# 2018

# P4 Science

| | | |
|---|---|---|
| 1. | Anglo Chinese School (Junior) | SA1 |
| 2. | Catholic High | SA1 |
| 3. | CHIJ St Nicholas Girls' | SA1 |
| 4. | Henry Park Primary | SA1 |
| 5. | Maris Stella High | SA1 |
| 6. | Methodist Girls' | SA1 |
| 7. | Nan Hua Primary | SA1 |
| 8. | Nanyang Primary | SA1 |
| 9. | Raffles Girls' | SA1 |
| 10. | Singapore Chinese Girls' | SA1 |
| 11. | Tao Nan School | SA1 |
| 12. | Anglo Chinese School (Junior) | SA2 |
| 13. | Catholic High | SA2 |
| 14. | CHIJ St Nicholas Girls' | SA2 |
| 15. | Henry Park Primary | SA2 |
| 16. | Maris Stella High | SA2 |
| 17. | Methodist Girls' | SA2 |
| 18. | Nan Hua Primary | SA2 |
| 19. | Nanyang Primary | SA2 |
| 20. | Raffles Girls' | SA2 |
| 21. | Rosyth School | SA2 |
| 22. | Singapore Chinese Girls' | SA2 |

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| | | |
|---|---|---|
| 23. | Tao Nan School | SA2 |

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# Anglo-Chinese School (Junior)

**SEMESTRAL ASSESSMENT 1 (2018)**

**PRIMARY 4**

**SCIENCE**

**BOOKLET A**

**Friday** **11 May 2018** **1 hr 45 min**

Name: _____ (  ) Class: 4.(  )

**INSTRUCTIONS TO PUPILS**

1 Do not turn over the pages until you are told to do so.

2 Follow all instructions carefully.

3 There are 28 questions in this booklet.

4 Answer ALL questions.

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

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**This question paper consists of 15 printed pages (inclusive of cover page).**

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**Booklet A (56 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 your answer on the Optical Answer Sheet. (28 x 2 marks)

---

1. Which one of the following statements about living things is true?

   (1) All living things can give birth to young.
   (2) A shadow is a living thing as it can move.
   (3) A toy robot is a living thing because it respond to changes.
   (4) Plants are living things even though they cannot move from place to place.

2. Which of the following characteristics are true about all insects?

   A They have wings
   B They have six legs
   C They have three body parts
   D They have hard outer covering

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

3. Which of the following **does not** describe the staghorn fern and mushroom?

   A Staghorn Fern and mushroom can make their own food.
   B Staghorn Fern and mushroom are both non-flowering plants.
   C Staghorn Fern and mushroom are fungi as they reproduce by spores.

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



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4. Study the table below.

| Characteristics | Animal W | Animal X | Animal Y | Animal Z |
|---|---|---|---|---|
| Has wings | Yes | Yes | No | Yes |
| Has 2 legs | No | Yes | No | No |
| Has feathers | No | Yes | No | No |
| Has scales as outer covering | No | No | Yes | No |

Which animal, W, X, Y or Z is most likely a bird?

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

5. Which of the following statements is true about mould?

(1) Mould can only grow on bread.
(2) Mould can only grow in dark places.
(3) Mould can only reproduce by spores.
(4) Mould can only be seen under the microscope.

6. James' parents were watching television in the living room in the afternoon. They realized that the sun was very glaring and decided to buy some curtains to solve the problem. What is the most important property that they should consider when buying the curtains?

(1) Mass
(2) Strength
(3) Flexibility
(4) Transparency

7. Leo was bending his thin metal wires to form different shapes for his project. His younger brother tried to do exactly the same action as him by bending a stiff plastic ruler. The plastic ruler broke because it was not _____.

(1) soft
(2) stiff
(3) light
(4) flexible



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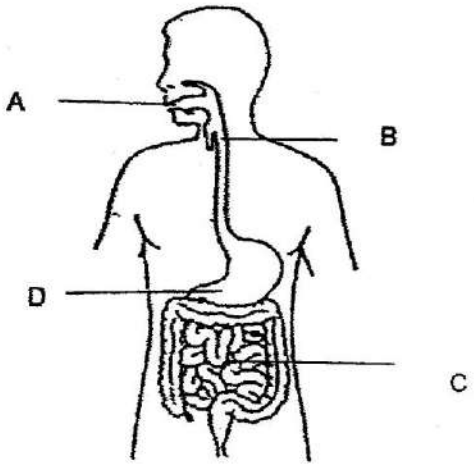
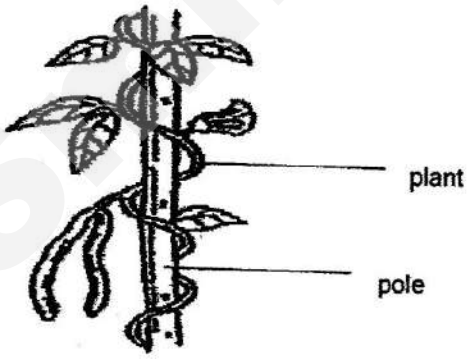
8. The diagram below shows the digestive system with parts labelled A, B, C and D.




Digestive juices are **not** found in part _____.

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

9. Study the picture of a plant on a pole.




Why did the plant climb up the pole?

(1) It wanted to get more air
(2) It wanted to get more warmth.
(3) It wanted to get more sunlight.
(4) It wanted to get more nutrients.



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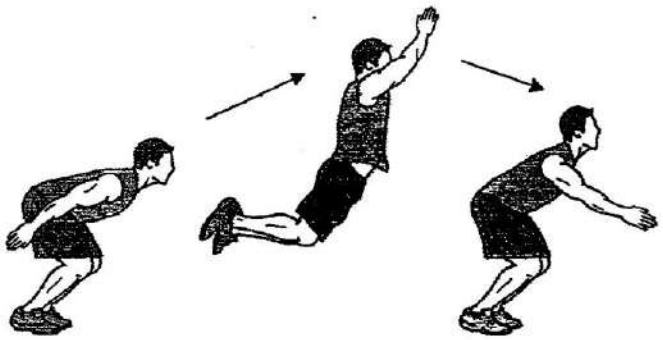
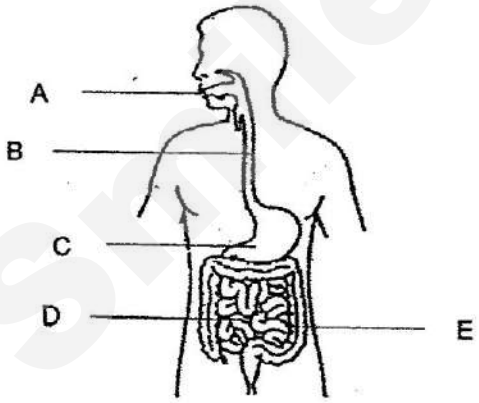
10. After taking a deep breath, Tom did the following action.



Which of the two main systems helped Tom jump?

(1) Muscular system and Skeletal system
(2) Digestive system and Respiratory system
(3) Digestive system and Circulatory system
(4) Respiratory system and Circulatory system

11. The diagram below shows the digestive system with parts labelled A, B, C, D and E.




In which parts of the body does digestion start and end?

| | Start | End |
|---|---|---|
| (1) | A | D |
| (2) | B | D |
| (3) | C | E |
| (4) | A | E |



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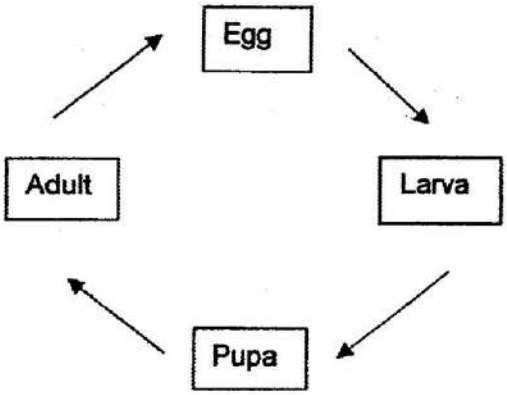
12. The diagram below shows the life cycle of an animal.




Which animals have the life cycle shown above?

