	3	4
(1)	12 cm	8 cm	3 cm	18 cm
(2)	3 cm	18 cm	12 cm	8 cm
(3)	12 cm	18 cm	3 cm	8 cm
(4)	3 cm	12 cm	18 cm	8 cm

( )



22. Cloths of different temperatures are placed around the flask of each set-up. A glass tubing is inserted from the flask into a basin of water as shown below.



The water in each basin is at the room temperature of 30°C.

In which of the following set-ups will there be **no** bubbles observed in the basin of water?

- (1) S and U only
- (2) T and U only
- (3) T and S only
- (4) S, T and U

( )

23. Sarah observed some objects in a jar and made the following observations about the jar and the objects.

Sarah's observations:

1. There are four objects in the jar.
2. The colour of each object cannot be seen clearly.

Based on her observations, Sarah made the following statements.

Statements:

- A: The material of the jar does not allow any light to pass through it.  
B: The objects in the jar do not reflect any light into the eyes.  
C: The material of the jar allows most light to pass through it.  
D: The material of the jar allows some light to pass through it.

Which statement is correct?

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

(     )

24. Some objects give off light and some reflect light.

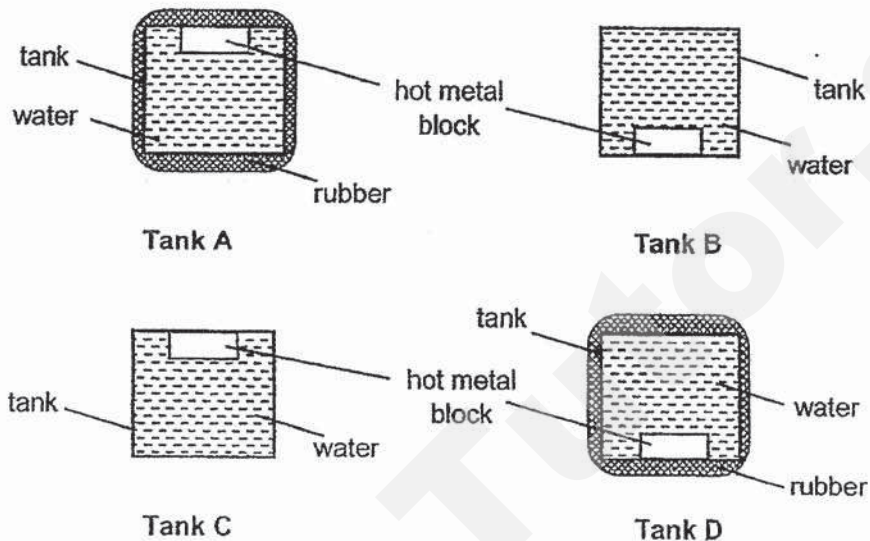
Which of the following classification is correct?

	Gives off light	Reflects light
(1)	moon	book
(2)	coin	star
(3)	lamp	sun
(4)	candle flame	moon

( )

25. Jonathan set up four identical metal tanks in a room. Each tank contains the same amount of water. The water is at the same temperature as the room.

Two of the tanks are wrapped with rubber. A hot metal block has been placed in each of the tanks, in the positions shown in the diagrams below.

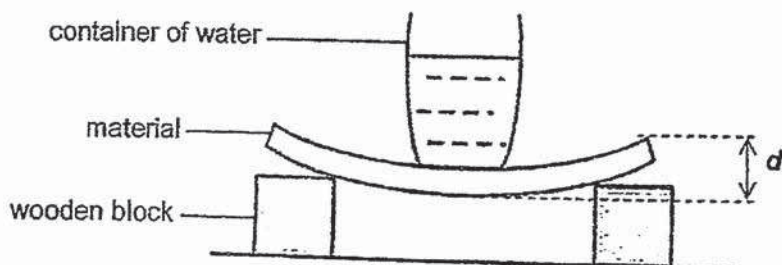


Based on the information given above, which one of the following shows correctly the set-ups for the different aims of the experiment?

Aim of experiment		
	To find out if the position of the metal block affects how quickly temperature of water in the tank increases.	To find out if the tank wrapped with rubber keeps the water hot for a longer time.
(1)	A and B	A and C
(2)	C and D	A and B
(3)	A and D	C and D
(4)	B and C	B and D

( )

26. John conducted an experiment as shown in the diagram below.

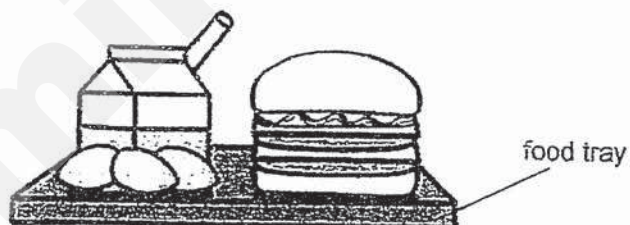


For each material (A, B, C and D), John placed a container of 50 ml of water and measured distance,  $d$ , which is the distance between the highest and lowest points of the material.

He recorded the results in the table below.

Material	$d$ (cm)
A	10
B	5
C	19
D	14

The diagram below shows a food tray used in a fast food outlet.

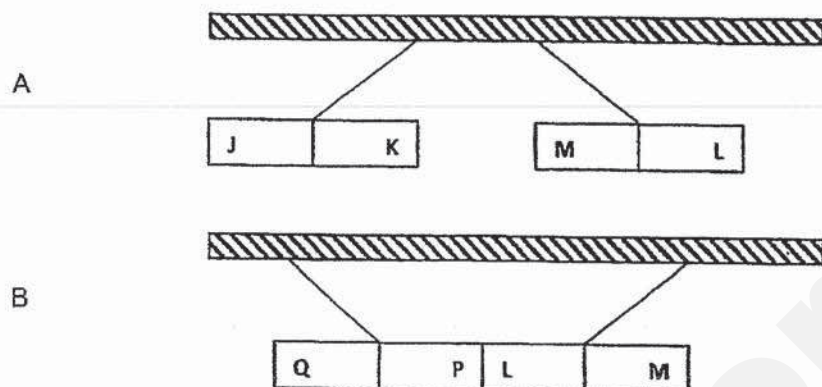


Which material is **most** suitable to make the food tray?

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

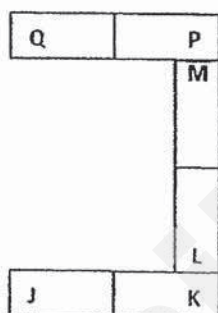
( )

27. Keegan hung three strong bar magnets in two different set-ups, A and B, as shown below.

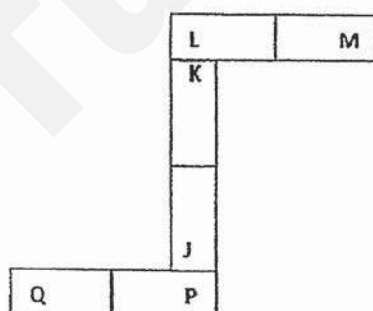


Based on set-ups A and B, which of the following arrangements is possible?

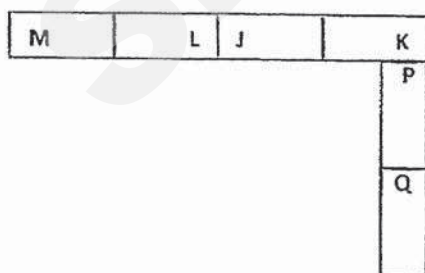
(1)



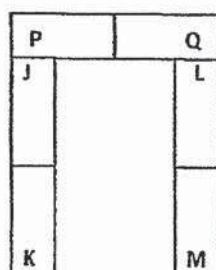
(2)



(3)

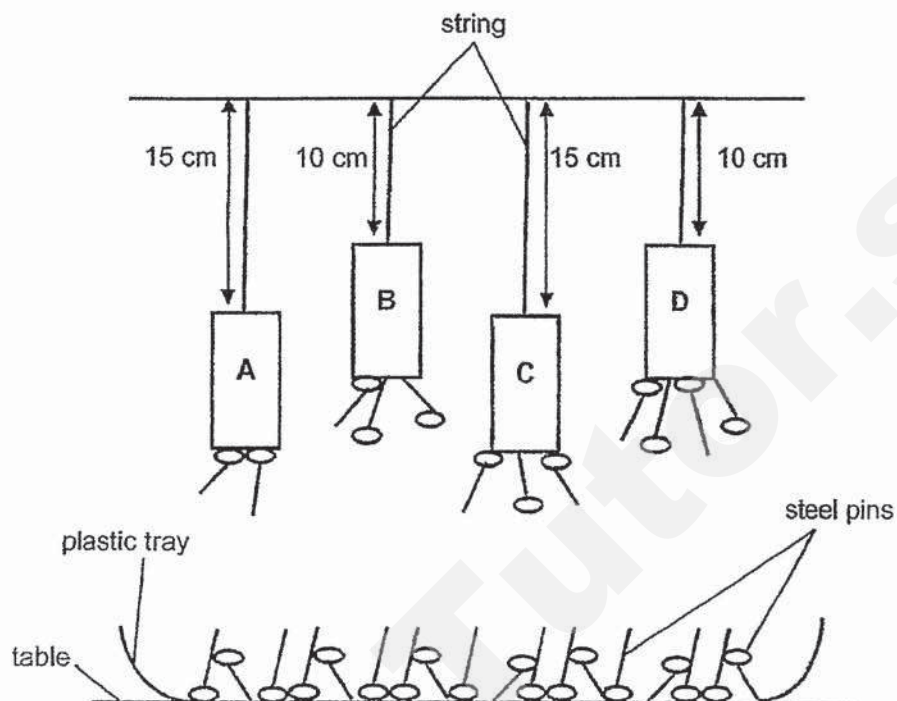


(4)





28. Annette hung four magnets, A, B, C and D, above a tray of identical steel pins. Her observation is shown below.



Arrange the strengths of the magnets from the strongest to the weakest based on her observations.

	strongest	→		weakest
(1)	A		B	C
(2)	A		C	B
(3)	D		C	B
(4)	D		B	C

( )

End of Booklet A



**HENRY PARK PRIMARY SCHOOL**  
**SECOND SEMESTRAL ASSESSMENT 2019**

**PRIMARY 4**

**SCIENCE**

**SECTION B (44 MARKS)**

**INSTRUCTIONS TO CANDIDATES**

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.

Name: \_\_\_\_\_ (      )

Class: Primary 4 (      )

Date: 2019

Total Time: 1 h 45 min

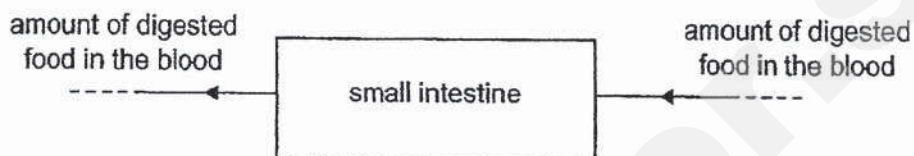
Marks for Sections B: \_\_\_\_\_

**Booklet B (44 marks)**

For questions 29 to 41, 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 the amount of digested food in the blood entering and leaving the small intestine a few hours after a meal.



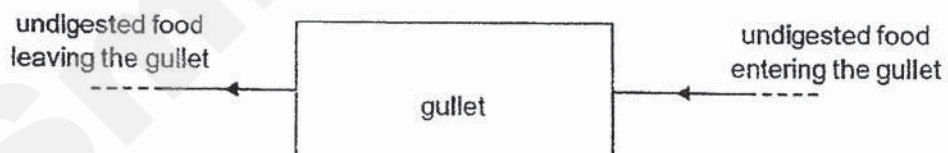
- a) The amount of digested food in the blood leaving the small intestine is higher than the amount of digested food in the blood entering the small intestine. [1]

Give a reason for this observation.

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The diagram shows the amount of undigested food entering and leaving the gullet a few minutes after chewing some food.



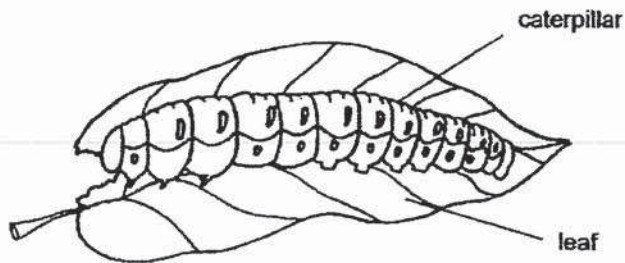
- b) The amount of undigested food entering and leaving the gullet remains the same. [2]

Explain why.

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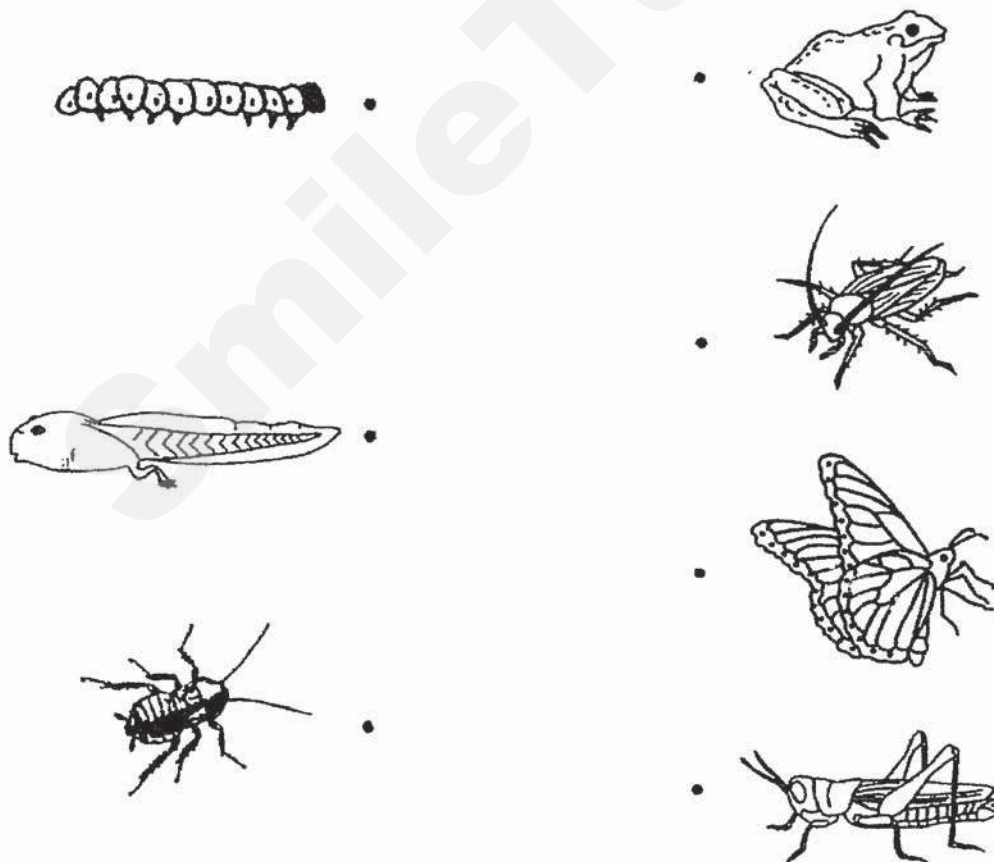
30. Study the diagram below.



a) The caterpillar needs \_\_\_\_\_, food and water to stay alive. [1]

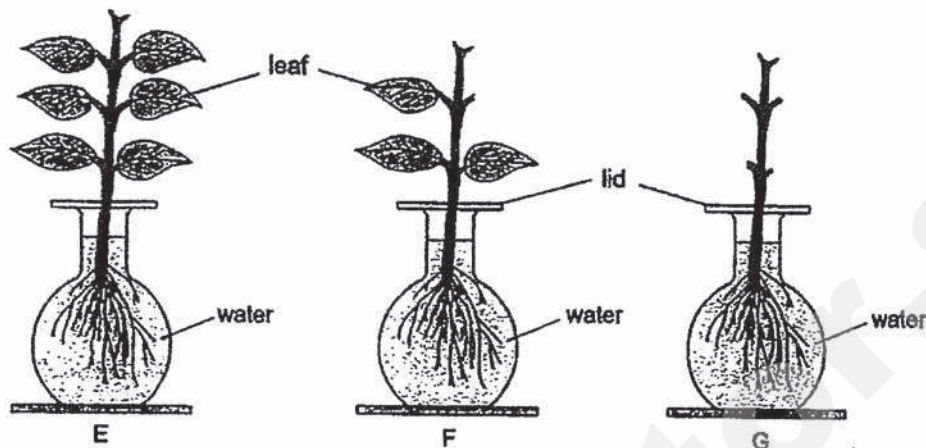
b) The caterpillar eats leaves and becomes bigger after some time.  
This shows that it can \_\_\_\_\_. [1]

31. The diagram below shows the young and adult of some organisms. Draw lines to match the young with the correct adult. [3]





32. Gina used 3 similar plants, E, F and G, for an experiment as shown in the diagram below. She removed some leaves from plant F and all the leaves from plant G. The three set-ups were placed near an open window.

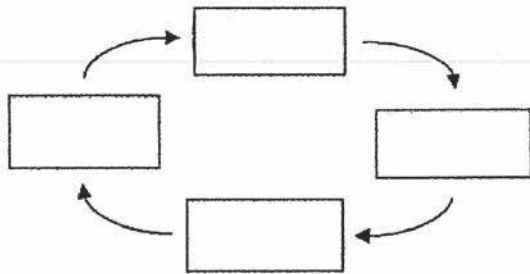


After 3 days, Gina measured the amount of water left in each set-up. The results are shown in the table below.

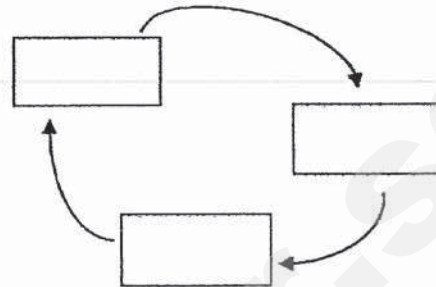
Plant	Number of leaves	Amount of water in set-up (ml)	
		Start of experiment	After three days
E	6	300	210
F	3	300	245
G	0	300	293

- a) How does the number of leaves affect the amount of water taken in by each plant? [1]
- \_\_\_\_\_
- \_\_\_\_\_
- b) State one **other** variable Gina must keep the same for each set-up to ensure the experiment is fair. [1]
- \_\_\_\_\_
- c) Predict the amount of water left in the set-up after three days if plant F had 5 leaves. [1]
- \_\_\_\_\_

33. The diagrams below represent the life cycles of a mosquito and a grasshopper.



Life cycle of a mosquito



Life cycle of a grasshopper

- a) Fill in the boxes above with the following words. (You may repeat some of the words) [2]

adult	egg	pupa	larva	nymph
-------	-----	------	-------	-------

- b) State one difference between the mosquito and the grasshopper in terms of where their eggs are laid. [1]

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Mosquitoes are pests that spread diseases such as dengue fever.

- c) Explain how removing still water helps to prevent these mosquitoes from reproducing. [1]

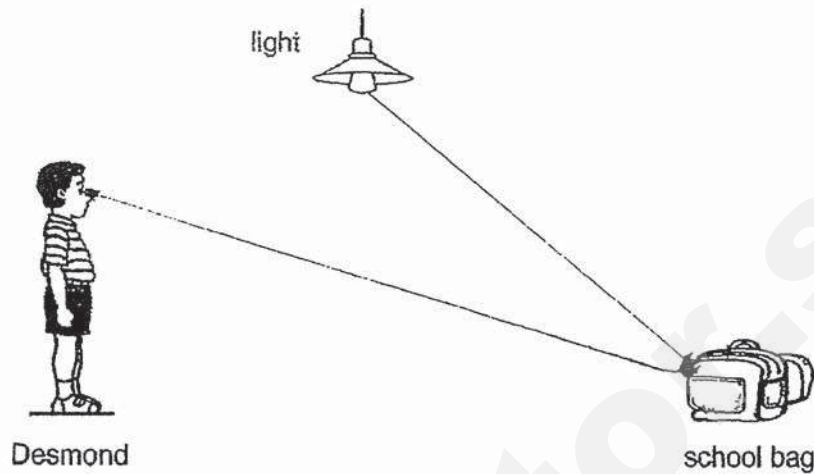
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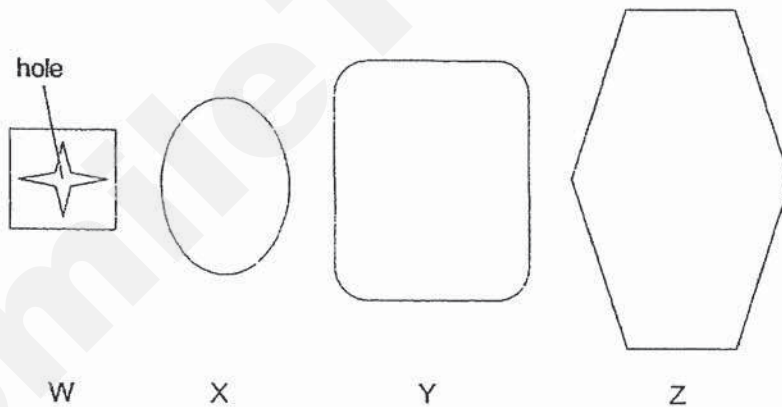


34. Desmond can see his school bag in the presence of light as shown in the diagram below.

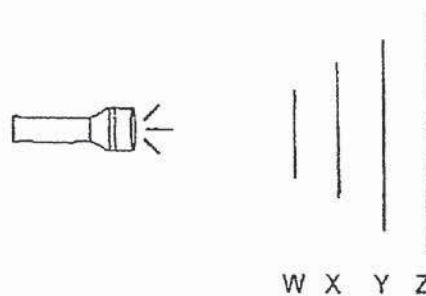


- a) Using arrows, **draw** the path of light in the diagram above to show how Desmond is able to see his school bag. [1]

Desmond had 4 shapes each made of a different material as shown below.



In a dark room, he placed all the cut-outs in front of a torch, as shown in the diagram below.



Question 34 continued

Desmond switched on the torch and recorded his observation of the shadow formed on material Y as shown below. There was nothing seen on material Z.

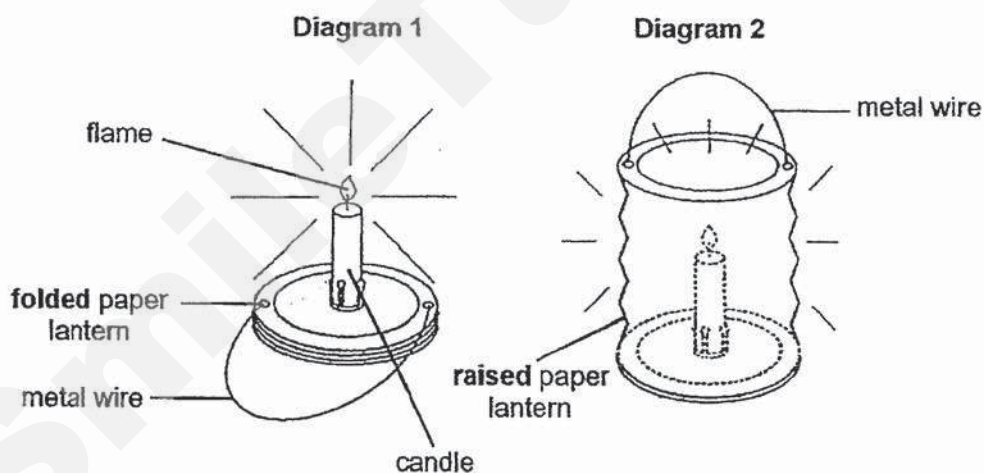


observation of the shadow  
formed on material Y

- b) Based on Desmond's observation, name the materials (W, X, Y and Z) that do **not** allow any light to pass through.

[1]

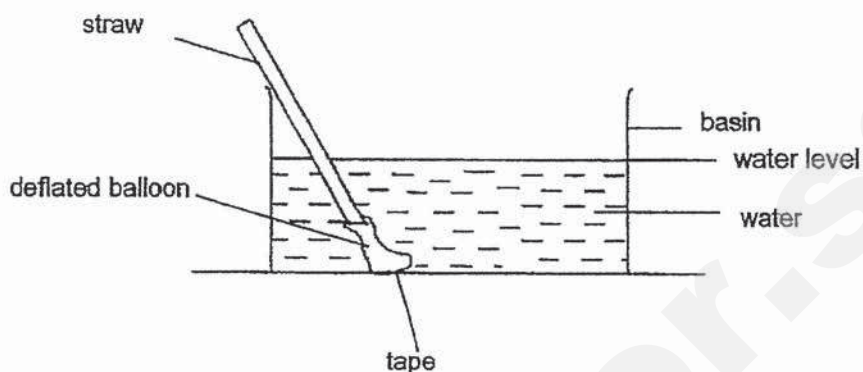
Desmond lighted a candle in a paper lantern in diagram 1. He raised the paper lantern as shown in diagram 2.



- c) When Desmond raised the paper lantern, the flame looked **less** bright.  
Explain why.

[1]

35. Ahmad fixed one end of a deflated balloon tightly to a straw using a rubber band. He taped the end of the balloon to the bottom of a basin which was filled with water. After he had marked the water level, he blew air into the straw in the diagram below.



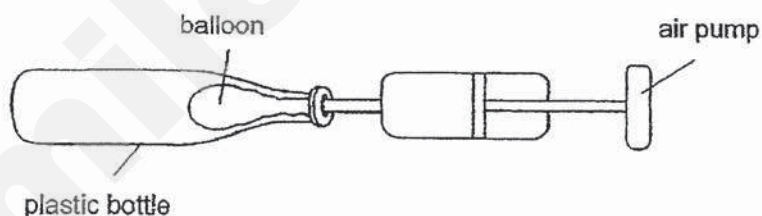
- a) State one observation that Ahmad would make about the water level in the basin when air is blown into the straw. Explain your answer. [2]

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- b) Ahmad placed a balloon into a plastic bottle as shown below.



- i) He tried to fill the balloon with air using an air pump but could not do it. Explain why this is so. [1]

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- ii) Without removing the balloon from the mouth of the bottle, state one change that Ahmad could make to the bottle so that the balloon would be able to inflate when air was pumped into it. Give a reason for your answer. [1]

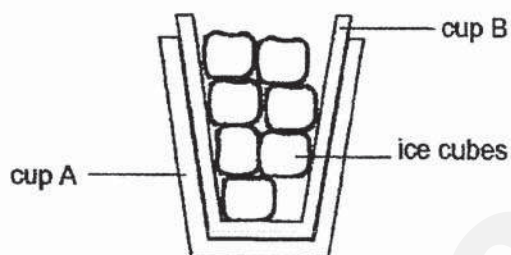
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36 a) State what is temperature.

[1]

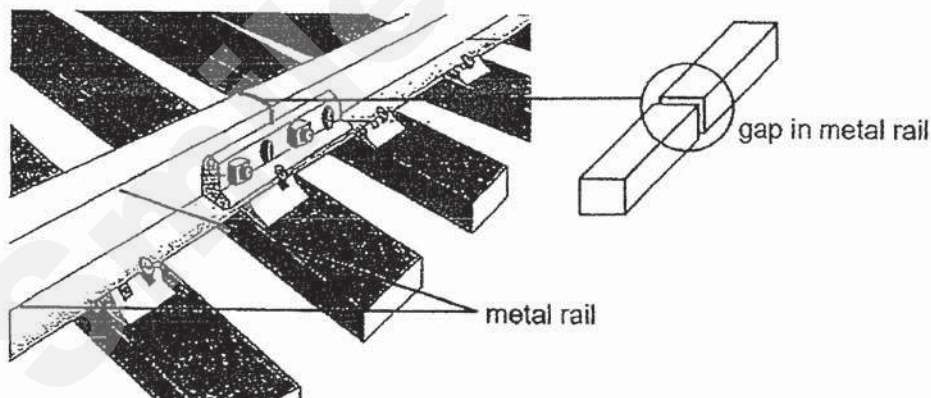
Two glass cups were found stuck to one another in Mrs Wong's cupboard. She added some ice cubes to cup B as shown in the diagram below.



b) After a while, she found it easier to remove the two cups from each other. Explain why.

[1]

A railway track has gaps along its metal rails as shown in the diagram below.

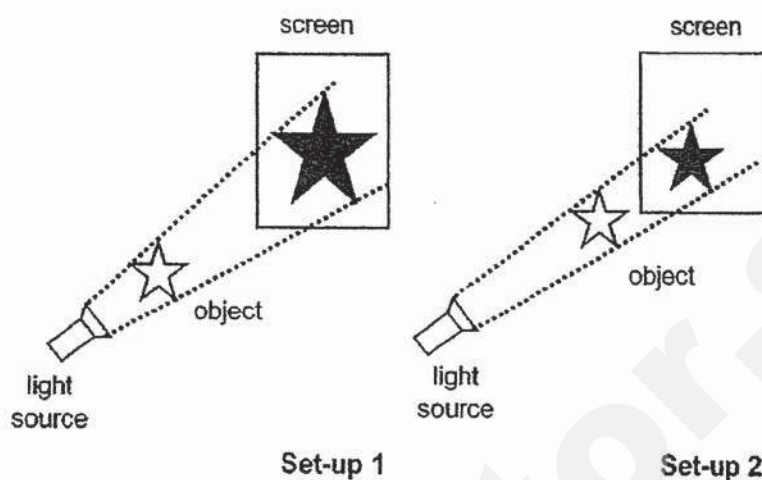


c) What would happen to the railway track on a very hot day if there were no gaps? Explain your answer.

[2]



37. Siti carried out an experiment as shown in the diagrams below.



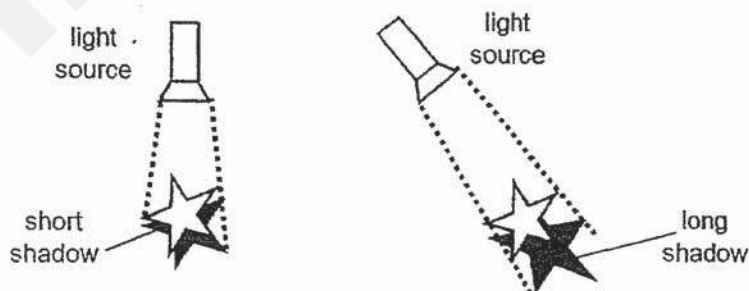
The experimental set-ups 1 and 2 show the same object casting the shadows on the screens.

The distance between the light source and the screen is fixed.

- a) Explain the **difference in the sizes of the shadows** cast on both screens.

[2]

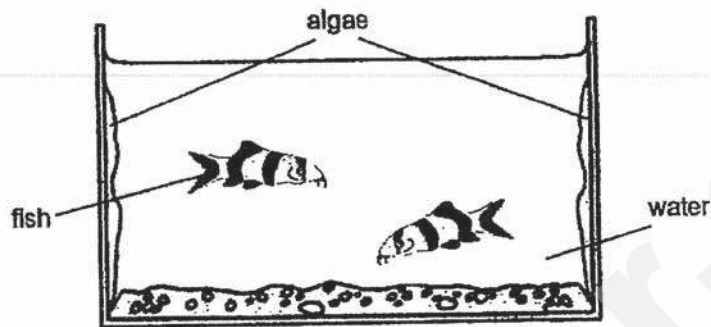
Siti carried out another experiment to find out the change in the length of shadows. In this experiment, the position of the object did not change. Siti measured the length of the shadows formed.



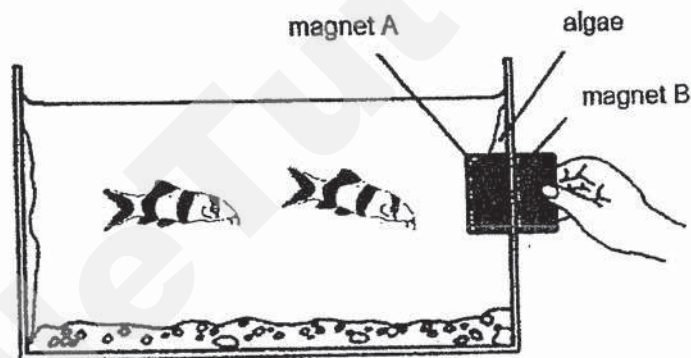
- b) Name the variable changed in the above experiment.

[1]

38. Gopi has a tropical fish tank. Algae grow on the inner sides of his tank as shown in the diagram below. Algae are tiny green organisms that use sunlight to make their own food.



Gopi wants to keep his fish tank clean of algae. He uses two magnets for this. He puts magnet B on the outside and magnet A on the inside as shown below.



As Gopi moves magnet B, magnet A also moves in the same direction.

- a) Based on the information given, explain how this method helps to keep the tank clean of algae. [2]

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Gopi's fish tank was placed near an open window. His mother suggested that he moves the fish tank to a shady spot.

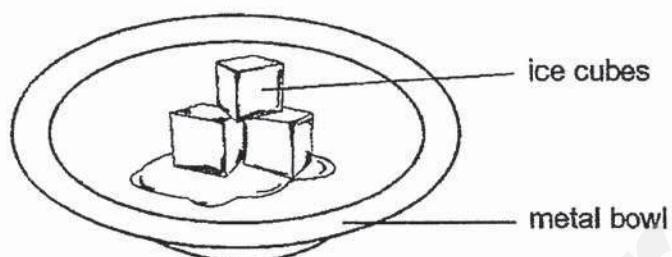
- b) Based on the information given, explain how moving the fish tank to a shady spot will prevent the growth of algae in the fish tank. [2]

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39. Mrs Lee put three ice cubes on a metal bowl. She placed the bowl in a room with a temperature of about 30°C. After a short while, the ice cubes started to melt as shown below.



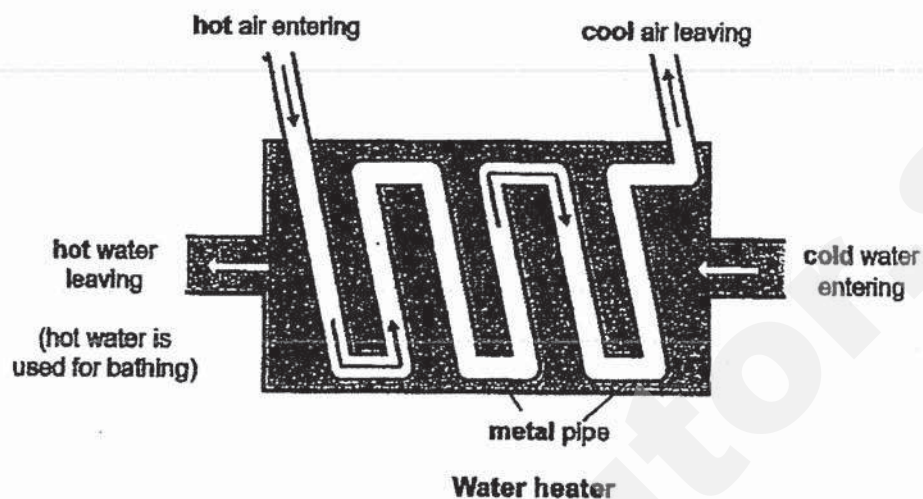
- (a) Based on the information given, complete the table below.

[1]

The ice cubes	Source of heat
<input type="checkbox"/> gained heat <input type="checkbox"/> lost heat Tick (✓) the correct box.	Name the source of heat that made the ice cubes melt. _____

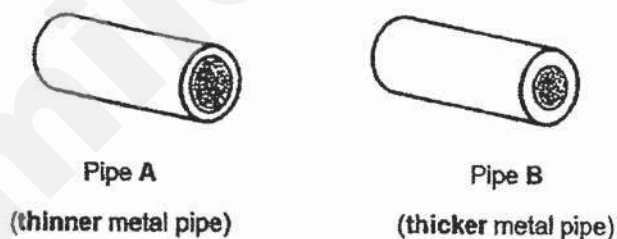
**Question 39 continued**

The diagram below shows the water heater system in Mrs Lee's home.



- (b) Explain why a metal pipe is more suitable for the water heater than a plastic pipe. [1]

The diagrams below show two similar metal pipes of different thickness.

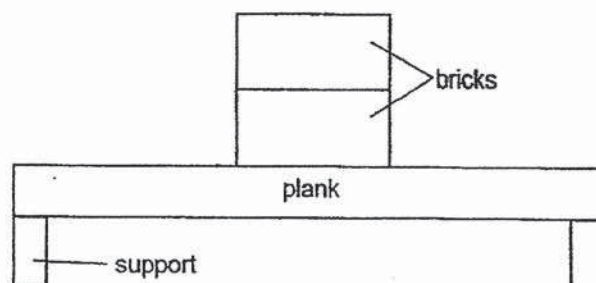


Mrs Lee wants to make improvements to the water heater system so that the water becomes hotter faster.

- (c) Explain why using metal pipe A will make the water hotter in a shorter time. [1]

- (d) Suggest **another** improvement she can make to the metal pipe in the water heater to obtain hotter water. [1]

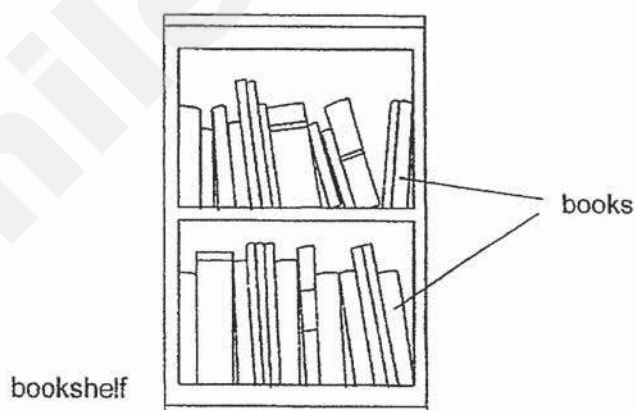
40. Malek used the set-up shown below to test the strength of four planks made of different materials, A, B, C and D. He placed identical bricks, one at a time, on each plank until the plank broke.



His results are shown in the table below.

Material of plank	Maximum number of bricks placed on the plank before it broke
A	15
B	21
C	9
D	13

The diagram below shows a bookshelf.



- a) Based on the results given, which material (A, B, C or D) would be most suitable to make the bookshelf? Explain your answer.

[2]

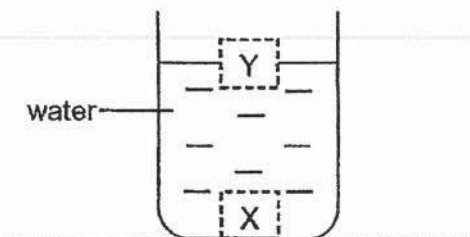
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**Question 40 continued**

Alex placed two different blocks, M and N, into a beaker of water as shown below.



- b) Block M was found at position Y, while block N was found at position X.

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

[2]

floats	sinks	contracts	expands
--------	-------	-----------	---------

This shows that block M \_\_\_\_\_ in water, and block N \_\_\_\_\_ in water.

41. Tick (✓) if each of the following has a definite shape and / or a definite volume.

[3]

	<u>Has definite shape</u>	<u>Has definite volume</u>
a) milk	( )	( )
b) ruler	( )	( )
c) air	( )	( )

End of Booklet B

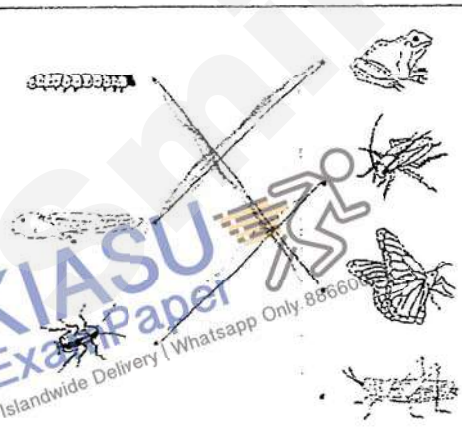
Setters: Mrs Priscilla Heng, Mr Yuan Kee King and Mdm Nadia Abu Bakar

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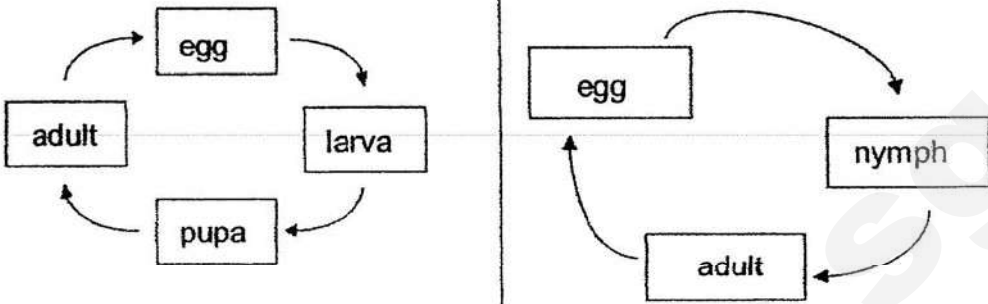
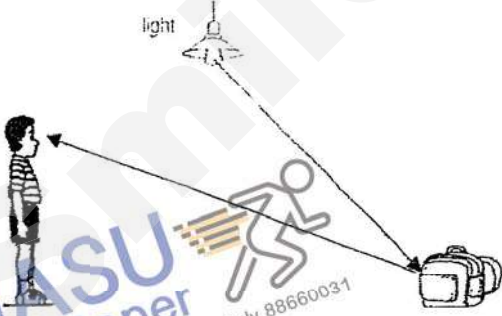


# **CORRECTIONS SHEET FOR P4 SCIENCE 2019 SA2**

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

29a	The digested food in the small intestine is absorbed into the blood	
b	The gullet does not produce any digestive juices to breakdown the undigested food passing through	
30	(a) air (b) grow	
31		
32a	As the number of leaves increase, the plant takes in more water.	
32 b	Temperature of water	



32 c	211ml	
33a		
33b	Mosquitoes lay their eggs in the water but grasshoppers lay their eggs on land.	
33c	Mosquitoes lay eggs in still water. By removing still water, mosquitoes cannot reproduce/breed.	
34a.		
34b.	W and Y	
34c.	The <u>paper lantern</u> blocks some light from passing through.	
35a.	Water level will increase. Air blown into the balloon will occupy the space in the balloon. The inflated balloon will occupy more space in the water.	

35b. (i)	There is already air taking up space in the bottle	
35b. (ii)	Make a hole in the plastic bottle so that air in the bottle escapes.	
36a.	Temperature is the unit of measurement of the amount of heat energy an object has.	
36b.	Cup B lost heat to the ice cubes and contracted.	
36c.	It will buckle as the metal rail gains heat from the Sun or surrounding and expands.	
37a	Object in set-up 1 is closer to the light source so the shadow cast is bigger.	
37b	The position or angle of the light source.	
38a	The magnets are attracted to each other as their unlike poles are facing each other. As magnet B moves, magnet A moves along in the same direction and at the same time scraping off the algae out of the tank.	
38b.	Algae cannot make food as it will not receive any sunlight.	
39a.	Ice cubes gain heat from the surrounding air or metal bowl.	

39b.	Metal pipe conducts heat from the hot air to the cold water faster.	
39c.	Pipe A is thinner so heat is conducted to the water faster.	
39d.	Make the metal pipe longer.	
40a.	Material B. It needed the most number of bricks to be placed on it before it broke. This shows that it is the strongest material. So it will not break easily when holding the weight of a large number of books.	
40b.	Floats, sinks	
40c.	(a) Tick ( <input type="checkbox"/> ) definite volume only (b) Tick ( <input type="checkbox"/> ) both (c) Tick ( <input type="checkbox"/> ) neither	

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MAHA BODHI SCHOOL  
2019 SEMESTRAL ASSESSMENT 2  
PRIMARY FOUR SCIENCE  
(BOOKLET A)

Name : \_\_\_\_\_ (      )

Class : Primary 4 \_\_\_\_\_

Date : 1 November 2019

Total Duration for Booklets A and B: 1 h 30 min

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**INSTRUCTIONS TO CANDIDATES:**

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Shade your answers in the Optical Answer Sheet (OAS) provided.

This booklet consists of **18** printed pages.

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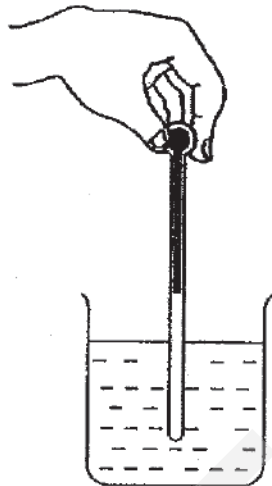


**BOOKLET A : [27 x 2 marks = 54 marks]**

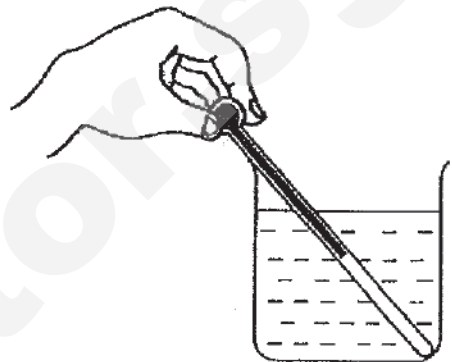
For each question from 1 to 27, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). **Shade your answer on the Optical Mark Sheet.**

1. Which of the following is a correct position of the thermometer when taking temperature reading of the water?

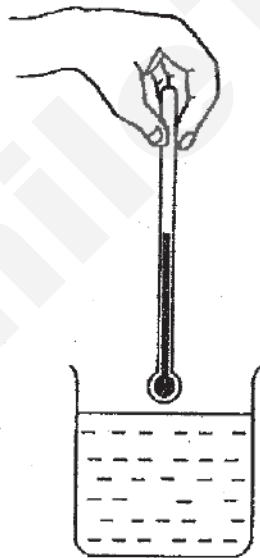
(1)



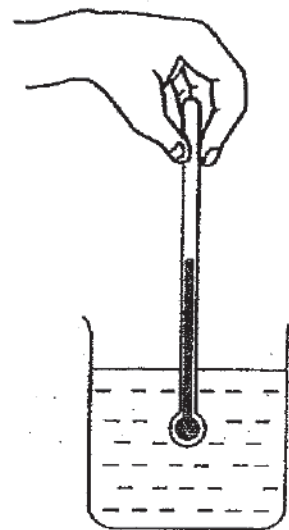
(2)



(3)



(4)



2. Which one of the following substances has a definite shape?

- (1) air
- (2) paint
- (3) coffee
- (4) drawing paper

3. Which of the following is a source of light?

(1)



an orange

(2)



a fire

(3)



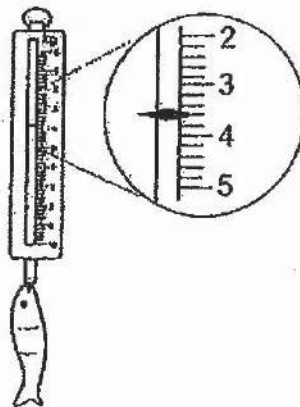
the moon

(4)



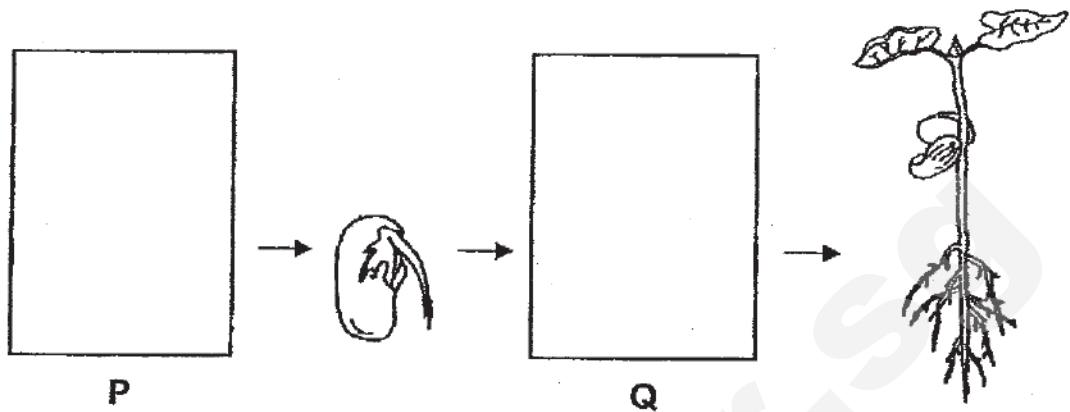
a leaf

4. The reading on the weighing scale shows that the mass of the fish is \_\_\_\_\_ kg.

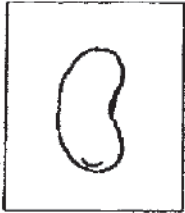









- (1) 3.3
- (2) 3.6
- (3) 3.8
- (4) 4.2

5. The diagram below shows the growth of a young plant with two missing stages P and Q.



Which one of the following shows the correct stages for P and Q?

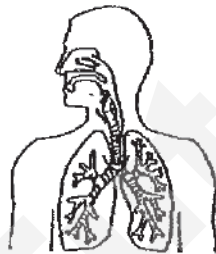
- (1)  
- (2)  
- (3)  
- (4)  

6. The arrows (  $\longrightarrow$  ) in the diagram show the direction of movement of a substance in plants.

leaves  $\longrightarrow$  stem  $\longrightarrow$  roots

What is this substance?

- (1) minerals
  - (2) soil
  - (3) food
  - (4) water
7. Which organ system is shown in the diagram?



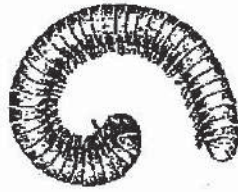
- (1) skeletal system
  - (2) muscular system
  - (3) circulatory system
  - (4) respiratory system
8. The diagram shows a magnet brought near a plastic block.



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.

9. A millipede coils itself when touched.



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

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

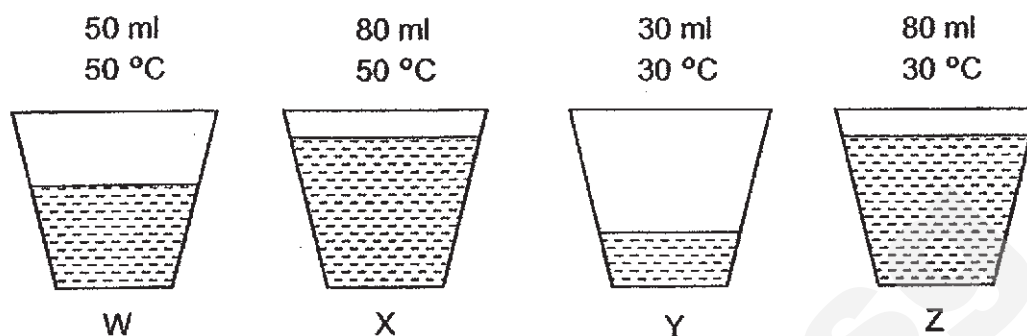
10. The diagram shows a cutting knife.



Metal is used to make the blade of the knife because metal

- (1) can reflect light
- (2) does not break easily
- (3) can bend without breaking
- (4) does not allow light to pass through

11. The diagram below shows four containers W, X, Y and Z each filled with different volumes of water at different temperatures.



Which of the containers of water has the most amount of heat?

- (1) W
  - (2) X
  - (3) Y
  - (4) Z
12. A metal spoon was placed in a container of water at 70 °C as shown below.



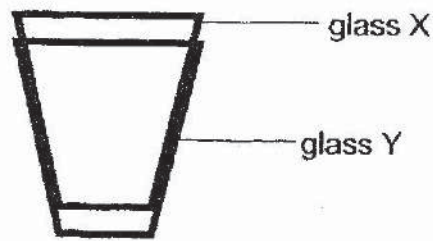
Which of the following statements are true?

- A. The water loses heat to the metal spoon.
- B. The metal spoon gains heat from the water.
- C. The water loses heat to the surrounding air.
- D. The surrounding air gains heat from the water.

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



13. The diagram below shows two glasses, X and Y, which are stuck together.

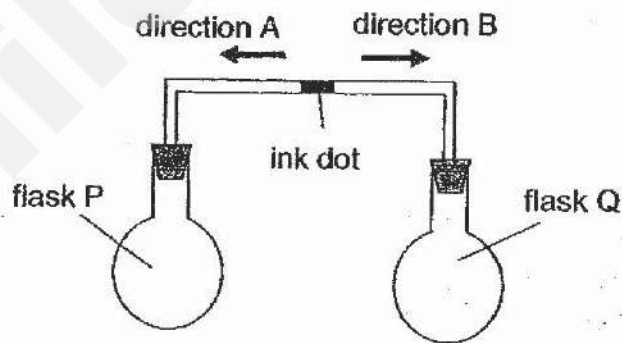


Which of the following actions and explanations correctly show how glasses X and Y can be separated?

	Action	Explanation
A.	Put hot water into glass X	Glass X will contract
B.	Put ice cubes into glass X	Glass X will contract
C.	Put glass Y in hot water	Glass Y will expand
D.	Put glass Y in ice	Glass Y will expand

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

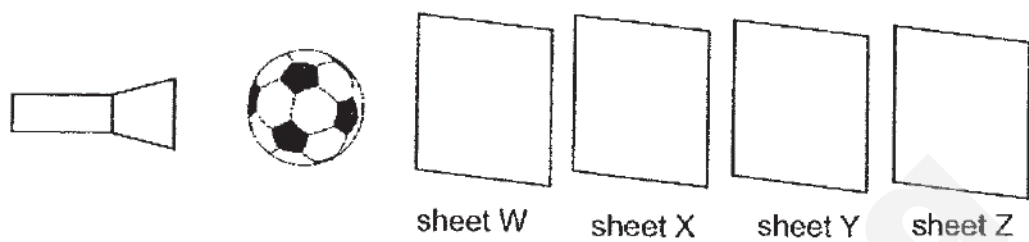
14. Study the set-up below.



Which of the following correctly describes the movement of the ink dot and the explanation when flask Q is placed in a basin of ice.

	direction of ink dot	Explanation
(1)	A	Air in flask Q contracted.
(2)	A	Air in flask P expanded.
(3)	B	Air in flask Q contracted.
(4)	B	Air in flask P expanded.

15. Linda conducted an experiment as shown in the diagram below. She placed a torch, football and four sheets of different materials in a straight line. She then turned on the torch.



A circular dark shadow was formed on sheet Y.

Based on the observation, which of the following can be concluded?

	Allow light to pass through	Do not allow light to pass through	Not able to tell
(1)	Y	W and X	Z
(2)	W and X	Y	Z
(3)	W and X	Z	Y
(4)	X and Z	W	Y

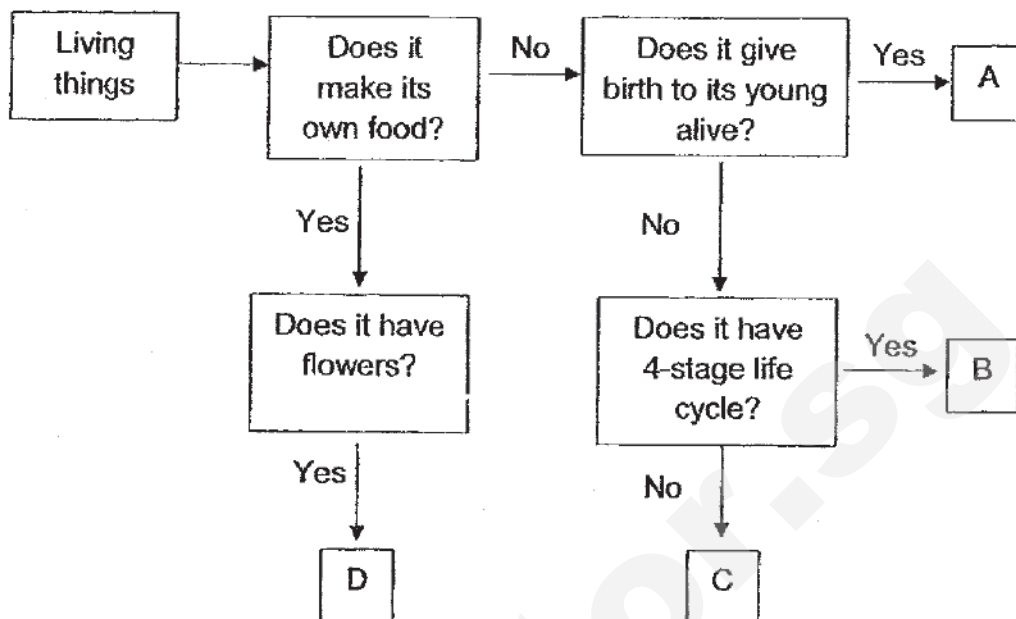
16. Study the table below.

	The young looks like the adult	Has 3-stage life cycle
Animal X	✓	✓
Animal Y	✗	✓

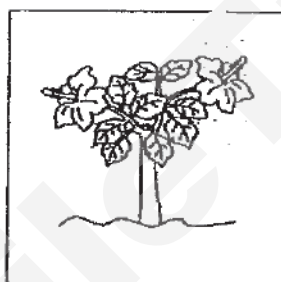
Based on the information above, which of the following pair of animals most likely to represents animals X and Y?

	Animal X	Animal Y
(1)	frog	cockroach
(2)	chicken	beetle
(3)	beetle	chicken
(4)	cockroach	frog

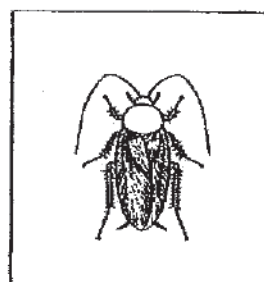
17. Study the chart below.



Linda wanted to place organisms P and Q in the chart above.



Organism P

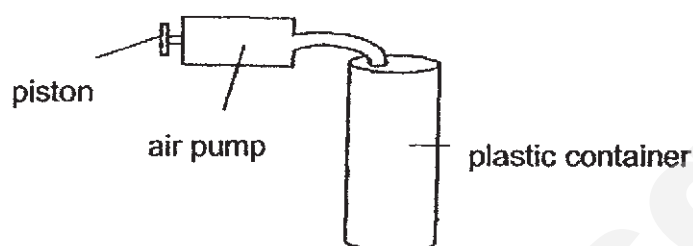


Organism Q

Where would you place organisms P and Q in the chart above?

	Organism P	Organism Q
(1)	A	B
(2)	D	C
(3)	C	A
(4)	D	B

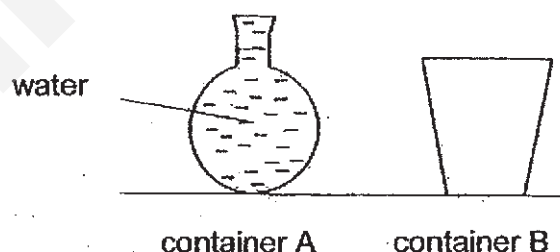
18. A plastic container has a capacity of  $300\text{ cm}^3$ . It was filled with  $200\text{ cm}^3$  of water. An air pump was attached to it as shown below. Each time the piston was pushed,  $100\text{ cm}^3$  of air was forced into the plastic container.



When Karen pushed the piston in three times, she observed that the size of the container remained the same.

Which one of the following best explains her observation?

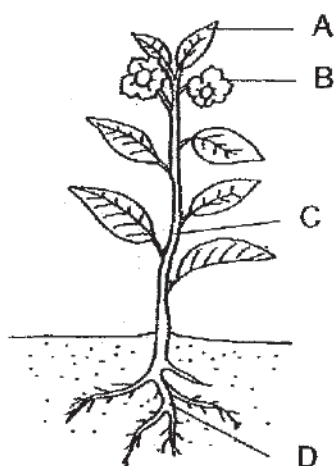
- (1) Air takes up space.
  - (2) A solid takes up space.
  - (3) Air can be compressed.
  - (4) A solid has a fixed shape.
19. The diagram below shows two containers, A and B, of the same volume. Container A is filled to the brim with water as shown in the diagram below.



Which one of the following is most likely to happen when all the water is poured from container A into container B?

- (1) The volume of water increases.
- (2) The volume of water decreases.
- (3) The water takes the shape of container B.
- (4) The height of the water in container A and container B is the same.

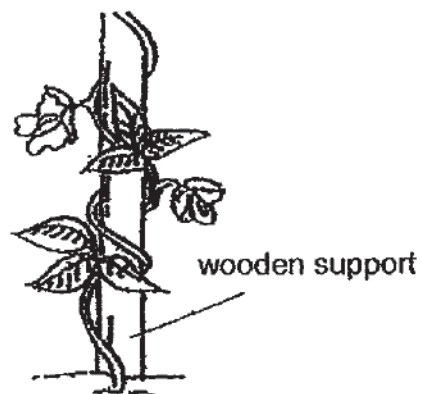
20. The diagram below shows a plant.



Which of the following correctly identifies the plant parts and its functions?

	Makes food for the plant	Anchors the plant to the ground	Holds the plant upright
(1)	B	C	D
(2)	A	D	C
(3)	A	C	D
(4)	B	D	C

21. The diagram below shows a plant around a wooden support.

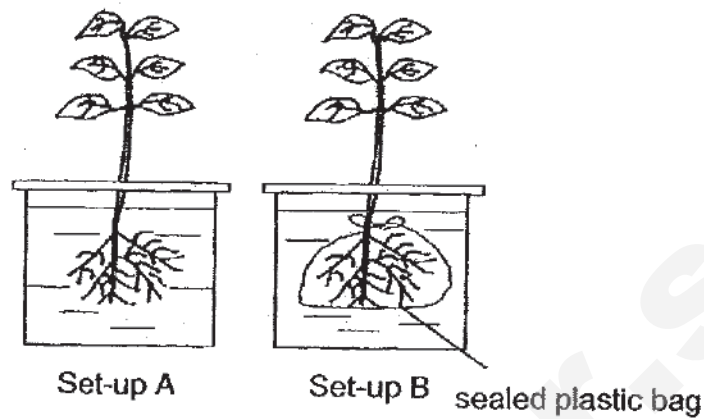


Based on your observation of the plant above, which of the following statements about the plant are correct?

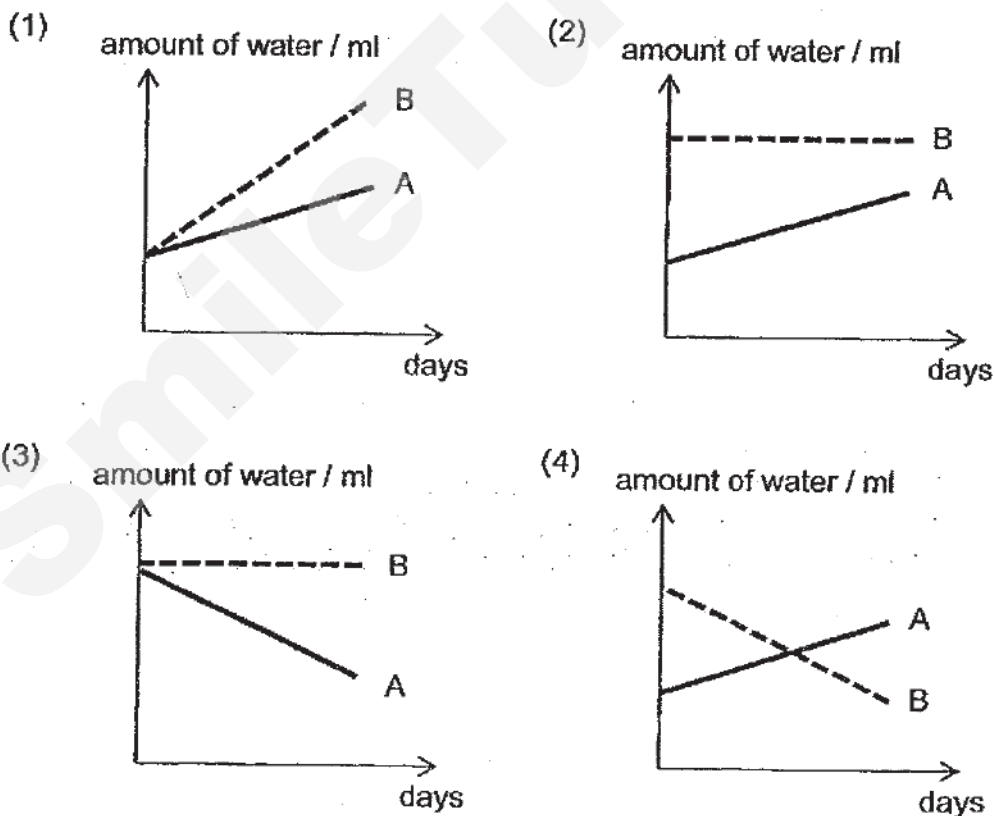
- A. The plant has a weak stem.
  - B. The plant will produce fruits.
  - C. The plant is a flowering plant.
  - D. The plant uses its leaves to climb the support for sunlight.
- (1) A and B only
  - (2) B and D only
  - (3) A, B and C only
  - (4) A, B, C and D



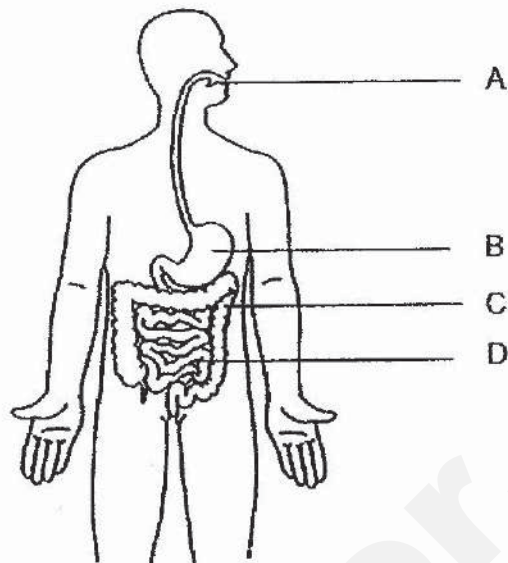
22. Gerald carried out an experiment to find out if roots absorb water. He used set-ups A and B as shown in the diagram below. After three days, he recorded his results in a graph to show the change in the amount of water in the set-ups.



Which of the following graphs shows the change in the amount of water in set-ups A and B after three days?



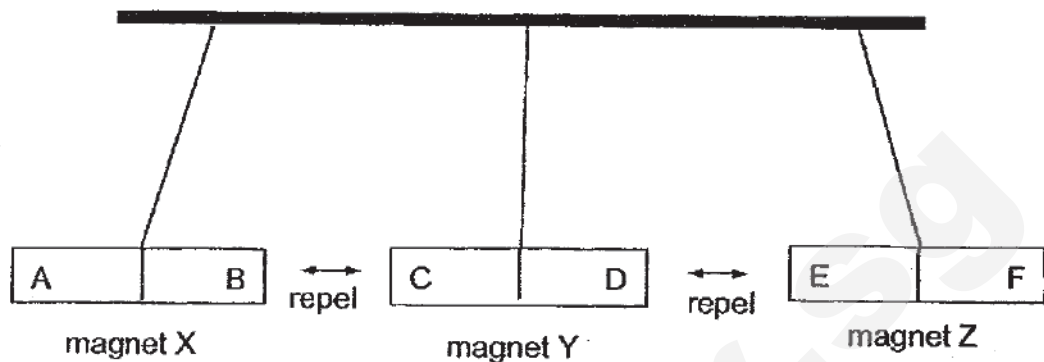
23. The diagram below shows the human digestive system.



Which of the following statements is correct?

- (1) Digestion ends in Part C.
- (2) Part B is where digestion first starts.
- (3) Food is completely digested in Part D.
- (4) Part A does not contain digestive juices.

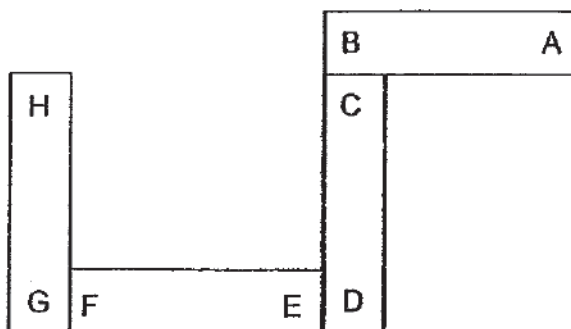
24. Henry hung three similar magnets X, Y and Z on a rod. The diagram below shows magnet Y pushing magnet X and magnet Z away. The letters A, B, C, D, E and F represent the poles of the 3 magnets.



What would happen to the set-up above if Henry replaces magnet Y with an iron rod?

- (1) Magnet X and Z will repel the iron rod.
- (2) Magnet X and Z will attract the iron rod.
- (3) Magnet X will repel the iron rod while magnet Z will attract the iron rod.
- (4) Magnet Z will repel the iron rod while magnet X will attract the iron rod.

25. The diagram below shows four identical bar magnets.

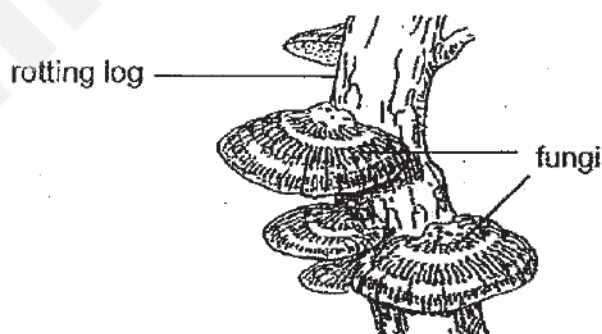


Based on the diagram above, which of the following statements about the poles of the magnet are true?

- A. Poles B and G are like poles.
- B. Pole H will repel poles F and D.
- C. Pole D will repel pole B and attracted to pole F.
- D. Pole E will repel pole A and be attracted to pole H.

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

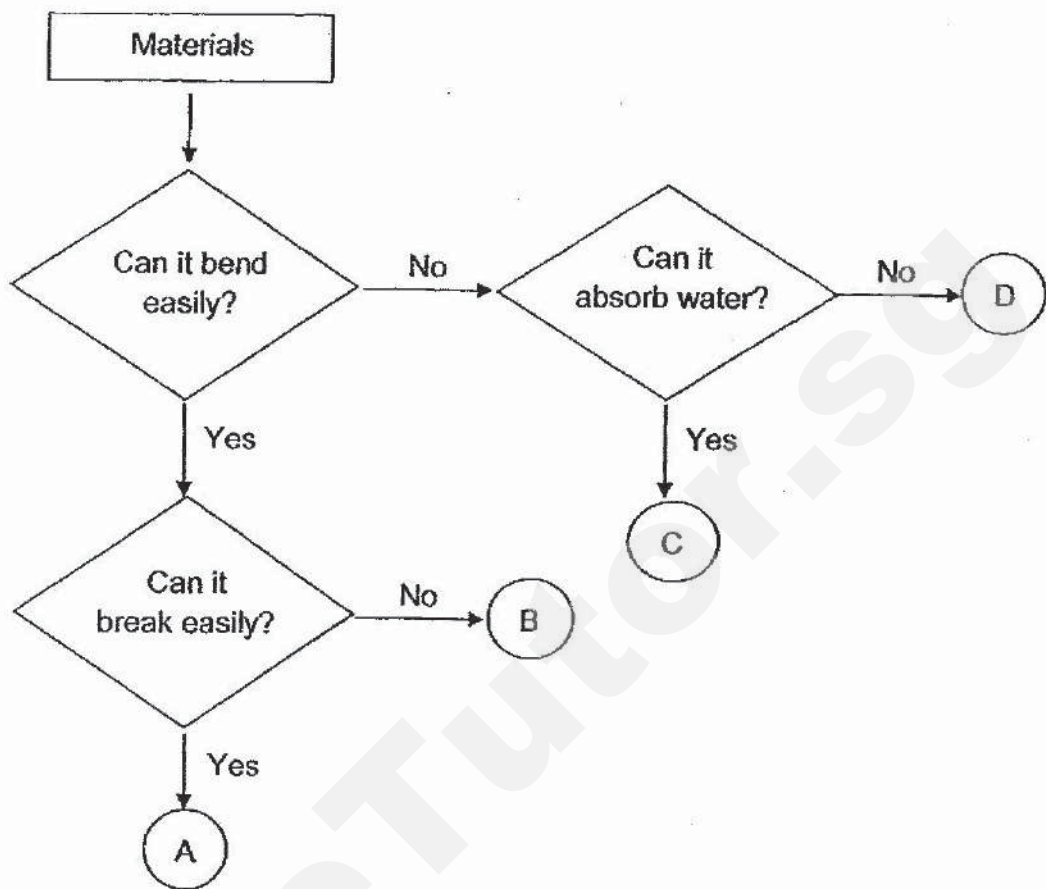
26. The diagram below shows fungi growing on a rotting log.



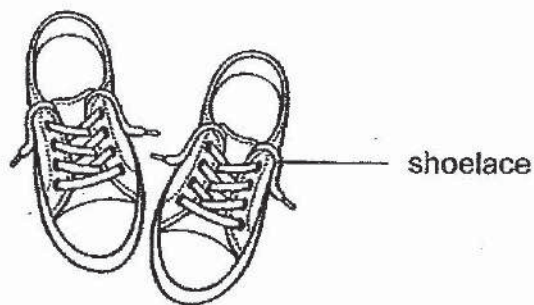
Why does the fungi grow on the rotting log?

- (1) Fungi can get more water.
- (2) Fungi can get more sunlight.
- (3) Fungi can feed on the rotting log.
- (4) Fungi are protected by the rotting log.

27. Study the flowchart below.



The diagram below shows a pair of shoe.



Based on the flowchart, which material A, B, C or D is most suitable to make the shoelace?

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

END OF BOOKLET A

GO ON TO BOOKLET B

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MAHA BODHI SCHOOL  
2019 SEMESTRAL ASSESSMENT 2  
PRIMARY FOUR SCIENCE  
(BOOKLET B)

Name: \_\_\_\_\_ (       )

Class: Primary 4 \_\_\_\_\_

Date : 1 November 2019

Total Duration for Booklets A and B: 1 h 30 min

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**INSTRUCTIONS TO CANDIDATES:**

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Write all your answer in this booklet.

Booklet	Marks Obtained	Max Marks
A		54
B		36
Total		90

Parent's signature: \_\_\_\_\_

This booklet consists of **11** printed pages.

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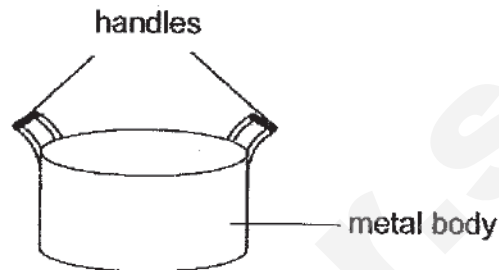
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**BOOKLET B : [36 marks]**

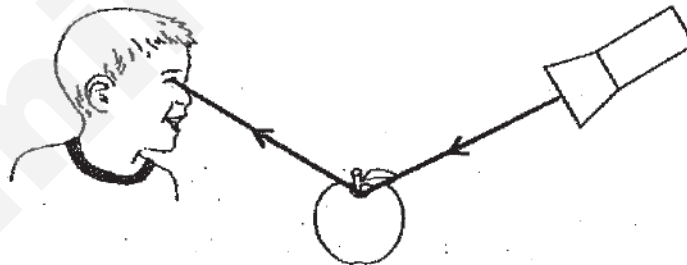
For questions 28 to 40, write your answers in this booklet.

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

28. The diagram below shows a pot used for boiling water.



- (a) The handles are made of plastic because plastic is a \_\_\_\_\_ conductor of heat. [1]
- (b) The body of the pot is made of metal because metal is a \_\_\_\_\_ conductor of heat. [1]
29. The diagram below shows how James sees the apple.



The \_\_\_\_\_ from the torch is \_\_\_\_\_ by the apple and enters James' eye. [2]

Marks : / 4

30. Classify the following animals according to the number of stages in their life cycle. [2]



frog



butterfly



mosquito



grasshopper

Three stages	Four stages

31. Jasmine observed and grouped some things as shown in the table.

F	G
elephant	rock
bee	tablecloth
mushroom	pencil

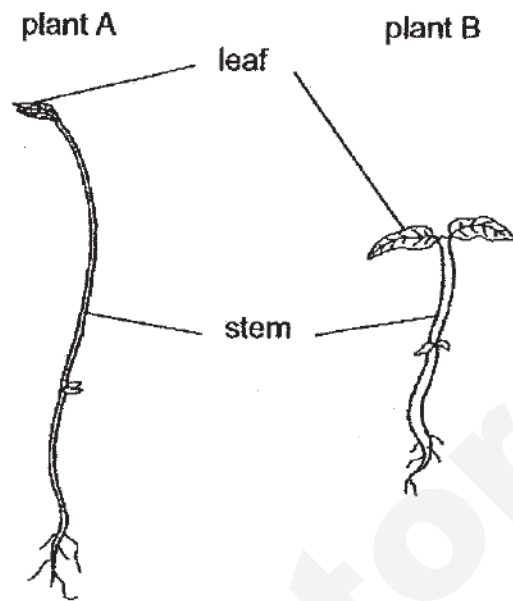
- (a) What are the suitable headings for groups F and G? [2]

Group F: \_\_\_\_\_

Group G: \_\_\_\_\_

Marks : / 4

32. The diagram below shows two plants.



- (a) What is one difference between the stem of plant A and the stem of plant B? [1]

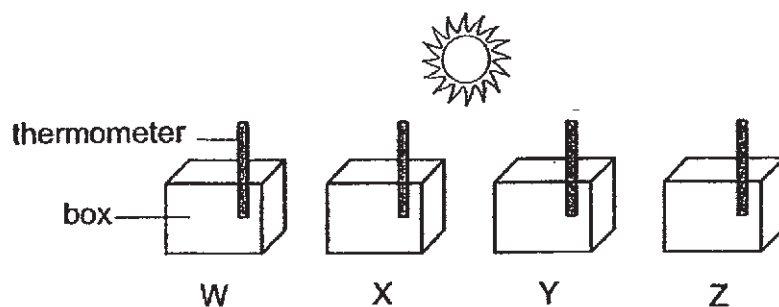
The stem of plant B is \_\_\_\_\_ than the stem of plant A.

- (b) The leaves help both plants make \_\_\_\_\_ in the light. [1]

Marks : 

/ 2
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33. Jonathan conducted an experiment. He placed four boxes under the hot sun. The boxes were of the same size but made of different materials W, X, Y and Z.



After twenty minutes, he measured the temperature of air in the boxes using a thermometer and recorded his results in the table below.

Box	Temperature of air / °C
W	32
X	25
Y	40
Z	35

- (a) What is the property of the material of Box Y for its temperature reading to be the highest? [1]

---

- (b) Which box W, X, Y or Z should Jonathan use if he wanted to keep ice cream from melting? Explain your answer. [2]

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- (c) Jonathan placed all the boxes into an air-conditioned room which had a temperature of 20 °C. He measured the temperature of air inside the boxes three hours later. He observed that the air in all the boxes have the same temperature.

What is the temperature of air in the boxes three hours later? [1]

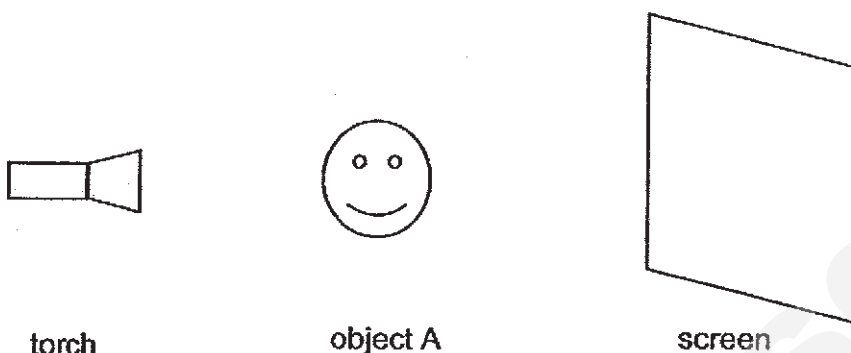
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Marks : / 4



34. Shirley placed object A in between a torch and a screen in a dark room. She then switched on the torch.



- (a) Explain how a shadow is formed.

[1]

---

---

- (b) She observed that even though the torch was shining brightly, there was no shadow formed on the screen.

Based on her observation, suggest a property of the material that was used to make object A.

[1]

---

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- (c) She replaced object A with object B and it was able to form a dark shadow on the screen when the torch was switched on.

State one way Shirley could use object B to form a bigger shadow.

[1]

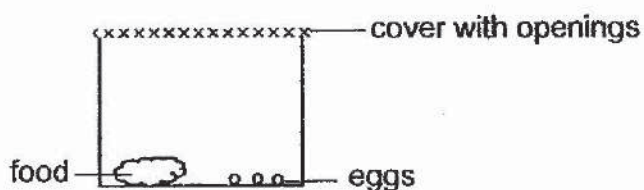
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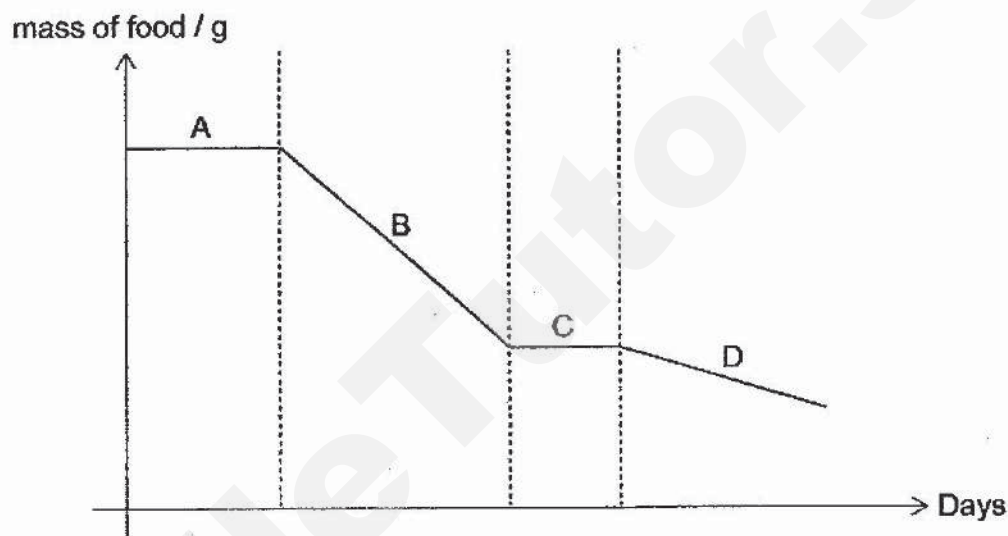
Marks :

/ 3

35. Pauline placed eggs of organism X in a container with some food as shown in the diagram below.



The graph below shows the mass of the food left inside the container after 20 days. Parts A, B, C and D represent the different stages of the life cycle of organism X.

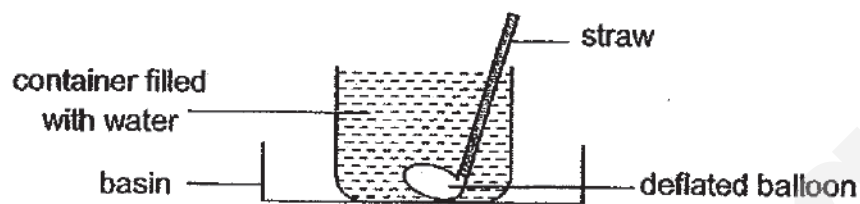


- (a) Name the stage in the life cycle of organism X at part C. [1]

- (b) Suggest a reason why the mass of the food at part B has the greatest decrease. [1]

Marks : / 2

36. A deflated balloon is fixed on one end of a straw and placed in a container. The container is then filled with water to the brim and placed in an empty basin as shown in the diagram below.



- (a) Anne blows air through the straw. She notices that there are changes to the balloon and the water in the container.

(i) What did she observe about the balloon? [1]

---

(ii) What did she observe about the water in the container? [1]

---

(iii) Explain your answer in a(ii). [1]

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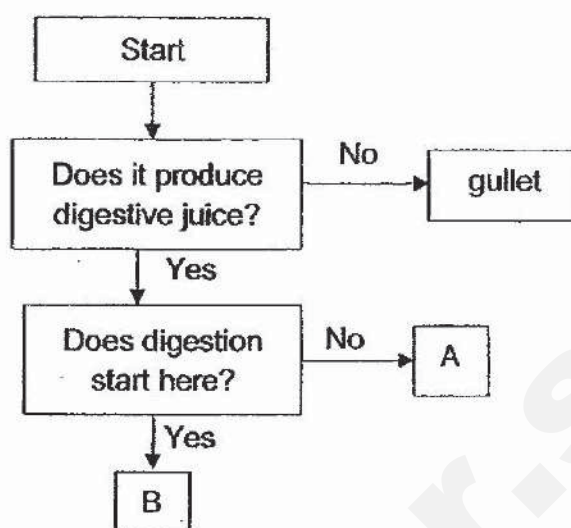
(b) What does the volume of water collected in the basin represent? [1]

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Marks :

/ 4

37. Study the flowchart below. A and B are organs in the human digestive system.



Based on the flowchart, identify the organs A and B.

[2]

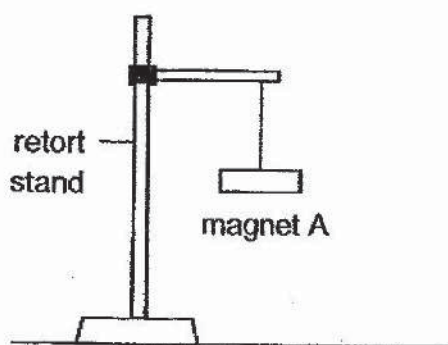
(a) Organ A: \_\_\_\_\_

(b) Organ B: \_\_\_\_\_

Marks :

12

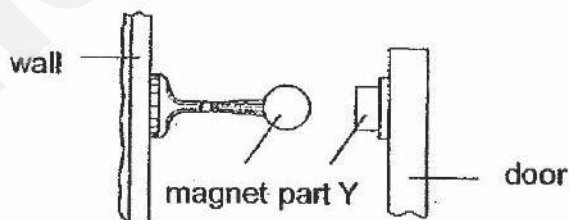
38. Magnet A was suspended with a string from a retort stand as shown in the diagram below.



- (a) In which direction would the freely suspended magnet come to a rest? [1]

- (b) Explain how magnet A can be used to find out if a metal bar is a magnet. [1]

- (c) The diagram below shows a magnetic door stopper that is commonly used in many homes.

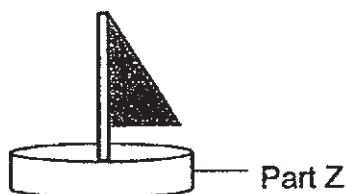


Based on the property of part Y, explain how the magnetic door stopper works. [2]

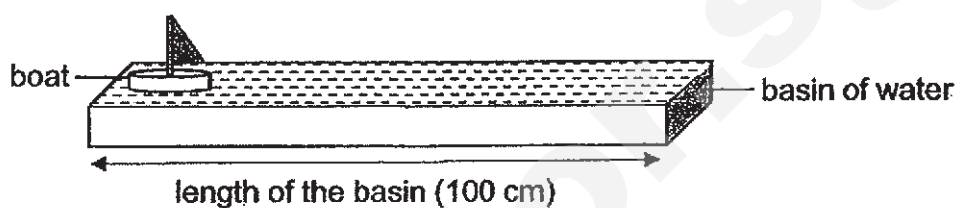
Marks :

/ 4

39. Alex carried out an experiment to find out which materials J, K, L and M is most suitable for making Part Z of a model boat for it to sail the longest distance.



He carried out the experiment by sailing each boat through a basin of water as shown below. All four boats could float on the water at the beginning of the experiment.



He recorded the distanced travelled by each boat made of material J, K, L or M before it sank.

Material	Distance travelled / cm
J	20
K	100
L	80
M	50

- (a) What physical property of the material caused it to sink in the water? Explain your answer. [2]

---

---

- (b) Based on his results, which material is the best for making Part Z of the model boat? Explain your answer. [2]

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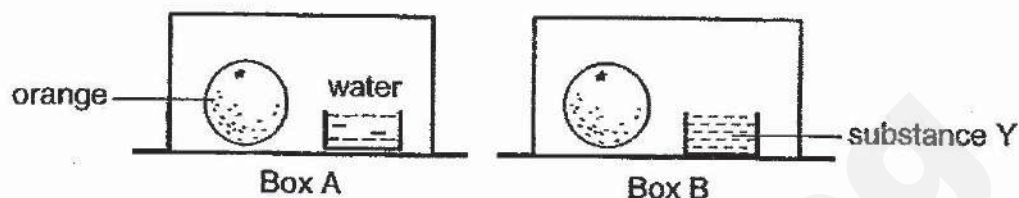
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Marks :

/ 4



40. Jeremy placed two similar oranges in two similar boxes A and B. He placed a container of water in box A and substance Y in box B. Substance Y absorbed water from the surrounding. He then placed boxes A and B in a warm place.



Five days later, Jeremy observed that one of the oranges had fungi growing on it.

- (a) Which variable was changed in the experiment?

[1]

Variables	Put a tick (✓) for the variable that was changed.
location	
presence of water	
temperature of surroundings	

- (b) Based on his observation, which box, A or B, would have fungi growing on the orange? Give two reasons for your answer.

[2]

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Marks :

13

~ END OF PAPER ~

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SCHOOL : MAHA BODHI PRIMARY SCHOOL

LEVEL : PRIMARY 4

SUBJECT : SCIENCE

TERM : 2019 SA2

**SECTION A**

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
4	4	2	2	1	3	4	2	3	2

Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
2	4	3	3	2	4	2	3	3	2

Q 21	Q22	Q23	Q24	Q25	Q26	Q27
3	3	3	2	3	3	2

**SECTION B**

		<u>Four stages</u>	
	Frog	Butterfly	
	Grasshopper	Mosquito	
Q31)	a)F : Living Things G : Non-Living Things		

Q32)	<p>a)thicker</p> <p>b)food</p>
Q33)	<p>a)Best conductor of heat.</p> <p>b)X. The temperature of air is the lowest so it is the poorest conductor of heat.</p> <p>c)20°C</p>
Q34)	<p>a)A shadow is formed when light is blocked by an object.</p> <p>b)A. Transparent.</p> <p>c)Move object B nearer to the torch.</p>
Q35)	<p>a)Pupae.</p> <p>b)Organism X are the most amount of food during that time.</p>
Q36)	<p>a)i)The balloon expanded.</p> <p>ii)Some water flowed out of the container.</p> <p>iii)The expanded balloon took up more space than before ,so there is less space for the water and the water is filled to the brim, so the water flowed out.</p> <p>b)The volume of air blown into the balloon.</p>
	<p>the metal bar repel each other, if they do,</p> <p>they are both magnet, if they do not the metal bar is not a magnet.</p> <p>c)Part Y is mad of a magnetic material which will be attracted to the magnet.</p>

Q39)	<p>a)The physical property of the material is that it is not waterproof, so it absorbed some water and the water made the boat heavier, so the boat sank</p> <p>b)K. It travelled the longest distance, which makes it, the most waterproof material amongst the four materials.</p>
Q40)	<p>a)presence of water</p> <p>b)A. Fungi need moisture to grow and firstly substance Y absorbs water from the surrounding while water does not, secondly the water in A provided for the fungi making it easier to grow.</p> <p>A. There is water and warmth in the box.</p>

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**MARIS STELLA HIGH SCHOOL (PRIMARY)**

**SA2 EXAMINATION**

**SCIENCE**

**31 OCTOBER 2019**

**BOOKLET A**

NAME: \_\_\_\_\_ (       )

CLASS: Primary 4 (       )

28 questions

56 marks

Total Time for Booklets A & B:     1 h 45 min

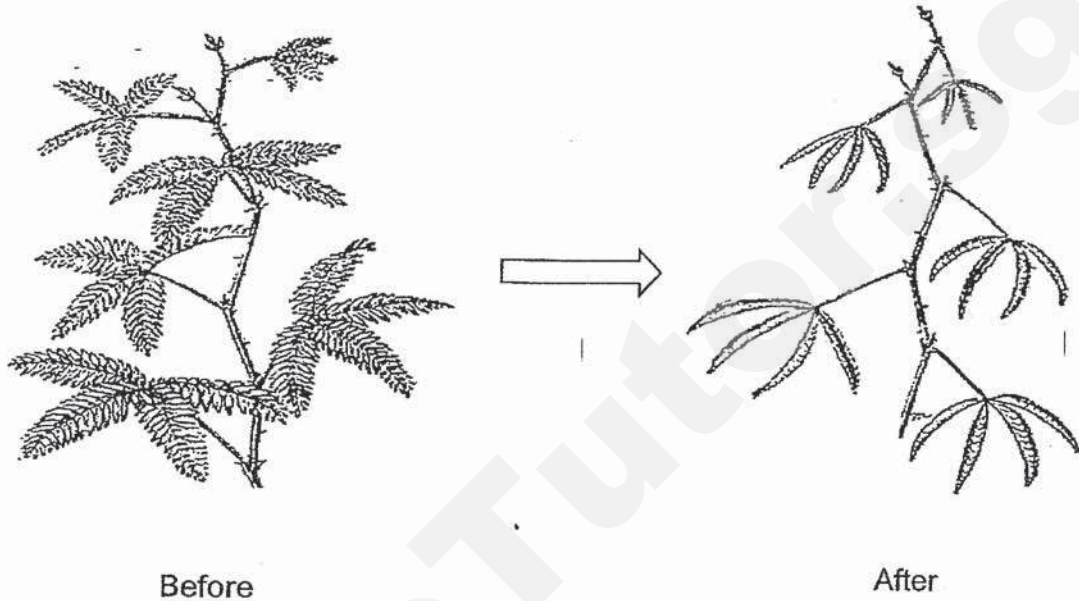
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

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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 (OAS).  
(56 marks)

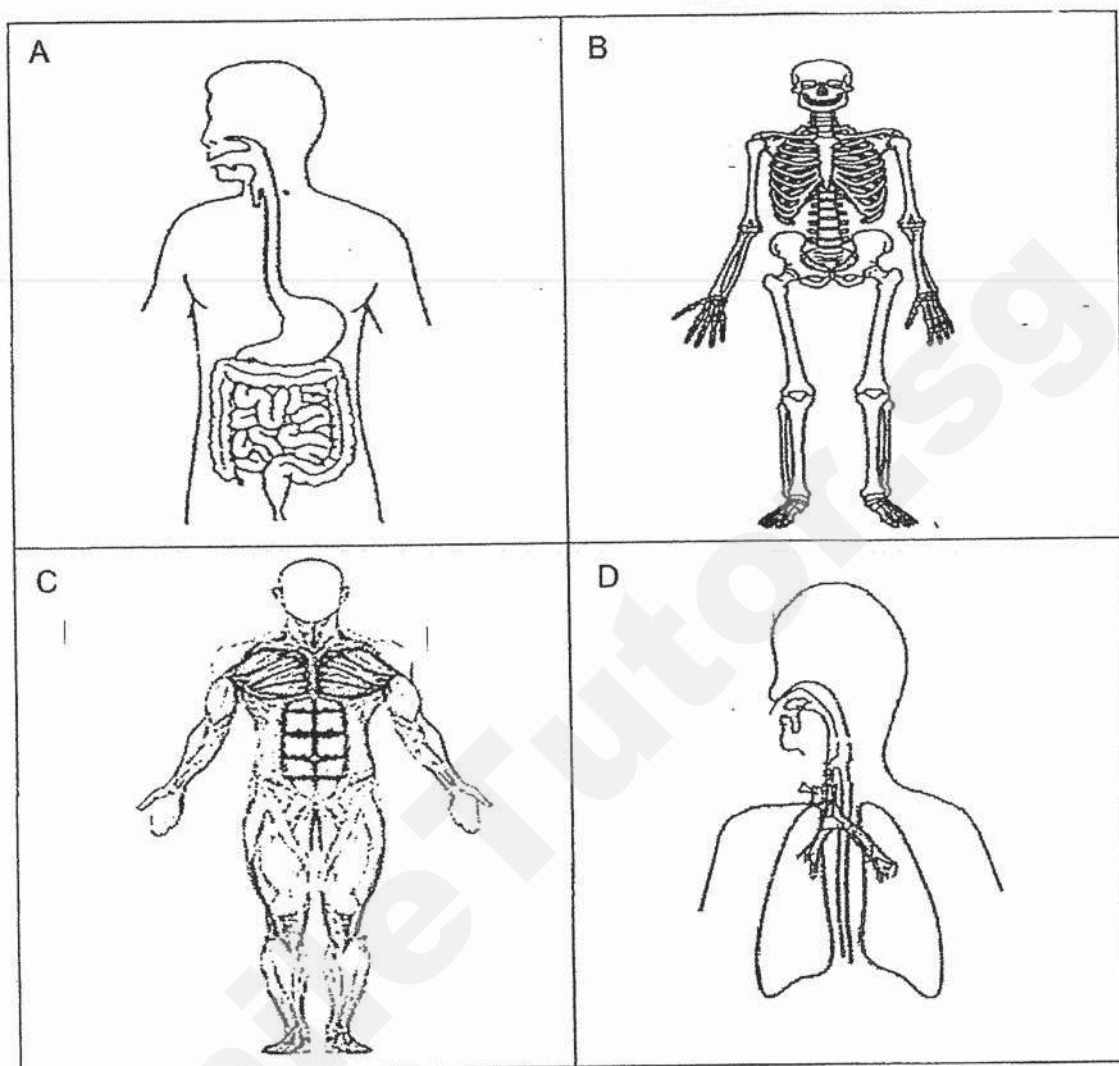
- 1 The pictures below show how the leaves of a mimosa plant fold up after being touched.