(1) Butterfly and frog

(2) Cockroach and mosquito

(3) Grasshopper and butterfly

(4) Beetle and mosquito

13. Study the picture of a plant below.

Which of the following parts of the plant matches its functions?

| | A | B | C | D |
|---|---|---|---|---|
| (1) | Exchange gases | Become a fruit | Absorbs water for the plant | Anchor the plant to the soil |
| (2) | Make food | Beautify the garden | Anchor the plant to the soil | Support the leaves and stem |
| (3) | Make food | Become a fruit | Supports the plant | Anchor the plant to the soil |
| (4) | Exchange gases | Beautify the garden | Anchor the plant to the soil | Anchor the plant to the soil |



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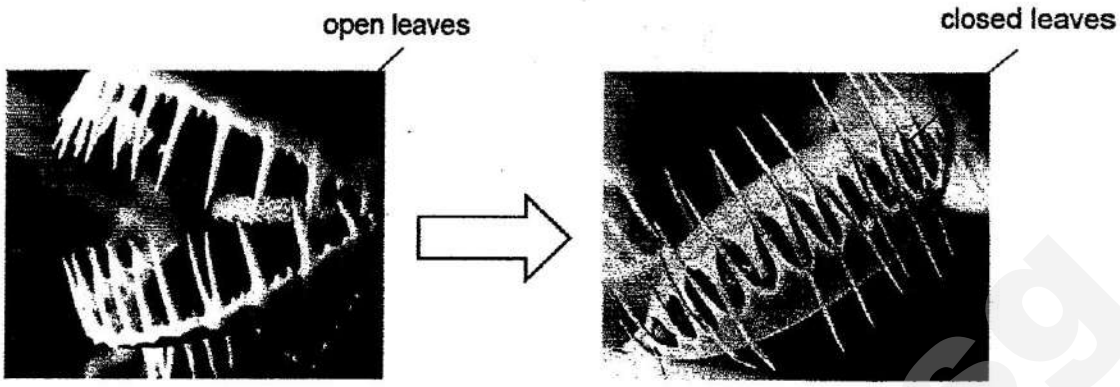
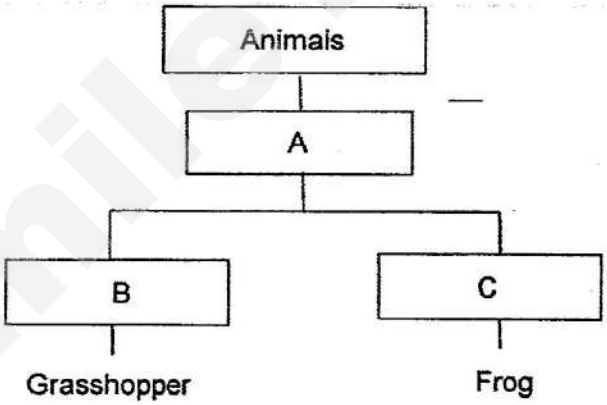
14. The Venus flytrap below only closes its leaves when an insect lands inside it.




This shows that the Venus flytrap is a living thing because _____.

(1) it can grow
(2) it can move
(3) it can trick insects
(4) it can respond to changes

15. The classification table below shows 2 animals grouped based on their characteristics.




Which one of the following gives the correct sub-heading of A, B, C ?

| | A | B | C |
|---|---|---|---|
| (1) | Animals that lay eggs | Lives on land | Lives in water |
| (2) | Animals that can fly | Animals which lay eggs | Animals that give birth to their young alive |
| (3) | Lives on land | 3-stage Life Cycle | 4-stage Life Cycle |
| (4) | 3-stage Life Cycle | Moult | Does not moult |



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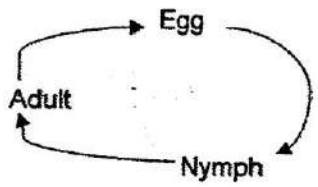
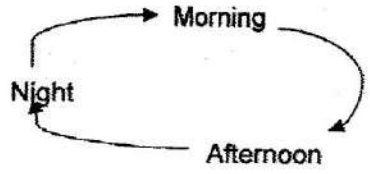
16. Study the diagrams below. Which one of the following **does not** represent a life cycle?

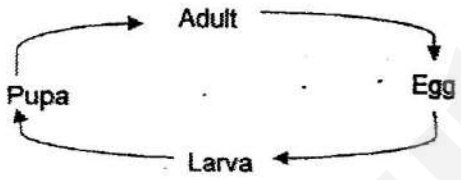
(1)



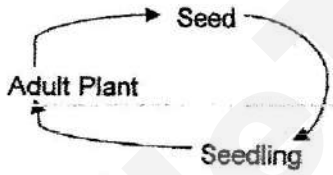

(2)



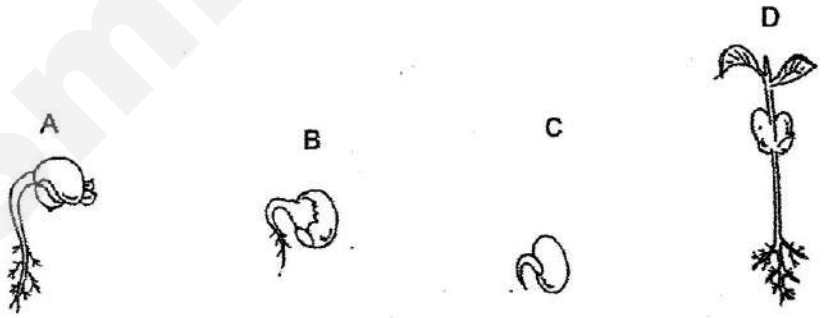

(3)




(4)




17. The diagram below shows parts of the growth of a green bean.




At which part of its growth (A, B, C or D) will it be able to make its own food?

(1) D only
(2) A and B only
(3) B and C only
(4) All of the above



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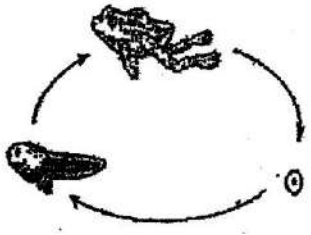
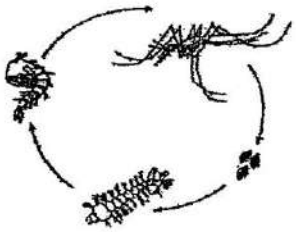
18. The diagrams below show the life cycles of two animals, X and Y.

Animal X



Animal Y



Which of the following statement(s) correctly state(s) the similarity between the life cycle of Animal X and Y?

A Both animals lay their eggs in water.

B The young of both animals lives in water.

C The young of both animals does not look like the adult.

D Both animals spend part of their life cycle on land and in water.

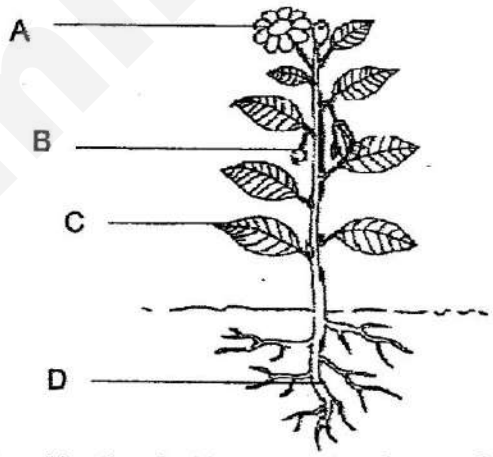
(1) A and B only

(2) B and C only

(3) A, B and C only

(4) All of the above

19. Study the diagram below. 4 plant parts are labelled A, B, C and D.




Which part enables the plant to carry out exchange of gases?

(1) A

(2) B

(3) C

(4) D



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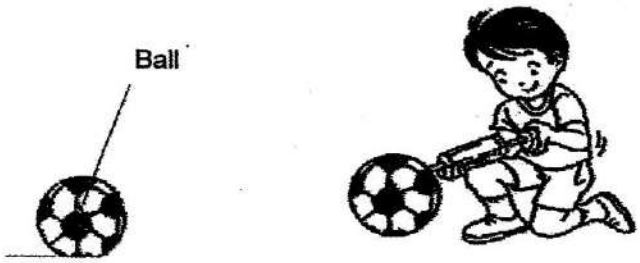
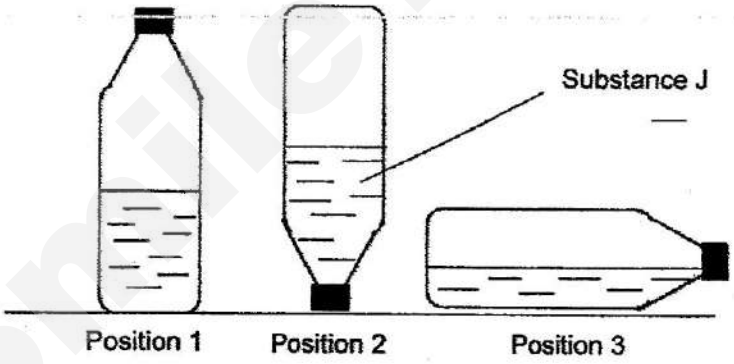
20. Ali carried out an experiment as shown in the diagram below. The volume of the ball is 300 $cm^3$. Then, he pumped an additional of 50$cm^3$ of air into the ball using a hand pump. The size of the ball remained the same.




Which of the following is correct?

| | Mass of the ball | Volume of the ball |
|---|---|---|
| (1) | Increase | Remained the same |
| (2) | Decrease | Decrease |
| (3) | Increase | Decrease |
| (4) | Remained the same | Increase |

21. A bottle was filled with substance J and placed in 3 different positions. The diagram below shows the water level at the respective positions.




Based on this experiment, what can you conclude about substance J?

A It does not have mass.

B It has no definite shape.

C It does not have a definite volume.

(1) B only

(2) A and B only

(3) B and C only

(4) A, B and C



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22. Joseph carried out an experiment in the Science lab to find out how the amount of water given to red beans affects their growth. He watered the twenty beans daily and recorded the height of the seedlings after three weeks in the table below.

| Amount of water given daily (ml) | Height after 3 weeks (cm) |
|---|---|
| 6 | 4 |
| 8 | 6 |
| 10 | 7 |
| 12 | 9 |

Based on the results in the table above, Joseph can conclude that the height of the seedling is dependent on the _____.