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

- (1) grow
  - (2) breathe
  - (3) respond
  - (4) reproduce
- 2 Which one of the following is true for both fish and amphibians?
- (1) Both lay eggs.
  - (2) Both have scales.
  - (3) Both have moist skin.
  - (4) Both can live both on land and in water.

3 Study the human systems below.



Which of the two human systems work together to allow a person to move around?

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

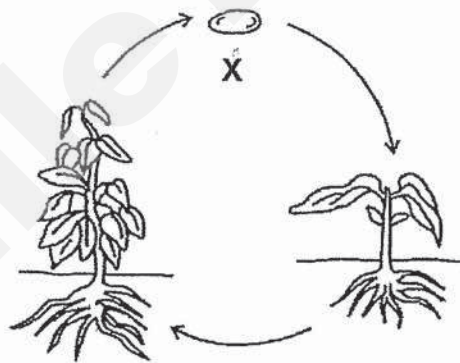
- 4 The picture below shows a swimming board.



The material used to make the swimming board has to be \_\_\_\_\_.

- (1) flexible
- (2) absorbent
- (3) transparent
- (4) able to float on water

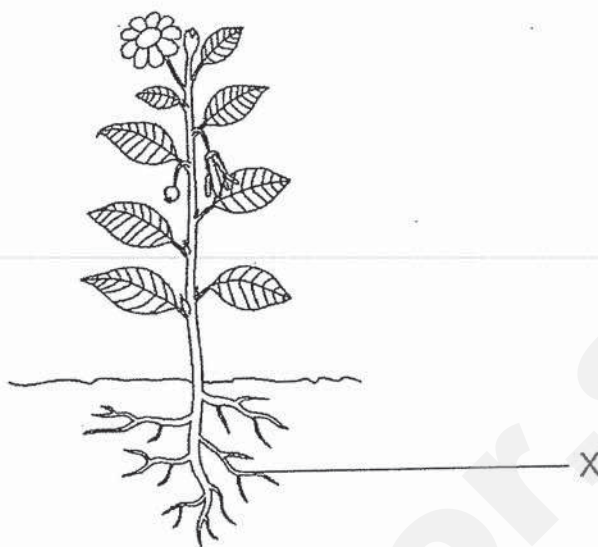
- 5 The diagram below shows the life cycle of a flowering plant.



What is stage X?

- (1) egg
- (2) seed
- (3) spore
- (4) young

- 6 The diagram below shows a picture of a plant.

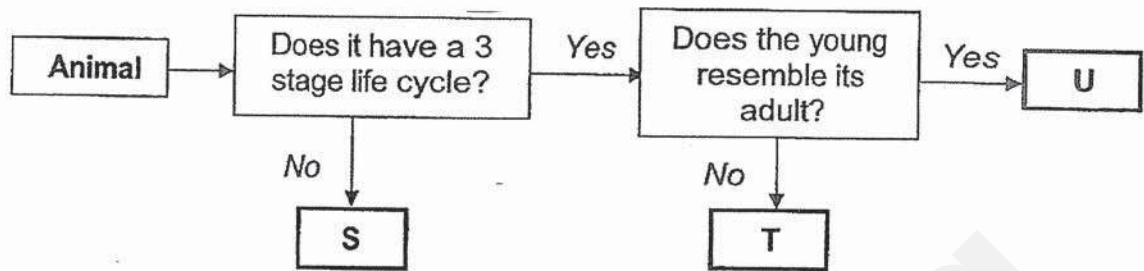


Which of the following are the functions of part X?

- A keeps the plant upright
  - B absorbs water from the soil
  - C holds the plant firmly to the ground
- (1) A and B only  
(2) A and C only  
(3) B and C only  
(4) A, B and C
- 7 In which part of the digestive system is water removed from the undigested food?
- (1) gullet  
(2) stomach  
(3) small intestine  
(4) large intestine



- 8 Study the flow chart below.



Which of the following correctly represents animals S, T and U?

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

- 9 Matter is anything that has mass and occupies space.

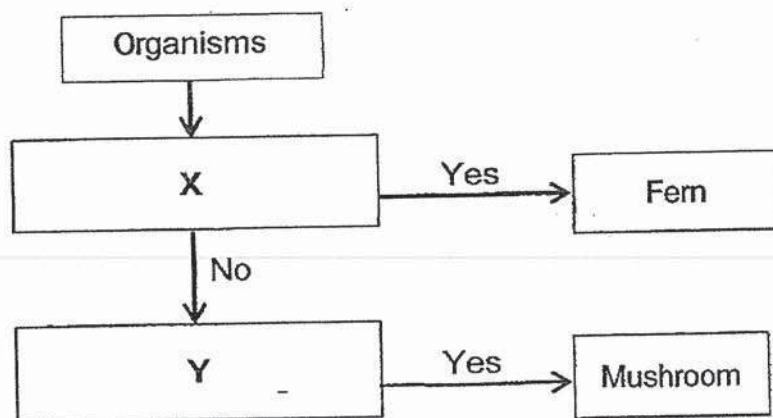
Which of the following is matter?

- (1) heat
- (2) light
- (3) sand
- (4) shadow

- 10 Which of the following has a fixed shape?

- (1) air
- (2) milk
- (3) stone
- (4) water

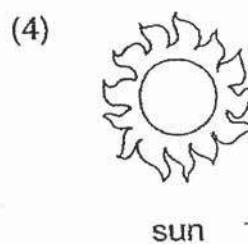
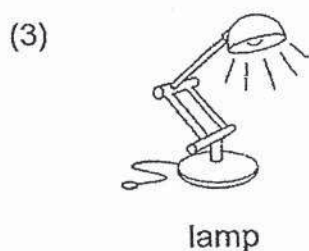
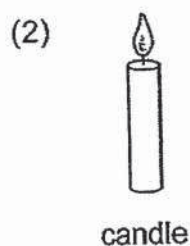
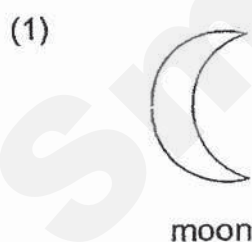
11 Study the flow chart below.



Which of the following questions best represents X and Y?

	X	Y
(1)	Does it bear flowers?	Does it reproduce by seeds?
(2)	Does it make its own food?	Does it reproduce by spores?
(3)	Does it reproduce by seeds?	Does it bear flowers?
(4)	Does it reproduce by spores?	Does it make its own food?

12 Which of the following is **not** a source of light?



13 Which of the following material can be attracted by a magnet?

- (1) steel
- (2) plastic
- (3) rubber
- (4) aluminium

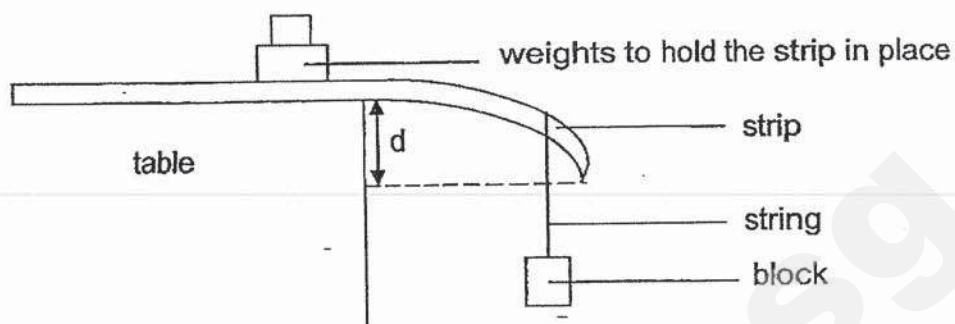
14 The table below shows the properties of three substances, A, B and C.

Substances	Properties	
	has definite shape	has definite volume
A	✓	✓
B		
C		✓

Which of the following substances is/are in liquid state?

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

- 15 Daryl has four similar strips made of different materials, A, B, C and D. He set up an experiment as shown below to test the flexibility of four strips.



He measured the distance each strip was pulled down by the same block. The table below shows his results.

Material strip is made of	Distance, $d$ (cm)
A	7
B	9
C	4
D	13

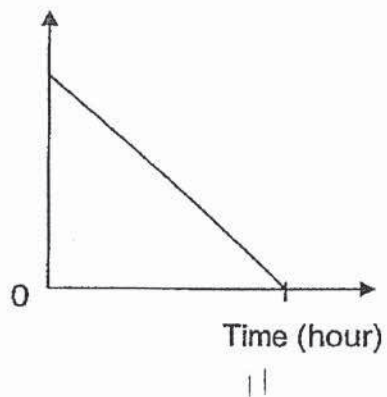
Based on the results above, which of the following statements is correct?

- (1) Material C is the most flexible.
- (2) Material D is the least flexible.
- (3) Material B is less flexible than Material D.
- (4) Material A is more flexible than Material B.

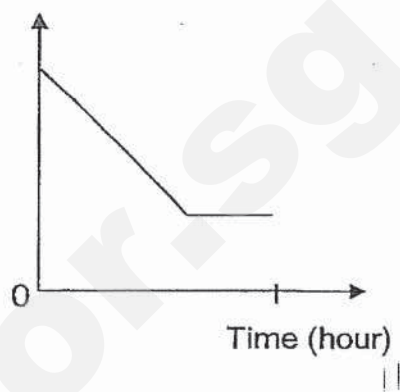
16 A glass of hot water was left on a kitchen table.

Which of the following graphs correctly shows the change in temperature of the glass of hot water over time?

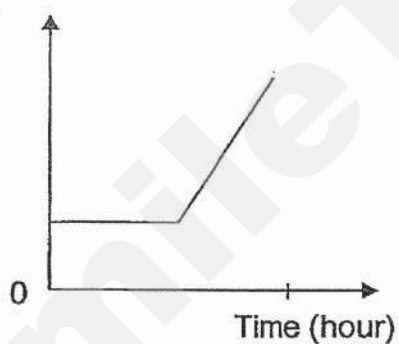
(1) Temperature ( $^{\circ}\text{C}$ )



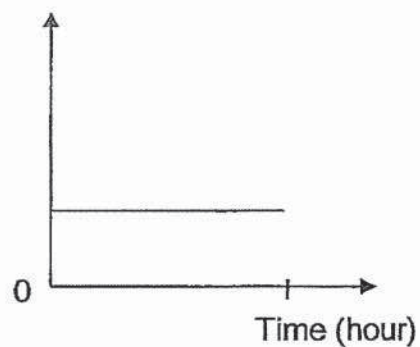
(2) Temperature ( $^{\circ}\text{C}$ )



(3) Temperature ( $^{\circ}\text{C}$ )



(4) Temperature ( $^{\circ}\text{C}$ )

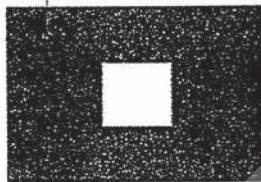


17 The diagram below shows light shining on a wooden toy.

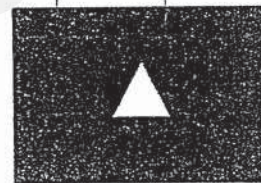


Which of the following would likely be seen on the screen when the torch is switched on?

(1)



(2)



(3)



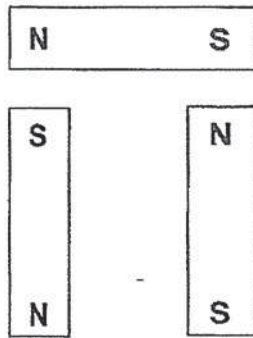
(4)



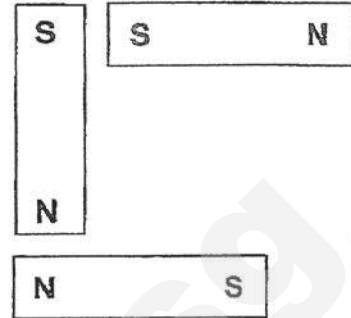


- 18 Which of the following arrangements would all the magnets move away from each other?

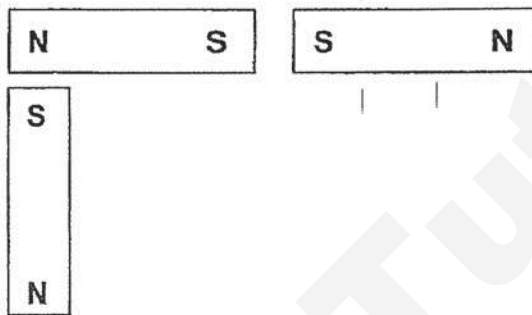
(1)



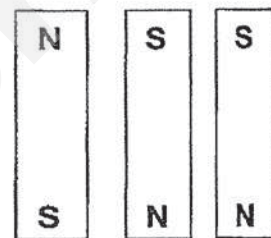
(2)



(3)



(4)



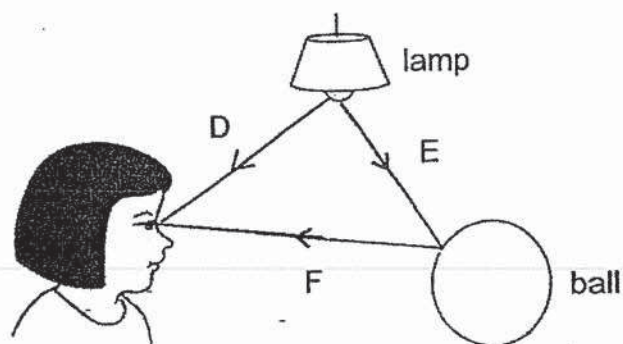
- 19 Dominic boiled some water in the pot as shown below.



He is able to hold the pot of hot water using the plastic handles because plastic is a \_\_\_\_\_.

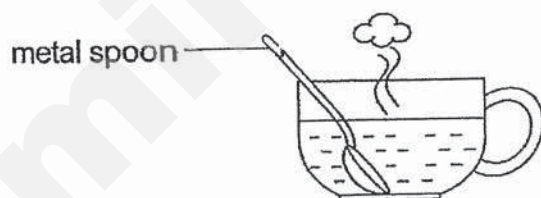
- (1) light material
- (2) flexible material
- (3) poor conductor of heat
- (4) good conductor of heat

- 20 Kate is looking at a ball as shown in the diagram below.



Which arrow(s) show the direction of light that allows Kate to see the ball?

- (1) D only
  - (2) E only
  - (3) D and F only
  - (4) E and F only
- 21 Jessica places a metal spoon in a cup of hot coffee.

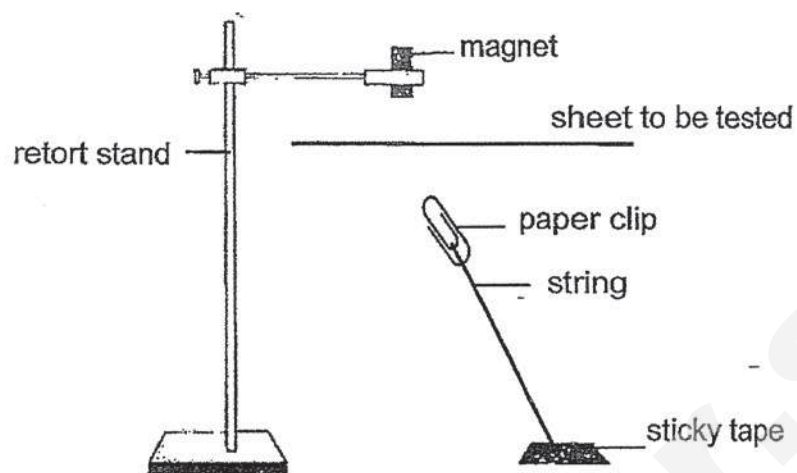


The spoon becomes hot after a while.

Which one of the following explains why?

- (1) The cup gains heat from 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.

- 22 Jing Xuan wants to use the set-up below to find out if magnetism can pass through paper and copper.



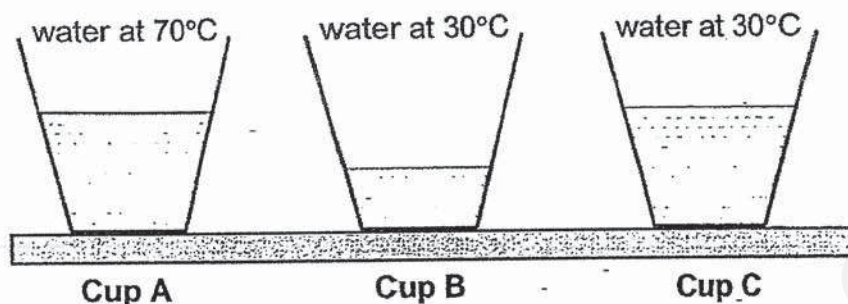
She has sheets A, B, C and D.

Sheet	Type of material	Thickness of material (cm)
A	paper	0.1
B	copper	0.1
C	paper	0.3
D	copper	0.2

Which two sheets should she use to ensure a fair experiment?

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

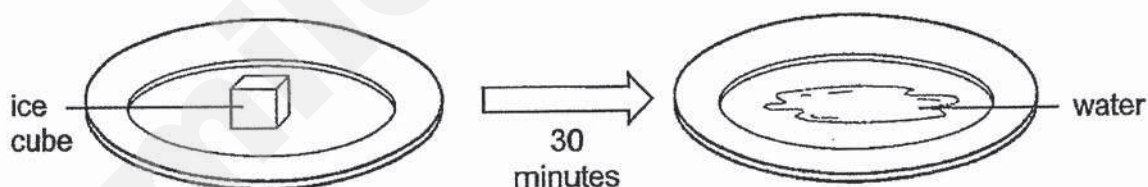
- 23 The diagram below shows 3 identical cups containing different amounts of water at different temperatures.



Which of the following shows the correct order of increasing amount of heat in the water for cups A, B and C?

	least amount of heat $\longrightarrow$ most amount of heat		
(1)	B	A	C
(2)	A	C	B
(3)	B	C	A
(4)	C	B	A

- 24 An ice cube was left on a plate as shown below. After 30 minutes, it turned into water.

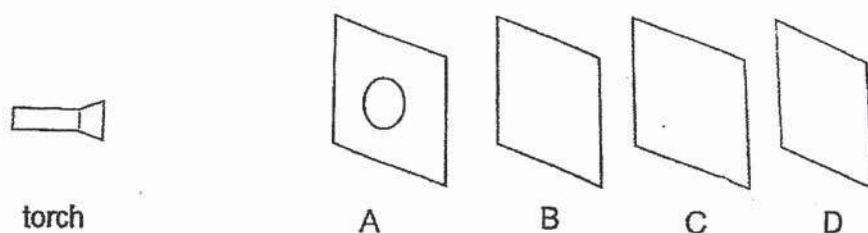


Based on the observation made after 30 minutes, which of the following is correct?

	Is there a change in state?	Did the ice cube lose heat?
(1)	Yes	No
(2)	Yes	Yes
(3)	No	No
(4)	No	Yes



- 25 Timothy carried out the following experiment in a dark room. Sheets A, B, C and D were arranged in a straight line as shown in the diagram below.



When the torch was switched on, a bright circular patch of light was seen on sheet C only.

Which of the following about the properties of sheets A, B, C and D is correct?

	Allow(s) light to pass through	Do(es) not allow light to pass through	Not possible to tell
(1)	A	C	B and D
(2)	B	A	C and D
(3)	B	A and C	D
(4)	A and B	C	D

- 26 Siti tried to attract some steel clips using a nail which had been stroked by a bar magnet. She observed that no steel clips were attracted.

Which of the following could be a possible reason for her observation?

- (1) The nail is made of steel.
- (2) The nail is made of copper.
- (3) The nail was stroked by the south pole of the bar magnet only.
- (4) The nail was stroked too many times in the same direction with the same pole of the bar magnet.

- 27 Steel bar AB was magnetised using the stroke method as shown in Diagram 1. Diagram 2 shows the magnetic poles of bar AB after it was magnetised.

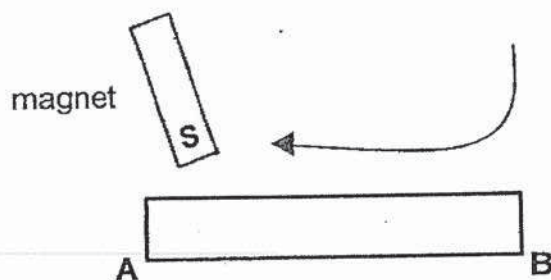
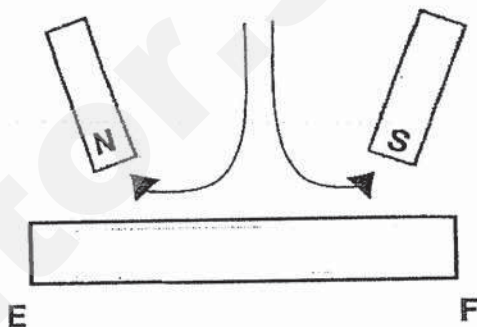
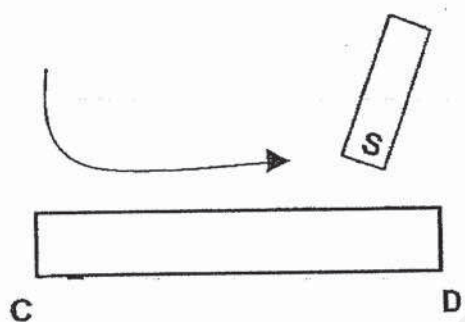


Diagram 1



Diagram 2

Steel bars CD and EF were magnetised as shown in the two diagrams below.

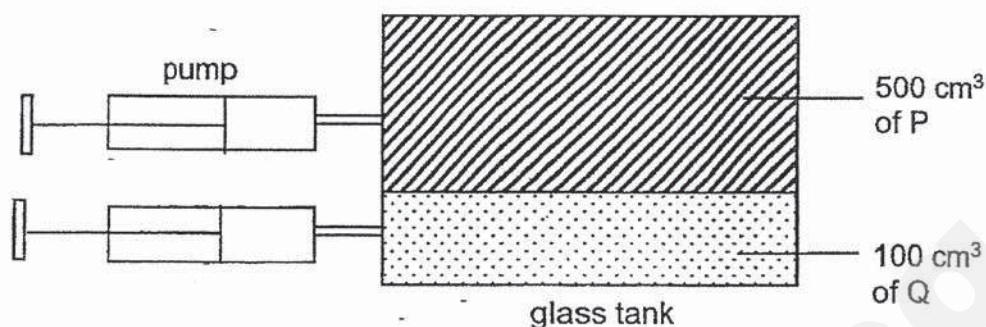


Which of the following shows the magnetic poles of bars CD and EF?

(1)		
(2)		
(3)		
(4)		



- 28 The diagram below shows two pumps connected to a glass tank.



The table below shows the volume of P and Q before and after 50 cm<sup>3</sup> of P and 50 cm<sup>3</sup> of Q were pumped into the glass tank.

	Volume of P	Volume of Q
<b>before</b> 50 cm <sup>3</sup> of P and 50 cm <sup>3</sup> of Q were pumped into the glass tank	500 cm <sup>3</sup>	100 cm <sup>3</sup>
<b>after</b> 50 cm <sup>3</sup> of P and 50 cm <sup>3</sup> of Q were pumped into the glass tank	450 cm <sup>3</sup>	150 cm <sup>3</sup>

Which of the following statements about P and Q are correct?

- A P has definite volume.
  - B Q has definite volume.
  - C P has no definite volume.
  - D Q has no definite volume.
- (1) A and B only  
(2) A and D only  
(3) B and C only  
(4) C and D only

End of Booklet A



MARIS STELLA HIGH SCHOOL (PRIMARY)  
SA2 EXAMINATION  
SCIENCE  
31 OCTOBER 2019

BOOKLET B

NAME: \_\_\_\_\_ ( )

CLASS: Primary 4 ( )

13 questions

44 marks

Total Time for Booklets A & B: 1 h 45 min

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

FOLLOW ALL INSTRUCTIONS CAREFULLY.

Booklet A: \_\_\_\_\_ / 56

Booklet B: \_\_\_\_\_ / 43

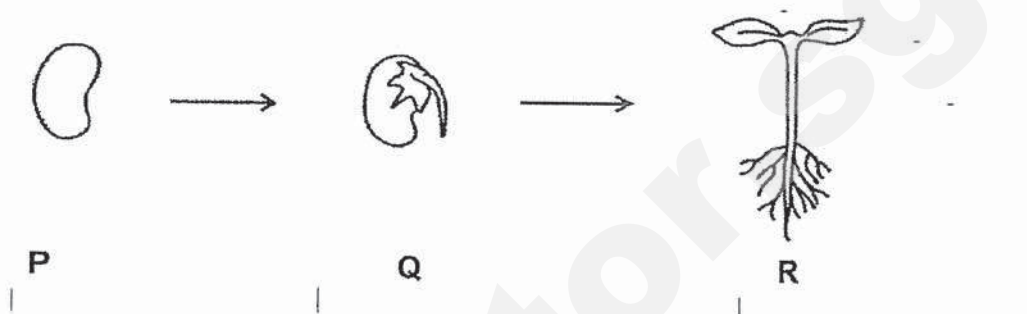
Grand Total: \_\_\_\_\_ / 99

Parent's Signature: \_\_\_\_\_

For questions 29 to 41, write your answers in this booklet. The number of marks available is shown in brackets [ ] at the end of each question or part question.

(44 marks)

- 29 Study the pictures of the different stages, P, Q and R, in the growth of a young plant.



Choose the correct alphabet(s) and/or word(s) from the box below to fill in the two blanks. [2]

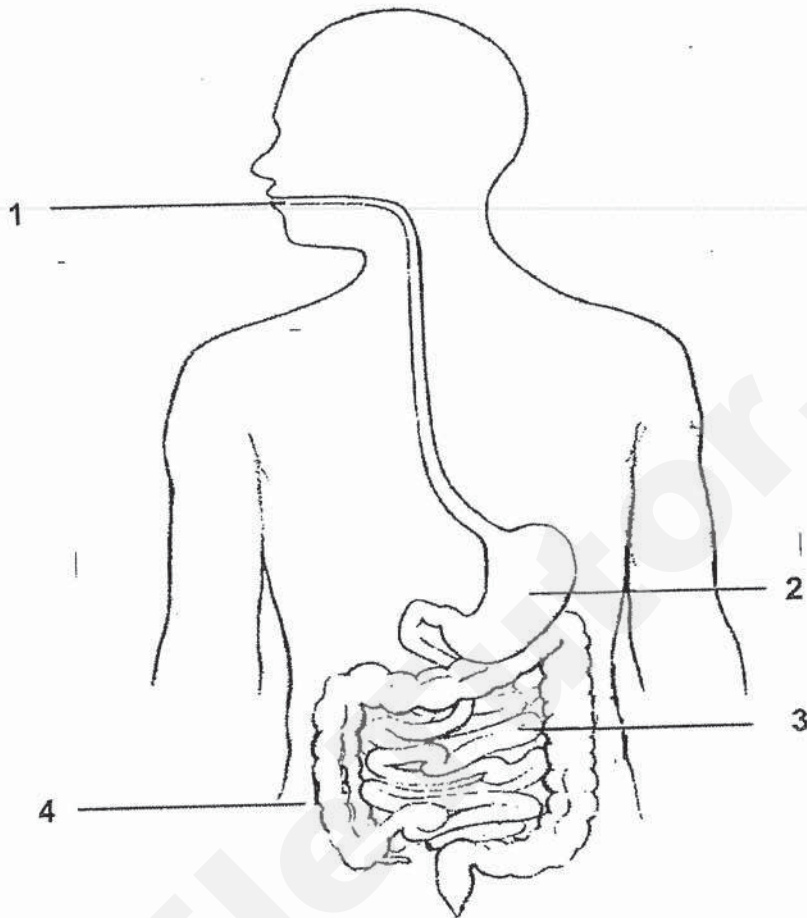
P	Q	R
roots	stem	leaves

Stage \_\_\_\_\_ can make food because it has \_\_\_\_\_.

	2
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(Go on to the next page)

30 The diagram below shows the human digestive system.



Identify the part, 1, 2, 3 or 4, where:

[2]

(a) digestion first takes place: \_\_\_\_\_

(b) no digestion takes place: \_\_\_\_\_

(c) State the function of part 3.

[1]

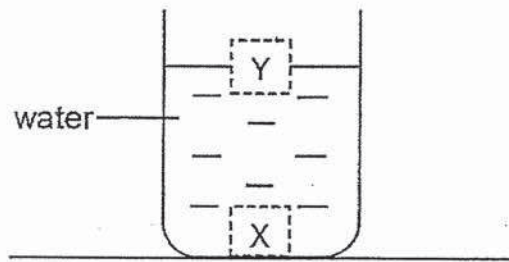
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	3
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- 31 Darren placed 2 different blocks, C and D, into a beaker of water as shown in the diagram below.



Block C was found at position Y, while block D was found at position X.

- (a) Choose the correct phrases from the box below to fill in the blanks. [2]

contracts in	expands in	floats on	sinks in
--------------	------------	-----------	----------

This shows that block C \_\_\_\_\_ water and  
block D \_\_\_\_\_ water.

- (b) Darren removed blocks C and D from the beaker of water. He then placed a solid metal block into the same beaker of water.

Which position, X or Y, would the solid metal block most likely be at? [1]

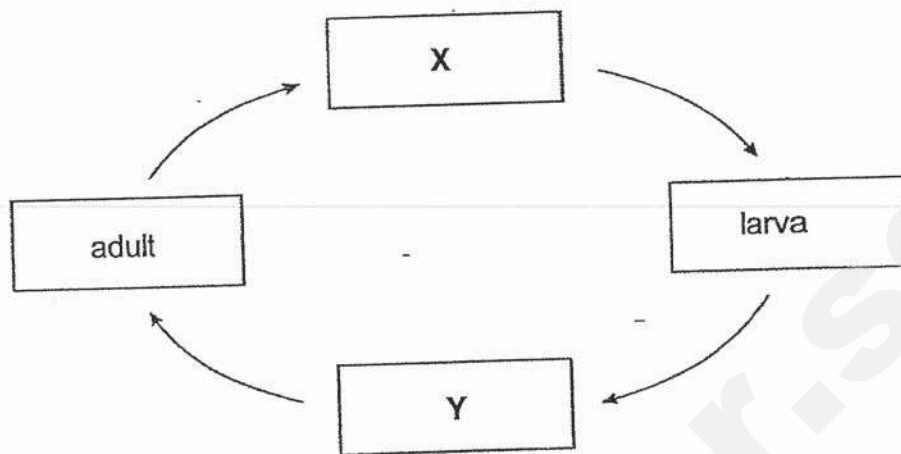
\_\_\_\_\_

	3
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- 32 The diagram below shows the stages in the life cycle of a butterfly.



Life cycle of a butterfly

- (a) Choose the correct words from the box below to name the stages X and Y. [2]

caterpillar	egg	pupa	seed
-------------	-----	------	------

X: \_\_\_\_\_

Y: \_\_\_\_\_

- (b) Name an animal that has the same number of stages in its life cycle as the butterfly. [1]

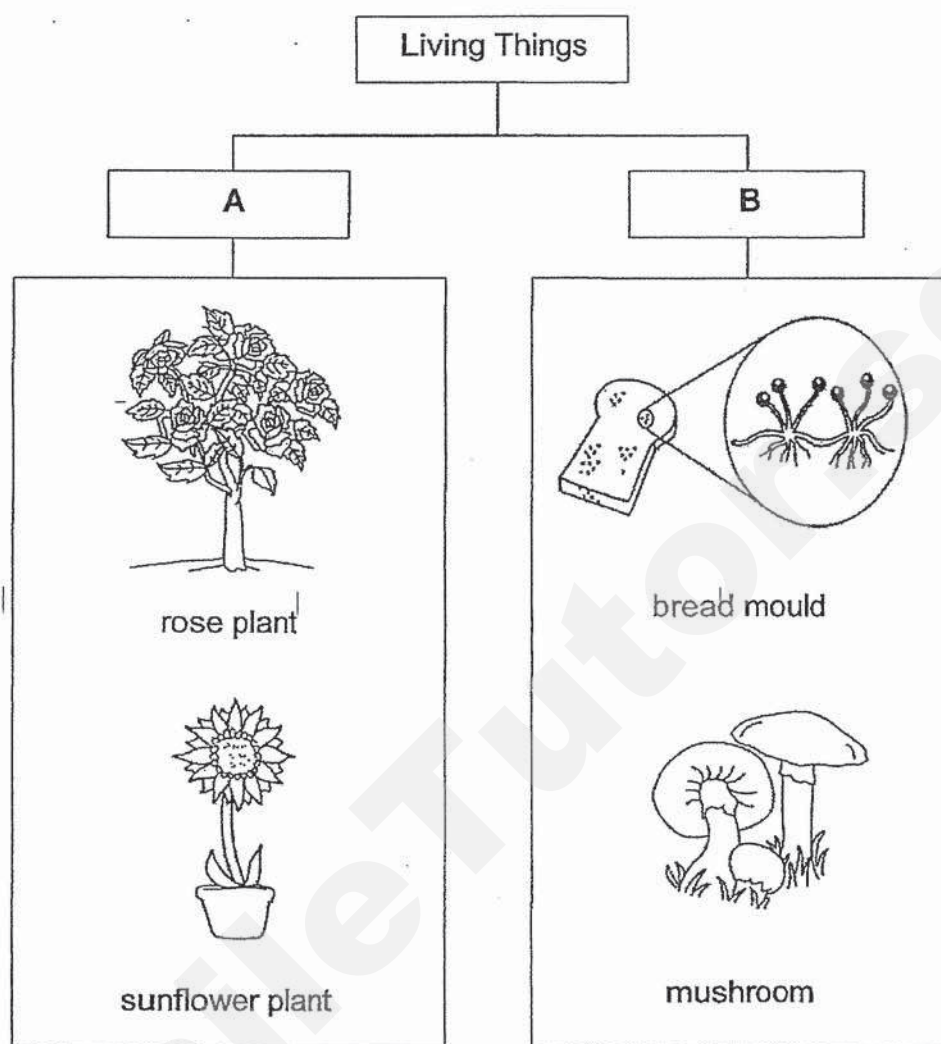
\_\_\_\_\_

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33 Study the classification chart below.



(a) Choose the correct words from the box below to give suitable headings for A and B. [2]

Flowering plants    Non-flowering plants    Fungi    - Bacteria

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

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

2

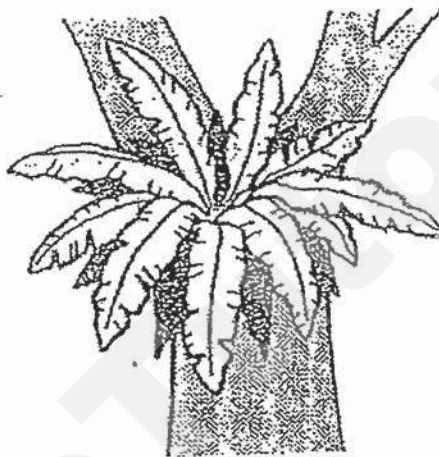
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- (b) State the difference in how the organisms in groups A and B obtain their food. [1]

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- (c) The diagram below shows a picture of a bird's nest fern.



Jonathan says that the bird's nest fern is a flowering plant.  
Is he correct? Give a reason. [1]

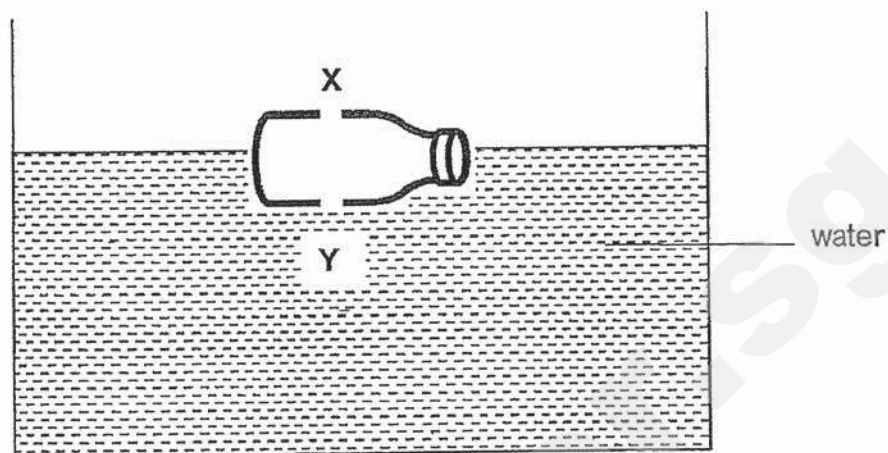
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	2
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- 34 An empty bottle with two holes at positions X and Y was placed into a tank of water as shown below.



- (a) After 10 seconds, the bottle sank. Explain why.

[2]

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	2
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(Go on to the next page)

- (b) Felicia wants to cook some rice. She placed  $50 \text{ cm}^3$  of rice grains in a cooking bowl as shown in the diagram below. Then, she added  $100 \text{ cm}^3$  of water into the cooking bowl.



- (i) What is the likely volume of the contents in the cooking bowl after water is added in?

Volume	Tick (✓) in the correct box
$50 \text{ cm}^3$	
$85 \text{ cm}^3$	
$150 \text{ cm}^3$	

- (ii) Give a reason for your answer in (i).

[1]

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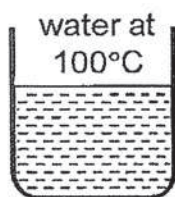
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	1
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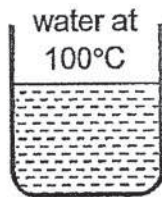
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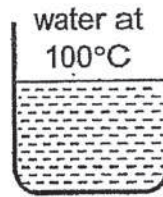
- 35 John has three similar cups, A, B and C, made of different materials. He poured the same amount of boiling water into each container.



Cup A



Cup B



Cup C

The table below shows the time taken for the temperature of water in each cup to reach 30°C.

Cup	Time taken for the temperature of boiling water to reach 30°C
A	20 minutes
B	50 minutes
C	60 minutes

- (a) Explain why the temperature of water dropped to 30°C after some time. [1]

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---

- (b) Which cup, A, B or C, is the best conductor of heat? Explain your answer. [2]

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- (c) Which cup, A, B or C, can be used to keep ice water cold the longest? [1]

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	4
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- 36 Alan placed a ball and a lighted torch in a cardboard box as shown in Diagram 1.

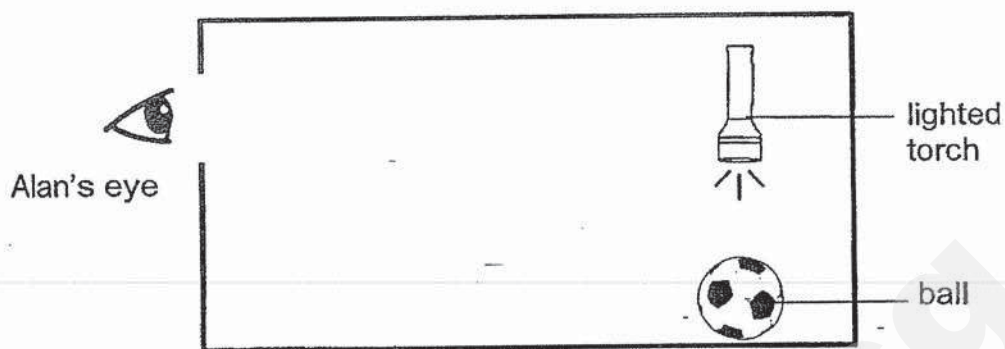


Diagram 1

- (a) Explain why Alan is able to see the ball. [2]

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A wooden tube was placed in the same cardboard box as shown in Diagram 2.

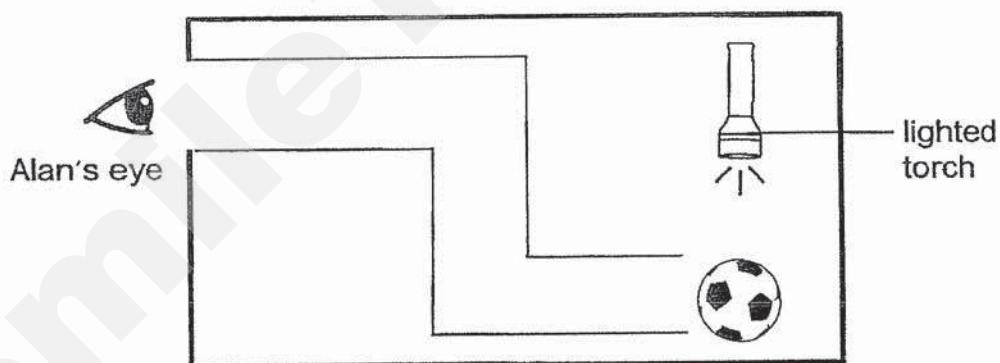
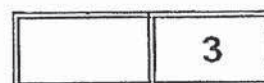


Diagram 2

- (b) Alan cannot see the ball now. What property of light does this show? [1]

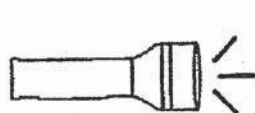
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- 37 Oscar conducted an experiment as shown below. He wanted to find out if material P or Q is more suitable for making blackout curtains. The curtains are to make the room as dark as possible.



torch



material



light sensor

The table below shows the amount of light detected by the light sensor when materials P and Q were placed between the torch and the light sensor.

Material	No material	P	Q
Amount of light detected (units)	500	0	500

- (a) Which material, P or Q, is more suitable for making blackout curtains? Explain why.

[1]

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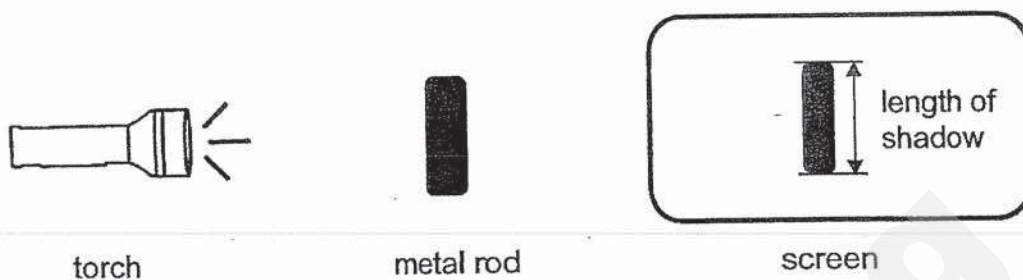


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	1
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(Go on to the next page)

Oscar conducted another experiment as shown below. He placed a metal rod between the torch and a screen.



- (b) Using the same items as shown above, what can Oscar do to increase the length of the shadow? [1]

---

---

- (c) Will the observation on the screen be the same if material Q was used instead of the metal rod? Explain your answer. [2]

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	3
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- 38 David heated an empty flask to find out the effect of heating on air. Diagram 1 shows his set-up at the start of the experiment.

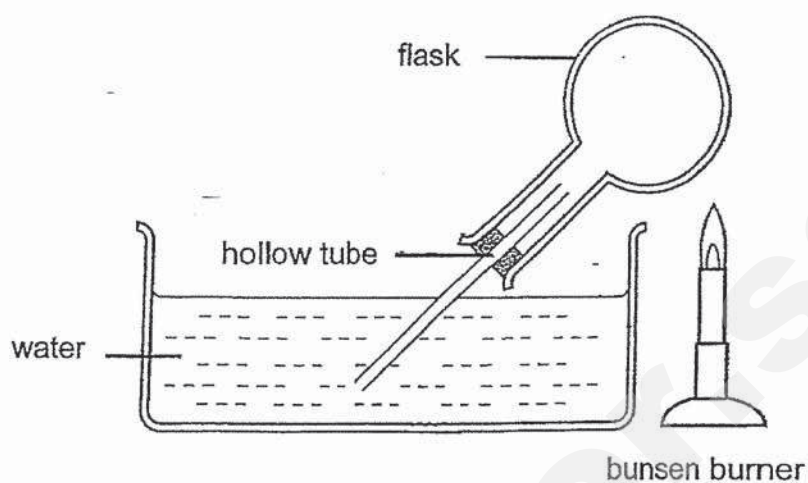


Diagram 1

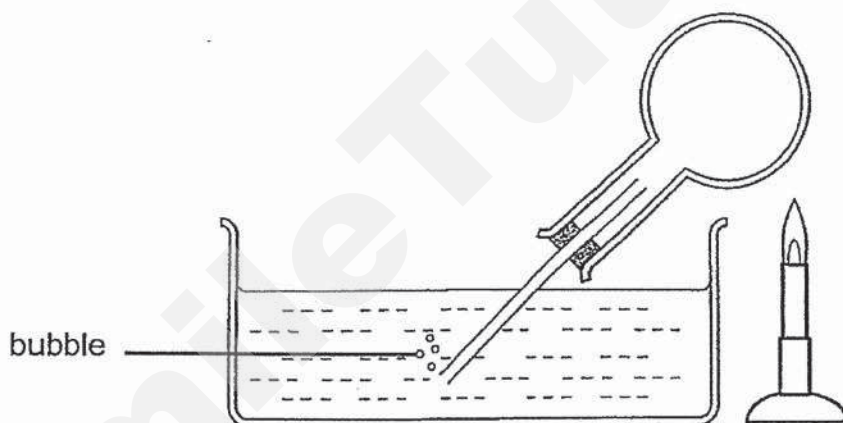


Diagram 2

1 minute later, he observed bubbles in the water as shown in Diagram 2.

- (a) Explain how the bubbles were formed.

[2]

---

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	2
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David turned off the bunsen burner and continued to observe his set-up. After 5 minutes, he observed that water entered the flask as shown in Diagram 3.

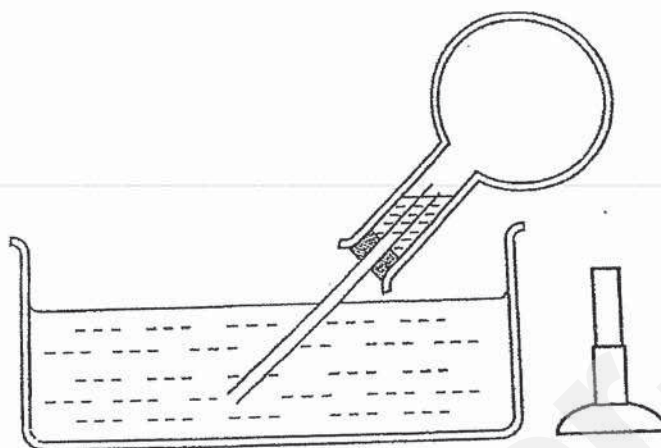


Diagram 3

(b) Explain why water entered the flask.

[2]

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	2
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- 39 A beaker contains 300 ml of water. Diagram 1 shows the volume of the contents in the beaker after a ball of plasticine was gently placed in.

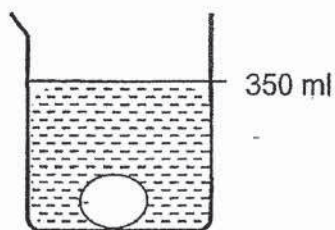


Diagram 1

- (a) What is the volume of the plasticine? [1]

The ball of plasticine was removed from the beaker, shaped into a star and then gently placed back into the beaker. Diagram 2 shows the star-shaped plasticine in the same beaker of water.

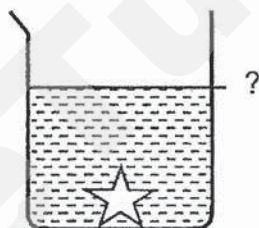


Diagram 2

- (b) What is the volume of the contents in Diagram 2? [1]

Volume	Tick (✓) in the correct box
300 ml	
350 ml	
400 ml	

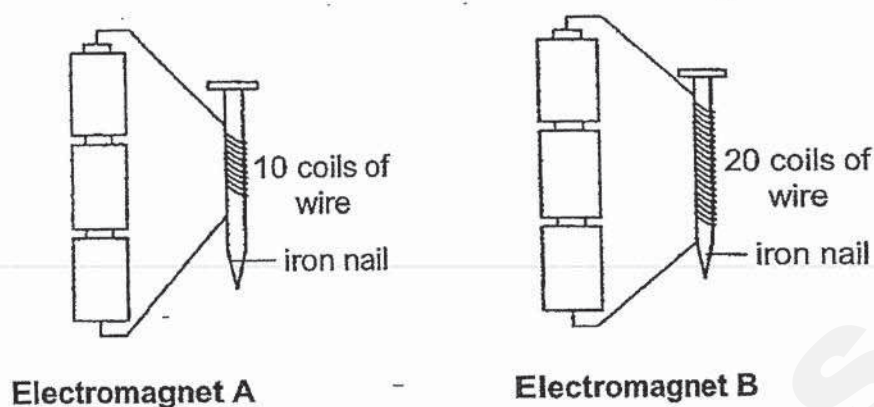
- (c) Based on your answer in (b), what can be concluded about the property of plasticine? [1]

	3
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40 Alice set up two set-ups as shown in the diagrams below.



The table below shows the number of paper clips attracted by electromagnets A and B.

Electromagnet	Number of paper clips attracted
A	5
B	11

- (a) What is the relationship between the number of coils of wire and the number of paper clips attracted? [1]

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- (b) Based on the set-ups, what is the aim of Alice's experiment? [1]

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- (c) State one important variable that must be kept the same for the experiment to be fair. [1]

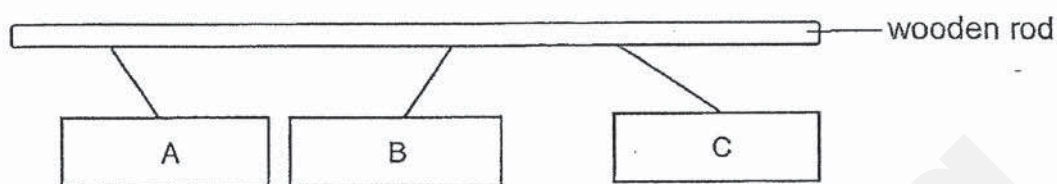
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- 41 Rayner hung three metal bars, A, B and C, next to each other on a wooden rod. Two of the metal bars are magnets. The diagram below shows their positions at rest.

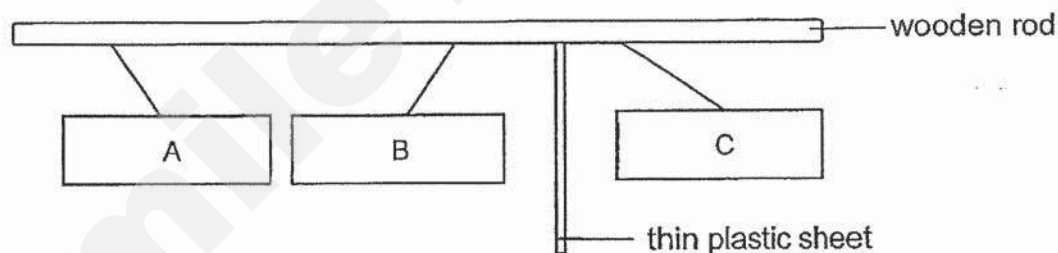


- (a) Which two metal bars, A, B or C, are magnets? Explain your answer. [2]

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Rayner then placed a piece of thin plastic sheet between bars B and C as shown below.



- (b) Rayner observed that bars B and C remained at the same positions. Explain why. [2]

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End of Booklet B

	4
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# ANSWER KEY

**YEAR : 2019**  
**LEVEL : PRIMARY 4**  
**SCHOOL : MARIS STELLA HIGH SCHOOL (PRIMARY)**  
**SUBJECT : SCIENCE**  
**TERM : SA2**

## BOOKLET A

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

## BOOKLET B

- Q29 Stage R can make food because it has leaves.
- Q30 (a) 1  
(b) 4  
(c) Part 3 absorbs the digested food into the blood stream.
- Q31 (a) This shows that block C floats on water and block D sinks in water.  
(b) The metal block would be at position X.
- Q32 (a) X : egg  
Y : pupa  
(b) Mealworm beetle.
- Q33 (a) A : Flowering plants.  
B : Fungi  
(b) group A use their own leaves to make food however group B feast on other living organisms and get food from them.  
(c) No. The fern reproduce by spores.
- Q34 (a) hole X allowed air to escape while hole Y allowed water to flow into the bottle to occupy the space of bottle and air escape from bottle, causing the bottle to sink.  
(b) (i)  $85\text{cm}^3$   
(ii) There was tiny air pockets in between rice grain. The water filled before the top of the rice grain, therefore, the total of contest in the cooking bowl was  $85\text{cm}^3$ .

- Q35 (a) The water loses heat to the surrounding air.  
(b) A. Cup A is best conductor of losing heat so it has faster time to cooling down.  
(c) C
- Q36 (a) The light from the torch is reflected off the ball and into Alan's eyes.  
(b) Light travels in a straight line.
- Q37 (a) P. Material P does not allow any light to pass through.  
(b) Move the torch closer to the metal rod.  
(c) No. Material-Q allows most light to pass through and no shadow will be formed.
- Q38 (a) The air inside the flask gains heat from the bunsen burner and expands, entering the water, causing bubbles to form.  
(b) Air in the flask loss heat to the surrounding air and contracted.
- Q39 (a)  $50\text{cm}^3$   
(b) 350 ml  
(c) Plasticine has a definite volume.
- Q40 (a) As the number of coils of wire around the iron nail increases, the number of paper clips attracted also increases.  
(b) To find out whether the number of coils around the iron nail affects the number of paper clips attracted.  
(c) The number of batteries.
- Q41 (a) B and C. Only magnets can repel each other.  
(b) Magnetism can pass through a thin plastic sheet, which is a non-magnetic material.

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**PAYA LEBAR METHODIST GIRLS' SCHOOL (PRIMARY)**

**SEMESTRAL ASSESSMENT 2, 2019**

**PRIMARY FOUR**

**SCIENCE**

**BOOKLET A**

**NAME :** \_\_\_\_\_ (      )

**CLASS :** P4 \_\_\_\_\_

**DATE :** 4 November 2019

**TOTAL TIME FOR BOOKLETS A & B: 1 hour and 45 minutes**

**INSTRUCTIONS TO PUPILS**

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

**ANSWER ALL QUESTIONS.**

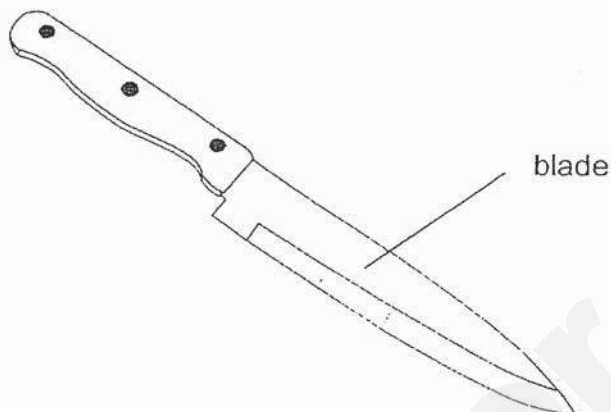


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**Section A: Multiple Choice Questions (56 marks)**

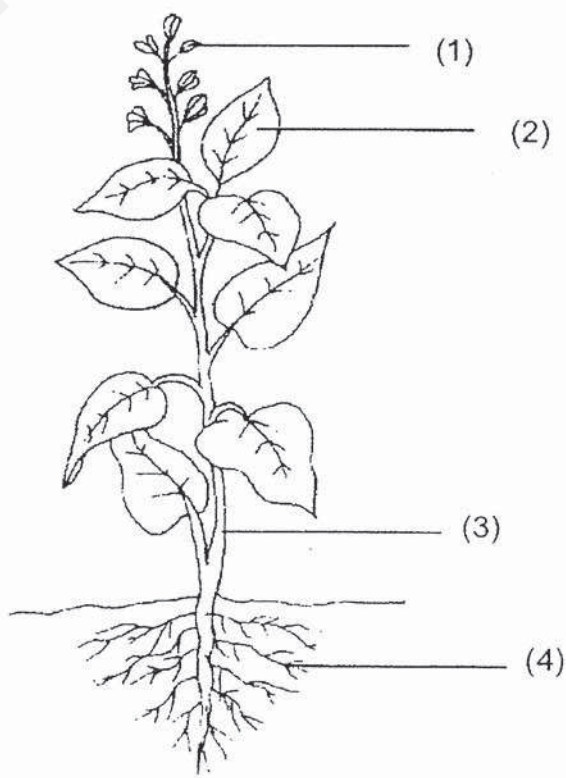
For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet.

1. The diagram shows a kitchen knife.

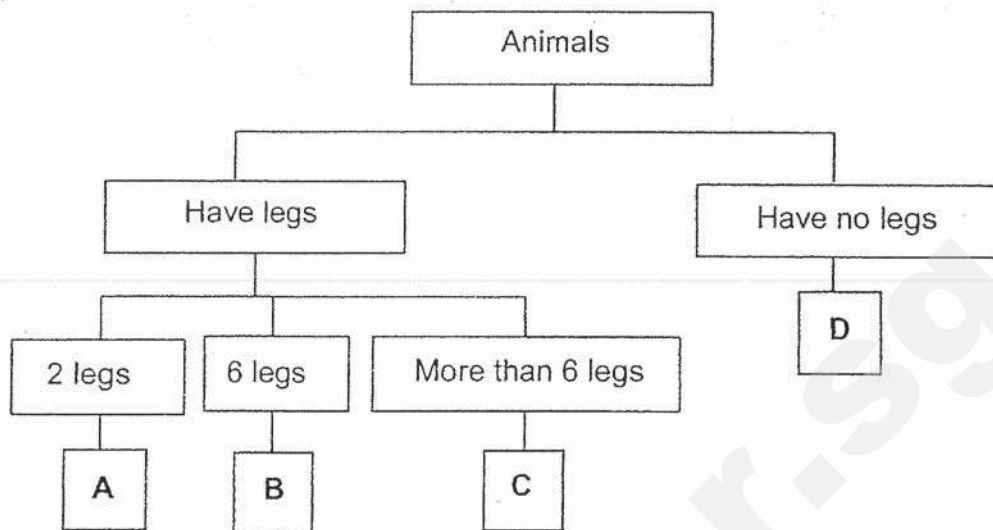


Metal is used to make the blade of the knife because metal \_\_\_\_\_.

- (1) can reflect light
  - (2) does not break easily
  - (3) can bend without breaking
  - (4) does not allow light to pass through
2. Which part, (1), (2), (3) or (4), keeps the plant upright?



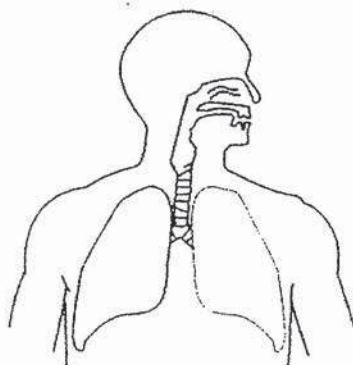
3. Study the chart below.



Where would you put this animal in the chart above?



- (1) A
  - (2) B
  - (3) C
  - (4) D
4. Which organ system is shown in the diagram?

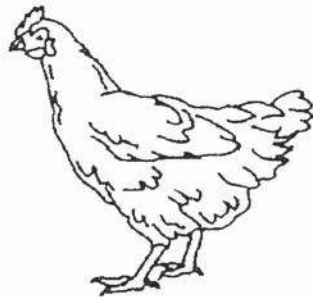


- (1) skeletal system
- (2) muscular system
- (3) circulatory system
- (4) respiratory system

5. Which animal has a 4-stage life cycle?

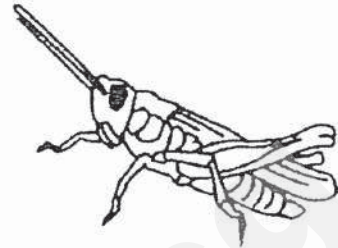
(1)

chicken



(2)

grasshopper



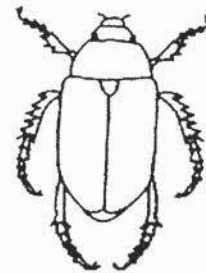
(3)

cockroach



(4)

mealworm beetle



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

(1) Iron ball

(2) Plastic ball

(3) Rubber ball

(4) Wooden ball

7. Which one of the following properties is true for both air and a ruler?

(1) They can be seen.

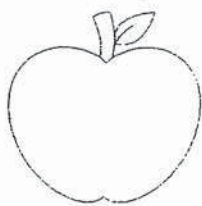
(2) They take up space.

(3) They have fixed shapes

(4) They have fixed volumes.

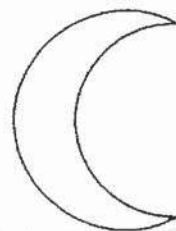
8. Which one of the following is a source of light?

(1)



an apple

(2)



a moon

(3)



a candle flame

(4)



a leaf

9. Which one of the following is **NOT** a source of heat?

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

10. Zoey poured an equal amount of water at  $80^{\circ}\text{C}$  into four airtight boxes A, B, C and D. Each airtight box is made of different materials. The table below shows the temperature of water in each airtight box after 10 minutes.

Airtight box	A	B	C	D
Temperature of water ( $^{\circ}\text{C}$ )	77	32	43	56

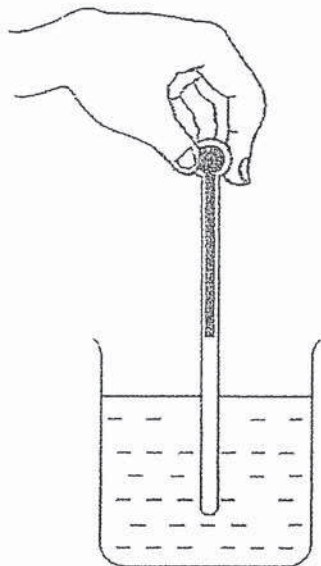
Based on the results shown above, which airtight box is made of a material that is the best for keeping her drink cold for the longest period of time?

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

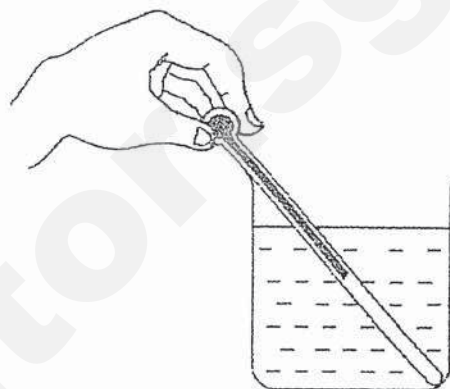
11. Janessa wants to measure the temperature of water in a beaker.

Which one of the following diagrams shows the correct position of the thermometer when taking the temperature reading?

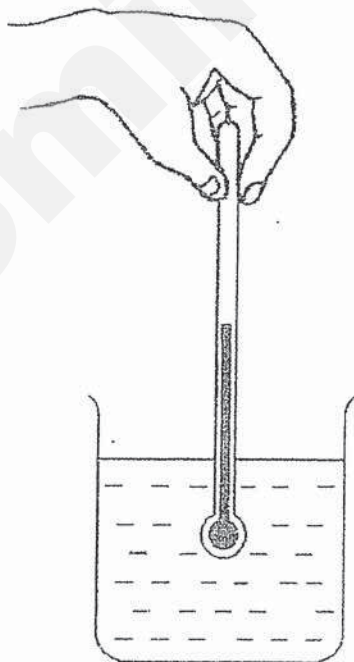
(1)



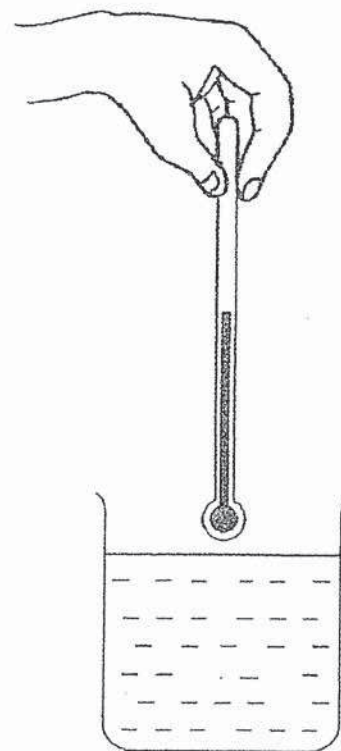
(2)



(3)



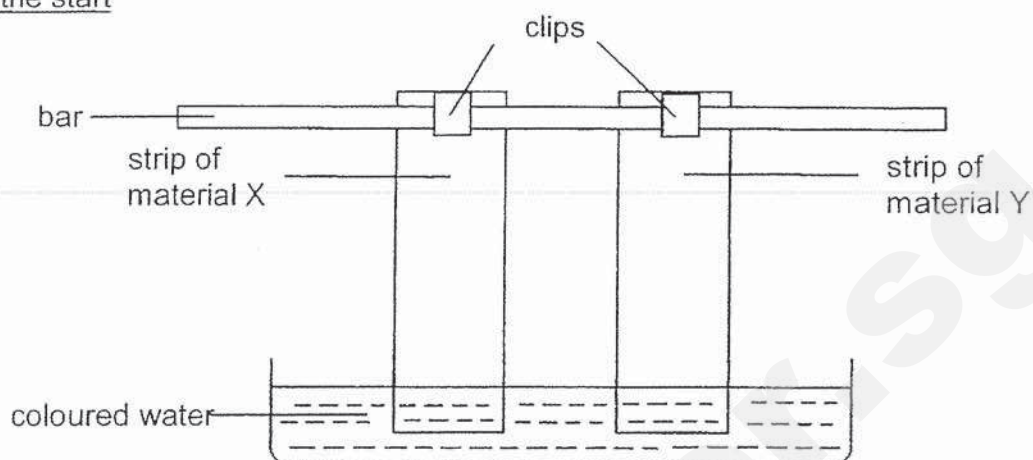
(4)



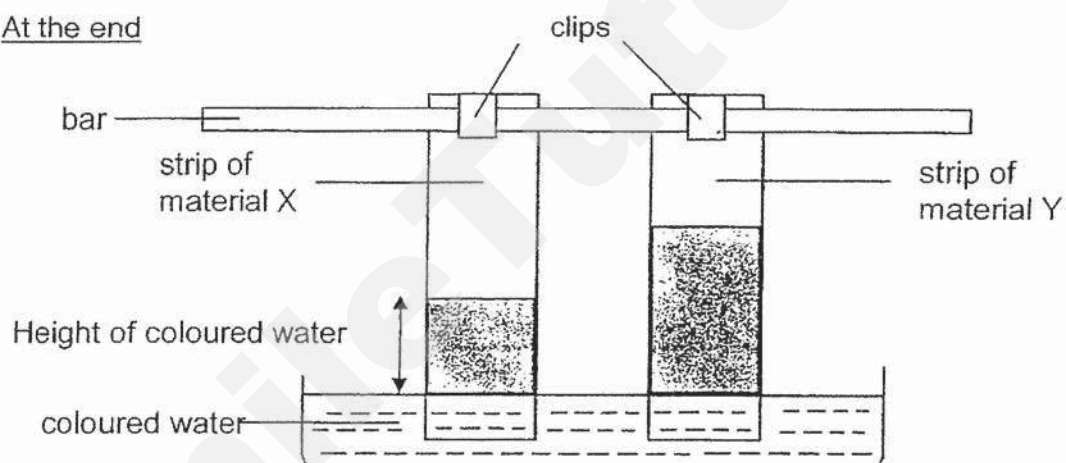


12. Paul wanted to find out which material, X or Y, is the most suitable for making a towel. He placed the two strips of materials into a basin of coloured water as shown below.

At the start



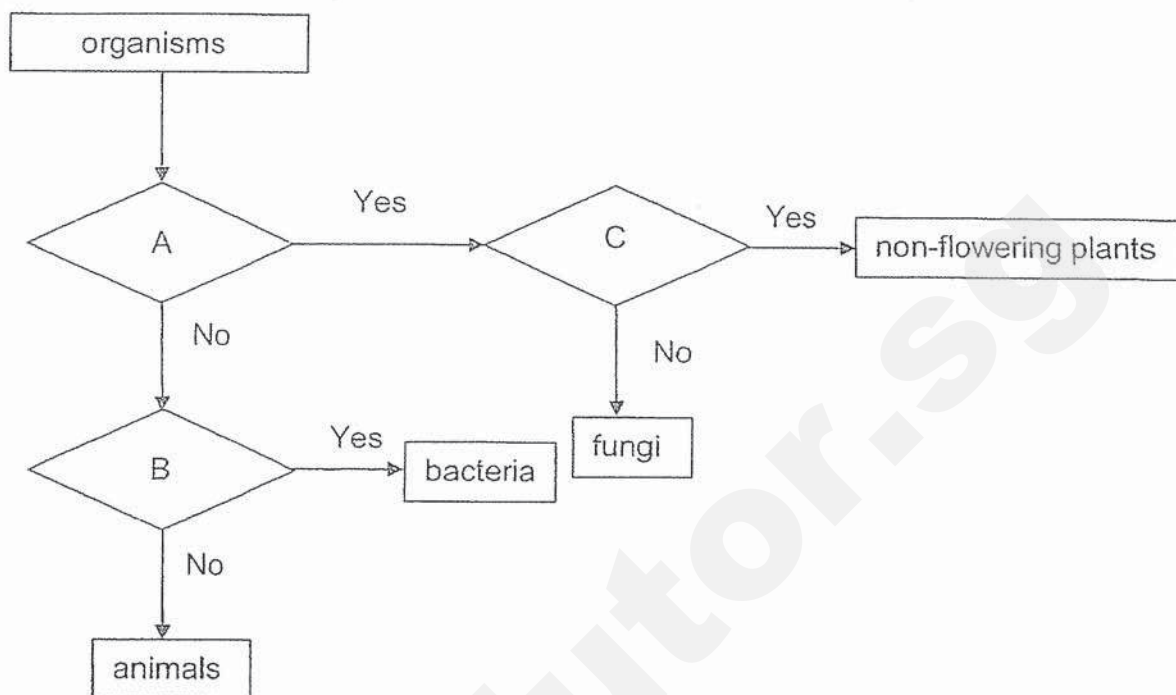
At the end



Which of the following variable(s) should he keep the same in order to ensure a fair test?

- A type of materials
  - B size of strips of materials
  - C thickness of strips of materials
  - D amount of time the strips are soaked
- (1) A only
- (2) B and C only
- (3) C and D only
- (4) B, C and D only

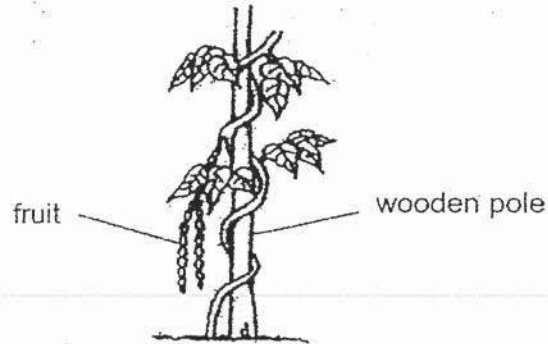
13. Study the flowchart below.



Which of the following shows the questions represented by A, B and C?

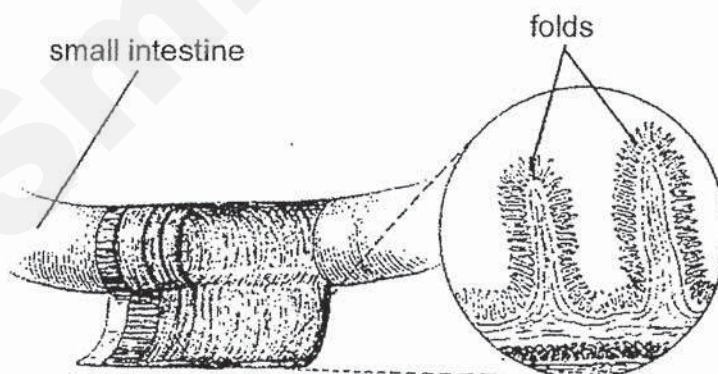
Characteristics			
	A	B	C
(1)	Is microscopic?	Has spores?	Feed on dead or living organisms?
(2)	Has seeds?	Can make food?	Is microscopic?
(3)	Has spores?	Is microscopic?	Can make food?
(4)	Is microscopic?	Feeds on dead or living organisms?	Has spores?

14. Lucy went to the garden and saw the plant shown below.



She wrote down some statements about her observations as shown below. Which statements are incorrect?

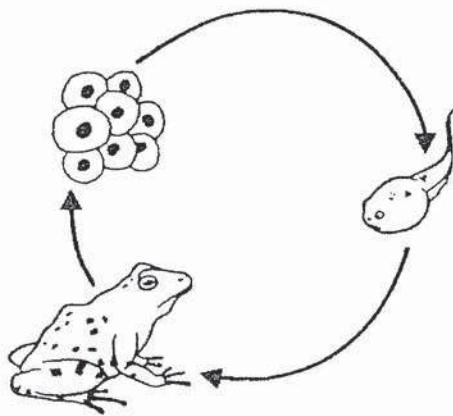
- A The plant has no roots.
  - B The plant has a weak stem.
  - C The plant is a flowering plant.
  - D The plant is a non-flowering plant.
- (1) A and C only
- (2) A and D only
- (3) B and C only
- (4) B and D only
15. The diagram below shows the surface of the small intestine. There are many folds in the walls of the small intestine.



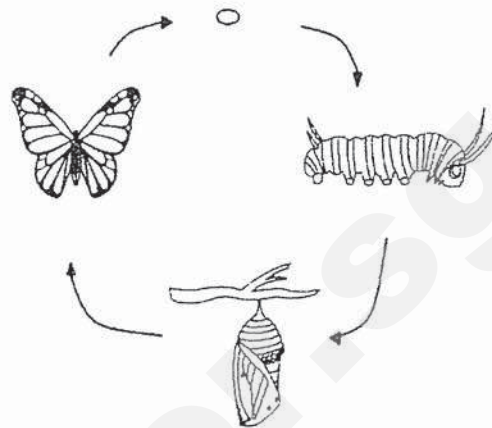
What is the purpose of having so many folds?

- (1) To allow food to be digested into smaller pieces.
- (2) To allow waste to be passed out through the anus.
- (3) To increase surface area for faster absorption of digested food.
- (4) To increase surface area for faster absorption of digestive juices.

16. The diagrams below show the life cycles of organisms A and B.



life cycle of organism A



life cycle of organism B

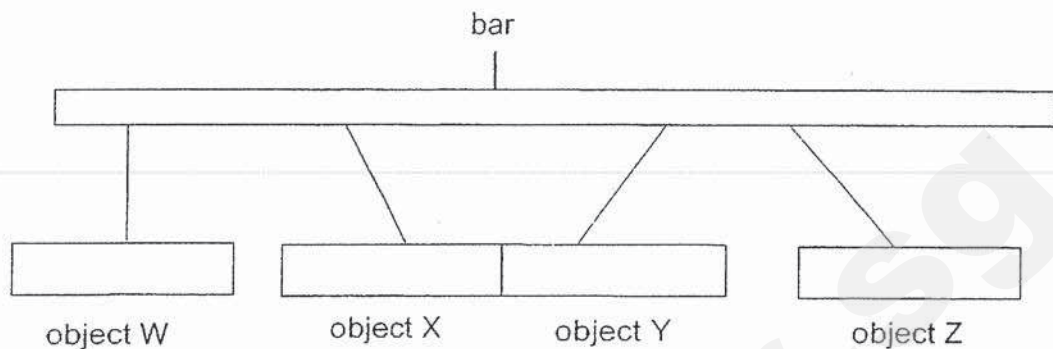
Based on the diagrams above, which of the following statement(s) is/are correct?

- A Both the young of organisms A and B moult.
- B Both the young of the organisms A and B resemble their adults.
- C Both the young of organism A and B developed from fertilised eggs.
- D Organism A has 3 stages in its life cycle but organism B has 4 stages in its life cycle.

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

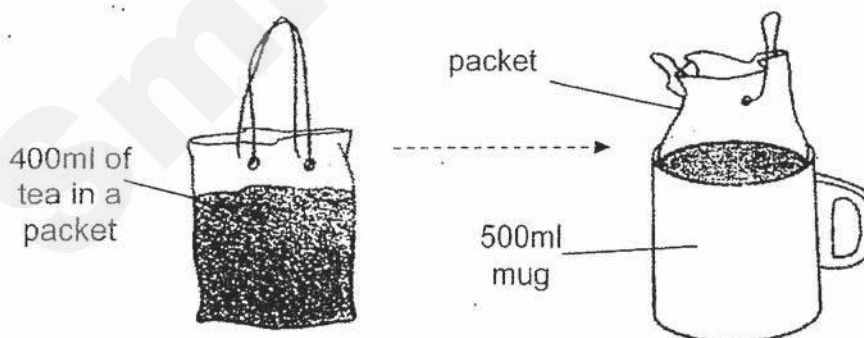


17. The diagram below shows the interactions of 4 objects, W, X, Y and Z, which were placed at equal distance from one another. The objects are hanging freely on a bar.



Based on the above observation, which of the following objects W, X, Y and Z are magnets?

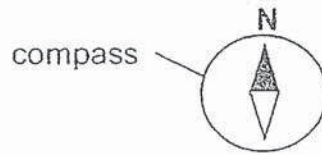
- (1) Object X and object Y only
  - (2) Object Y and object Z only
  - (3) Object W and object X only
  - (4) Object W and object Z only
18. James placed a 400ml packet of tea into a mug without spilling the tea as shown.



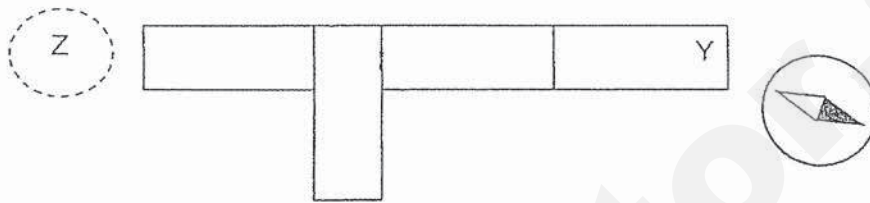
Which one of the following about the bag of tea is correct?

- (1) Both the shape and the volume of the tea changed.
- (2) The volume of the tea changed but the shape did not.
- (3) The shape of the tea changed but the volume did not.
- (4) Both the shape and the volume of the tea did not change.

19. A compass has a small magnet that can rotate freely as shown.



Brian arranged four bar magnets such that they were attracted to one another. A compass was then placed near end Y and the direction of the compass needle is as shown below.

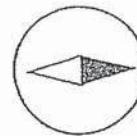


Brian then placed another identical compass at Point Z. What is the direction of the compass needle when the compass was placed at Point Z?

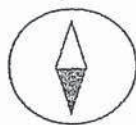
(1)



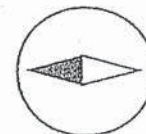
(2)



(3)



(4)





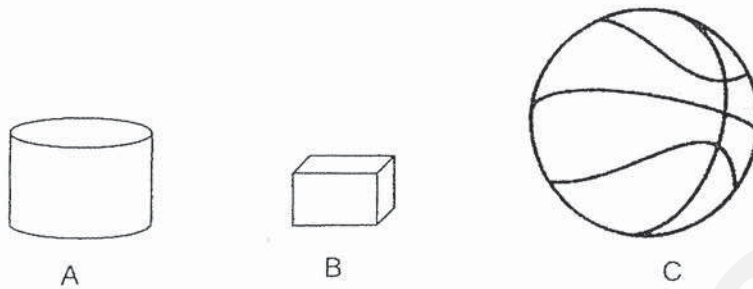
20. Janice prepared 4 experimental set-ups, P, Q, R and S, each with an electromagnet by coiling a wire around an iron nail to attract some steel paper clips. She used identical batteries, iron nail, wire and paper clips in each of the 4 set-ups. The table provides information on each set-up.

Set-up	Number of coils around the iron rod	Number of batteries used
P	3	1
Q	3	2
R	6	3
S	11	3

Which one of the following aims of experiment has been matched correctly with the set-ups used for the experiment?

	Set-ups used	Aim of experiment
(1)	P and R	To find out if the number of coils around the iron rod affects the number of paper clips attracted
(2)	Q and S	To find out if the number of coils around the iron rod affects the number of paper clips attracted
(3)	R and S	To find out if the number of batteries used affects the number of paper clips attracted
(4)	P and Q	To find out if the number of batteries used affects the number of paper clips attracted

21. The diagram below shows 3 objects, A, B and C.



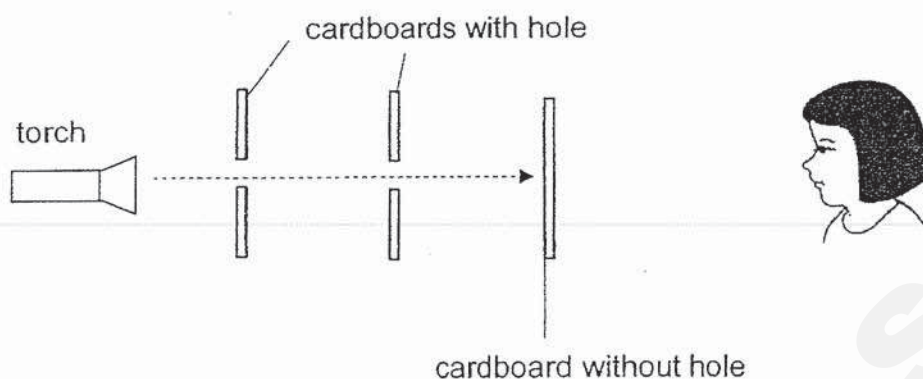
Four children observed the objects and made the following comments.

- |         |   |
|---------|---|
| Aisha   | Object B has the smallest mass.           |
| Brenda  | Object C has the largest volume.          |
| Jessica | Object B occupies the least space.        |
| Timothy | Object A has a smaller mass than object C |

Who made the correct observation?

- (1) Brenda only
- (2) Aisha and Brenda only
- (3) Brenda and Jessica only
- (4) Aisha, Brenda, Jessica and Timothy

22. Joleen set up an experiment as shown below.

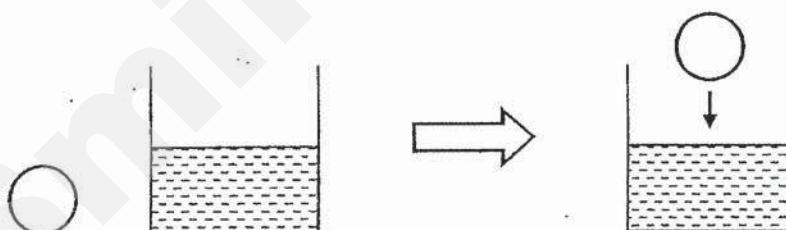


Joleen realised that she could not see the light from behind the cardboard without hole as shown above.

What can she conclude from the experiment?

- (1) Light can be reflected.
- (2) Light can pass through an object.
- (3) Light is not needed for us to see an object
- (4) Light can be blocked by an object that does not allow light to pass through.

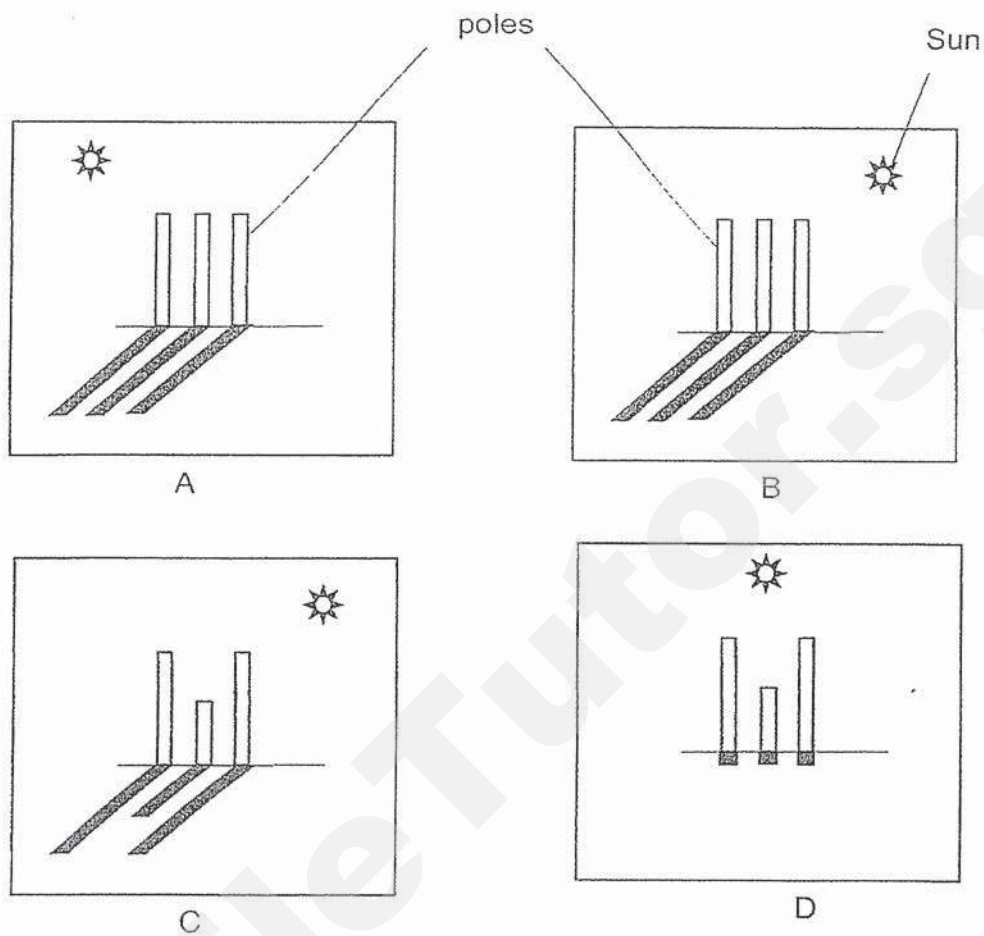
23. Felicia put a solid iron ball into a beaker of water.



What will she observe after the iron ball is put into the beaker of water?

- A The volume of water increases.
  - B The water level in the beaker rises.
  - C The volume of the iron ball increases.
- 
- (1) B only
  - (2) A and B only
  - (3) B and C only
  - (4) A, B and C only

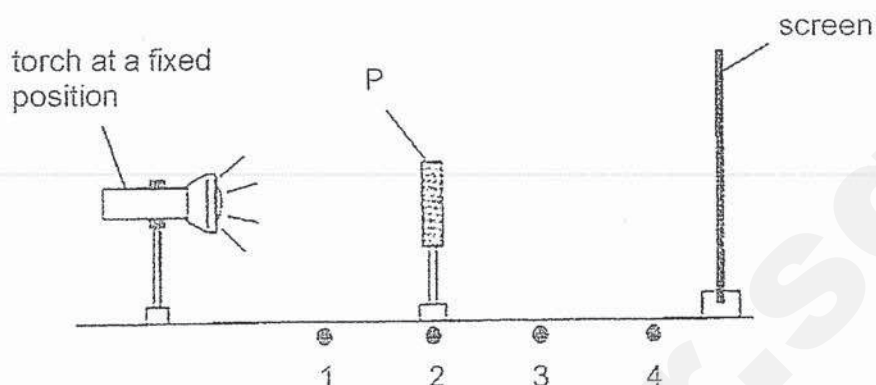
24. The shadows of poles during different times of the day are shown in the diagrams below.



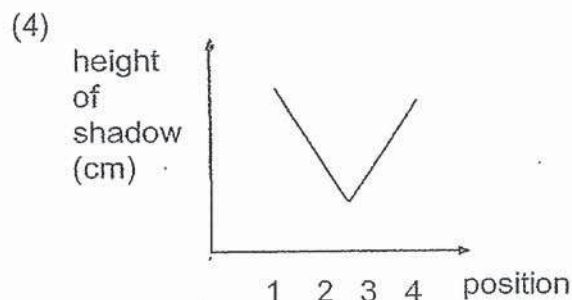
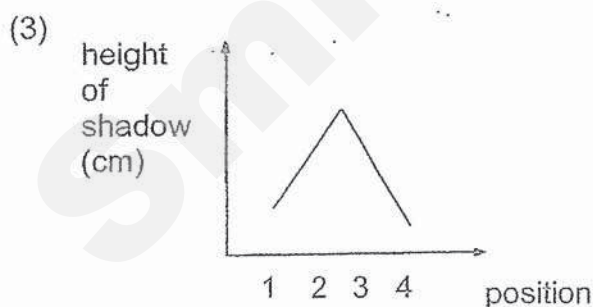
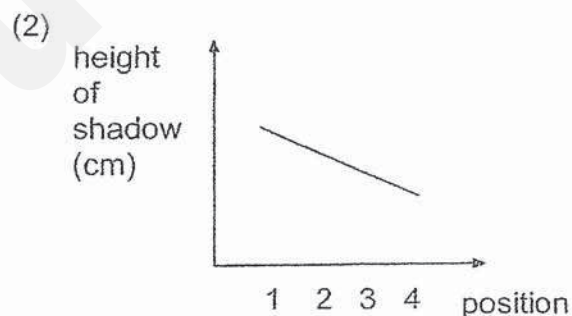
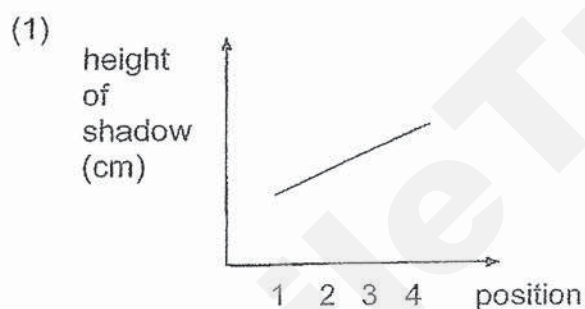
Which of the diagram(s) shows the shadows formed correctly?

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

25. Alicia set up the following experiment by placing a rectangular object, P, which does not allow light to pass through, at different positions, 1, 2, 3 and 4. She measured and recorded the height of the shadow of object P cast on the screen.

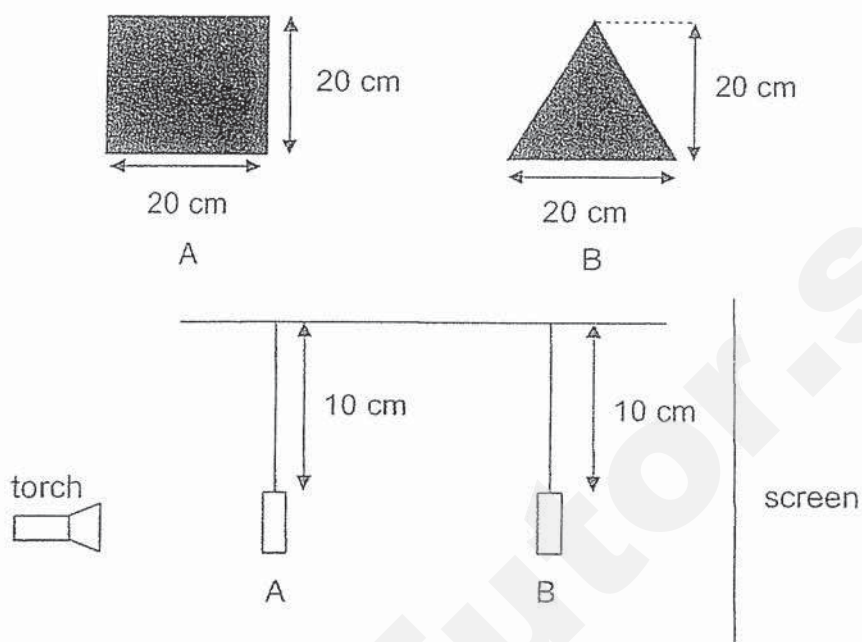


Which graph correctly shows how the height of the shadow of the object P changes with the positions 1, 2, 3 and 4?



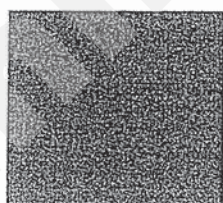


26. The set-up below shows light shining on two shapes, A and B, cut out from a piece of cardboard. They are placed at different distances from the torch as shown below.



Which one of the following shows the shadow cast on the screen?

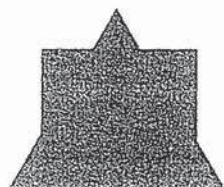
(1)



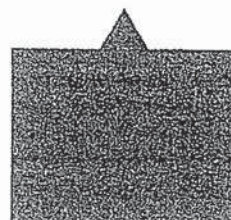
(2)



(3)

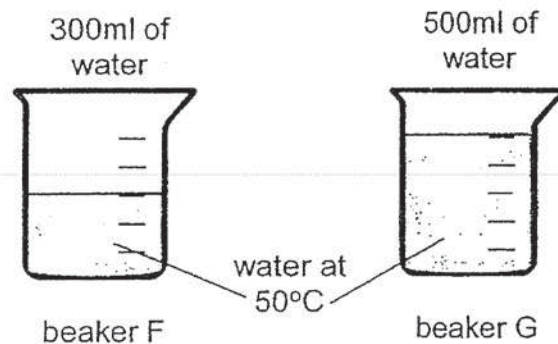


(4)





27. Two beakers, F and G, contain different amount of water. The water in both beakers have the same temperature at the start of the day. The beakers were left in a room for 16 hours as shown in the diagram below.



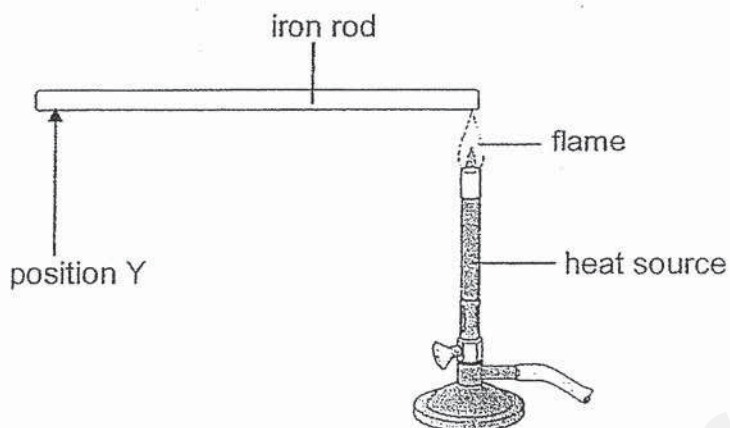
Three girls, each made a statement regarding the beakers of water in the experiment.

Danelle	Both beakers have the same amount of heat as both the temperature are the same
Elizabeth	Beaker F has less amount of heat than beaker G as beaker F has less amount of water.
Germaine	The temperature of water in both beaker F and G will be the same at the end of the experiment.

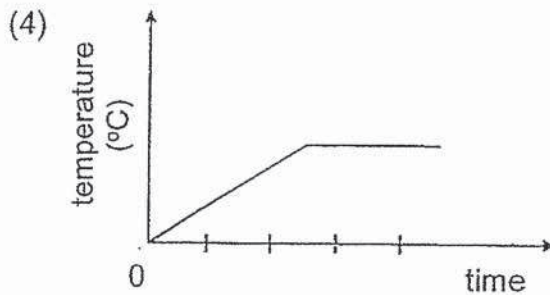
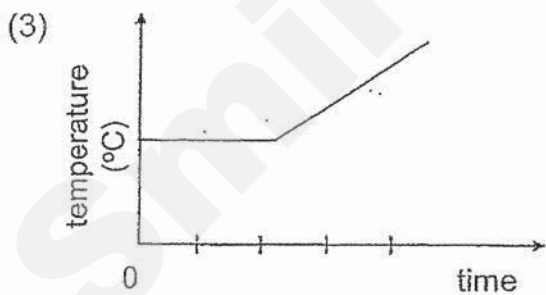
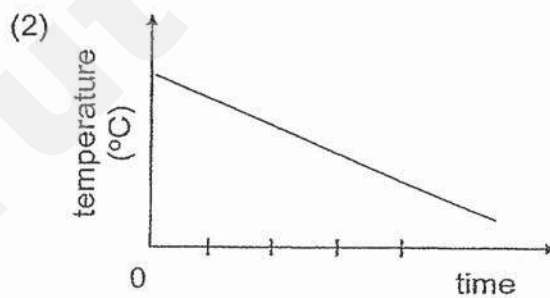
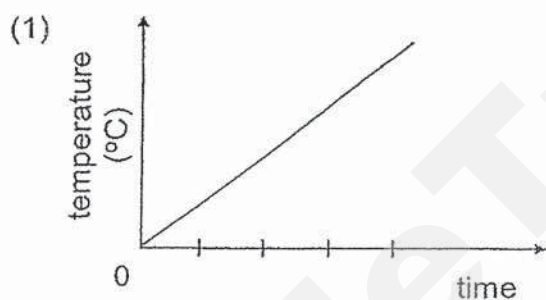
Who has/have made the correct statement regarding the experiment?

- (1) Danielle only
- (2) Elizabeth only
- (3) Danielle and Germaine only
- (4) Elizabeth and Germaine only

28. Mariah heated an iron rod as shown below.



Which one of the following graphs shows how the temperature changes at position Y of the rod as it is being heated for 4 minutes?



END OF SECTION A

**PAYA LEBAR METHODIST GIRLS' SCHOOL (PRIMARY)**

**SEMESTRAL ASSESSMENT 2, 2019**

**PRIMARY FOUR**

**SCIENCE**

**BOOKLET B**

**NAME :** \_\_\_\_\_ ( )

**CLASS :** P4 \_\_\_\_\_

**DATE :** 4 November 2019

**TOTAL TIME FOR BOOKLETS A & B: 1 hour and 45 minutes**

<b>BOOKLET A</b>	<b>/ 56</b>
<b>BOOKLET B</b>	<b>/ 44</b>
<b>TOTAL</b>	<b>/100</b>

**Parent's Signature:** \_\_\_\_\_

**INSTRUCTIONS TO PUPILS**

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

**ANSWER ALL QUESTIONS.**

### SECTION B: 44 Marks

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

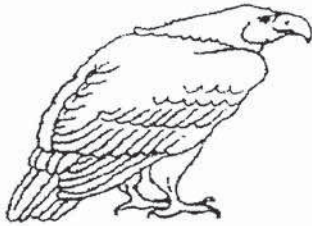
The number of marks available is shown in brackets [ ] at the end of each question or part question.

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

[3]

Animal

Group

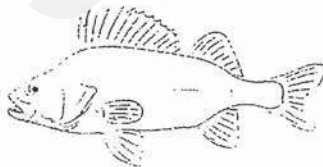


• fish

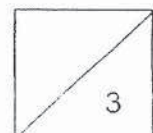
• bird



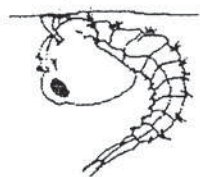
• insect



• mammal



30. A, B, C and D are the various stages in the life cycle of a mosquito.



A



B

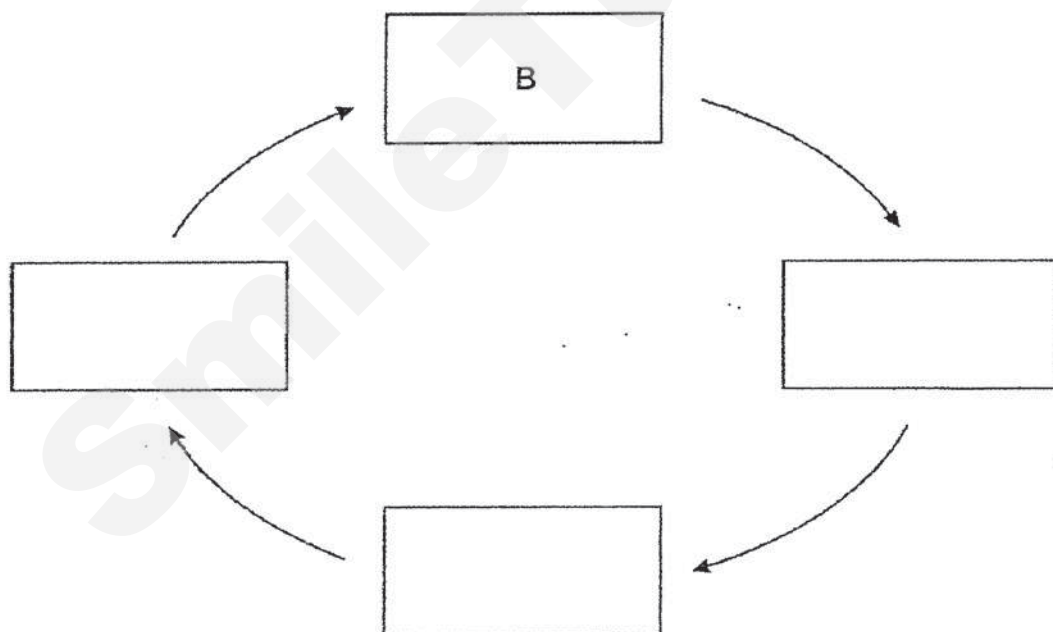


C



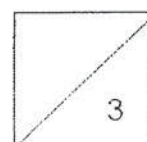
D

(a) Arrange A, B, C and D in the correct order of the life cycle starting from B. [2]

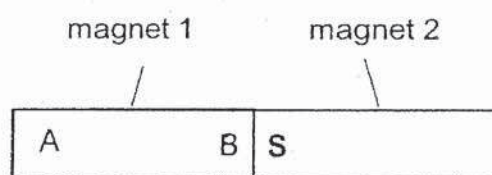


(b) Name stage B. [1]

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31. Two magnets are placed together as shown below.

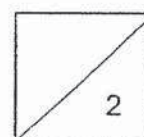


The south-seeking pole of magnet 2 is labelled S.  
Name the poles labelled A and B on magnet 1.

[2]

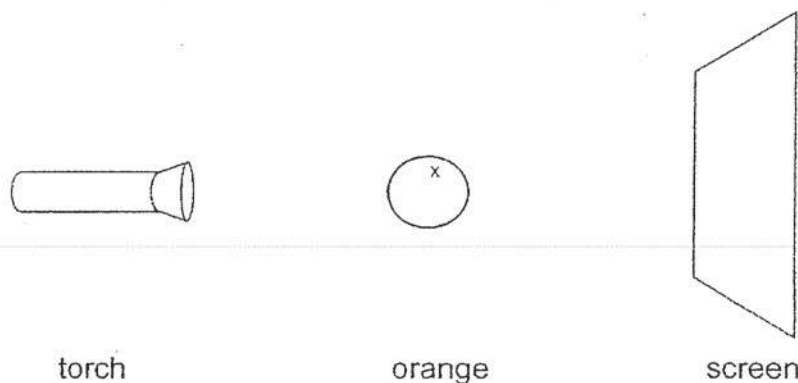
A: \_\_\_\_\_

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

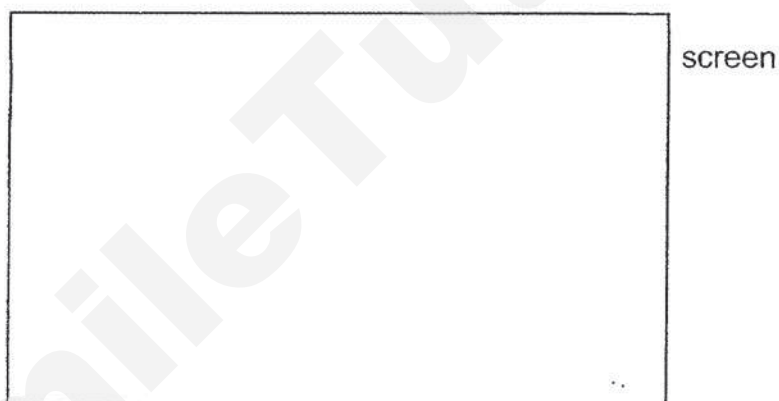




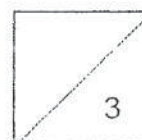
32. Jessica shines a torch on an orange and a shadow is formed on a screen.



- (a) A shadow is formed when light is \_\_\_\_\_ by an object. [1]
- (b) Draw the shadow of the orange that is formed on the screen. [1]



- (c) Without changing the distance between the orange and the screen, what will happen to the size of the shadow if the torch is moved nearer to the orange? [1]
- 



33. The diagram below shows a plant.



(a) Name parts P and Q. [2]

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

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

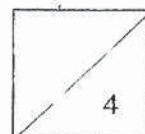
(b) State two functions of Part P. [2]

(i) \_\_\_\_\_

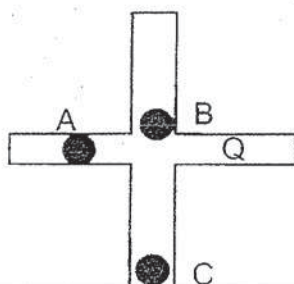
\_\_\_\_\_

(ii) \_\_\_\_\_

\_\_\_\_\_



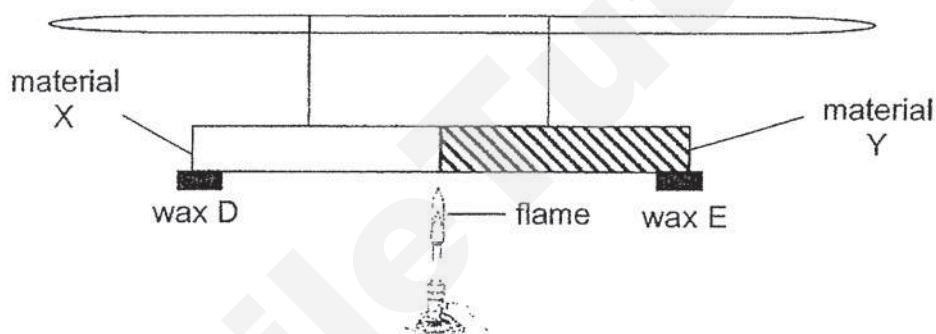
34. A, B and C are pieces of wax on a cross-shaped metal as shown below.



- (a) Arrange the pieces of wax, A, B and C, according to the order which they dropped when a heat source is placed at point Q. [1]

\_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_  
(first)

A special rod is made of two materials, X and Y as shown in the diagram below. Two pieces of wax of the same size, D and E, are attached to the ends of the special rod, at equal distance from the flame.



The time taken for each of the wax to melt after it was heated at the center was recorded in the table below.

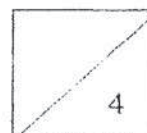
Wax	Time taken for the wax to melt (min)
D	2.5
E	5

- (b) What can we conclude about material X? Explain your answer. [2]

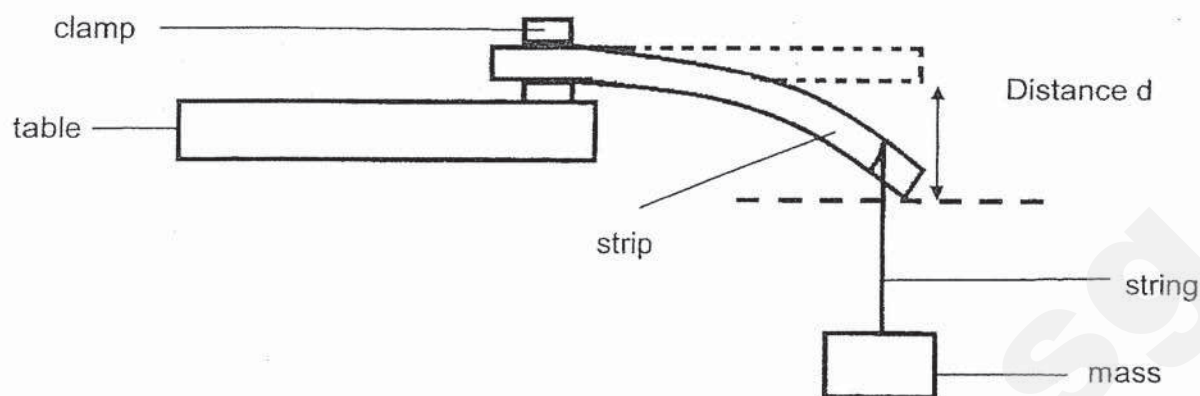
\_\_\_\_\_  
\_\_\_\_\_

- (c) Without adding additional apparatus, suggest a way to make wax E to drop faster. [1]

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



35. Bala used the set-up below to study a certain property of material.



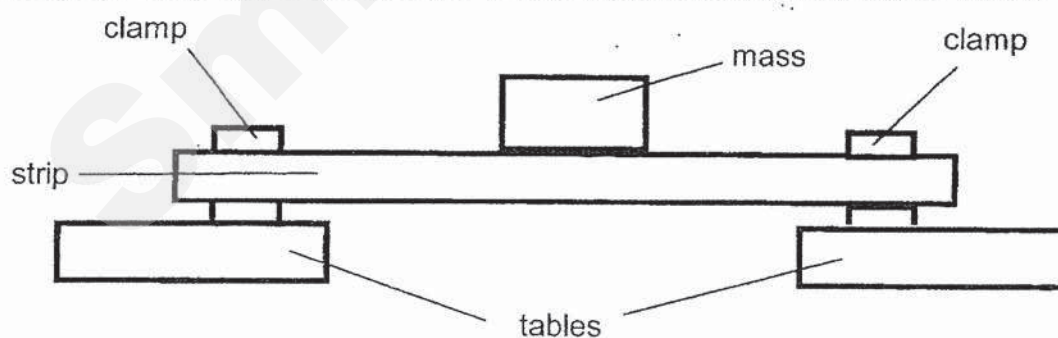
He used strips made of different materials, X, Y and Z. Each strip is of the same length. Each strip of material is of the same mass. He then recorded his results in the table below.

Material	Distance, d (cm)
X	10
Y	0
Z	20

(a) State the property of material that Bala is testing.

[1]

Next, Bala set-up the following experiment to test another property of material using the same strips of material. He recorded his results in the table below.

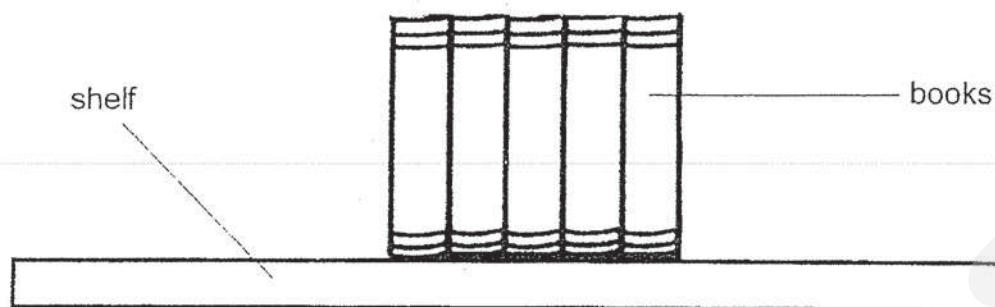


Material	Mass it can hold before breaking (kg)
X	20
Y	80
Z	40

(b) State the property of material that Bala is testing.

[1]

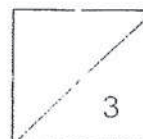
Bala wanted to make a bookshelf to support 50kg of books.



- (c) Based on Bala's results from part (a) and (b), which material, X, Y or Z, is the most suitable to be made into a bookshelf which can support 50kg of books? Explain your answer. [1]

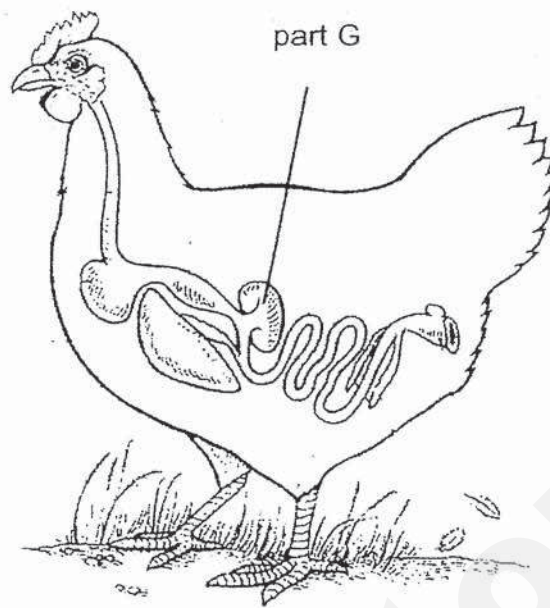
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36. The diagram below shows the digestive system of a chicken.



(a) What is digestion?

[1]

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(b) The bird swallowed stones, which were stored in part G. In part G, the food was grinded into smaller pieces by the stones. Which part of the human digestive system was the stone's function similar to?

[1]

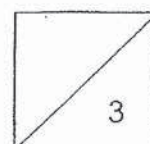
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(c) Explain how the function of the answer in part (b) helps in digestion.

[1]

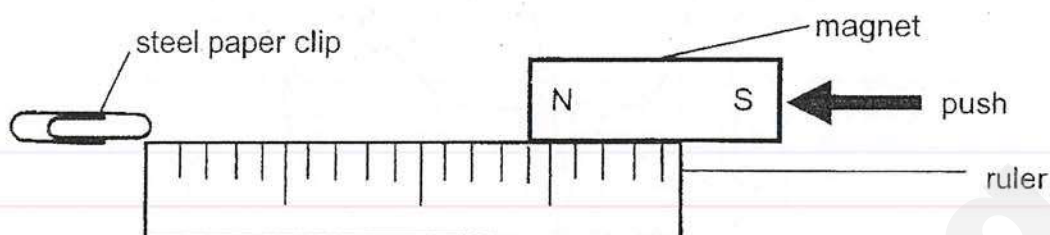
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37. Joanne wanted to find out how the length of a magnet affects its magnetic strength. She used 4 bar magnets of different lengths, A, B, C and D, and conducted the experiment below.



Joanne placed each magnet on the desk against the ruler and pushed it slowly towards the steel clip. She recorded the distance between the steel paper clip and the magnet on the ruler once the steel paper clip is attracted to the magnet. She recorded her results in the table below.

Magnet	Length of magnet (cm)	Distance between steel paper clip and magnet (cm) when it attracted steel paper clip
A	1.5	2.2
B	1	2.5
C	2.5	1.5
D	3	2

- (a) What can Joanne conclude from the results on how the length of the magnet affects its magnetic strength? [1]

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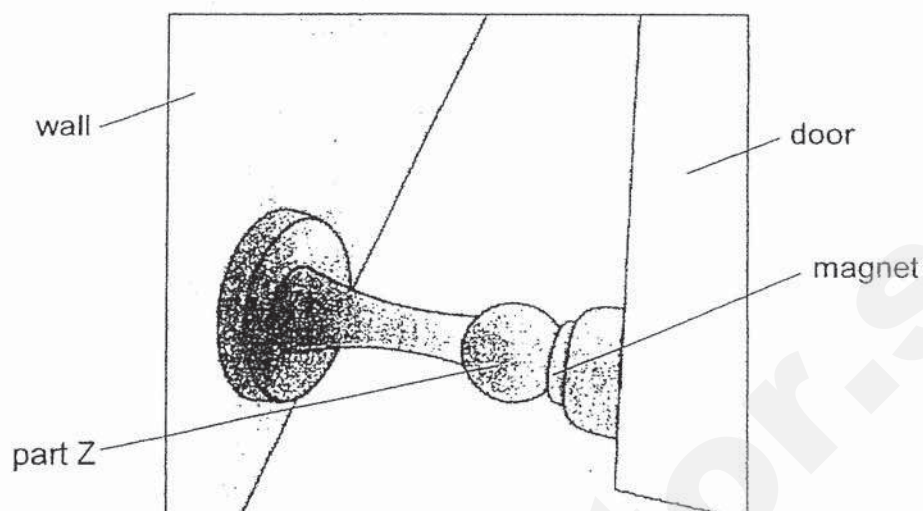
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- (b) What would Joanne observe if she changed the steel paper clip to an aluminum pin and repeated the experiment above? Explain your answer. [1]

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A door stopper uses a magnet to keep the door from closing.

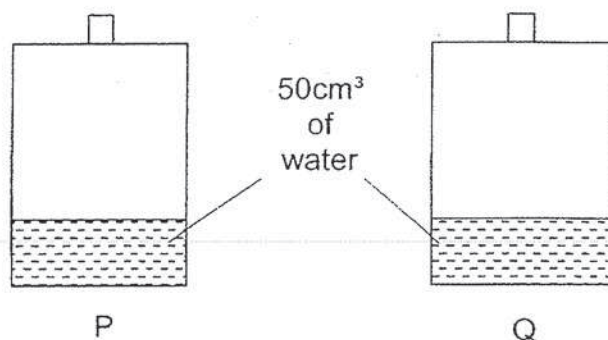


- (c) Which magnet, A, B, C or D, will be the most suitable to make part Z of the door stopper? Explain your answer. [2]

---

---

38. Adam conducted an investigation to demonstrate the property of matter with two similar containers of capacity  $200\text{ cm}^3$ , P and Q. Each container has  $50\text{ cm}^3$  of water inside as shown below.



He then pumped in another  $300\text{ cm}^3$  of air into container Q.

- (a) What is the volume of air in container Q at the end of the experiment? Explain your answer. [1]

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- (b) Kate said that the mass of container Q will remain the same as the mass of container P after the experiment. Do you agree with her? Explain your answer. [1]

---

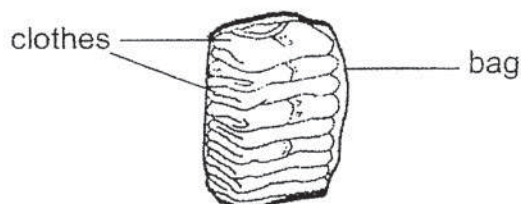


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- (c) Using the characteristics of matter, state a similarity between air and water. [1]

---

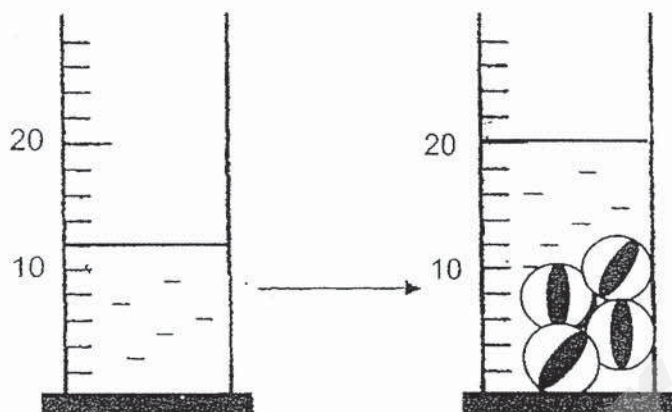
Kate packed  $1\text{ kg}$  of clothes for a holiday into a resealable bag. When she measured the bag of clothes, it was observed that it was more than  $1\text{ kg}$ .



- (d) Without removing the clothes or changing the bag, what could Kate do to make the bag lighter? [1]

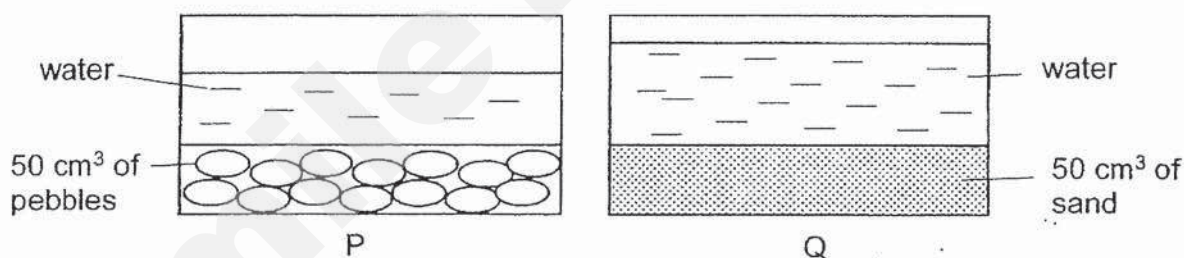
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39. Sharifah poured some water into a measuring cylinder and dropped some marbles into the cylinder as shown below.



- (a) The volume of each marble is \_\_\_\_\_  $\text{cm}^3$  [1]

Sharifah conducted an experiment by filling up 2 tanks, P and Q, with sand and pebbles to the same level. She poured in an equal amount of water of  $100 \text{ cm}^3$  into each of the tanks as shown below.



- (b) As Sharifah was pouring the water into both tanks, she observed air bubbles coming out from the sand and pebbles. Explain her observation [1]

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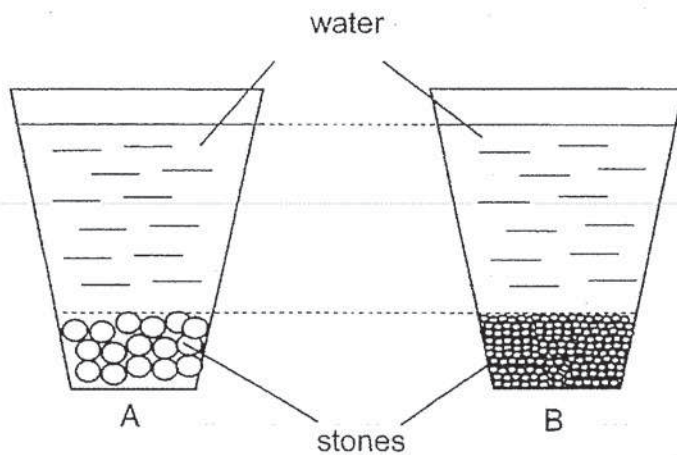
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- (c) Why is there a difference in the water levels between tanks P and Q? [1]

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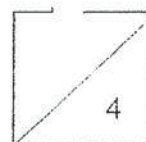
Two cups of water, A and B, which have stones of the same mass but different sizes in them, are shown in the diagram below.



- (d) With both the stones and the water at the same level, John said that cup B has more water in it. Do you agree? Explain your answer. [1]

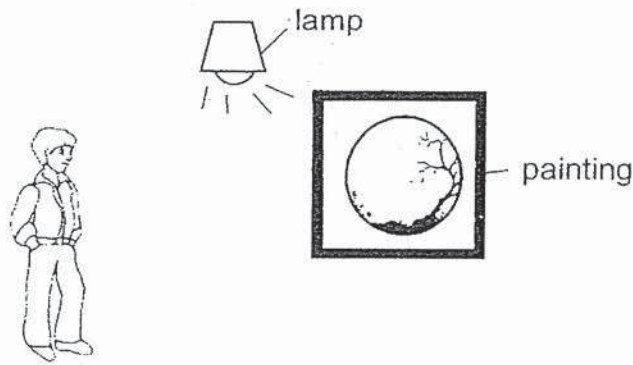
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40. The diagram below shows a boy looking at a painting on the wall.

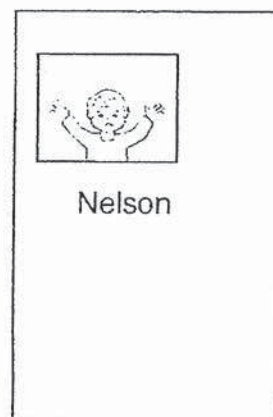
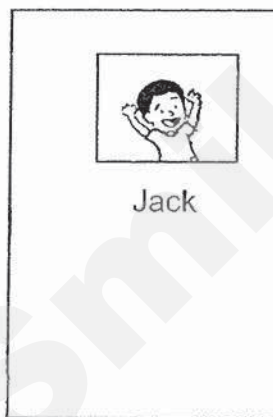


- (a) Explain how the boy was able to see the painting on the wall. [1]

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- Jack and Nelson are neighbours living directly opposite each other. One pitch dark night, only one of them switched on the lights in his house.



- (b) It was observed that Nelson could see Jack from his window but Jack was unable to see Nelson from his window. Explain the observation. [1]

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An experiment was conducted to find out how different materials would affect the amount of light passing through them. The results were recorded as shown in the table below.

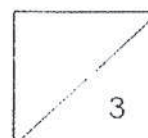
Material	Amount of light passing through (units)
A	5
B	90
C	20

Carine wanted her room to be as dark as possible when she sleeps at night.

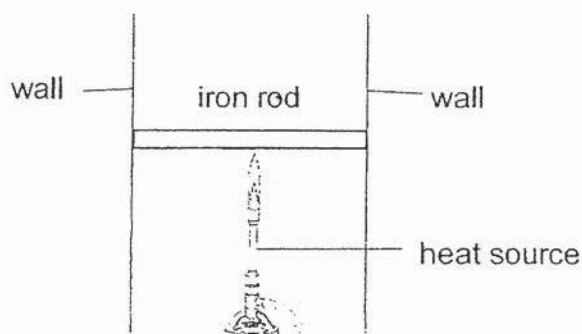
- (c) Which material, A, B or C, would be the most suitable to make a curtain? Explain your answer. [1]

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41. Percy conducted an experiment by heating an iron rod that is placed between 2 walls for 20 minutes as shown below.

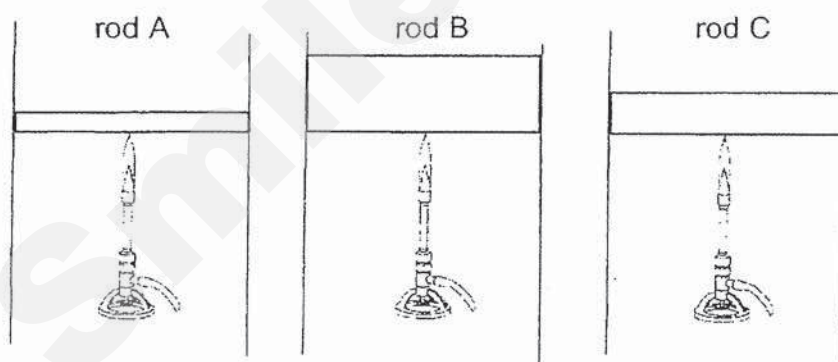


- (a) It was observed that the iron rod started to bend 20 minutes later. Explain his observation. [1]

---

---

In another experiment, Percy used three rods of different materials, A, B and C, and placed them between 2 walls, for 20 minutes. He wanted to find out how different rods will affect the time taken for each rod to expand. He set up the experiment as shown below.

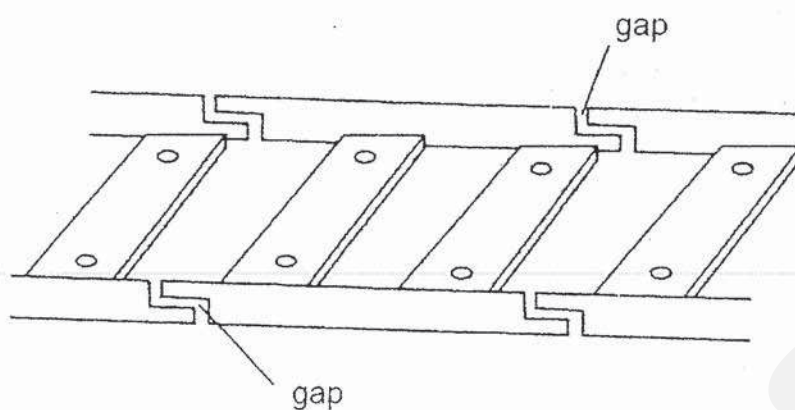


- (b) Based on the above set-up, Jessica said that the experiment is not a fair one. Do you agree with Jessica? Explain your answer. [1]

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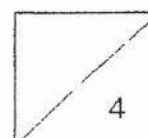
- (c) Railway lines have gaps along their metal tracks as shown below.



What would happen to the metal tracks on a very hot day if there were no gaps?  
Explain your answer. [2]

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END OF SECTION B

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## ANSWER KEY

YEAR : 2019

LEVEL : PRIMARY 4

SCHOOL : PAYER LEBAR METHODIST GIRL'S SCHOOL

SUBJECT : SCIENCE

TERM : SA2

### SECTION A

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

### BOOKLET B

SECTION B  
Answer the following questions.



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(29)

(30a) B → D → A → C

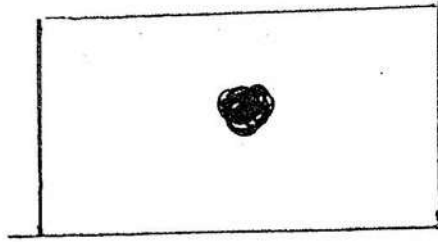
(30b) The egg stage.

(31) A: South-seeking pole

B: North-seeking pole

(32a) A shadow is formed when light is blocked by an object.

(32b)



(32c) The shadow formed will be larger.

(33a) Part P: Roots

Part Q: Leaves

(33b) (i) It takes in mineral salts and water for the plant.

(ii) It anchors the plant firmly to the ground.

(34a) B,A,C

(34b) We can conclude that Material X is a better conductor of heat compared to Material Y as Wax D took a lesser amount of time to melt.

(34c) Move Wax E nearer to the flame.

(35a) Flexibility.

(35b) Strength.

(35c) Material Y. It is not flexible and it is the strongest. C, it can withstand the weight of 50kg as the material can hold up to 80kg before breaking.

(36a) Digestion is to break down food into simple substances so that these simple substances can be used by the body.

(36b) Teeth

(36c) The teeth break down the food into smaller pieces. C to increase the surface area of food in contact with the digestive juices, making them digest faster.

(37a) The length of the magnet does not affect the magnetic strength.

(37b) She would observe that the magnet will not attract the aluminium pin as it is a non-magnetic object.

(37c) This prevents the door from slamming due to a strong wall.



- (38a) 150cm, Air has no definite volume.
- (38b) No, as there is more air in container Q than in P and since air is a matter it has mass.
- (38c) They have no definite shape.
- (38d) She can suck the air out.
- (39a) 2cm
- (39b) There were air bubbles because there were air spaces in between the sand and pebbles therefore the air is trying to get out so the water could take up the spaces.
- (39c) There was a difference as the air spaces in between each pebble were bigger so the water could take up the space.
- (39d) No, there are smaller air spaces between the stones in cup B. Less water is needed to take up these air spaces.
- (40a) The light from the lamp reflected on the painting and then into his eyes.
- (40b) Light from Jack's home is reflected from Jack into Nelson's eyes.
- (40c) Material A, as it had the least amount of light passing through meaning that is the material that blocks out the most amount of light and since Carine wants her room to be as dark as possible Material A will be the best choice.
- (41a) The iron rod bent as it gained heat from the heat source and expanded. However, there was no space as it was in between 2 walls so it bent.
- (41b) Yes, as to have a fair test, she needs the rods to have the same thickness as a fair test can only have one variable change.
- (41c) It will gain heat from the sun and expand and since there was no space for it to expand it will break.

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# METHODIST GIRLS' SCHOOL

Founded in 1887



## END-OF-YEAR EXAMINATION 2019 PRIMARY 4 SCIENCE

### BOOKLET A

Total Time for Booklets A and B: 1 hour 30 minutes

#### INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Shade your answers in the Optical Answer Sheet (OAS) provided.

Name: \_\_\_\_\_ ( )

Class: Primary 4. \_\_\_\_\_

Date : 22 October 2019

This booklet consists of 18 printed pages including this page.

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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 on the Optical Answer Sheet (OAS).  
[56 marks]

1 Which one of the following is **not** a living thing?

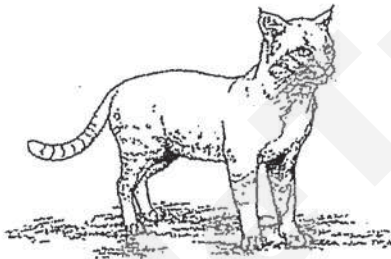
(1)



(2)



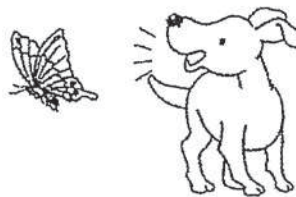
(3)



(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

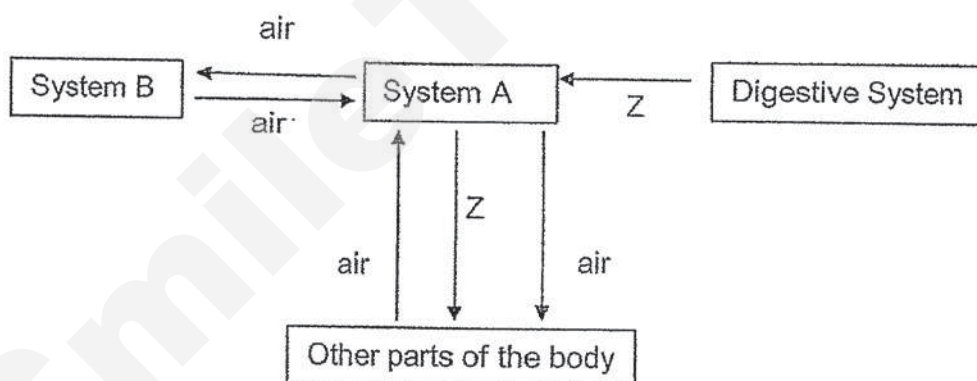
- 3 The diagram below shows a water hose connected to a tap.



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 and air are transported in a human body.

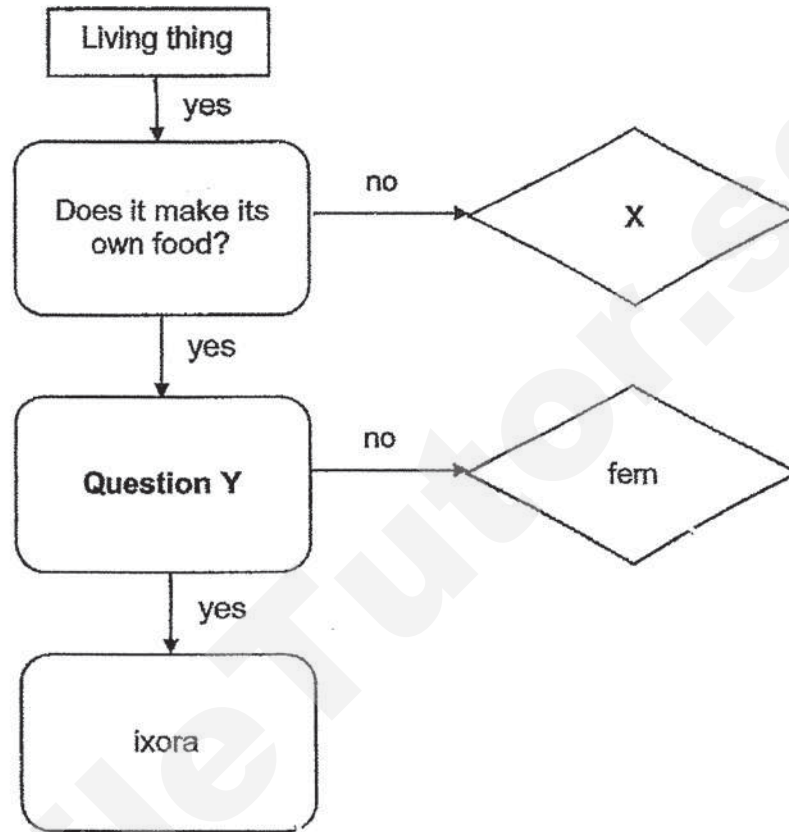


What are systems A and B and substance Z?

	System A	System B	Substance Z
(1)	respiratory	circulatory	digested food
(2)	circulatory	respiratory	digested food
(3)	muscular	circulatory	air
(4)	circulatory	respiratory	air



5 Study the chart below.



Which one of the following is correct?

	<b>X</b>	<b>Question Y</b>
(1)	mould	Does it produce seeds?
(2)	mushroom	Does it have roots?
(3)	moss	Does it have fruits?
(4)	rose	Does it need water?

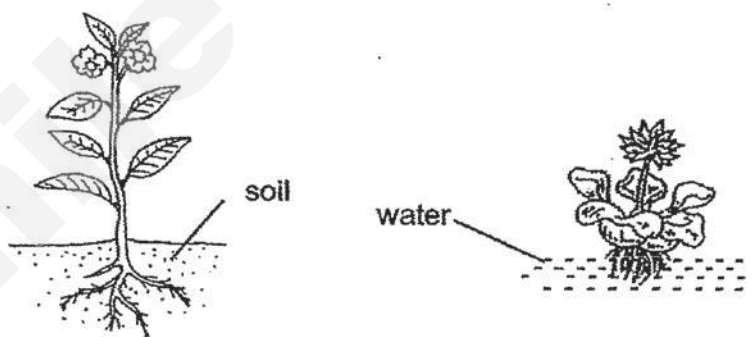
6 Which part of the human digestive system listed below absorbs all the remaining digested food?

- (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

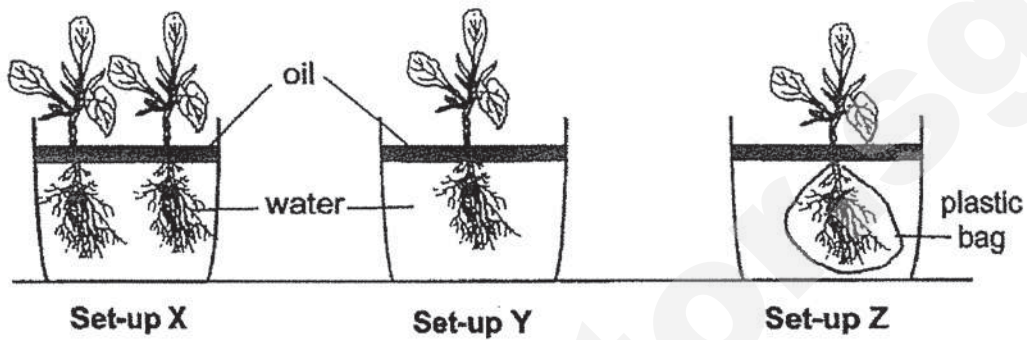
8 The diagram below shows two plants.



Which one of the following statements explains correctly the function of roots for **both** the plants above?

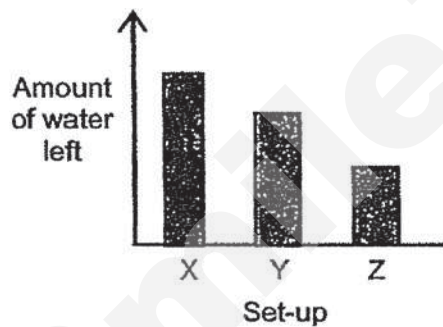
- (1) The roots support the plants upright.
- (2) The roots take in mineral salts for the plants.
- (3) The roots hold the plants firmly to the ground.
- (4) The roots spread out to receive more sunlight.

- 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.

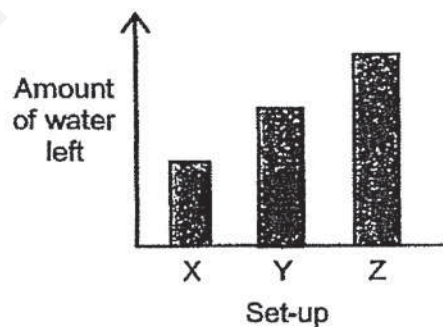


Which one of the following most likely shows the amount of water left in each container at the end of a week?

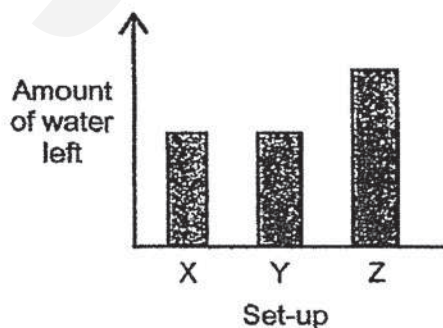
(1)



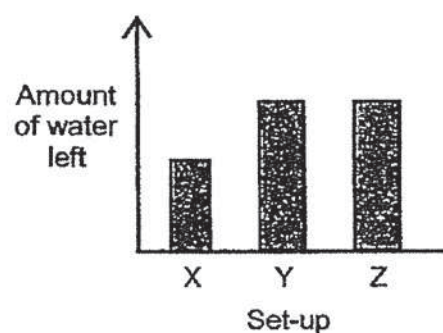
(2)



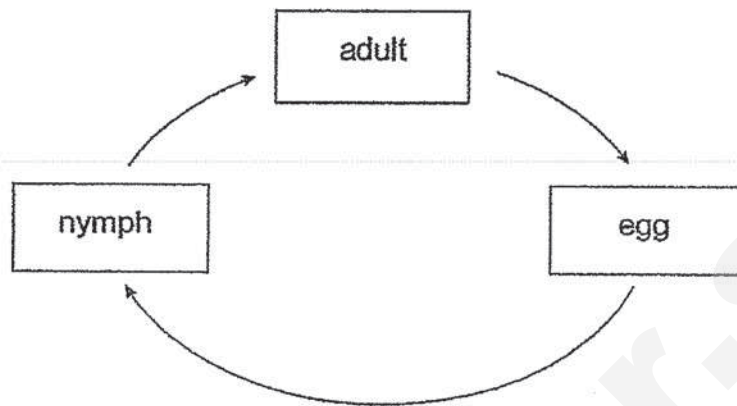
(3)



(4)

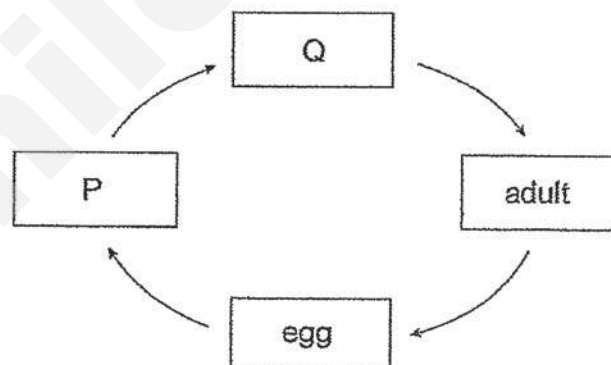


- 10 The diagram below shows the life cycle of an animal.



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.

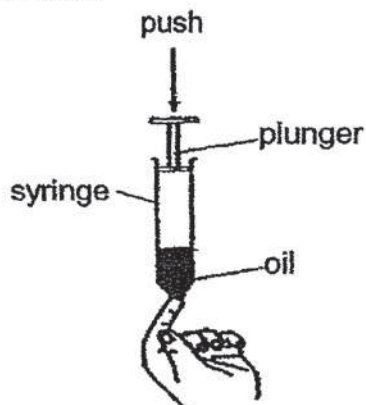


Which of the following correctly describes the insect at stages P and Q?

	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.

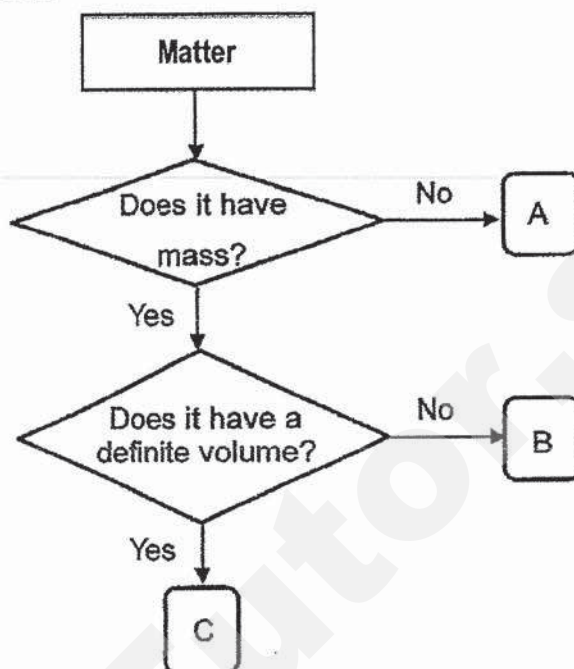
Group Y	Group Z
mosquito	grasshopper
mealworm beetle	chicken

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

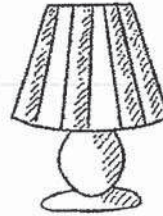
17 Which one of the following is a source of light?

(1)



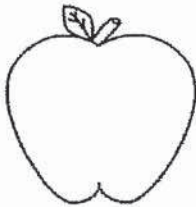
a mirror

(2)



a lamp

(3)



an apple

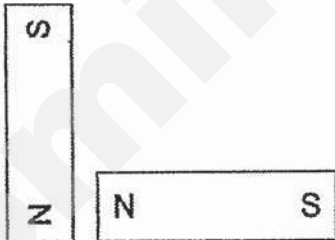
(4)



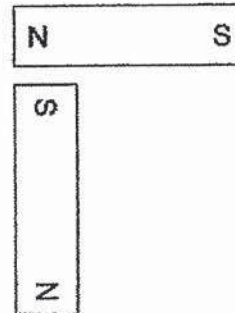
the moon

18 Which diagram below shows repulsion between two magnets?

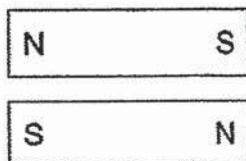
(1)



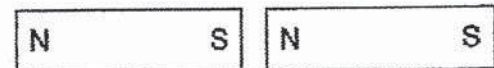
(2)



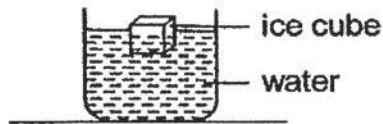
(3)



(4)



- 19 Zakiah placed an ice cube into a cup of water as shown below.

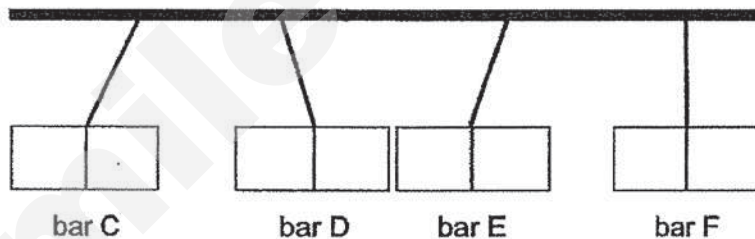


The ice melted after a while.

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 Bar C, D, E and F were hung on a rod and the observations are shown below.

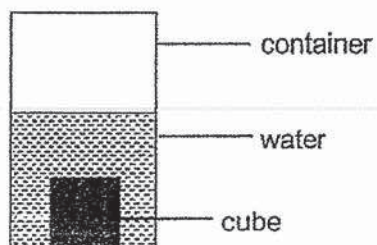


Which of the following statements are true?

- 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.



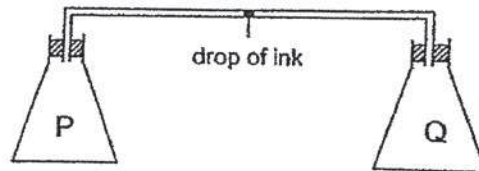
After 10 minutes, each cube was weighed again. Their masses were recorded in the table below.

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.

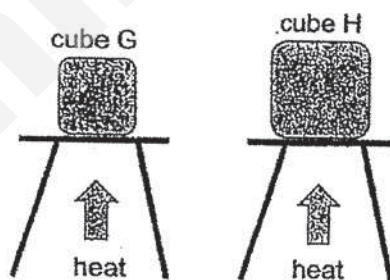


Which of the following actions will cause the drop of ink to move towards flask P?

- 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.

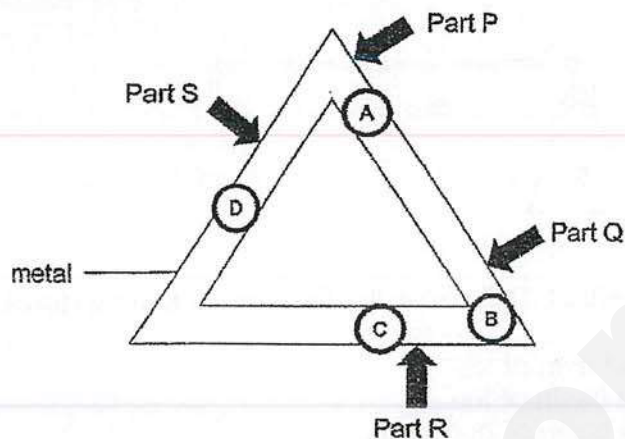


Which one of the following statements is correct?

- (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.



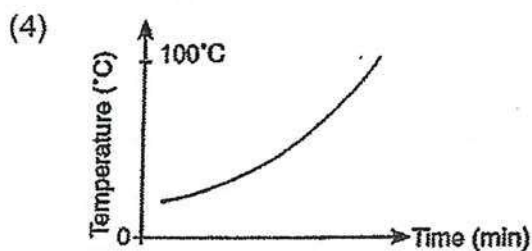
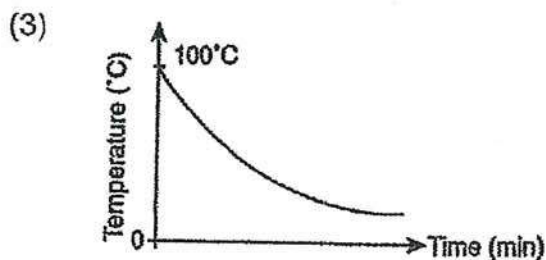
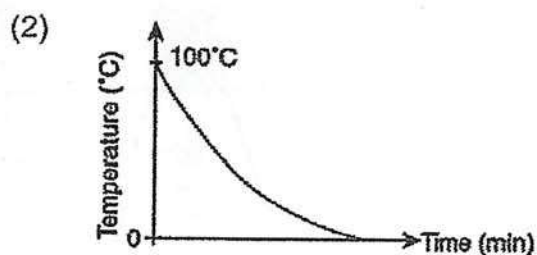
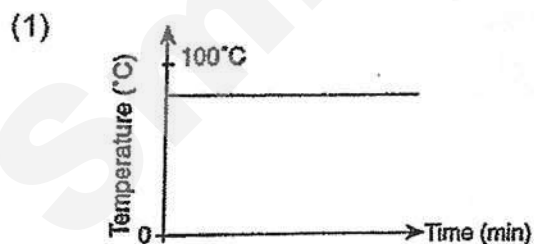
- 24 The diagram below shows blobs of wax, A, B, C and D, which are placed onto a triangular piece of metal.



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?

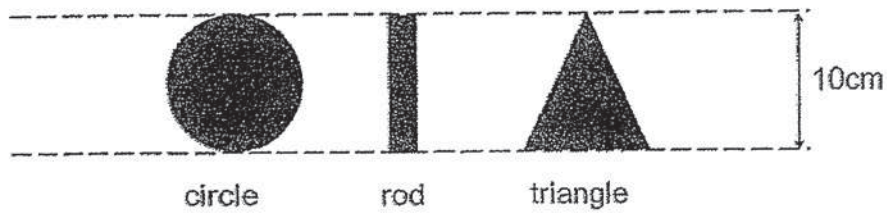
- (1) P
- (2) Q
- (3) R
- (4) S

- 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 Nalini cut out three shapes that are of the same height from a piece of cardboard.



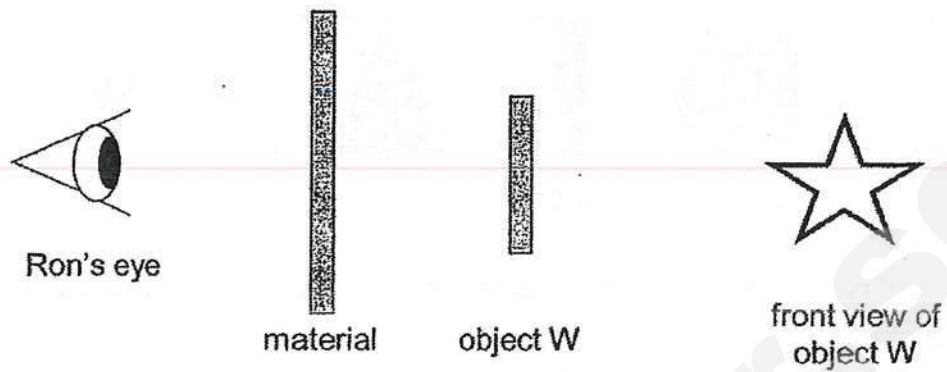
She placed each shape at different positions, X, Y and Z and a shadow is formed on the screen as shown below.



Which one of the following shows the objects placed at positions X, Y and Z?

	X	Y	Z
(1)	rod	circle	triangle
(2)	triangle	rod	circle
(3)	rod	triangle	circle
(4)	circle	triangle	rod

27 Ron placed object W behind three different materials, R, S and T.



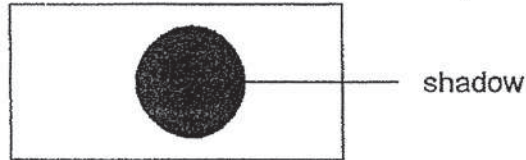
He drew what he could see as shown below.







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

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



Which one of the following objects could form the above shadow?

			
bottle	toilet roll	thumbtack	cone

- (1) toilet roll and cone only
- (2) bottle and thumbtack only
- (3) bottle, thumbtack and cone only
- (4) toilet roll, thumbtack and cone only

End of Booklet A

# METHODIST GIRLS' SCHOOL

Founded in 1887



## END-OF-YEAR EXAMINATION 2019

PRIMARY 4

SCIENCE

BOOKLET B

Total Time for Booklets A and B: 1 hour 30 minutes

### INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Name: \_\_\_\_\_ ( )

Class: Primary 4. \_\_\_\_\_

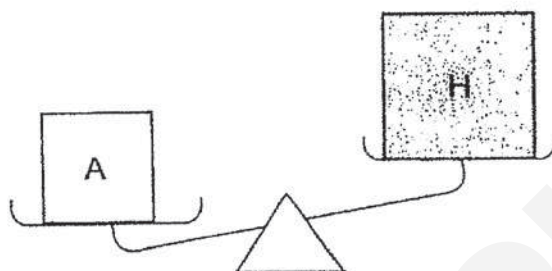
Date : 22 October 2019

Booklet A	56
Booklet B	34
Total	90
Parent's Signature	

This booklet consists of 12 printed pages including this page.

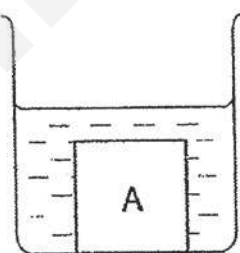
For questions 29 to 40, write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question or part question.  
[34 marks]

- 29 Two objects, A and H, made of different materials were placed on a balance as shown below.

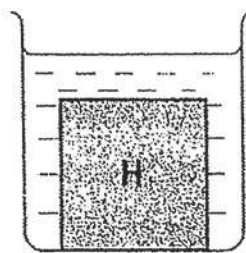


What could be concluded based on the above set-up using the balance?  
Circle the correct answers for (a).

- (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.



Beaker P



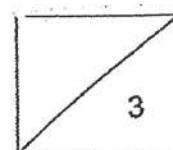
Beaker Q

Why is the water level in beaker Q higher than the water level in beaker P? [1]

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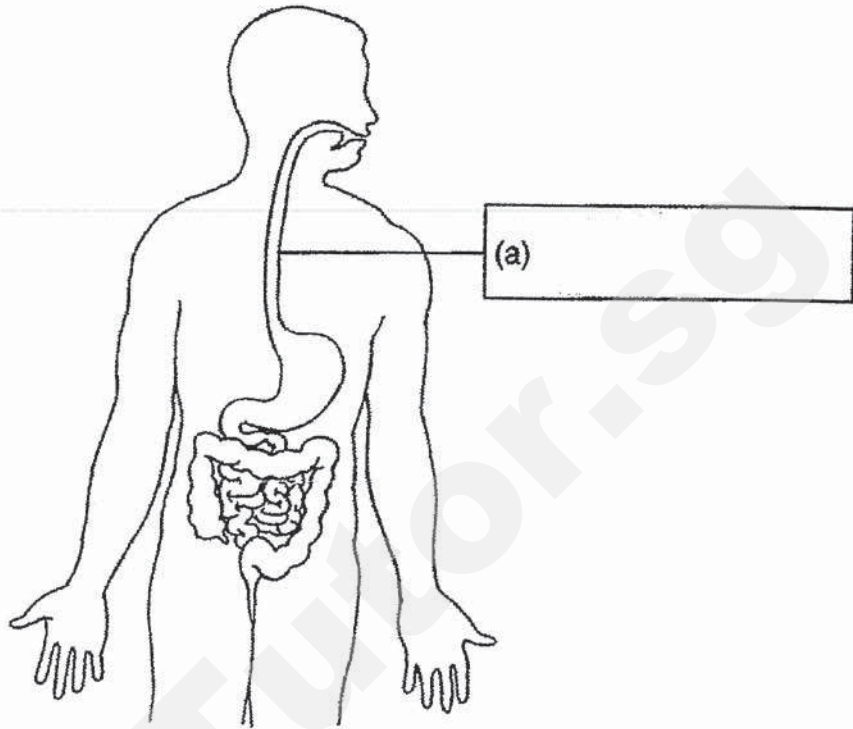
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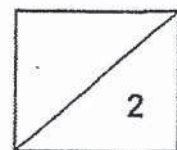


- 30 The diagram below shows the human digestive system.



- (a) Name the organ in (a) by writing your answer in the box above. [1]
- (b) Name another organ in the human digestive system where digestion does not take place. [1]

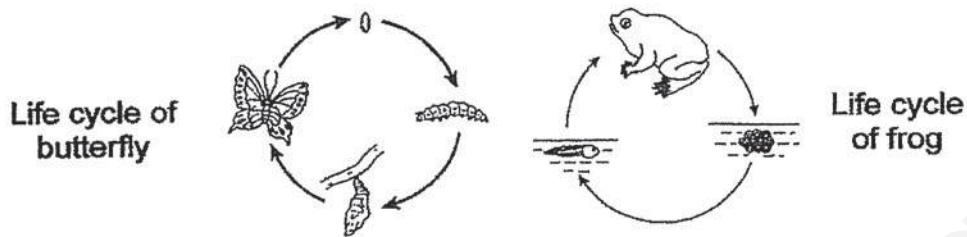
\_\_\_\_\_



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- 31 Study the life cycle of the butterfly and frog as shown below.



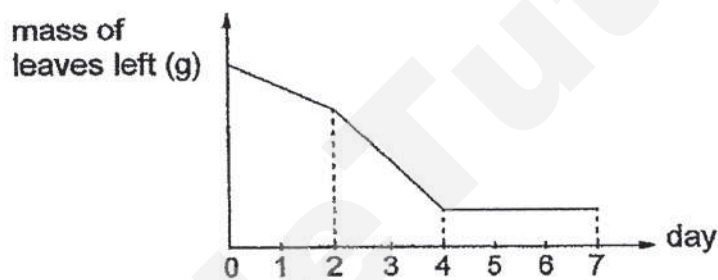
- (a) State a difference between the number of stages in the life cycles of the butterfly and the frog. [1]

---



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- (b) 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]

---



---



---

- (c) 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]

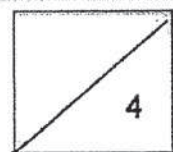
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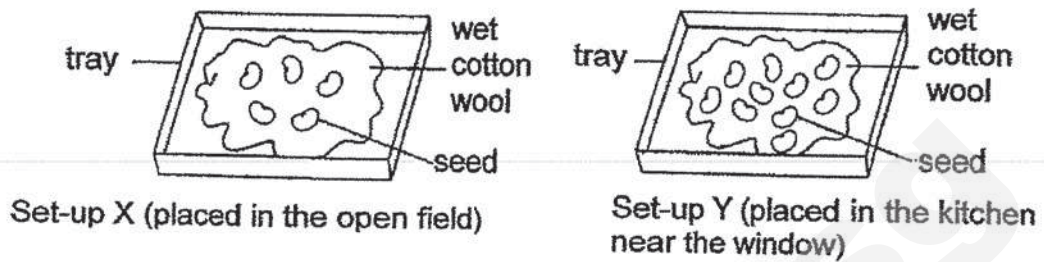


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- 32 Bala conducted an experiment as shown below to find out if the amount of light affects the growth of seeds. He placed one of the set-ups in the open field and the other in the kitchen.



- (a) 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]

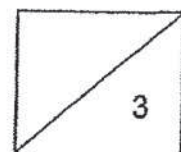
Suggestion 1: \_\_\_\_\_

Suggestion 2: \_\_\_\_\_

- (b) Bala observed the stages of development of his seed.

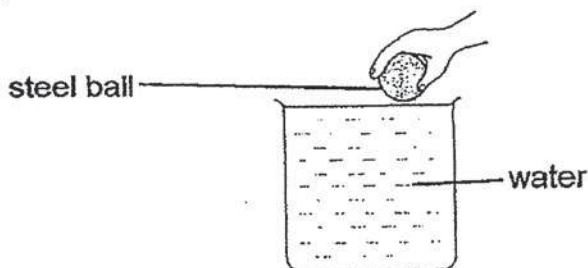


Arrange the stages in the correct order of development from the seed to a seedling. Fill in the boxes provided below with letters, A, B, C and D. [1]



(Go on to the next page)

- 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 would Wenli observe about the water after she dropped the steel ball into the beaker? [1]

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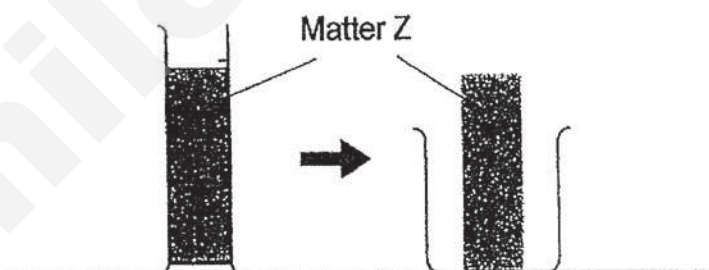
- (b) What property of matter was shown in the experiment above? [1]

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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.

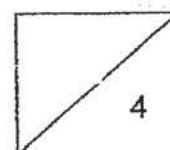


- (c) What is the state of Matter Z? Explain your answer. [2]

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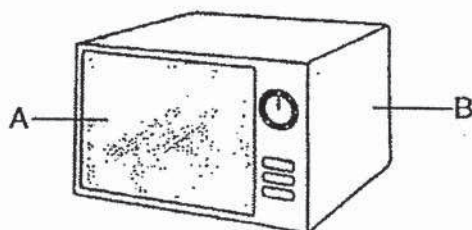


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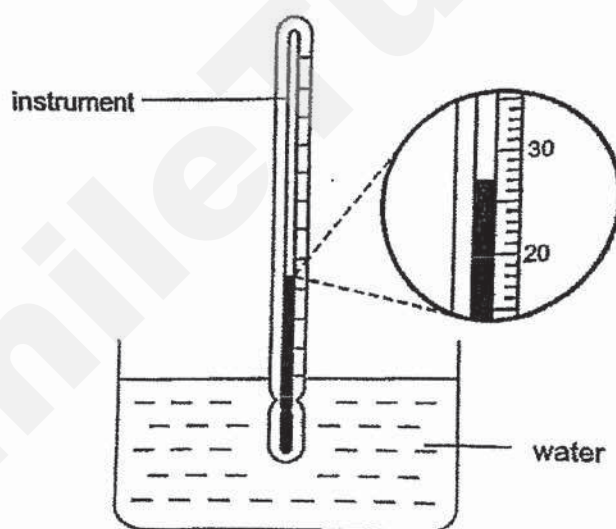
(Go on to the next page)

- 34 The diagram below shows an oven.

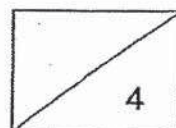


- (a) Part A is made of glass because it allows \_\_\_\_\_ to pass through so that the user can see the dish inside. [1]
- (b) Part B is made of \_\_\_\_\_ because it needs to be strong. [1]

- 35 Bala used an instrument to measure the temperature of water in a beaker.



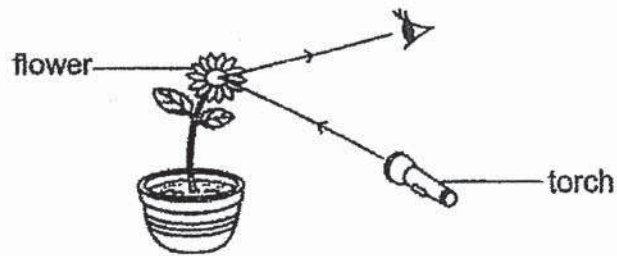
- (a) What is the instrument called? [1]
- \_\_\_\_\_
- (b) What is the temperature of the water in the beaker? [1]
- \_\_\_\_\_ °C



(Go on to the next page)

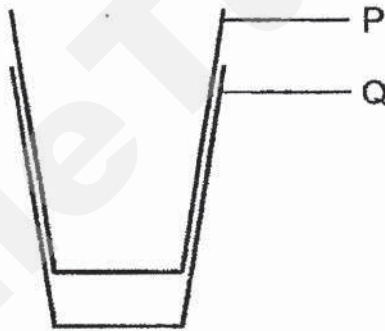


- 36 The diagram below shows how a person sees the flower.



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.

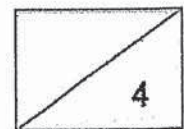


Janet decided to pour hot water on glass P to separate them but it did not work. Explain why. [2]

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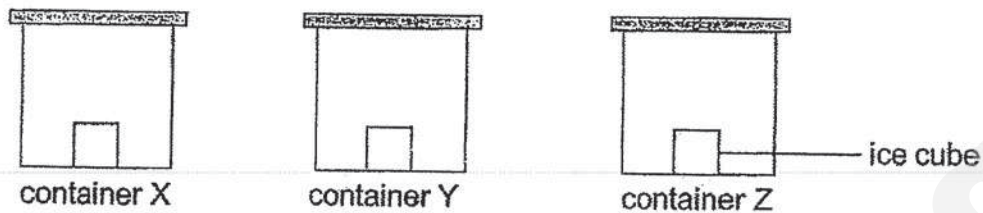


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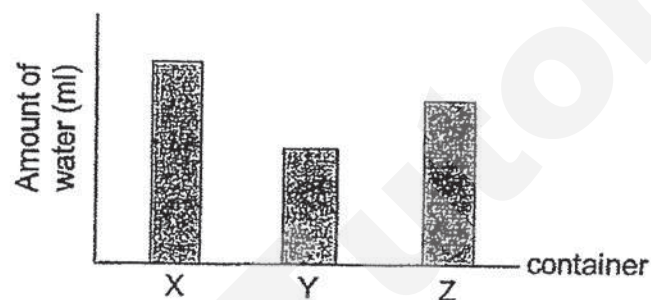


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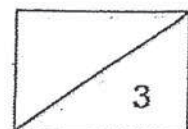
- 38 An experiment was set up as shown below. One ice cube of equal volume was placed in container X, Y and Z at room temperature. Container X, Y and Z are made of different materials.



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.



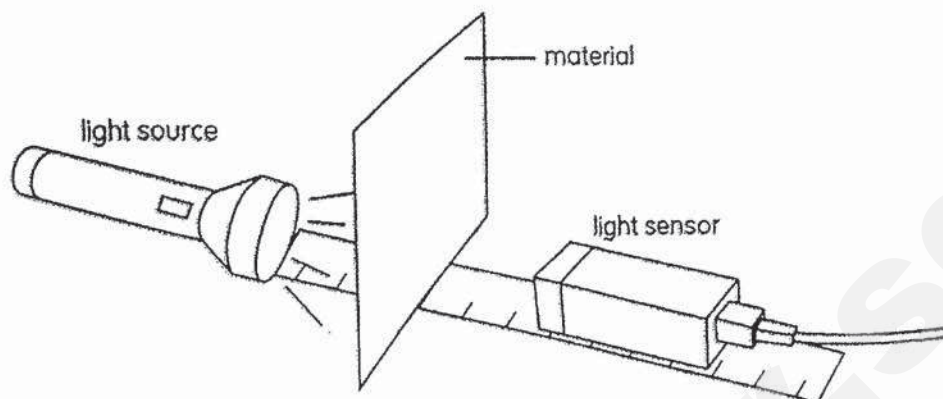
- (a) What is the change in state of the ice cubes in the containers after 30 minutes? [1]
- \_\_\_\_\_
- (b) Which container, X, Y or Z caused the ice cubes to melt the slowest? Explain your answer based on the graph above. [1]
- \_\_\_\_\_
- \_\_\_\_\_
- (c) What property of the container you have chosen in (b) caused the ice cube to melt the slowest? [1]
- \_\_\_\_\_



(Go on to the next page)



- 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]

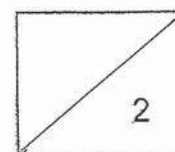
Material \_\_\_\_\_

- (b) Explain your answer based on the results above. [1]

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Material R was used in another experimental set up as shown below. A shadow was formed on the screen when the torch was switched on.



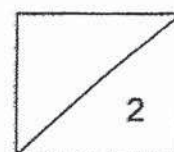
- (c) What would happen to the shadow if material R is moved nearer to the torch? [1]

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- (d) Explain your answer in (c). [1]

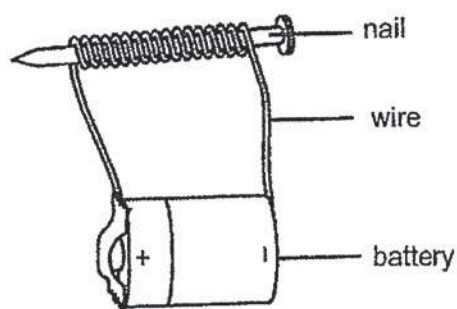
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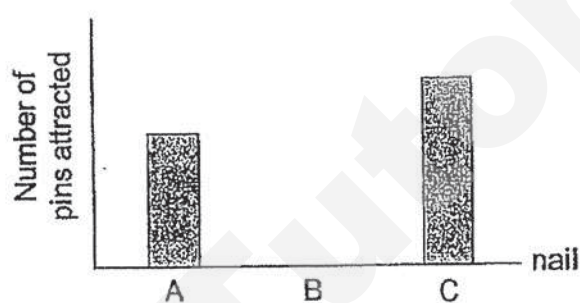


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- 40 Roy prepared an electromagnet set-up as shown below.



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]

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- (b) Suggest one way that Roy could do to the electromagnet to increase the number of pins attracted to it. [1]

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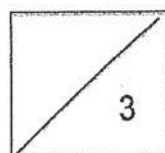
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- (c) What could nail B be made of? Explain your answer. [1]

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End of Booklet B

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# ANSWER KEY

**YEAR : 2019**  
**LEVEL : PRIMARY 4**  
**SCHOOL : METHODIST GIRLS' SCHOOL**  
**SUBJECT : SCIENCE**  
**TERM : SA2**

## BOOKLET A

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

## BOOKLET B

29a) The mass of the object A is greater than Object H.

29b) Object H had a greater volume than object A and occupy more space. Hence, the water level in beaker Q is higher than the water level in beaker P.

30a) Gullet

30b) Large intestine

31a) The life cycle of the frog was 3-stages but the life cycle of the butterfly was 4-stages.

31b) Day 4. Day 4-7 mass of leaves were the same and kept constant. Unlike day 1 to day 3 where the caterpillar was eating, day 4 to 7 was when the pupa did not eat the leaves.

31c) The frogs needed water to lay eggs for reproduction. Without water, the female frogs could lay eggs and its kind would be fewer.

32a) Suggestion 1: Remove five seeds from tray in set-up Y

Suggestion 2: Place set-up Y in a dark cupboard

32b)  $C \rightarrow D \rightarrow A \rightarrow B \rightarrow$

33a) The water will be overflowed.

33b) The steel ball occupy space.

33c) Solid. Solid has a definite shape.

34a) Part A is made of glass because it allows most light to pass through so that the user can see the dish inside

34b) Part B is made of metal because it needs to be strong.

35a) Laboratory thermometer

35b) 27°C

36) The light from the torch is reflected by the flower and enters the person's eye.

37) AS glass P and glass Q will gain heat and expand making it harder to separate them.

38a) Solid to liquid



- 38b) Container Y. Container Y had the least amount of water in the container after 30 minutes.
- 38c) Poor conductor of heat.
- 39a) Material S
- 39b) Material S allows some light to pass through and was translucent. Hence, Material S would be most suitable to make part A of the sunglasses.
- 39c) The shadow will become bigger.
- 39d) More light will be blocked.
- 40a) Nail C. Nail C could attract the most number of pins. Hence, Roy should choose Nail C if he wanted to make a stronger electromagnet.
- 40b) Put more batteries in the circuit in series.
- 40c) Copper. Copper is a non-magnetic material and cannot be magnetised. Hence, Nail B could not attract any pins.



2  
END



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NAN HUA PRIMARY SCHOOL  
SEMESTRAL ASSESSMENT 2 – 2019  
PRIMARY 4

SCIENCE

BOOKLET A

28 Multiple Choice Questions (56 marks)

Total Time for Booklets A and B: 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers in the Optical Answer Sheet (OAS) provided.

Marks Obtained

Booklet A		/ 56
Booklet B		/ 44
Total		/ 100

Name: \_\_\_\_\_ (     )     Class: P 4 \_\_\_\_\_

Date: 25 October 2019

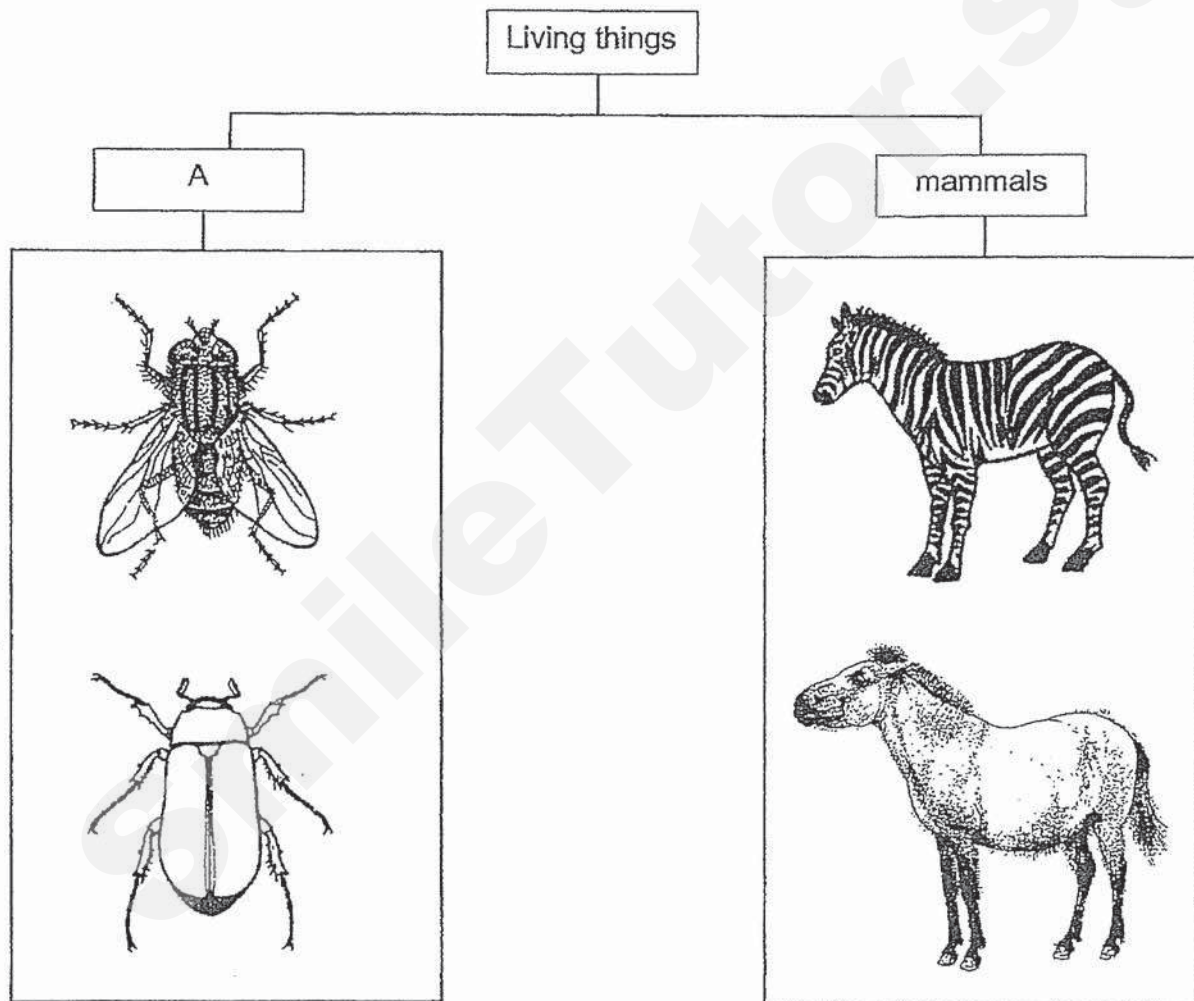
Parent's Signature: \_\_\_\_\_

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**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.

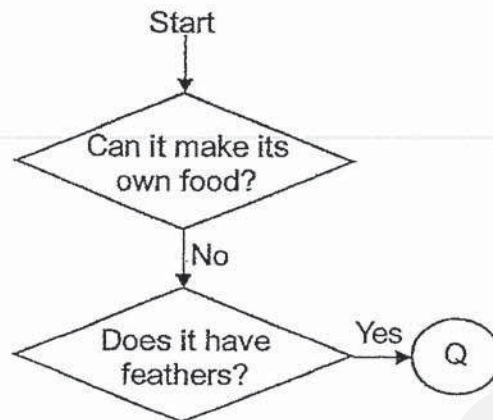
- 1 The table below shows how some living things can be grouped.



Which one of the following is the most suitable heading for group A?

- (1) birds
- (2) insects
- (3) reptiles
- (4) amphibians

- 2 Study the diagram below.



What could Q be?

- (1) bird
  - (2) plant
  - (3) insect
  - (4) mammal
- 3 The diagram shows a painting hanging on a wall.



The cover of the painting is made of glass because glass is \_\_\_\_\_.

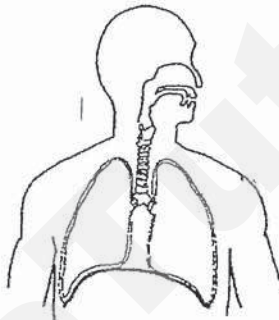
- (1) light
- (2) strong
- (3) flexible
- (4) transparent

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

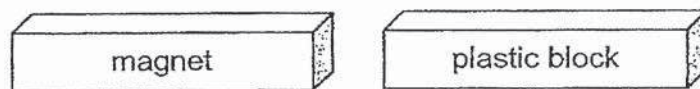
leaves → stem → roots

What is this substance?

- (1) air
  - (2) soil
  - (3) food
  - (4) water
- 5 Which organ system is shown in the diagram below?



- (1) skeletal system
  - (2) muscular system
  - (3) circulatory system
  - (4) respiratory system
- 6 The diagram shows a magnet brought near a plastic block.

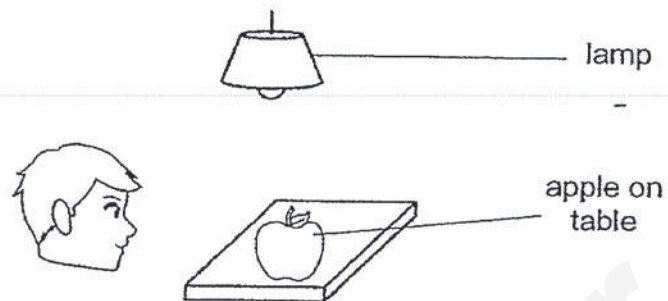


What will happen to the plastic block?

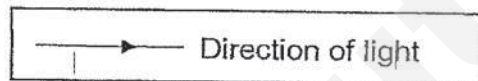
- (1) It will move up.
- (2) It will not move.
- (3) It will move to the left.
- (4) It will move to the right.



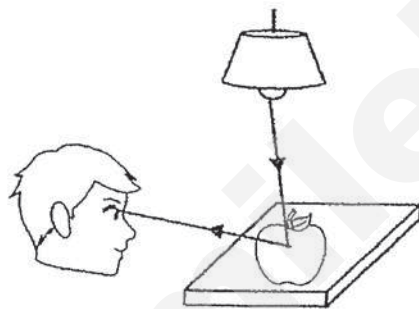
- 7 Look at the picture below.



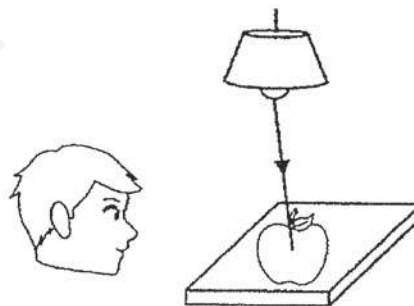
Which one of the following explains why the boy can see the apple on the table?



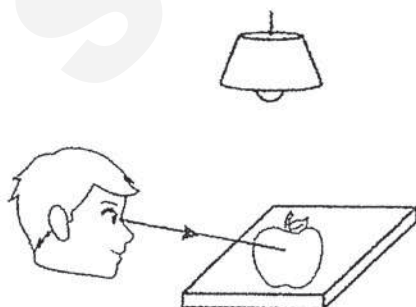
(1)



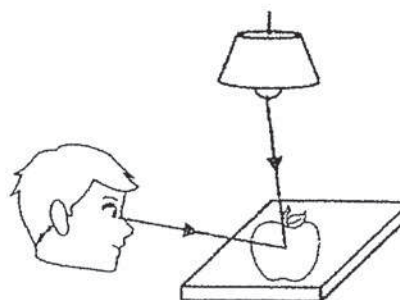
(2)



(3)



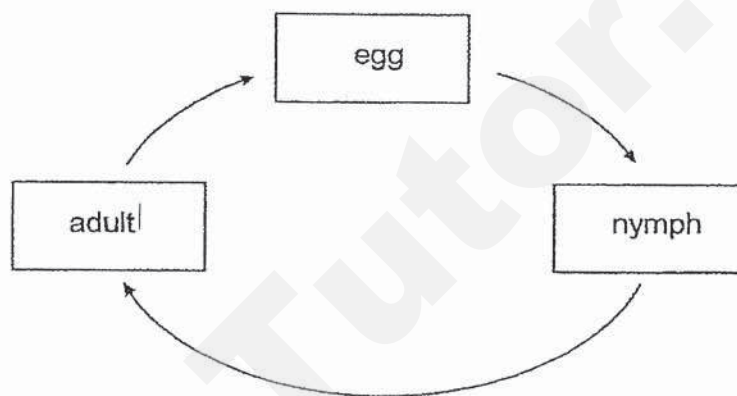
(4)



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

- (1) The Sun
- (2) A lighted lamp
- (3) A woollen sock
- (4) A candle flame

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



Which animal is likely to have the life cycle as shown above?

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

10 Matter is anything that has mass and occupies space.

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

- (1) air
- (2) milk
- (3) sand
- (4) shadow

- 11 Ping Ping had a bowl containing a mixture of two items. She successfully separated one item using a bar magnet, leaving the other item in the bowl.



Bowl A  
(Mixture of copper wire and erasers)



Bowl B  
(Mixture of steel paper clips and iron nails)



Bowl C  
(Mixture of marbles and iron nails)

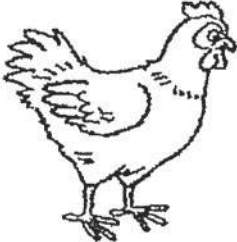







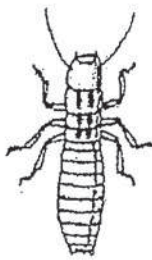


Bowl D  
(Mixture of marbles and erasers)

Which one of the above bowls, shows the mixture Ping Ping had before she separated the items?

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

- 12 The table below shows some animals which are classified into different groups X, Y and Z.

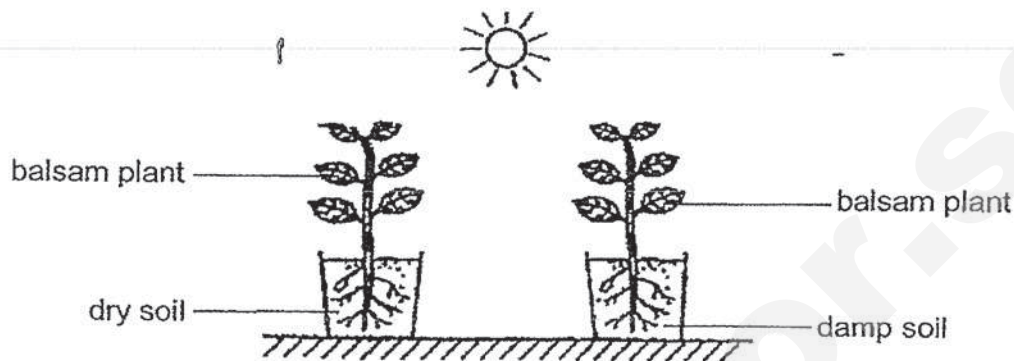
Group X	Group Y	Group Z
		
		
		

Based on the table above, how are these animals grouped?