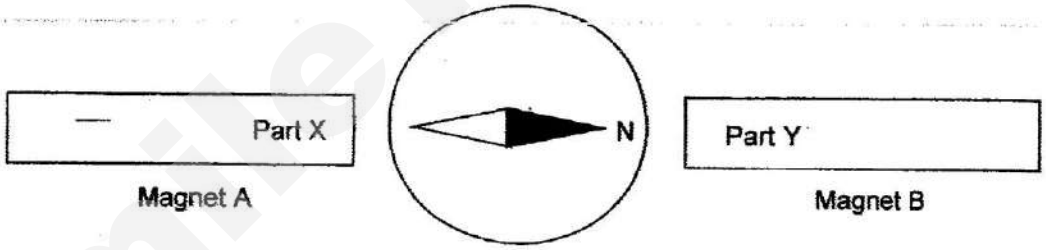
(1) location of the experiment

(2) number of beans used initially

(3) amount of water given to the beans

(4) the type of bean used in the experiment

23. The diagram below shows a compass placed between two strong bar magnets, A and B.




Which of the following options correctly shows the label on the poles of the two bar magnets?

| | Part X | Part Y |
|---|---|---|
| (1) | North | North |
| (2) | South | South |
| (3) | North | South |
| (4) | South | North |



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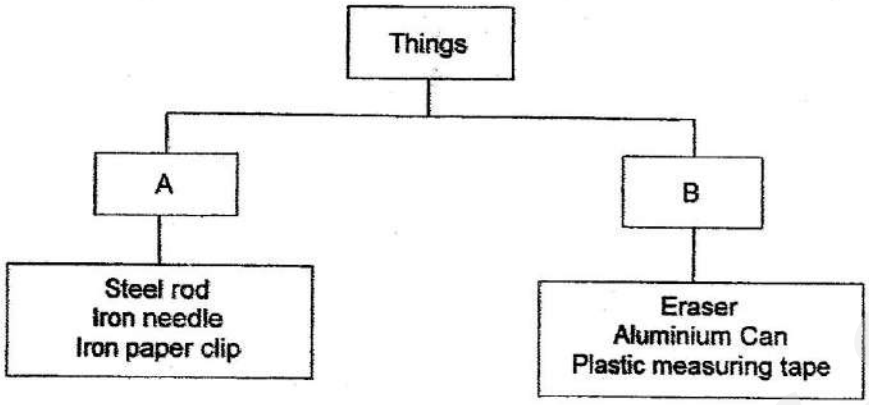
24. Study the classification table below of things made of different materials.




Which of the following options correctly represents A and B?

| | A | B |
|---|---|---|
| (1) | Non-metal | Metal |
| (2) | Magnetic | Non-magnetic |
| (3) | Have definite shape | Do not have definite shape |
| (4) | Have definite volume | Do not have definite volume |

25. Zaid conducted an experiment to find out the magnetic strength at different parts (W, X, Y, and Z) of the bar magnet.

He placed the bar magnet into a bowl of iron nails and counted the number of nails attracted at parts W, X, Y and Z. He recorded the number of paper clips attracted to each of the parts in the table below.

| Parts of the magnet | Number of paper clips attracted |
|---|---|
| W | 14 |
| X | 1 |
| Y | 5 |
| Z | 16 |

Based on the results in the table above, which parts are most likely to be at the two poles of the magnet?

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



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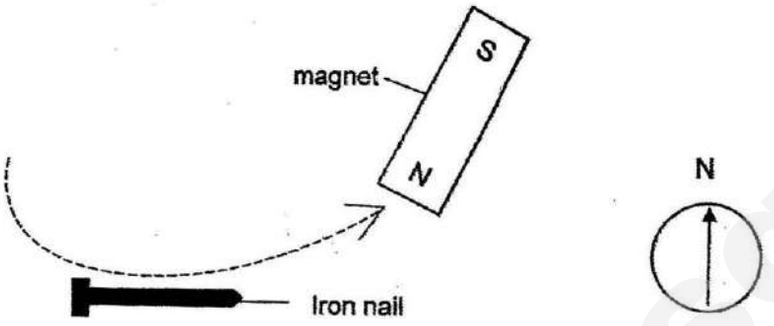
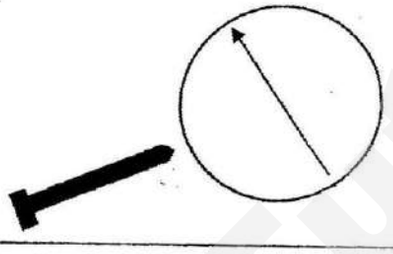
26. An iron nail is made into a temporary magnet by the stroke method as shown below.



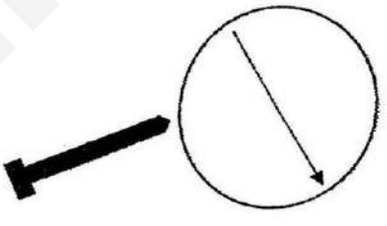

The nail is then placed near a compass. Which of the following correctly shows the direction the compass needle will point to?

(1)

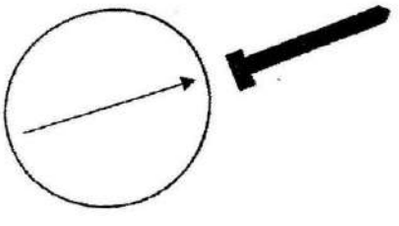


(2)

(3)



(4)





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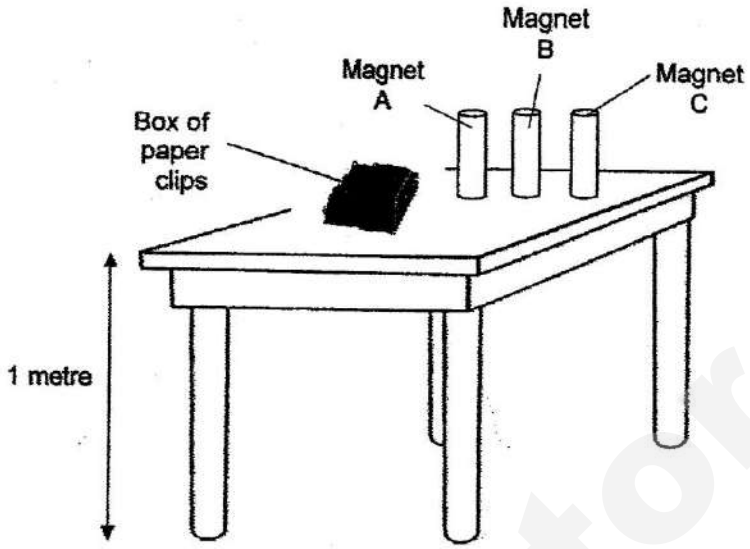
27. Thomas conducted an experiment with 3 magnets, A, B and C.




He placed each magnet into a box of paper clips and recorded the number of paper clips attracted to it. He then dropped each of the magnets 5 times from a table of height 1 metre. After which, he tested the number of paperclips attracted by each magnet again and recorded the results in the table below.

| Number of paper clips attracted | Magnet A | Magnet B | Magnet C |
|---|---|---|---|
| Before dropping | 8 | 10 | 16 |
| After dropping | 3 | 4 | 8 |

What can Thomas conclude based on the results?

(1) Magnet C is the weakest magnet.

(2) Magnet B is the strongest magnet.

(3) Dropping the magnets has no effect on their magnetism.

(4) Magnets lose some of their magnetism after being dropped.



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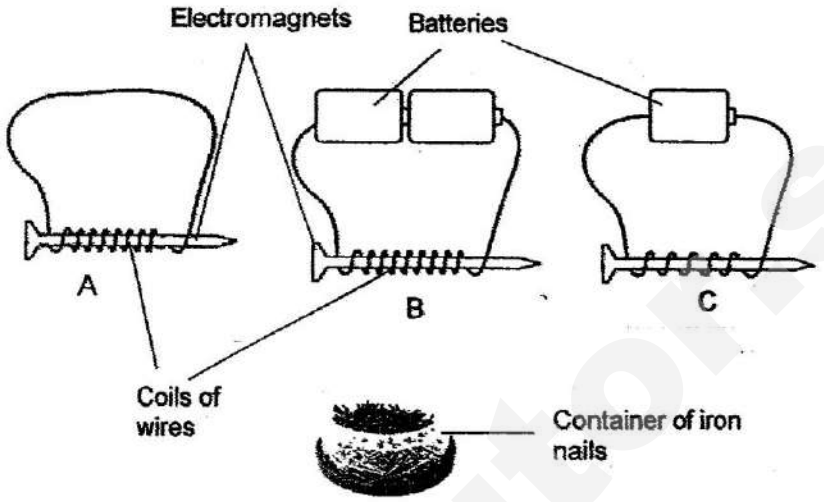
28. Dayne wanted to find out if the number of batteries in a closed circuit affects the strength of electromagnets. He made 3 electromagnets, A, B and C, using different number of coils as shown below When he placed the electromagnets near a container of nails, electromagnet C attracted 8 iron nails.