They are grouped according to \_\_\_\_\_.

- (1) how they move
- (2) the place they live in
- (3) their outer body coverings
- (4) the number of legs they have

- 13 Jasmine set up the experiment as shown below to find out what a plant needs for its growth.



She is trying to find out if plants need \_\_\_\_\_ to survive.

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

- 14 Which properties of materials would you choose for making a bath towel?

- A light
- B flexible
- C waterproof
- D transparent

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

- 15 The diagram below shows a balsam plant.

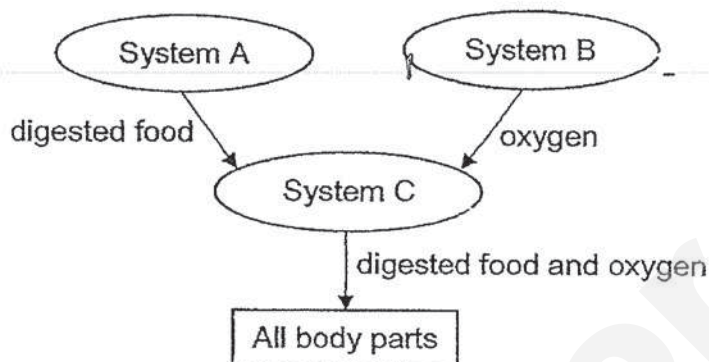


Which of the following statements about part S are correct?

- A It makes food.
  - B It takes in water.
  - C It holds the plant firmly to the ground.
  - D It supports the plant to stand upright.
- (1) A and B  
(2) A and C  
(3) B and C  
(4) B, C and D



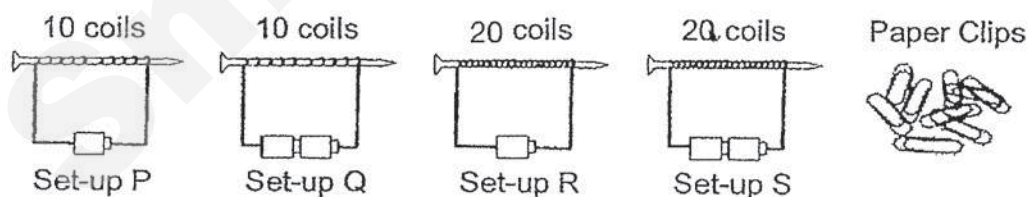
- 16 The diagram below shows how three body systems, A, B and C work together. The arrows show the movement of some substances in the body.



Which one of the following correctly classifies body systems, A, B and C?

	System A	System B	System C
(1)	digestive	respiratory	circulatory
(2)	digestive	circulatory	respiratory
(3)	muscular	circulatory	digestive
(4)	circulatory	digestive	muscular

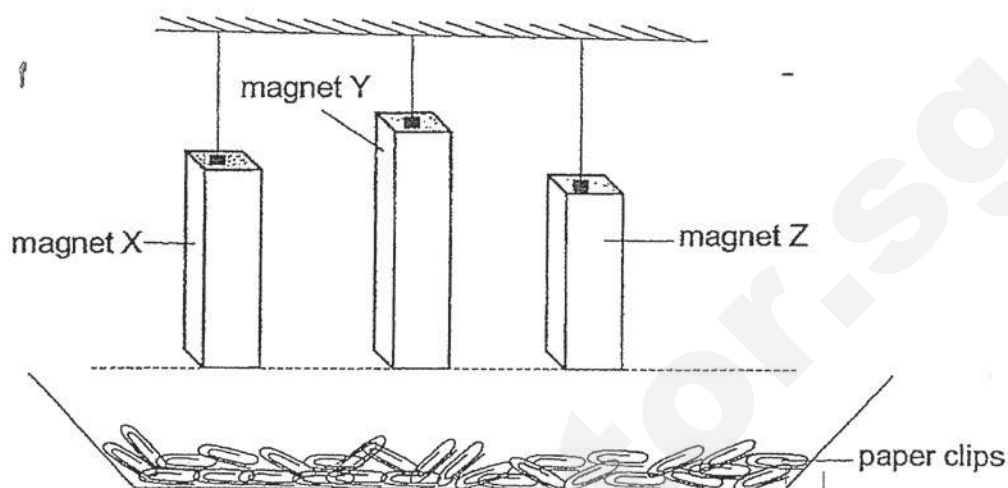
- 17 Timothy wants to find out if the number of coils of wire around an iron nail will affect the strength of an electromagnet. He is given four set-ups and some paper clips.



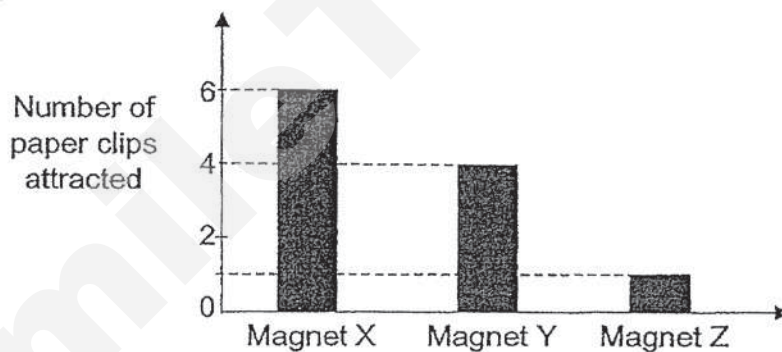
Which two set-ups should Timothy use for his investigation?

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

- 18 Three bar magnets, X, Y and Z of different sizes, were hung from the ceiling as shown below.



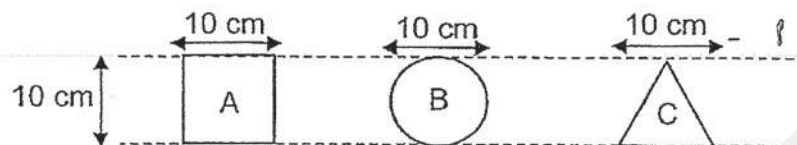
The number of paper clips attracted by each magnet was shown in the bar graph below.



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

- (1) Magnet X is the strongest.
- (2) The pole is the strongest part of each magnet.
- (3) The smaller the magnet, the weaker its magnetic strength.
- (4) Magnet Y is stronger than magnet X but weaker than magnet Z.

- 19 A, B and C are three cut-outs made of different materials. A is a square which does not allow light to pass through, B is a circle which allows most light to pass through and C is a triangle which allows some light to pass through.



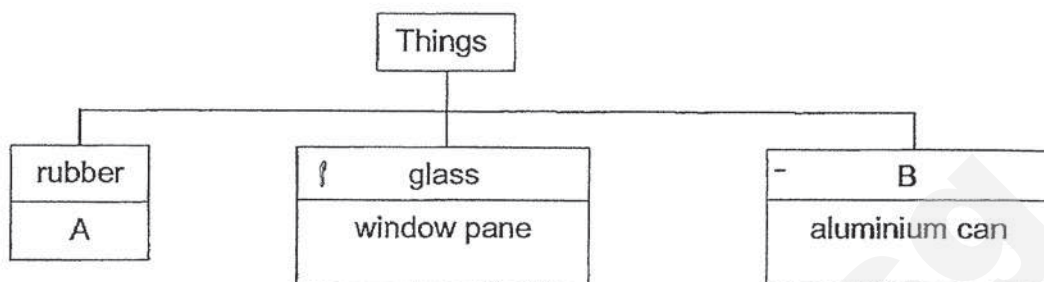
The 3 shapes are aligned side by side between a torch and a screen as shown below.



Which one of the following shadows will be seen on the screen?



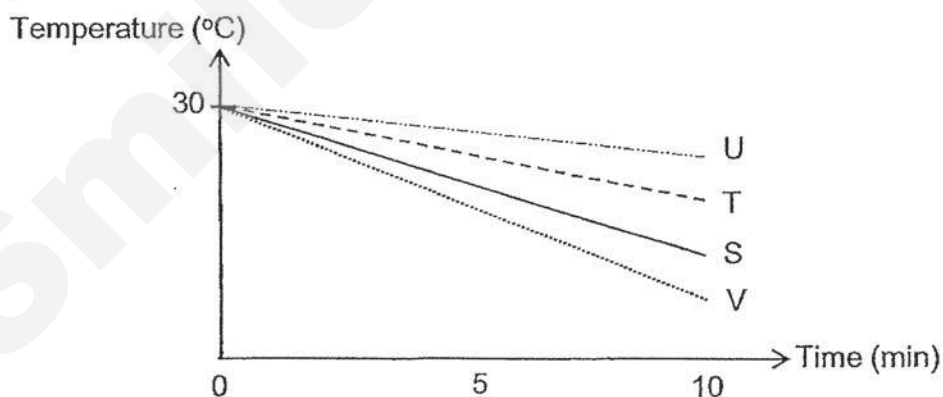
- 20 Study the classification chart below carefully.



Which of the following best represent A and B respectively?

	A	B
(1)	bath towel	fabric
(2)	cloth bag	plastic
(3)	eraser	metal
(4)	saucepan	ceramic

- 21 John poured equal volumes of water at  $30^{\circ}\text{C}$  into four similar beakers made of different materials, S, T, U and V. He placed all four beakers in a refrigerator for 10 minutes. The temperatures of the water during cooling were shown in the graph below.

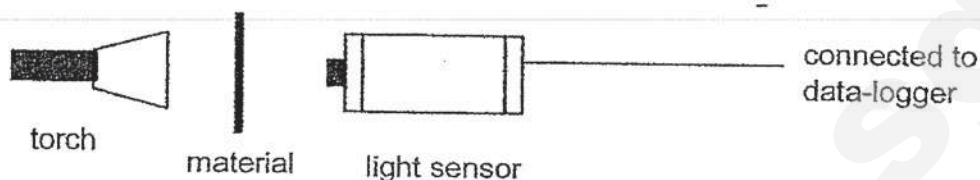


Arrange the materials according to their heat conductivity, starting from the best conductor of heat to the poorest conductor of heat.

- (1) U, T, S, V
- (2) U, V, T, S
- (3) V, S, T, U
- (4) V, U, S, T

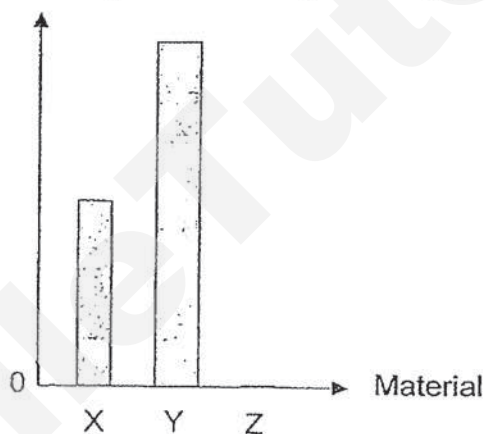


- 22 A student carried out an experiment to find out the amount of light that could pass through each material, X, Y and Z. The experimental set-up was as shown below.



A bar graph showing the results was plotted after the experiment.

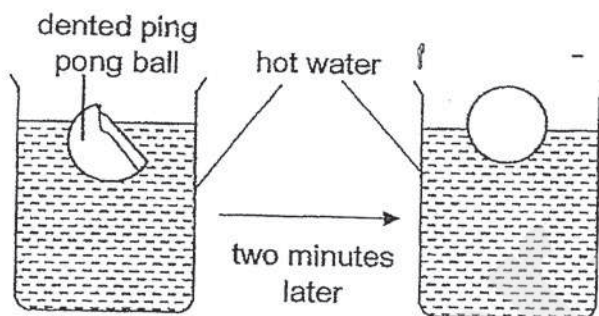
Amount of light recorded by sensor (units)



From the above results, which of the following correctly best matches material X, Y and Z to their uses?

	Material X	Material Y	Material Z
(1)	toilet door	lens for sunglasses	fish tank
(2)	lens for sunglasses	fish tank	toilet door
(3)	fish tank	lens for sunglasses	toilet door
(4)	fish tank	toilet door	lens for sunglasses

- 23 A dented ping pong ball was placed in a beaker of hot water. Two minutes later, it returned to its original shape.

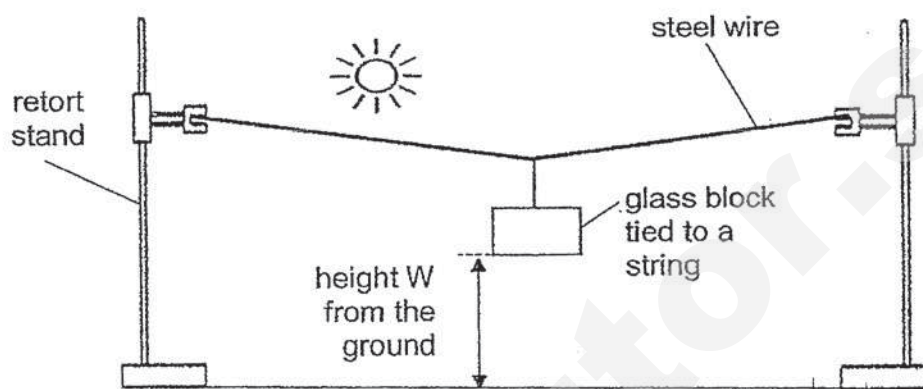


Based on the information above, which one of the following statements is correct?

- (1) Hot water entered the dented ping pong ball and inflated the ball.
- (2) The dented surface of the ping pong ball gained heat and cracked.
- (3) Air in the dented ping pong ball lost heat to the hot water, contracted and inflated the ball.
- (4) Air in the dented ping pong ball gained heat from the hot water, expanded and inflated the ball.



- 24 Mr Tay set up an outdoor experiment to study how different times of a day would affect height W (distance of glass block above the ground) as shown below.



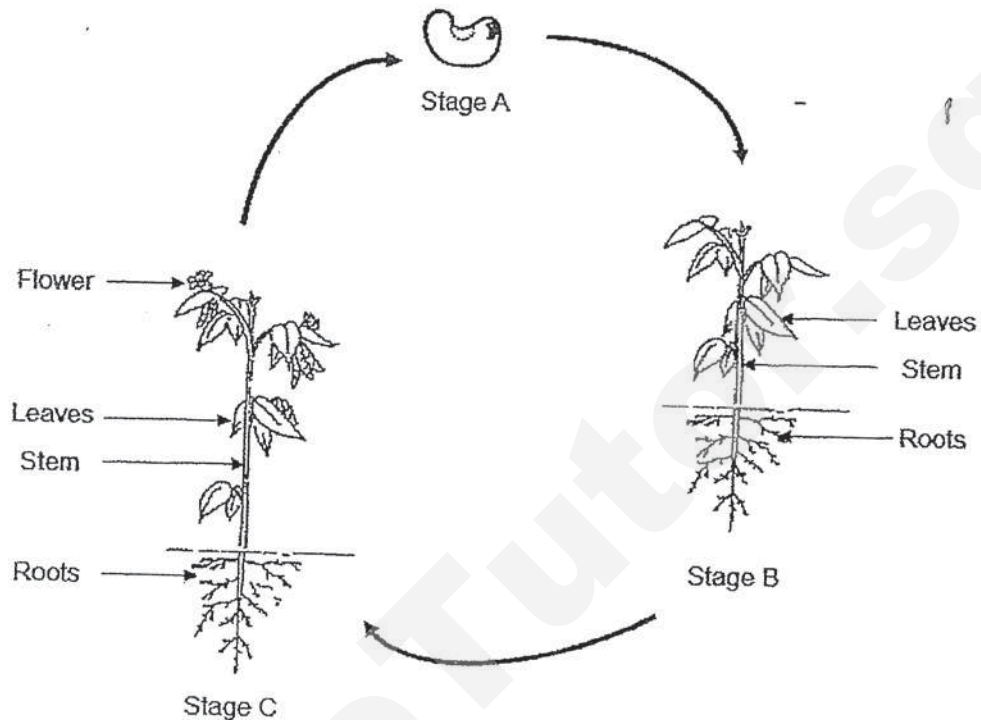
The changes in height W at 9 am and 6 pm on a sunny day were recorded in the table below.

Time of the day	9 am	12 noon	6 pm
Weather condition	Hot	Very hot	Cooling
Height W (cm)	20	?	24

Which one of the following could height W most likely be at 12 noon?

- (1) 18 cm
- (2) 20 cm
- (3) 22 cm
- (4) 26 cm

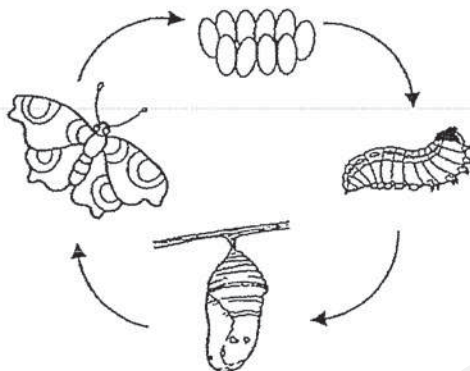
- 25 The diagram below shows the life cycle of a flowering plant.



Which one of the statements about the life cycle of the flowering plant is correct?

- (1) Stage A is the first stage of the life cycle of flowering plant.
- (2) At stage A, the roots will start to grow away from the ground.
- (3) The seed leaves provide stored food for the plant at stage A.
- (4) The flowering plant is able to make its own food only at stage C.

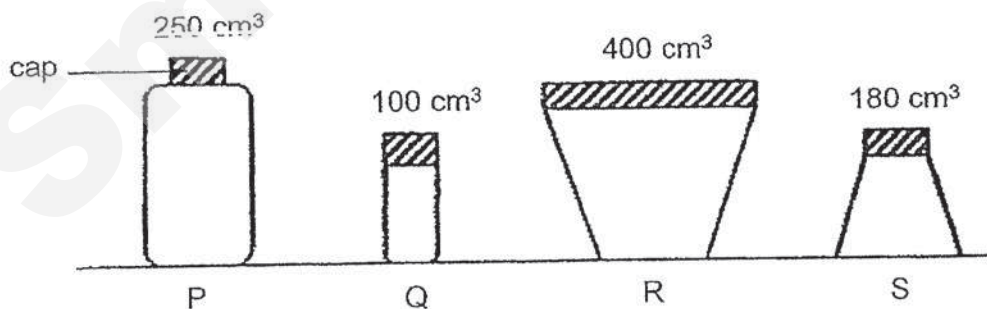
- 26 The diagram below shows the life cycle of a butterfly.



Which of the following insects does not go through the life cycle as shown above?

- A beetle
- B cockroach
- C grasshopper

- (1) A and B
  - (2) A and C
  - (3) B and C
  - (4) A, B and C
- 27 The diagram below shows four containers of different volumes.

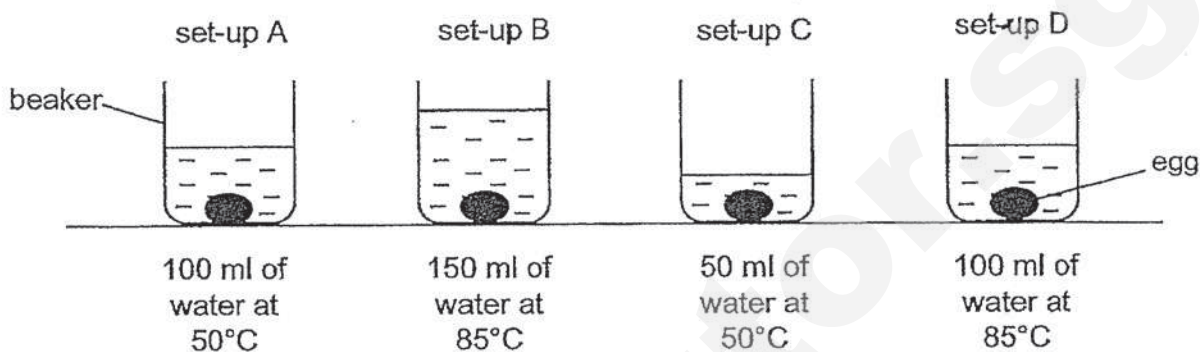


Which of the containers can be filled with  $150\text{ cm}^3$  of air?

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

28 Mindy wanted to find out the best way to cook soft-boiled eggs.

She conducted an experiment using the four set-ups as shown below. Four identical eggs were left in each beaker for five minutes. After five minutes, the eggs were taken out and cracked to see how cooked each of the egg was.



Which one of the following shows the correct arrangement of the set-ups starting with the egg that was most cooked to the egg that was least cooked?

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



NAN HUA PRIMARY SCHOOL  
SEMESTRAL ASSESSMENT 2 – 2019  
PRIMARY 4

SCIENCE

BOOKLET B

13 Open-ended questions (44 marks)

Total Time for Booklets A and B: 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers in this booklet.

Marks Obtained

Section B

	/ 44
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Name: \_\_\_\_\_ ( ) Class: P 4 \_\_\_\_\_

Date: 25 October 2019

Parent's Signature: \_\_\_\_\_



**Section B: (44 marks)**

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

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

29 Classify the following living things into animals and plants.



bear



banana tree



owl

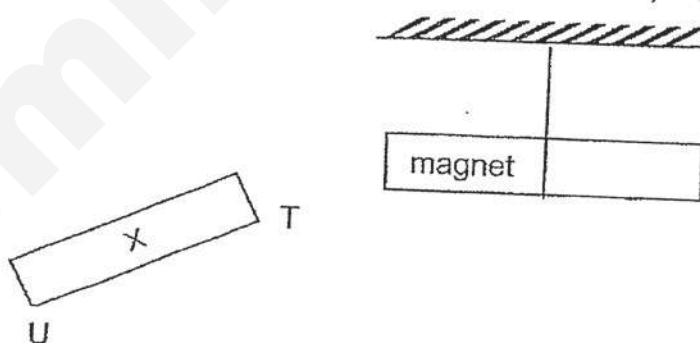


ladder fern

plants	animals

[2]

30 When end T of object X is brought near a magnet as shown, the magnet moves away.



- (a) This shows that object X is a \_\_\_\_\_ [1]
- (b) When end U is brought near to the magnet, it \_\_\_\_\_ the magnet. [1]
- (c) A freely suspended magnet will always come to rest in a \_\_\_\_\_ direction. [1]



- 31 (a) Look at the pictures below. Tick (✓) the sources of light.

[2]



burning candle



diamond ring



eyes



lamp

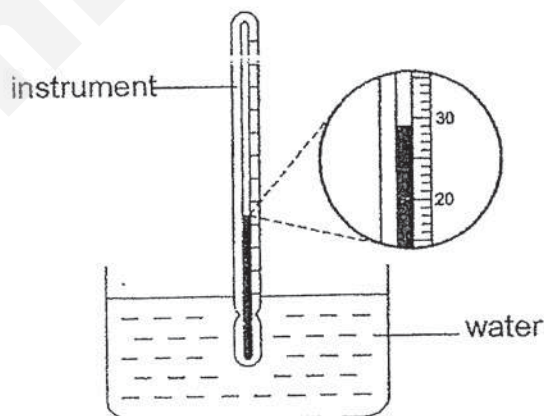
- (b) Study the table below.

natural light source	Man-made light source
glow worm	mirror
Sun	torch

Which one of the following things is classified wrongly?

[1]

- 32 Jessica used an instrument to measure the temperature of water in a container.



- (a) What is the instrument called?

[1]

- (b) What is the temperature of the water in the diagram above?

[1]

°C

Score	5
-------	---

- 33 The diagram below shows a bowl of hot soup.



Complete the sentences to state if the parts are solid, liquid or gas.

(a) The bowl is a \_\_\_\_\_ [1]

(b) The soup is a \_\_\_\_\_ [1]

- 34 Study the table below.

object	property of the object					
	can be bent		can see through		can absorb water	
	Yes	No	Yes	No	Yes	No
balloon	✓			✓		✓
plastic bag	✓		✓			✓
iron rod		✓		✓	—	✓
window pane		✓	✓			✓

(a) From the table, state the properties of the balloon. [1]

\_\_\_\_\_

\_\_\_\_\_

(b) Name a material that is most suitable to make a balloon. [1]

\_\_\_\_\_

(c) From the table, state the similarity between an iron rod and the window pane. [1]

\_\_\_\_\_

(d) From the table, state the difference between the plastic bag and the window pane. [1]

\_\_\_\_\_

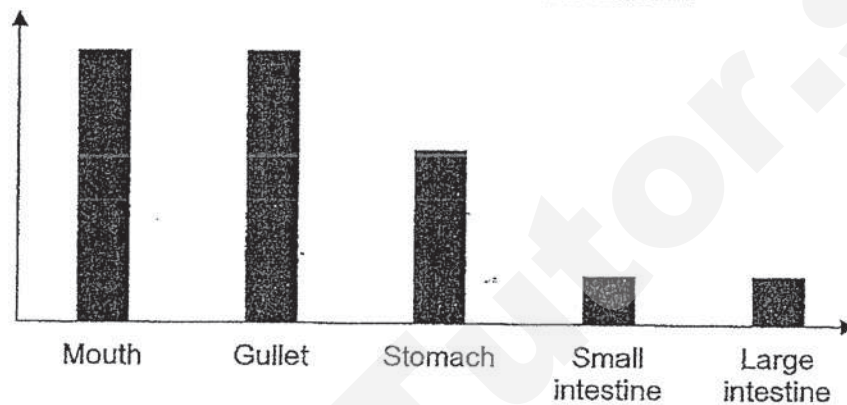
- 35 (a) Where does digestion start and end in the human digestive system? [1]

Digestion starts at the \_\_\_\_\_

Digestion ends at the \_\_\_\_\_

The graph below shows the amount of undigested food leaving each organ in the digestive system of a person.

Amount of undigested food after leaving an organ



- (b) Using the graph above, explain if digestive juices are present in the gullet. [1]

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- (c) Julie suffers from digestion problem. Her doctor advised her to chew her food longer before swallowing. Explain how this will help in digestion. [2]

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- 36 Ming magnetised an iron rod with a magnet using the stroking method. He then brought the magnetised iron rod near a tray of steel pins. He recorded his results as shown below.

Number of strokes of a magnet on the iron rod	Number of steel pins attracted by the magnetised iron rod
20	2
30	4
40	5
50	6

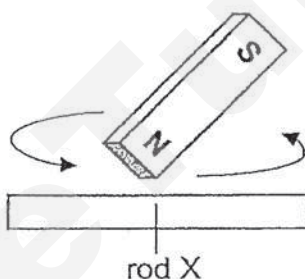
- (a) What is the relationship between the number of strokes of a magnet on the iron rod and the magnetic strength of the iron rod? [1]

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Ming used a strong magnet to stroke on another rod X as shown below.



Ming discovered that Rod X was not magnetised no matter how many times he tried stroking it.

- (b) Give a reason why Rod X could not be magnetised. [1]

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- (c) List two actions that can reduce the magnetic strength of a magnet. [2]

Action 1:

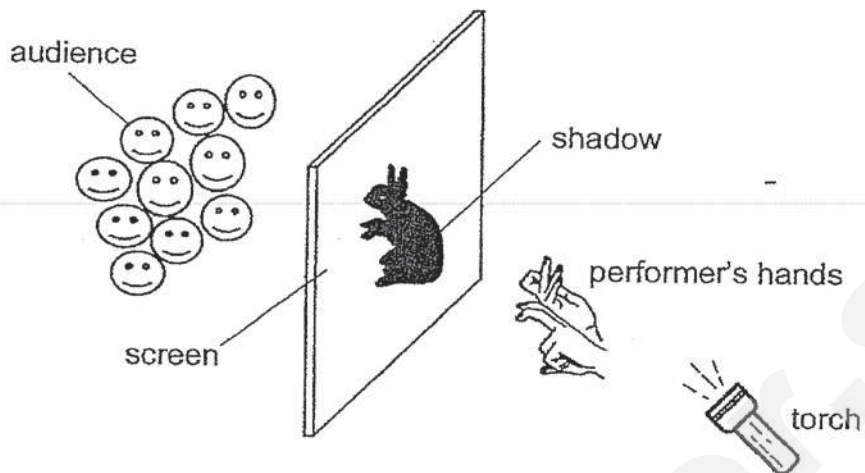
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Action 2:

---



- 37 The diagram below shows the use of light in a shadow puppet performance.



- (a) How is the shadow formed? [1]

\_\_\_\_\_

- (b) Without moving the screen or the performer's hands, what can be done to create a smaller shadow on the screen? [1]

\_\_\_\_\_

\_\_\_\_\_

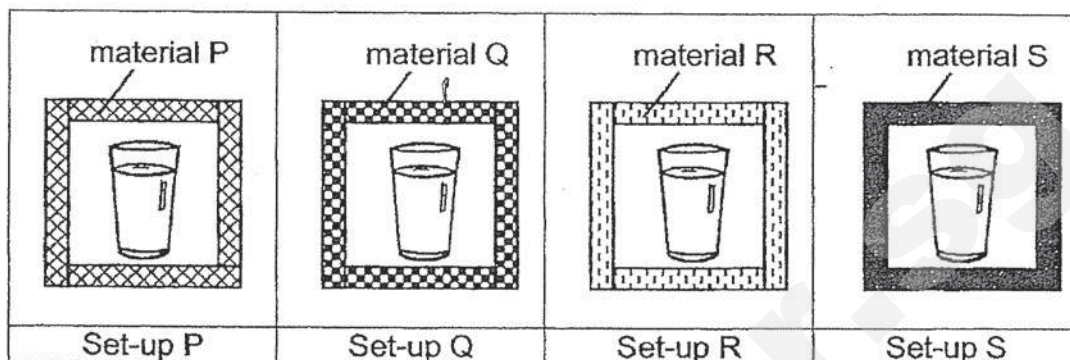
- (c) A boy, in the audience, commented that the screen used in the shadow puppet performance does not allow light to pass through. Do you agree with him? Explain why [2]

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- 38 Tom conducted an experiment using four containers made of different materials, P, Q, R and S, as shown below. He placed four identical cups containing cold water at 4 °C in the containers.



After 15 minutes, he recorded the temperature of water in each cup with a thermometer. The results are shown in the table below.

Material	Temperature of water (°C)	
	At the start of experiment	At the end of experiment
P	4	6
Q	4	20
R	4	10
S	4	15

- (a) State two important variables that Tom must keep constant in order for the experiment to be a fair one. [2]

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

- (b) Tom wants to hold a bowl filled with hot soup without scalding his hand. Based on the experiment results, which one of the materials, P, Q, R or S, is most suitable to make the bowl? Explain your answer. [2]

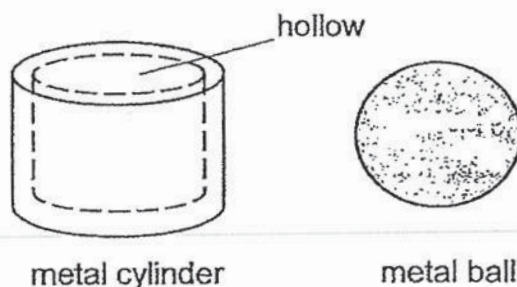
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



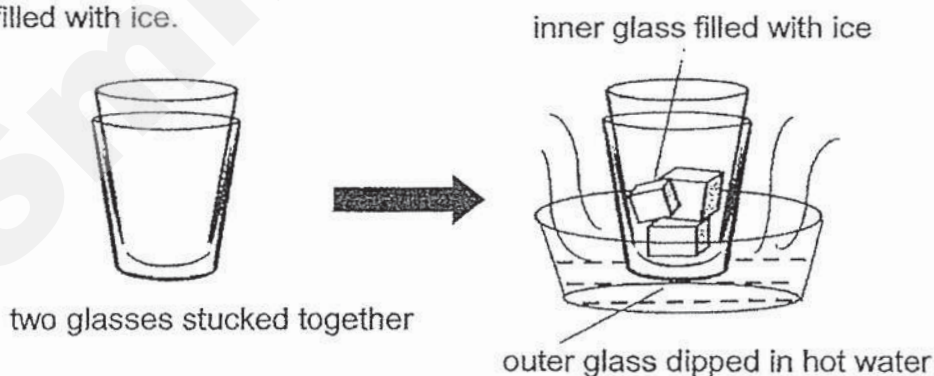
- 39 Keith wanted to put a metal ball inside a hollow metal cylinder but was unable to do so as the metal ball was slightly bigger.



- (a) Put a tick (✓) in the correct boxes below to show what Keith should do to fit the metal ball into the hollow metal cylinder. [2]

	Tick
i) heat the metal ball	
ii) heat the metal cylinder	
iii) cool the metal ball by placing it in a basin of cold water	
iv) cool the metal cylinder by placing it in a basin of cold water	

Keith wanted to separate two glasses which are stuck together as shown in the diagrams below. He placed the outer cup dipped in hot water and the inner glass filled with ice.



- (b) Explain how the set-up above will help to separate the two glasses. [2]

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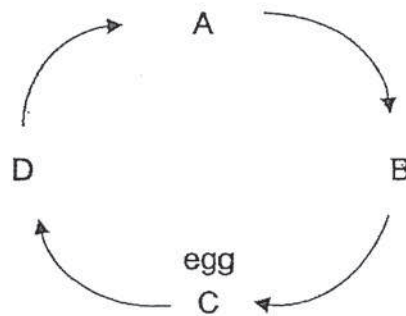


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40 The diagram below shows the life cycle of a mosquito.



- (a) Based on the diagram above, which letter represents the pupa stage correctly? [1]

\_\_\_\_\_

- (b) Give one difference in characteristics between stages A and D. [1]

\_\_\_\_\_

\_\_\_\_\_

- (c) At which stage, A, B, C or D, is it a pest to humans? Give a reason for your answer. [1]

\_\_\_\_\_

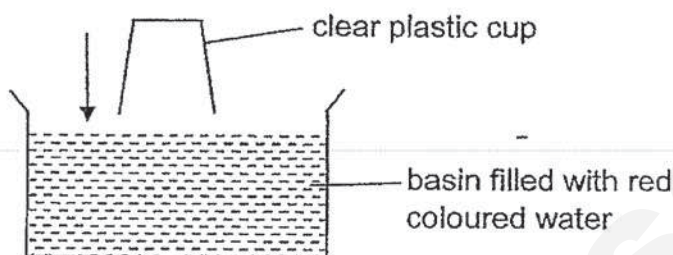
\_\_\_\_\_

- (d) Suggest a way to stop the breeding of mosquitoes at home. [1]

\_\_\_\_\_

\_\_\_\_\_

- 41 Joseph carried an experiment as shown below. He lowered the clear plastic cup into a basin of red coloured water until it touched the bottom of the basin. He noticed that the plastic cup was not fully filled with red coloured water.



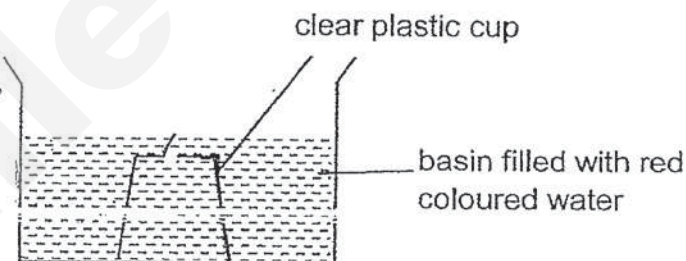
**Diagram 1**

- (a) Explain why the cup was not fully filled with red coloured water when immersed into the basin. [1]

---

---

Joseph then made a small hole at the bottom of the plastic cup. He then lowered the cup into a basin of red coloured water until it touched the bottom of the basin as shown in diagram 2. Joseph observed the changes that took place.



**Diagram 2**

- (b) Give two observations that Joseph made. [1]

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- (c) Explain how this is different from his observations in diagram 1. [2]

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End of paper

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## ANSWER KEY

YEAR : 2019  
LEVEL : PRIMARY 4  
SCHOOL : NAN HUA PRIMARY  
SUBJECT : SCIENCE  
TERM : SA 2

### BOOKLET A

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

### BOOKLET B

Q29) plants: banana tree, ladder fern  
animals: bear, owl

Q30a) magnet

Q30b) attracted

Q30c) North-South

Q31a) burning candle, lamp

Q31b) Mirror



**Q32a) Thermometer**

**Q32b) 29°C**

**Q33a) solid**

**Q33b) liquid**

**Q34a) The balloon can be bent, does not allow any light to pass through and does not absorb water.**

**Q34b) Rubber**

**Q34c) Both the iron rod and the window pane cannot be bent.**

**Q34d) The plastic bag can be bent but the window pane cannot be bent.**

**Q35a) mouth, small intestine**

**Q35b) Digestive juices are not present in the gullet as the amount of undigested food leaving the mouth and gullet is the same.**

**Q35c) With longer chewing time, food is broken into smaller pieces with larger exposed surface area of the food in contact with the digestive juices, causing digestion to be easier,**

**Q36a) As the number of strokes of a magnet increases, the magnetic strength of the iron rod increases.**

**Q36b) Rod X was a non-magnetic material and could not be magnetised.**

**Q36c) Action 1: Hammering the magnet**

**Action 2: Heat the magnet**



Q37a) Shadow is formed when the light from the torch is partially or completely blocked by the performers.

Q37b) A smaller shadow can be created on the screen by moving the torch further away from the screen.

Q37c) No. If the screen is opaque, the audience would not be able to see the shadow as no light could pass through the screen to the audience's eyes.

Q38a) i: The thickness of the material used

ii: The amount of water in each set-up

Q38b) P. P is the poorest conductor of heat as the temperature of water increased the least amongst the 4 at the end of the experiment. This means that if P was made into a bowl, it will gain heat the slowest from the hot soup and Tom will not scald his hand.

Q39a) ii, iii

Q39b) The inner glass loses heat to the ice and contracts. The outer glass gains heat from the hot water and expands. This will separate the glasses.

Q40a) A

Q40b) Stage A does not feed but stage D feeds.

Q40c) Stage B. It bites humans and spread diseases such as dengue.

Q40d) Remove stagnant water present at home.

**Q41a) Air occupies space in the cup.**

**Q41b) The red water fills the cup completely and air bubbles could be seen leaving the cup.**

**Q41c) In diagram 1, the red coloured water could not fill up the plastic cup. In diagram 2, a hole was made in the cup. Air in the cup escapes through the hole and water entered to occupy space previously occupied by water, causing the cup to be filled with water.**



4

**END**

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NANYANG PRIMARY SCHOOL

PRIMARY 4 SCIENCE

SEMESTRAL ASSESSMENT 2  
2019

**BOOKLET A**

Date : 22 October 2019

Duration : 1 h 45 min

Name : \_\_\_\_\_ (      )

Class: Primary 4 (      )

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.  
FOLLOW ALL INSTRUCTIONS CAREFULLY.**

Booklet A consists of 18 printed pages including this cover page.

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**Section A (28 x 2 = 56)**

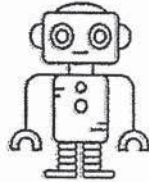
For each question from 1 to 28, four options are given. One of them is the correct answer. Indicate your choice in this booklet and shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.

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

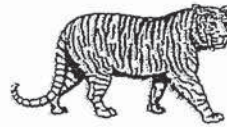
(1)



(2)



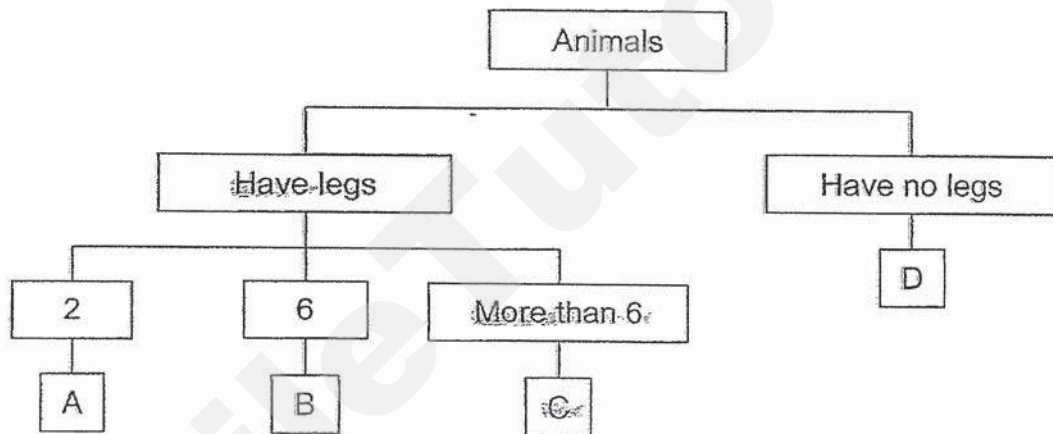
(3)



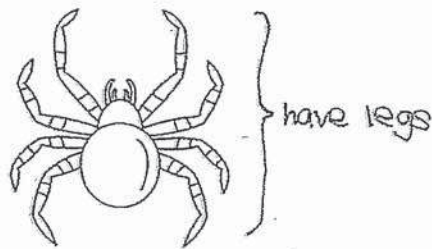
(4)



2. Study the chart below.



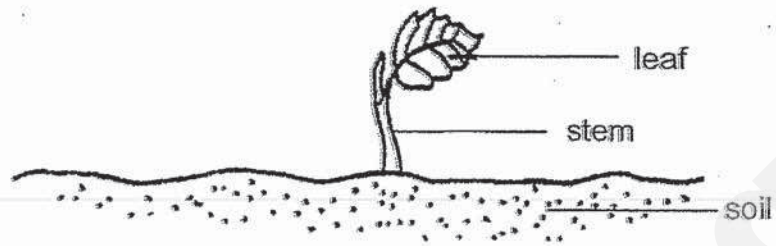
Where would you classify this animal in the chart above?



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

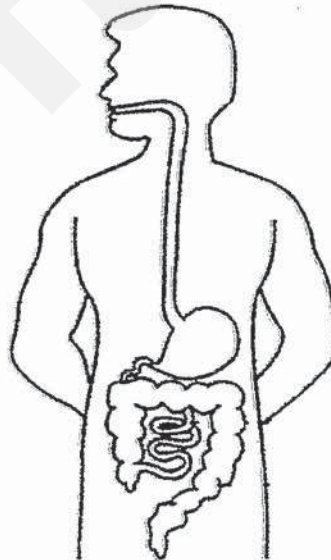


3. The diagram below shows a young plant.



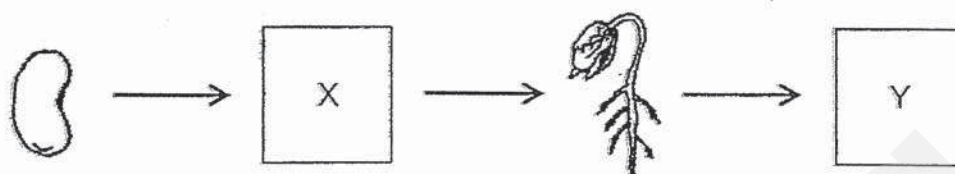
The stem helps the plant to \_\_\_\_\_.

- (1) make food
  - (2) absorb water
  - (3) support the leaf
  - (4) absorb mineral salts
4. Which organ system is shown in the diagram below?



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

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

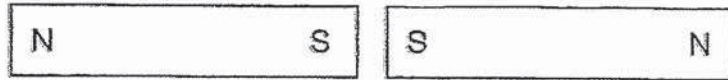


Which one of the following correctly represents stages X and Y?

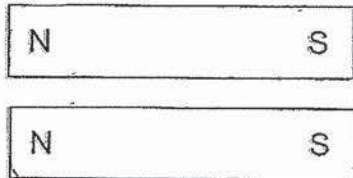
	X	Y
(1)		
(2)		
(3)		
(4)		

6. In which one of the following set-ups will the two magnets pull towards each other?

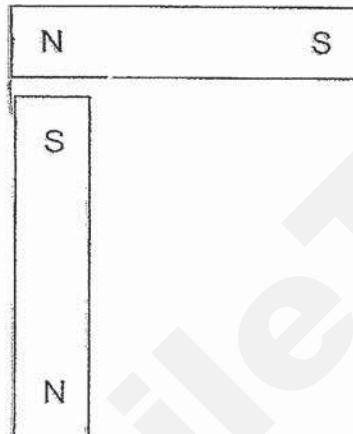
(1)



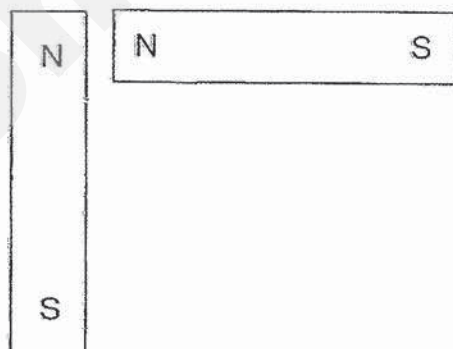
(2)



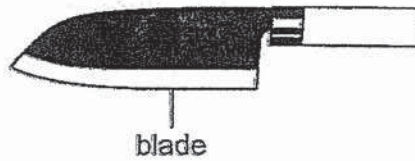
(3)



(4)



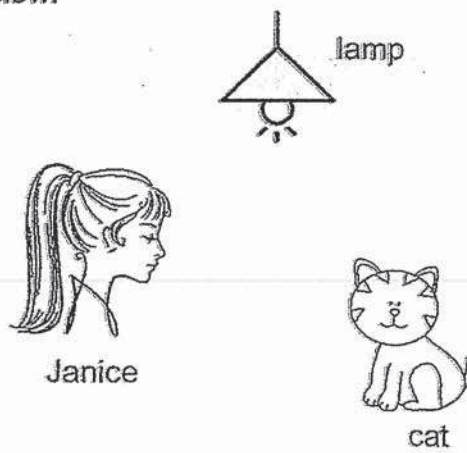
7. The diagram below shows a knife.



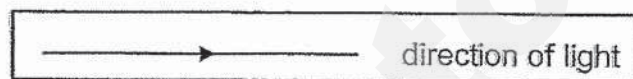
Metal is used to make the blade of the knife because metal \_\_\_\_\_.

- (1) can reflect light
- (2) does not break easily
- (3) can bend without breaking
- (4) does not allow light to pass through it

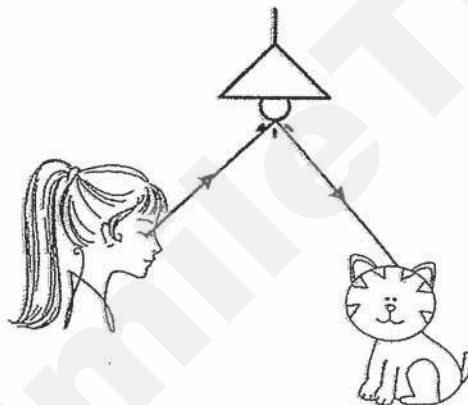
8. Study the picture below.



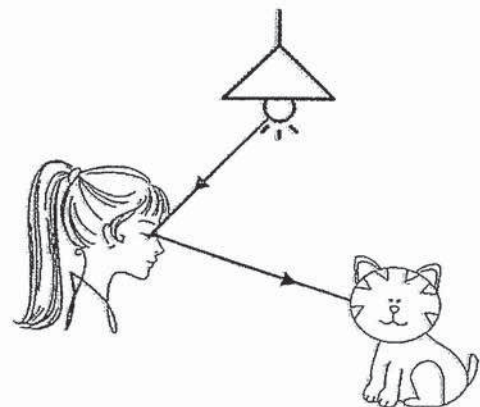
Which one of the following light rays explains why Janice can see the cat on the ground?



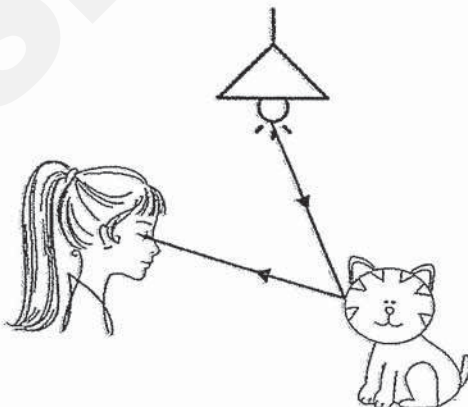
(1)



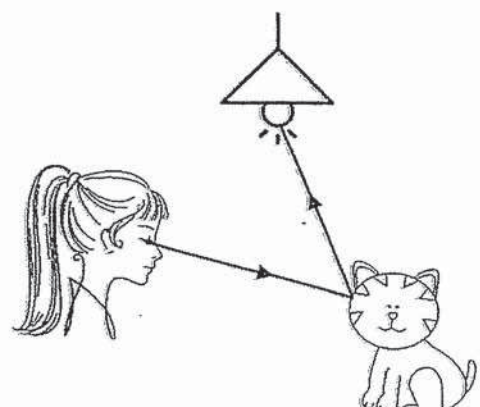
(2)



(3)



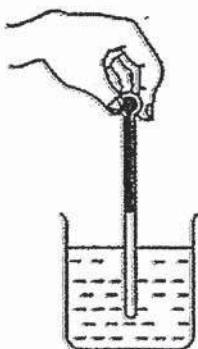
(4)



9. Jeremy wants to measure the temperature of cold water in a beaker.

Which one of the following diagrams shows the correct position of the thermometer for him to read the temperature of the water?

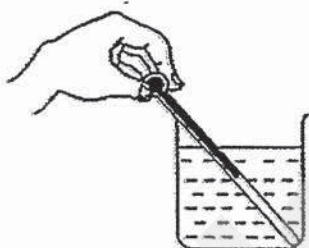
(1)



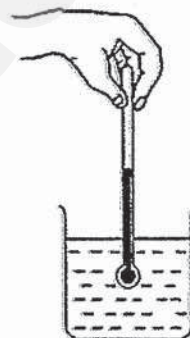
(2)



(3)



(4)



10. Which one of the following properties is **not true** for oil and a table?

- (1) They can be seen.
- (2) They occupy space.
- (3) They have a definite shape.
- (4) They have a definite volume.



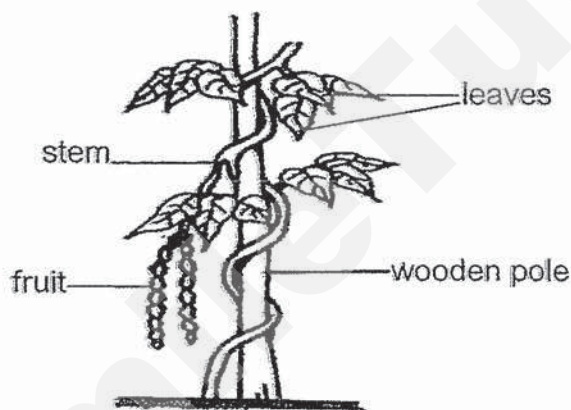
11. Study the table below.

Living Things	Non-living Things
bird goldfish chicken	moss stone yeast

Which two of the above had been **wrongly** grouped?

- |                       |                       |
|-----------------------|-----------------------|
| (1) stone and chicken | (2) moss and yeast    |
| (3) bird and stone    | (4) moss and goldfish |

12. The diagram below shows plant S growing in the garden.

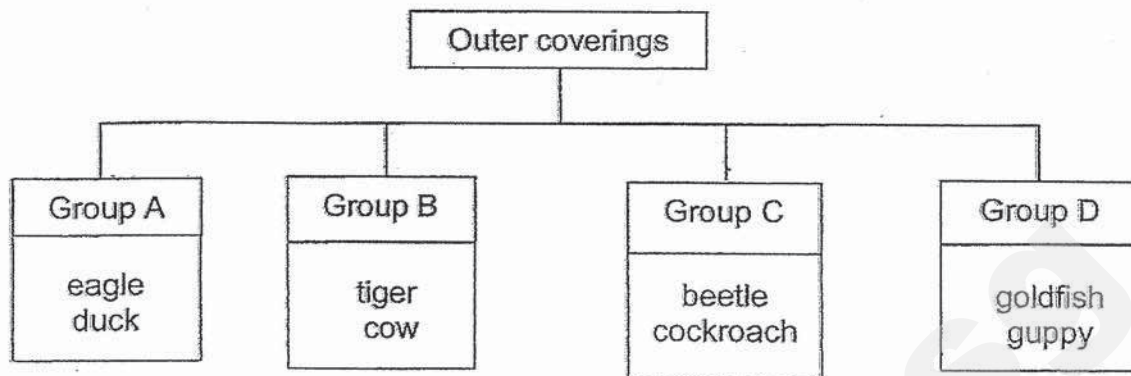


Which of the following statement(s) is/are correct?

- A Plant S has a weak stem.
- B Plant S is a flowering plant.
- C Plant S is able to make food.

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

13. The diagram below shows how some animals can be grouped according to their outer coverings.



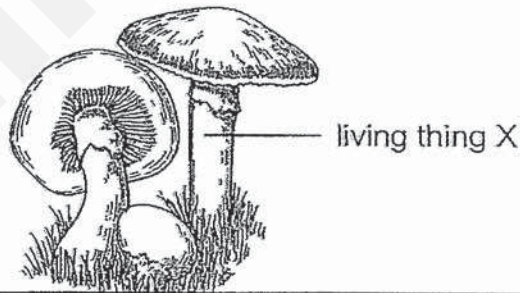
Animal B has the following characteristics:

- Has a beak
- Has feathers
- Has two wings
- Reproduces by laying eggs

Which group should Animal B be placed in?

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

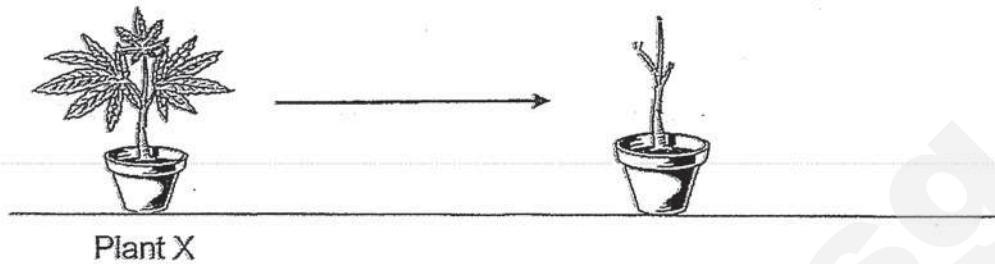
14. Bala spotted living thing X in the park as shown in the diagram below.



Which of the following statements about living thing X is true?

- |     |   |
|-----|---|
| (1) | X is a plant.                             |
| (2) | X makes its own food.                     |
| (3) | X reproduces by spores.                   |
| (4) | X can move from place to place by itself. |

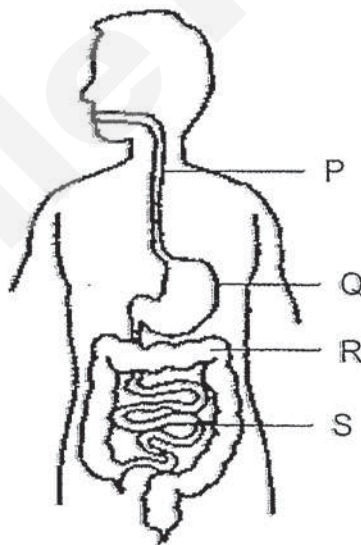
15. Roy wanted to find out if the green leaves of a plant would affect its survival. He removed all the leaves of plant X and left it in the garden. He watered the plant daily.



After a week, Roy observed that the plant had stopped growing and died.

Which one of the following reasons best explains why the removal of leaves had caused the above observation?

- (1) Plant X does not have leaves to make food.
  - (2) Plant X does not have leaves to take in water.
  - (3) Plant X does not have leaves to support the plant upright.
  - (4) Plant X does not have leaves to hold the plant firmly to the soil.
16. The diagram below shows the human digestive system.



Which of the following statements **incorrectly** describe what happens in parts P, Q, R and S?

- A Food is not digested at P.
  - B No digested food is absorbed at S.
  - C Water is removed from the undigested food at R.
  - D Undigested food is absorbed into the bloodstream at Q.
- (1) A and B only
  - (2) A and C only
  - (3) B and D only
  - (4) C and D only

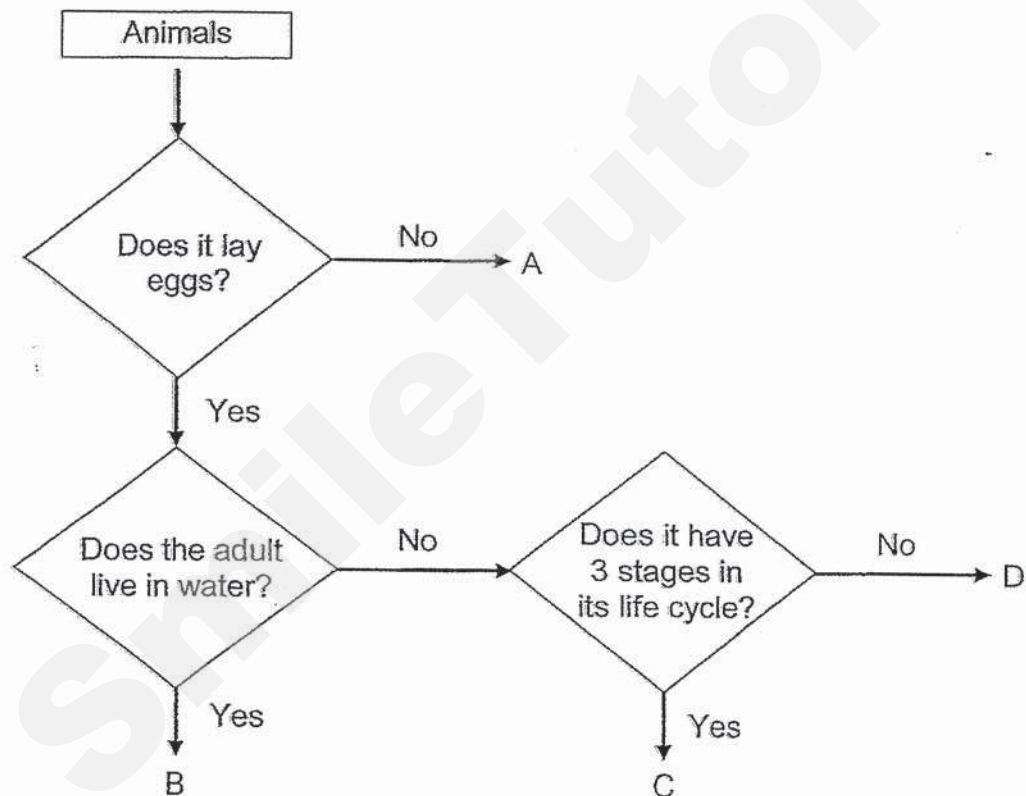
17. Study the information in the table below.

	Human organ system	Function
A	skeletal system	protects the important organs in the body
B	respiratory system	takes in air for the body only
C	circulatory system	Carries water, oxygen and digested food in the blood to all parts of the body

Which of the above body system(s) correctly matches its function?

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

18. Study the flow chart below.

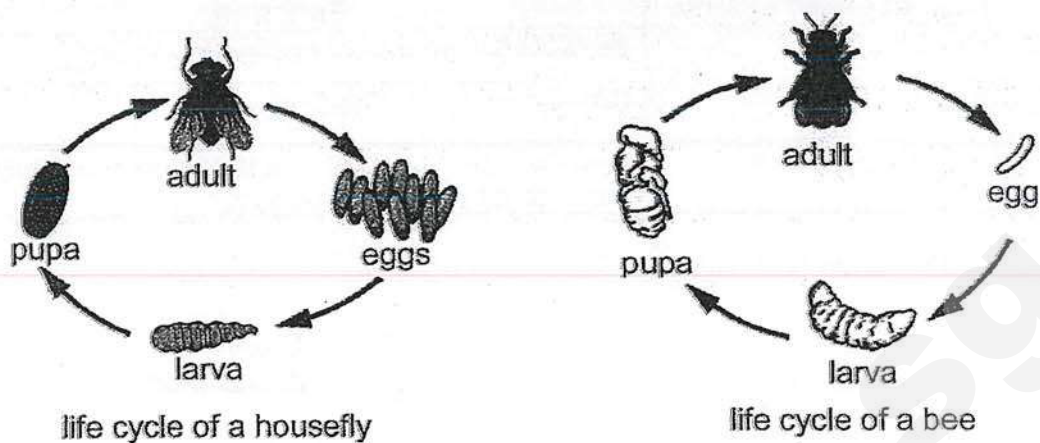


Which one of the following is most likely to be a grasshopper?

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



19. The diagram below shows the life cycles of a housefly and a bee.



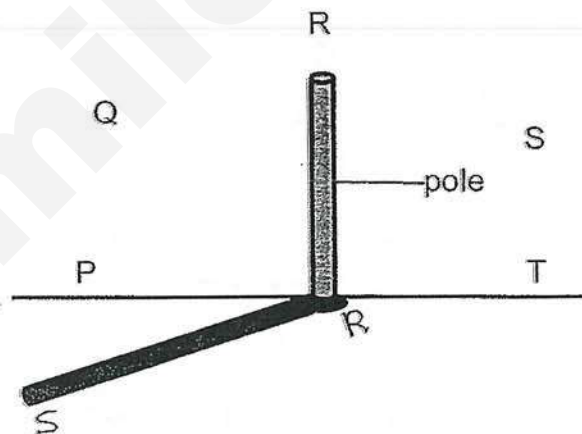
Based only on the diagram above, which of the following statements correctly describe the similarities in the life cycles of a housefly and a bee?

- A The larvae look like the adults.
- B Both life cycles have four stages..
- C Both life cycles have a pupal stage..

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

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

20. Study the diagram below. There are two light sources shining on the pole.



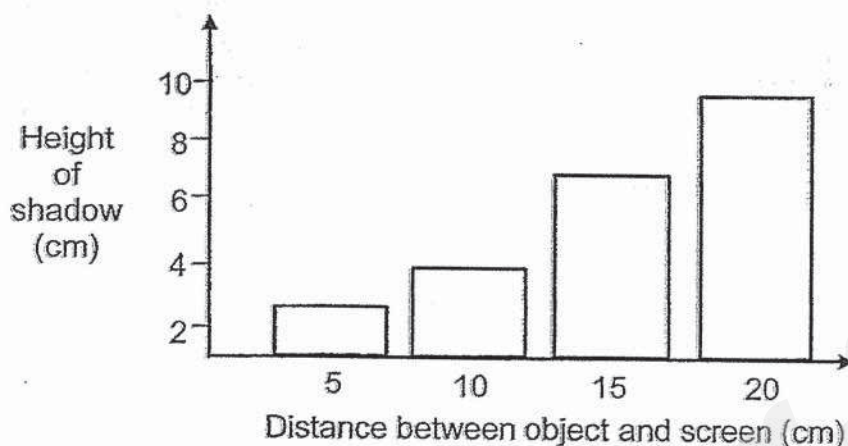
Based on the diagram, which of the following statements are correct?

- A The light sources were at Q and T only.
- B The light sources were at R and S only.
- C The pole is made of a material that allows most light to pass through it.
- D The pole is made of a material that does not allow light to pass through it.

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

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

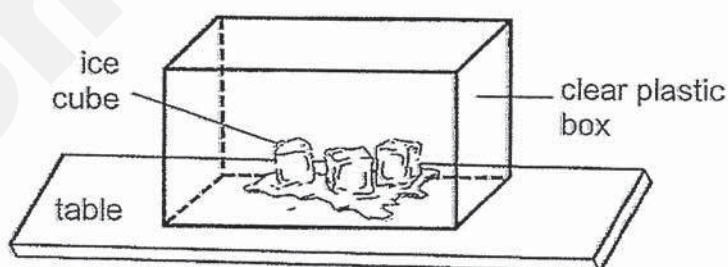
21. Sharis wanted to find out how the distance between an object and the screen affects the shadow formed by the object on the screen. She made her observations and recorded the results in the graph below.



Based on the results above, which of the following correctly describes the relationship between the height of the shadow and the distance between the object and the screen?

	Distance between object and screen	Height of shadow
(1)	Decreases	decreases
(2)	Decreases	remains the same
(3)	Increases	decreases
(4)	Increases	remains the same

22. Samuel placed some ice cubes in a clear plastic box on a table as shown in the diagram below. He observed that the ice cubes started to melt after a while.

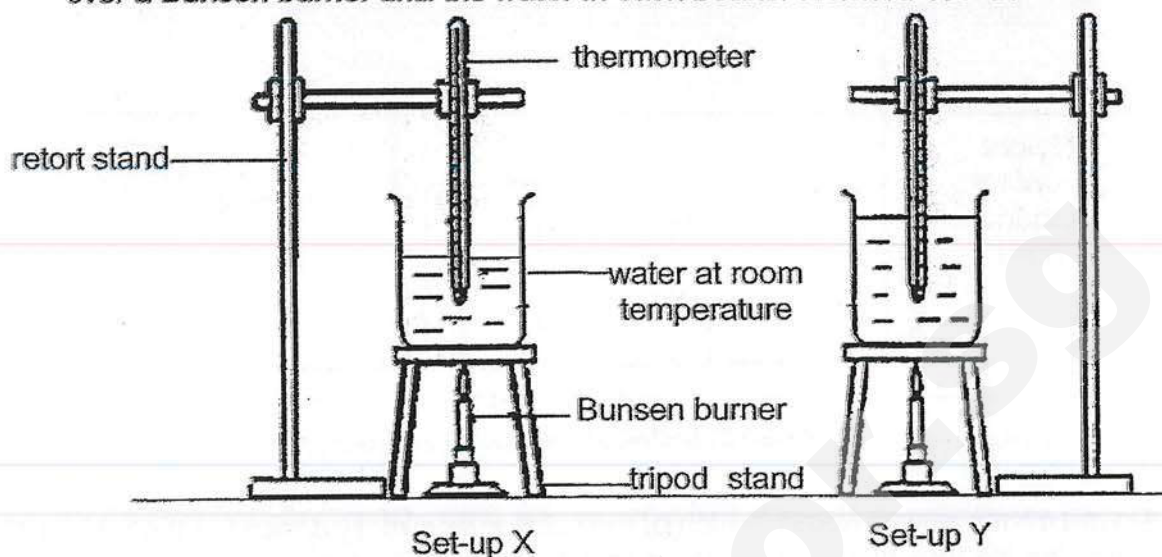


Based on the diagram above, which one of the following statements is correct?

- (1) The clear plastic box gained heat from the ice cubes and the table.
- (2) The table gained heat from the clear plastic box and the ice cubes.
- (3) The ice cubes gained heat from the table and the clear plastic box.
- (4) The ice cubes gained heat from the table but lost heat to the clear plastic box.

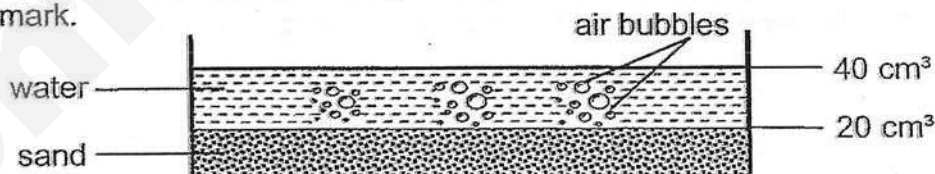


23. The diagram below shows two experimental set-ups. The beakers of water are heated over a Bunsen burner until the water in each beaker reached  $100^{\circ}\text{C}$ .



Which one of the following statements is true?

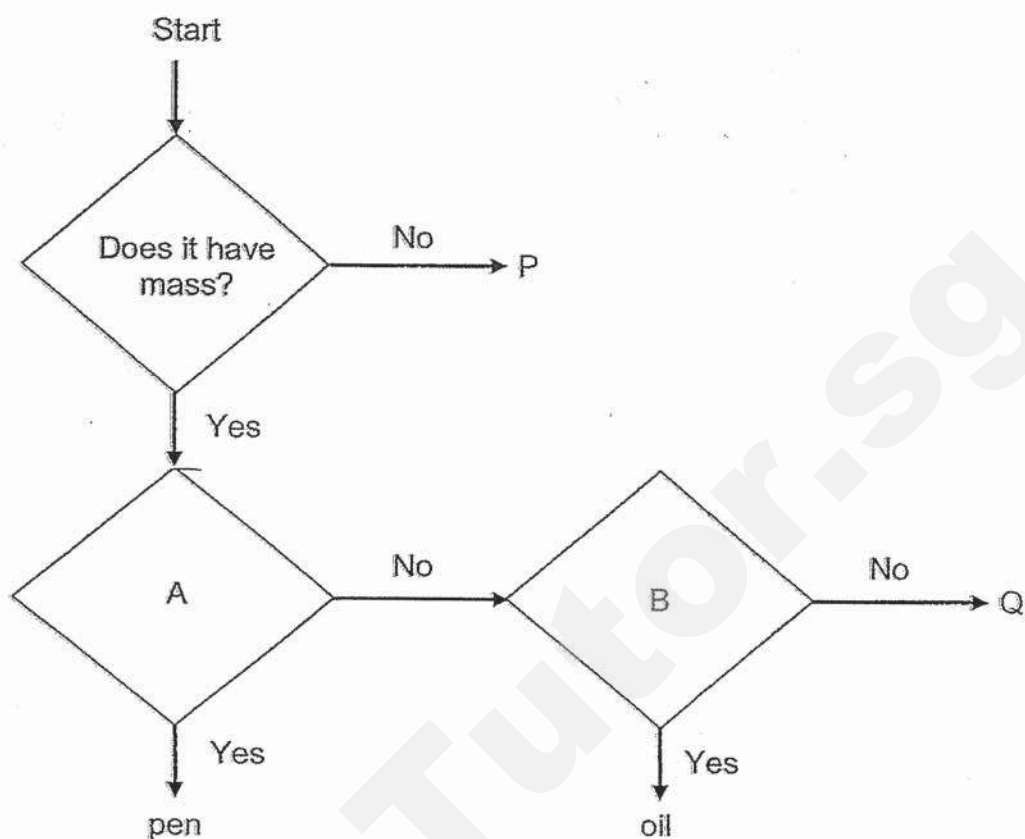
- (1) The water in both set-ups have the same amount of heat energy
  - (2) The water in set-up Y has less heat energy than the water in set-up X.
  - (3) The water in set-up Y has more amount of heat energy than the water in set-up X.
  - (4) The water in both set-ups will reach room temperature at the same time after the heat source is removed.
24. Jun Xiong poured  $30\text{ cm}^3$  of water into a container filled with  $20\text{ cm}^3$  of sand. Bubbles were seen coming out from the sand as shown in the diagram below. After all the water was poured into the container, he observed that the water level was at the  $40\text{-cm}^3$  mark.



Which one of the following statements best explains Jun Xiong's observation?

- (1) The sand has no definite volume.
- (2) The sand absorbed the water in the container.
- (3) The water in the container was compressed by the sand.
- (4) The water took up the space that was previously occupied by the air in the sand.

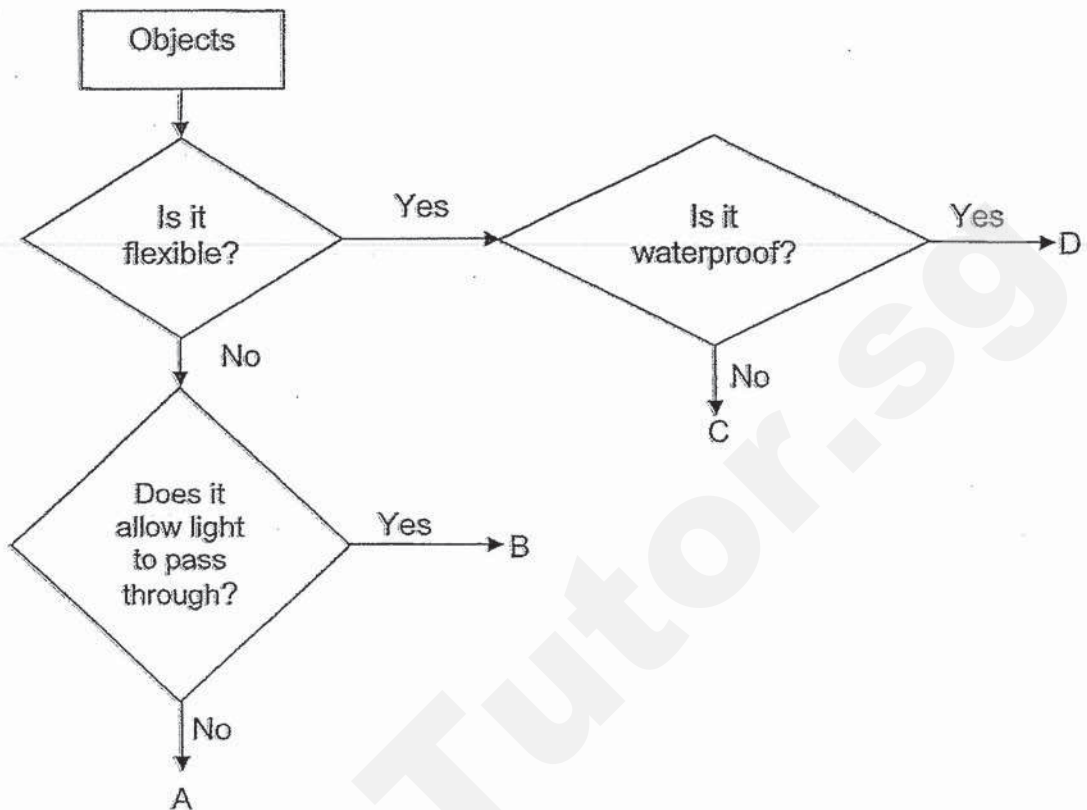
25. Study the classification table below.



Which one of the following best represents questions A and B, and examples, P and Q in the classification table?

	A	B	P	Q
(1)	Can it be compressed?	Does it have a definite shape?	light	water
(2)	Does it have a definite shape?	Does it have a definite volume?	light	air
(3)	Does it have a definite volume?	Can it be compressed?	heat	air
(4)	Does it have a definite shape?	Can it be compressed?	heat	water

26. Study the flow chart below.

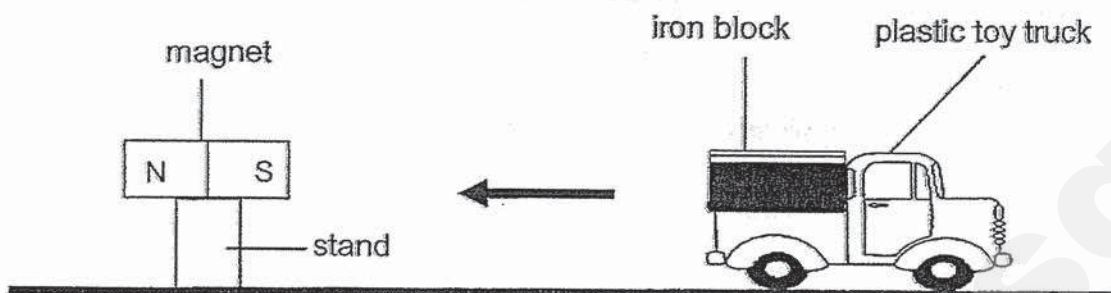


Which one of the following best represents objects A, B, C and D?

	A	B	C	D
(1)	metal pipe	rubber boot	glass beaker	wooden plate
(2)	cotton shirt	metal pipe	plastic bag	glass beaker
(3)	wooden plate	glass beaker	cotton shirt	plastic bag
(4)	plastic bag	glass beaker	wooden plate	cotton shirt



27. An iron block was placed on the plastic toy truck as shown in the diagram below. A magnet was then positioned near the back of the toy truck. It was observed that the toy truck moved towards the magnet as indicated by the arrow.



Which of the following would enable the plastic toy truck to take a shorter time to reach the magnet?

- A Change the magnet to a stronger magnet
- B Flip the magnet such that the north pole is facing the truck.
- C Replace the iron block with a copper block of the same mass.

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

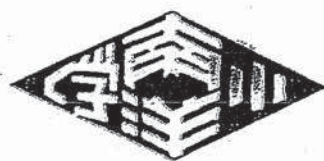
28. The diagram below shows a bar magnet and a nail that has not been magnetised. The North-pole of the bar magnet can attract the nail as shown below.



Based on the observation above, which one of the following statements is most likely true?

- (1) The nail is a magnet.
- (2) The nail is made of aluminium.
- (3) The South-pole of the bar magnet can repel the nail.
- (4) The South-pole of the bar magnet can attract the nail.

~ END OF BOOKLET A ~



**NANYANG PRIMARY SCHOOL**

**PRIMARY 4 SCIENCE**

**SEMESTRAL ASSESSMENT 2  
2019**

**BOOKLET B**

**Date : 22 October 2019**

**Duration : 1 h 45 min**

**Name : \_\_\_\_\_ (      )**

**Class: Primary 4 (      )**

**Marks Scored:**

<b>Booklet A:</b>		<b>56</b>
<b>Booklet B :</b>		<b>44</b>
<b>Total :</b>		<b>100</b>

**Any query on marks awarded should be raised by 1 November 2019 . We seek your understanding in this matter as any delay in the confirmation of marks will lead to delays in the generation of results.**

**Parent's signature: .....**

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.  
FOLLOW ALL INSTRUCTIONS CAREFULLY.**

**Booklet B consists of 15 printed pages including this cover page.**

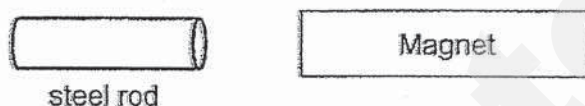
## Section B

Write your answers to questions 29 to 41 in the spaces provided.

29. Fill in the correct plant parts based on the function given in the table. [2]

Functions of plant parts	Plant parts
(i) It makes food for the plant.	
(ii) It holds the plant firmly to the ground.	

30. Andrew placed a magnet near a steel rod as shown below.



He observed that the steel rod moves towards the magnet.

- (a) The magnet exerts a \_\_\_\_\_ on the steel rod. [1]
- (b) Choose the correct word from the box to complete the sentence below. [1]

flexible	magnetic	waterproof
----------	----------	------------

Andrew's observation shows that steel is a \_\_\_\_\_ material.



31. Look at the pictures below. Tick (✓) the light sources.

[2]

☐ lit candle



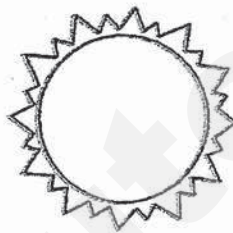
☐ moon



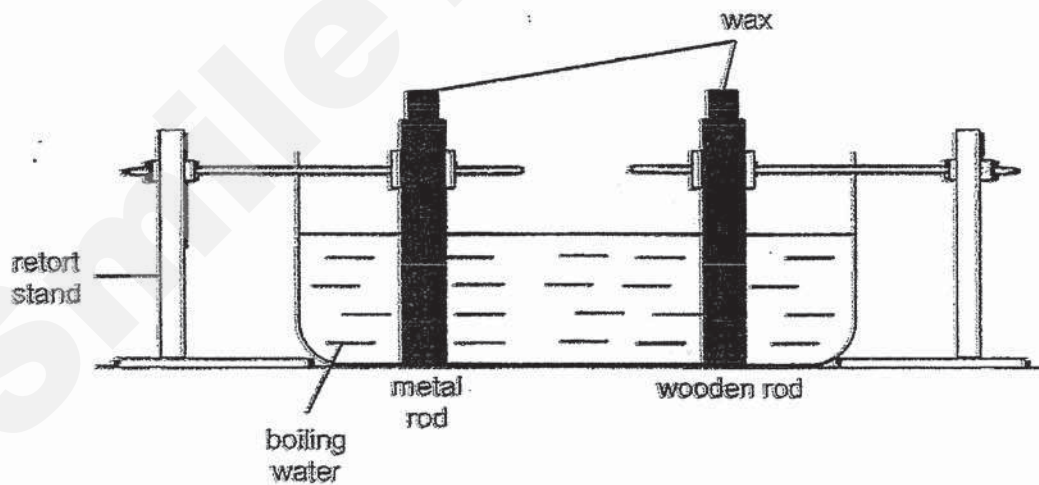
☐ eyes



☐ sun



32. Randall placed a metal rod and a wooden rod into a basin of boiling water as shown below. He then placed equal amounts of wax on both rods.



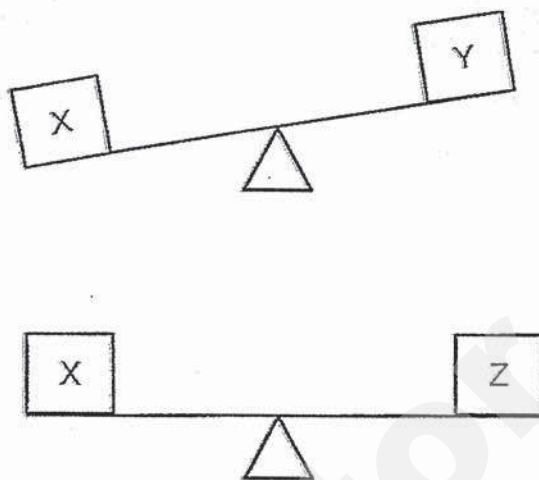
Fill in the blanks to describe what Randall would observe and the reason why. [2]

The wax on the metal rod melted \_\_\_\_\_ than the wax on the wooden

rod as metal is a \_\_\_\_\_ conductor of heat than wood.

33. Charmaine compares the mass of 3 identical blocks, X, Y and Z, made of different materials.

She made the following observations.



Based on her observations, circle the correct comparison for parts (a) and (b).

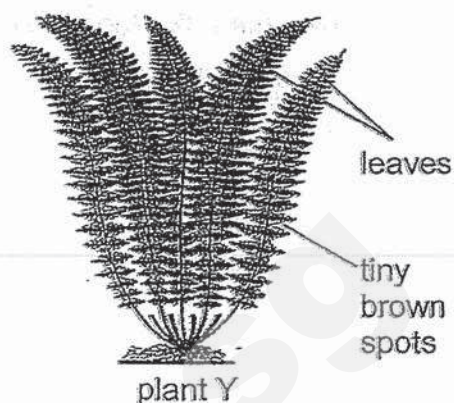
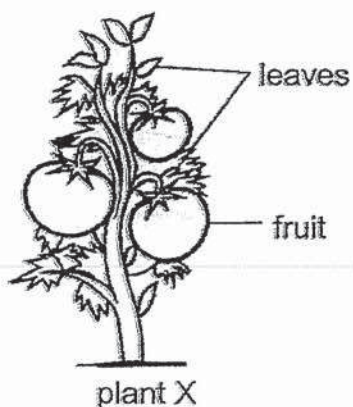
- (a) Block X **is heavier than** / **'has the same mass as'** / **'is lighter than'** block Y.

[1]

- (b) Block X **'is heavier than'** / **'has the same mass as'** / **'is lighter than'** block Z.

[1]

34. Study the two plants below carefully.



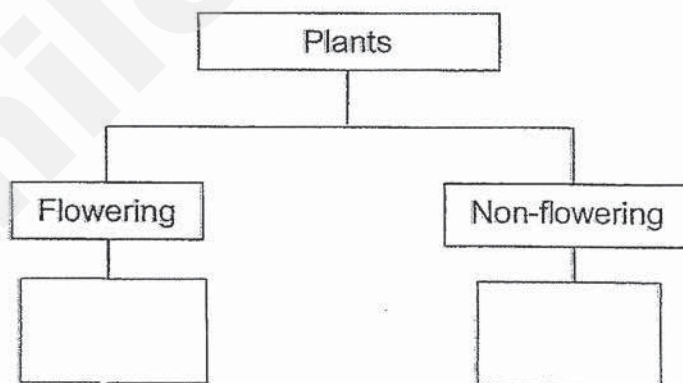
(a) State one difference between the two plants in terms of how they reproduce. [1]

---

(b) Plant X has a strong stem. How does the strong stem help plant X to grow better? [1]

---

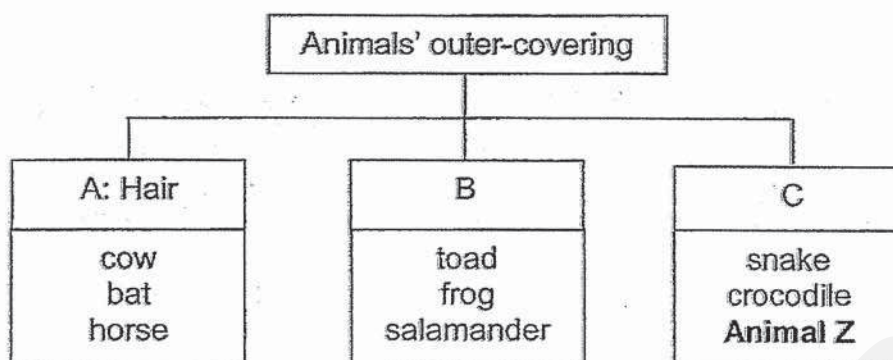
(c) Classify plant X and plant Y into the table below. [1]



(d) State an example of a non-flowering plant. [1]

---

35. Study the classification chart below.



(a) State the type of the outer-covering that correctly represents B and C. [1]

(i) B: \_\_\_\_\_

(ii) C: \_\_\_\_\_

(b)(i) State the main function of hair for the animals in group A. [1]

\_\_\_\_\_

(b)(ii) State another characteristic of the animals in group A. [1]

\_\_\_\_\_

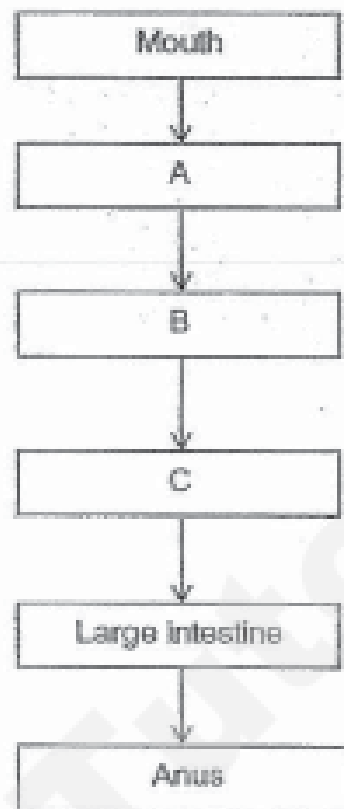
(c) The characteristics of Animal Z are shown below.

- It lays eggs
- It has four legs
- It feeds on water plants
- It breathes through its lungs

Name the **animal group** that animal Z belongs to. [1]

\_\_\_\_\_

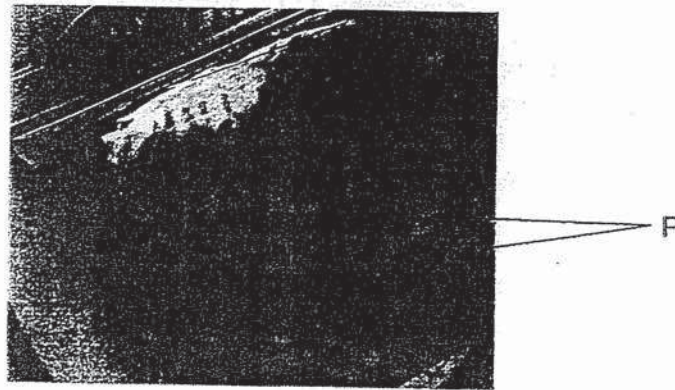
36. Study the diagram below. Parts A, B and C are organs in the human digestive system.



- (a) In which organ, A, B or C, will the digested food be absorbed into the bloodstream? [1]
- (i) Organ \_\_\_\_\_
- (ii) Identify the organ in (a)(i) : \_\_\_\_\_
- (b) What would happen to the food in organ A and organ B? [2]
- (i) Organ A :  
\_\_\_\_\_
- (ii) Organ B :  
\_\_\_\_\_
- (c) Name all the organs in the digestive system that produce digestive juices. [1]
- \_\_\_\_\_



37. Mrs Lee left a piece of moist bread in a sealed plastic bag on her table. She spotted some 'green patches', P, on the piece of moist bread after a few days as shown in the diagram below.



Her son, Ben, said that P are living things that reproduced by spores.

- (a) Which group of living things does P belong to? [1]

---

Ben said that P cannot make their own food.

- (b) Explain how P get their own food. [1]

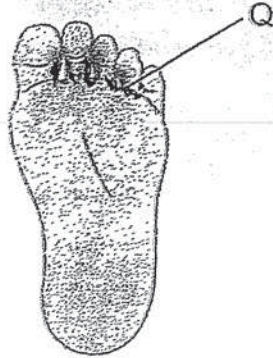
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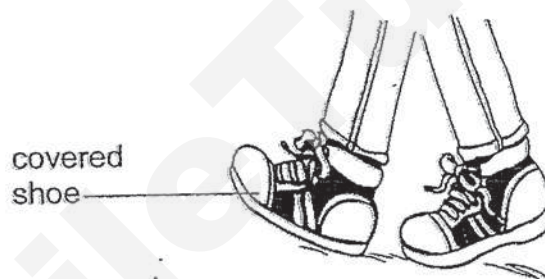


(Continue from Question 37)

Ben suffers from a skin condition in which living thing Q grew on his feet. Q belongs to the same group of living things as P.



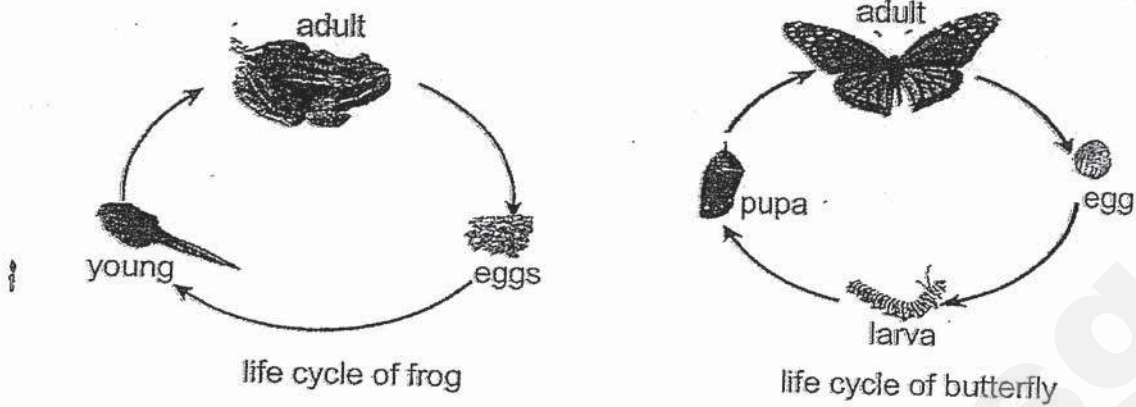
Ben's doctor said that living thing Q grows on his feet because his feet are wet and he wears covered shoes for a long period of time every day.



- (c) Which of the conditions below enabled living thing Q to grow on Ben's feet?  
Tick (✓) the correct boxes. [2]

warmth	
sunlight	
water	
Wind	

38. Study the diagram below that shows the life cycles of a frog and a butterfly.



- (a) Based only on the above life cycles, state one similarity and one difference between the two life cycles.

(i) Similarity:

[1]

---

---

(ii) Difference:

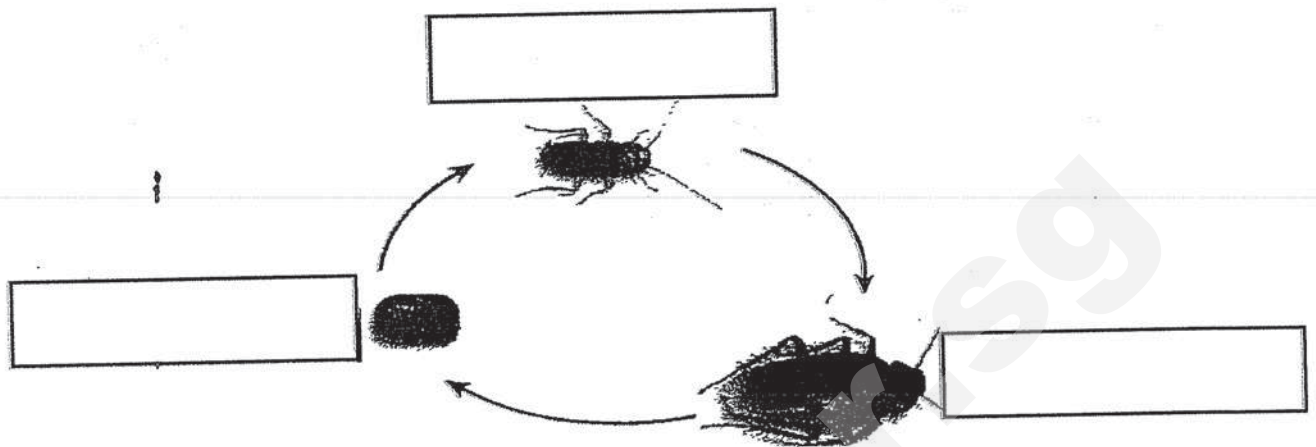
[1]

---

---

(Continue from Question 38)

The diagram below shows the life cycle of a cockroach.



(b)(i) **Label** the stages of the life cycle of a cockroach in the boxes provided above. [1]

(b)(ii) Both the frog and the cockroach have similarities and differences in their life cycles. State one difference between their life cycles. [1]

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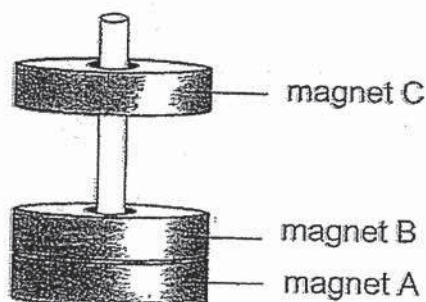
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(b)(iii) The adult cockroach reproduces by laying eggs. Explain why animals reproduce. [1]

---

---

39. Sally placed three ring magnets through a wooden pole as shown in the diagram below. She observed that magnet B rested on top of magnet A while magnet C 'floated' on top of magnet B.



- (a) Explain how magnet C was able to 'float' above magnet B. [2]

---



---

- (b) Suggest what Sally could do to make all the three ring magnets attract one another. [1]

---

- (c) Sally then took ring magnet A and lowered it into a tray of steel paper clips as shown in diagram 1. Diagram 2 shows the bottom view of the ring magnet.

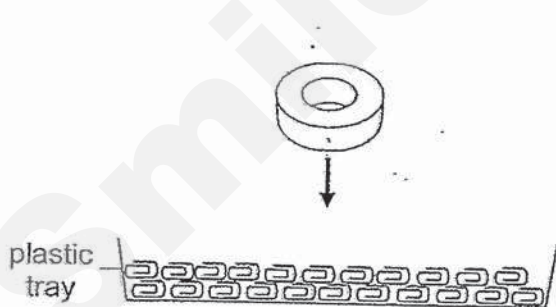


Diagram 1

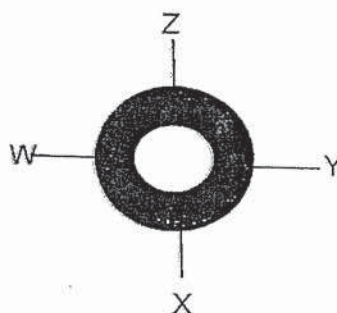


Diagram 2

The following table shows the number of paper clips attracted to the bottom of the ring magnet at positions W, X, Y and Z. Complete the table below. [1]

Position W	Position X	Position Y	Position Z
2		2	



40. Muthu wanted to compare the masses of three different objects, K, L and M. He recorded their masses in the table as shown below.

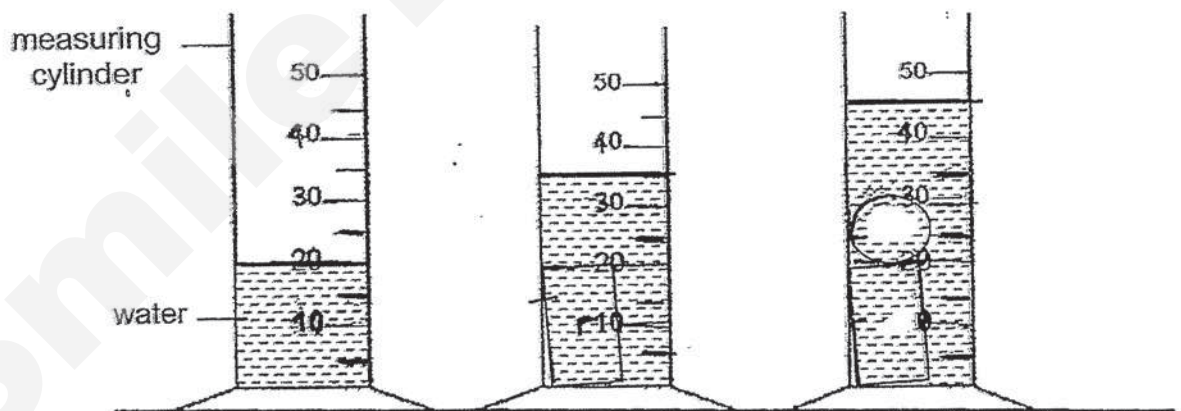
K
L
M

Object	Mass (g)
K	20
L	4
M	67

- (a) Based on the results of the table above, arrange objects K, L and M from the smallest mass to the greatest mass in the space below. [1]

smallest mass <span style="font-size: 1.5em;">→</span> greatest mass		

Next, Muthu wanted to compare the volumes of two objects, L and M, using the set-up shown below.



- (b) What were the volumes of objects L and M? [1]

Object L: \_\_\_\_\_ cm<sup>3</sup>      Object M: \_\_\_\_\_ cm<sup>3</sup>

- (c) State the property of objects L and M shown in the experimental set-up above. [1]

\_\_\_\_\_

(Continue from Question 40)

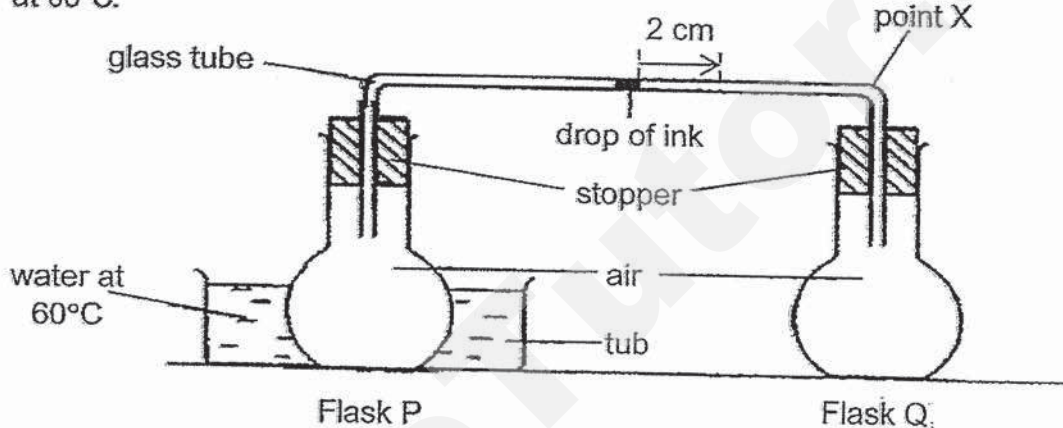
Based on the two experiments above, Muthu concluded that the smaller the mass of the object, the smaller the volume of the object.

- (d) Explain why he was wrong when comparing the masses and volumes of objects L and M. [1]

---

---

41. Alicia set up an experiment as shown below. She placed flask P in a tub of hot water at  $60^{\circ}\text{C}$ .



- (a) Alicia observed that after some time, the drop of ink moved a distance of 2 cm towards Flask Q before stopping. Explain why. [1]

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Next, Alicia continued another experiment using the same set-up above. She did not make any change to the set-up at Flask P and she did not replace Flask Q. She observed that the drop of ink moved further to point X.

- (b) Explain what Alicia could have done to Flask Q. [1]

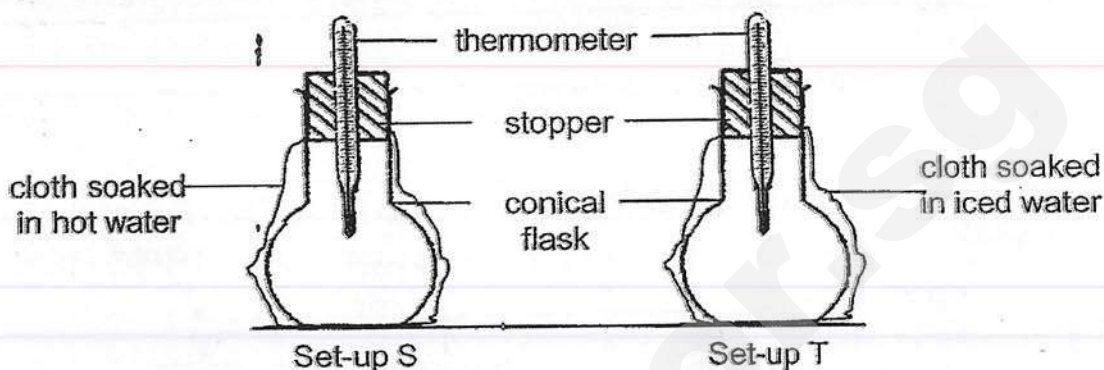
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(Continue from Question 41)

Alicia then conducted another experiment in a room with a constant temperature of  $28^{\circ}\text{C}$  as shown below. She wrapped two identical conical flasks in set-ups S and T with two identical pieces of cloths. The cloth in set-up S had been soaked in hot water and the cloth in set-up T had been soaked in iced water.



She recorded the change in temperature of the air in both set-ups S and T after 30 minutes as shown in the table below.

Set-up	Temperature of air in the conical flask ( $^{\circ}\text{C}$ )	
	Start of experiment	After 30 minutes
S	28	30
T	28	<input type="text"/>

(c)(i) Fill in the table to predict the temperature of air in Set-up T after 30 minutes. [1]

(c)(ii) Explain your answer in (c)(i). [1]

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(c)(iii) What is the temperature of the air in both set-ups after 1 day? [1]

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~ END OF BOOKLET B ~

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Nanyang Primary School  
P4 SCIENCE SA2 2019


Suggested Answer Key  
Section A

1	2	11	2	21	1
2	3	12	4	22	3
3	3	13	1	23	3
4	1	14	3	24	4
5	2	15	1	25	2
6	3	16	3	26	3
7	2	17	4	27	1
8	3	18	3	28	4
9	4	19	3		
10	3	20	4		

Section B

Qn No	Acceptable Answers
29i.	leaf/leaves
29ii.	roots
30a.	force or pull
30b.	Magnetic
31.	Tick: lit candle and Sun
32.	Faster better
33a.	Circle 'is heavier than'
33b.	Circle 'has the same mass as'
34(a)	Plant X reproduces by seeds and Plant Y reproduces by spores
(b)	The strong stem holds the leaves upright so that the leaves can get sunlight to make food.
(c)	Flowering: plant X non-flowering: Plant Y
(d)	Moss/ferns
35(a)(i)	moist skin
(a)(ii)	Scales
(b)(i)	To protect the animals/to keep them warm
(b)(ii)	Give birth to young alive/suckle their young
(c)	Reptile
36(a)	(i) Organ C (ii) small intestine
36(b)(i)	Organ A: Food is transported to the stomach.
36(b)(ii)	Organ B: Food is further digested in the stomach/breaks food down into simpler substances
36(c)	Mouth, stomach, small intestine
37a.	Fungi



37b.	P feeds on the bread. P feeds on living things, dead or alive.		
37c.	warmth	✓	
	sunlight		
	water	✓	
	wind		
38a(i)	The young of both animals do not resemble their adults. Both have an egg stage.		
38a(ii).	The frog has <u>3 stages</u> in its life cycle but the butterfly has <u>4 stages</u> in its life cycle. OR The butterfly's life cycle is entirely on land but the frog's life cycle is partly in water and partly on land.		
38b(i)			
38b(ii)	The young of the frog does not resemble its adult but the young of the cockroach resembles its adult. The adult frog lives in both land and water but the adult cockroach lives on land.		
38b(iii)	To ensure the survival/continuity of the species /of its kind.		
39a.	The like poles of magnet B and C are facing each other so they repelled each other.		
39b.	Flip magnet C over		
39c.	2		
40a.	L, K, M		
40b.	L: 15cm <sup>3</sup> M: 10cm <sup>3</sup>		
40c.	Objects L and M occupy space/have definite volumes/shapes.		
40d.	Object L has a smaller mass but a greater volume than object M or Object M has a greater mass but a smaller volume than Object M.		
41(a)	The air in Flask P gained heat from the hot water and expanded, thus pushing the drop of ink towards Flask Q.		
41(b)	Place Flask Q in a container/box of ice/cold water.		
41(c)(i)	Temperature must be lower than 28°C but more than 0°C.		
41(c)(ii)	The air in the set-up T lost heat to (the container) and the cloth.		
41(c)(iii)	28°C or same temperature as room temperature.		

END.

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**PEI CHUN PUBLIC SCHOOL**

**PRIMARY 4**

**SEMESTRAL ASSESSMENT 2 2019**

**SCIENCE  
SECTION A**

**Time: 1 h 45 min**

Name: \_\_\_\_\_ (    )

Class: Primary 4 / (    ) \_\_\_\_\_

Date: 25 October 2019

Science Teacher: \_\_\_\_\_



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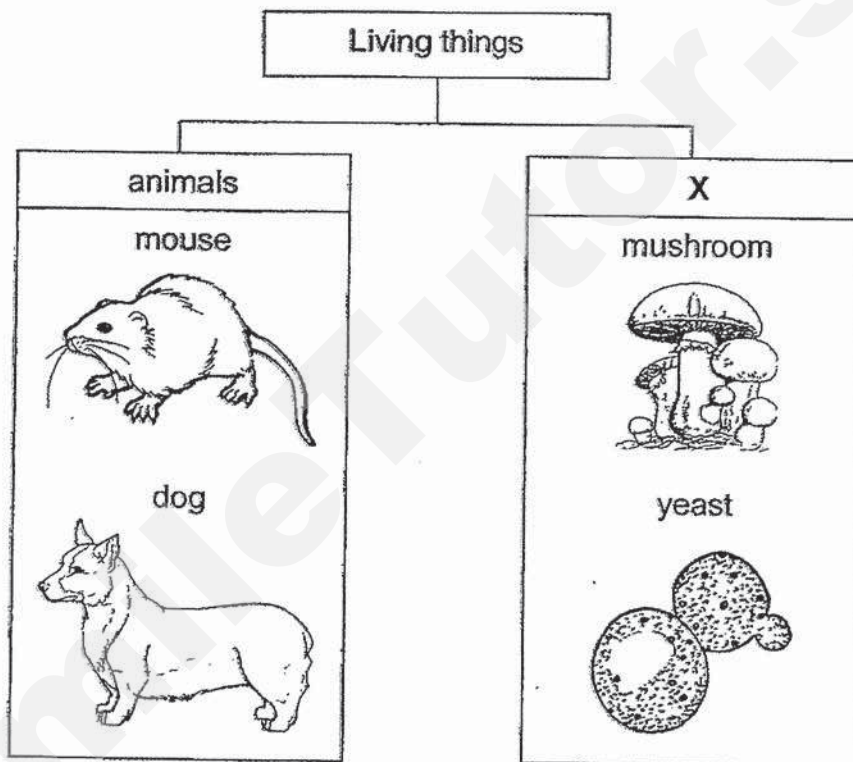
**Section A (28 × 2 marks)**

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 of the following statements is true about most reptiles?

- (1) They live in water.
- (2) They have scales.
- (3) They do not have legs.
- (4) They give birth to their young.

2 The table below shows how some living things can be grouped.

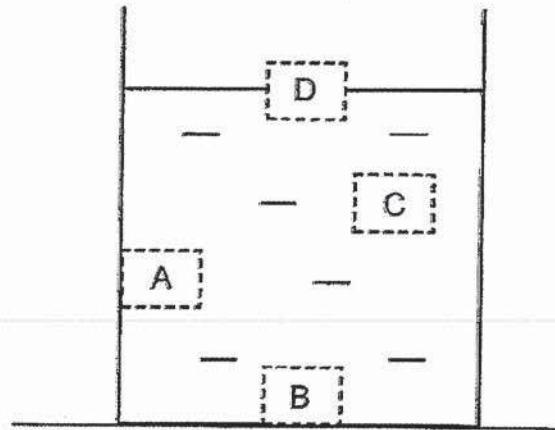


Which one of the following is the most suitable heading for group X?

- (1) fungi
- (2) bacteria
- (3) flowering plants
- (4) non-flowering plants

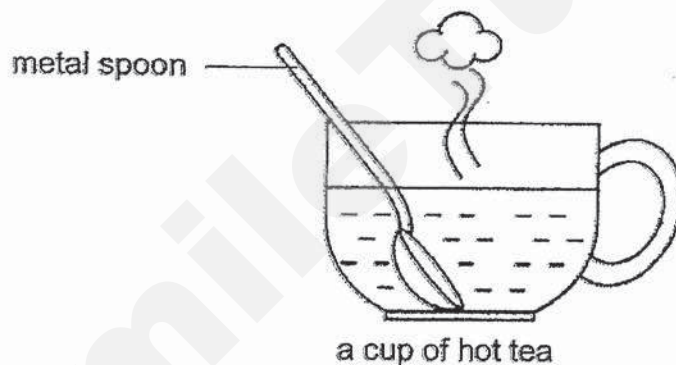
- 3 Aida put a glass solid block into a container of water.

At which position, A, B, C or D, would the block most likely to be found?



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

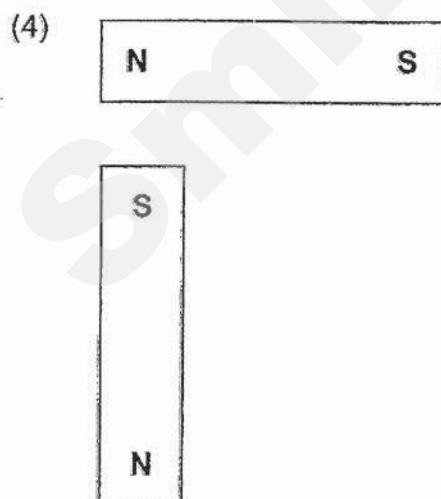
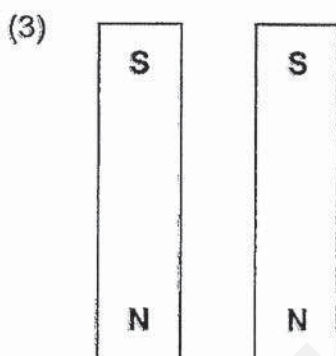
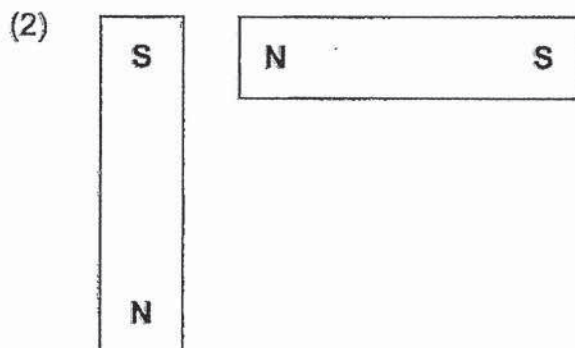
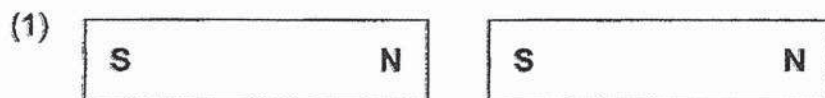
- 4 Ronald places a metal spoon in a cup of hot tea.



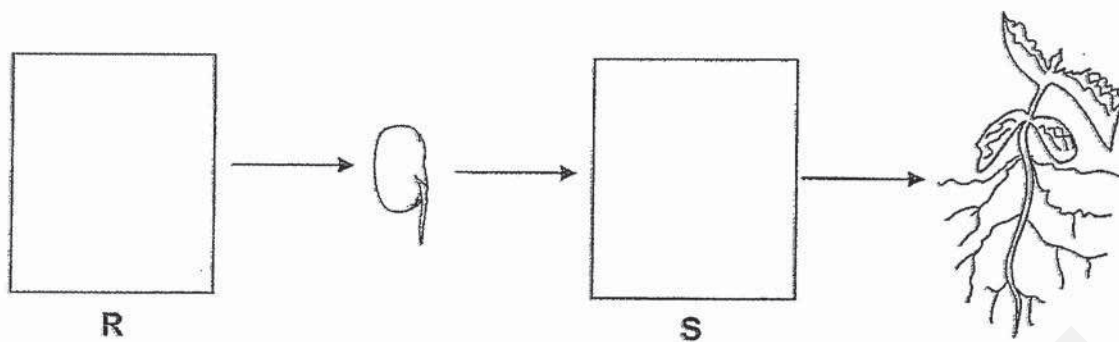
The spoon becomes hotter after a while. Why is this so?

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

5 In which one of the following will the two magnets push each other away?



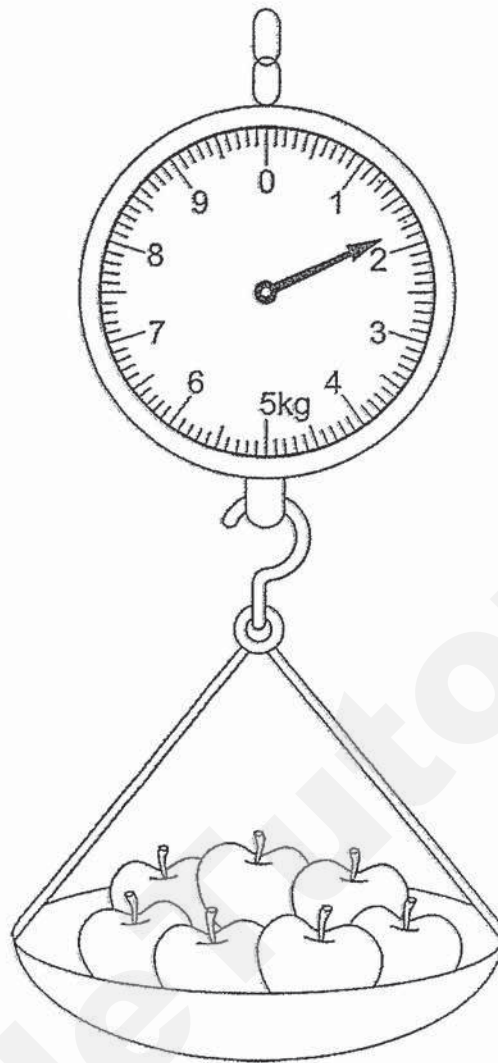
- 6 The diagram below shows the growth of a young plant with two missing stages R and S.



Which of the following best represent stages R and S?

	R	S
(1)		
(2)		
(3)		
(4)		

7 Study the diagram below.

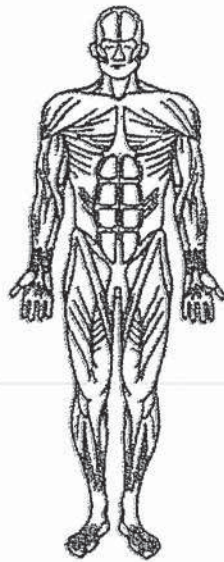


The reading on the weighing scale shows that the mass of the apples is \_\_\_\_\_ kg.

- (1) 1.6
- (2) 1.8
- (3) 2.0
- (4) 2.2



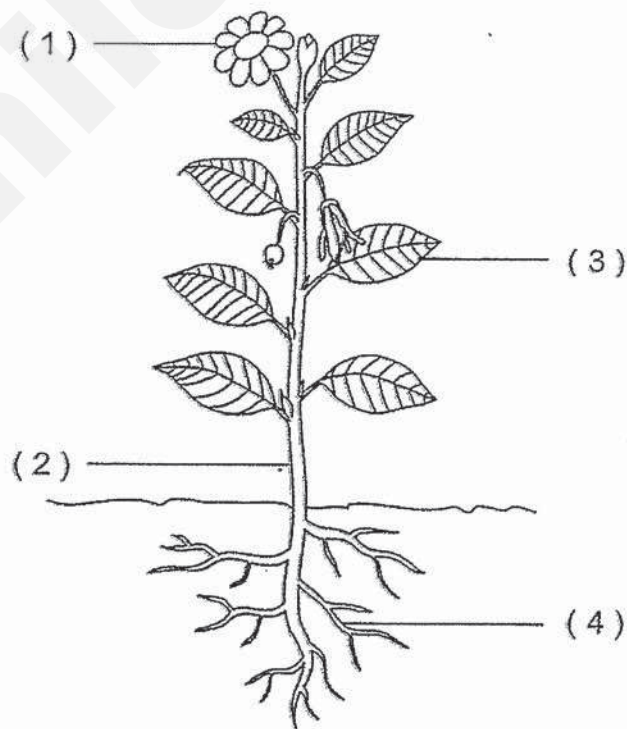
8 Which organ system is shown in the diagram below?



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

9 The diagram below shows a plant.

Which part, (1), (2), (3) or (4), makes food for the plant?

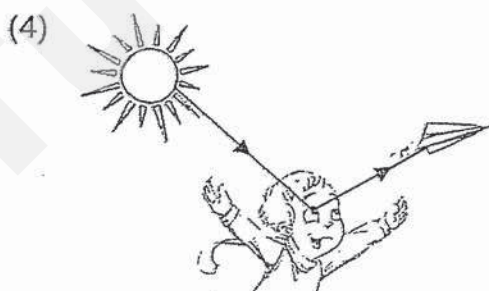
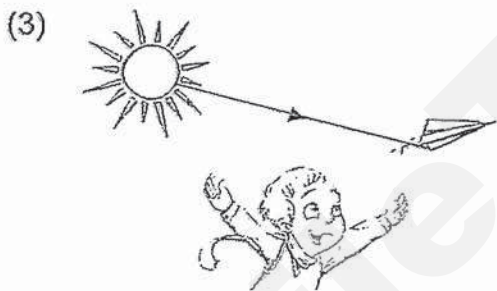
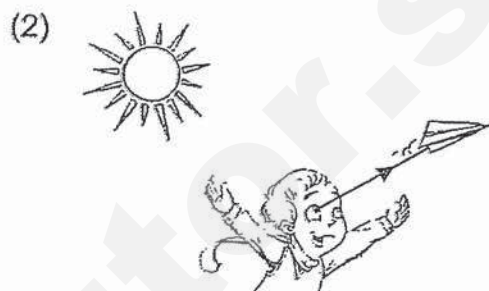
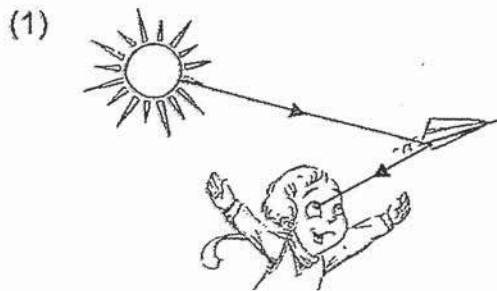


10 Study the diagram below.

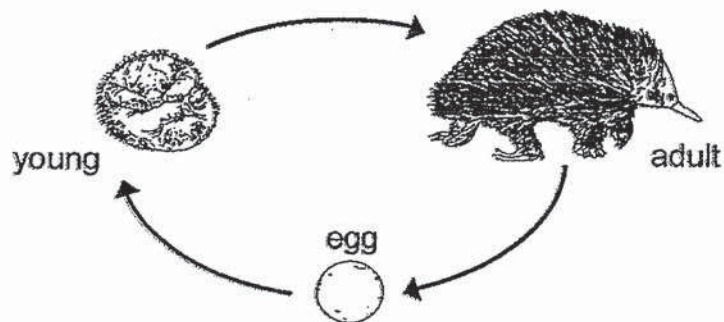


Which of the following explains why the boy can see the paper plane?

→ Direction of the light



- 11 Daniel studied the life cycle of an animal shown below.

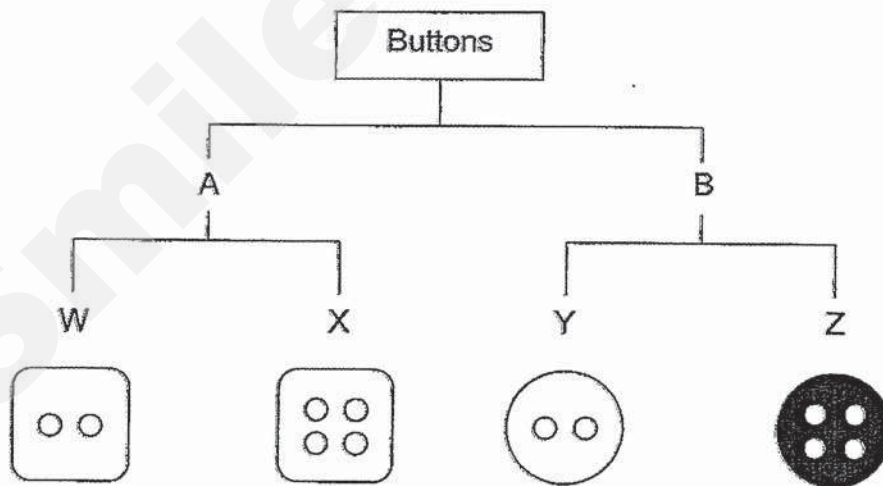


Based on the life cycle, he can conclude that the animal is a living thing because it can \_\_\_\_\_.

- A : grow  
B : respond  
C : reproduce

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

- 12 The diagram below shows how different buttons are classified according to certain characteristics, A, B, W, X, Y and Z.



Which of the following correctly shows the characteristics A and Z?

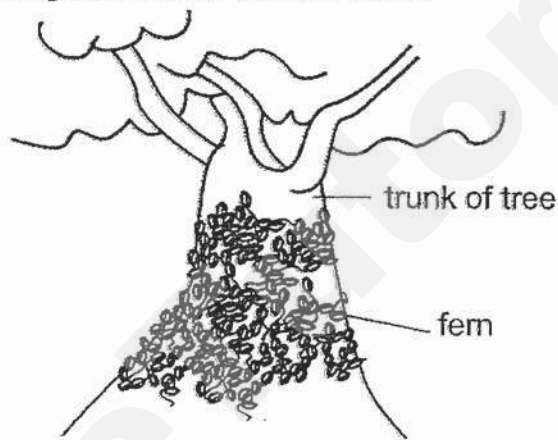
	A	Z
(1)	White	Circle
(2)	White	Has four holes
(3)	Square	Circle
(4)	Square	Has four holes

13 Which of the following characteristic(s) is/are found in insects, but **not** in other animals?

- A : They lay eggs.
- B : They have wings.
- C : They have six legs.

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

14 Shanti found a fern that grows on the trunk of trees.



The table below shows Shanti's answers to three questions about the fern.

Question	Answer
A – Does the fern get its food from the tree?	No
B – Does the fern reproduce by spores?	No
C – Does the fern have a weak stem?	Yes

Which question(s) was/were answered correctly?

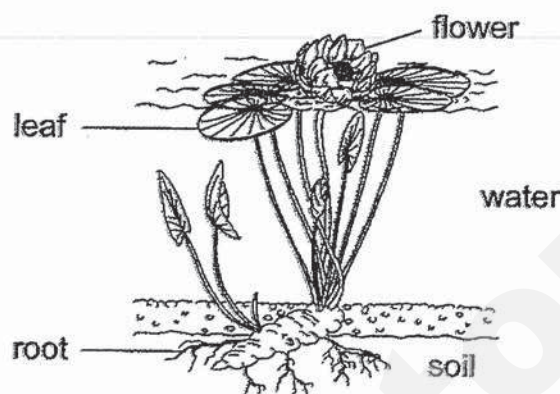
- (1) C only
- (2) A and B only
- (3) A and C only
- (4) A, B and C



- 15 The following table gives information on four plants, W, X, Y and Z, based on two characteristics. A tick (✓) shows that the plant has the characteristic.

	W	X	Y	Z
Grow on land		✓		✓
Reproduce by seeds	✓			✓

The diagram below shows a plant that grows in a pond.



Which of the following is most likely to be the plant?

- (1) W
  - (2) X
  - (3) Y
  - (4) Z
- 16 Vicky wanted to find out if the amount of fertiliser would affect the height of a plant. She used two similar pots of plant for her experiment.

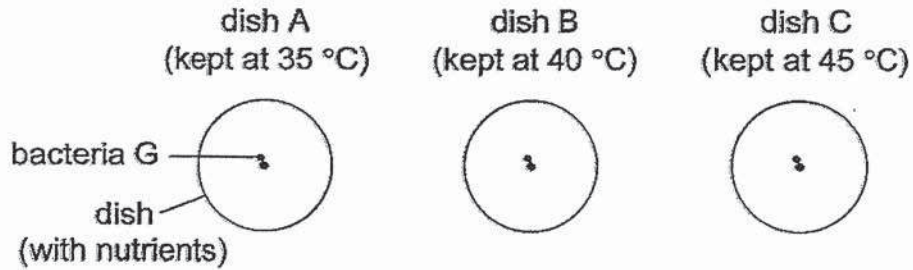
The table shows what she used for her experiment.

	Pot X	Pot Y
Height of plant at the start of the experiment	10 cm	10 cm
Amount of water given daily	150 cm <sup>3</sup>	180 cm <sup>3</sup>
Amount of fertiliser added to the soil	5 g	10 g
Height of plant at the end of the experiment	15 cm	20 cm

Which of the following was the reason why her experiment was not a fair test?

- (1) Amount of water given daily was different.
- (2) Amount of fertiliser added to the soil was different.
- (3) Height of plant at the end of the experiment was different.
- (4) Height of plant at the start of the experiment was the same.

- 17 Rahim conducted an experiment to find out how quickly bacteria G can reproduce when it is kept at different temperatures.



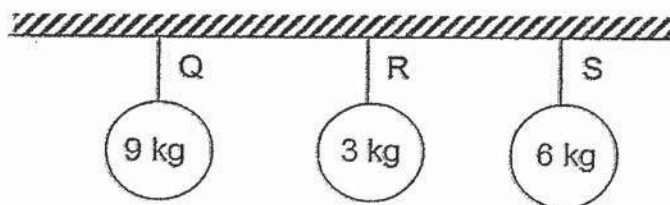
He observed the three dishes after one day and concluded that bacteria G reproduced slower as the temperature increases.

Which of the following correctly shows Rahim's observations at the end of his experiment?

	dish A	dish B	dish C
(1)			
(2)			
(3)			
(4)			

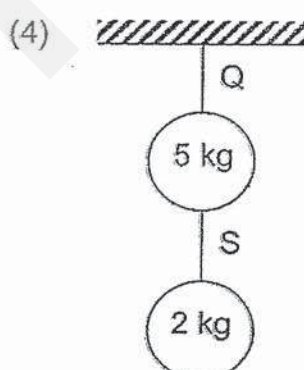
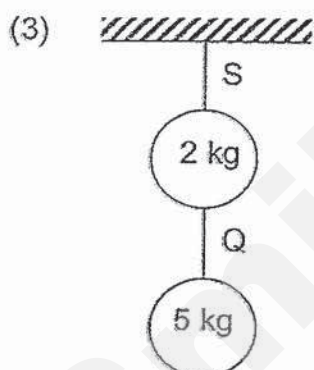
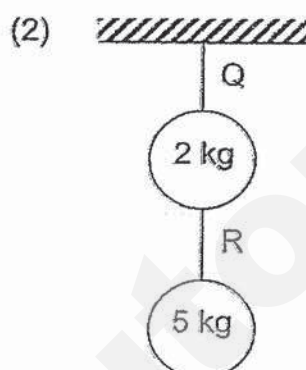
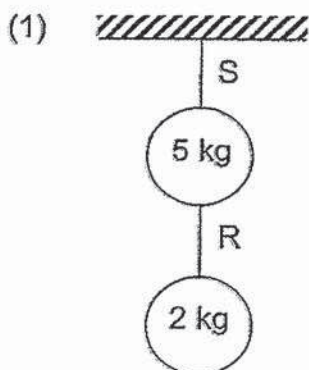


- 18 Mingjie tested three types of string Q, R and S by hanging weights from each string. He increased the weights until the string broke. The maximum weight that the strings could hold before breaking is shown below.

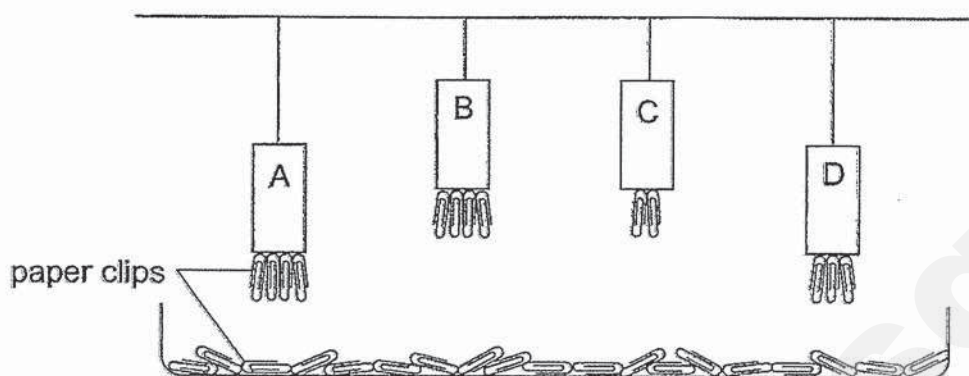


He then tried a few arrangements of hanging different weights.

Which of the following arrangements would be possible?

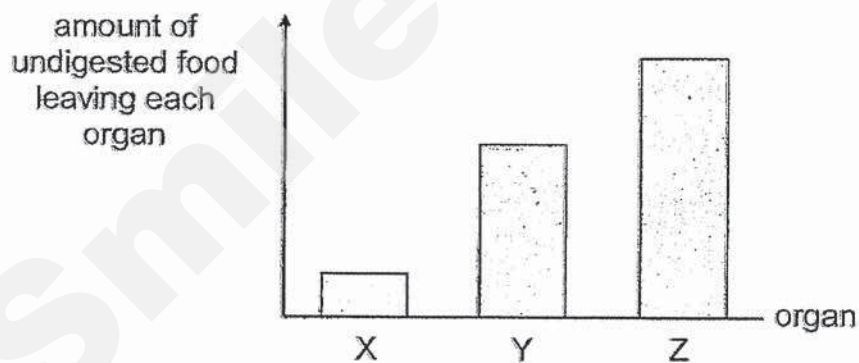


- 19 Four different magnets, A, B, C and D, were held at different heights above a tray of paper clips. The diagram below shows the number of paper clips attracted by each magnet.



Based on the diagram, which of the following conclusions is definitely correct?

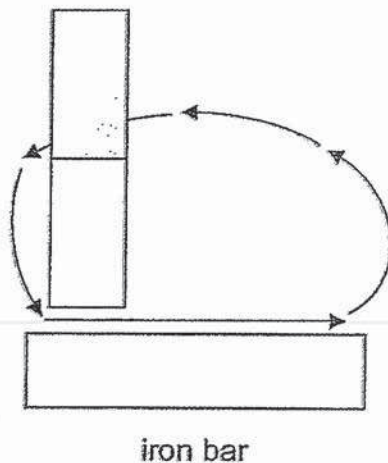
- (1) Magnet B is the strongest.
  - (2) Magnet C is the weakest.
  - (3) Magnets A and B are equally strong.
  - (4) Magnet C is weaker than magnet D.
- 20 X, Y and Z are organs in the digestive system. The graph below shows the amount of undigested food leaving each organ after a meal.



Which of the following is correct?

	Mouth	Stomach	Large intestine
(1)	X	Y	Z
(2)	Y	X	Z
(3)	Z	Y	X
(4)	Z	X	Y

- 21 Four identical iron bars, W, X, Y and Z, were made into temporary magnets using the stroke method as shown below.



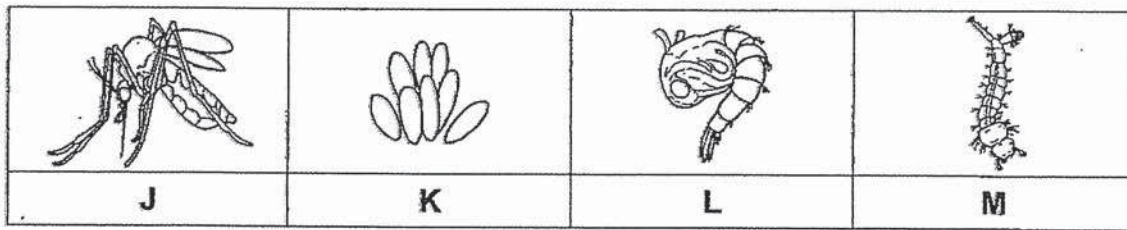
The graph below shows the number of paper clips attracted by each of the magnetised iron bar.

Iron bar	Number of paper clips attracted
W	6
X	4
Y	1
Z	10

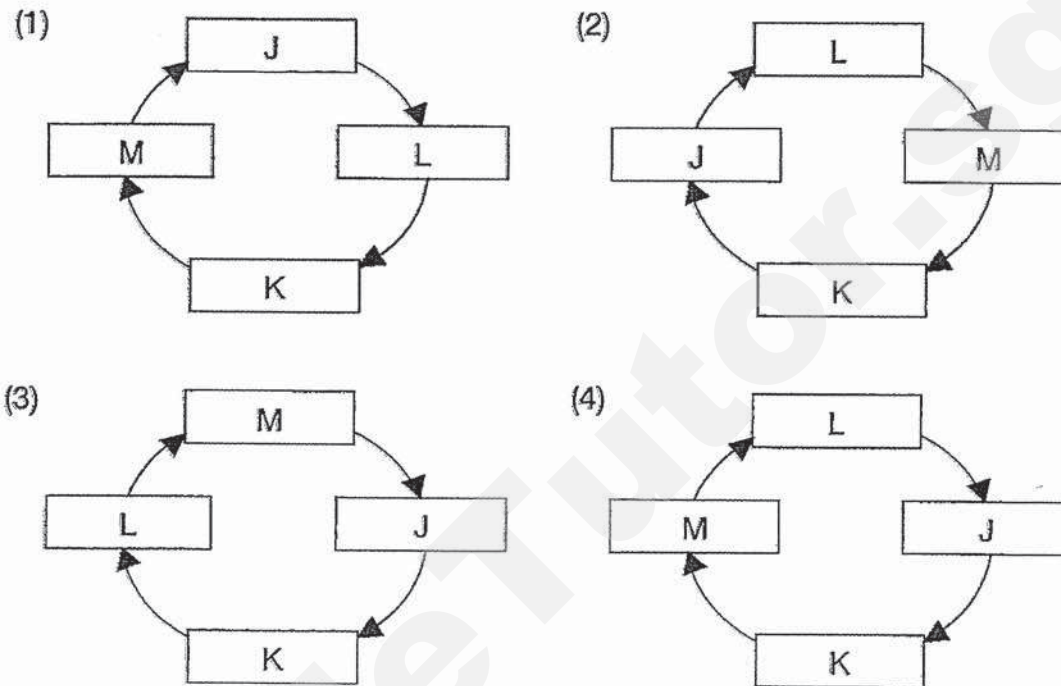
Which of the iron bars has been stroked the most number of times?

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

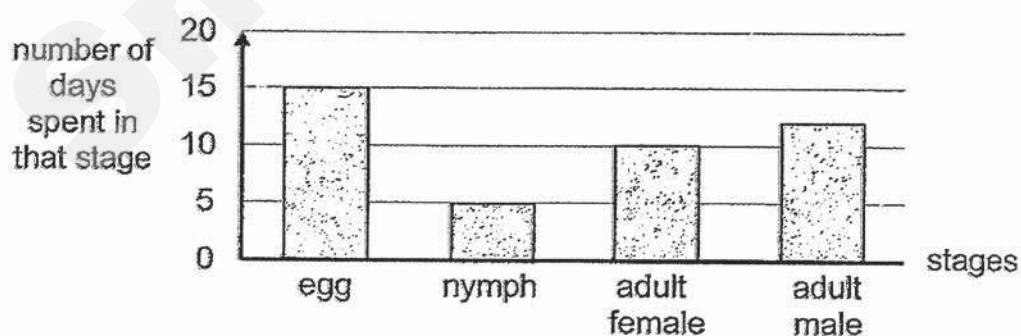
22 J, K, L and M are the stages in the life cycle of a mosquito.



Which of the following correctly shows the life cycle of the mosquito?



23 The graph below shows the number of days for each stage of the life cycle of insect A.

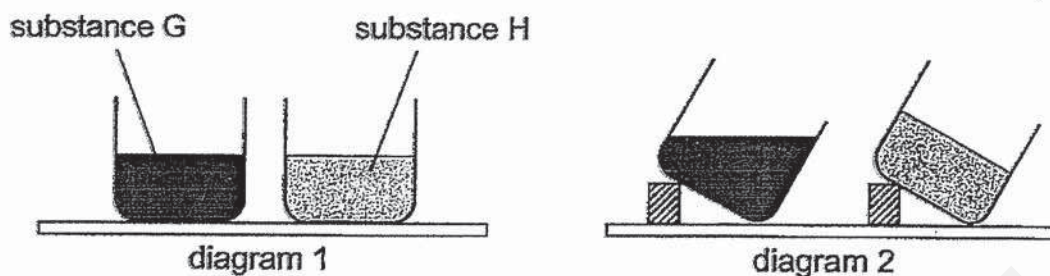


Based on the graph, which of the following statements is true about insect A?

- (1) It has 4 stage life cycle.
- (2) It hatches from the egg after the 15<sup>th</sup> day.
- (3) It takes 5 days to develop from an egg into a nymph.
- (4) After hatching, it takes about 10 days to become an adult female.



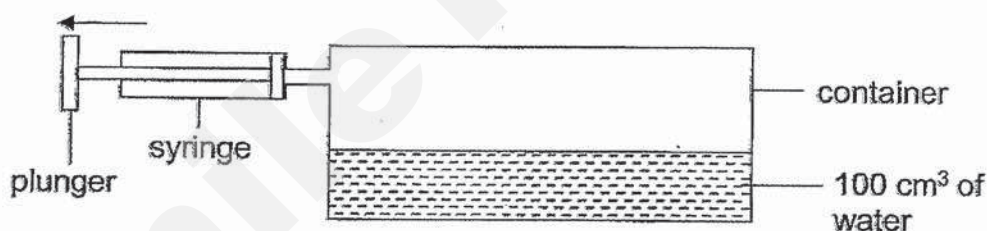
- 24 Sue placed substances G and H in two glass beakers as shown in diagram 1. Diagram 2 shows what happened to the substances when she tilted the two beakers.



Which of the following shows the correct state(s) of G and H at room temperature?

	substance G	substance H
(1)	liquid	solid
(2)	solid	liquid
(3)	liquid	liquid
(4)	solid	solid

- 25 The diagram below shows a syringe connected to a container. The container has a capacity of  $250 \text{ cm}^3$ .



When the plunger of the syringe was pulled back completely,  $30 \text{ cm}^3$  of air would be drawn out of the container.

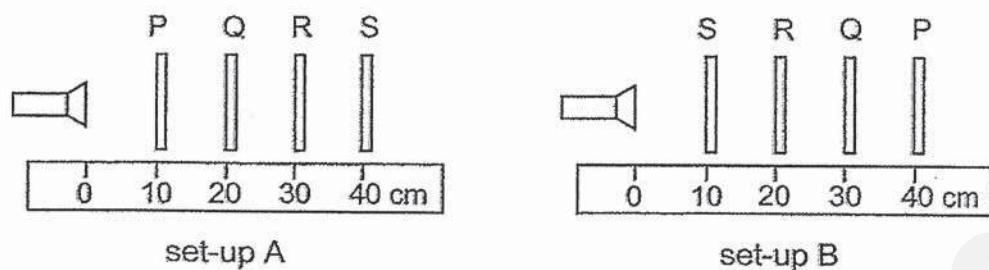
Which of the following shows the correct volume of air and water in the container after the plunger was pulled back completely?

	Volume of air ( $\text{cm}^3$ )	Volume of water ( $\text{cm}^3$ )
(1)	120	100
(2)	120	130
(3)	150	100
(4)	150	130

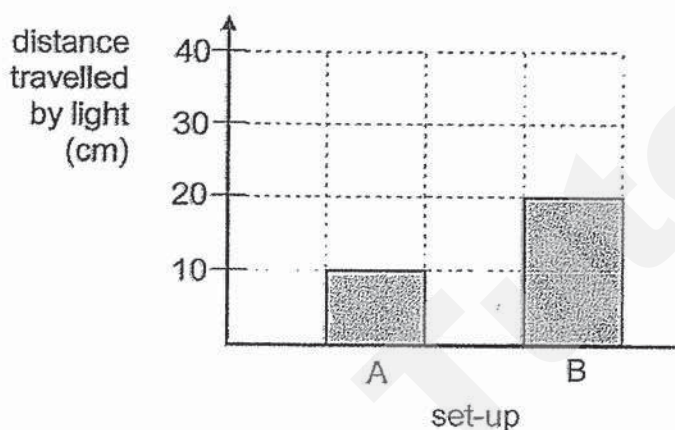


- 26 An experiment was conducted to investigate whether light can pass through four sheets, P, Q, R and S, made of different materials.

The sheets were arranged in two set-ups, A and B, as shown.



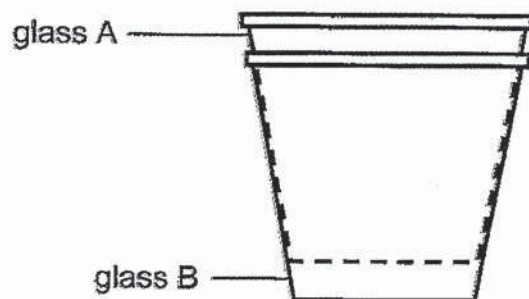
The distance travelled by the light in each set-up was measured and the results are shown in the graph below.



Which of the following correctly describes sheets P, Q, R and S?

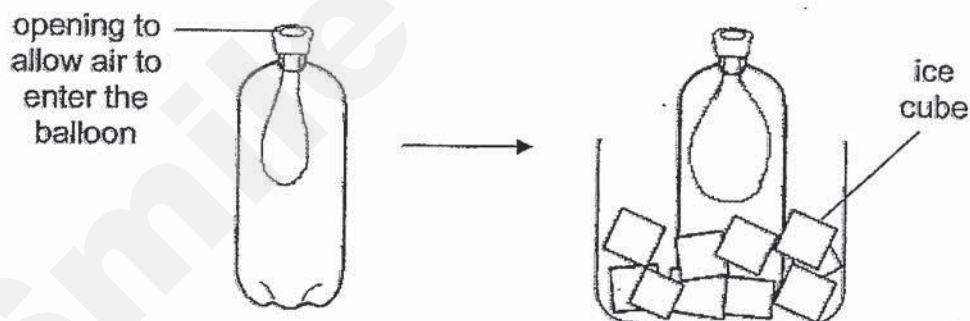
Does it allow light to pass through?				
	P	Q	R	S
(1)	yes	no	yes	yes
(2)	no	yes	no	no
(3)	yes	no	yes	not sure
(4)	no	not sure	no	yes

- 27 The diagram below shows two glasses, A and B, which are stuck together.



Bill tries to separate the two glasses but finds it difficult to do so. What could Bill do in order to separate the two glasses more easily?

- (1) Pour iced water into glass A and put glass B in iced water.
  - (2) Pour iced water into glass A and put glass B in warm water.
  - (3) Pour warm water into glass A and put glass B in iced water.
  - (4) Pour warm water into glass A and put glass B in warm water.
- 28 Trinie carried out an experiment as shown below. She put a balloon in the bottle and stretched its end over the mouth of the bottle. She then placed the bottle in a basin of ice cubes for fifteen minutes.



Based on your observation, which one of the following best explains why the balloon became inflated?

- (1) The bottle lost heat and contracted.
- (2) The balloon gained heat and expanded.
- (3) The air inside the bottle lost heat and contracted.
- (4) The air inside the balloon gained heat and expanded.

**End of Section A**

**PEI CHUN PUBLIC SCHOOL**

**PRIMARY 4**

**SEMESTRAL ASSESSMENT 2 2019**

**SCIENCE  
SECTION B**

Time: 1h 45 min

Name: \_\_\_\_\_ ( )

Class: Primary 4 /( ) \_\_\_\_\_

Date: 25 October 2019

Science Teacher: \_\_\_\_\_

Parent's Signature: \_\_\_\_\_

SECTION A	56
SECTION B	44
TOTAL	100

**INSTRUCTIONS TO CANDIDATES**

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

FOLLOW ALL INSTRUCTIONS CAREFULLY.

ANSWER ALL QUESTIONS.

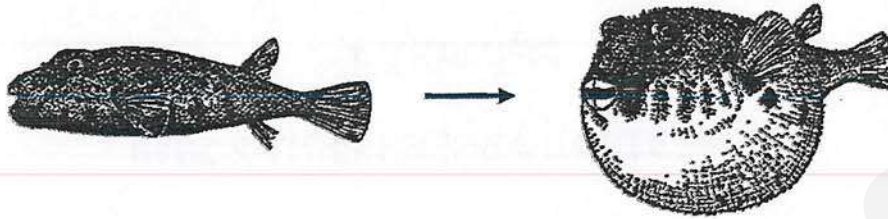
WRITE YOUR ANSWERS IN THIS BOOKLET.



**Section B (44 marks)**

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

- 29 Aini found a fish in the sea. When she went near the fish, it swallowed huge amount of water to inflate its body as shown.



- (a) Fill in each blank with a suitable word.

- (i) The fish inflated its body when it sensed danger.

This shows that the fish is a living thing as it can \_\_\_\_\_ [1]

- (ii) The fish needs air, water and \_\_\_\_\_ to stay alive. [1]

- (iii) To get air in the water, the fish breathes through its \_\_\_\_\_. [1]

- (b) The table below shows how some animals can be grouped.

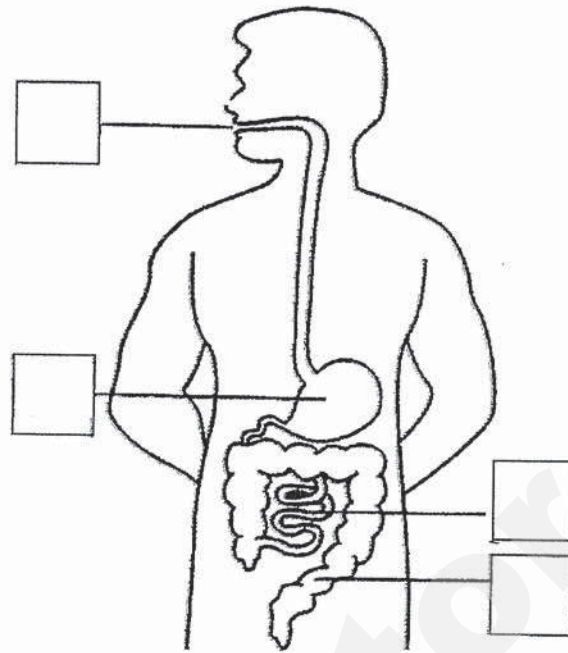
	Has a tail	Does not have a tail
Has legs	E	F
Does not have legs	G	H

Which group, E, F, G or H, does the fish belong to? [1]

\_\_\_\_\_

SCORE	
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30 The diagram below shows the human digestive system.



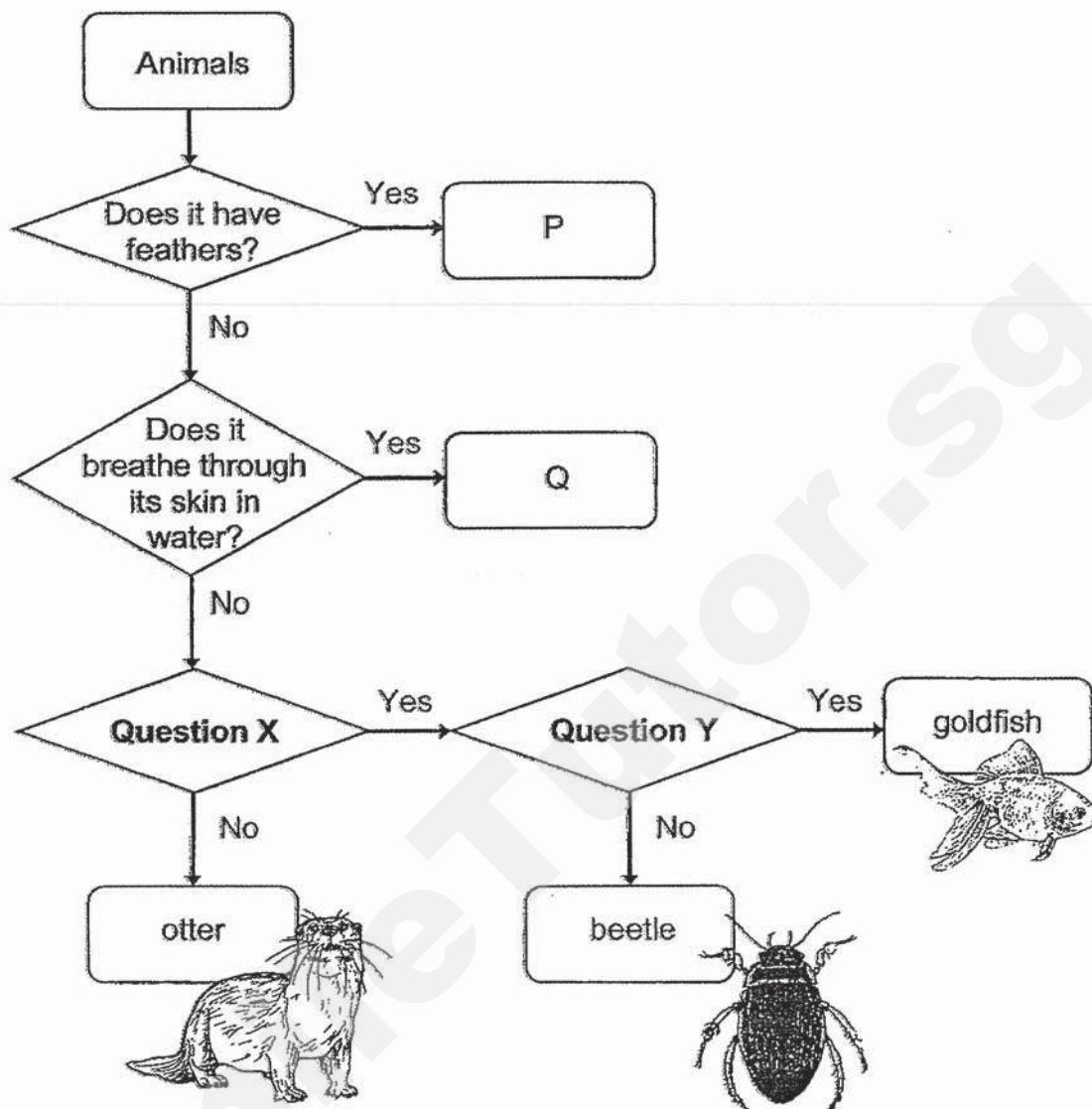
- (a) Put the letter 'A' in a box above to show where digestion first takes place. [ 1 ]
- (b) Put the letter 'B' in a box above to show where digestion ends. [ 1 ]
- (c) Fill in the blank using the following helping words. [ 1 ]

large intestine	gullet	small intestine	mouth
-----------------	--------	-----------------	-------

Digested food is absorbed into the blood in the \_\_\_\_\_.



31 Some animals were classified as shown below.



(a) Circle the correct answer.

[1]

Animal P could be a ( *mammal* / *bird* / *insect* ).

(b) Which of the following animals could animal Q be?

[1]

Tick (✓) in the correct box.



frog

☐


dolphin

☐


shark

☐

SCORE

- (c) What were questions X and Y?  
Tick (✓) in the correct boxes.

[2]

	Question X	Question Y
Does it lay eggs?		
Does it give birth?		
Does it have hair?		
Does it have scales?		

- 32 Classify the following animals according to the number of stages in their life cycle.

[2]



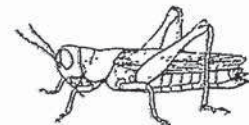
chicken



frog



beetle



grasshopper

Three stages	Four stages

SCORE	
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- 33 Tom carried out an experiment on the growth of mould on strawberries. He kept three similar strawberries in three identical glass jars as shown below. He covered the jars to make them airtight. Strawberry C was cut in half, so it has a bigger surface area than strawberries A and B.



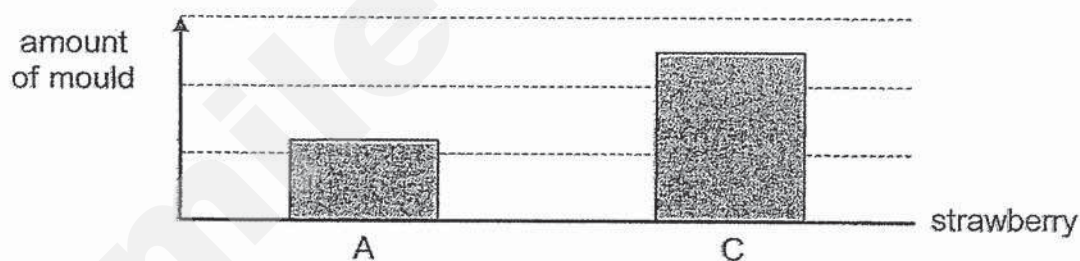
He measured and recorded the amount of mould growing on each of the strawberries after eight days.

- (a) Which strawberry, A or B, would have more mould growing on it after eight days? Give a reason your answer. [1]

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- (b) His results for strawberries A and C are shown below.



Circle the correct answer.

[1]

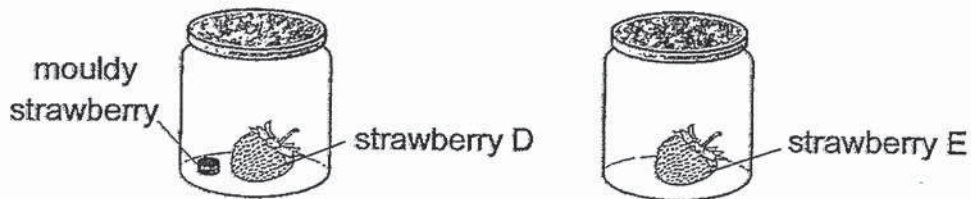
Based on his results, he can conclude that as the surface area of the strawberries increased, the amount of mould growing on it

( decreased / remained the same / increased ).

SCORE	
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- (c) Tom repeated his experiment with strawberries D and E. He placed a small piece of mouldy strawberry in one of the jars and placed both jars in the same place.



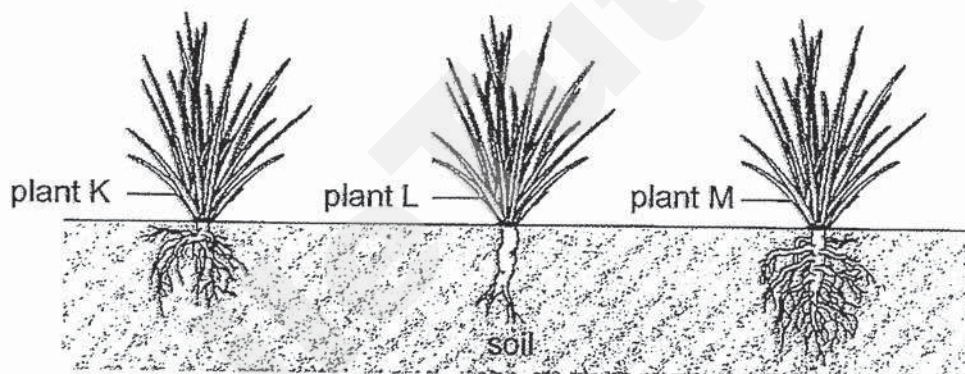
On which strawberry, D or E, would mould first appear?  
Give a reason for your answer.

[ 1 ]

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- 34 Winnie had three grass plants, K, L and M, growing in her garden.



- (a) She observed that plant L did not grow as well as plant K and M when there was little rainfall. Give a reason for her observation.

[ 1 ]

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- (b) She wanted to remove all the grass plants from her garden.  
Which grass plant, K, L or M, would be most difficult to pull out?  
Explain your answer.

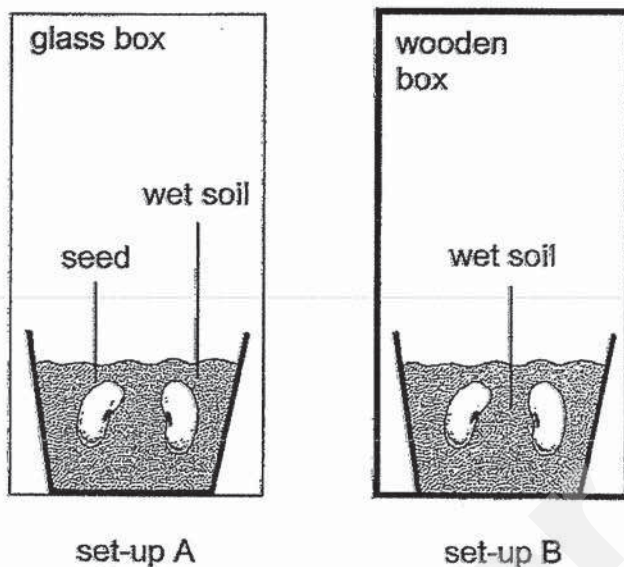
[ 2 ]

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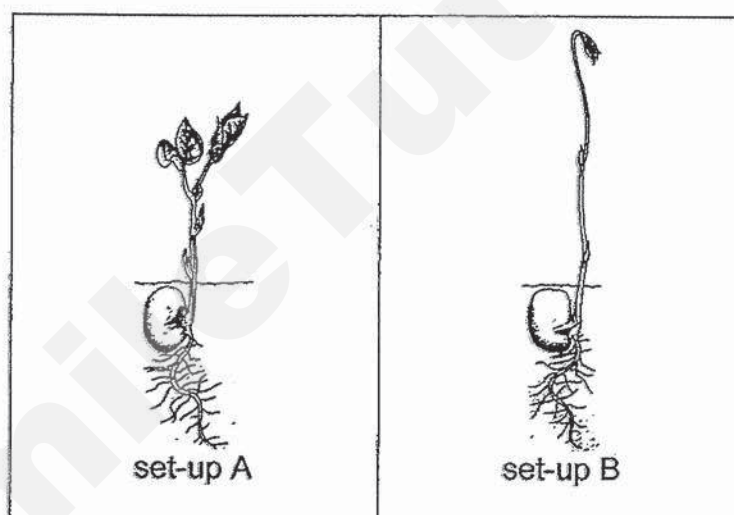
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- 35 Si Ling placed two set-ups, A and B, side by side, near an open window.



The diagram below shows two of the seedlings after a few days.



- (a) Based on the experimental results, Si Ling concluded that a seed needs light to germinate.

Is she correct? Circle your answer.

[ 1 ]

Yes / No / Cannot tell

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

[ 1 ]

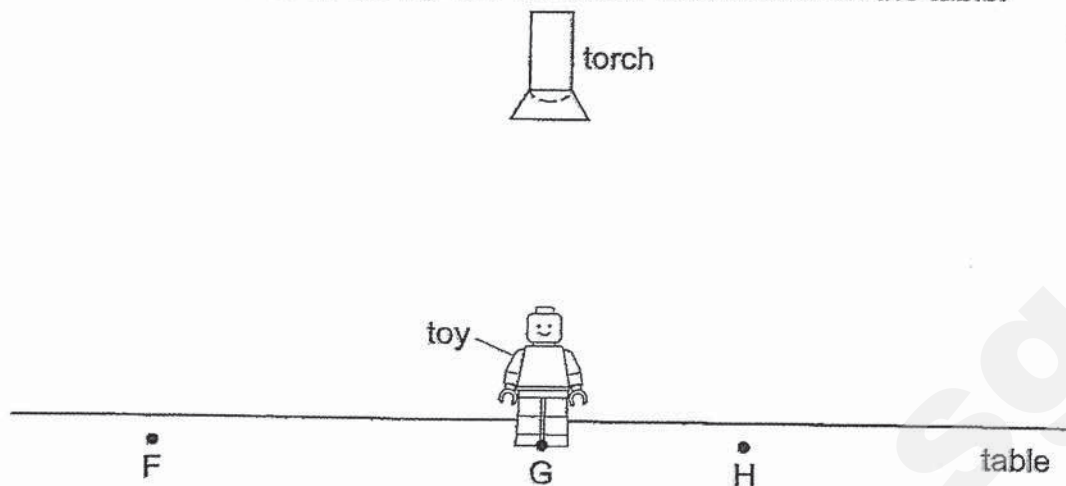
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SCORE



- 36 Bala shone a torch on his toy and a shadow was formed on the table.



- (a) Fill in the blank with a suitable word.

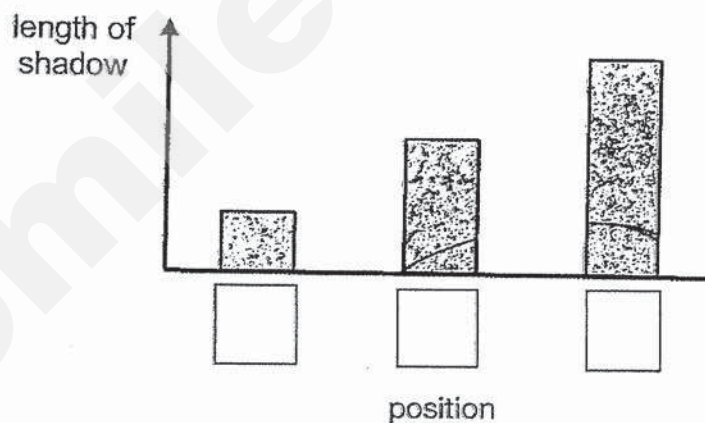
A shadow is formed when light is \_\_\_\_\_ by an object. [ 1 ]

- (b) Without moving the torch, Bala placed the toy at positions F, G and H and measured the length of the shadow formed on the table for each position.

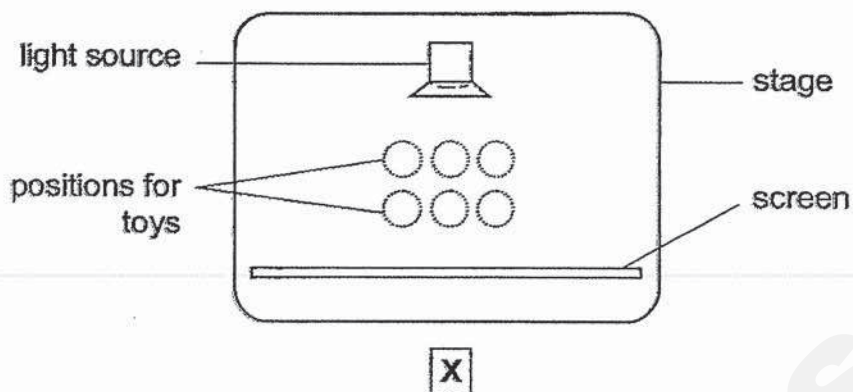
His results are shown in the bar graph below.

Which of the bars shows the length of the shadow of the toy at position G?  
Write the letter 'G' in the correct box below.

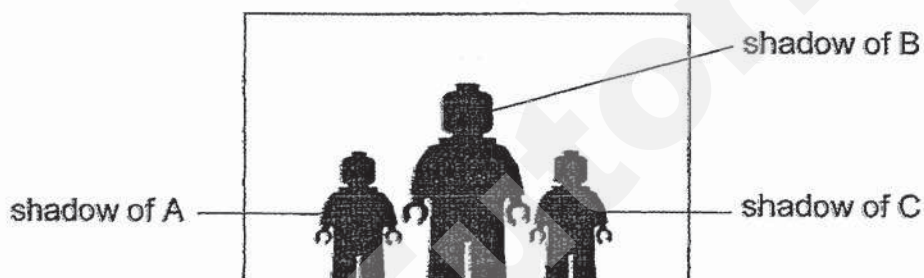
[ 1 ]



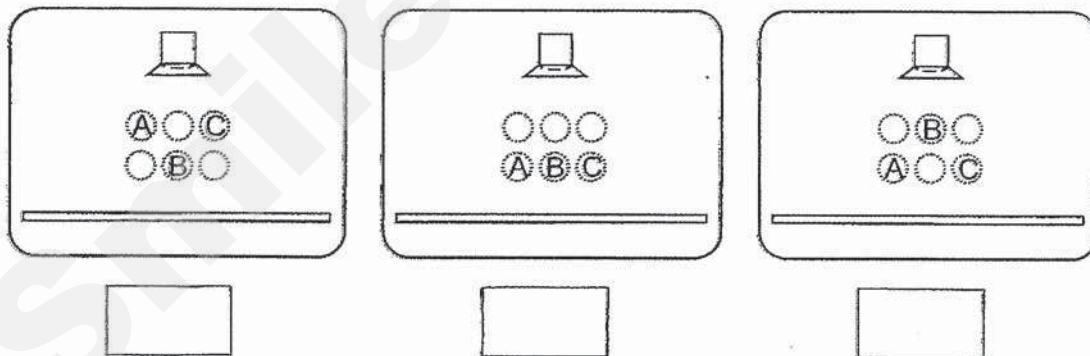
- (c) Bala wanted to put up a shadow performance with three identical toys, A, B and C. The diagram below shows the layout of his stage.



The person at X saw the shadows of the toys on the screen as shown.



- (i) Which of the following correctly shows the position of the toys on the stage?  
Tick (✓) in the correct box. [ 1 ]



- (ii) Without changing the positions of the toys, suggest one change to Bala's stage layout that would make the shadows of the toys appear bigger. [ 1 ]

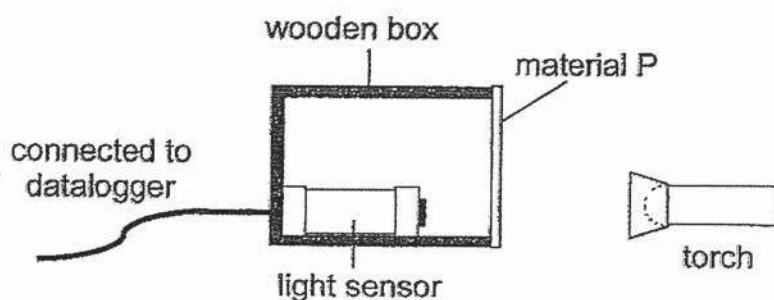
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SCORE	
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- (iii) Bala set up an experiment in a dark room as shown below. He covered the open side of a wooden box with material P.



He recorded the amount of light that passed through material P with a light sensor placed in the box. He repeated the experiment using material Q.

The table below shows the results.

	Without material	Material P	Material Q
Amount of light detected by sensor (units)	1500	750	0

Based on Bala's results, which material, P or Q, could be used to make the screen for his shadow performance? Explain your answer.

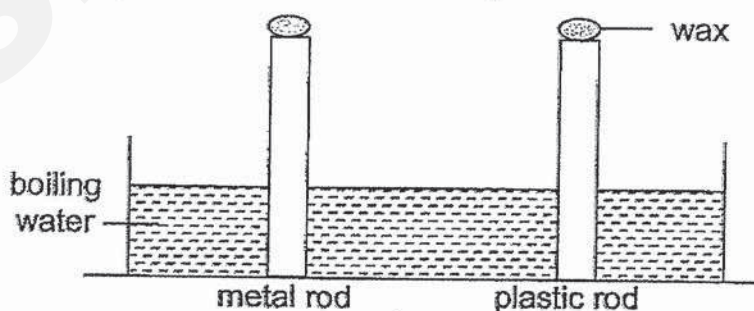
[ 1 ]

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- 37 Reuben placed a metal rod and a plastic rod into a tank of boiling water as shown below. Equal amounts of wax were put on the rods.



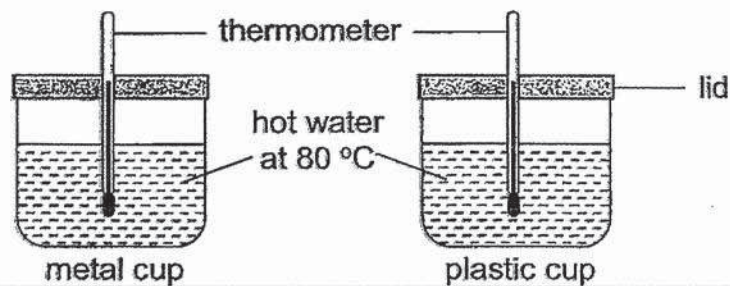
- (a) What would he observe and why?

[ 2 ]

The wax on the metal rod melted \_\_\_\_\_ than the wax on the plastic rod, as metal is a \_\_\_\_\_ conductor of heat than plastic.

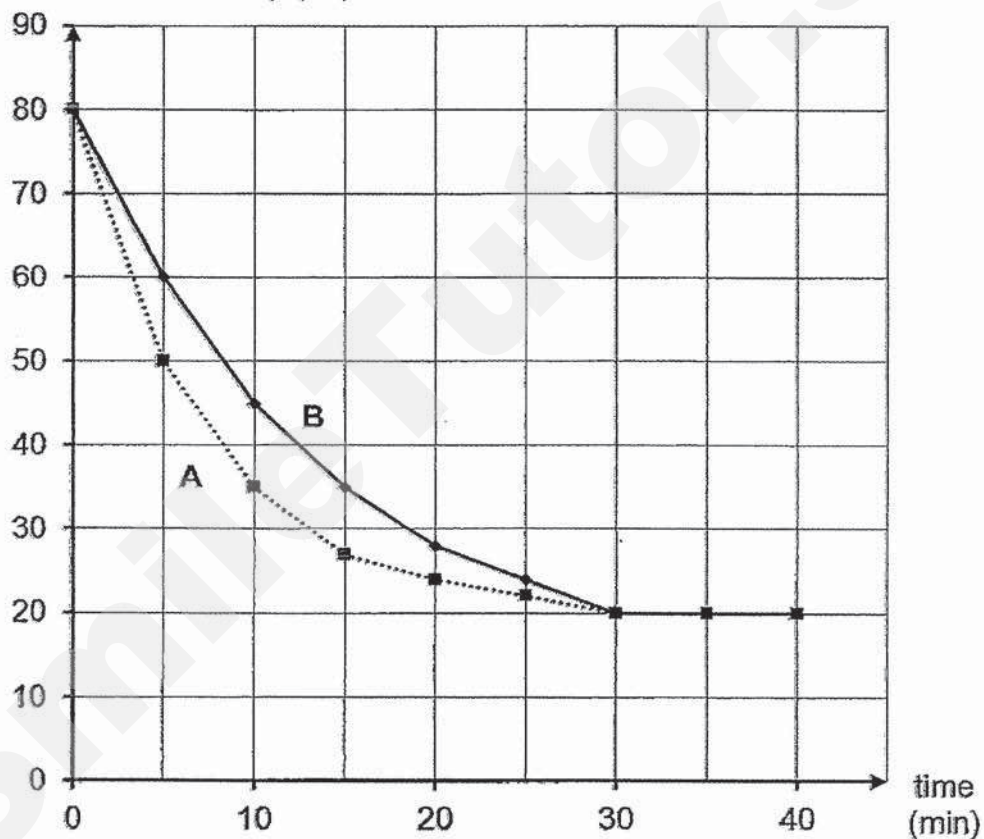


- (b) Reuben conducted an experiment with a metal cup and a plastic cup in a room. The cups were of the same size and thickness. He then poured the same amount of hot water into the cups and covered them with identical lids.



He measured the temperature of the hot water in each cup for 40 minutes. His results are shown in the graph below.

temperature of water in cup ( $^{\circ}\text{C}$ )



Which graph, A or B, shows the temperature of the hot water in the metal cup? Explain your answer based on the graph above. [1]

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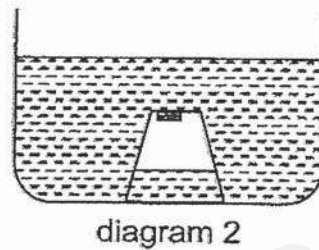
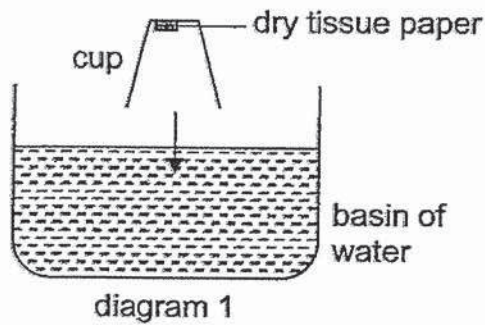
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- (c) Based on the graph, state the temperature of the room. [1]

\_\_\_\_\_  $^{\circ}\text{C}$

SCORE	
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- 38 Kelly glued a piece of tissue paper to the inside of a plastic cup. Then, she inverted the cup and slowly pushed the cup into a basin of water as shown in diagram 1.



She observed that water could not fill up the cup as shown in diagram 2 and the tissue paper in the cup remained dry.

- (a) Explain her observation.

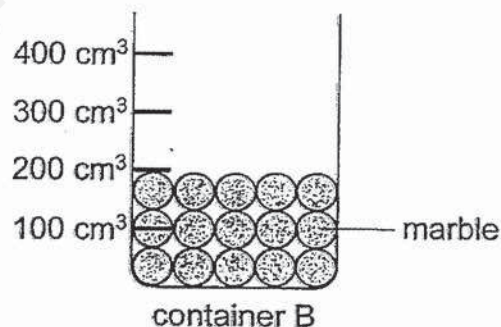
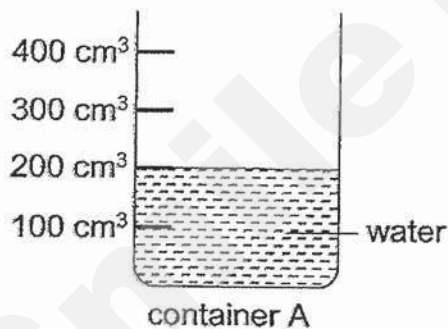
[ 1 ]

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- (b) Kelly had two identical containers, A and B. She poured  $200 \text{ cm}^3$  of water into container A and placed some marbles in container B. The height of the marbles in container B was the same as the height of the water in container A.



- (i) She poured all the water from container A into container B. Which of the following is most likely to be the total volume of the water and marbles in container B?

Put a tick (✓) in the correct box below.

[ 1 ]

☐  $200 \text{ cm}^3$

☐  $350 \text{ cm}^3$

☐  $400 \text{ cm}^3$

- (ii) Explain your answer in b (i).

[ 2 ]

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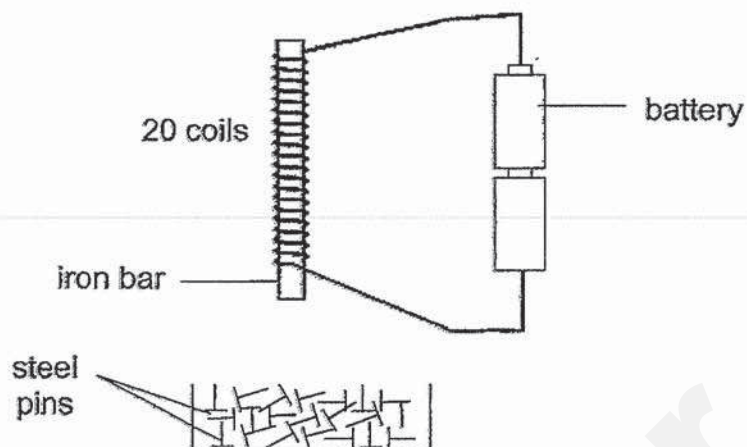
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- 39 Stephanie set up an experiment with an iron bar shown below. She then held the iron bar above a plastic tray of identical steel pins and counted the number of steel pins attracted by the iron bar.



She repeated the experiment with different number of coils of wire around the iron bar. Her results are shown in the table below.

Number of coils of wire around the iron bar	Number of steel pins attracted by the iron bar
10	3
15	6
20	9

- (a) Based on Stephanie's results, state the relationship between the number of coils of wire around the iron bar and the number of steel pin attracted by the iron bar. [1]

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- (b) Without changing the number of coils of wire around the iron bar, suggest a change to the experiment that will allow the iron bar to attract more than 9 steel pins. [1]

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SCORE	
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- (c) Stephanie repeated her experiment, using copper pins instead of steel pins.

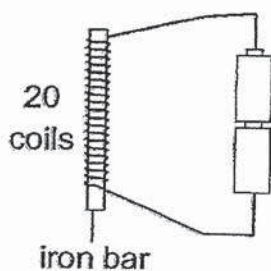
Would the iron bar be able to attract the copper pins?  
Give a reason for your answer.

[ 1 ]

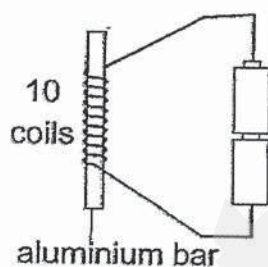
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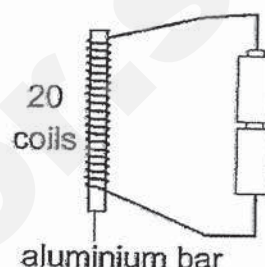
- (d) Stephanie wants to find out if the material of the bar will affect the strength of the electromagnet. The diagram below shows three possible set-ups, Q, R and S.



set-up Q



set-up R



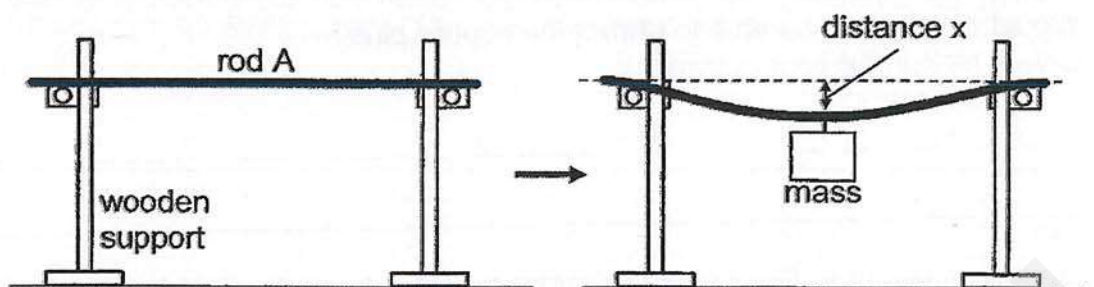
set-up S

Which set-ups, Q, R or S, should Stephanie use to make a correct conclusion?

[ 1 ]

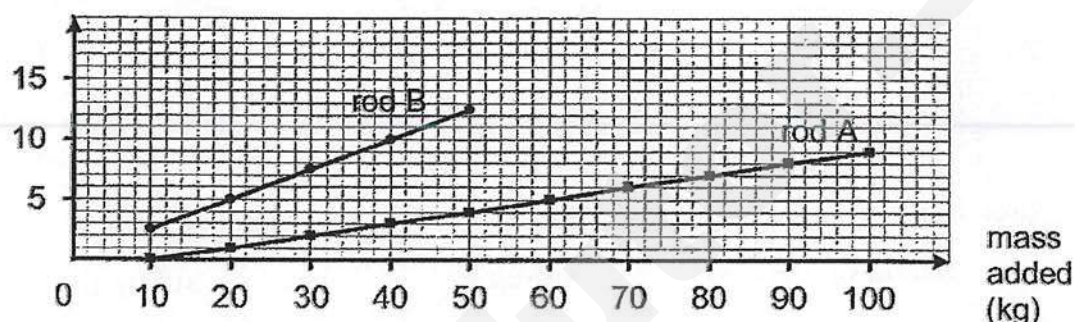
Set-ups \_\_\_\_\_ and \_\_\_\_\_

- 40 Ryan carried out an experiment on rod A using the set-up shown below. He measured the distance,  $x$ , at the middle of the rod after adding each mass.



He repeated the experiment using rod B, which was made of a different material but of the same length and thickness. His results are shown below.

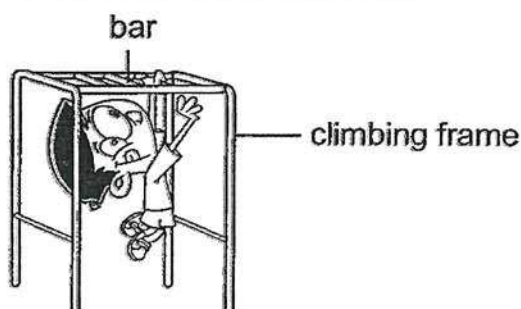
distance  $x$  (mm)



- (a) Name the property of material that Ryan was testing in his experiment. [1]

- (b) Suggest a reason why Ryan was not able to obtain a reading for rod B when the mass added on the rod was more than 50 kg. [1]

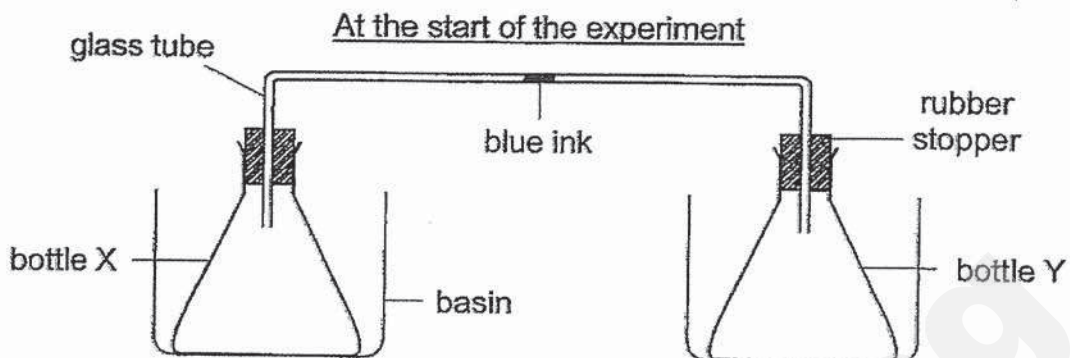
- (c) The diagram below shows a climbing frame at a playground.



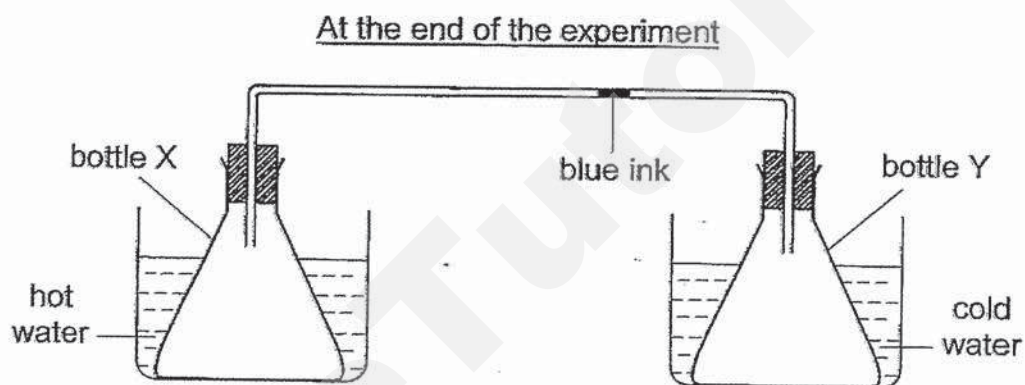
Based on his results, give a reason why rod A is more suitable for making the bar of the climbing frame. [1]



- 41 Raju set up an experiment using two identical glass bottles. He connected the two bottles with a glass tube which had a drop of blue ink as shown below.



He poured hot water into basin with bottle X and cold water into the basin with bottle Y. After three minutes, he observed that the drop of ink moved towards bottle Y as shown below.



- (a) Explain why the drop of ink moved towards bottle Y at the end of the experiment. [2]

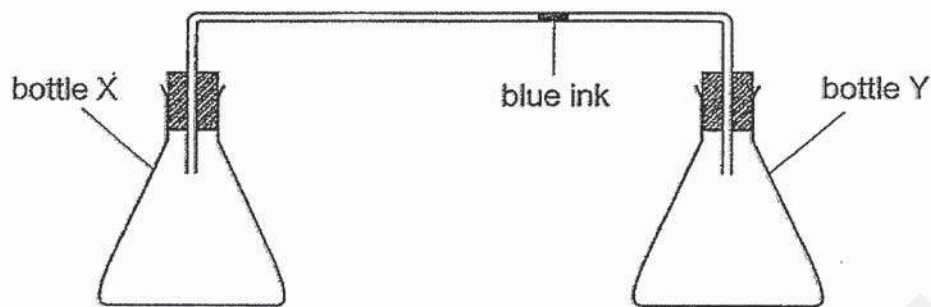
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(b) Raju removed the bottles from the basins and left them on a table as shown.



After some time, both bottles returned to room temperature.  
Which of the following best describes the change in the position of the drop of ink? Put a tick (✓) in the correct box below. [1]

- ☐ It did not move.
- ☐ It moved towards bottle X.
- ☐ It moved towards bottle Y.

End of Section B



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**YEAR** : 2019  
**LEVEL** : PRIMARY 4  
**SCHOOL** : PEI CHUN PUBLIC SCHOOL  
**SUBJECT** : SCIENCE  
**TERM** : SA2

**SECTION A**

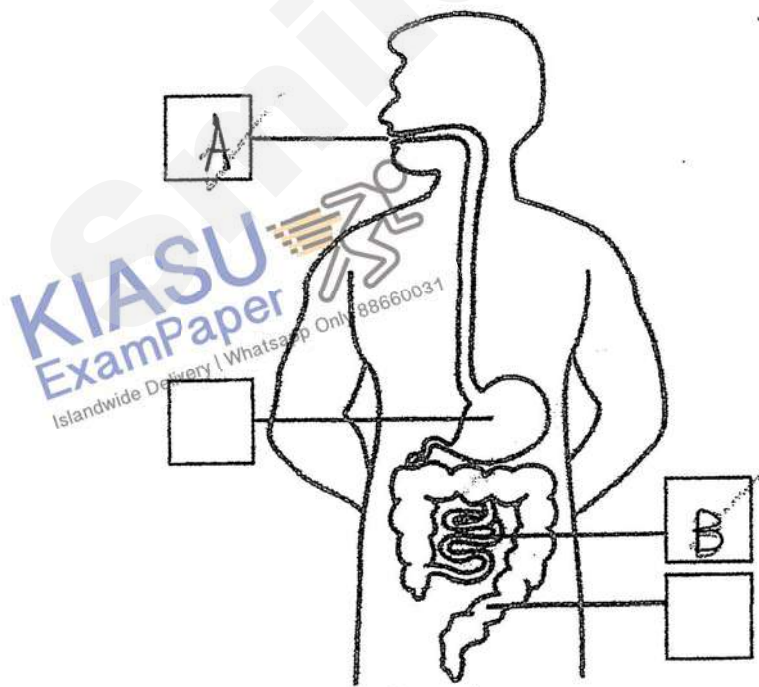
Q1 2	Q2 1	Q3 2	Q4 3	Q5 3	Q6 4	Q7 2	Q8 2	Q9 3	Q10 1
Q11 4	Q12 4	Q13 2	Q14 3	Q15 1	Q16 1	Q17 2	Q18 4	Q19 1	Q20 3
Q21 4	Q22 4	Q23 2	Q24 1	Q25 3	Q26 4	Q27 2	Q28 3		

**SECTION B**

- Q29. a) i) This shows that the fish is a living thing as it can respond to changes.  
 ii) The fish needs air, water and food to stay alive.  
 iii) To get air in the water, the fish breathes through its gills.

b) G

Q30.



- c) Digested food is absorbed into the blood in the small intestine.

- Q31. a) Bird  
 b) Frog  
 c)

	Question X	Question Y
Does it lay eggs?	✓	
Does it have scales?		✓

- Q32. Three Stages: Chicken, frog and grasshopper  
 Four stages: Beetle

- Q33. a) A, as it was kept in a warmer place and mould needs warmth to grow.  
 b) Increased  
 c) D. The mould spores from the mould on the mouldy strawberry would land on strawberry D and grow.