Which of the following options shows the most likely observation Dayne would have made for electromagnet A and B?

| | Number of iron nails attracted by: | |
|---|---|---|
| | Electromagnet A | Electromagnet B |
| (1) | 0 | 8 |
| (2) | 3 | 7 |
| (3) | 8 | 4 |
| (4) | 0 | 12 |



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# Anglo-Chinese School (Junior)

**SEMESTRAL ASSESSMENT 1 (2018)**

**PRIMARY 4**

**SCIENCE**

**BOOKLET B**

**Friday** **11 May 2018** **1 hr 45 min**

Name: _____ (  ) Class: 4.(  ) Parent's Signature:_____

**INSTRUCTIONS TO PUPILS**

1 Do not turn over the pages until you are told to do so.

2 Follow all instructions carefully.

3 There are 13 questions in this booklet.

4 Answer ALL questions.

5 The marks are given in the brackets [ ] at the end of each question or part question.

| Booklet | Possible Marks | Marks Obtained |
|---|---|---|
| A | 56 | |
| B | 44 | |
| Total | 100 | |

**This question paper consists of 15 printed pages (inclusive of cover page).**

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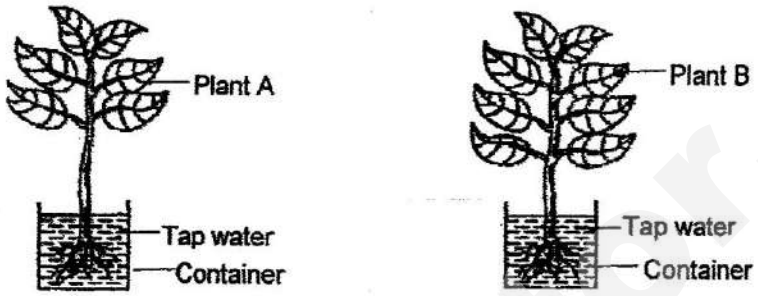
**Booklet B (44 marks)**

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.

29. Pazel bought 2 identical plants for his experiment. He filled the identical containers with the same amount of tap water. He did something to Plant A before placing it in the container. After 3 days, he made the following observations




| Plant | Plant A | Plant B |
|---|---|---|
| Volume of water in the container (ml) | 280 | 220 |

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

_____

_____

(b) Based on his observation, what can he conclude about the experiment? [1]

_____

_____

(c) Other than the variables stated in the question, name another variable that should be kept constant in order for the experiment to be fair. [1]

_____

_____

(Go on to the next page)

| SCORE | / 3 |
|---|---|

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30. Study the table below.

| Group X | Group Y |
|---|---|
| Bean plant | Elephant |
| Orchid | Mushroom |
| Birds Nest Fern | Kingfisher |
| Moss | Snake |

(a) Jeff classified some living things into 2 different groups as shown above. Give suitable headings for Groups X and Y. [1]

X: _____

Y: _____

(b) Give an example of a living thing that could be placed in group Y. [1]

_____

(c) Jeff classified the living things based on another characteristic in the table below. Give suitable headings for his classification by writing them in the boxes. [1]

| _____ | _____ |
|---|---|
| Elephant<br>Kingfisher | Bean plant<br>Orchid<br>Bird's Nest Fern<br>Mushroom<br>Moss<br>Snake |

(Go on to the next page)

| SCORE | / 3 |
|---|---|



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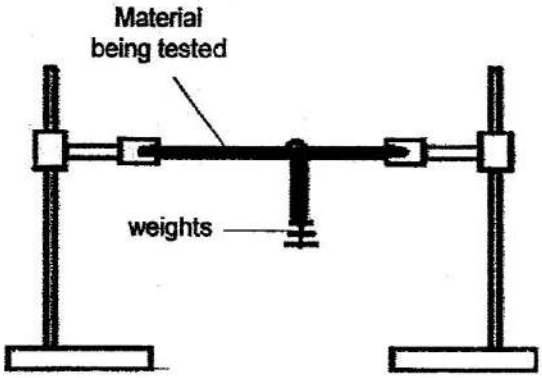
31. James had 4 different pieces of materials, W, X, Y and Z. They are of the same thickness and size. He wanted to find out which material is most suitable to be made into a shelf for his collection of books. He set up an experiment as shown below.




(a) What property of materials was James testing? [1]

_____

(b) He kept adding weights on the material until it broke and recorded his findings in the table below.

| Material | W | X | Y | Z |
|---|---|---|---|---|
| Weights added before it broke (kg) | 0 | 2 | 15 | 25 |

Which material is most suitable to be made into a shelf? Explain your answer based on the findings in the table. [1]

_____

_____

(c) Give an example of material Z. [1]

_____

(Go on to the next page)

| SCORE | / 3 |
|---|---|



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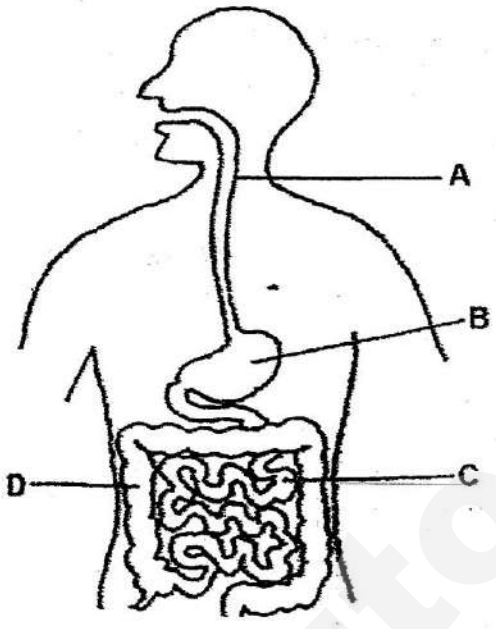
32. The diagram below shows the human digestive system.




(a) Name the following parts: [1]

A: _____

B: _____

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

_____

_____

(c) State one difference between parts C and D based on their function. [1]

_____

_____

(Go on to the next page)

| SCORE | / 3 |
|---|---|



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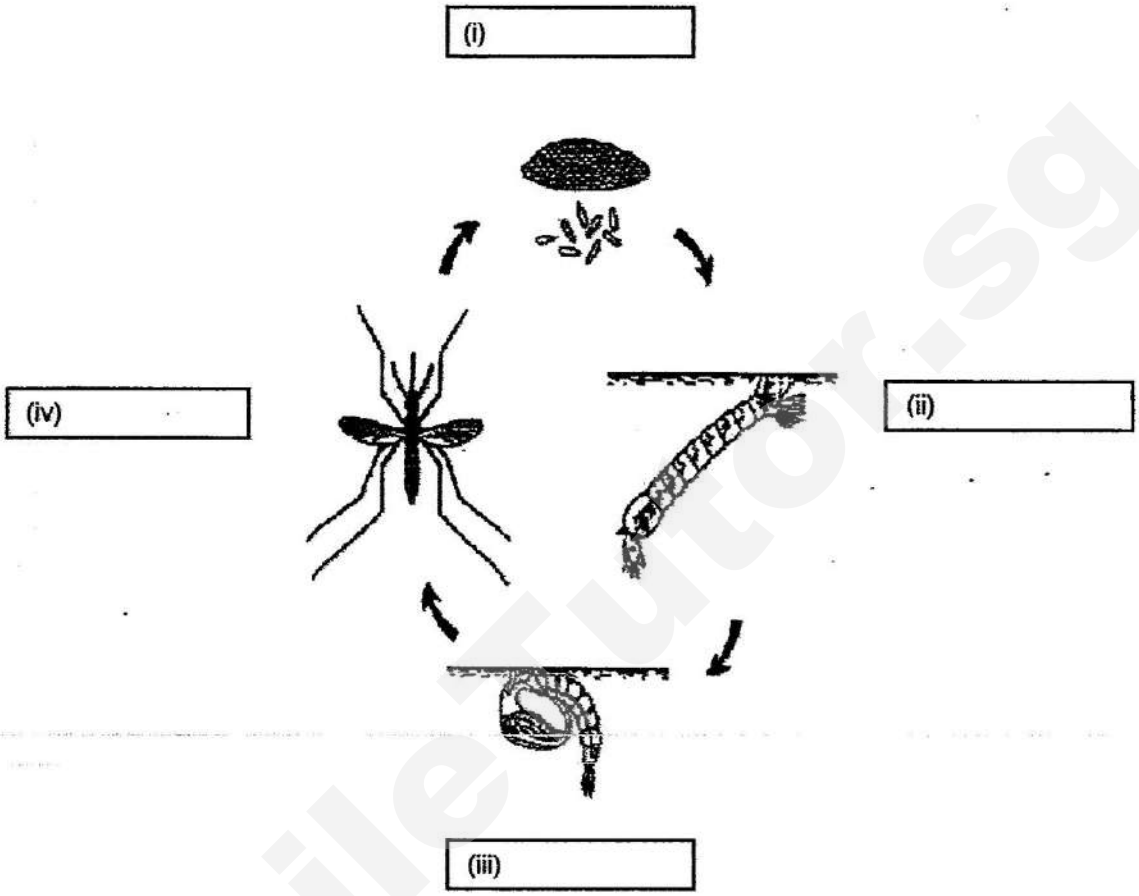
33. The diagram below shows the life cycle of a mosquito.

(a) Name the stages in the boxes provided. [1]




(b) At which stage is the mosquito harmful? [1]

_____

_____

(c) State two ways to prevent mosquitoes from breeding. [1]

_____

_____

_____

(Go on to the next page)

| SCORE | / 3 |
|---|---|



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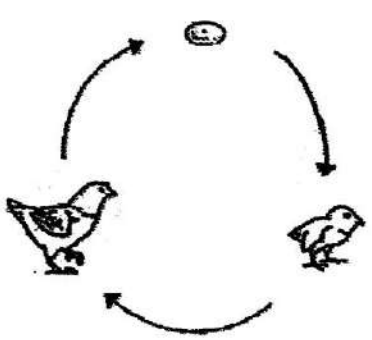
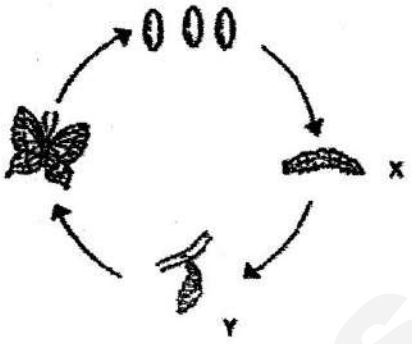
34. The diagram below shows the life cycles of a chicken and a butterfly.