- Q34. a) The surface area of the roots of plant L is smaller than the roots of plants K and M, hence when there is little rainfall, plant L will absorb less water and will not grow as well.  
 b) Plant M. It has the most roots and they are more widespread, hence plant M is well anchored into the soil. This makes it the most difficult to pull out.

- Q35. a) No  
 b) In set-up B, there is no light as the wooden box prevented light from entering. However, the seed still germinated, hence Si Ling's conclusion is wrong.

- Q36. a) A shadow is formed when light is blocked by an object.

b)



c)

i)



ii) He can move the torch nearer to the toys.

iii) P, as it must allow some light to pass through so that the shadow can be seen.

- Q37. a) The wax on the metal rod melted faster than the wax on the plastic rod, as metal is a better conductor of heat than plastic.  
 b) Graph A. It shows that the temperature of the hot water decreased at a faster rate. Metal is a good conductor of heat which allows the hot water to lose heat at a faster rate.  
 c) 20°C

- Q38. a) The air inside the cup occupies space, and hence the tissue paper in the tissue paper in the cup remained dry.
- b) i) 350cm<sup>2</sup>
- ii) The water will fill up the empty spaces between the marbles, thus the water level will be less than 400cm<sup>2</sup>. Since both the water and marbles take up space, the water level would be 350cm<sup>2</sup>.
- Q39. a) As the number of coils around the bar increases, the number of steel pins attracted by the iron bar increases.
- b) He can add more batteries.
- c) No, as copper is a non-magnetic material.
- d) Set-ups Q and S
- Q40. a) Flexibility
- b) Rod B broke from the amount of weight used.
- c) Rod A can hold the most number of weight, hence it is stronger and more flexible. This allows it to be able to support the weight of children on the climbing frame.
- Q41. a) The air in bottle X expanded as it gained heat from bottle X, which gained heat from the hot water in the basin. The air in bottle Y contracted as it lost heat to bottle Y, which lost heat to the cold water in the basin. Thus, the blue ink moved towards bottle Y.
- b) It moved toward bottle X.

END-OF-PAPER

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# RED SWASTIKA SCHOOL

## SCIENCE 2019 SEMESTRAL EXAMINATION 2 PRIMARY 4

Name : \_\_\_\_\_ ( )

Class : Primary 4 / \_\_\_\_\_

Date : 29 October 2019

### BOOKLET A

Total time for Booklets A & B: 1h 30min

Booklet A: 28 questions (56 marks)

**Note:**

1. Do not open the booklet until you are told to do so.
2. Read carefully the instructions given at the beginning of each part of the booklet.
3. Do not waste time. If the question is too difficult for you, go on to the next question.
4. Check your answers thoroughly and make sure you attempt every question.
5. In this booklet, you should have the following:
  - a. Page 1 to Page 18
  - b. Questions 1 to 28

For Questions 1 to 28, choose the most suitable answer and shade its number in the OAS provided.

1. The leaves of a plant close when touched.



before touching



after touching

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

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

2. Which of the following objects is not made of waterproof material?

(1)



cotton towel

(2)



plastic umbrella

(3)



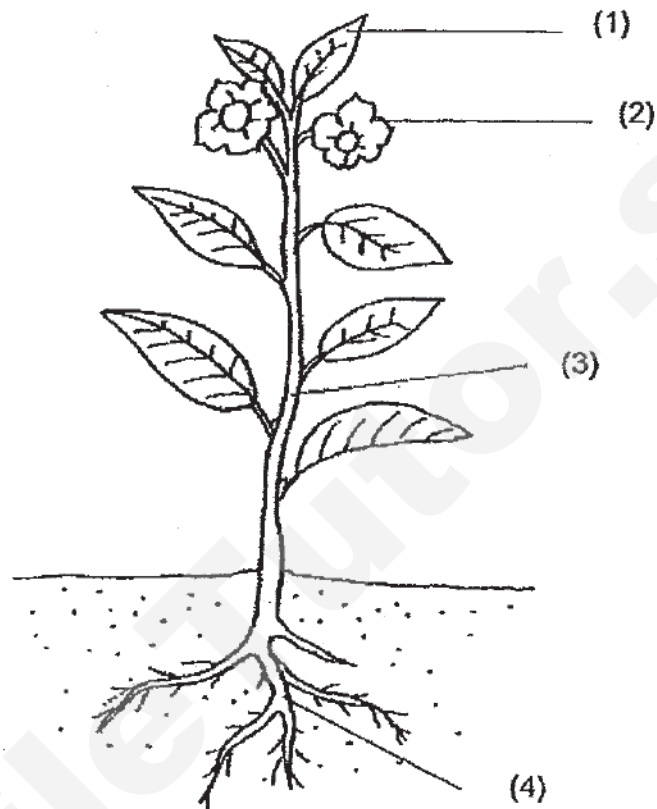
rubber gloves

(4)



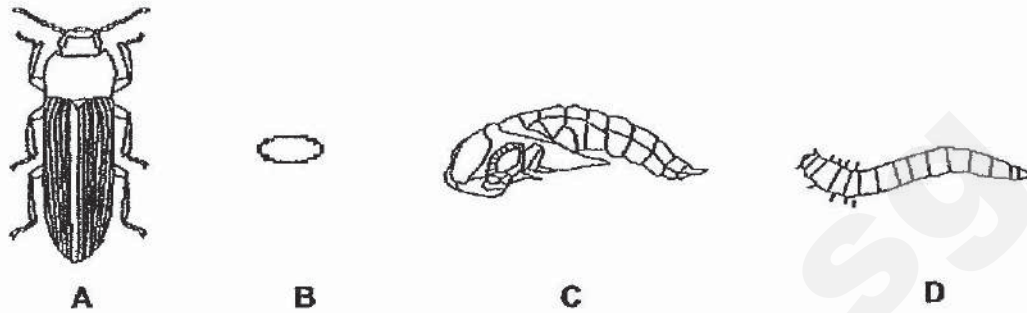
metal spoon

3. The diagram below shows a plant.  
Which part, (1), (2), (3) or (4), are the roots?



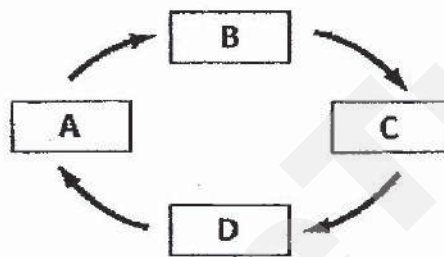
4. In which part of the digestive system is food absorbed into the blood?
- (1) mouth
  - (2) stomach
  - (3) small intestine
  - (4) large intestine

5. A, B, C and D are the various stages in the life cycle of a mealworm beetle.

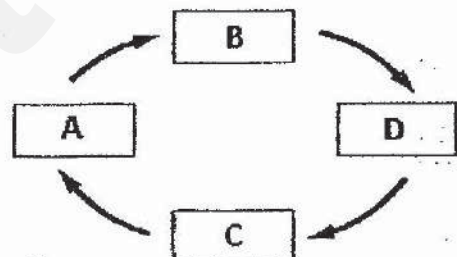


Which of the following correctly shows the life cycle of a mealworm beetle?

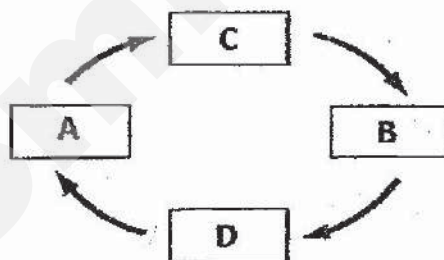
(1)



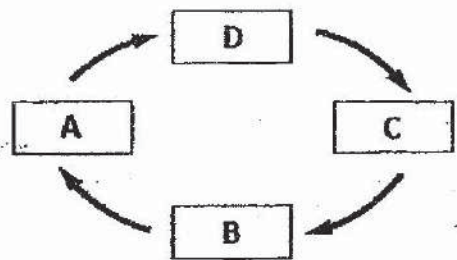
(2)



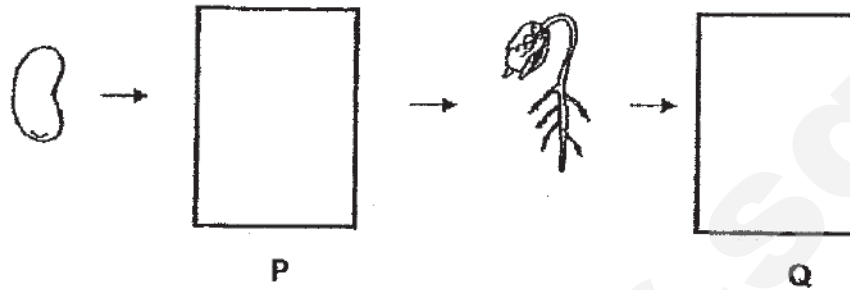
(3)



(4)



6. The diagram below shows the growth of a young plant with two missing stages P and Q.



Which one of the following shows the correct stages for P and Q?

	P	Q
(1)		
(2)		
(3)		
(4)		



7. 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 definite shape.
- (4) They have definite volume.

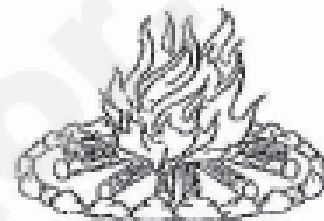
8. Which one of the following is a source of light?

(1)



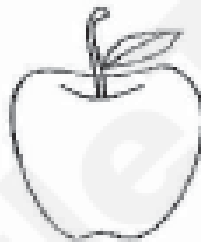
the moon

(2)



a fire

(3)



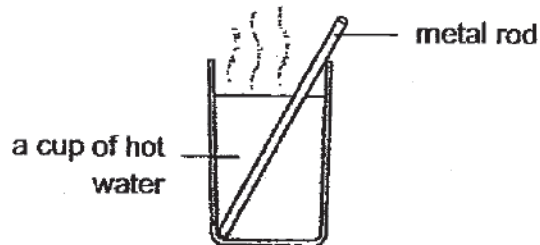
an apple

(4)



a pencil

9. Ronald places a metal rod in a cup of hot water.



The metal rod becomes hotter after a while. Which one of the following explains this?

- (1) The cup loses heat to the hot water.
- (2) The rod loses heat to the hot water.
- (3) The hot water gains heat from the rod.
- (4) The rod gains heat from the hot water.

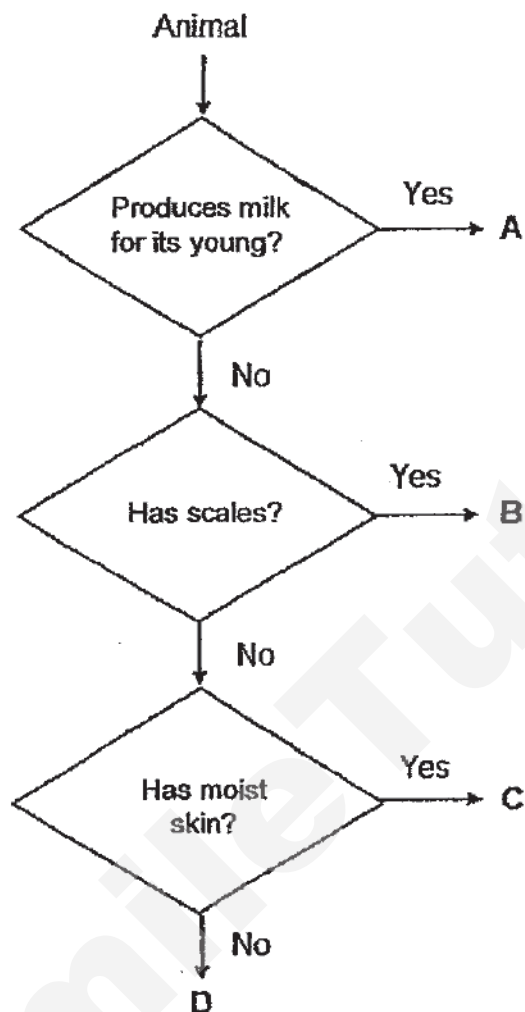
10. The diagram shows a magnet brought near a glass block.



What will happen to the glass block?

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

11. Study the flow chart below.



Which one of the following best represents A, B, C and D?

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

12. Devi wanted to find out if moisture is needed for bread mould to grow. The table below shows the information of the two set-ups prepared by Devi.

Condition	Set-up A	Set-up B
Type of bread	white bread	wholemeal bread
Amount of water poured on bread	0ml	5ml
Location where the set-up was placed	on dining table	on dining table
Type of plastic bag	allows light to pass through	allows light to pass through

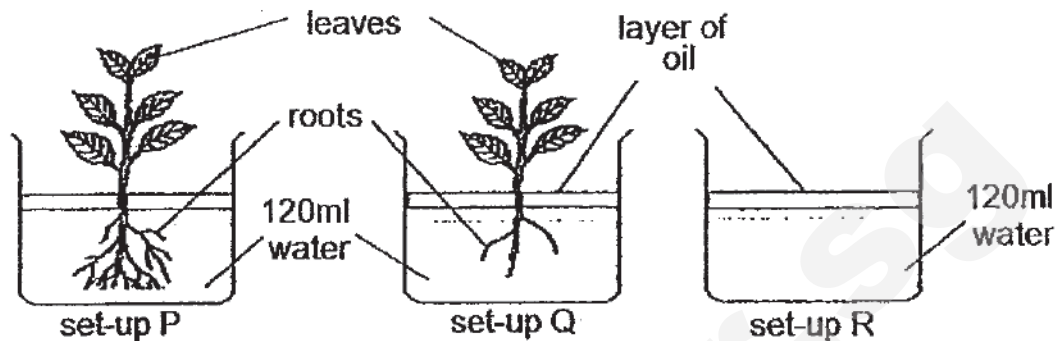
Her teacher told her that her experiment was unfair. Which of the following best explains why Devi's experiment was unfair?

- (1) Water was not added to set-up A.
- (2) The type of bread used in both set-ups was different.
- (3) The type of plastic bag in both set-ups was the same.
- (4) Both set-ups were placed in the same place.

13. Which of the following body systems matches its function?

	Systems	Functions
(1)	Skeletal	breaks down food into simpler substances
(2)	Digestive	helps different parts of the body move
(3)	Respiratory	supports the body
(4)	Circulatory	carries substances to all parts of the body

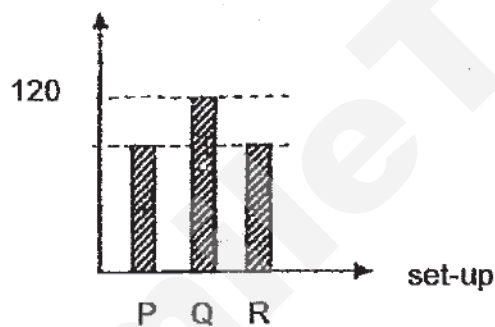
14. Jack set up the experiment as shown below.



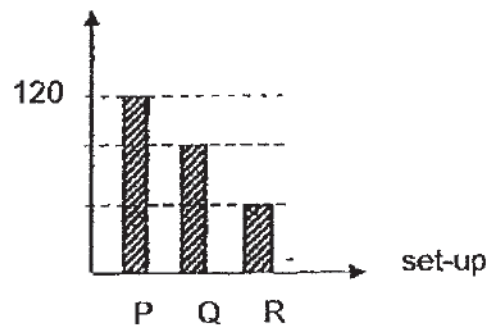
He left the set-ups near a window for three days.

Which one of the following graphs most likely shows the amount of water left in each set-up after three days?

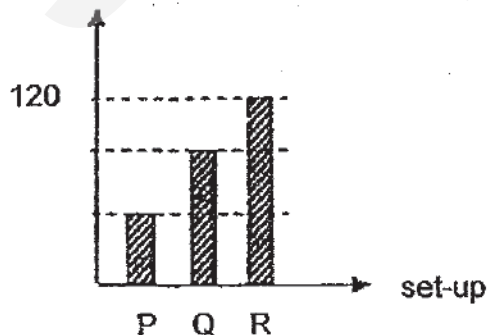
(1) amount of water left (ml)



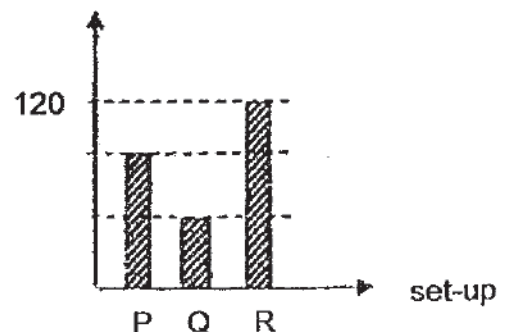
(2) amount of water left (ml)



(3) amount of water left (ml)

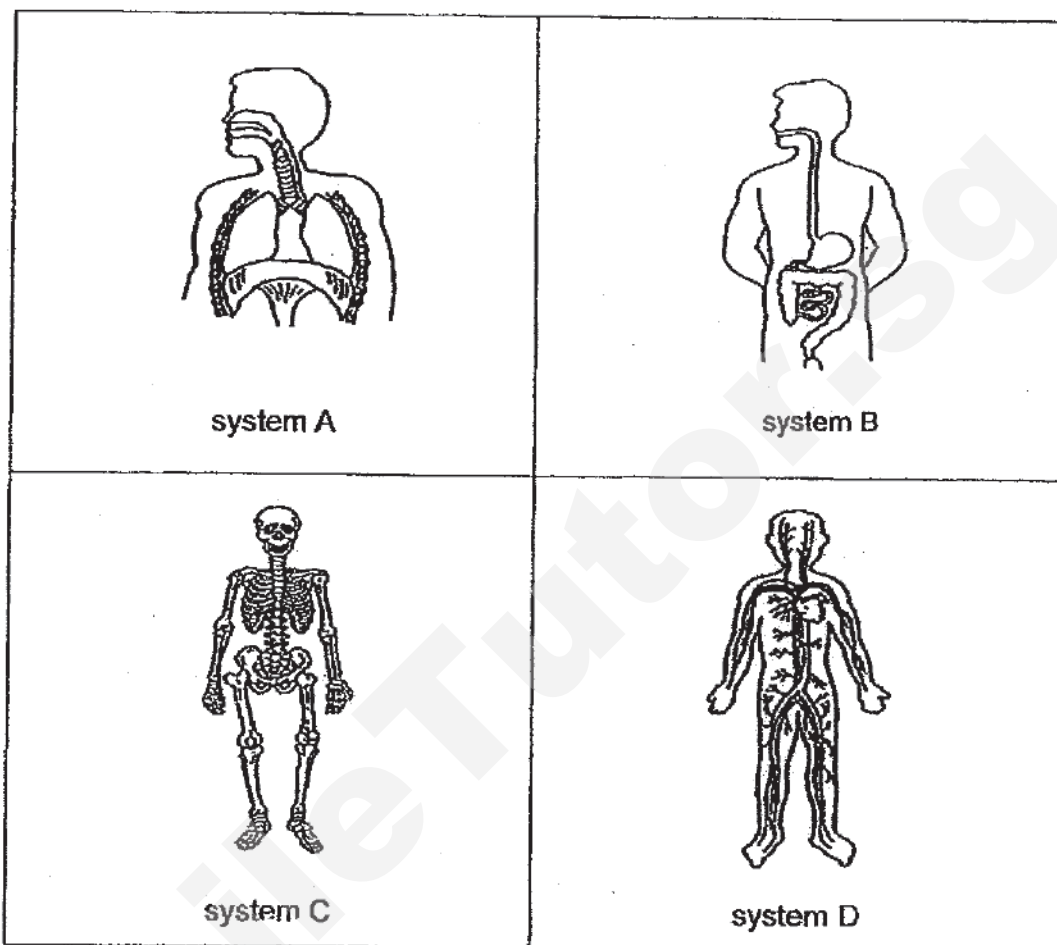


(4) amount of water left (ml)





15. Study the human systems below.



Which two human systems work together to enable all parts of the body to get digested food?

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

16. How is an adult mosquito and its young similar?

A: They have six legs.

B: They have a pair of wings.

C: The young looks like the adult.

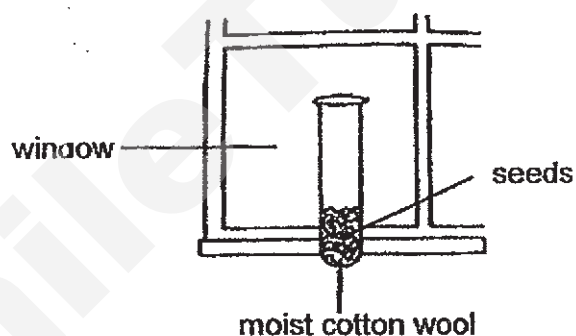
(1) A only

(2) A and B only

(3) B and C only

(4) A, B and C

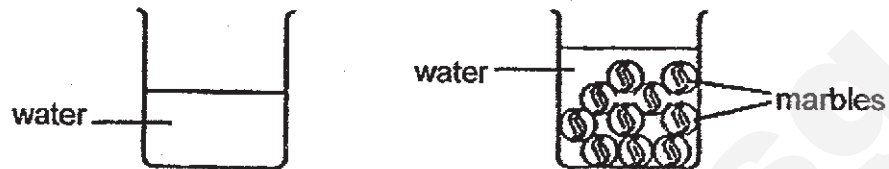
17. Rebecca sets up an experiment to find out if **warmth** is needed for seeds to germinate. She puts five seeds onto some moist cotton wool in a test tube and places the test tube near a window in a room.



Which one of the following should she use as the control set-up to prove that it is the presence of warmth that causes the seed to germinate?

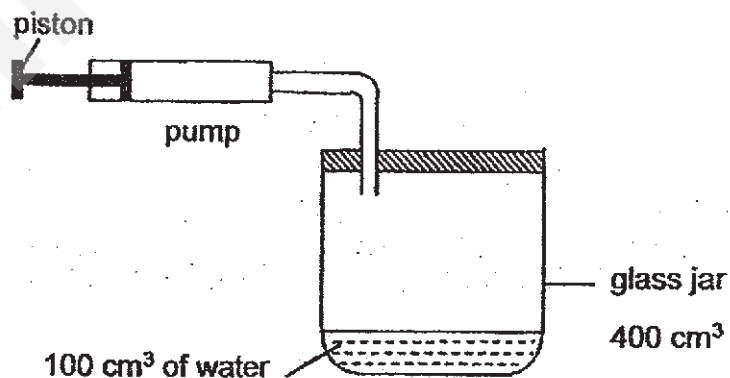
	Number of seeds	Condition of cotton wool	Location of test tube
(1)	5	dry	near window
(2)	5	dry	dark room
(3)	3	moist	refrigerator
(4)	5	moist	refrigerator

18. Salmah filled a beaker with water as shown below. She then placed some marbles into the water one at a time. She observed that the water level in the beaker increased.



Which one of the following could she conclude from her experiment?

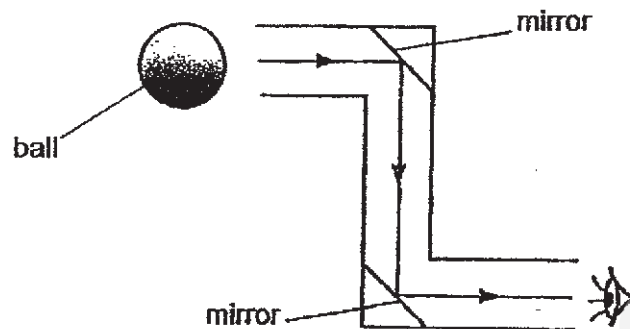
- (1) Marbles have mass.
  - (2) Water has a fixed shape.
  - (3) Marbles occupy space.
  - (4) Water has no fixed volume.
19. Aminah had a glass jar with a capacity of  $400 \text{ cm}^3$ . She fitted a pump to the jar. When the piston is completely pushed in,  $50 \text{ cm}^3$  of air is pumped into the jar.



What will be the volume of air in the glass jar when the piston is pushed in?

- (1)  $50 \text{ cm}^3$
- (2)  $300 \text{ cm}^3$
- (3)  $350 \text{ cm}^3$
- (4)  $450 \text{ cm}^3$

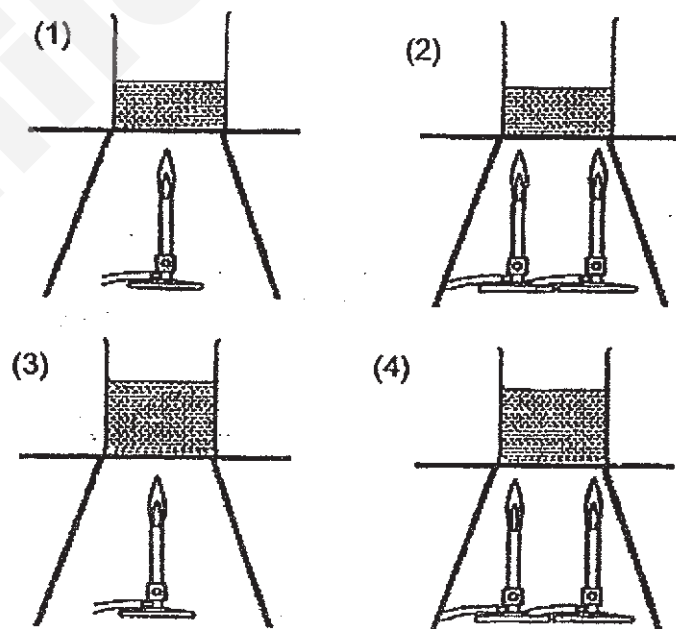
20. The diagram below shows a periscope.



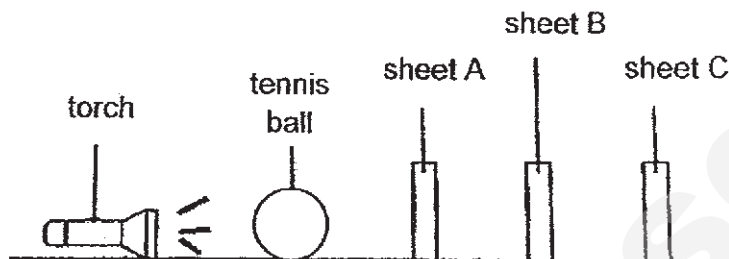
A periscope is an instrument that uses mirrors to allow people to look at things from a different position. Which of the following statements correctly describe why we can see the ball through a periscope?

- (1) The ball is a light source.
- (2) The mirror can reflect light.
- (3) The ball can form a shadow.
- (4) Light does not travel in a straight line.

21. Four beakers with different amounts of water in them are heated using bunsen burners as shown in the diagrams below. In which beaker will the water boil first?



22. Dillon had three sheets, A, B and C, made of different materials. He arranged the three sheets, a torch and a tennis ball in a dark room as shown below.



When Dillon turned the torch on, he saw the shadow of the ball on sheet C only. Which of the following materials are A, B and C likely to be?

	Sheet A	Sheet B	Sheet C
(1)	aluminium foil	clear glass	cardboard
(2)	clear plastic	clear glass	cardboard
(3)	aluminium foil	clear plastic	clear glass
(4)	clear glass	aluminium foil	clear plastic

23. Which of the following statements is/are true about heat and temperature?

A : Heat and temperature are forms of energy.

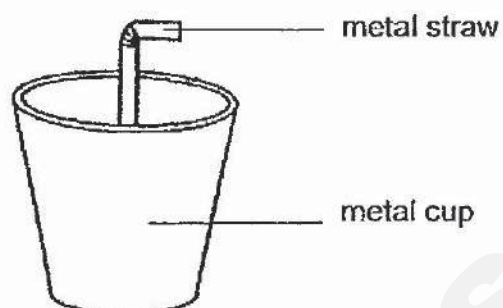
B : Heat flows from a warmer to a cooler place.

C : Temperature of an object decreases when it gains heat.

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



24. Look at the set-up below.



The set-up is placed between a torch and a screen in different positions. Which of the following cannot be a shadow of the set-up?

(1)



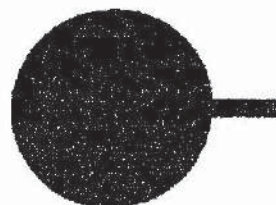
(2)



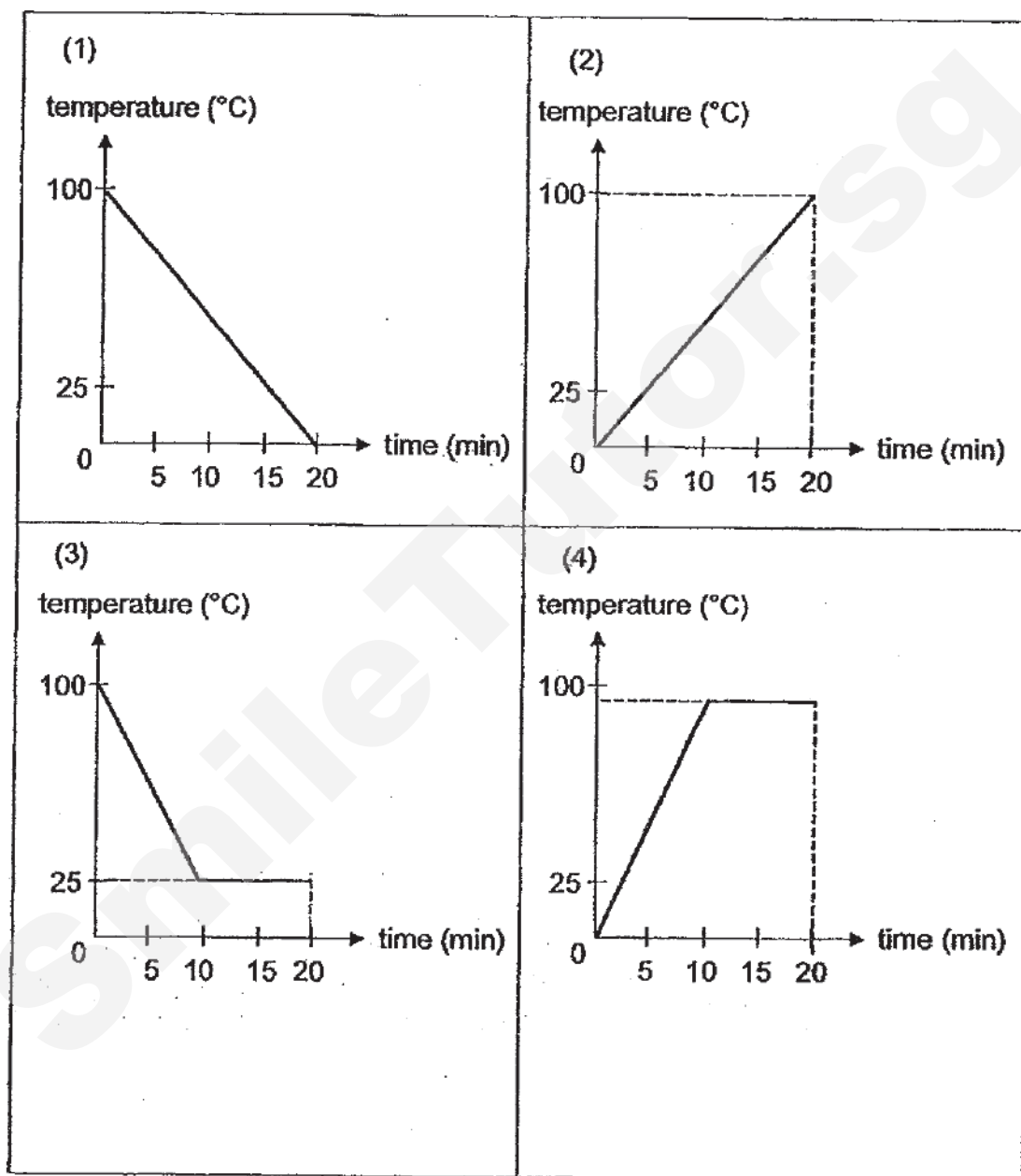
(3)



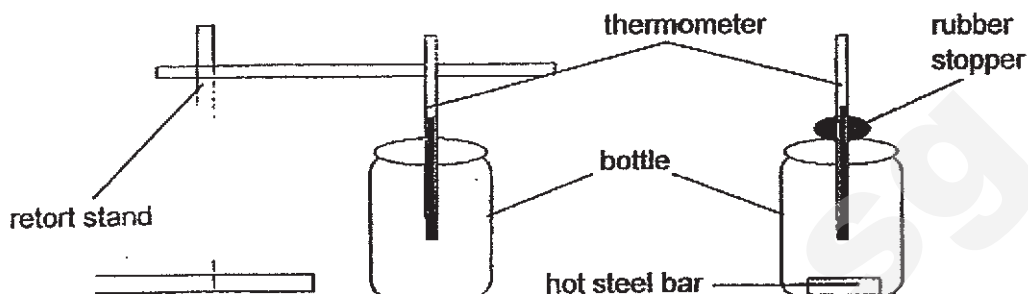
(4)



25. John left some water at  $100^{\circ}\text{C}$  to cool in a room for 20 minutes. Which one of the following graphs shows the likely temperature of the water during the 20 minutes?



26. Kay set up the experiment as shown. He first measured the temperature of the air inside the bottle. Next, he placed a hot steel bar into the bottle and sealed the bottle with a rubber stopper.

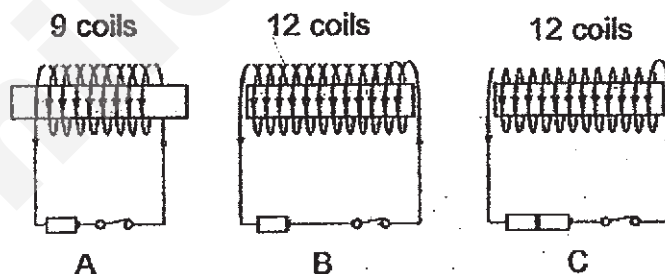


After three minutes, Kay observed that the temperature of the air in the bottle has increased.

Which of the following correctly explains why the temperature of the air in the bottle rose?

- (1) Air is a good conductor of heat.
- (2) The thermometer is a good conductor of heat.
- (3) The air in the bottle gained heat from the hot steel bar.
- (4) The air in the bottle gained heat from the surrounding air.

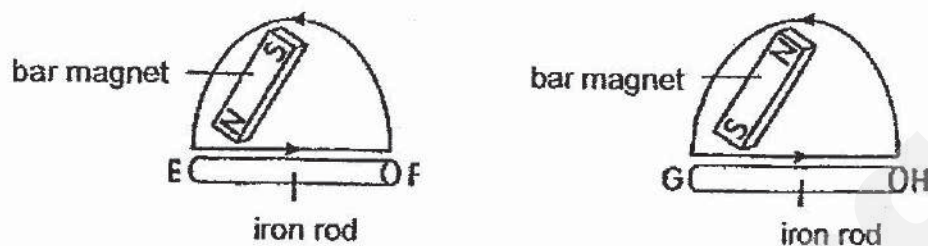
27. Three set-ups were used to magnetise three identical iron rods as shown below.



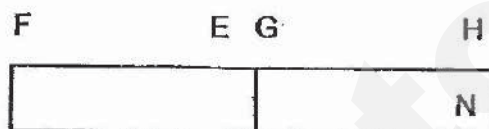
Which of the following shows the possible number of paper clips attracted by the iron rod in each set-up?

	Set-up A	Set-up B	Set-up C
(1)	10	5	3
(2)	5	10	3
(3)	3	5	10
(4)	5	3	10

28. Two iron rods were each stroked with a bar magnet as shown below.



After the iron rods were magnetised, pole E and G of the iron rod attracted each other when both iron rods were placed near each other as shown in the diagram below. Pole H is the North pole.



Which of the following correctly shows the poles at part E, F and G of the iron rods?

	E	F	G
(1)	north pole	south pole	south pole
(2)	north pole	north pole	south pole
(3)	south pole	south pole	north pole
(4)	south pole	north pole	north pole

END OF BOOKLET A

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# RED SWASTIKA SCHOOL

## SCIENCE 2019 SEMESTRAL EXAMINATION 2 PRIMARY 4

Name : \_\_\_\_\_ ( )

Class : Primary 4/ \_\_\_\_\_

Date : 29 October 2019

### BOOKLET B

13 Questions  
44 Marks

In this booklet, you should have the following:

- a. Page 19 to Page 30
- b. Questions 29 to 41

### MARKS

	OBTAINED	POSSIBLE
BOOKLET A		54
BOOKLET B		44
TOTAL		98

Parent's Signature : \_\_\_\_\_

Answer all the questions in the spaces provided

29. Abel observed and grouped some things as shown in the table.

X	Y
elephant	rock
cockroach	cloth
mushroom	table

What are the suitable headings for X and Y? (2m)

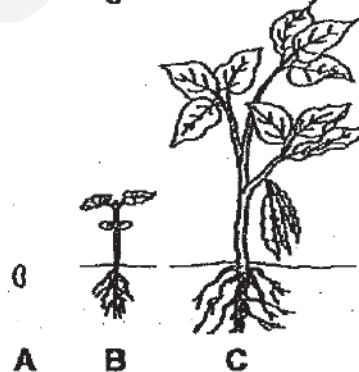
Group X: \_\_\_\_\_

Group Y: \_\_\_\_\_

30. Fill in the correct parts of a plant in the table. (2m)

Functions of plant parts	Plant parts
It holds the plant upright.	
It holds the plant firmly to the ground.	

31. The diagram below shows the stages in the life cycle of a plant.



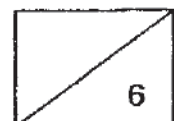
Choose the correct words from the box to answer the question below.

egg	seed	young plant	adult plant
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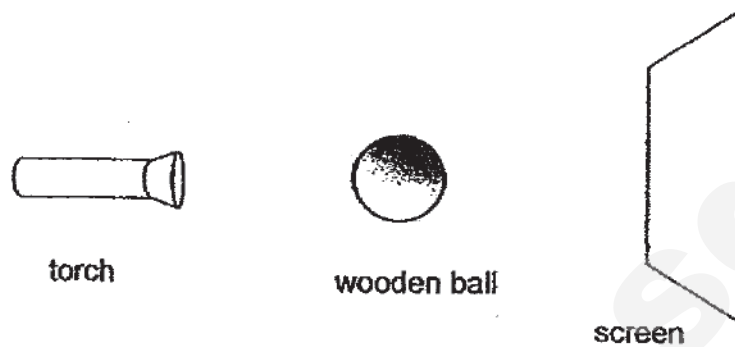
Name the stages A and B in the life cycle of the plant. (2m)

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

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



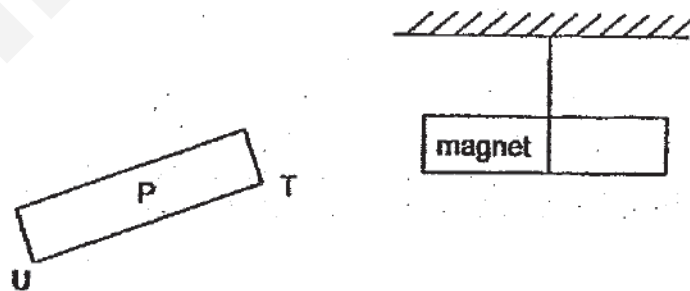
32. Sharul shines a torch on a ball and a shadow is formed on a screen.



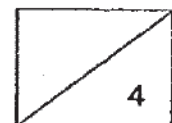
- (a) A shadow is formed when light is \_\_\_\_\_ by an object. (1m)
- (b) Draw the shadow of the wooden ball that is formed on the screen. (1m)



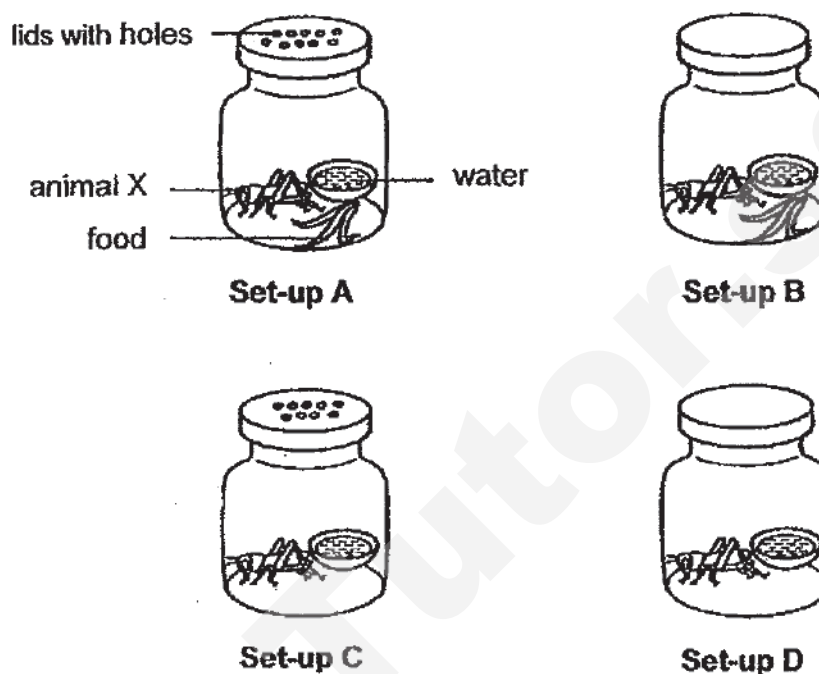
33. When end T of object P is brought near a magnet as shown, the magnet moves away.



- (a) This shows that object P is a \_\_\_\_\_ (1m)
- (b) When end U is brought near to the magnet, it \_\_\_\_\_ the magnet. (1m)



34. Mrs Lee set up the following experiment in the classroom and left the four set-ups untouched for two weeks.



- (a) In which set-up would animal X most likely survive after two weeks? (1m)

\_\_\_\_\_

- (b) Explain your answer in (a). (1m)

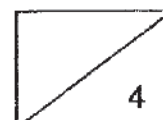
\_\_\_\_\_

\_\_\_\_\_

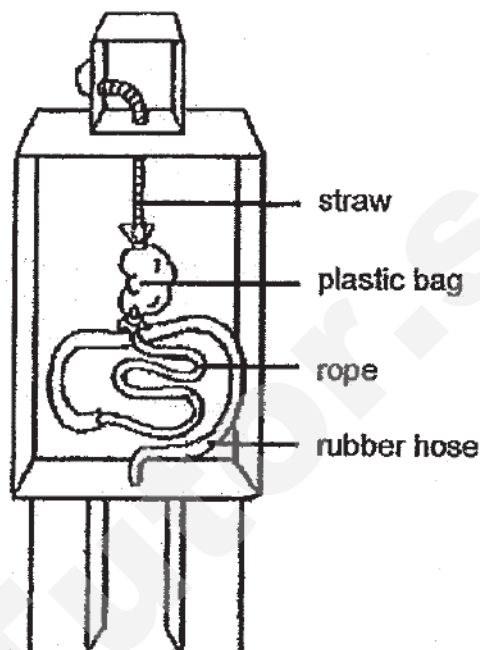
- (c) What are two things that Mrs Lee can do to set-up D so that animal X can survive longer? (2m)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_



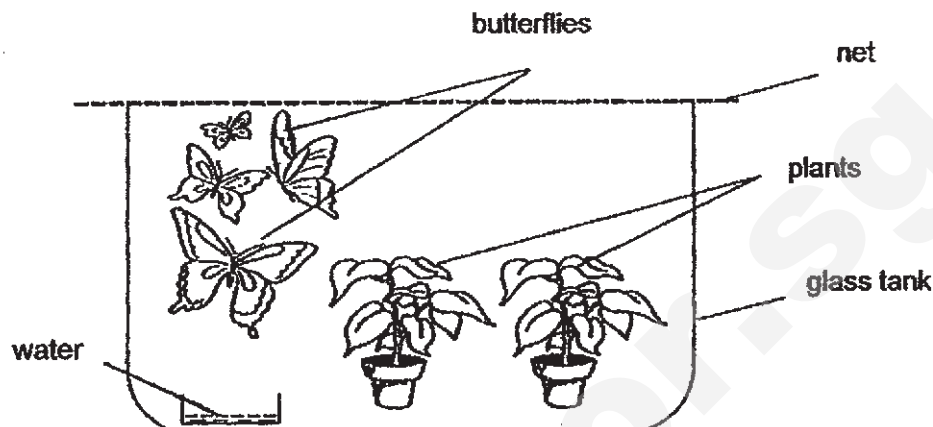
35. For the Science Carnival, Fatimah created a model of a human body system out of scrap materials as shown in the diagram below.



- (a) Which body system did she make? (1m)
- \_\_\_\_\_
- (b) Based on the answer in part (a), which organs in the system do the straw and rope shown in the diagram represent? (2m)
- Straw: \_\_\_\_\_
- Rope: \_\_\_\_\_
- (c) Describe what takes place in the organ represented by the rubber hose. (1m)
- \_\_\_\_\_
- \_\_\_\_\_



36. Tim kept some butterflies and plants in a glass tank. He covered the tank with a net. No new organisms were added to the tank.

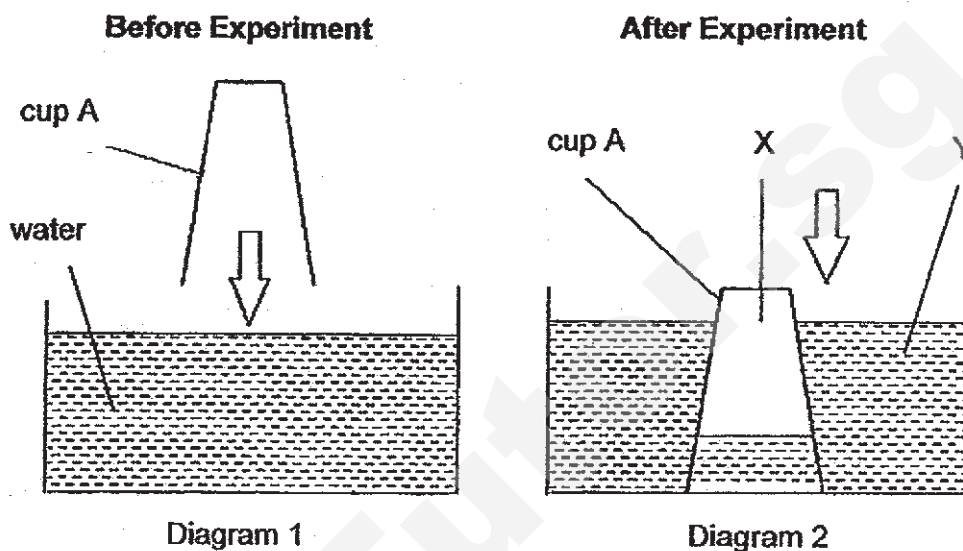


He observed what happened inside the tank for two weeks and recorded his observations in the table below.

Duration	Observations
Day 1	There were many tiny eggs on the underside of the leaves.
Day 5	The eggs hatched into green organisms, which started eating the leaves. They were growing in size.
Day 9	The green organisms stopped moving and eating. A brown covering grew over each organism.
Day 13	The number of butterflies in the tank increased.

- (a) Name the stage of the life cycle which the green organisms are in. (1m)
- (b) If Tim removes only the plants in day 5, but left the green organisms in the tank, what would happen to the number of green organisms after some time? Give a reason for your answer. (2m)
- (c) Why were there more butterflies on day 13? (1m)

37. Brandon pushed cup A into a basin of water as shown in diagram 1. He found it difficult to push the cup into the water. At the end of the experiment, the cup was pushed into the water as shown in diagram 2.



- (a) Based on diagram 2, identify the state of matter for part X and part Y. (2m)

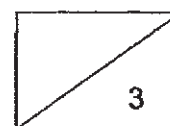
X: \_\_\_\_\_

Y: \_\_\_\_\_

- (b) Explain why only a little water entered cup A as shown in diagram 2. (1m)

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37. Brandon then poked a hole on the base of cup A and pushed it into the basin of water again. He realised that the water was able to fill up more of the cup as shown in diagram 3 below.

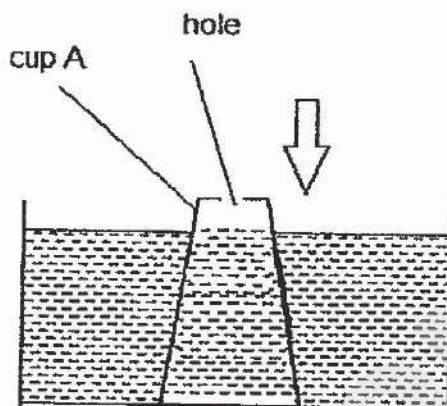
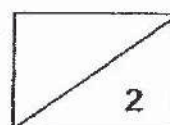


Diagram 3

- (c) Explain why Brandon was able to fill cup A with more water as shown in diagram 3. (2m)

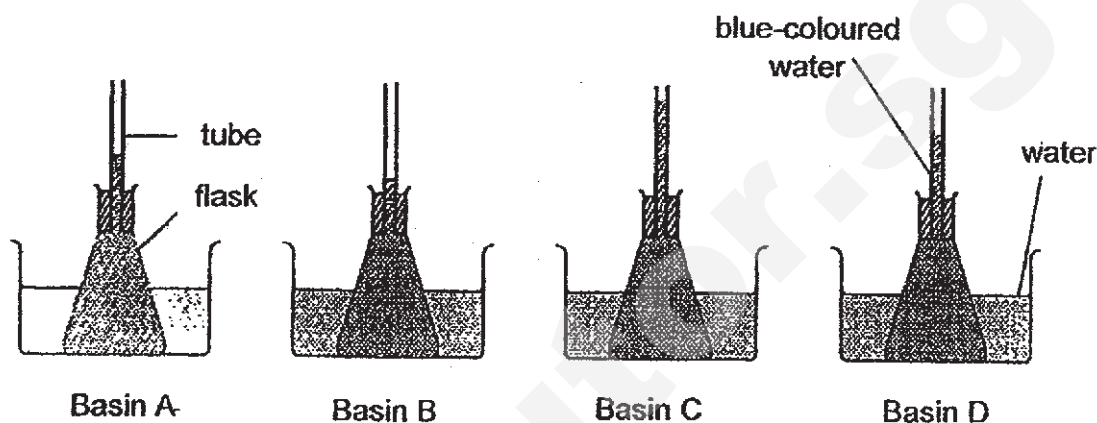
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38. Study the experiment shown. The flasks were each filled with an equal amount of blue-coloured water. The flasks were placed into four different basins at the same time for 10 minutes. The basins contain water of different temperatures, ranging from 40°C to 80°C.

The diagram below shows the set-up and the levels to which the water rose in the tubes at the end of 10 minutes.



- (a) Which basin, A, B, C or D, contained water at the highest temperature of 80°C? (1m)

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- (b) Explain the answer for part (a). (2m)

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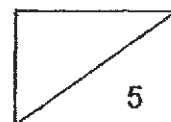
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- (c) A student wants to make the water level in the tube for basin B rise higher. To achieve his aim, what can the student do to the water in the basin? (1m)

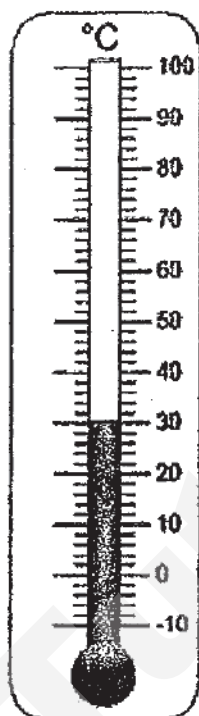
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- (d) At the end of one day, what will happen to the temperature of water in all the basins? (1m)

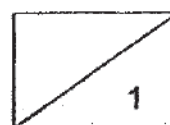
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39. Observe the thermometer below carefully. Write the temperature in the box below. (1m)

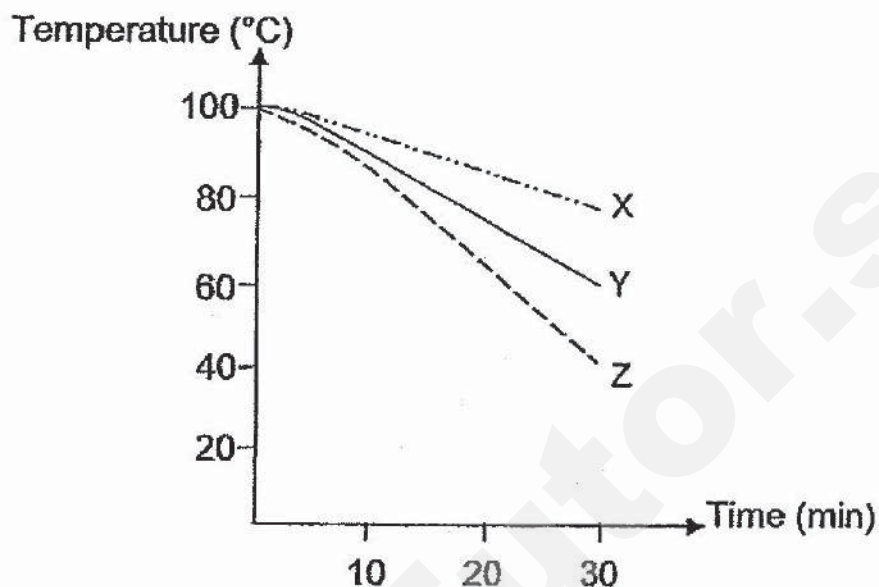


(a)





39. Three containers made of different materials, X, Y and Z, were filled with boiling water and left on a table for 30 minutes. The graph shows the change in the water temperature inside each container over time.



- (b) Based on the graph, arrange the following materials, X, Y and Z from the best conductor of heat to the poorest conductor of heat. (1m)

,

,

best conductor
poorest conductor

- (c) Based on the graph, which material X, Y or Z, is most suitable for making a container to prevent ice-cream from melting quickly? (1m)

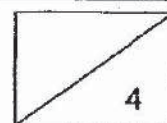
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- (d) Explain the answer in part (c). (2m)

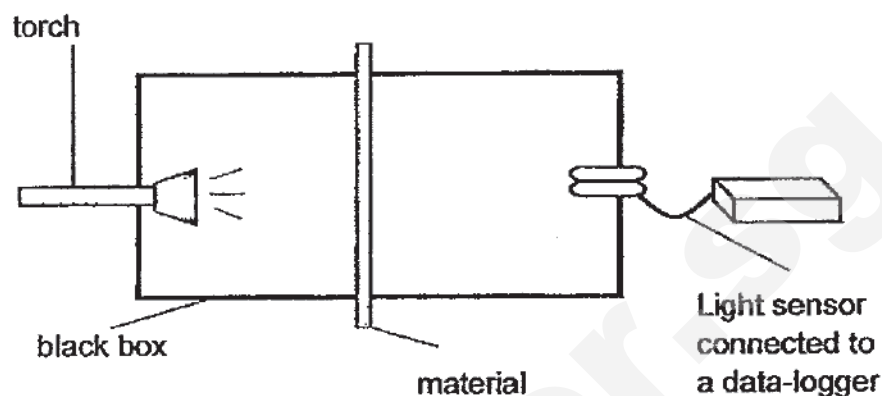
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40. Hera conducted an experiment as shown below. She placed three different materials, A, B and C in between a lit torch and a data logger one at a time.



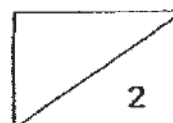
Using a light sensor, she measured the amount of light that could pass through the material and recorded the results in the table below.

	Amount of light that passed through each material (units of light)
Material A	695
Material B	0
Material C	315

- (a) Based on the results, classify materials, A, B and C, under the appropriate headings below. (1m)

Allows most light to pass through	Allows some light to pass through	Does not allow light to pass through

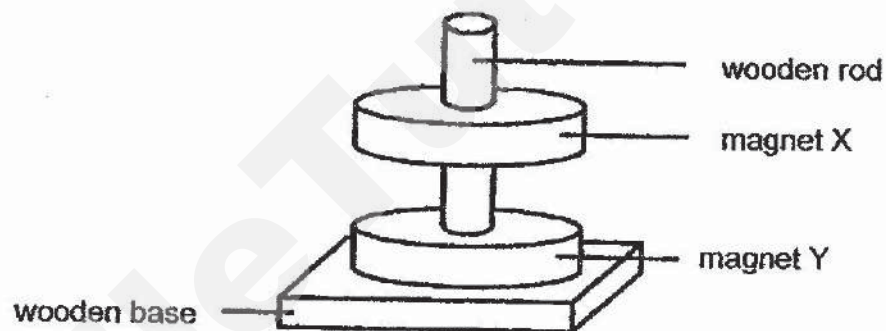
- (b) Based on the table, which material, A, B or C, most likely represents cardboard? (1m)



40(c) Which material, A, B or C, is most suitable to make a pair of sunglasses used to protect our eyes from the sunlight? (1m)

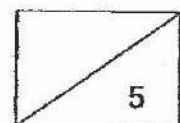
(d) Explain your answer for part (c). (2m)

41. Joel set up an experiment as shown below. He made magnet X float above magnet Y.



Explain how Joel made magnet X float above magnet Y. (2m)

END OF BOOKLET B  
PLEASE CHECK YOUR ANSWER



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SCHOOL : RED SWASTIKA PRIMARY SCHOOL

LEVEL : PRIMARY 4

SUBJECT : SCIENCE

TERM : 2019 SA2


**SECTION A**

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
3	1	4	3	2	3	2	2	4	1

Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
1	2	4	3	4	1	4	3	3	2

Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28
2	2	2	4	3	3	3	1

**SECTION B**

Q29)	Group X : living things Group Y : Non living things
Q30)	stem roots
Q31)	A: seed    B: young
Q32)	a) blocked b) 



Q33)	<p>a)magnet</p> <p>b)attracts</p>
Q34)	<p>a)X in A will most likely survive after two weeks</p> <p>b)All living things need air, food and water to survive and only set up A has all three tings.</p> <p>c)i)Poke holes in the lid</p> <p>ii)Add food.</p>
Q35)	<p>a)Digestive system</p> <p>b)Straw : gullet</p> <p>Rope : small intestine</p> <p>c)Water from undigested food is absorbed.</p>
Q36)	<p>a)larva</p> <p>b)The number will decrease, there no food for the green organisms.</p> <p>c)The green organisms were larvae then they turned into pupae, and the green organisms became butterflies.</p>
Q37)	<p>a)X: gas</p> <p>Y: liquid</p> <p>b)Air took up space in the cup and prevented water from entering the cup.</p> <p>c)Air in the cup escaped. The water occupied space previously occupies by the cup.</p>
Q38)	<p>a)C.</p> <p>b)The blue-coloured water gains the most heat and expanded the most.</p> <p>c)Pour hotter water into basin B.</p> <p>d)The water will drop room temperature.</p>

Q39)	<p>a)30°C</p> <p>b)Z , Y , X</p> <p>c)X</p> <p>d)X is the poorest conductor of heat so it gained heat from the surroundings the slowest, preventing the ice-cream from melting quickly.</p>
Q40)	<p>a)A , C , B</p> <p>b)B</p> <p>c)C</p> <p>d)C allows the user to see clearly at the same time, prevents the least sunlight to enter our eyes.</p>
Q41)	<p>Joel placed the like poles of magnet X and Y face each other Thus, like poles will repel and this allows magnet X to float above magnet.</p>

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**RAFFLES GIRLS' PRIMARY SCHOOL**  
**SEMESTRAL ASSESSMENT (2)**  
**2019**

Section A	50
Section B	40
Your score out of 100%	
Parent's signature	

Name : \_\_\_\_\_ Index No.: \_\_\_\_\_ Class: P4 \_\_\_\_\_ Date: \_\_\_\_\_

**30 October 2019**

**SCIENCE**

**ATT: 1 h 30 min**

**SECTION A (25 x 2 marks)**

For each question from 1 to 25, 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 (OAS) provided.

1. Which of the following is a living thing?



(1)



(2)



(3)



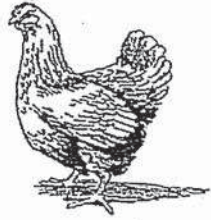
(4)

SmileTutor.sg



2. Which of the animals shown below is **NOT** a bird?

(1)



(2)



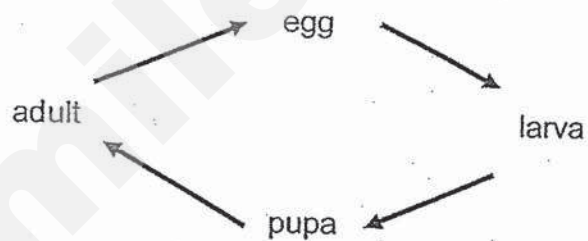
(3)



(4)



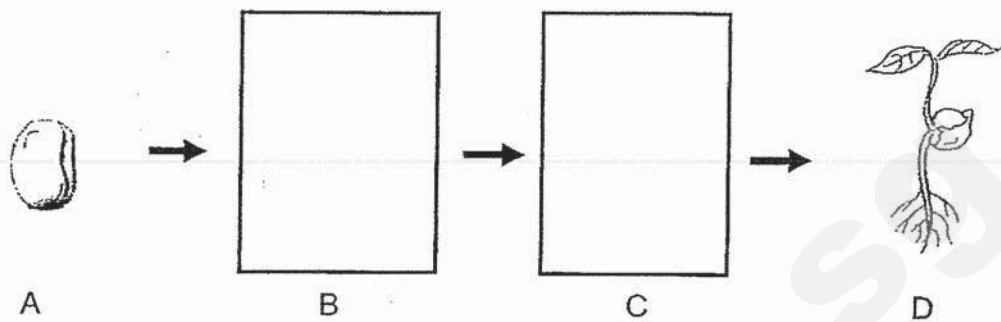
3. The diagram below shows the different stages in the life cycle of an animal.



Which animal is likely to have the life cycle as shown above?

- (1) frog
- (2) butterfly
- (3) cockroach
- (4) grasshopper

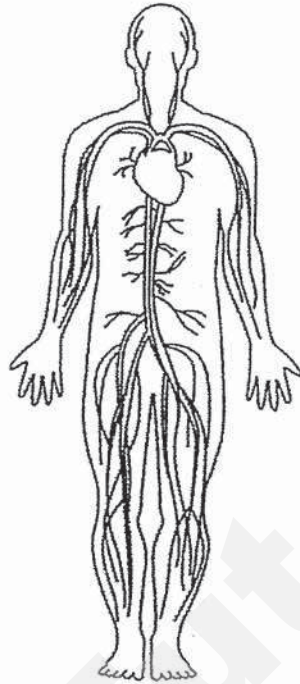
4. The diagram below shows the growth of a plant with two missing stages, B and C.



Which of the following shows the correct stages for B and C?

	B	C
(1)		
(2)		
(3)		
(4)		

5. Which organ system is shown in the diagram?



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

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

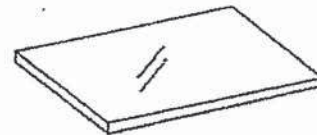
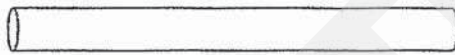
(1) A metal spoon

(2) A cotton T-shirt



(3) A wooden rod

(4) A sheet of glass



7. Which of the following properties is true for both air and a pen?

- (1) They can be seen.
- (2) They occupy space.
- (3) They can be compressed.
- (4) They have fixed volumes.

8. Which of the following is a source of light?

(1)



the moon

(2)



an apple

(3)



fire

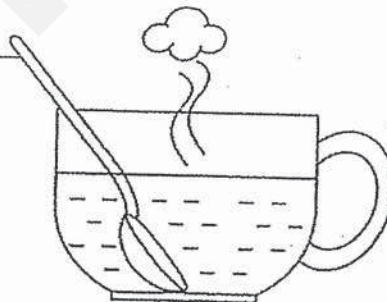
(4)



an ant

9. Jane places a metal spoon in a cup of hot tea.

metal  
spoon



a cup of hot tea

The spoon becomes hotter after a while.

Which of the following explains this?

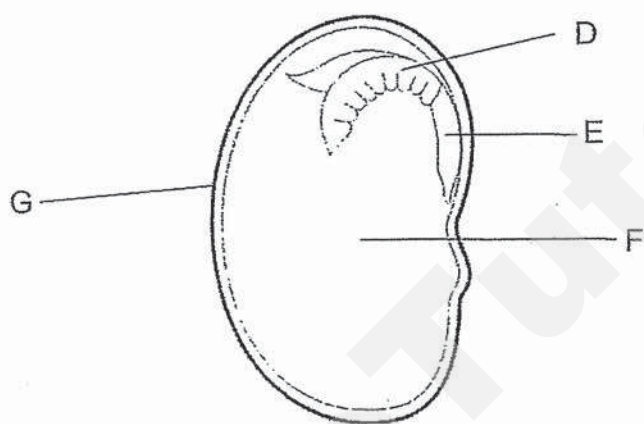
- (1) The cup loses heat to the hot tea.
- (2) The spoon loses heat to the hot tea.
- (3) The hot tea gains heat from the spoon.
- (4) The spoon gains heat from the hot tea.



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

- (1) iron ball
- (2) rubber ball
- (3) plastic ball
- (4) wooden ball

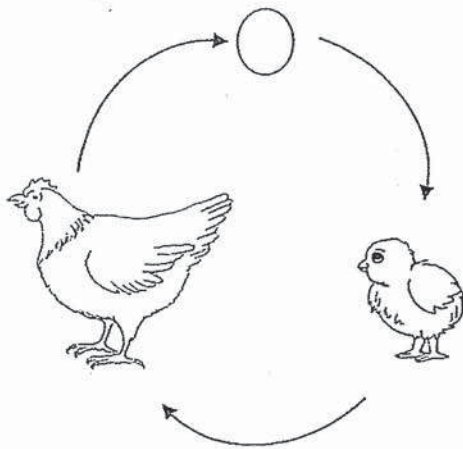
11. The diagram below shows a seed with its labelled parts D, E, F and G.



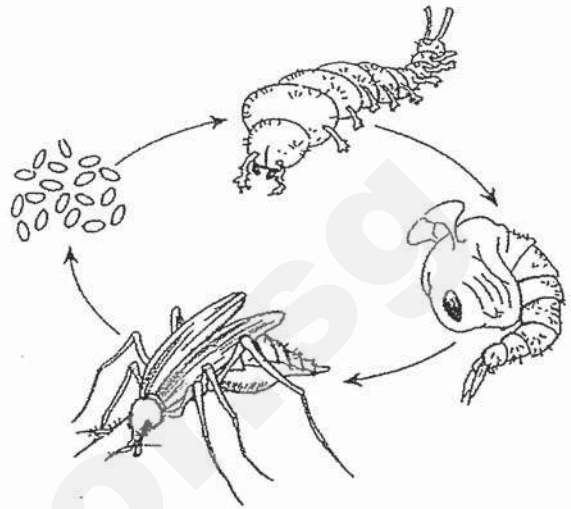
Which part of the seed protects the baby plant?

- (1) D
- (2) E
- (3) F
- (4) G

12. The diagrams below shows the life cycles of animals A and B.



Animal A



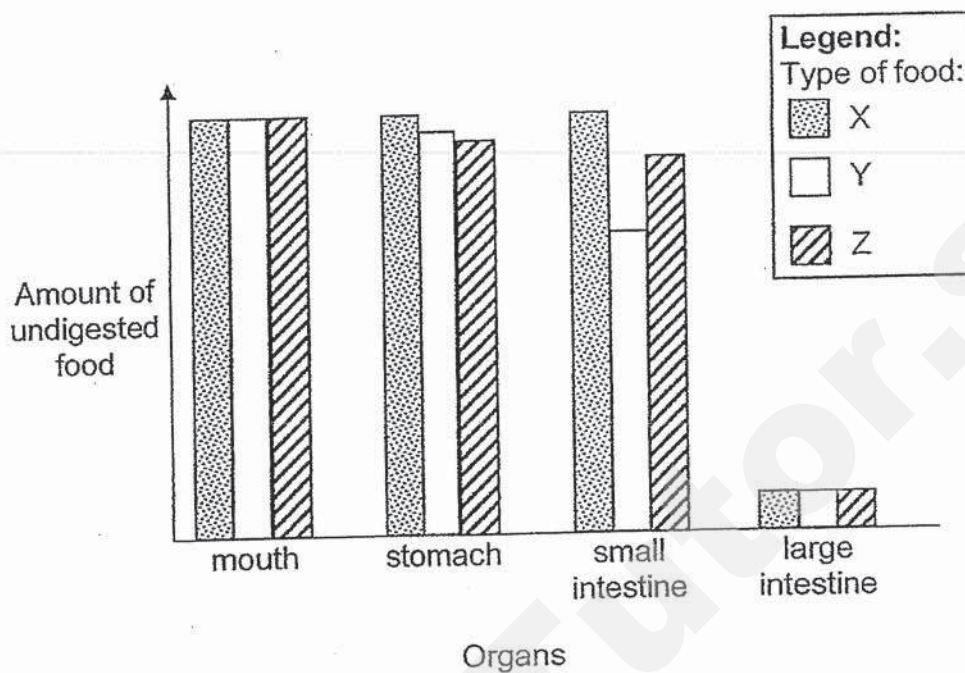
Animal B

Which of the following statements are correct?

- A Both animals lay eggs.
- B Both adults have wings.
- C The young of animal A resembles its parents but not the young of animal B.
- D Animal A has four stages in its life cycle but animal B has three stages in its life cycle.

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

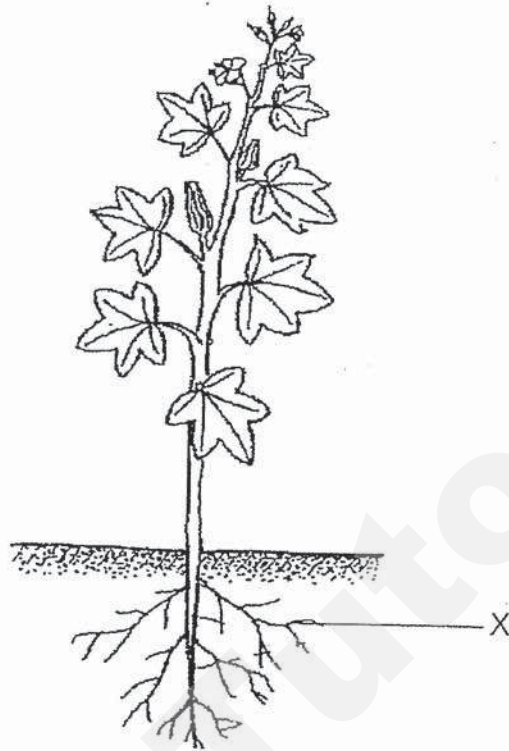
13. The graph below shows the amount of undigested food X, Y and Z as they enter the different organs.



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

- (1) Digestion of food Z starts in the stomach.
- (2) Food Y is digested completely in the stomach.
- (3) Digestion of food Y starts in the small intestine.
- (4) Food X is mostly digested in the small intestine.

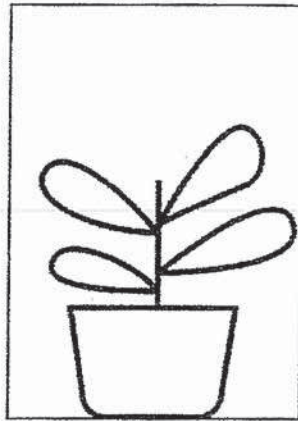
14. The diagram below shows a picture of a plant with one of its parts labelled X.



Which of the following states the function of part X?

- (1) Makes food for the plant.
- (2) Takes in water from the ground.
- (3) Takes in sunlight for the plant to make food.
- (4) Transports food from the leaves to other parts of the plant.

15. Joyce placed a plant in a box as shown in the diagram below.

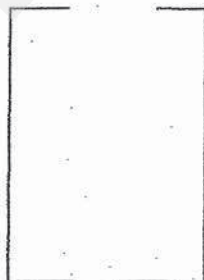


She then made a hole on the box and placed it in the field. She watered the plant daily and observed the plant for two weeks. The diagram below shows the plant after two weeks.

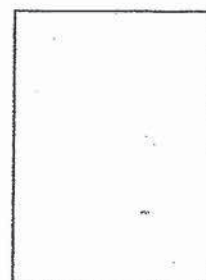


Which of the following boxes shows the correct position of the hole on the box?

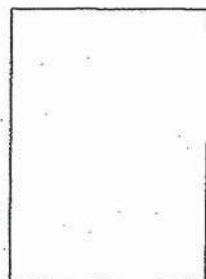
(1)



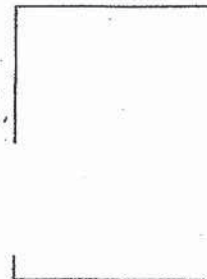
(2)



(3)



(4)





16. Ali moulds a lump of plasticine into a large ball as shown in diagram 1. He then cuts the plasticine ball into four equal parts to mould into four cubes as shown in diagram 2.

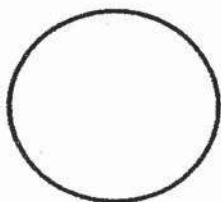


Diagram 1

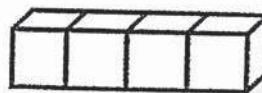
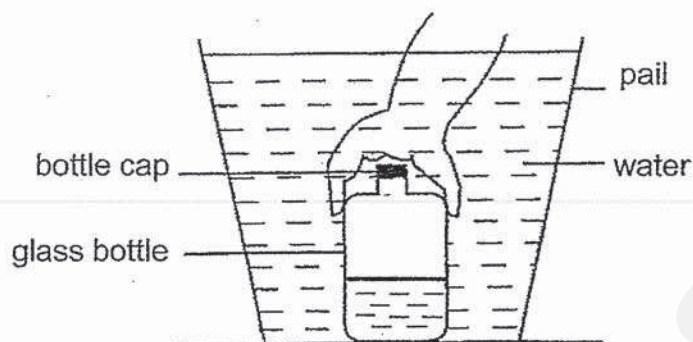


Diagram 2

Based on above observations, which one of the following is true?

	Mass	Volume
(1)	The total mass of the plasticine remains the same.	The total volume of the plasticine remains the same.
(2)	The total mass of the plasticine remains the same.	The total volume of the plasticine decreases.
(3)	The total mass of the plasticine decreases.	The total volume of the plasticine decreases.
(4)	The total mass of the plasticine increases.	The total volume of the plasticine remains the same.

17. Devi placed a glass bottle with its cap inside the pail of water as shown below.

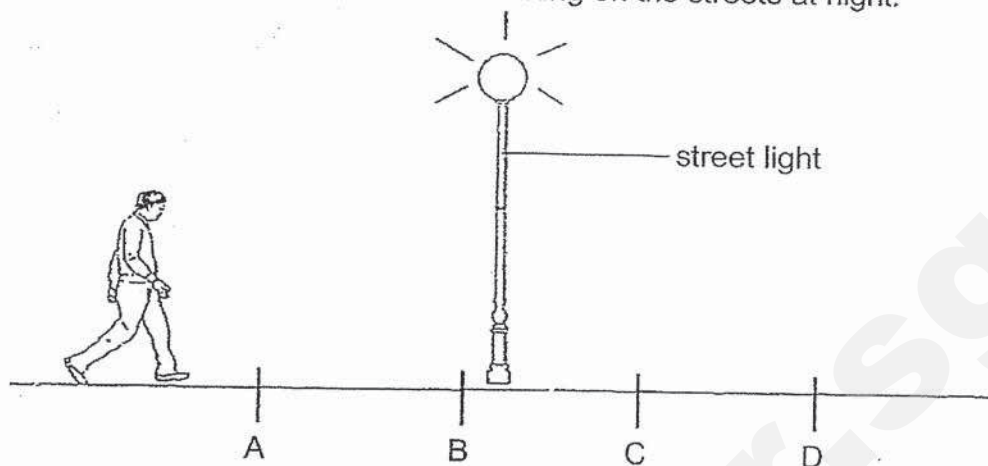


When she unscrewed and removed the cap in the water, which of the following would happen?

- A The water level in the pail would decrease.
- B Bubbles would be formed in the pail of water.
- C The water level in the glass bottle would increase.

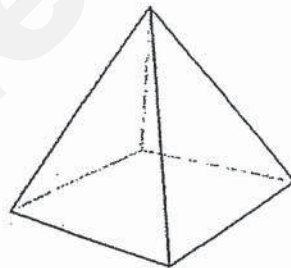
- (1) A only
- (2) B only
- (3) B and C only
- (4) A, B and C

18. The diagram below shows a man walking on the streets at night.



At which of these positions will the shadow of the man be the shortest?

- (1) A
  - (2) B
  - (3) C
  - (4) D
19. Object Z shown below is made of wood.



Which one of the following shadows cannot be made by object Z?

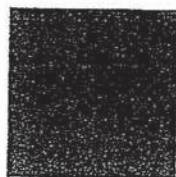
(1)



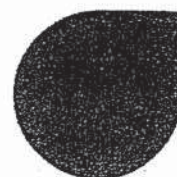
(2)



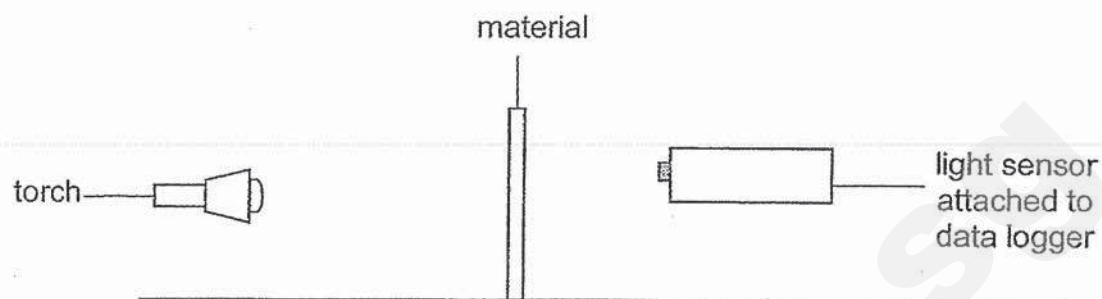
(3)



(4)



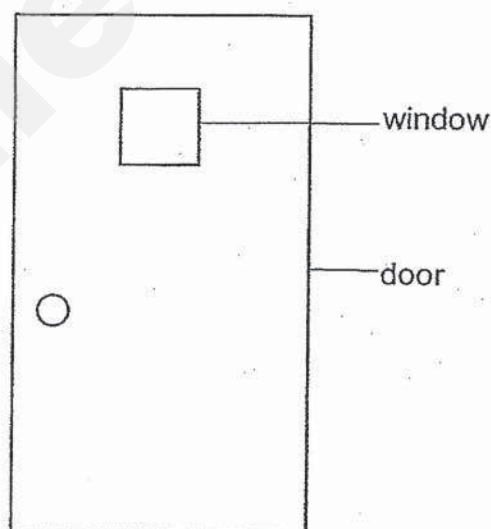
20. Jackson conducted an experiment to find out the amount of light that could pass through four materials P, Q, R and S. The materials were of identical size and thickness.



The table below shows the result of the experiment.

Material	Amount of light that pass through the material (units)
P	0
Q	100
R	250
S	700

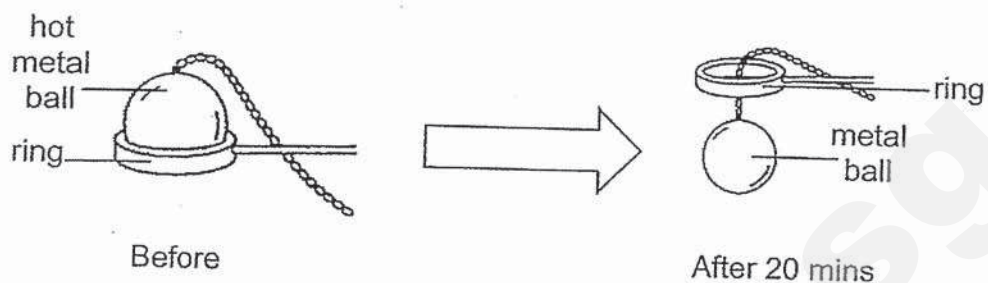
Jackson wanted to make a small window on the door to allow him to see what is in the room clearly as shown in the diagram below.



Which material is the most suitable to make the window shown in the diagram above?

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

21. The diagram below shows a hot metal ball resting on the ring.

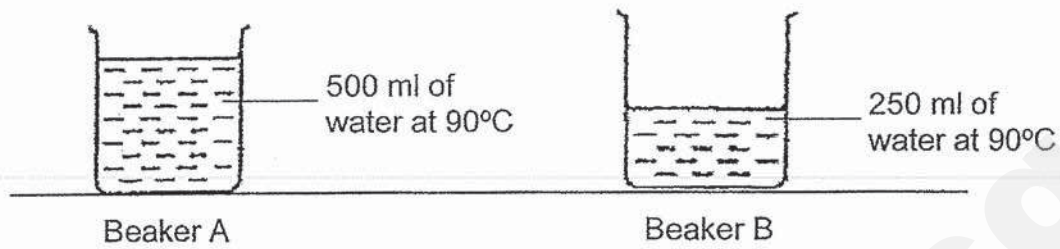


Which one of the following statements explains why the metal ball was able to go through the ring after twenty minutes?

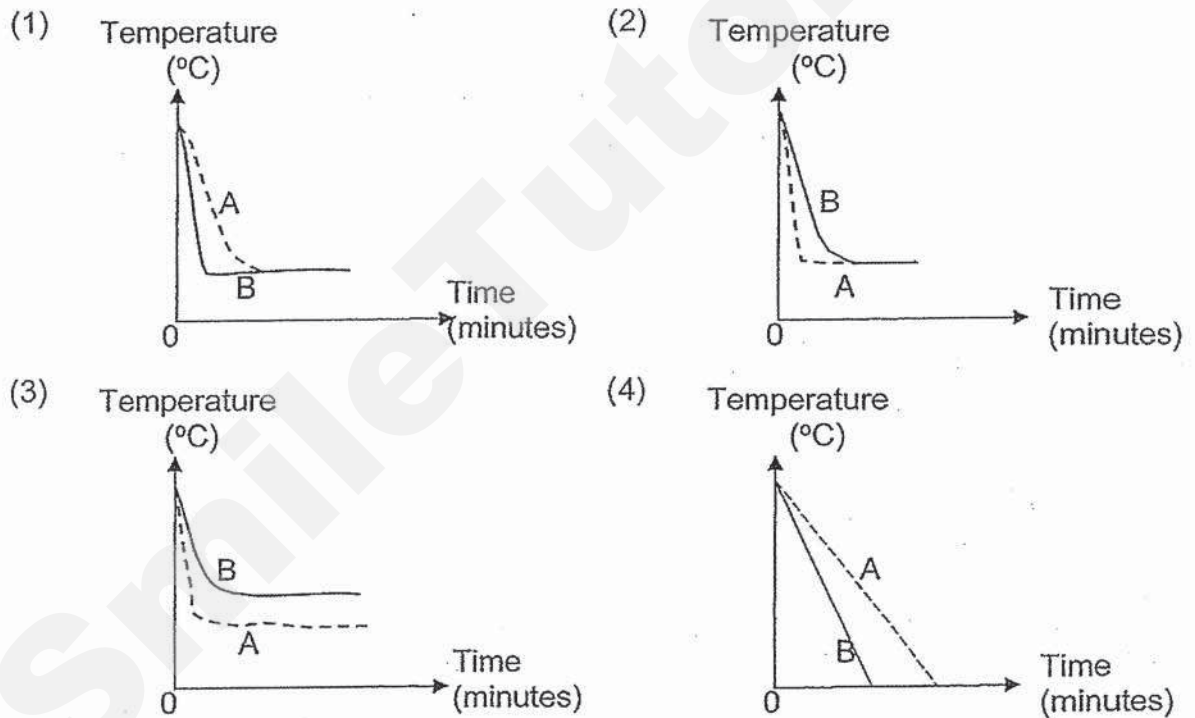
- (1) The ring lost heat to the metal ball and expanded.
- (2) The metal ball lost heat to the ring and contracted.
- (3) The metal ball gained heat from the ring and expanded.
- (4) The ring gained heat from the metal ball and contracted.



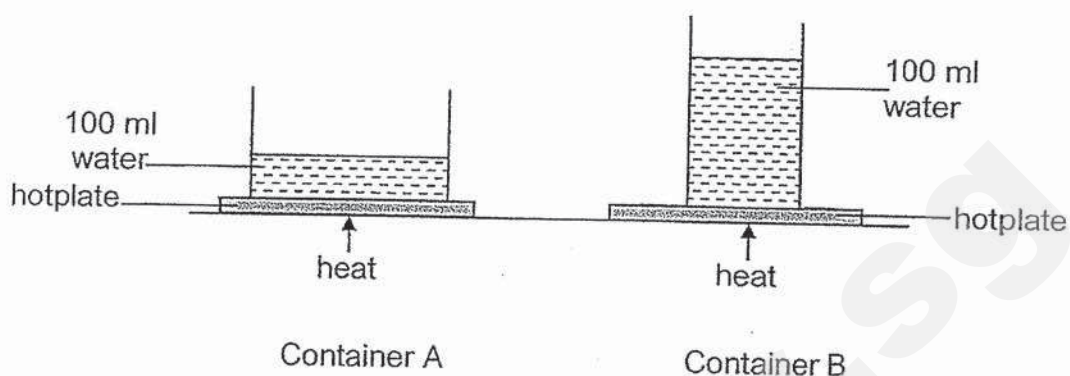
22. Two identical beakers, A and B, were filled with some water of  $90^{\circ}\text{C}$  as shown in the diagram below. They were placed on the table for some time.



Which of the following graphs shows the decrease in temperature of the water in beakers A and B over a period of time correctly?



23. Amy heated 100 ml of water in two different containers, A and B, made of the same material as shown in the diagram below.

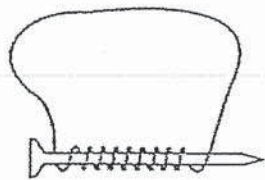


After ten minutes, Amy observed that the water in only one of the containers started boiling.

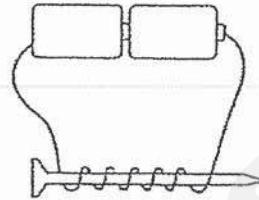
Which of the following provides the correct explanation for her observation?

	Container	Explanation
(1)	A	The container had less surface area in contact with the hotplate. Therefore, water in the container gained heat faster.
(2)	A	The container had more surface area in contact with the hotplate. Therefore, water in the container gained heat faster.
(3)	B	The container had less surface area in contact with the hotplate. Therefore, water in the container gained heat faster.
(4)	B	The container had more surface area in contact with the hotplate. Therefore, water in the container gained heat faster.

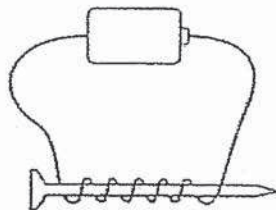
24. Jenny wanted to carry out an experiment to find out whether the number of turns of the coils would affect the strength of a magnet. She prepared four different set-ups as shown below. For each set-up, she tested the strength of the magnet by counting the number of steel paper clips it could attract.



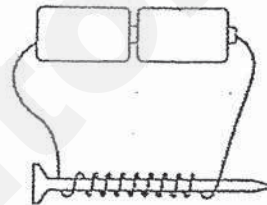
Set-up R



Set-up S



Set-up T

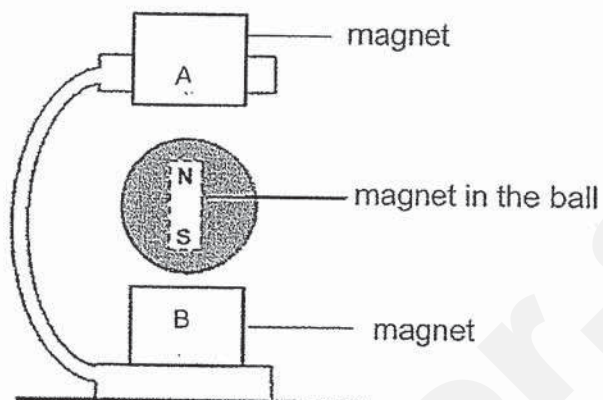


Set-up U

Which two set-ups above should she use to conduct a fair test?

- (1) R and U
- (2) S and T
- (3) S and U
- (4) T and U

25. The diagram below shows a toy that makes use of magnets. It has a ball containing a magnet floating in between poles A and B of the two magnets respectively.

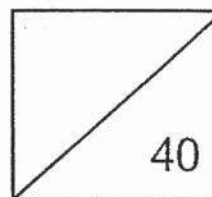


Based on the information above, which one of the following represents the poles of the magnets at A and B?

	A	B
(1)	North	North
(2)	South	North
(3)	North	South
(4)	South	South



Name : \_\_\_\_\_ Index No: \_\_\_\_\_ Class: P4 \_\_\_\_\_



**SECTION B (40 marks)**

For questions 26 to 37, write your answers clearly in the spaces provided.  
The number of marks available is shown in brackets [ ] at the end of each question or part question.

26. Draw lines to match the two organ systems to their functions. [2]

**organs systems**

skeletal system •

respiratory system •

**functions**

• takes air into and out of the body

• transports digested food, water and oxygen to all parts of the body

• supports our body and gives it shape

27. (a) Fill in the correct parts of a plant in the table. [2]

Functions of plant parts	Plant parts
It holds the plant upright.	
It makes food for the plant.	

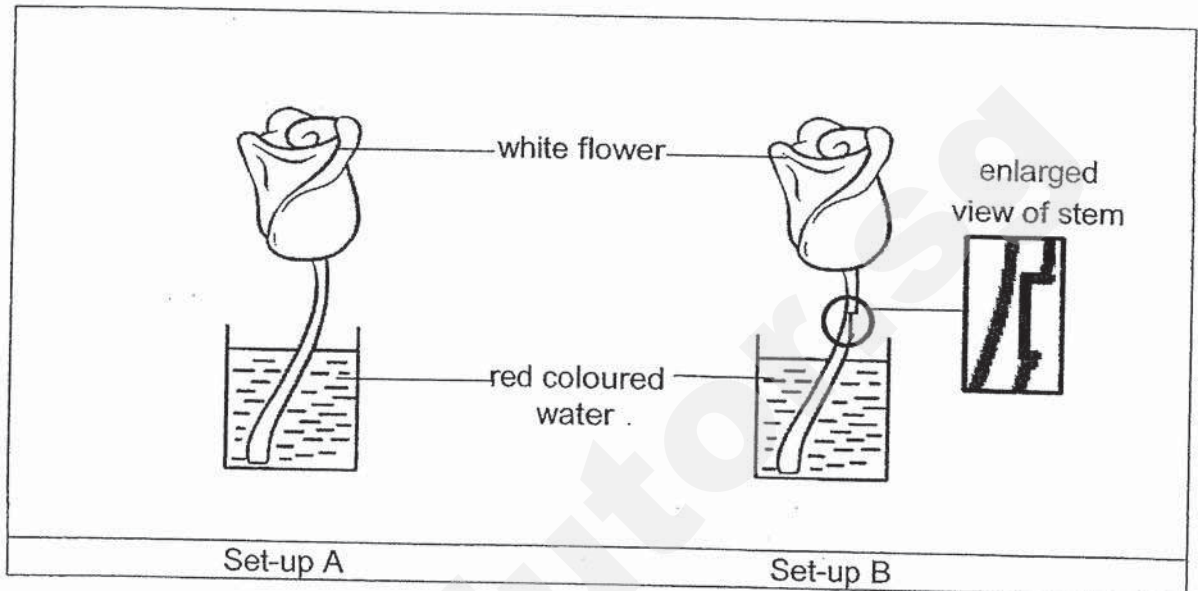
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Score	
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Ann had two identical stalks of white flowers. She made a cut on the stalk of the flower in set-up B and left the two stalks of flower in identical beakers for three days as shown in the diagram below.



Ann noticed that the flowers in both set-ups were stained red.

(b) Explain why the flowers were stained red.

[1]

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(c) Ann observed that one of the flowers was a lighter shade of red as compared to the other flower.

In which set-up did the flower show a lighter shade of red?  
Explain your answer

[2]

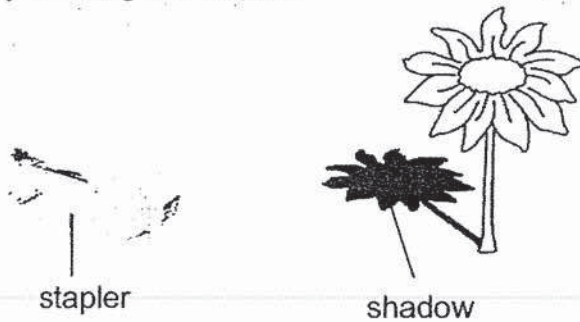
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Score	3
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28. Study the diagrams below.

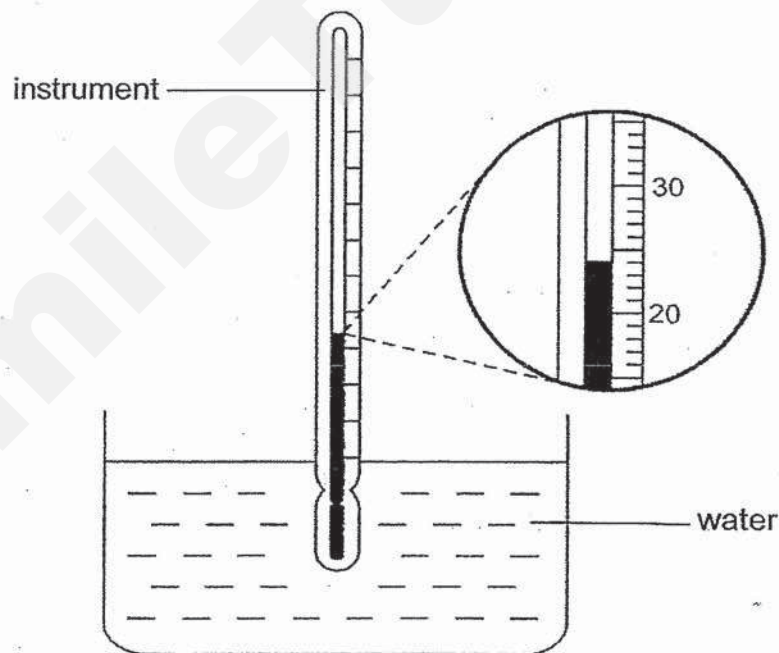


Circle the correct answer.