Life cycle of a chicken




(a) How is the life cycle of a chicken different from that of a butterfly? [1]

_____

_____

(b) How is the life cycle of a chicken similar to that of a butterfly? [1]

_____

_____

(c) State a difference between Stage X and Y in the life cycle of a butterfly. [1]

_____

_____

(d) Name another animal that has a similar life cycle as the chicken. [1]

_____

(Go on to the next page)

| SCORE | / 4 |
|---|---|



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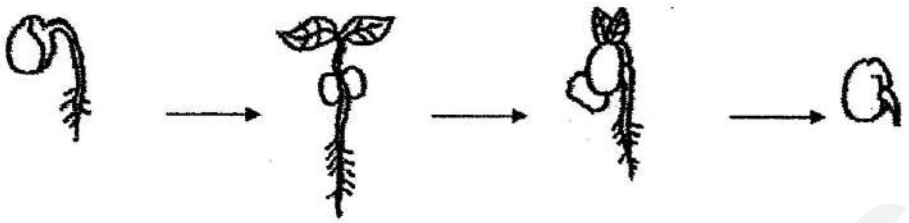
35. The diagram below shows the growth of a green bean seed. However, it is in the wrong order.



A B C D

a) State the correct growth order starting with C. [1]

_____

b) What will happen to the seed at D if it was planted in a pot of soil and placed in the storeroom where there is no light for a month? Explain your answer. [2]

_____

_____

_____

_____

(Go on to the next page)

| SCORE | / 3 |
|---|---|



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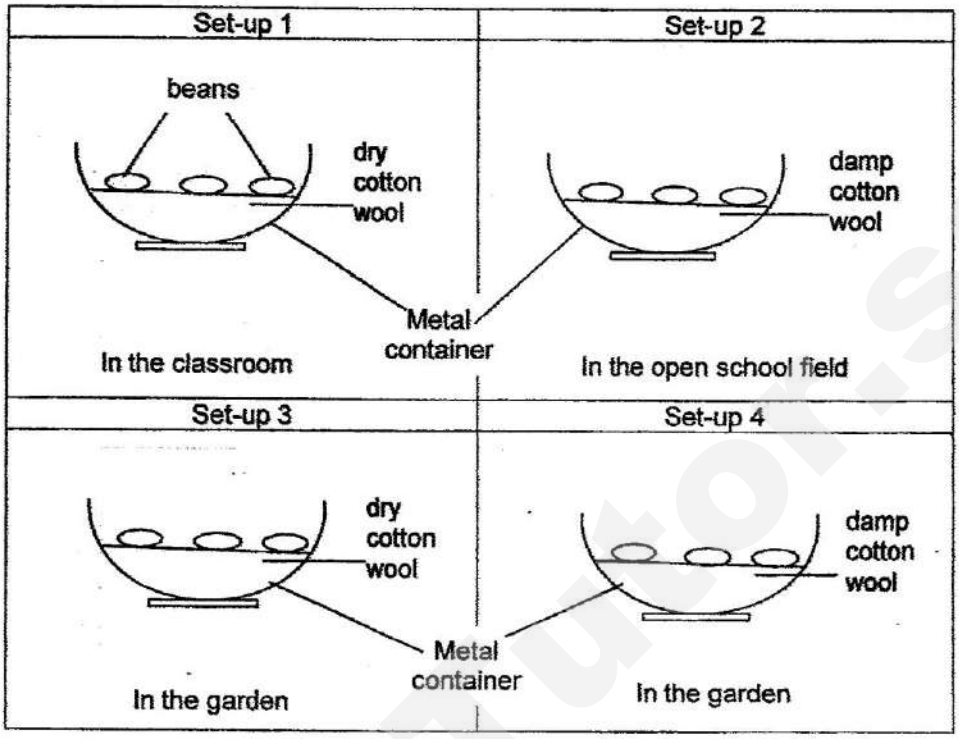
36. Jack set up an experiment to find out if beansneed water to grow into a seedling. He set up his experiment at different locations as shown below.




(a) Which of the set-up(s) should Jack use for the experiment? [1]
Give a reason for your answer.

_____

_____

(b) State 2 other variables that Jack has to keep the same to ensure a fair test. [1]

_____

_____

(c) What are the 3 conditions needed for the beans to grow? [1]

_____

_____

(Go on to the next page)

| SCORE | / 3 |
|---|---|



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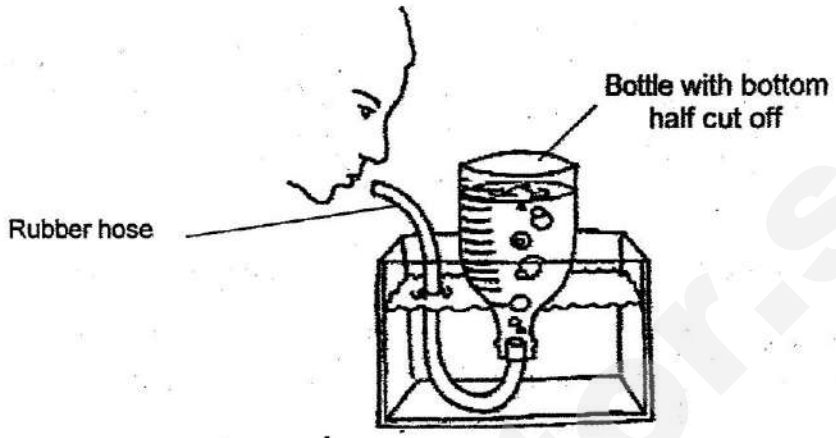
37. Daniel filled a tank with water. He cut the bottom of a plastic bottle and placed it into the tank as shown below. The rubber tube was sealed at the tip of the bottle. Daniel made a marking on the level of the water in the bottle. Then, he gave 5 blows into the tube and bubbles could be seen in the water.




(a) What will happen to the water level in the bottle after he blew 5 times into the hose? Explain your answer. [2]

_____

_____

_____

(b) Predict what would be observed if the bottle is completely filled with water to the brim and Daniel drops a big stone into the plastic bottle. Explain your prediction. [2]

_____

_____

_____

(Go on to the next page)

| SCORE | / 4 |
|---|---|



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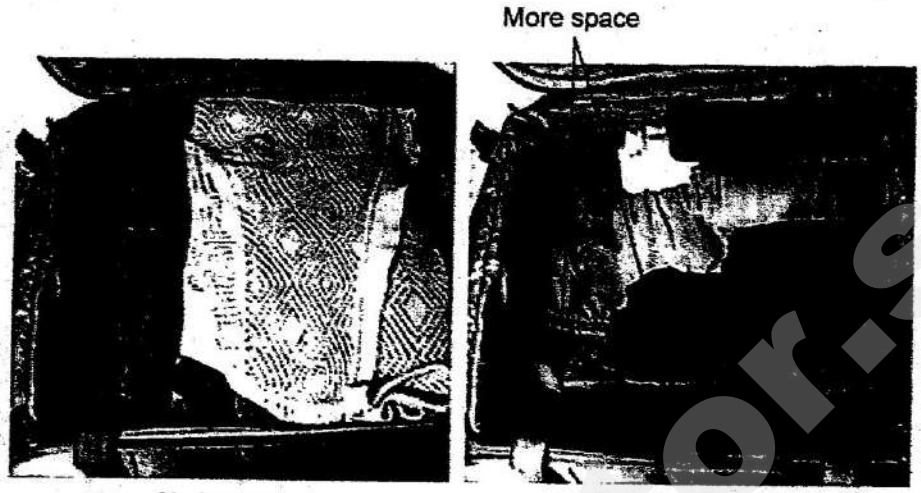
38. Judy prepared her trolley bag for travel by folding her clothes as shown in Diagram A. However, her mother commented that she should roll the clothes instead of folding them as there will be more space for other things in the bag.




Clothes folded
Diagram A

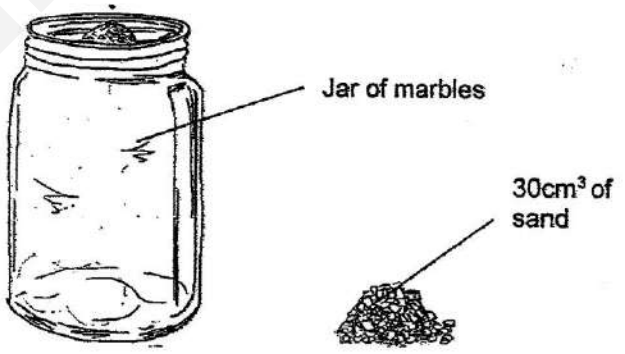
Clothes rolled
Diagram B

(a) Give a reason why there was more space in her trolley bag when Judy rolled up her clothes instead of folding them. [1]

_____

_____

(b) Judy placed some marbles into a jar as shown below.




Explain whether it is possible to pour 30cm³ of sand into the jar. [2]

_____

_____

(Go on to the next page)

| SCORE | 3 |
|---|---|



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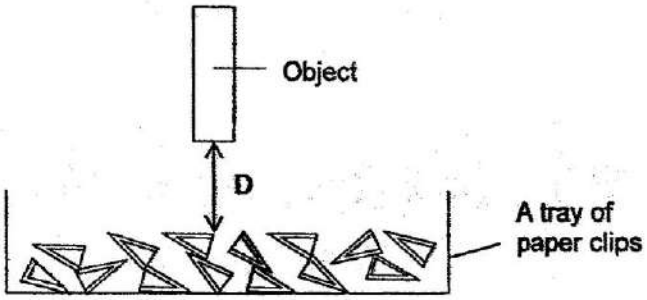
39. Tom placed objects X, Y and Z at different distance from the tray of paper clips and recorded the number of paper clips attracted in the table below.




| | Number of paper clips attracted | | |
|---|---|---|---|
| Distance D (cm) | Object X | Object Y | Object Z |
| 1 | 20 | 0 | 10 |
| 2 | 18 | 0 | 8 |
| 3 | 15 | 0 | 6 |
| 4 | ? | 0 | 2 |
| 5 | 10 | 0 | 0 |

(a) Predict the number of paper clips attracted when Object X was 4cm from the paper clips. [1]

_____

(b) What is the relationship between distance D and the number of paper clips attracted by Z? [1]

_____

_____

(c) Compare the difference in the results for Object X and Z. [1]

_____

_____

(d) What can you conclude about Object Y? Explain your answer. [1]

_____

_____

(Go on to the next page)

SCORE ____/4



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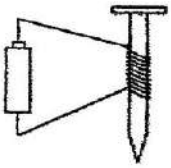
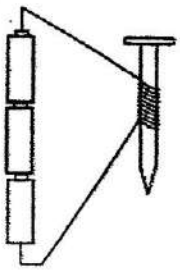
40. Lucy wanted to carry out an experiment to find out if the number of turns of coils of wire around an iron nail would affect the strength of an electromagnet.

Set-up A



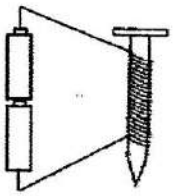
15 coils

Set-up B



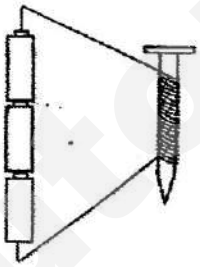
15 coils

Set- up C



25 coils

Set-up D



25 coils

(a) Which two set-ups shown above should she use to conduct a fair test? [1]

_____

_____

(b) Will the set-up work if Lucy were to use a rubber nail? Explain your answer. [1]

_____

_____

(c) What would be the changed variable if Lucy were to use Set-up A and B to test the strength of the electromagnet? [1]

_____

_____

(d) Suggest another way to increase the strength of the electromagnet. [1]

_____

_____

(Go on to the next page)

| SCORE | / 4 |
|---|---|



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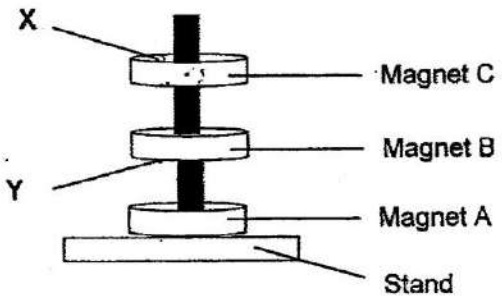
41. Sam placed 3 rings on a stand as shown below. Magnet B is floating between Magnet A and C.




[1]

(a) What are the poles of X and Y.

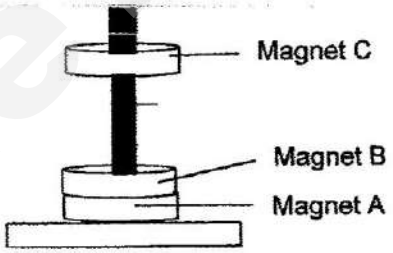
X: _____ Y: _____

(b) Explain why the magnet B is floating in the middle. [1]

_____

_____

(c) [1]




What must be done to the magnets on the stand so that they are as shown above ?

_____

_____

(Go on to the next page)

| SCORE | / 3 |
|---|---|



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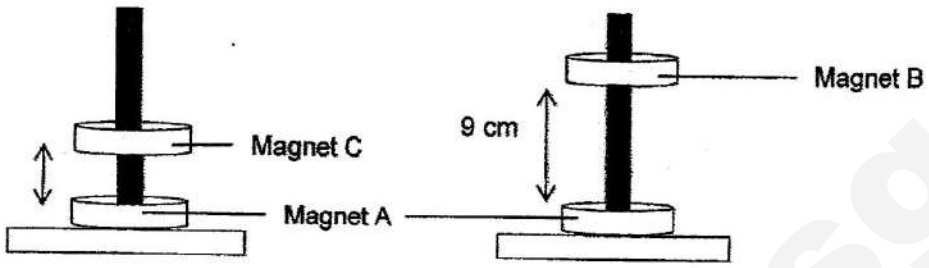
(d) The diagram below shows what happened when Magnet B and C were placed above Magnet A.




Explain why Magnet B and C are floating at different distances from Magnet A. [1]

_____

_____

**End of Paper**

| SCORE | / 1 |
|---|---|



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# ANSWER KEY

YEAR : 2018
LEVEL : PRIMARY 4
SCHOOL : ANGLO-CHINESE SCHOOL (JUNIOR)
SUBJECT : SCIENCE
TERM : SA1

**BOOKLET A**

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

**BOOKLET B**

Q29. (a) To find out if the number of leaves affect amount of water absorbed by the root.
(b) The more leaves the plant has the more water it absorbed.
(c) Same location.

Q30. (a) X : plants Y : not plants
(b) Humans
(c)

| Have legs | Have no legs |
|---|---|
| Elephant<br>Kingfisher | Bean Plant<br>Orchid<br>Bird's Nest Fern<br>Mushroom<br>Moss<br>Snake |

Q31. (a) Strength.
(b) Z. It held the most weight before it broke.
(c) Wood.

Q32. (a) A : Gullet
B : Stomach
(b) To push the food into the stomach
(c) Part C absorbs digested food int the blood stream while Part D abosrb water from the undigested food.

Q33. (a) (i) Egg (iii) Pupa
(ii) Larva (iv) Adult
(b) Adult
(c) Spray oil on the water surface.

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Q34. (a) The life cycle of a chicken has 3–stages while the life cycle of a butterfly has 4-stages.

(b) They both have an egg stage.

(c) Stage X eats, while stage Y does not eat.

(d) Grasshopper.

Q35. (a) C -> B -> D -> A.

(b) It will continue to grow until it has leaves, but it will start to die as it has no light to make food.

Q36. (a) Set-up 3 and 4. The only changed variable is the presence of water.

(b) The same type of beans and the same amountof cotton wool.

(c) Water, warmth (temperature), and air.

Q37. (a) The water level will remain the same. The air bubbles will escape through the bottom of the bottle as it is opened.

(b) The water will spill out of the container. As a stone occupies space and water occupies space because the stone is heavier than water so the stone will sink to the bottom. Hence, the water will spill out of the container.

Q38. (a) When the clothes are rolled, air trapped in between the clothes is removed. Hence, it take up less space.

(b) Yes, it is possible. There are air gaps between the marbles and the sand so it can take up its space.

Q39. (a) 13 paper clips.

(b) As the distance increase, the number of paper clips attracted by Z decreases.

(c) Object X is a stronger magnet than object Z./ Object X attracts paper clips is more than object Z.

(d) Object Y is not a magnet as it does not attract paper clips.

Q40. (a) Set-up B and D.

(b) No. The rubber nail is non-magnetic material, hence, the nail cannot become a electro magnet.

(c) The number of batteries affect the strength of electro-magnet.

(d) Use more batteries.

Q41. (a) X: South Y: South

(b) The like poles pole of the magnets are facing each other and thus they repel each other.

(c) Flip magnet A

(d) Magnet B has stronger magnet than magnet C.

End

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# CATHOLIC HIGH SCHOOL

## SEMESTRAL ASSESSMENT ONE (2018)

## PRIMARY FOUR

## SCIENCE

## BOOKLET A

Name: _____ (  )

Class: Primary 4 - _____

Date: 11 May 2018

24 questions

48 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 16 printed pages, excluding the cover page.

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**Booklet A (24 × 2 marks)**

For each question from 1 to 24, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade your answer on the Optical Answer Sheet. (48 marks)

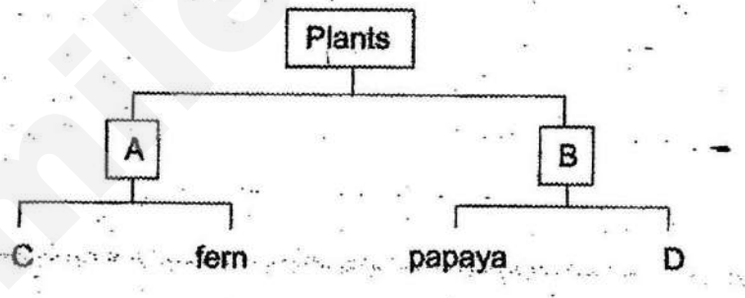
1 Jenny bought a pet dog last year. She observed that it has the following characteristics.

A It eats meat.
B It has hair on its body.
C It barked when Jenny stepped on its tail.
D It gave birth to a litter of puppies last month.

Which of the above characteristics show that her dog is a living thing?