(a) A stapler ( is / is not ) a matter as it ( has / does not have ) mass. [1]

(b) A shadow ( is / is not ) a matter as it ( occupies / does not occupy ) space. [1]

29. Alice used an instrument to measure the temperature of water in a glass.



(a) What is the instrument called? [1]

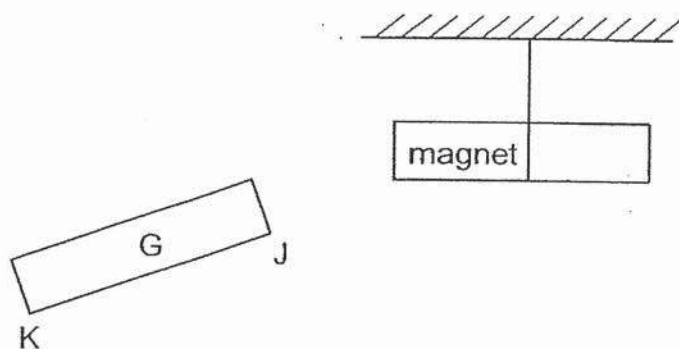
\_\_\_\_\_

(b) What is the temperature of the water in the glass? [1]

\_\_\_\_\_ °C

Score	4
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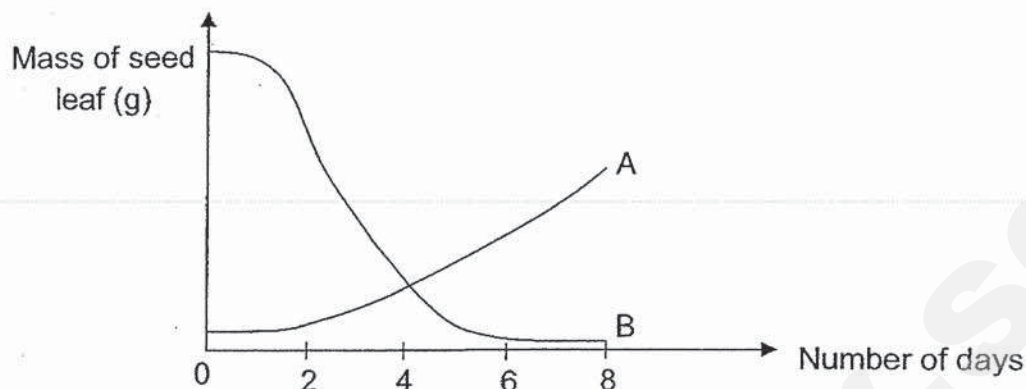
30. When end J of object G is brought near a magnet as shown, the magnet moves away.



- (a) This shows that object G is a \_\_\_\_\_ [1]
- (b) When end K is brought near to the magnet, it \_\_\_\_\_ the magnet. [1]

Score	2
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31. Karen planted a seed into a pot and observed its growth for eight days. She recorded the mass of the seed leaf and the shoot of the seedling during the experiment. The graph below shows her result.



- (a) Which line, A or B, shows how the mass of the seed leaf changes during the experiment? Explain your answer. [2]

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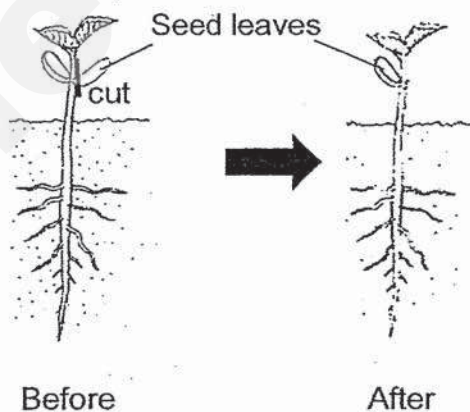


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- (b) Karen accidentally cut a seed leaf as shown in the diagram below.



- Will the seedling be able to grow if there is only one seed leaf left? Explain your answer. [2]

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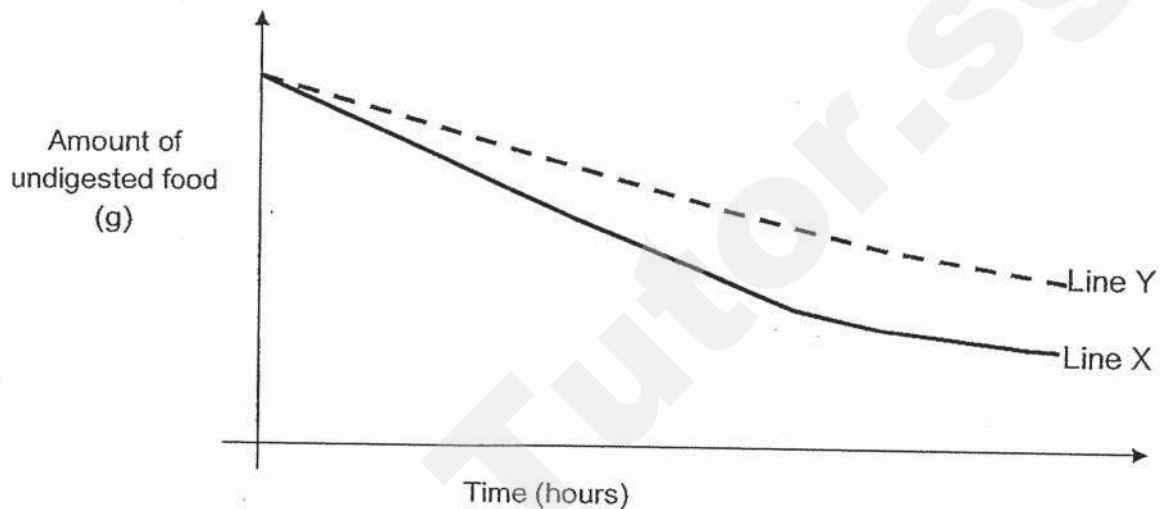
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Score	4
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32. Krishna conducted an experiment to compare the rate of digestion of food of his grandmother and mother. Some of his grandmother's teeth were removed while his mother had a full set of teeth.

Krishna collected 100 g of food chewed for five times by each of them and added the same amount of digestive juices to each of the food samples. He then measured the amount of undigested food in each sample over ten hours and recorded the results in the graph below.



- (a) State the function of the teeth in the digestive system. [1]

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- (b) Which line, X or Y, represents the rate of digestion of food chewed by his grandmother? Explain your answer. [2]

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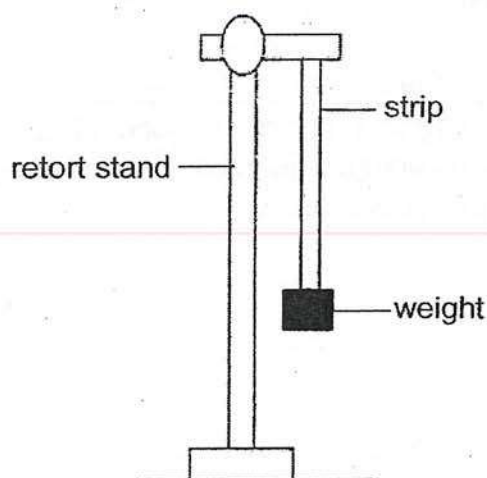
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Score	3
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33. Jay carried out an investigation to find out the strength of four different strips made of materials A, B, C and D. He set up the experiment as shown in the diagram below.



He hung weight of mass 20g and increased the mass on each strip until it started to break. He recorded his results as shown in the table below.

Strip of Material	Mass of the weight hung on each strip before it started to break (g)
A	120
B	60
C	100
D	40

- (a) Which of the following variables should Jay keep constant to ensure a fair test? Put a tick (✓) in the correct box(es).

[1]

Variable	Tick (✓)
Length of the strip	
Material of the strip	
Thickness of the strip	

Continue on next page

Score	1
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Continued from previous page

- (b) Based on Jay's results, arrange the materials, A, B, C and D, in order of their strength starting with the strongest. [1]

Strongest  $\xrightarrow{\hspace{10em}}$  Weakest

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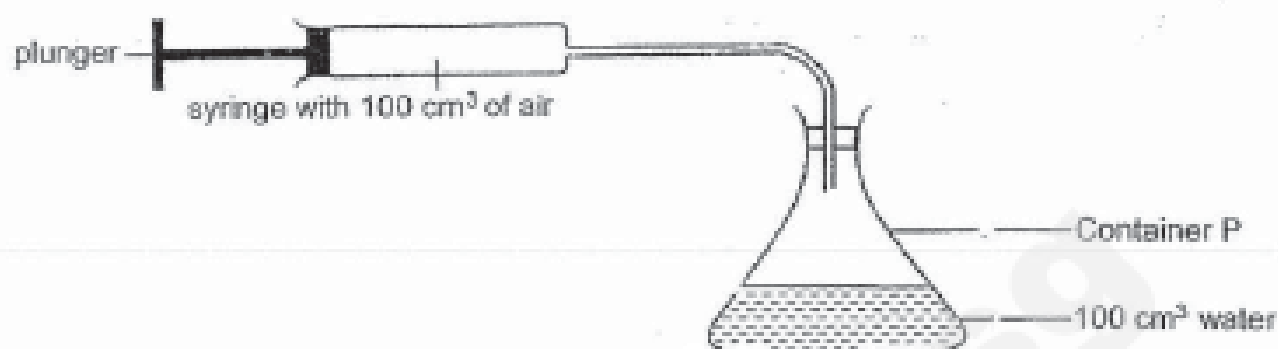
- (c) Jay claimed material B is most suitable to make into a gift pouch to hold gift with a mass of 90g. Do you agree with him? Explain your answer. [2]

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Score	<div style="border: 1px solid black; width: 100px; height: 100px; position: relative;"><div style="position: absolute; top: 0; right: 0; width: 50%; height: 50%; border-left: 1px solid black; border-top: 1px solid black; transform: rotate(45deg);"></div></div>
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34. Jane connected a syringe to container P as shown below. Container P had a capacity of  $300\text{ cm}^3$ .



- (a) Jane pushed the plunger in completely. What would be the volume of air and water in container P? [2]

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

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

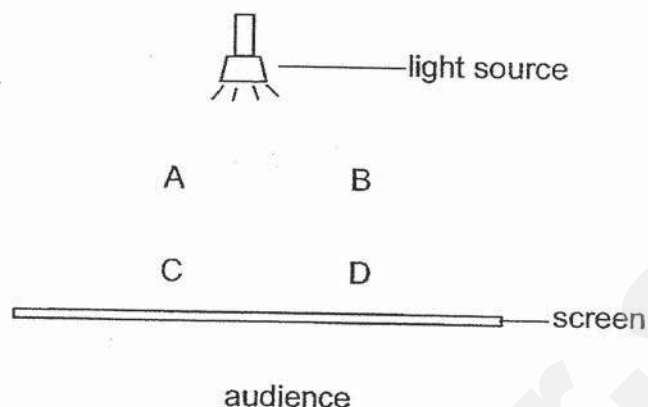
- (b) Based on your answer in part (a), what could be concluded about the property of air and liquid? [2]

(i) Property of air: \_\_\_\_\_

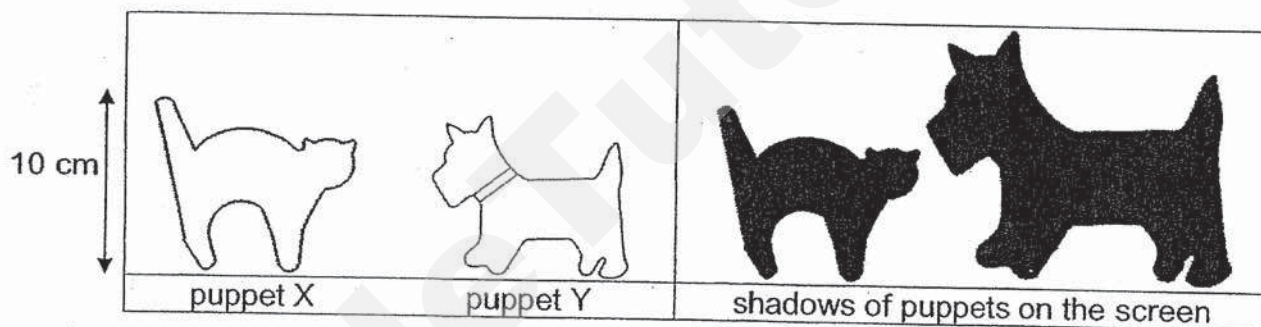
(ii) Property of liquid: \_\_\_\_\_

Score	4
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35. The diagram below shows the layout of a puppet show. A, B, C and D are the positions where the puppets were placed.



Jane has two puppets of the same size and cast the shadow as shown in the diagram below.



Based on the information above,

- (a) Which position, A, B, C or D, was puppet Y placed? Explain your answer. [2]

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- (b) State the property of the material of the screen. Explain your answer. [2]

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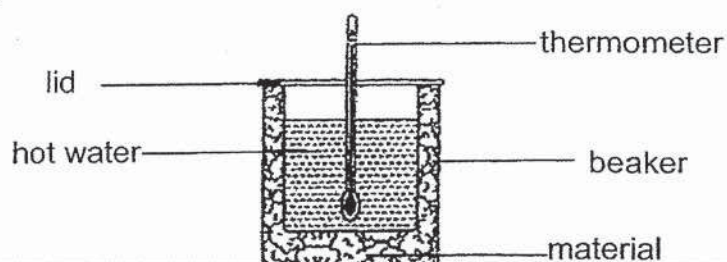
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Score	4
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36. Siva wanted to find out which material, W, X or Y, is the best conductor of heat. He set up the experiment as shown in the diagram below.



The table below shows the change in the temperature of the hot water over a period of thirty minutes.

Time (minutes)	Temperature of hot water ( $^{\circ}\text{C}$ )		
	W	X	Y
0	70	70	70
10	50	65	68
20	40	60	65
30	30	58	61

- (a) State the heat source in the experiment. [1]

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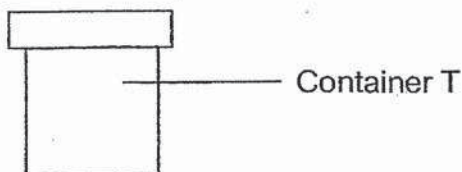
- (b) Which material is the best conductor of heat? Give a reason for your answer. [1]

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Container T below is used to store ice cream.



- (c) Based on the information above, which material, W, X or Y, is most suitable to make into container T to prevent the ice-cream from melting most quickly? [2]

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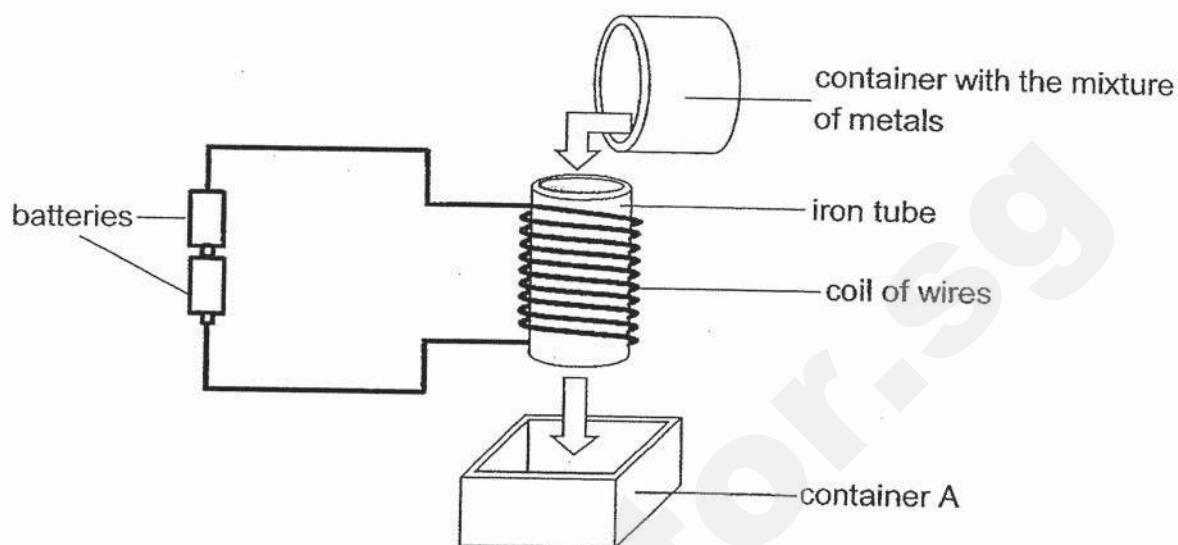


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Score	4
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37. Tom used the following set-up as shown below to separate magnetic metals from non-magnetic metals. Electricity could flow through the wires coiled around the iron tube.



- (a) What would happen to the iron tube when electricity flowed through the wires ?

[1]

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- (b) Which type of material, magnetic or non-magnetic, would be collected in container A? Explain your answer.

[2]

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- (c) Using the same hollow iron tube, suggest one way to increase the number of magnetic metals to be separated from the non-magnetic metals within the same duration of time.

[1]

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# ANSWER KEY

**YEAR : 2019**

**LEVEL : PRIMARY 4**

**SCHOOL : RAFFLES GIRLS' PRIMARY SCHOOL**

**SUBJECT : SCIENCE**

**TERM : SA 2**

## SECTION A

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

## SECTION B

**Q26) skeletal system > supports our body and gives it shape  
respiratory system > takes air into and out of the body**

**Q27a) stem, leaves**

**Q27b) The water-carrying tube in the stem transported the red-coloured water to the white flower.**

**Q27c) Set-up B. As Ann made a cut on the stalk of the flower in B, the stalk had lesser water-carrying tubes than the flower in A. Thus, lesser amount of red-coloured water is transported so the flower in B was a lighter shade of red than in A.**

Q28a) is, has

Q28b) is not, does not occupy

Q29a) thermometer

Q29b) 24°C

Q30a) magnet

Q30b) attracts

Q31a) Line B. The food stored in the seed leaf was used by the germinating seed and thus decreased in mass overtime.

Q31b) Yes. The seed leaf has enough food for the seedling to consume until the true leaves are able to trap sunlight to make their own food.

Q32a) It crushes the food into smaller pieces so that the food will have a larger exposed surface area for the digestive juices to act on and be digested faster.

Q32b) Line Y. Y shows a slower digestion rate over time which indicated that food in Y had a smaller exposed surface area for the digestive juices to act on. Since the grandmother has lesser teeth, it meant that she could not chew as well as the mother.

Q33a) Length of strip, thickness of strip

Q33b) A, C, B, D

Q33c) No. The mass of weight hung on B was 60g before it broke, and it will not be able to withstand the weight of 90g, so B would break if it were to hold a gift with a mass of 90g.



**Q34a) Volume of air:  $200\text{cm}^3$       Volume of water:  $100\text{cm}^3$**

**Q34b) Property of air: Air can be compressed**

**Property of liquid: Liquids have a definite volume**

**Q35a) Position B. The shadow of Y was bigger than X and hence it is closer to the torch. Since the nearer objects are to the light source, the bigger the shadow, Y was at B.**

**Q35b) It is translucent and allows some light to pass through. The shadow will be able to form on the screen and the audience would be able to see the shadow.**

**Q36a) The hot water**

**Q36b) Material W. Temperature of the hot water decreased the most over 30 minutes. It means the hot water lost the most amount of heat to its surroundings over 30 minutes.**

**Q36c) Material Y. The temperature of the hot water in Y throughout the experiment was the highest amongst all 3. It shows that it is the poorest conductor of heat so the ice-cream would gain heat from the surroundings the slowest and melt the slowest.**

**Q37a) The iron tube will become magnetised and will act as an electro-magnet.**

**Q37b) Non-magnetic material. The electro-magnet is unable to attract non-magnetic material, so non-magnetic material will fall into A.**

**Q37c) Increase the number of coils around the iron tube.**

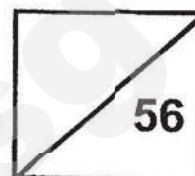


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**Rosyth School**  
**End-Of-Year Examination 2019**  
**SCIENCE**  
**Primary 4**

Total  
Marks:



Name: \_\_\_\_\_

Class: Primary 4 \_\_\_\_\_

Register No. \_\_\_\_\_

Date: 24 October 2019

Total time for Booklets A and B: 1 h 45 min

Parent's Signature: \_\_\_\_\_

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## Booklet A

### **Instructions to Pupils:**

1. Do not open the booklets until you are told to do so.
2. Follow all instructions carefully.
3. This paper consists of 2 booklets - Booklet A and Booklet B
4. For questions 1 to 28 in Booklet A, shade your answers on the Optical Answer Sheet (OAS) provided using a 2B pencil.

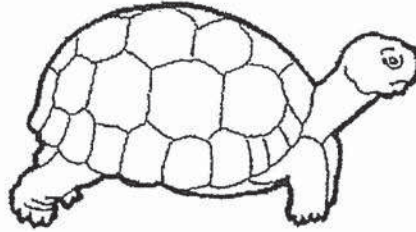
\* This booklet consists of **20** printed pages (including cover page).

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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.** (56 marks)

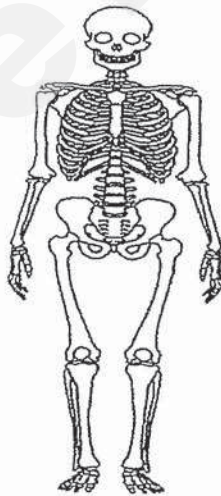
1. A tortoise hides itself in its shell when touched.



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

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

2. Which organ system is shown in the diagram?



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

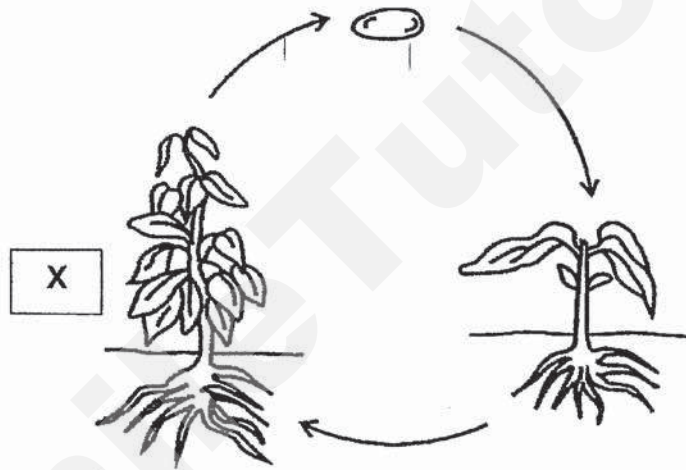
3. Sam made the following observations on the life cycle of an animal.

- There are three stages in the life cycle.
- The young does not look like the adult.

Which animal was Sam observing?

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

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

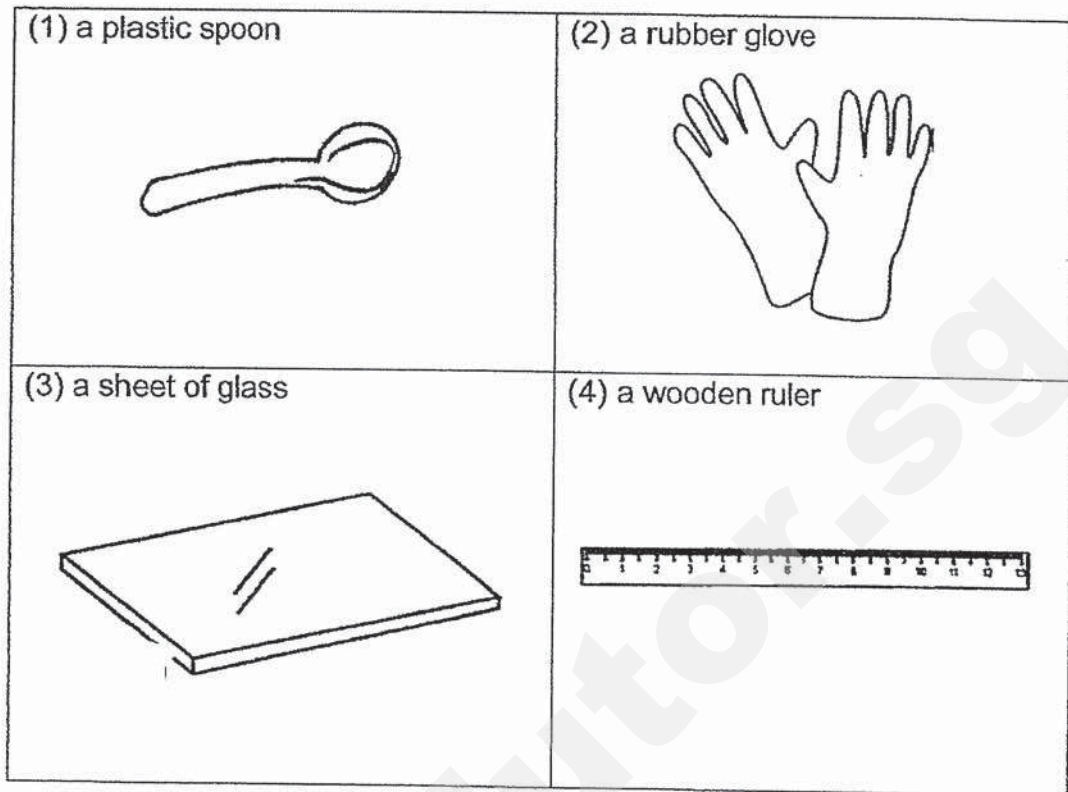


What is the stage marked X?

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



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



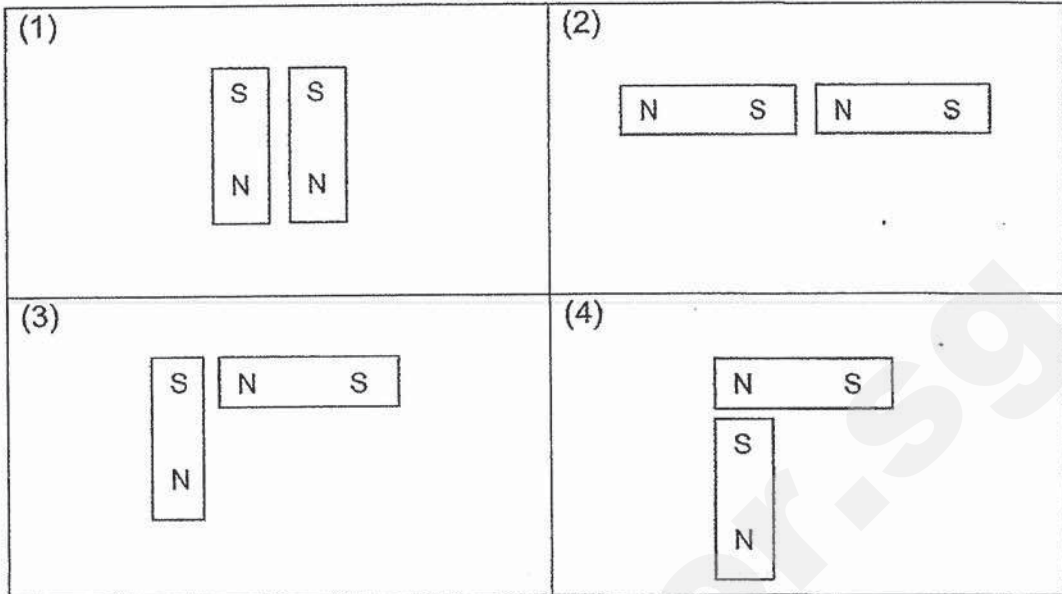
6. A magnet was brought near to a plastic block as shown in the diagram below.



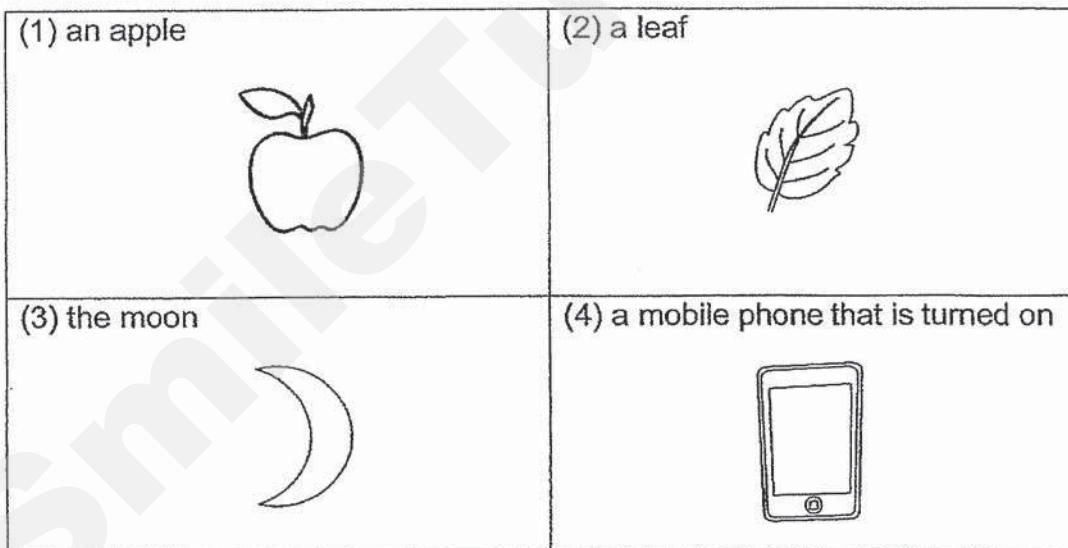
What will happen to the plastic block?

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

7. In which one of the following will the two magnets push each other away?



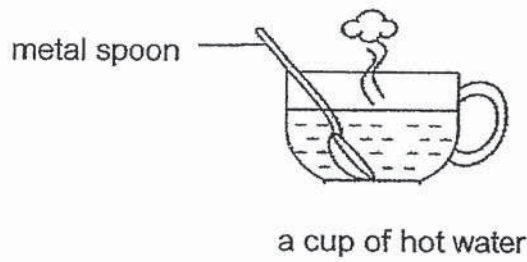
8. Which one of the following is a source of light?



9. Which one of the following is the best conductor of heat?

- (1) A metal cup
- (2) A paper cup
- (3) A plastic cup
- (4) A wooden cup

10. Josiah places a metal spoon in a cup of hot water.

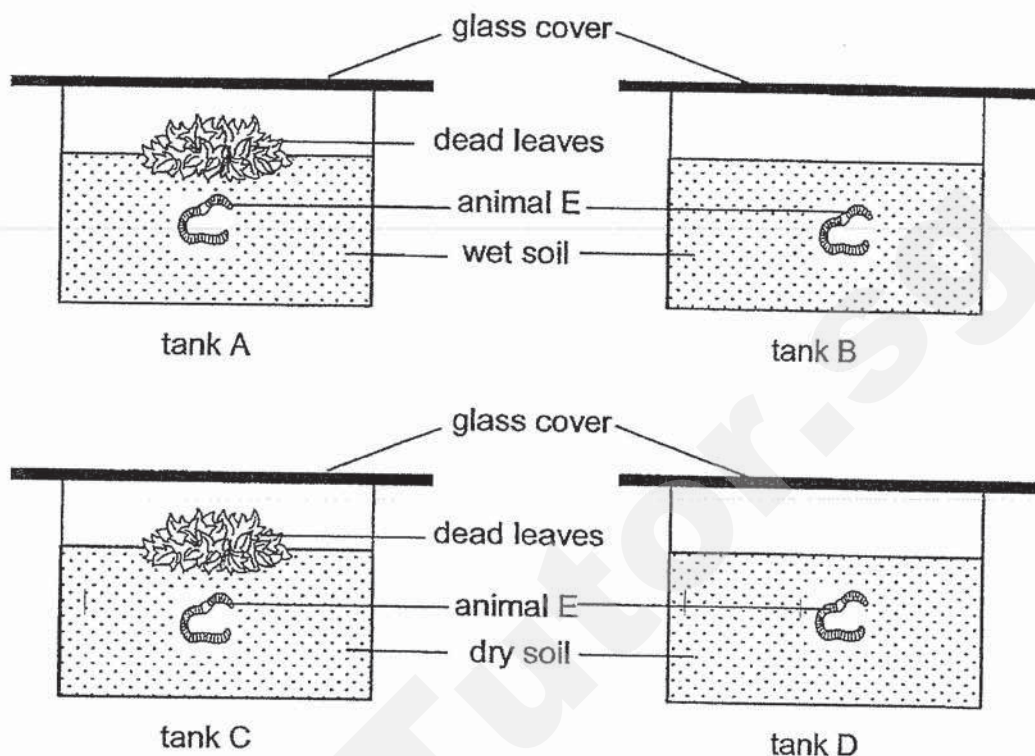


The metal spoon becomes hotter after a while.

Which one of the following explains this?

- (1) The cup loses heat to the hot water.
- (2) The metal spoon loses heat to the hot water.
- (3) The metal spoon gains heat from the hot water.
- (4) The hot water gains heat from the metal spoon.

11. Mary wanted to find out how some factors affect the survival of animal E. She used four tanks, A, B, C and D, as shown below.

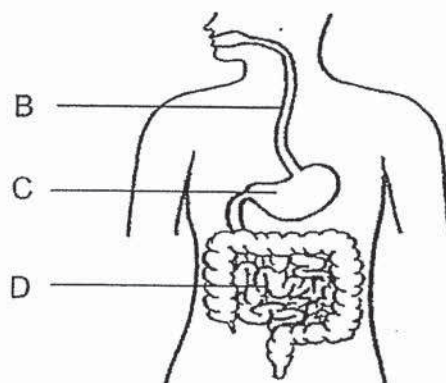


After a week, only the animal E in tank A survived while the rest died.

The above experiment shows that animal E needs \_\_\_\_\_ to survive.

- (1) air and water
- (2) soil and dead leaves
- (3) water and dead leaves
- (4) air, water and dead leaves

12. Study the diagram below.

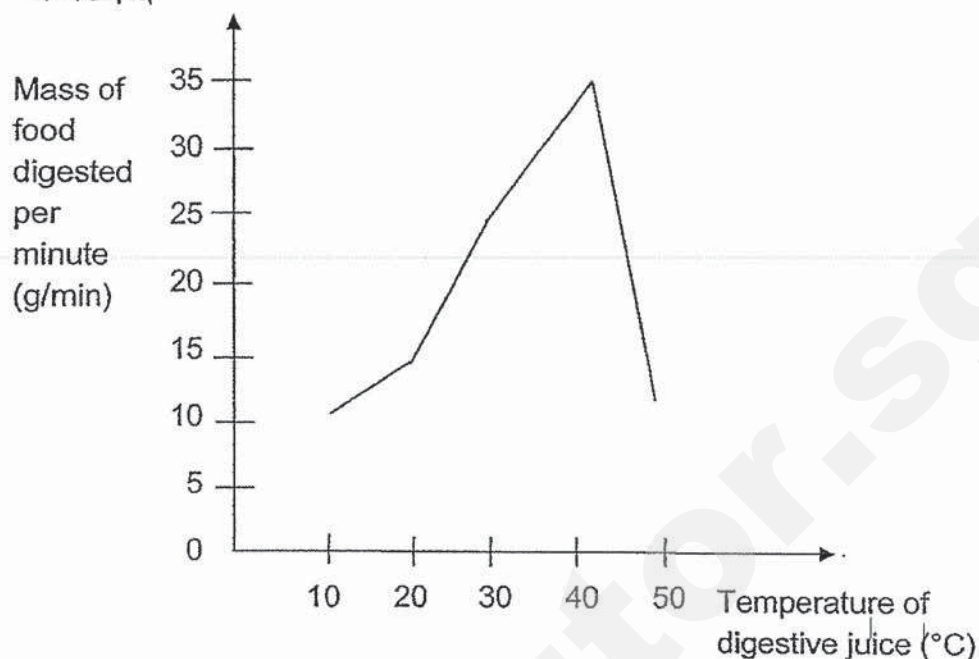


Which one of the following best describes what takes place at B, C and D?

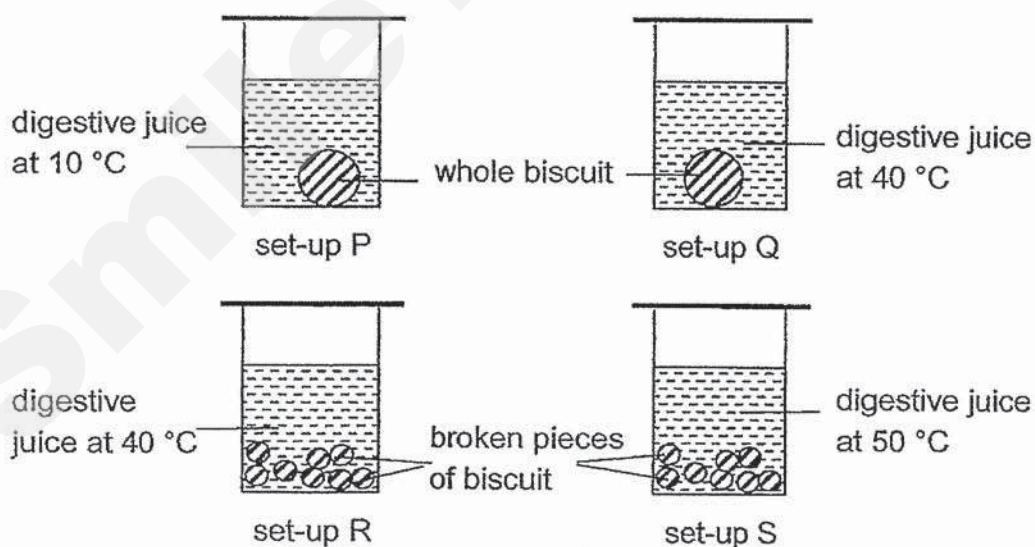
	<b>B</b>	<b>C</b>	<b>D</b>
(1)	allows food to flow through	digested food is absorbed into blood stream	digestion takes place
(2)	digestion takes place	undigested food is removed out of the body	digested food is absorbed into blood stream
(3)	digested food is absorbed into blood stream	digestion takes place	allows food to flow through
(4)	allows food to flow through	digestion takes place	digested food is absorbed into blood stream



13. David studied the graph shown below. It shows how the rate of digestion of food is affected by the temperature of the digestive juice.



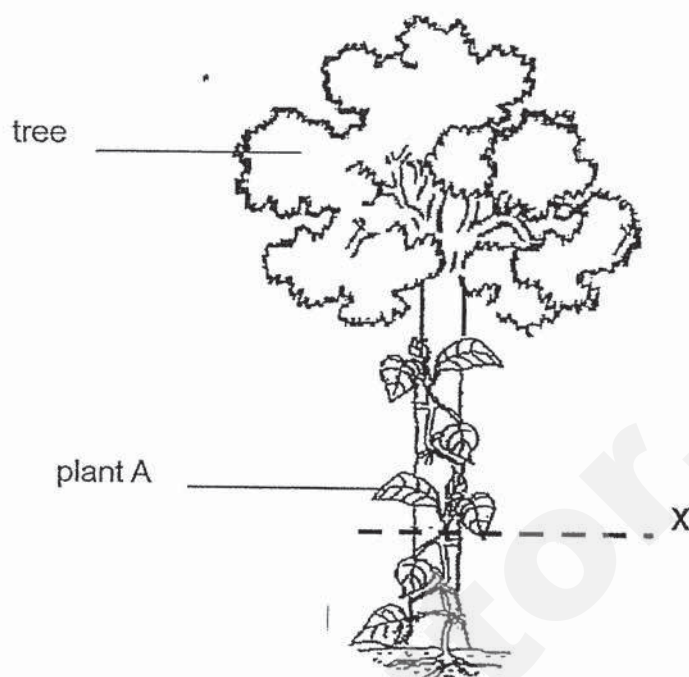
David prepared four set-ups, P, Q, R and S, as shown below. He put 20g of similar biscuit in each set-up. He added 20ml of digestive juice at various temperature.



In which one of the following set-ups, P, Q, R or S, would the biscuit be digested the fastest?

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

14. The diagram below shows plant A climbing around the trunk of a tree. The tree provides support for plant A.



The stem of plant A was cut at point X. The part of plant A above point X died after a week.

What could the reason(s) for this?

- A: The part above X had no water.
- B: The part above X had no support from the tree.
- C: The part above X was not able to receive sunlight.

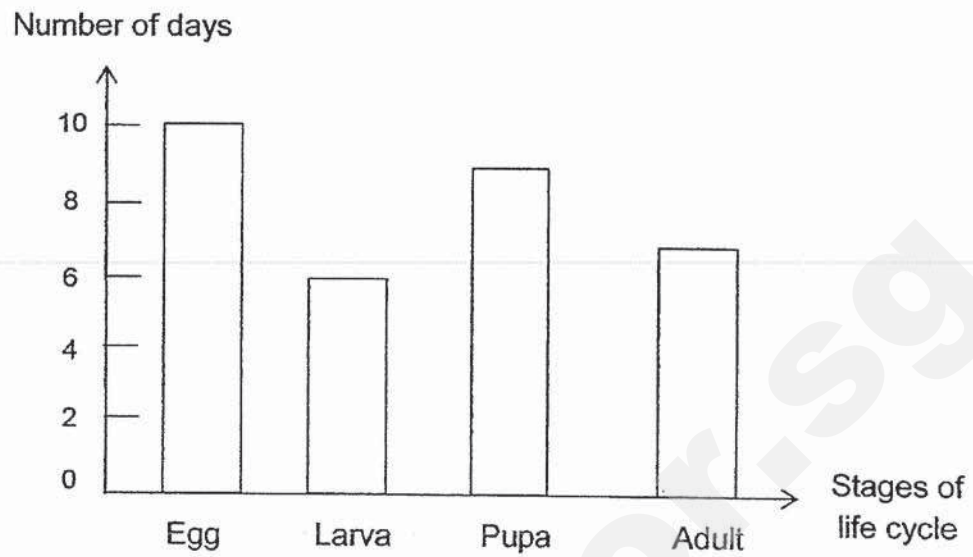
- (1) A only
- (2) C only
- (3) A and B only
- (4) B and C only

15. Which of the following animals have a 3-stage life cycle?

- A: mosquito
- B: chicken
- C: man
- D: frog

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

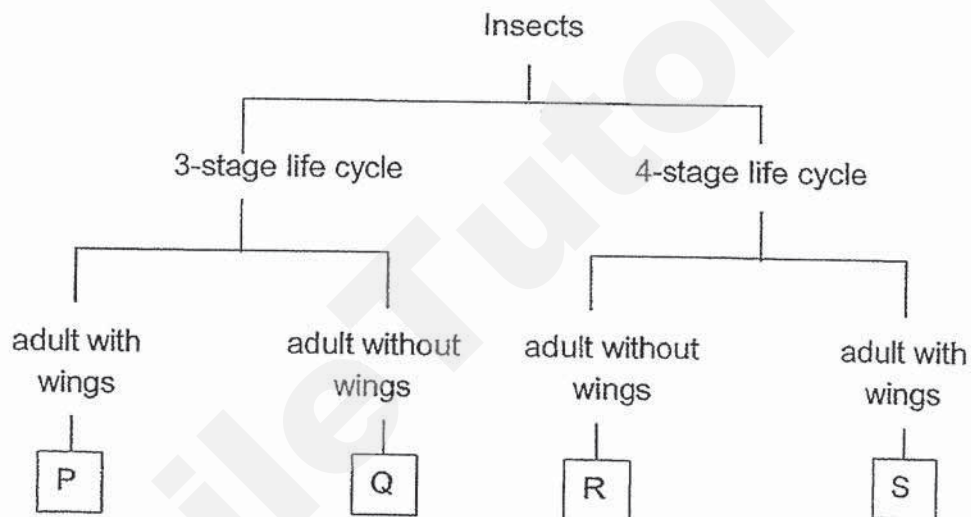
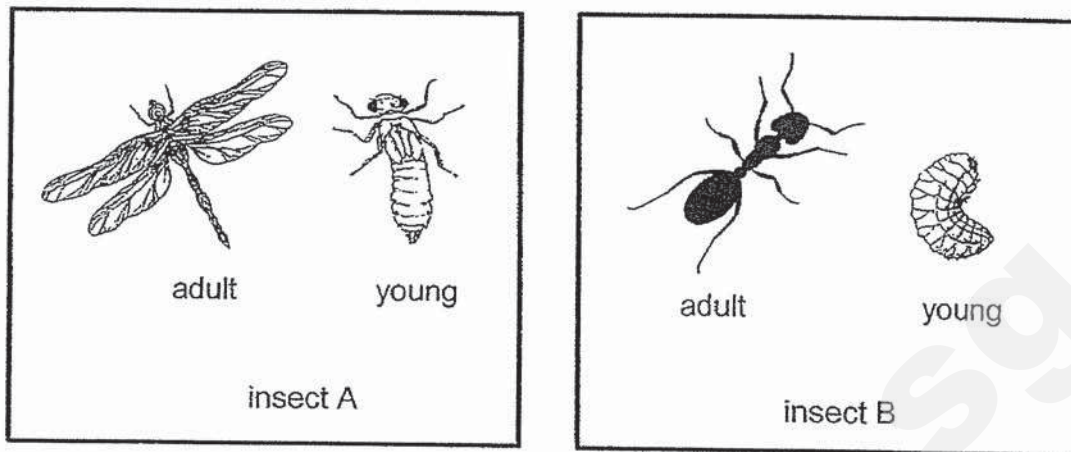
16. The bar graph below shows the number of days in each stage of the life cycle of insect A.



At which stage would insect A be 7 days after the egg has hatched?

- (1) egg
- (2) larva
- (3) pupa
- (4) adult

17. Study the adult and young of insects A and B.

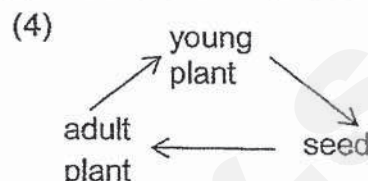
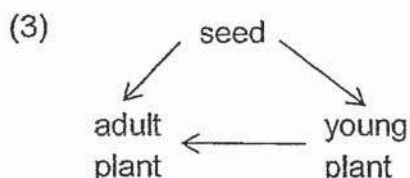
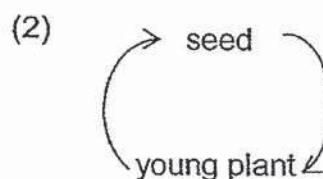
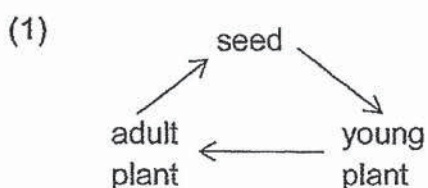


Which of the following shows correctly the group that insects A and B belong to respectively?

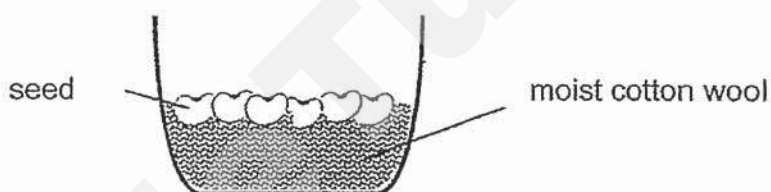
	Insect A	Insect B
(1)	P	R
(2)	P	Q
(3)	S	R
(4)	S	Q



18. Which one of the following correctly represents the life cycle of a plant?



19. Sharon wanted to find out the best temperature for seed germination. She prepared four set-ups similar to the set-up as shown below. There were six seeds in each set-up.



She recorded her results as shown in the table below.

Set-up	Temperature (°C)	Number of seeds germinated
A	0	0
B	28	6
C	32	4
D	90	2

Based on her results, which is the best temperature for the seeds to germinate?

- (1) 0°C
- (2) 28°C
- (3) 32°C
- (4) 90°C



20. The table below shows the properties of materials A, B, C and D. A tick (✓) indicates that the material has the property.

Material	Property		
	Flexible	Waterproof	Ability to float
A	✓		✓
B		✓	
C	✓	✓	✓
D	✓	✓	

Which material, A, B, C or D, would you use to make a float for young children?



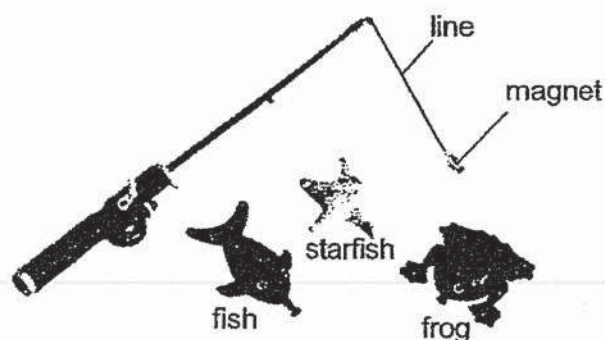
- (1) A  
(2) B  
(3) C  
(4) D
21. On rainy days, shoppers entering a shopping centre are asked to keep the floor dry by keeping their wet umbrellas in plastic bags placed at the entrance as shown below.



State one important physical property of plastic bags that makes it suitable for the wet umbrellas to be left in the plastic bags to keep the floor dry.

- (1) strong  
(2) flexible  
(3) waterproof  
(4) transparent

22. Marcus created a toy fishing rod with magnet at the end of the line. He then placed the magnet close to 3 different toys made of different materials.



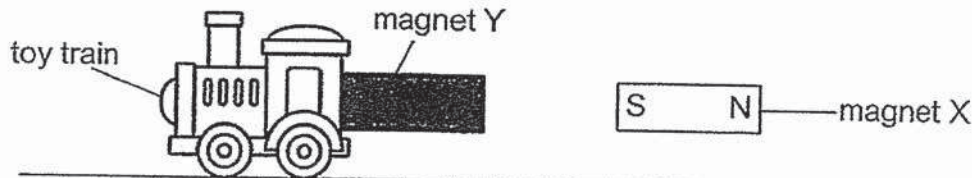
The table below shows what happened to each toy when the magnet was brought close to them.

Toy	Is the toy attracted to the magnet?
fish	no
frog	yes
starfish	yes

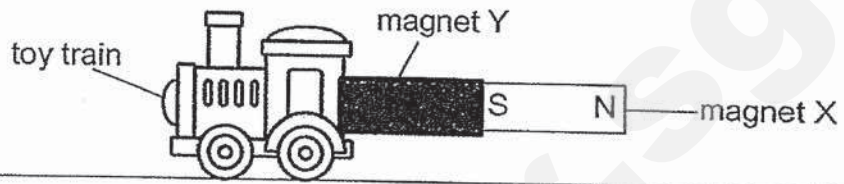
Which one of the following shows the most likely materials that Marcus used for each toy?

	Fish	Frog	Starfish
(1)	plastic	iron	aluminium
(2)	iron	plastic	aluminium
(3)	iron	steel	plastic
(4)	plastic	steel	iron

23. Akmal taped magnet Y to the back of his toy train and held magnet X near to it.



He then observed that the toy train moved backwards and was attracted to magnet X as shown in the diagram below.



What must Akmal do in order to make his toy train move forward?

- (1) Drop magnet X a few times.
  - (2) Replace magnet Y with an iron bar.
  - (3) Move magnet X further away from magnet Y.
  - (4) Flip magnet X and its north pole faces magnet Y.
24. Kelly described four types of matter based on their properties as shown in the table below.

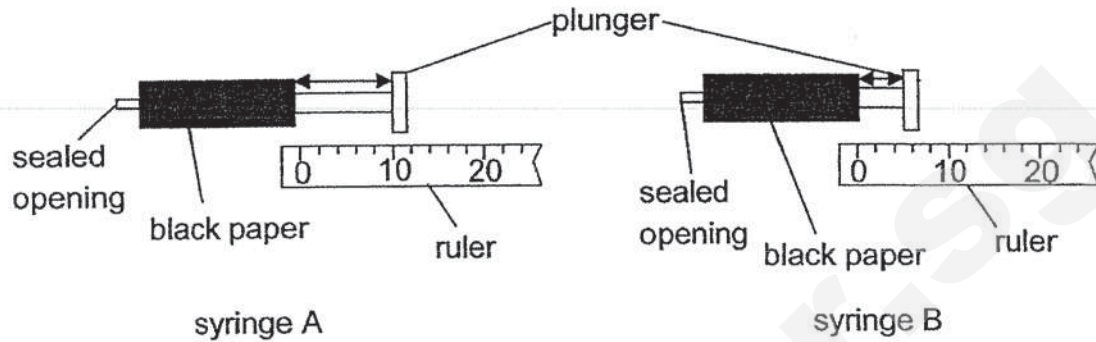
Matter	Has a definite shape?	Has a definite volume?
air	yes	no
oil	yes	yes
milk	no	no
pencil	yes	yes

Based on Kelly's observations above, which matter has its properties correctly stated?

- (1) air
- (2) oil
- (3) milk
- (4) pencil

25. Emmy was given two syringes covered with black paper. Syringe A contains substance K while syringe B contains substance L. Emmy did not know what the substances were.

Emmy then pushed the plungers and recorded her observation in the table below.



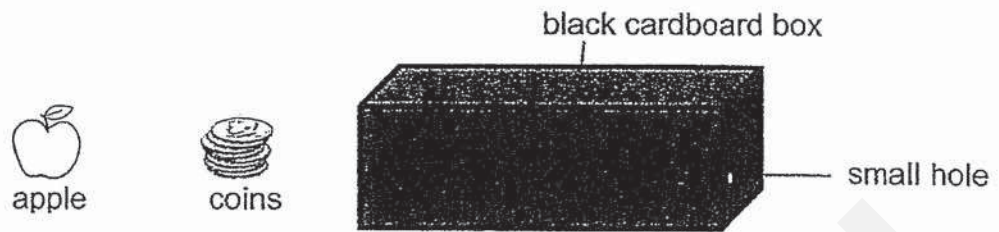
	Distance (mm)	
	Before pushing	After pushing
<b>Substance K</b>	10	10
<b>Substance L</b>	10	5

Which one of the following shows the most likely result?

	<b>Substance K</b>	<b>Substance L</b>
(1)	cotton wool	air
(2)	air	air
(3)	milk	cotton wool
(4)	water	milk



26. Anna has an apple and some coins. She is going to place them into a black cardboard box as shown below. The black cardboard box is completely closed except for a small hole at the side of the box.

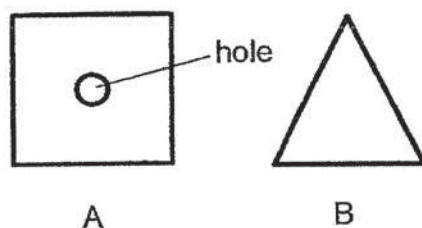


After putting the apple and coins in the black cardboard box, what can Anna observe when she is looking through the hole?

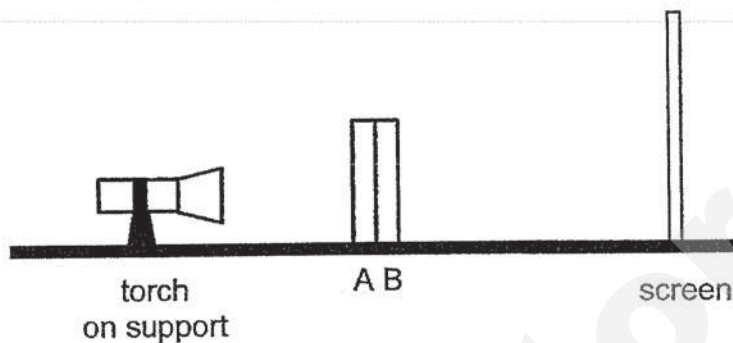
- (1) She can see the coins only.
- (2) She can see the apple only.
- (3) She can see the apple and coins.
- (4) She cannot see both the apple and coins.



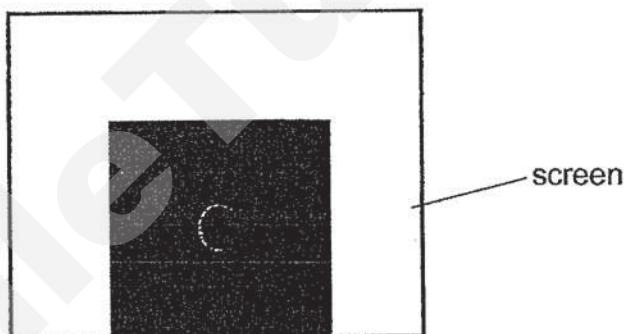
27. Cohen had two objects, A and B, which were made of two different materials.



He then arranged the objects in a set up as shown below.



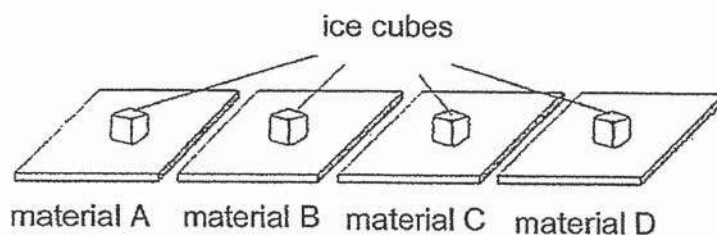
When he switched on the torch in a dark room, he observed the following shadow cast on the screen.



Which of the following represents the properties of the materials for objects A and B?

	A	B
(1)	no light passes through	all light passes through
(2)	most light passes through	no light passes through
(3)	no light passes through	some light passes through
(4)	no light passes through	no light passes through

28. Ramsey placed a similar ice cube on each of the four materials, A, B, C and D, as shown in the diagram below. All four materials are of the same size and thickness. He recorded the time taken for each ice cube to melt completely.



It was observed that the ice cube on material B melted completely first followed by materials C, A and then D.

Based on the results above, what is the aim of his experiment?

He wanted to find out if the \_\_\_\_\_ would affect the time taken for the ice cube to melt.

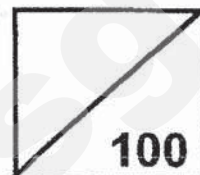
- (1) type of the material
- (2) size of the material
- (3) type of the ice cube
- (4) size of the ice cube

(Go to Booklet B)



**Rosyth School**  
**End-Of-Year Examination 2019**  
**SCIENCE**  
**Primary 4**

**Total  
Marks:**



Name: \_\_\_\_\_

Class: Primary 4 \_\_\_\_\_

Register No. \_\_\_\_\_

Date: 24 October 2019

Total time for Booklets A and B: 1 h 45 min

Parent's Signature: \_\_\_\_\_

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## Booklet B

### Instructions to Pupils:

1. For questions 29 to 41, give your answers in the spaces given in Booklet B.

	Maximum	Marks Obtained
Booklet A	56 marks	
Booklet B	44 marks	
Total	100 marks	

\* This booklet consists of 14 printed pages (including cover page).

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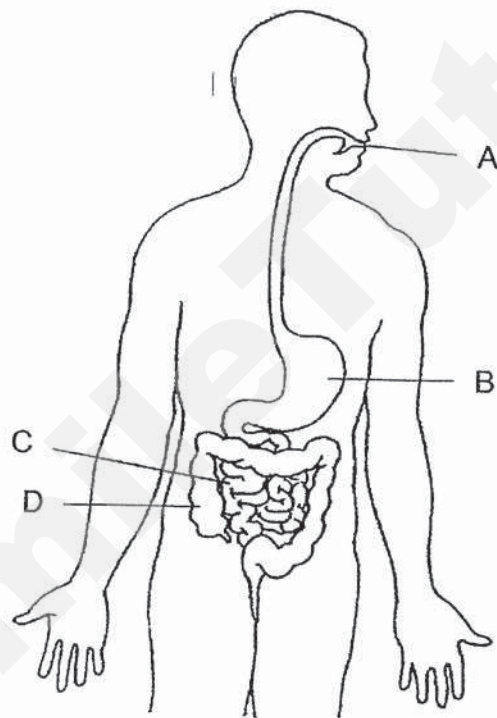
For questions 29 to 41, write your answers in this booklet.

(44 marks)

29. Fill in the blanks in the table with the names of the different groups of animals. [2]

	Characteristic	Group
(i)	body covered with hair	
(ii)	three body parts	

30. The diagram below shows the human digestive system.



Identify the part where

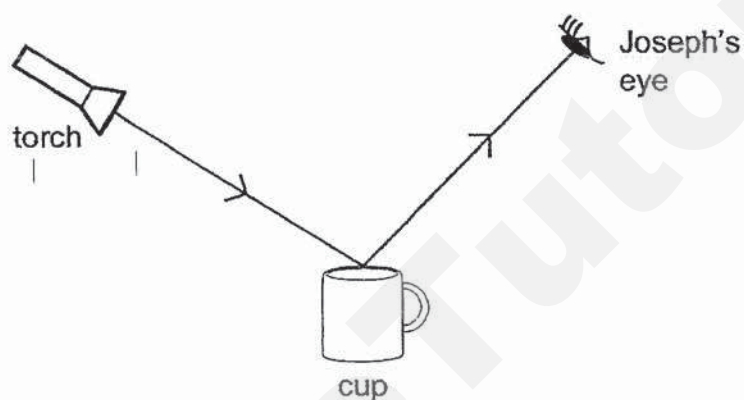
- (a) digestion first takes place : \_\_\_\_\_ [1]  
 (b) there is no digestion : \_\_\_\_\_ [1]  
 (c) digestion is fully completed: \_\_\_\_\_ [1]



31. Tick (✓) in the box if each of the following has a definite shape and/or a definite volume. [3]

		Has definite shape	Has definite volume
(a)	water		
(b)	glass bottle		
(c)	oxygen		

32. The diagram shows how Joseph sees a cup.



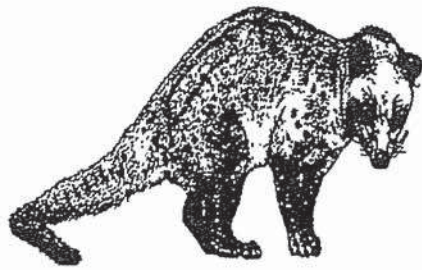
Fill in the blanks using the correct words in the box.

absorbed	source	reflected	house
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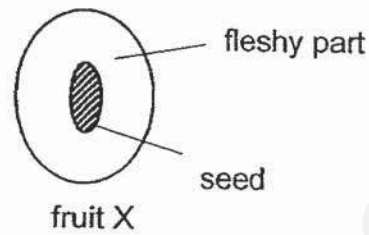
- (a) The torch is the light \_\_\_\_\_. [1]
- (b) Light is \_\_\_\_\_ by the cup. [1]



33. The parts of the digestive system of Animal A have similar functions as the parts of the human digestive system.



animal A

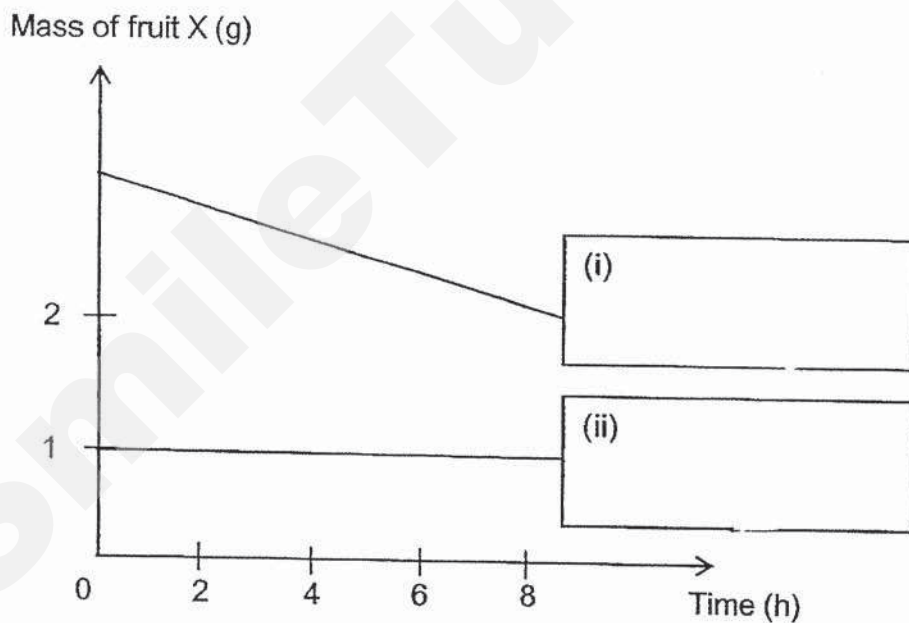


fruit X

Animal A eats fruit X. The fleshy part of fruit X can be digested by the digestive system of animal A. The seed of fruit X cannot be digested.

The graph below shows the mass of fruit X as it passes through the digestive system of animal A.

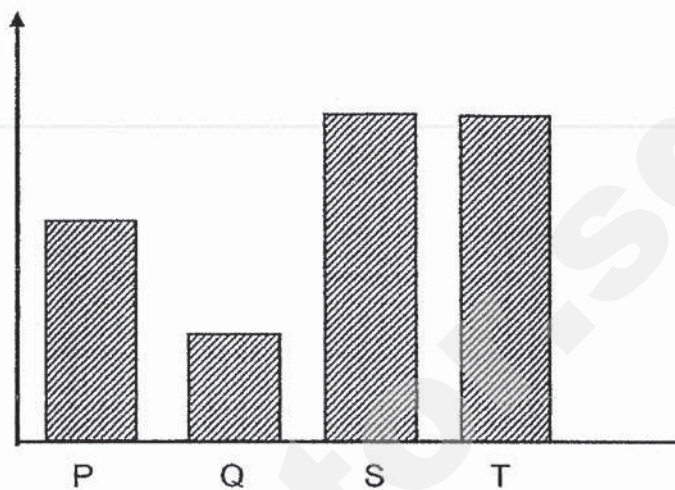
- (a) Identify the line that represents the 'fleshy part' and 'seed' of fruit X. Write these words in the boxes below. [1]



Question 33 is continued on page 5

The graph below shows the mass of fruit X as it leaves the different parts of animal A's digestive system. The parts P, Q, S and T are not in the correct order as in animal A's digestive system.

Mass of fruit X (g)



Parts of the animal A's digestive system

- (b) Based on the graph above, match and write down parts, P, Q, S and T, in the graph to the parts of animal A's digestive system in the table below. [2]

Parts of animal A's digestive system			
mouth	gullet	stomach	small intestine

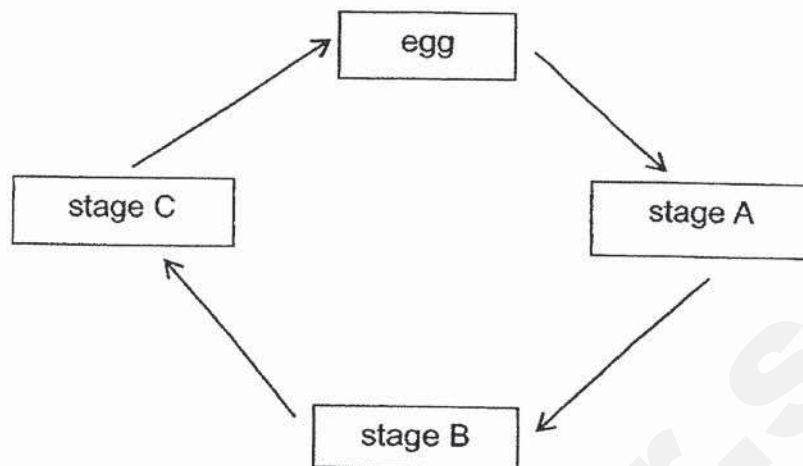
- (c) What will happen to the seed of fruit X after digestion is completed? [1]

---



---

34. The diagram below shows the life cycle of insect P.



- (a) Besides the egg stage, at which stage, A, B or C, does insect P stop eating? [1]

Stage \_\_\_\_\_

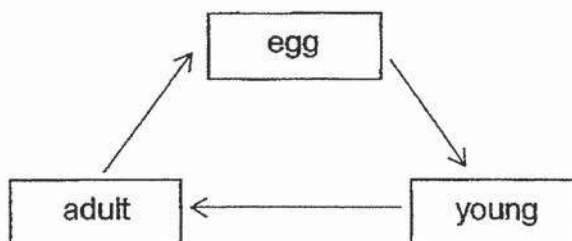
- (b) What could insect P be? [1]

\_\_\_\_\_

- (c) The female of insect P often lays many eggs at one time. Explain why. [1]

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

35. The diagram below shows the life cycle of organism W.



Ahmad studied the effect of light intensity on the life cycle of an organism W. His findings are shown below.

Light intensity (units)	Number of days for one complete life cycle
4	46
6	20
8	16
10	10
12	7

- (a) Why did Ahmad use a light sensor for the above experiment? [1]

---

- (b) At which light intensity would there be the greatest number of organism W? Explain why. [2]

---



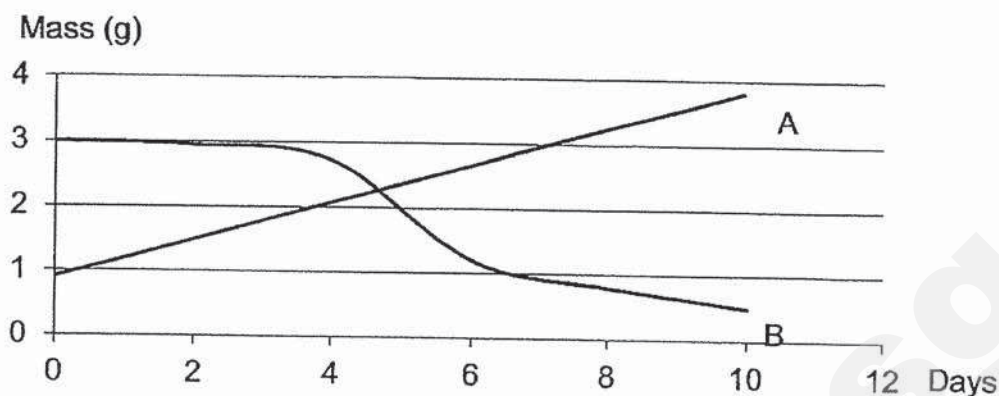
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36. The graph below shows how part A and part B of a seed changes their masses as the seed germinates into a seedling.



- (a) Based on the graph above, identify the parts A and B, by filling in the boxes below with the letters. [1]



Different amounts of water were given to three seedlings of the same kind, A, B and C, each day. The heights of the seedlings were measured after two weeks and the results are shown in the table below.

Seedling	A	B	C
Amount of water given (ml)	10	20	30
Height of plant (cm)	7	9	13

- (b) Based on the above experiment, tick (✓) the correct variables accordingly in the table below. [2]

Variable	Changed	Kept the Same	Measured
The type of seedlings used			
The amount of water given to the seedlings			
The height of the seedlings after two weeks			
Location of the set-ups			



- (c) State the relationship between the amount of water given and the height of plant. [1]

---



---

37. Wee Chong wanted to find out if the size of the seed will affect the number of days taken to germinate.



small



medium



large

- (a) What would appear first when the seed germinates? [1]

---

His findings are as shown below.

Size of seed	Number of days taken to germinate
small	4
medium	2
large	6

- (b) What is the possible conclusion for his experiment? [1]

---



---

- (c) What is the advantage of a bigger seed for the seedling? [1]

---



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- (d) State the conditions that must be provided for the seeds to germinate. [1]

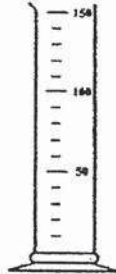
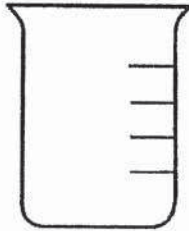
---

38. Eik Fang wanted to find out the volume of a glass ball.



glass ball

- (a) Tick the correct apparatus to measure the volume of the glass ball. [1]



She carried out the following steps.

- 1) Pour 50 ml of water into the apparatus.
- 2) Put the glass ball into the apparatus gently.
- 3) Measure the increase in the water level to find out the volume of the glass ball.

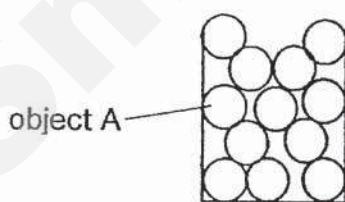
- (b) Explain why the water level increase after putting in the glass ball. [1]

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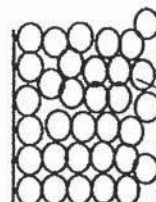


---

- (c) Two identical containers were filled to the brim, with object A and B, as shown in the diagram below.



set-up A



set-up B

object A

object B

- Which set-up could be filled with more water? Explain your answer. [2]

---

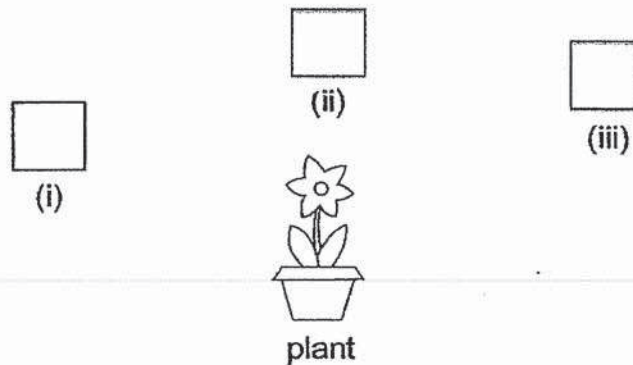


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---

39. Michelle placed a torchlight at three different positions and measured the length of the shadow of the plant formed.



The table below shows the result for the experiment.

Position	A	B	C
Length of shadow (cm)	35	40	3

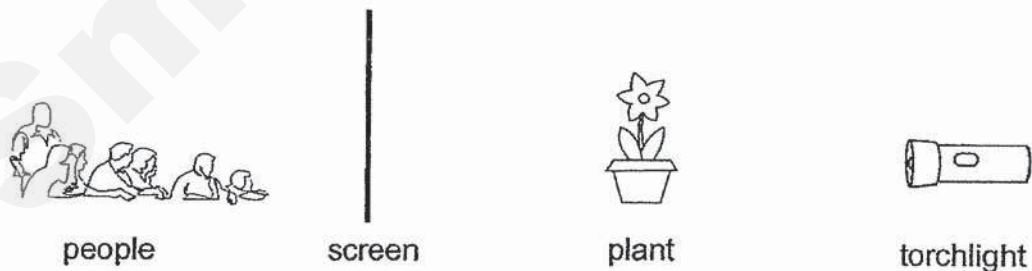
- (a) Based on the results, label position C in the box, i, ii or iii, to represent the position of the torchlight correctly. [1]
- (b) Explain your answer for part (a). [1]

---



---

In another set-up, Michelle placed the objects below to form a shadow of the plant on the screen.



- (c) She wanted the people to see the shadow formed on the screen from the other side. Explain why she used a tracing paper and not a wooden board as the screen. [2]

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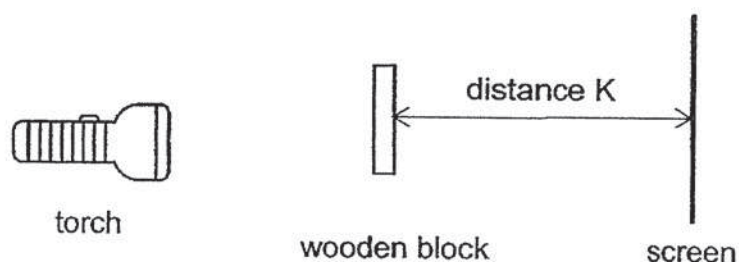


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40. Shirley set up an experiment as shown in the diagram below. When the torch was switched on, a shadow of the wooden block was formed on the screen.



Shirley wanted to find out if distance K would affect the height of the shadow formed on the screen. The torch was not moved throughout the experiment.

She recorded her observations in the table below.

Distance K (cm)	Height of shadow (cm)
5	9
10	15
15	21

- (a) State the relationship between distance K and height of shadow. [1]

---



---

- (b) Without changing distance K, suggest one way to enlarge the shadow of the wooden block. [1]

---



---

- (c) State the property of light that forms shadows. [1]

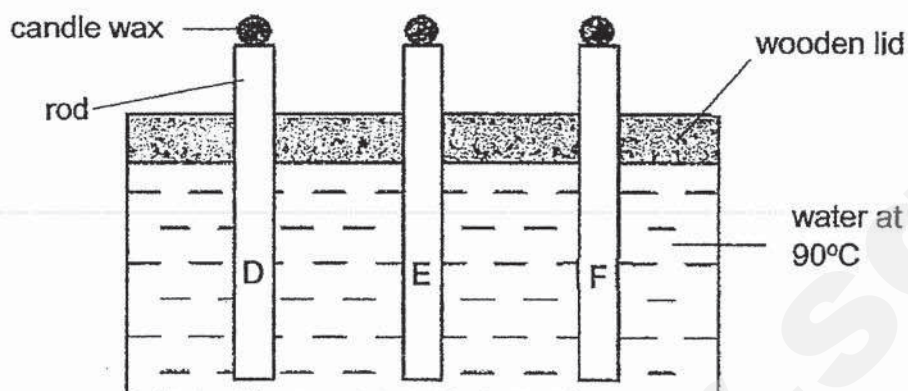
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- (d) What can you do to form two shadows of the wooden block on the screen at the same time? [1]

---



41. Josiah set up an experiment as shown in the diagram below. He wanted to find out if the type of materials affects the time taken for the material to conduct heat. He used three rods that were made of different materials, D, E and F, in his experiment.



He recorded the time taken for the candle wax on each rod to melt completely in the table below.

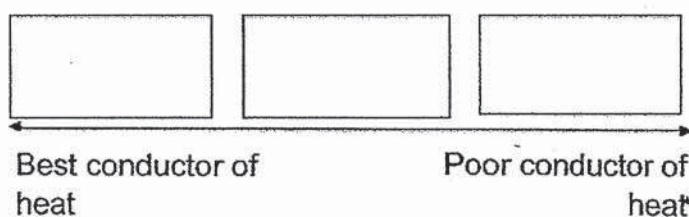
Material	Time taken for the candle wax to melt completely (min)
D	11
E	4
F	7

- (a) State two variables of the rod that were kept the same to ensure a fair test. [1]

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

- (b) Based on the results, arrange the material, D, E and F based on how well they conduct heat starting with the best conductor of heat. [1]



Question 41 is continued on page 14



- (c) The picture below shows a cooler bag to keep ice cream.



cooler bag

Which one of the materials, D, E or F, is the most suitable to make the cooler bag? Explain your answer. [2]

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End of Paper

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# ANSWER KEY

YEAR : 2019  
LEVEL : PRIMARY 4  
SCHOOL : ROSYTH SCHOOL  
SUBJECT : SCIENCE  
TERM : END YEAR EXAMINATION

## BOOKLET A

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

## BOOKLET B

Q29) i: Mammals

ii: insects

Q30) a: A

b: D

c: C

Q31) a: has a definite volume

b: has a definite shape, has a definite volume,

c: (NIL)

**Q32a) source**

**Q32b) reflected**

**Q33a) i: fleshy part**

**ii: seed**

**Q33b)**

Mouth	Gullet	Stomach	Small intestine
S	T	P	Q

**Q33c) It will be passed to the large intestine where water is removed from it.**

**Q34a) Stage B**

**Q34b) A butterfly**

**Q34c) Some eggs are eaten by predators while the rest of the eggs can still hatch and grow into adults.**

**Q35a) To test whether the light intensity affects the number of days for one complete life cycle.**

**Q35b) 12, because that is when the number of days needed to complete one life cycle is the shortest.**

**Q36a) Part B, Part A**

**Q36b)**

<b>Variable</b>	<b>Changed</b>	<b>Kept the same</b>	<b>Measured</b>
<b>The type of seedlings used</b>		✓	
<b>The amount of water given to the seedlings</b>	✓		
<b>The height of the seedlings after two weeks</b>			✓
<b>Location of the set-ups</b>		✓	

**Q36c) As the amount of water given increases, the height of the plant increases.**

**Q37a) The roots**

**Q37b) The size of the seed does not affect the number of days taken to germinate.**

**Q37c) A bigger seed will have more nutrients for the seedling to grow.**

**Q37d) Air, water and warmth**

**Q38a) (Second picture)**

**Q38b) The glass ball occupies space and thus it has displaced the water.**

**Q38c) A, because there are bigger gaps between object A in set-up A, which allows more water to flow through to occupy the space previously occupied by air.**



**Q39a) i: B      ii: C      iii: A**

**Q39b) The torchlight is at its highest point hence the shadow is the shortest.**

**Q39c) Tracing paper is translucent but a wooden board is opaque.**

**Q40 a) The more distance K is the more the length of the shadow will increase.**

**Q40b) As distance K increases, the height of the shadow increases.**

**Q40c) Move the torch closer to the wooden block.**

**Q40d) Use 2 torchlights**

**Q41a) i: size of the rod      ii: width of rod**

**Q41b)  $E > F > D$**

**Q41c) D. The wax on rod D took the longest time to melt, making it an ideal choice because cooler bags are supposed to conduct heat the slowest from the surrounding air.**



**END**

**h**

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SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)

SECOND SEMESTRAL ASSESSMENT 2019

NAME: \_\_\_\_\_ (     )

DATE: 22 October 2019

CLASS: PRIMARY 4 SY / C / G / SE / P

Parent's Signature:

SCIENCE  
BOOKLET A

28 questions

56 marks

Total time for Booklets A & B: 1 h 45 min

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

**FOLLOW ALL INSTRUCTIONS CAREFULLY.**

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**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 statements is true for **ALL** insects?

- 1) They have tails.
- 2) They have wings.
- 3) They live on land.
- 4) They have six legs.

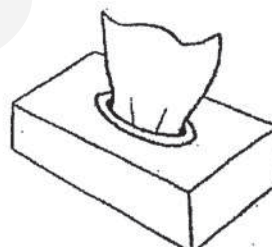
2. Which one of the following objects is **not** made of waterproof material?

1)



Metal straw

3)



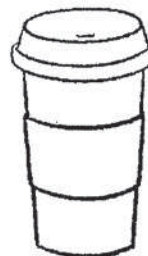
Tissue paper

2)



Rubber boots

4)



Plastic cup

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

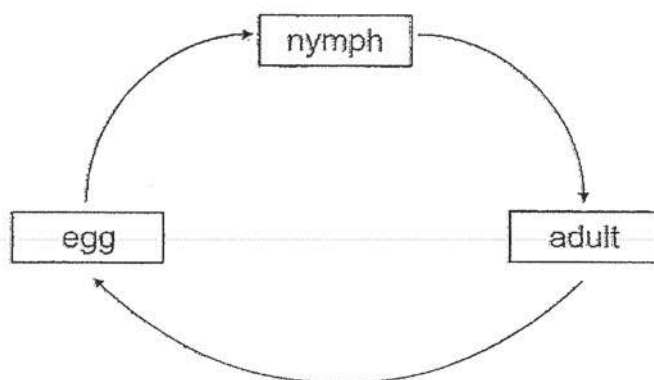
- |         |           |
|---------|-----------|
| 1) oil  | 3) oxygen |
| 2) rock | 4) milk   |

4. Which one of the following is the best conductor of heat?

- |                |                  |
|----------------|------------------|
| 1) paper ruler | 3) plastic ruler |
| 2) metal ruler | 4) wooden ruler  |



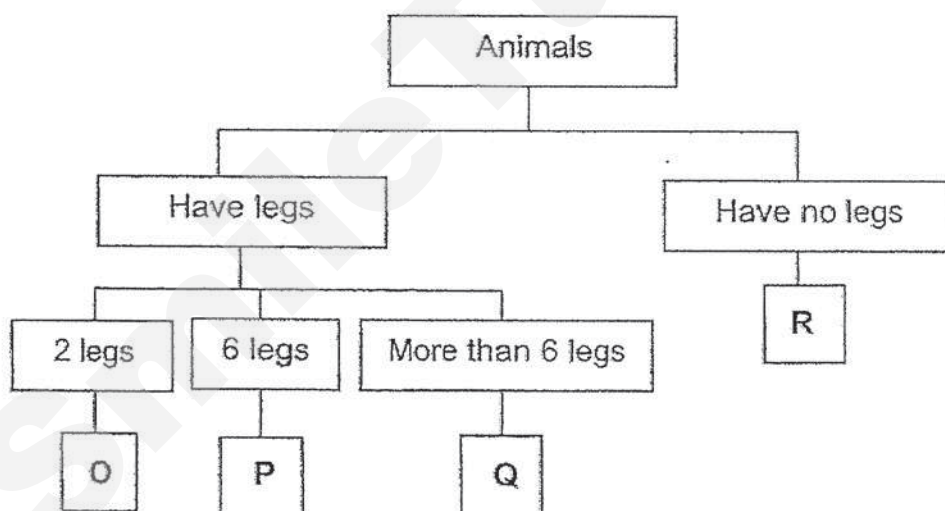
5. The diagram below shows the life cycle of an animal.



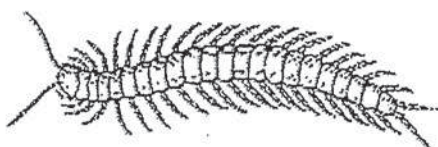
Which animal is likely to have the life cycle as shown above?

- |           |              |
|-----------|--------------|
| 1) duck   | 3) butterfly |
| 2) beetle | 4) cockroach |

6. Study the chart below.

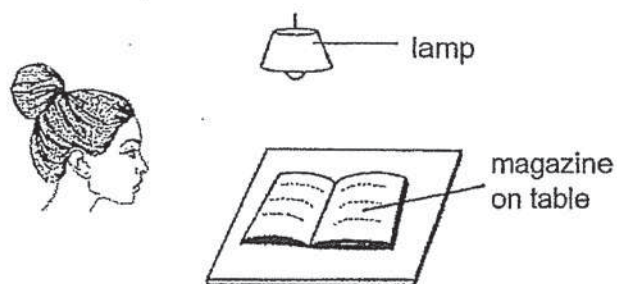


Where would you put this animal in the chart above?

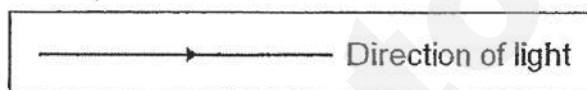


- |      |      |
|------|------|
| 1) O | 3) Q |
| 2) P | 4) R |

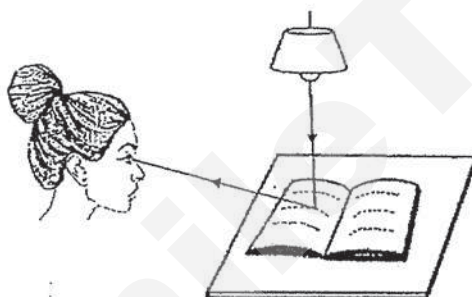
7. Look at the picture below.



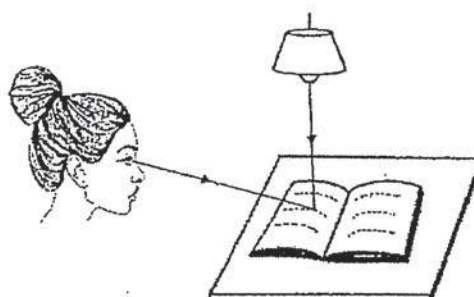
Which one of the following explains why Mary can see the book on the table?



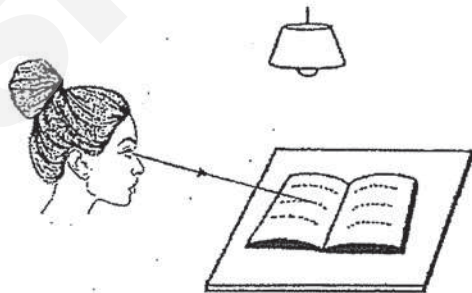
1)



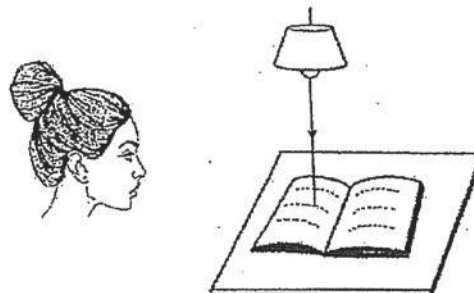
3)



2)



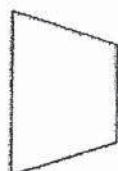
4)



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

- 1) The Sun
- 2) Lighted bulb
- 3) Burning coal
- 4) Woollen jacket

9. The set-up below shows light shining on a baseball.



screen



baseball



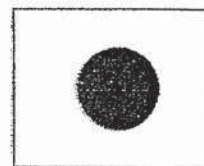
torch

Which one of the following would likely be seen on the screen?

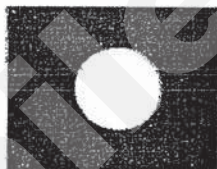
1)



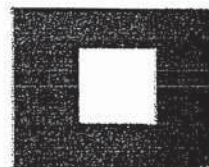
3)



2)



4)



10. Jian An observed four items, A, B, C and D, and recorded their characteristics in the table below. A tick indicates that the item has the described characteristic.

Items	Able to reproduce	Able to respond to changes	Able to make food	Able to move from one place to another
A		✓		
B		✓		✓
C		✓		✓
D	✓	✓	✓	

Based on the information above, how many living things are there in the classification table above?

- 1) 1
- 2) 2
- 3) 3
- 4) 4

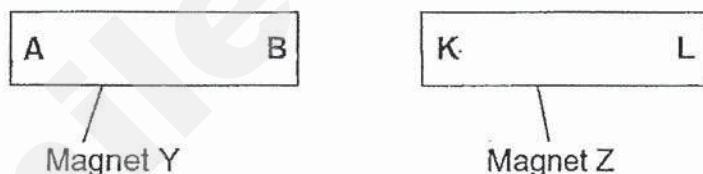
11. Fahan found that the stem of the plant below has been cut.



Which one of the following is most likely to be the observation made two weeks later?

- 1) The leaves wither from lack of water.
- 2) The plant will grow taller and start to bear fruits.
- 3) The plant will not be able to stand upright and fall.
- 4) The roots wither from lack of food and water.

12. Aminah tested two magnets, Y and Z, as shown in this diagram below.



She was surprised by the results as shown below.

Poles placed near each other	Attract	Repel
A and K	✓	
A and L	✓	
B and K	✓	
B and L	✓	

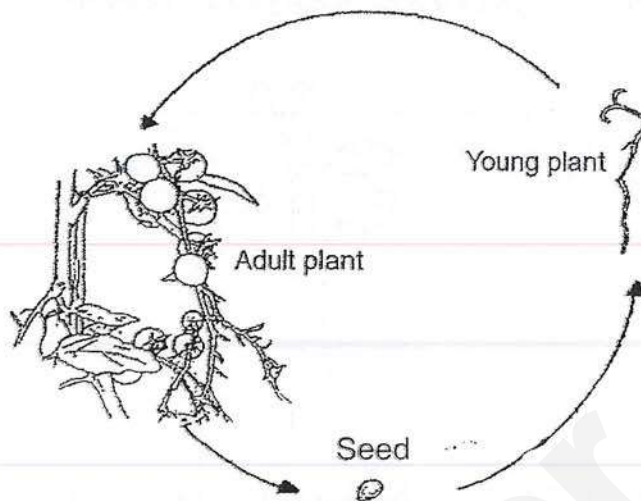
What could have possibly gone wrong with her investigation?

- A: Magnet Z could have been kept in oil.  
 B: Magnet Z could have been demagnetised.  
 C: Magnet Y could have been heated over a fire.  
 D: Magnet Y could have been hammered or dropped many times.

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

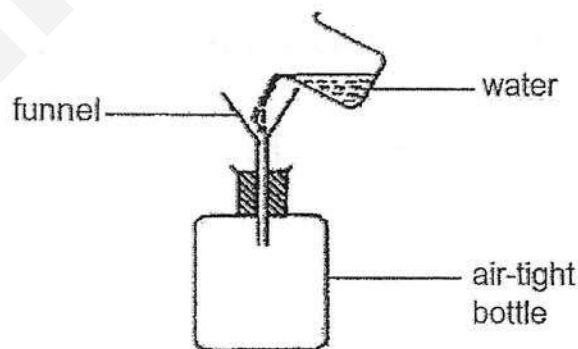


13. The diagram below shows the life cycle of a tomato plant.



Which one of the following statements is **not true** of the life cycle of the tomato plant?

- 1) Every tomato plant has the same life cycle.
  - 2) The life cycle of the tomato plant is made up of three stages.
  - 3) The life cycle of the tomato plant ensures the continuity of its kind.
  - 4) Light is needed for every stage of the tomato plant's life cycle.
14. Paul carried out an experiment. He set up a bottle and a funnel as shown below. He poured the water quickly into the funnel but the water did not enter the air-tight bottle. Which of the following best explains why water could not enter the air-tight bottle?



- 1) water has mass
- 2) air occupies space
- 3) air cannot be compressed
- 4) water takes the shape of the container



15. Pillai wanted to find out the amount of light that passes through three liquids, E, F and G, respectively. He shone a torch at each liquid and used a datalogger to measure the amount of light that passed through each liquid.

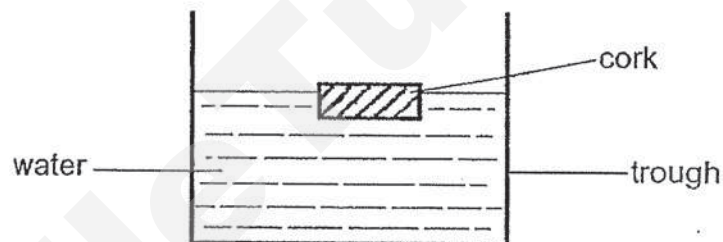
He recorded the readings in the table below.