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

2 Study the chart below.




Which of the following correctly represents A, B, C and D?

| | A | B | C | D |
|---|---|---|---|---|
| (1) | flowering | non-flowering | moss | mango |
| (2) | flowering | non-flowering | mushroom | orchid |
| (3) | non-flowering | flowering | mushroom | hibiscus |
| (4) | non-flowering | flowering | moss | rambutan |



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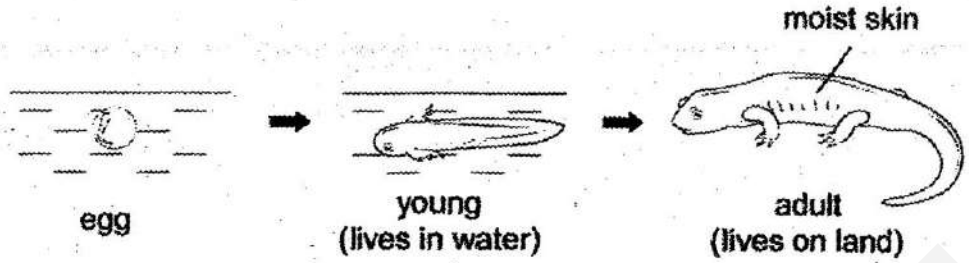
3 The diagram below shows how animal S grows.




Which group of animals does animal S belong to?

(1) fish
(2) reptile
(3) mammal
(4) amphibian

4 Bruce discovered a living thing in his garden and described it as follows.

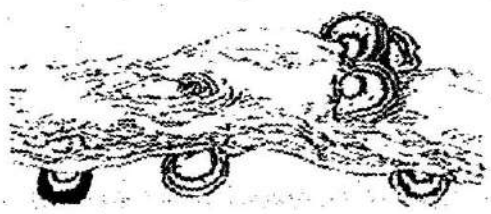
- It lives on tree trunks.
- It reproduces by spores.
- It feeds on other living things.
- It prefers a shady and moist environment.

Which of the following living things did Bruce discover?

(1)

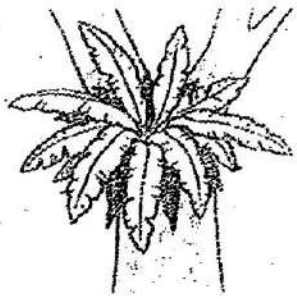
bacteria

(2)



fungi

(3)



fern

(4)

bread mould



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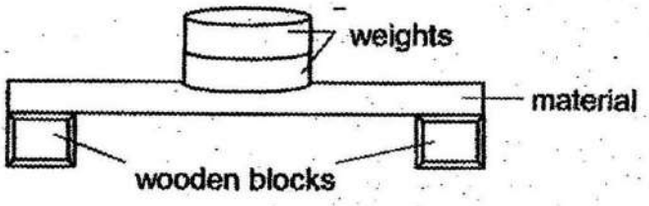
5 Four materials W, X, Y and Z were tested for their strength. Different number of weights were placed on each material till it broke.




| Material | Number of weights added till the material broke |
|---|---|
| W | 5 |
| X | 8 |
| Y | 1 |
| Z | 3 |

Which of the following must be kept the same to ensure a fair test?

A size of materials
B thickness of materials
C smoothness of weights
D colour of wooden blocks

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

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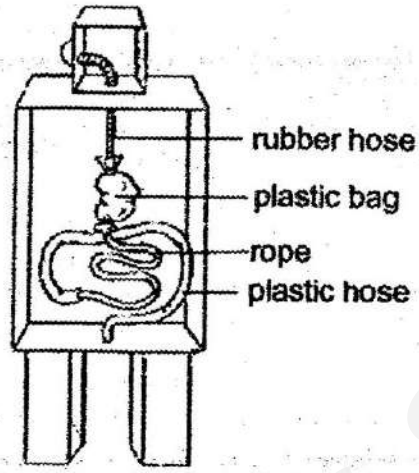
6 Ali made a model of one of the human body systems as shown below.




Which part of the human body does the plastic bag represent?

(1) lung
(2) heart
(3) rib cage
(4) stomach

7 The diagram below shows an uprooted tree after a thunderstorm.

Why did the uprooted tree die within a week?

(1) The stem was no longer able to hold the tree upright.
(2) The leaves of the tree were not able to make food after a week.
(3) The branches of the tree were not able to spread out the leaves to trap sunlight.
(4) The roots of the tree were not able to take in water and mineral salts from the soil.



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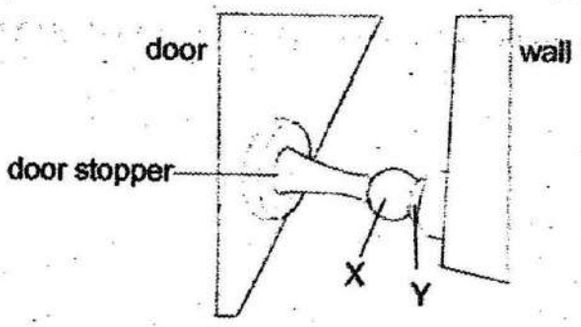
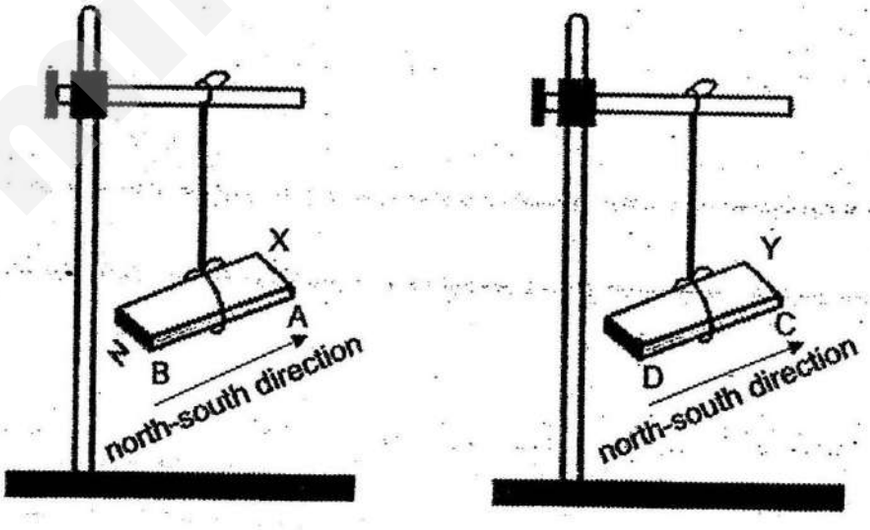
8 The diagram below shows a magnetic door stopper below.




Which of the following can X and Y be made of so that the door can be kept open?

| | X | Y |
|---|---|---|
| (1) | steel | iron |
| (2) | steel | magnet |
| (3) | copper | aluminium |
| (4) | magnet | aluminium |

9 Two different magnets X and Y are freely suspended as shown below. The poles of the magnets are labelled as A, B, C and D.




What will happen when both magnets are brought closer together?

(1) Poles A and C will repel each other.

(2) Poles B and C will repel each other.

(3) Poles B and D will attract each other.

(4) Poles A and D will not react to each other.



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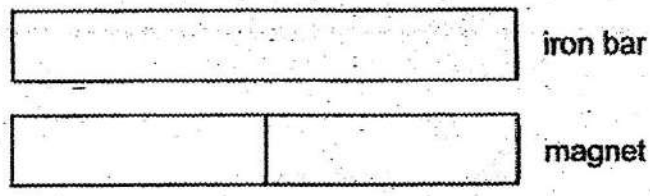
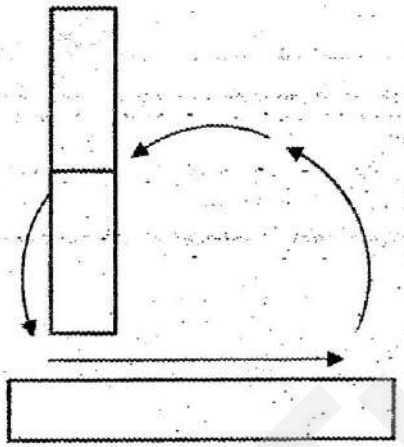
10 Nita has an iron bar and a magnet. She wants to magnetise the iron bar using the stroking method.

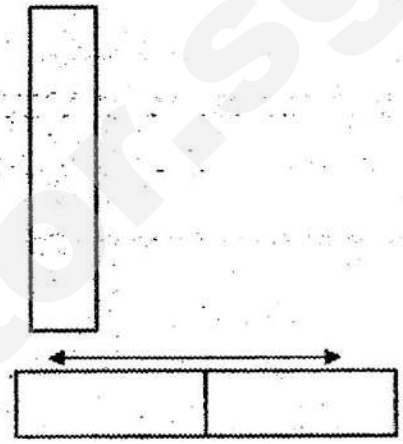



Which one of the following shows the correct stroking method?