Liquid E	Liquid F	Liquid G
23,000 units	50,000 units	0 units

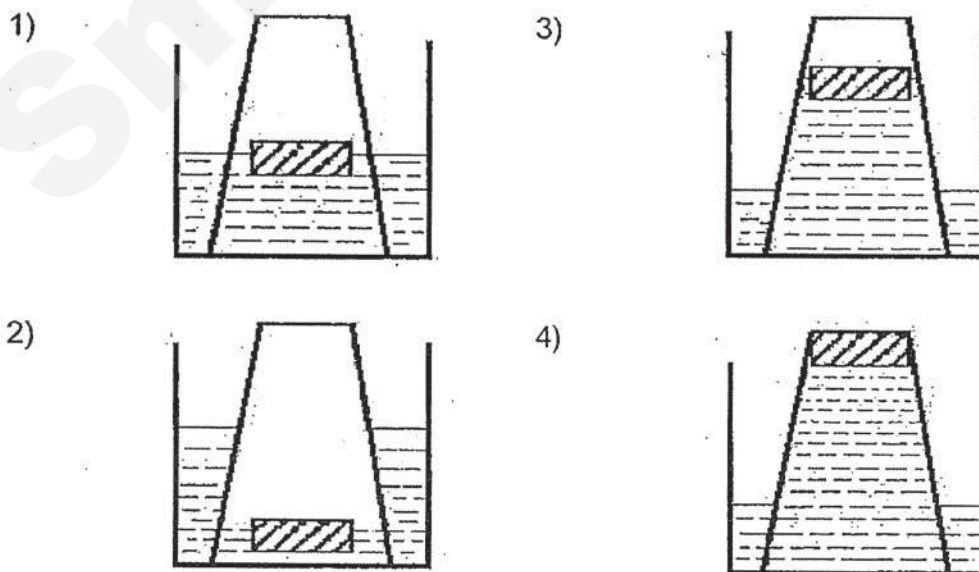
Which one of the following shows what Liquids E, F and G represent correctly?

	Liquid E	Liquid F	Liquid G
1)	milk	coffee	tap water
2)	tap water	tea	coffee
3)	tea	tap water	milk
4)	milk	coffee	tap water

16. The diagram below shows a piece of cork floating in a trough of water.



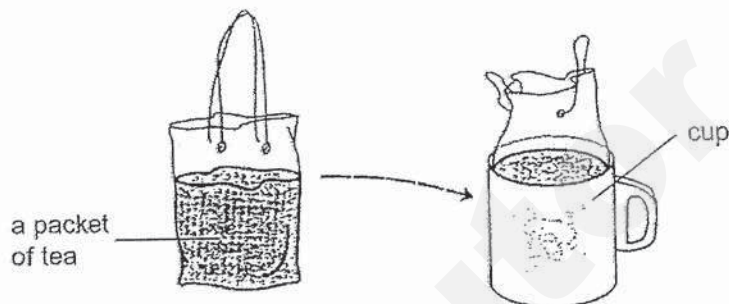
Without tilting, a cup is inverted over the cork and held down. Which one of the following diagrams show what could happen to the cork and water?



17. Materials are selected for specific uses based on their properties. Which one of the following shows the **incorrect** property for the given object and material?

	Material	Property	Object
1)	glass	transparent	spectacles
2)	plastic	waterproof	container
3)	ceramic	flexible	vases
4)	steel	strong	forks



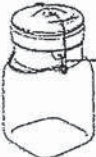
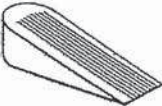
18. Ali placed a packet of tea into a cup without overflowing as shown below.



Which one of the following about the packet of tea is correct?

- 1) Both the shape and the volume of the tea did not change.
- 2) The shape of the tea changed but the volume did not.
- 3) The volume of the tea changed but the shape did not.
- 4) Both the shape and the volume of the tea changed.

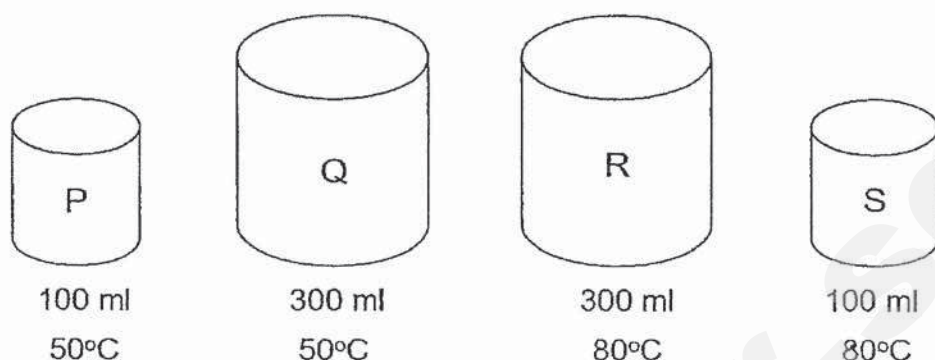
19. Study the diagrams below.

 bookmark	 clothes peg
 Jar with catch	 door stopper

Which object(s) is/are a system?

- 1) bookmark and jar
- 2) clothes peg and door stopper
- 3) jar and clothes peg
- 4) bookmark and door stopper

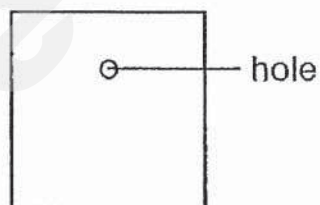
20. Tim has four containers filled fully with oil. Each container was heated to a temperature as shown below.



Which of the statements is **true**?

- 1) R and S have the same amount of heat.
- 2) P and S have the same amount of heat.
- 3) Q has less heat than S.
- 4) R has more heat than S.

21. To demonstrate that light travels in a straight line, Issac used 3 boards like the one shown below.



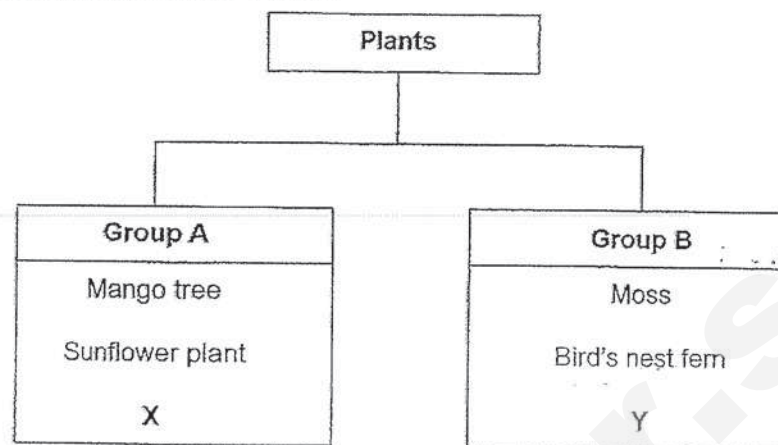
To carry out his experiment, Issac must \_\_\_\_\_.

- A: use boards of the same size
- B: use boards made of opaque material
- C: use boards made of transparent material
- D: place a light source or an object at one end of the three boards

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



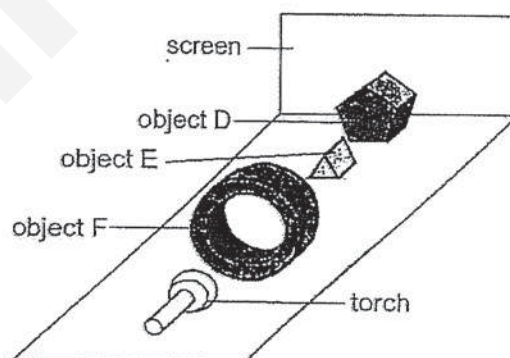
22. Study the classification table below.



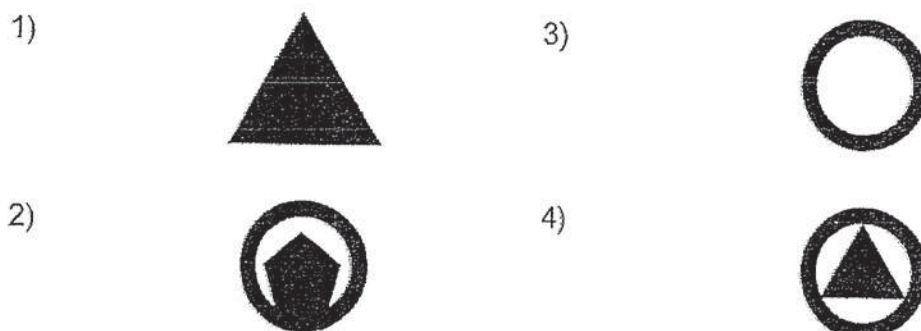
Which plants can X and Y be?

	X	Y
1)	Hibiscus plant	Grass
2)	Carnation plant	Dragon scale fern
3)	Mushroom	Rose plant
4)	Staghorn fern	Ladder fern

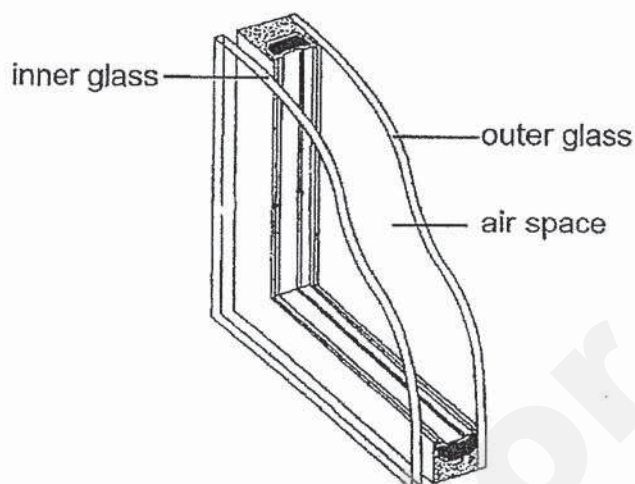
23. Three opaque objects, D, E and F, are placed one in front of the other and a torch is shone on them from the front as shown below.



Which one of the following shadows is most likely to be seen on the screen?



24. In cold countries, houses have windows that are constructed using two pieces of glass panes as shown below.



Which one of the following shows how the windows keep the house warm on a cold day?

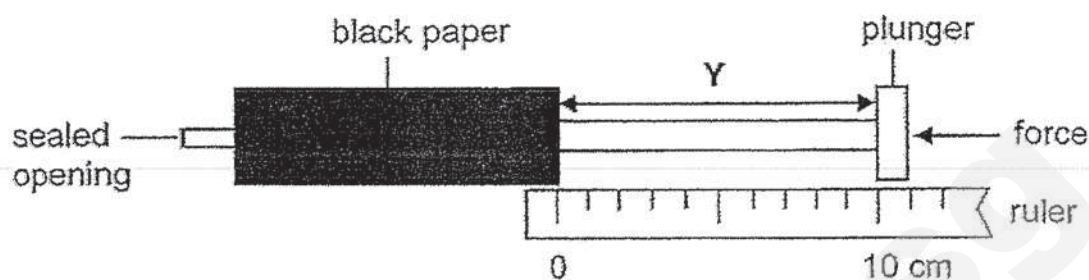
	Materials	Type of heat conductor	Conduction of heat from house to outside of house
1)	glass	good	faster
2)	air	good	slower
3)	air	poor	slower
4)	glass	poor	faster

25. The temperature of a glass of milk was measured and found to be at  $55^{\circ}\text{C}$ . It was left on the table for 12 minutes in SCGS canteen which had a room temperature of  $30^{\circ}\text{C}$ . The temperature of the milk was measured again. What would the temperature of milk likely be?

- |                         |                         |
|-------------------------|-------------------------|
| 1) $20^{\circ}\text{C}$ | 3) $55^{\circ}\text{C}$ |
| 2) $30^{\circ}\text{C}$ | 4) $75^{\circ}\text{C}$ |



26. Amos filled two identical syringes completely, one with air and one with oil. Then he covered them with black paper as shown in the diagram below.



He then pushed each plunger as hard as he could and measured **Distance Y**. Which one of the following shows the correct values of Y?

	Syringe with Air (Y / cm)	Syringe with Oil (Y / cm)
1)	10	0
2)	0	10
3)	4	10
4)	10	4

27. The diagram below shows a young plant.



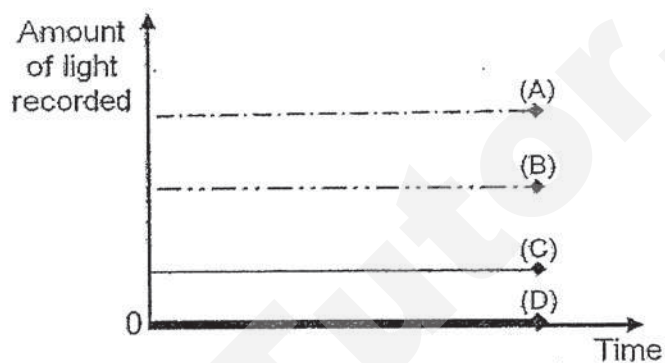
The leaf helps the plant to \_\_\_\_\_.

- |                 |                    |
|-----------------|--------------------|
| 1) make food    | 3) absorb water    |
| 2) grow upright | 4) absorb nutrient |

28. Xiao Yun conducted an experiment to investigate the amount of light that passes through four objects as shown below.

Object
Clear glass
Aluminum foil
Tracing paper
Frosted glass

The graph below shows the amount of light recorded by the light detector for the four objects.



Which line, A, B, C or D, shows the results for aluminium foil?

- 1) A
- 2) B

- 3) C
- 4) D

~ End of Booklet A ~

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SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)

SECOND SEMESTRAL ASSESSMENT 2019

NAME: \_\_\_\_\_ (     )

DATE: 22 October 2019

CLASS: PRIMARY 4 SY / C / G / SE / P

Parent's Signature:

SCIENCE  
BOOKLET B

	Total Actual Marks	Total Possible Marks
Booklet A		56
Booklet B		44
Total		100

13 questions

44 marks

Total time for Booklets A & B: 1 h 45 min

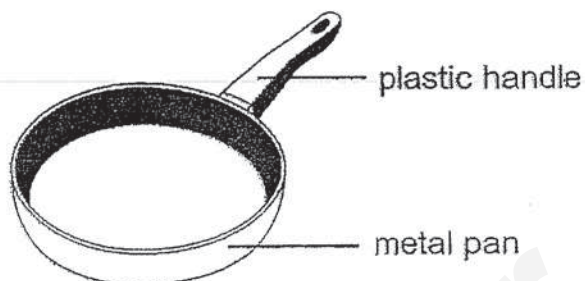
**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

**FOLLOW ALL INSTRUCTIONS CAREFULLY.**

**Part II (44 marks)**

Answer all the following questions.

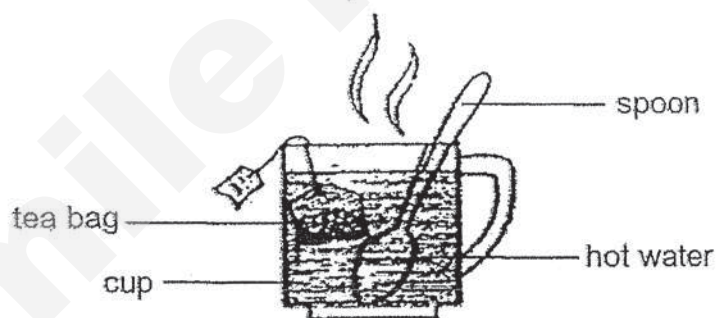
29. The diagram below shows a frying pan.



a) The handle is made of plastic because it is a \_\_\_\_\_ conductor of heat. [1]

b) The pan is made of metal because it is a \_\_\_\_\_ conductor of heat. [1]

c) The diagram below show a cup containing some hot water, a tea bag and a spoon.

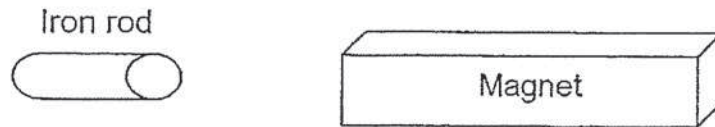


Put a tick (✓) in the appropriate box to show heat gain and/or heat lost during the first 2 minutes. [2]

	Heat gain	Heat lost
tea bag		
hot water		
spoon		
cup		



30. Look at the diagram below.



Parvati places a magnet near an iron rod. The iron rod moves towards the magnet.

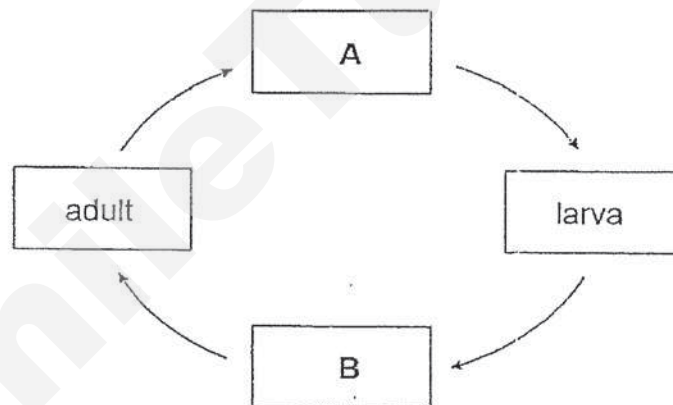
a) The magnet exerts a \_\_\_\_\_ on the iron rod. [1]

b) Choose the correct word from the box to answer the question below. [1]

strong	flexible	magnetic
--------	----------	----------

Parvati's observation shows that iron is a \_\_\_\_\_ material.

31a. The diagram below shows the stages in the life cycle of a mosquito.



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

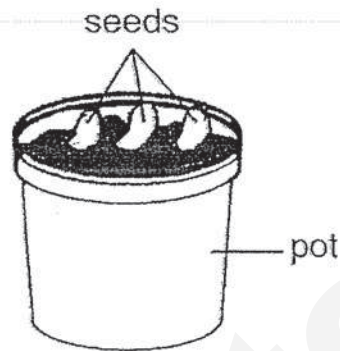
seed	pupa	nymph	egg
------	------	-------	-----

Name the two stages A and B. [2]

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

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

- 31b. Ajay wants to find out whether light is necessary for a seed to develop into a young plant. He placed four similar pots, W, X, Y and Z, in 4 different locations. Each pot contains 3 seeds and the same amount of soil as shown in the diagram below.



Study the table below.

Pot	Location of seeds in Science Room	Soil
W	in the metal cupboard	dry
X	in the metal cupboard	wet
Y	in the refrigerator	wet
Z	near the open window	wet

- (i) Which two of the pots shown above should Ajay use in his experiment to fulfill his aim and ensure a fair test? Explain your answer. [2]

---

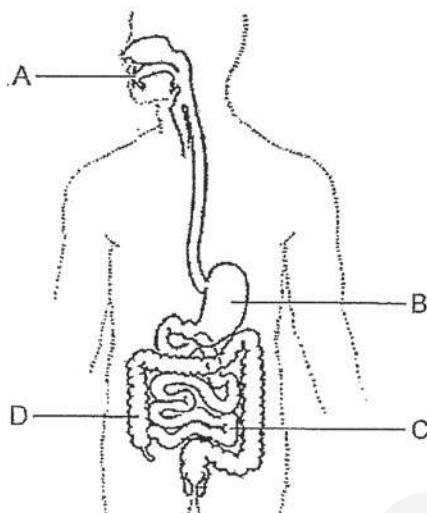


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- (ii) If Ajay wants to find out whether the amount of water affects the growth of seeds, which two pots should he use in his experiment? [1]

---

32. The diagram below shows the human digestive system.



Fill in the blanks with the correct letter, A, B, C or D for Questions (a) to (c).

- a) Digestion first takes place at \_\_\_\_\_ [1]
- b) There is no digestion at \_\_\_\_\_ [1]
- c) Digested food is absorbed into the blood at \_\_\_\_\_ [1]
- d) \_\_\_\_\_ is removed from the undigested food at D. [1]

33. Look at the pictures. Tick (✓) on the source(s) of light.

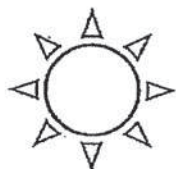
Put a cross (x) for those that are not source(s) of light. [2]

☐

The Sun

☐

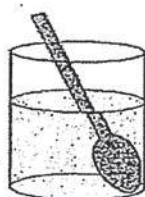
eyes


☐

water

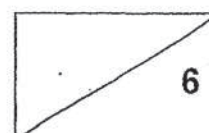
☐

lighted matchstick

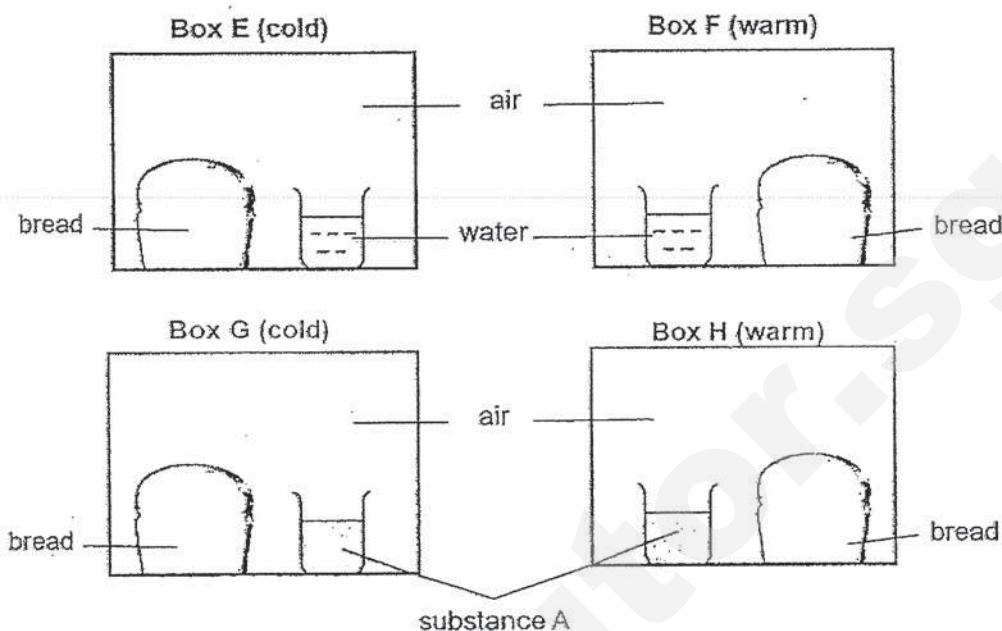


B - 4

(Go on to the next page)



34. Kim Seng placed four similar pieces of bread in four identical sealed boxes, E, F, G and H. Substance A absorbs water from the surroundings.



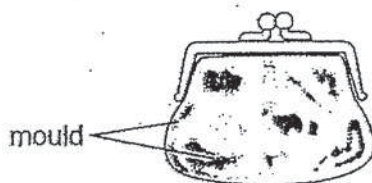
- a) In which box, E, F, G or H, would fungus first appear on the bread? Give a reason for your answer. [2]

---



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- b) Kristen and Lily had similar leather purses. Both purses became equally wet due to heavy rain. Kristen kept her purse in her closet but Lily put her purse under the Sun for 5 hours before keeping it in her closet.



A month later, mould was found on Kristen's purse but not on Lily's purse. Explain why Lily did not find mould on her purse. [2]

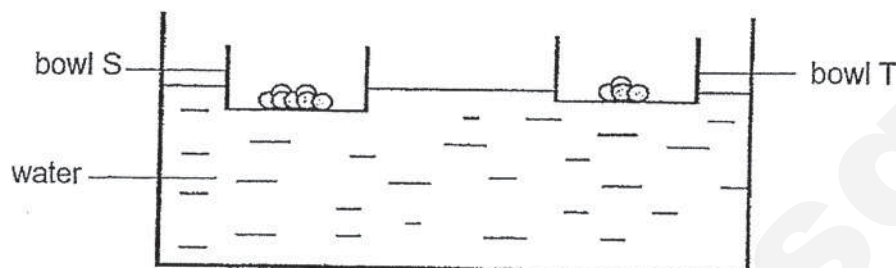
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35. Rebecca wanted to find out the relationship between the number of stones in a bowl and how much the bowl would sink when it was put in water. She placed a different number of similar stones in two identical bowls, S and T.

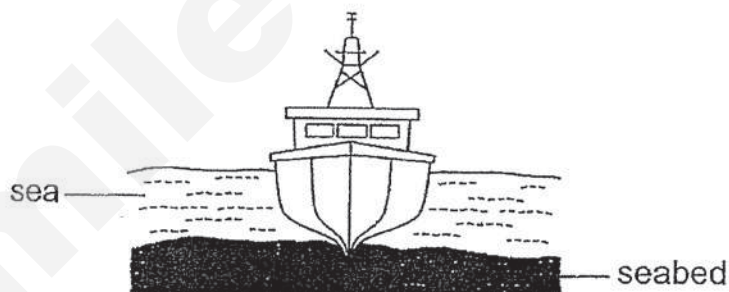


- a) Based on the results shown in the diagram above, what is the relationship between the number of stones and how much the bowl would sink? [1]

---

---

- b) A ship carrying a full load of fish was stuck on the seabed as shown below.



The fishermen threw away some of their fish so that the ship could be lifted off the seabed and moved forward.

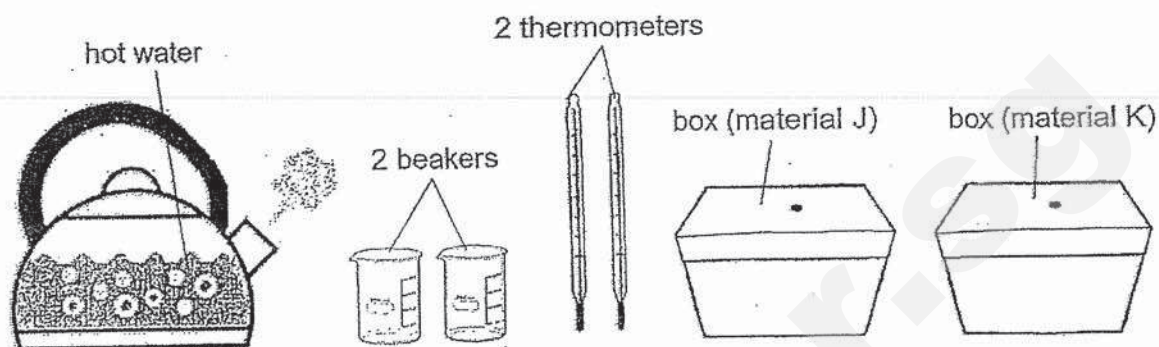
Based on your answer in (a), why did the ship manage to lift off the seabed and moved forward after throwing some fish away? [1]

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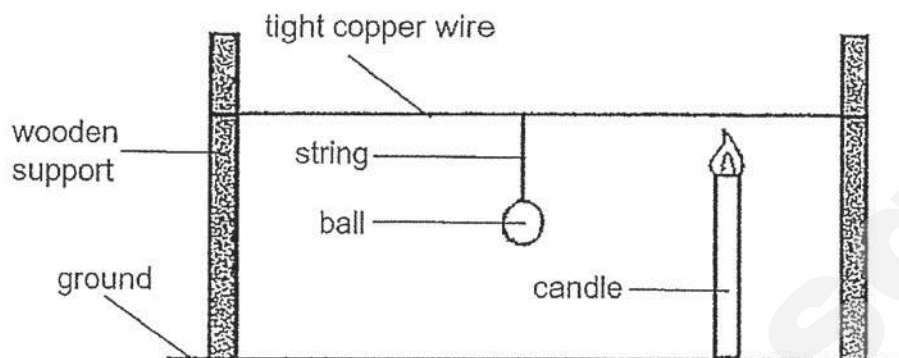
36a. Ah Lian wants to conduct an experiment to find out which material, J or K, is better at keeping water warm. She has a flask of hot water at  $100^{\circ}\text{C}$  and the following apparatus as shown below.



Using the numbers, 1 to 4, put the steps in the correct order for Ah Lian to conduct the experiment. [2]

Description of step	Step
Repeat the experiment 3 times.	
Place a thermometer into each beaker of water. Then, place one beaker of hot water in each of the boxes made of material J and K.	
Fill 2 identical beakers with hot water at $100^{\circ}\text{C}$ .	
Record the reading on the thermometers every 5 minutes without taking out the thermometers.	

36b. Study the set-up shown below.



(i) What will happen to the ball when the wire is heated over some time?

Tick (✓) the correct observation.

[1]

Observations of the ball	Tick (✓) correct observation
Move nearer to the ground	
Remains in the same position	
Move further away from the ground	

(ii) Based on the answer in (i), explain your answer.

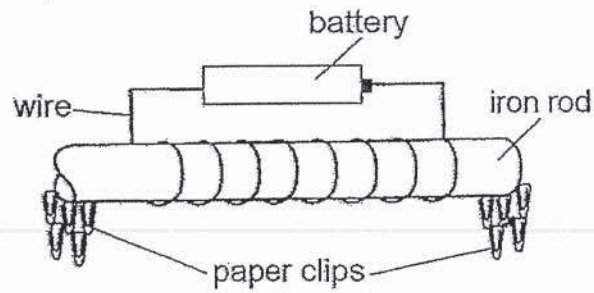
[1]

---



---

37. Study the diagram below.



a) What will happen to the paper clips if the battery is removed? [1]

---

---

b) Explain your reason in (a). [1]

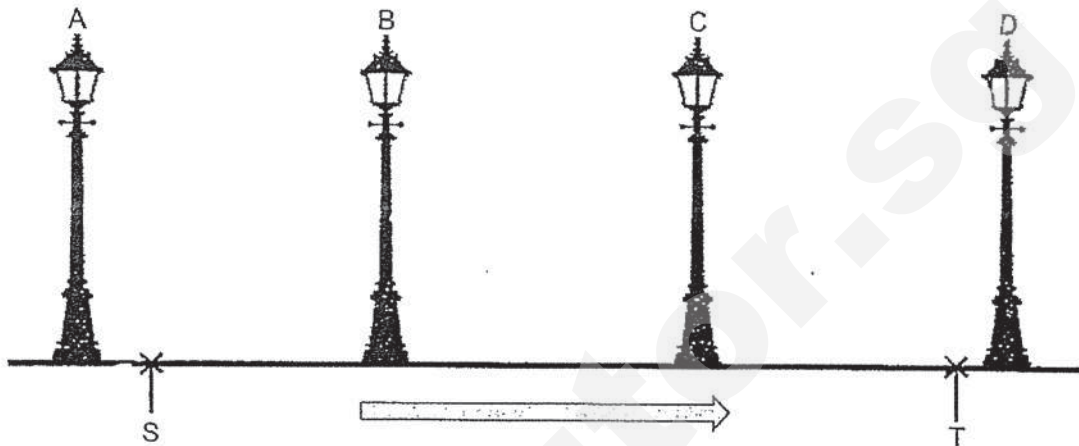
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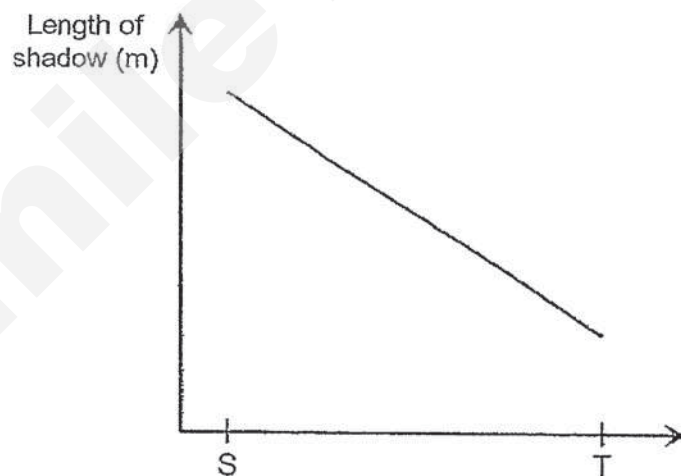
c) Suggest two ways to make the iron rod attract more paper clips. [2]

38a. One dark night, Aishah jogged from point S to point T as shown in the diagram below.

There were 4 street lamps, A, B, C and D, along the street but **only one** lamp was working.



The graph below shows how the length of Aishah's shadow changed as she jogged from point S to point T.

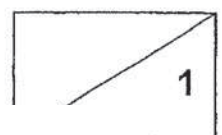


Based on the graph above, which one of the lamps, A, B, C or D, was lighting up the street?

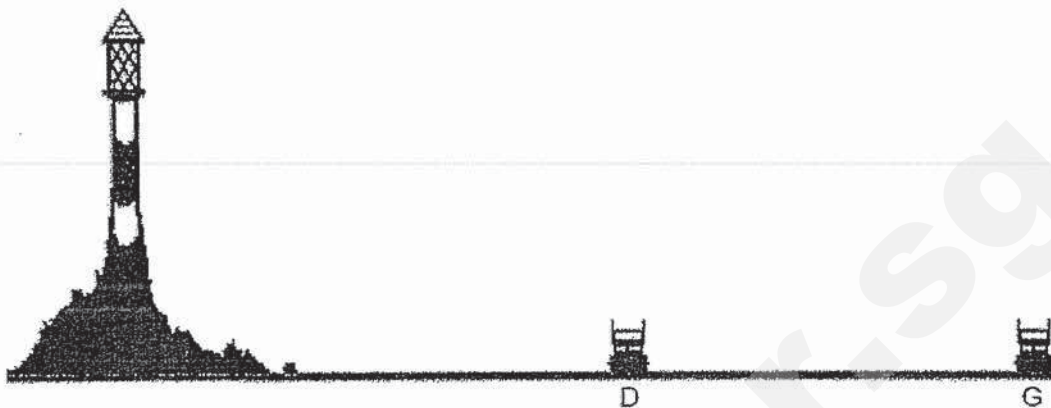
**Circle** your answer.

[1]

A	B	C	D
---	---	---	---



- 38b. The diagram below shows a lighthouse on a rock. It was night-time and there was no other light sources nearby where boats, D and G, were anchored.



- (i) Which boat, D or G, has a longer shadow? [1]

---

- (ii) The table below shows how much light Paints A, B and C can reflect when the same light was shone on them.

Amount of light reflected (Units)		
A	B	C
10	80	35

Which paint should be used to paint the boats to avoid collision and accidents ? Explain your answer. [2]

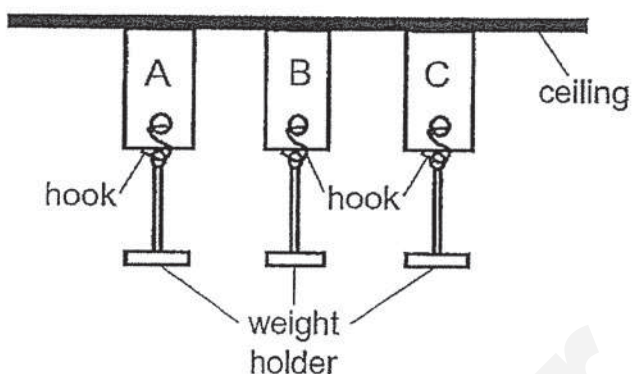
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39a. An experiment is carried out to find out which type of material is the strongest as shown in the diagram below.



The table below shows the mass of the load till the material breaks.

Material	Mass of load till the material breaks
A	400g
B	200g
C	300g

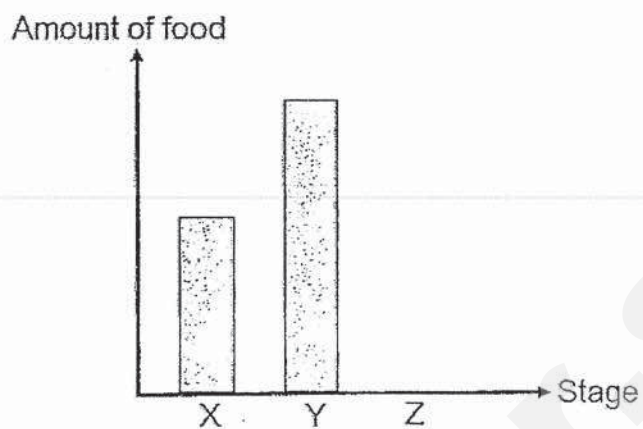
Tick (✓) the variable/s which must be kept the same/constant for the above experiment. [2]

	Variable	Must be kept constant (✓)
(i)	Type of material	
(ii)	Size of material	
(iii)	Colour of the material	
(iv)	Thickness of the material	

39b. Which material is most suitable for making bag to hold canned food? [1]

\_\_\_\_\_

40. The graph shows the amount of food eaten by a butterfly throughout its life cycle after it hatches.



- a) Which part of the graph, X, Y or Z, represents the pupal stage of the butterfly?  
Explain your answer. [2]

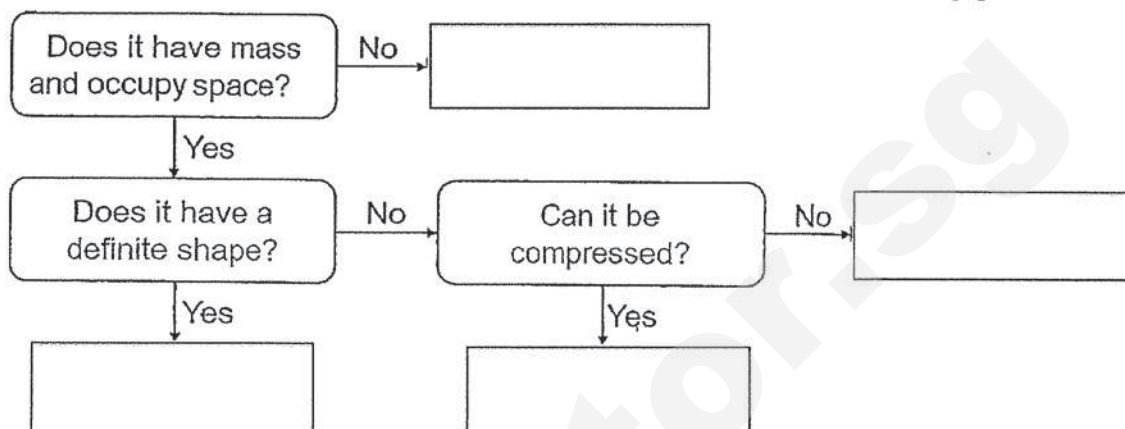
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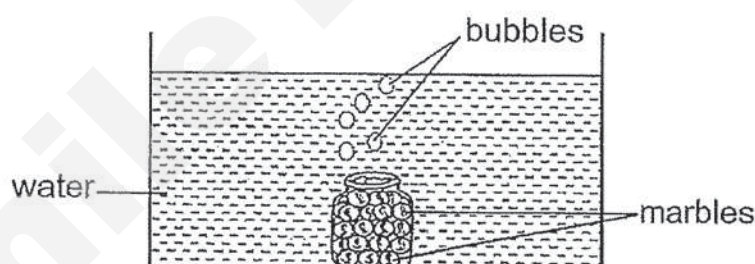
41a. Study the table and fill in the boxes with helping words below.

gas	solid	liquid	non-matter
-----	-------	--------	------------

[2]



41b. Zack placed a jar of marbles into a basin filled with water. He observed that air bubbles from the jar of marbles rose to the surface.



Why did the bubbles appear when the jar of marbles was placed in the basin? [2]

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~ End of Booklet B ~

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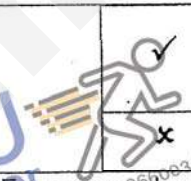
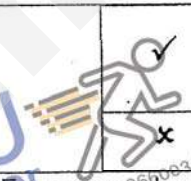
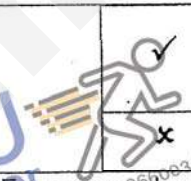


**SINGAPORE CHINESE GIRLS' SCHOOL**  
**SECOND SEMESTAL P4 SCIENCE EXAMINATION 2019**

**Part 1 (56m)**

1.	4	6	3	11	1	16	2	21	2	26	3
2.	3	7	1	12	4	17	3	22	2	27	1
3.	2	8	4	13	4	18	2	23	2	28	4
4.	2	9	3	14	2	19	3	24	3		
5.	4	10	1	15	3	20	4	25	2		

**Part 2 (44m)**

S/N	Recommended Answers																				
29	a) bad / poor                      b) good																				
29c	<table><tr><td></td><td>Heat gain</td><td>Heat lost</td></tr><tr><td>tea bag</td><td>✓</td><td></td></tr><tr><td>hot water</td><td></td><td>✓</td></tr><tr><td>spoon</td><td>✓</td><td></td></tr><tr><td>cup</td><td>✓</td><td></td></tr></table>							Heat gain	Heat lost	tea bag	✓		hot water		✓	spoon	✓		cup	✓	
	Heat gain	Heat lost																			
tea bag	✓																				
hot water		✓																			
spoon	✓																				
cup	✓																				
30a	pull / force/ magnetic force																				
30b	magnetic																				
31a	A: egg                      B: pupa																				
31bi	a) X and Z b) The <b>variables</b> in both set-ups X& Y are kept the same, except the <b>amount of light/ sunlight</b> they are exposed to OR X and Z are <b>both warmth and have wet soil</b> , but they have <b>different amounts of light</b> .																				
31bii	W and X																				
32	a) A    b) D    c) C    d) Water																				
33	<table><tr><td></td><td>The Sun</td><td>x</td><td>eyes</td></tr><tr><td></td><td>water</td><td>✓</td><td>matchstick</td></tr></table>							The Sun	x	eyes		water	✓	matchstick							
	The Sun	x	eyes																		
	water	✓	matchstick																		
34a	Box F. Fungus needs <b>warmth and moisture/water</b> to grow well. (Note – pupil needs to specify which of the factors affecting growth of fungi are what F has that the other boxes may lack)																				
34b	Putting purse under the Sun helps <b>remove water / moisture</b> from it. <b>Without moisture/water, mould will not be able to grow</b> on Lily's purse.																				
35a	The <b>more stones</b> there are, the <b>more/ lower</b> the <b>bowl</b> would sink.																				
35b	When the fish is removed, the ship will be <b>lighter</b> and the <b>ship</b> would <b>float up more/ rise higher/ sink less into seabed</b> .																				
36a	4   2   1   3																				
36bi	<table><tr><th>Observations of the ball</th><th>Tick (✓) correct observation</th></tr><tr><td>Move nearer to the ground</td><td>✓</td></tr><tr><td>Remains in the same position</td><td></td></tr><tr><td>Move further away from the ground</td><td></td></tr></table>						Observations of the ball	Tick (✓) correct observation	Move nearer to the ground	✓	Remains in the same position		Move further away from the ground								
Observations of the ball	Tick (✓) correct observation																				
Move nearer to the ground	✓																				
Remains in the same position																					
Move further away from the ground																					
36bii	The <b>copper wire</b> gains heat, expands and becomes longer.																				



**SINGAPORE CHINESE GIRLS' SCHOOL  
SECOND SEMESTAL P4 SCIENCE EXAMINATION 2019**

S/N	Recommended Answers															
37a	The paper clips will drop / fall off.															
37b	The iron rod loses its magnetism/ is no longer a magnet when the battery is removed.															
37c	Any 2 of the following: <ul style="list-style-type: none"> <li>- Add / use more batteries.</li> <li>- Make more turns / coiling/ coils of the wire <u>around the rod</u>.</li> <li>- Use batteries of higher voltage.</li> </ul>															
38a	D (Note that the light is cast from above)															
38bi	G (Note that the light is cast from above)															
38bii	B The ship can be seen by other ships most easily. OR The ship can reflect the most light.															
39a	<table border="1"> <thead> <tr> <th></th><th>Variable</th><th>Must be kept constant (✓)</th></tr> </thead> <tbody> <tr> <td>(i)</td><td>Type of material</td><td></td></tr> <tr> <td>(ii)</td><td>Size of material</td><td>✓</td></tr> <tr> <td>(iii)</td><td>Colour of the material</td><td></td></tr> <tr> <td>(iv)</td><td>Thickness of the material</td><td>✓</td></tr> </tbody> </table>		Variable	Must be kept constant (✓)	(i)	Type of material		(ii)	Size of material	✓	(iii)	Colour of the material		(iv)	Thickness of the material	✓
	Variable	Must be kept constant (✓)														
(i)	Type of material															
(ii)	Size of material	✓														
(iii)	Colour of the material															
(iv)	Thickness of the material	✓														
39b	A															
40a	Z. At the pupal stage, the pupa will not eat any food.															
41a	<pre> graph TD     Q1[Does it have mass and occupy space?] -- No --&gt; NM[Non-matter]     Q1 -- Yes --&gt; Q2[Does it have a definite shape?]     Q2 -- No --&gt; Q3[Can it be compressed?]     Q3 -- No --&gt; L[Liquid]     Q3 -- Yes --&gt; G[Gas]     Q2 -- Yes --&gt; S[Solid]           </pre>															
41b	<p>There was <u>air trapped among the marbles</u> in the jar / There were <u>air spaces among the marbles</u> in the jar.</p> <p><u>Water from the basin took up/ occupied the space previously occupied by these air spaces/ displaced the air</u> and <u>air escaped</u> as the bubbles that appeared.</p>															

2  
8NP.

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## **2019 PRIMARY 4 SEMESTRAL ASSESSMENT 2**

Name : \_\_\_\_\_ (    )

Date: 22 October 2019

Class : Primary 4 (    )

Time: 8.00 a.m. - 9.30 a.m.

Parent's signature:

Duration: 1 hour 30 minutes

# **SCIENCE**

## **BOOKLET A**

### **INSTRUCTIONS TO CANDIDATES**

1. Write your name, class and register number.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers on the Optical Answer Sheet (OAS) provided.

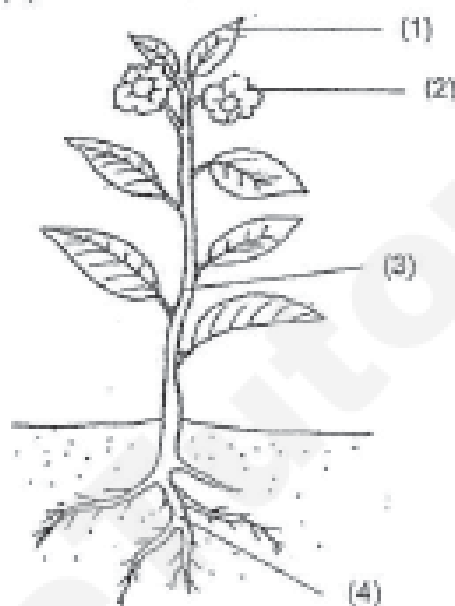
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**Booklet A (22 x 2 marks)**

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)

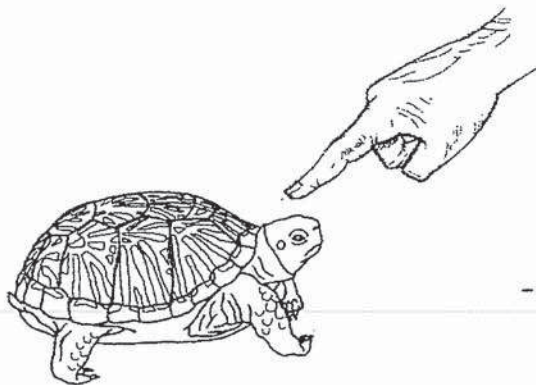
1. The diagram below shows a plant.  
Which part (1), (2), (3) or (4) is the leaf?



2. In which part of the digestive system is the digested food absorbed into the blood?
- (1) gullet
  - (2) mouth
  - (3) small intestine
  - (4) large intestine



3. Animal A hides itself in its shell when touched.

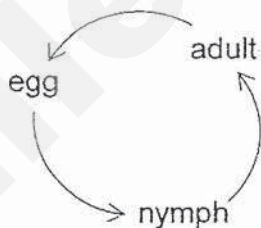


Animal A

This shows that Animal A is a living thing because it can \_\_\_\_\_.

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

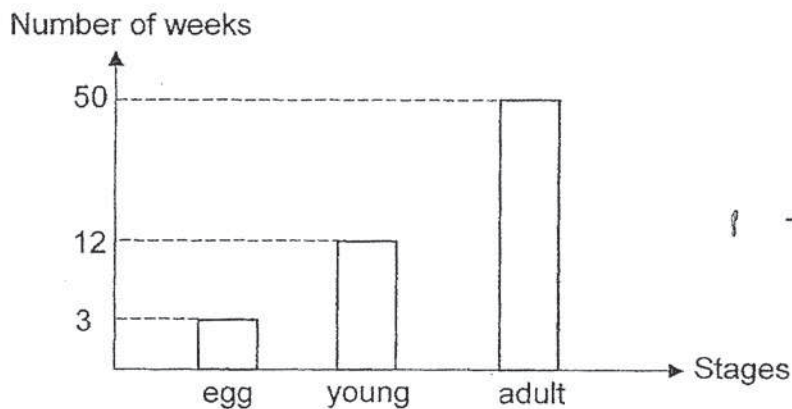
4. The diagram below shows the life cycle of an animal.



Which animal below has a similar life cycle to the one shown above?

- (1) frog
- (2) beetle
- (3) caterpillar
- (4) grasshopper

5. The graph below shows the number of weeks in the different stages of the life cycle of animal T.



Based on the graph above, how many weeks will it take for animal T's egg to become an adult after it is laid?

- (1) 12 weeks
  - (2) 15 weeks
  - (3) 50 weeks
  - (4) 65 weeks
6. Which of the following body systems in our body are needed when we swim?
- A. Skeletal system
  - B. Muscular system
  - C. Circulatory system
  - D. Respiratory system
- (1) A and B only
  - (2) C and D only
  - (3) B, C and D only
  - (4) A, B, C and D

7. Mark carried out an experiment to find out how various conditions given affect the growth of plants, A, B and C. The table below shows the conditions in which the plants are grown.

Plant	A	B	C
Duration of plant exposed to light (hours)	8	8	4
Amount of water given per day (ml)	80	40	80

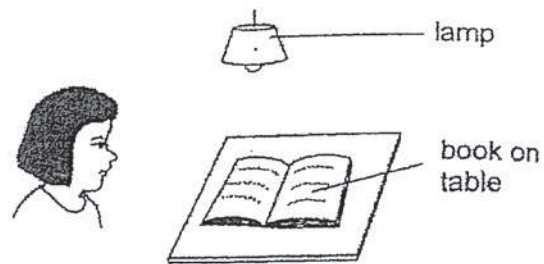
Which pair of plants should Mark compare to find out the following?

	To find out how amount of light affects plant growth	To find out how amount of water affects plant growth
(1)	A and C	A and B
(2)	A and C	B and C
(3)	B and C	A and C
(4)	B and C	A and B

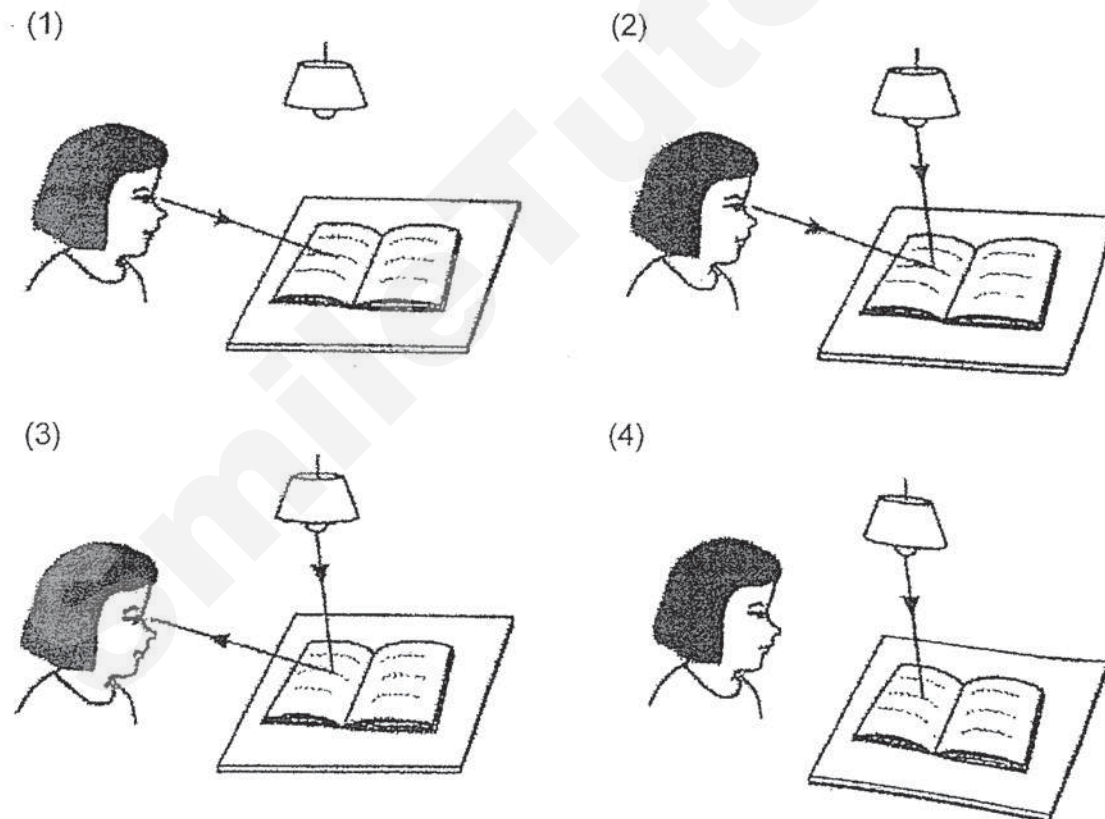
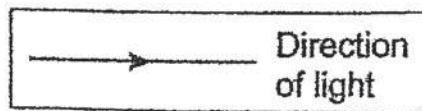
8. Which one of the following substances has a fixed shape?

- (1) air
- (2) oil
- (3) ice
- (4) water

9. Look at the picture below.



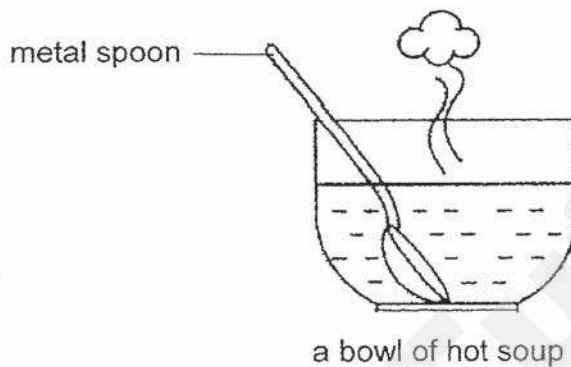
Which of the following explains why Laura can see the book on the table?



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

- (1) a fire
- (2) the Sun
- (3) a lighted lamp
- (4) a pair of socks

11. Faizal places a metal spoon in a bowl of hot soup.

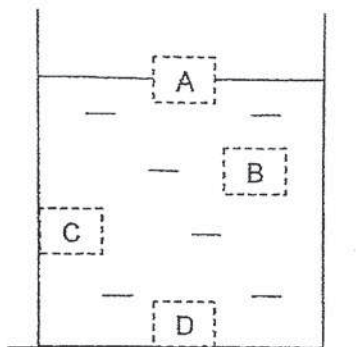


The metal spoon becomes hotter after a while. Which of the following explains this?

- (1) The bowl loses heat to the hot soup.
- (2) The hot soup gains heat from the bowl.
- (3) The metal spoon loses heat to the hot soup.
- (4) The metal spoon gains heat from the hot soup.

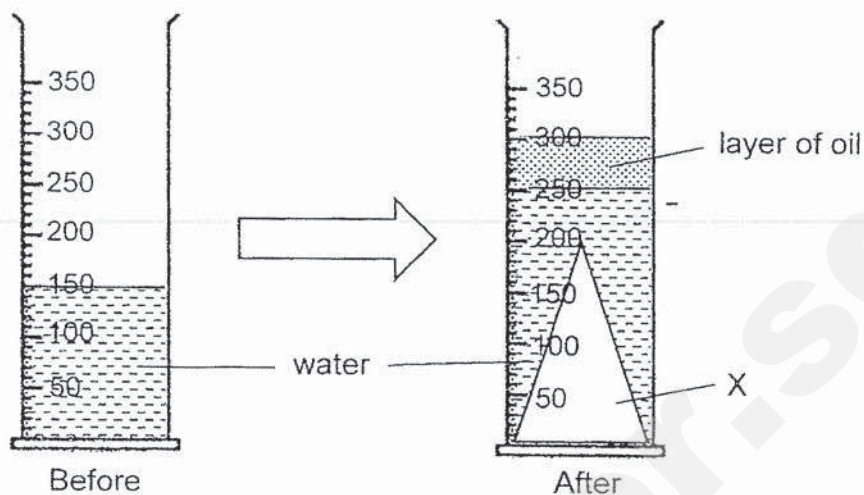


12. Lucas put a styrofoam block into a container of water. At which position, A, B, C or D, would the block most likely be found?



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

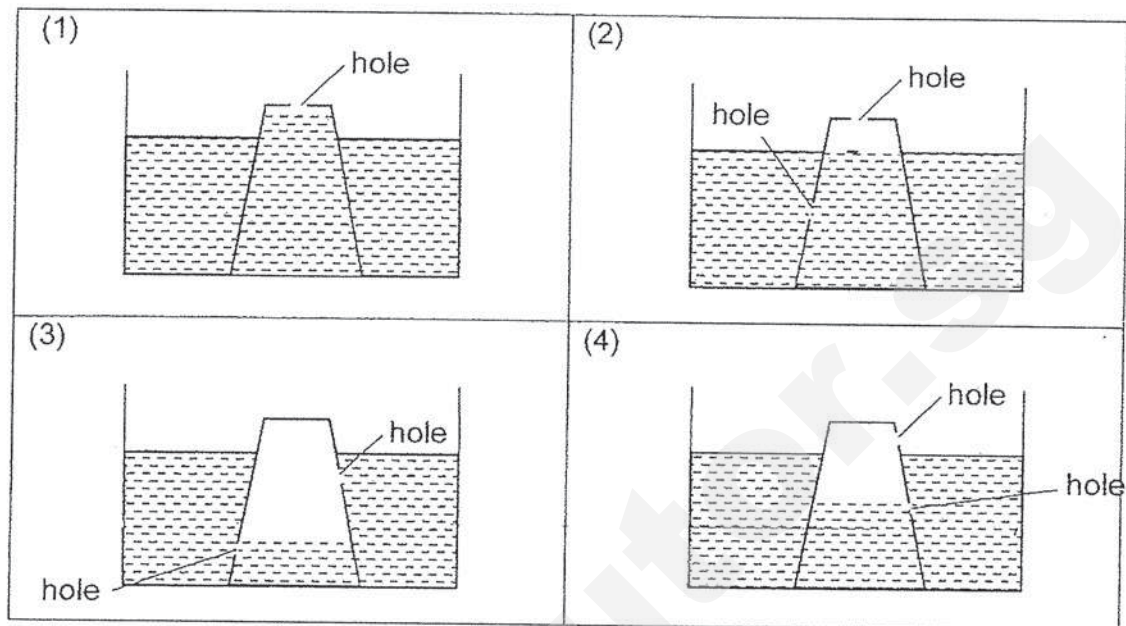
13. A measuring cylinder shown below contains 150 cm<sup>3</sup> of water. Object X was dropped into the measuring cylinder and 50 cm<sup>3</sup> of oil was poured in.



What does the above set-up show about the properties of solids and liquids?

- (1) Solids do not have a fixed volume.
- (2) Liquids do not have a fixed volume.
- (3) Solids and liquids have a fixed volume.
- (4) Solids have a fixed volume but liquids do not have a fixed volume.

14. Wei Sheng has 4 identical plastic cups. He poked holes into the cups, turned them upside down, and submerged them into a container of water. Which diagram shown below is a possible outcome?



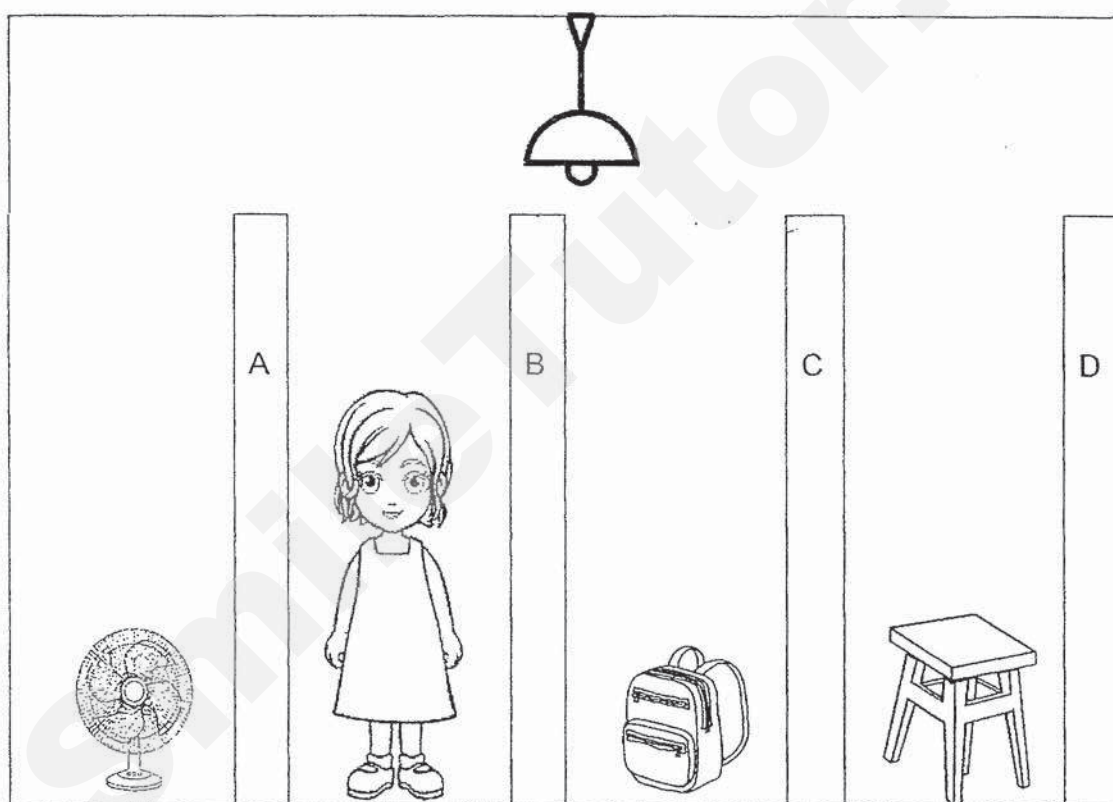
15. We can see a book because it \_\_\_\_\_.

- (1) gives out its own light
- (2) blocks light from light sources
- (3) reflects light from the Sun
- (4) takes in light from the Sun

16. The table below shows the properties of 4 materials, A, B, C and D.

Allows most light to pass through	Allows no light to pass through
A	C
B	D

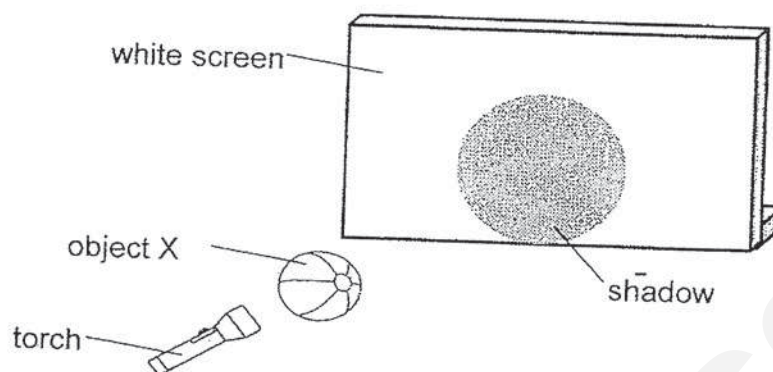
The diagram below shows a lit room separated by walls made from the materials A, B, C and D.



How many object(s) placed behind the walls can the girl see?

- (1) 1
- (2) 2
- (3) 3
- (4) 0

17. The diagram below shows an object X casting a shadow on a fixed screen.



Using the same torch and object, how can a larger shadow be formed?

- (1) Move the object nearer to the torch.
  - (2) Move the object nearer to the screen.
  - (3) Move the screen nearer to the object.
  - (4) Move the torch further from the screen.
18. Observe the set-up below.
- 
- The diagram shows a laboratory setup. A conical flask is placed on a stand and heated by a Bunsen burner flame, indicated by an upward arrow labeled 'heat'. A glass tube is inserted into the neck of the flask. A 'drop of ink' is shown at the top of the tube. The other end of the glass tube is submerged in a 'container of water'. Labels with leader lines identify the 'flask', 'drop of ink', 'glass tube', and 'container of water'.

Which of the following is a possible observation when the bottom of the flask is heated?

- (1) Water enters the glass tube.
- (2) The drop of ink moves to the left.
- (3) The water level in the container drops.
- (4) Bubbles come out from the glass tube.



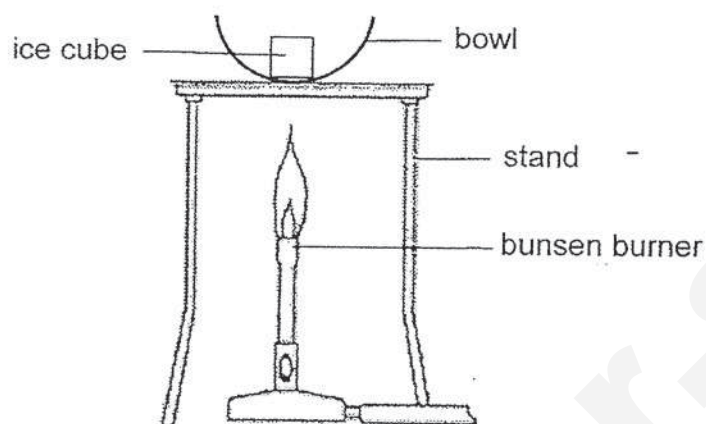
19. Mr Singh left 4 identical spoons made of different materials, Q, R, S and T in the freezer overnight. Next morning, he took them out of the freezer and left them in the Sun. After 5 minutes, he recorded the temperatures of the spoons. The results are shown in the table below.

Material	Temperature after 5 minutes in the Sun ( $^{\circ}\text{C}$ )
Q	34
R	15
S	10
T	27

Which material, Q, R, S or T, would be most suitable to make a container for keeping food warm the longest time?

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

20. Hui Ling has 4 bowls, A, B, C and D, made of different materials. The bowls are of the same size and thickness. She placed an identical ice cube in each bowl and heated the bowls over a flame for 7 minutes as shown below.




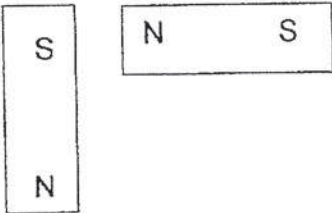
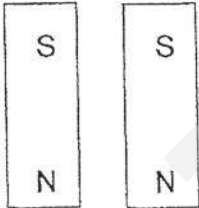
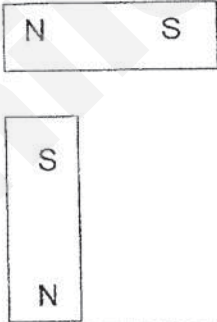
She recorded her observations in the table below.

Bowl	State of the ice cube after		
	3 minutes	5 minutes	7 minutes
A	liquid	liquid	gas
B	solid	liquid	liquid
C	liquid	liquid	liquid
D	solid	solid	solid

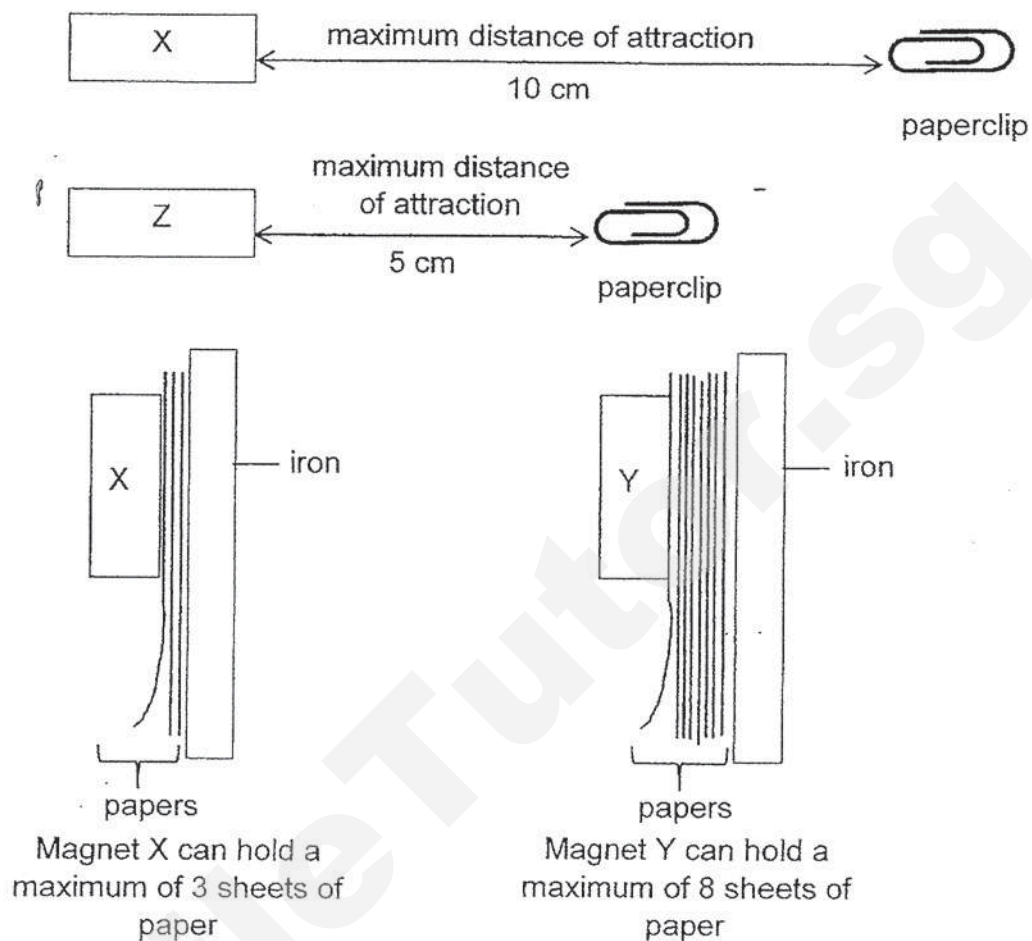
Which bowl is the best conductor of heat?

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

21. In which of the following will the two magnets push each other away?

1	
2	
3	
4	

22. Study the following observations of magnets, X, Y and Z interacting with two identical paper clips and identical sheets of paper.



Which arrangement of magnets X, Y and Z, shows the weakest magnet to the strongest magnet?

- (1) X, Y, Z
- (2) Y, X, Z
- (3) Z, Y, X
- (4) Z, X, Y

End of Booklet A



## **2019 PRIMARY 4 SEMESTRAL ASSESSMENT 2**

Name : \_\_\_\_\_

Date: 22 October 2019

Class : Primary 4 \_\_\_\_\_

Time: 8.00 a.m. – 9.30 a.m.

Parent's Signature : \_\_\_\_\_

Duration: 1 hour 30 minutes

# **SCIENCE**

## **BOOKLET B**

### **INSTRUCTIONS TO CANDIDATES**

1. Write your name, class and register number.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers in the booklet.

Booklet A	44
Booklet B	36
Total	80

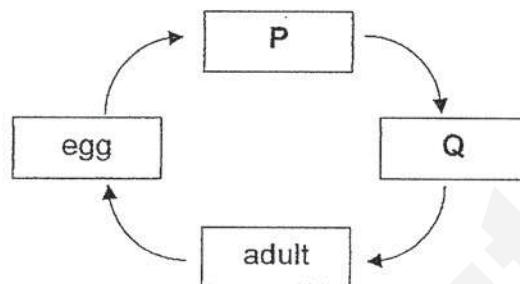


**Booklet B (36 marks)**

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



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

seed	pupa	larva	nymph
------	------	-------	-------

Name the two stages, P and Q.

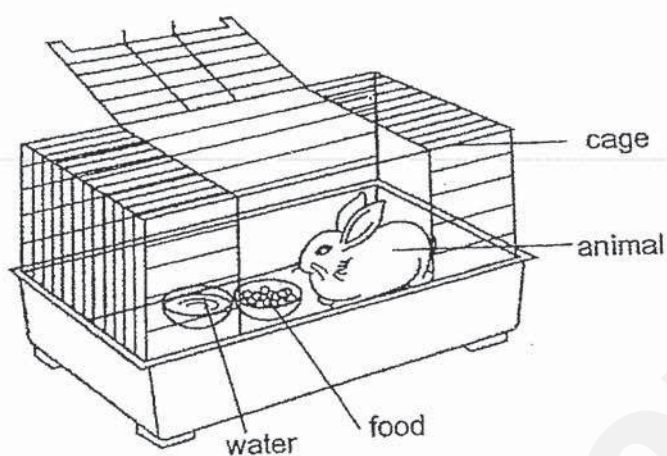
[2]

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

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

Score	2
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24. Study the diagram below.



- (a) After a few days, will the amount of water in the bowl increase, decrease or remain the same? [1]

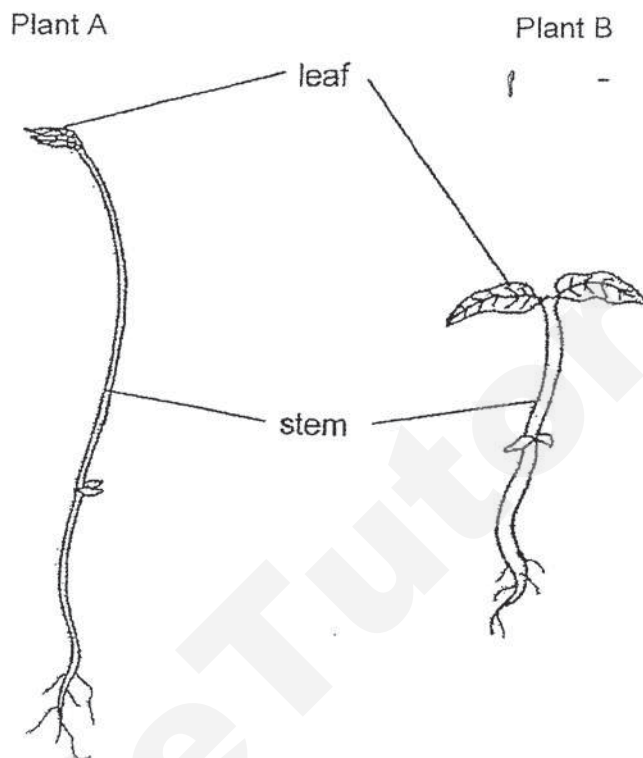
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- (b) Based on the diagram above, name one substance this animal needs so it remains alive. [1]

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Score	2
-------	---

25. The diagram below shows two plants.



(a) What is one difference between the stem of plant A and the stem of plant B? [1]

The stem of plant A is \_\_\_\_\_ than the stem of plant B.

(b) The leaves help both plants make \_\_\_\_\_ in the light. [1]

(c) The roots help both plants absorb \_\_\_\_\_ and mineral salts from the soil. [1]

Score	3
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26. Jamie was eating rice with a pair of chopsticks.



Jamie took one mouthful of rice and chewed 10 times before swallowing. She then took another mouthful of rice and chewed 20 times before swallowing.

- (a) How does increasing number of times she chewed in her mouth affect the amount of undigested food before swallowing? [1]

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- (b) Explain your answer in part (a). [1]

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Jamie started talking to her father as she was swallowing the rice. She choked and started to cough.

- (c) Which body system had the rice gone into which had caused Jamie to cough? [1]

---

- (d) Which is the correct body system for the rice to go into after swallowing? [1]

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27. Devi planted 20 identical seeds in each of the four identical containers, A, B, C and D, and placed them at different locations. She watered the seeds with the same amount of water every day and recorded the number of seeds germinated in each container after 3 days in the table below.

Container	Temperature of the surroundings ( $^{\circ}\text{C}$ )	Number of seeds germinated after 3 days
A	10	1
B	20	10
C	30	15
D	40	0

- (a) Based on the table above, what is the aim of Devi's experiment? [1]

To find out how \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

- (b) Based on the information above, what is the most suitable temperature in order for the most number of seeds to germinate? [1]

\_\_\_\_\_

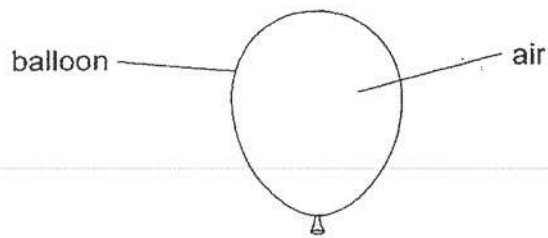
- (c) When the temperature of the surroundings is  $40^{\circ}\text{C}$ , no seeds germinated. Explain why. [1]

\_\_\_\_\_

Score	3
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28. The picture below shows an inflated balloon.



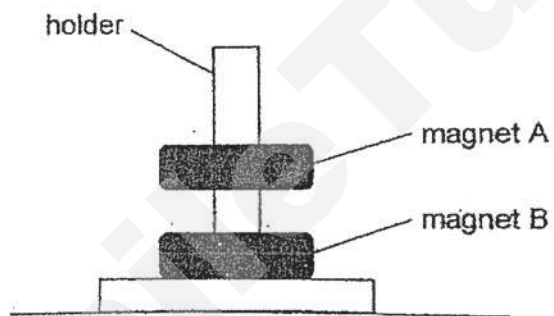
Circle the correct state for the following things.

[2]

(a) air:     solid   /   liquid   /   gas

(b) balloon:     solid   /   liquid   /   gas

29. Kate placed two ring magnets, A and B, through a holder as shown below.



(a) The holder was made of plastic and was not attracted by the magnets.

Plastic is a \_\_\_\_\_ material.

[1]

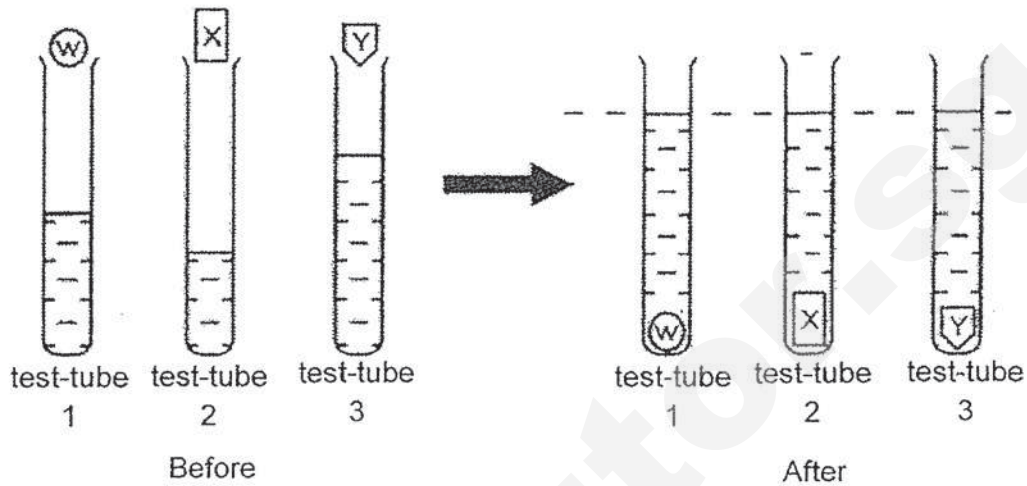
(b) Why was magnet A floating above magnet B?

Magnet B was \_\_\_\_\_ magnet A.

[1]

Score	4
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30. Jordan wanted to compare the volume of three objects, W, X and Y. He dropped each object into three identical test-tubes with different amounts of water. The diagram below shows the experiment.



The water level at the end is the same for all three test-tubes. Jordan concluded that the three objects have the same volume. However, Jordan's classmate said that the volume of X is greater than the volume of Y

- (a) Whose conclusion is correct? Explain why.

[1]

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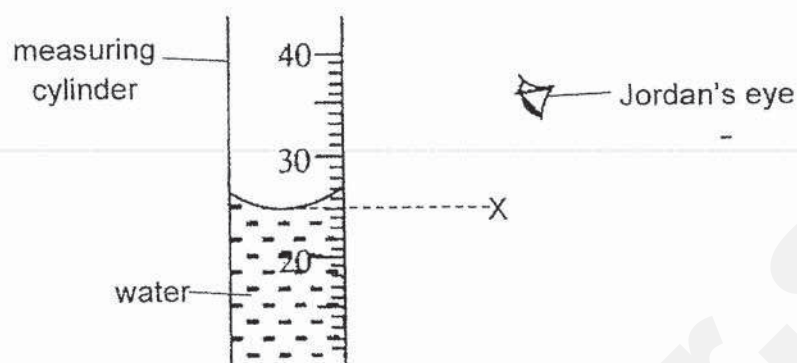
- (b) Based on the above experiment, complete the table below by arranging the volumes of the objects, W, X and Y from smallest to largest.

[1]

Volume	Smallest volume <span style="display: inline-block; width: 150px; border-bottom: 1px solid black;"></span> Largest volume		
Object			

Score	2
-------	---

Jordan measured the volume of water in the containers using a measuring cylinder as shown below.



Jordan's teacher said that Jordan should read the water level from position X.

(c) Explain how reading from position X would affect Jordan's readings. [1]

Jordan could not fit his bag of clothes shown below into a suitcase.

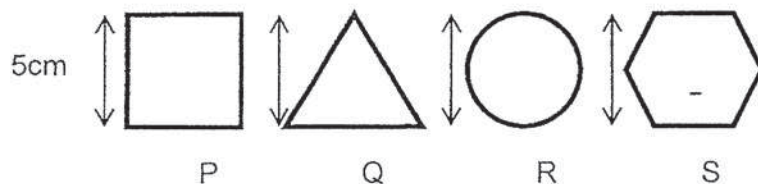


After air had been sucked out from opening P, he was then able to fit the bag of clothes in as shown below.

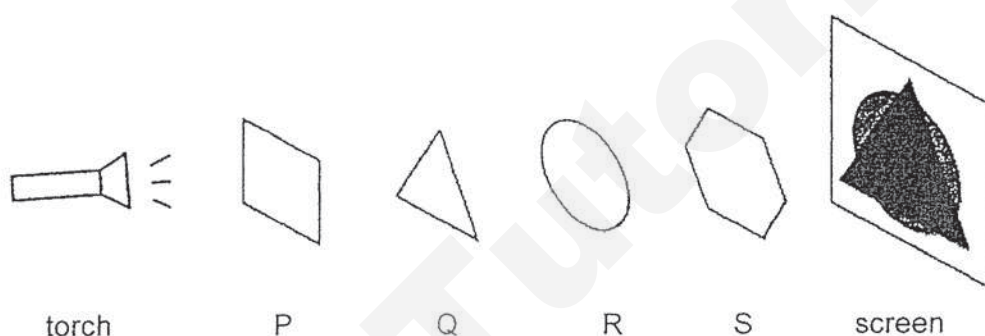


(d) Explain why. [1]

31. The diagram below shows 4 different shapes cut from sheets made of different materials, P, Q, R and S. All of the shapes are of the same height, 5cm.



The shapes were then arranged in a straight line as shown in the diagram below. A torch was then shone at the shapes as shown.



A shadow as shown above was observed on the screen.

- (a) Based on the above, state "most", "some" or "no" for the blanks provided below to describe the properties of the material P, Q, R and S. [2]

P: allows \_\_\_\_\_ light to pass through

Q: allows \_\_\_\_\_ light to pass through

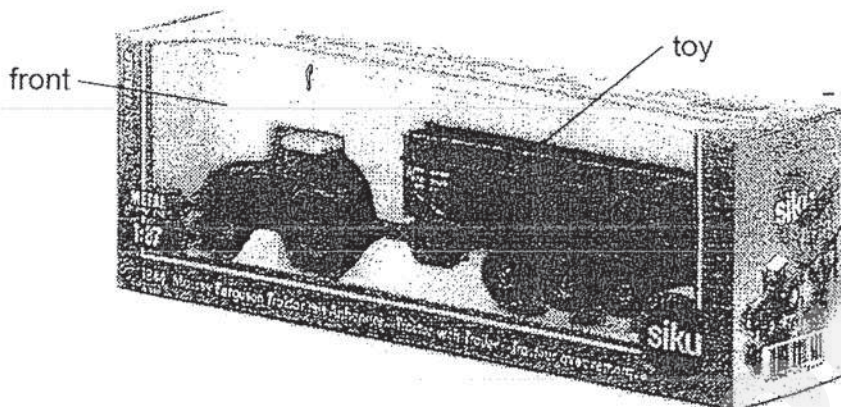
R: allows \_\_\_\_\_ light to pass through

S: allows \_\_\_\_\_ light to pass through

Score	2
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One of the materials P, Q, R and S, was used to make the front of a toy box as shown in the diagram below.



- (b) Based on the results of the experiment, which material, P, Q, R or S, is the most suitable for making the front of the toy box? Explain why. [2]

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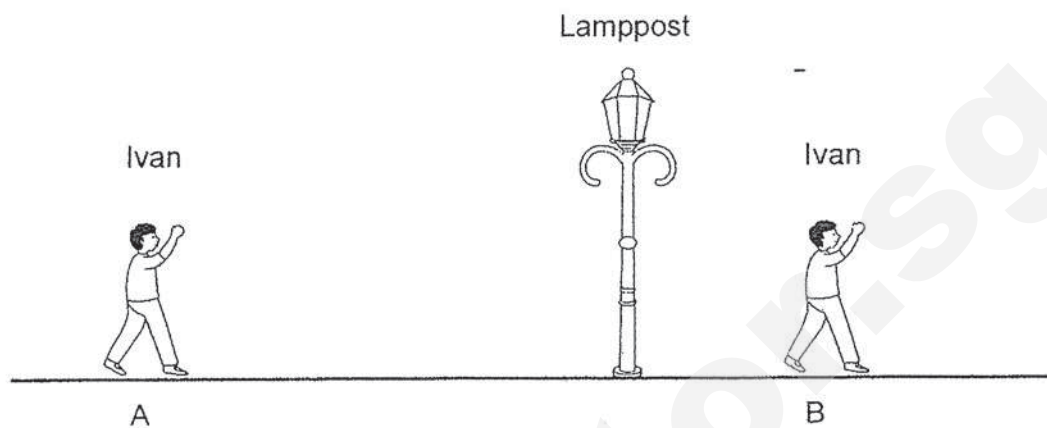


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Score	2
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32. Ivan walked from point A to point B under a lighted lamppost on a dark night as shown below.



(a) How is Ivan's shadow formed?

[1]

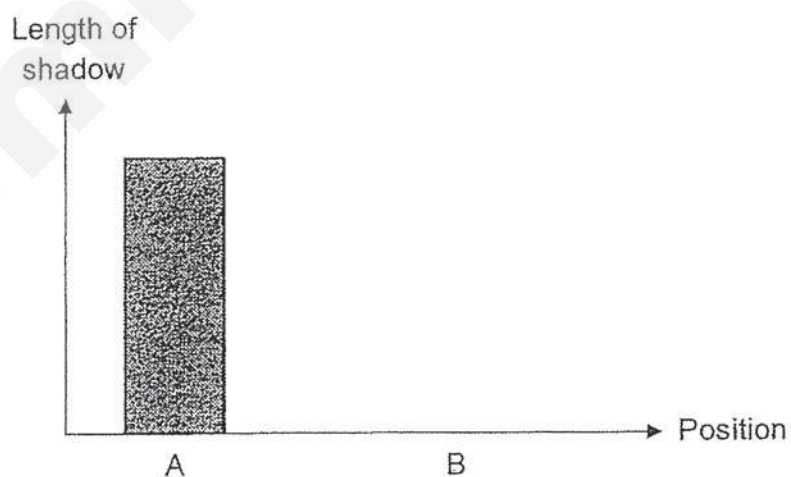
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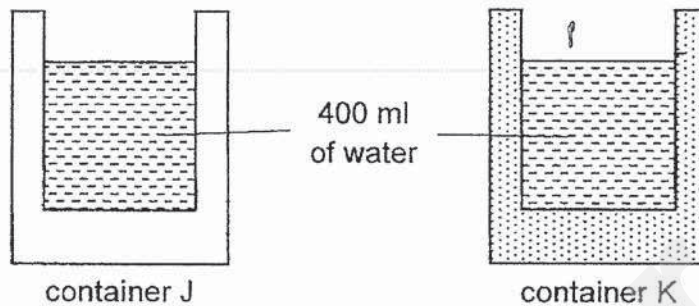
(b) Draw in the bar graph to show the length of Ivan's shadow when he is at position B.

[1]



Score	2
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33. John has two containers, J and K, made of different materials as shown below. The containers are of the same size, shape and thickness. He poured boiling water into the containers and left them in a room at room temperature. He measured the temperature of the water after 1 hour.



He recorded the temperatures of the water in the table below.

Container	Start temperature ( $^{\circ}\text{C}$ )	End temperature after 1 hour ( $^{\circ}\text{C}$ )
J	100	60
K	100	40

- (a) Which container should John use if he wants to bring a tub of ice cream to his friend who lives 1 hour away? Explain why. [2]

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John then set the temperature of the room to  $18^{\circ}\text{C}$  and left the two containers of water in the room overnight for 8 hours.

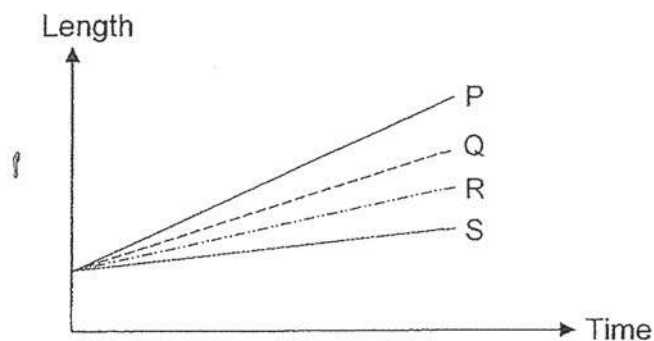
- (b) What will be the temperature of the water in the containers the next day? Explain your answer. [2]

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34. Four rods made of different metals, P, Q, R and S, are heated over a flame. The rods have the same length and thickness. The change in the length of the rods as they are heated is shown in the graph below.



- (a) Explain why the length of the rods increased.

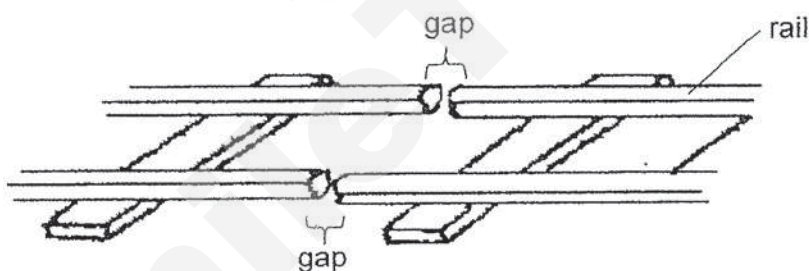
[1]

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Railway tracks are built with gaps in between the rails of the tracks.



- (b) What is the purpose of the gap between the rail?

---

- (c) What would happen to the track if there are no gaps between the rails?

[1]

---

Score	3
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- (d) Which metal, P, Q, R or S, is most suitable for making the tracks? Based on the results from the graph, explain why. [1]

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End of Paper

Score	1
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# ANSWER KEY

YEAR : 2019  
 LEVEL : PRIMARY 4  
 SCHOOL : TAO NAN SCHOOL (PRIMARY)  
 SUBJECT : SCIENCE  
 TERM : SA2

## BOOKLET A

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

## BOOKLET B

Q23 P: larve

Q: pupa

Q24 (a) Decrease

(b) Air/water/food

Q25 (a) Taller/thinner/longer/of greater light

(b) Food

(c) Water

Q26 (a) The less undigested food. / The amount of undigested food decreased.

(b) The more times the rice is chewed, the smaller it becomes, increasing the surface area for digestion.

(c) Respiratory System.

(d) Digestive system.

Q27 (a) To find out how the temperature of the surroundings affect the number of seed germinated after 3 days.

(b) 30°C

(c) The temperature of surrounding, 40°C is too high for the seeds to germinate.

Q28 (a) gas

(b) solid

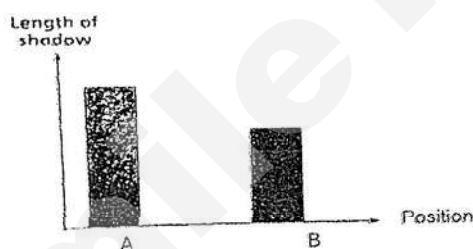
Q29 (a) non-magnetic

(b) repelling

- Q30 (a) Jordan classmate's conclusion is correct. The test-tube 2 has least amount of water initially, so the volume of X is greater than volume of Y.
- (b) smallest volume [  $Y \rightarrow W \rightarrow X$  ] largest volume
- (c) Position X is at directly eye level of the volume of water, hence, it would be more accurate.
- (d) Since air occupies space, the volume of bag becomes smaller when air pushed out from P.

- Q31 (a) P : most  
Q : no  
R : some  
S : most
- (b) Material P allows most light to pass through so that buyers can see the toys inside the toy box.

- Q32 (a) When Ivan's body block the light from the lamppost./ Ivan is opaque.
- (b)



- Q33 (a) Container J. Container J is a poorer conductor of heat and water in J loses heat slower so the tub of ice cream gain heat slower from the surroundings and the ice cream melts slower.
- (b) Room temperature. The water will lose heat to the surroundings until both reach the same of room temperature.
- Q34 (a) The rods gained heat from the flame and expanded.
- (b) To provide space for expansion on a hot day.
- (c) The track would buckle/break/bend/crack.
- (d) Metal S. S expands the least.

2  
3/10.

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