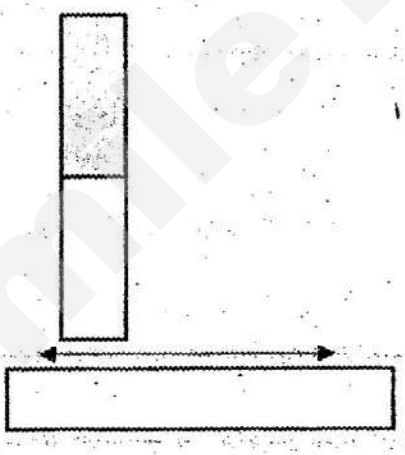
(1)



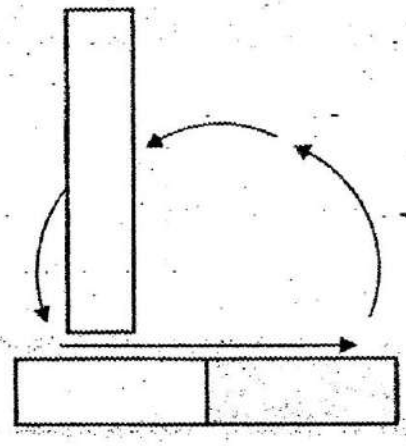
(2)



(2)



(4)



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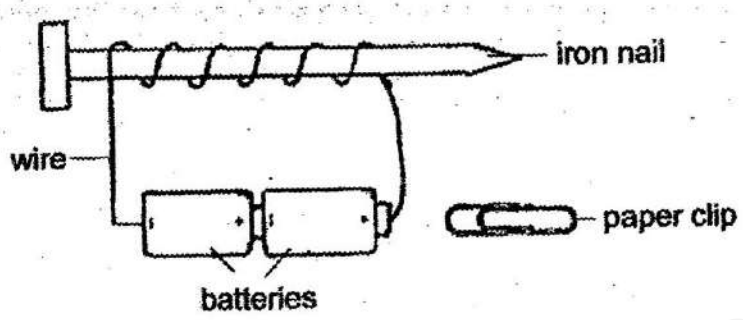
11 Weiling set up the following experiment.




She tried to use the iron nail to pick up the paper clip but was unable to do so. Why was the iron nail not able to attract the paper clip?

(1) There was only one nail in the set-up.

(2) The iron nail was not a magnetic material.

(3) The batteries were connected in the wrong direction.

(4) The paper clip was made of a non-magnetic material.

12 Andrea made some statements about the differences between a grasshopper nymph and an adult grasshopper. Which of the following statements are correct?

A A grasshopper nymph is bigger than an adult grasshopper.
B A grasshopper nymph cannot reproduce but an adult grasshopper can reproduce.
C A grasshopper nymph does not have wings but an adult grasshopper has wings.
D A grasshopper nymph does not feed at all but an adult grasshopper feeds on leaves.

(1) A and D only

(2) B and C only

(3) A, B and C only

(4) A, B, C and D



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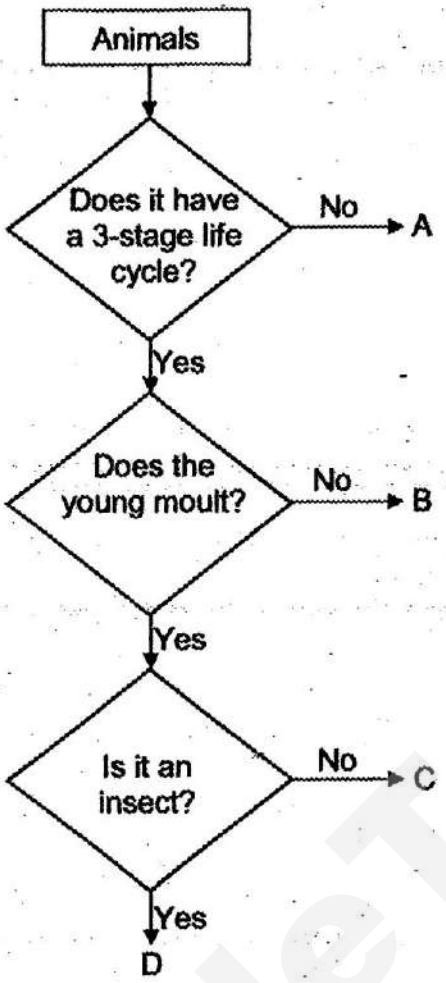
13 Study the chart below.




Which letter represents the cockroach?

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

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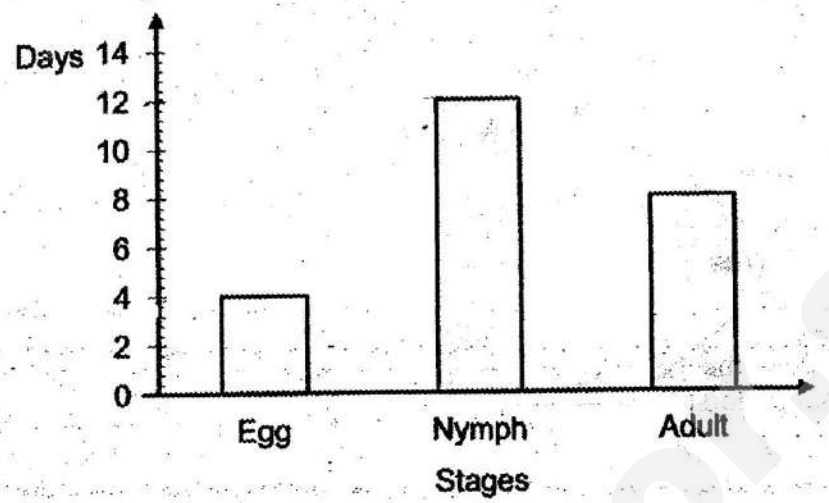
14 The graph below shows the number of days in each stage of the life cycle of an insect which lives in the water.




Which of the following information obtained from the graph is correct?

(1) The insect's lifespan is less than 3 weeks.

(2) The insect takes 8 days to become a nymph.

(3) The insect lives in the water for 12 days as a nymph.

(4) It takes 24 days to become an adult after the egg is hatched

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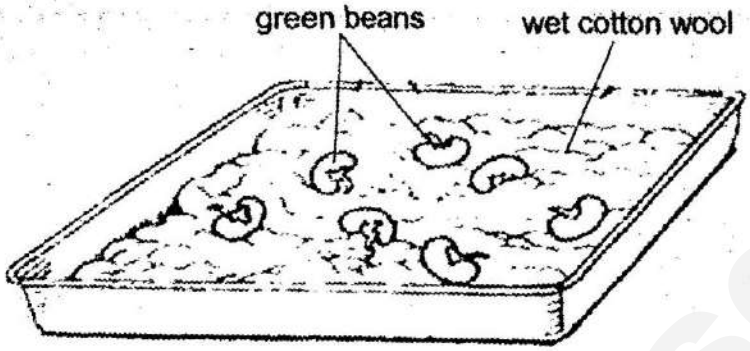
15 Wei Ming placed some beans in a tray and observed the growth.




He recorded his observations below.

A Two green leaves appear.
B A tiny shoot grows upwards.
C Seed leaves dry and drop off.
D The bean absorbs water and swells up.
E A root grows downwards towards the presence of water.

Which of the following shows the correct order of growth?

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

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16 Mike wanted to find out if the growth of bean seeds will be affected by temperature. He placed the same number of bean seeds in different containers with moist cotton wool. He then placed the containers at locations with different temperatures. After 3 days, he counted the number of seeds that grew and recorded his results as shown below.

| Temperature (°C) | Number of seeds grown |
|---|---|
| 10 | 0 |
| 20 | 7 |
| 35 | 16 |
| 40 | 9 |

What could Mike conclude from the table above?

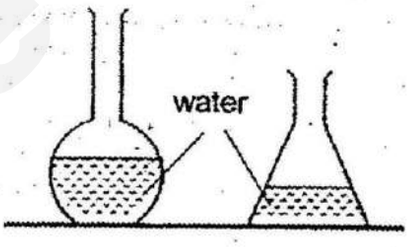
(1) Bean seeds could not grow above 30°C.

(2) Bean seeds could grow at any temperature.

(3) The best temperature for bean seeds to grow was 35°C.

(4) Number of seeds grown increased as temperature increased.

17 Raj poured 200 ml of water into each container as shown below.




Raj concluded that water does not _____.

(1) occupy space

(2) have a definite mass

(3) have a definite shape

(4) have a definite volume



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18 Study the table below.

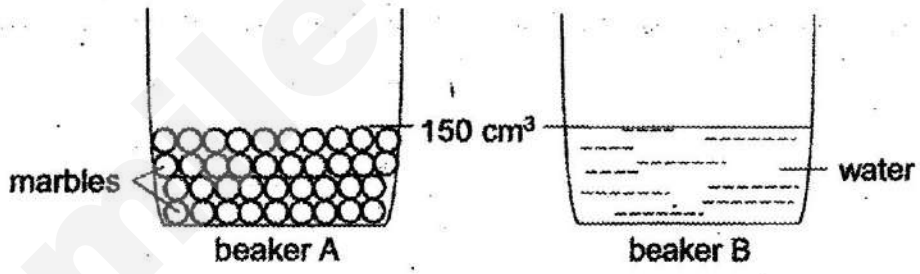
| | Has a fixed volume |
|---|---|
| Has a fixed shape | X |
| Has no fixed shape | Y |

Which of the following represents X and Y in the table above?

A air
B ice
C heat
D water

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

19 Two similar beakers are used in the following experiment. Beaker A is filled with marbles to the 150 $cm^3$ mark. Beaker B has 150 $cm^3$ of water.




What will the water level be in beaker A after the water in beaker B is completely poured into beaker A?

(1) 100 $cm^3$
(2) 150 $cm^3$
(3) 260 $cm^3$
(4) 300 $cm^3$



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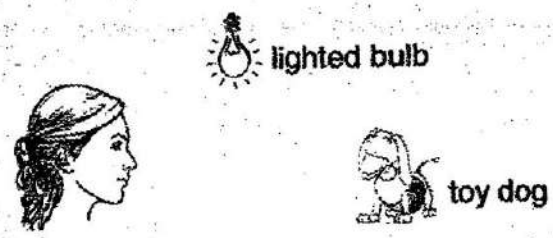
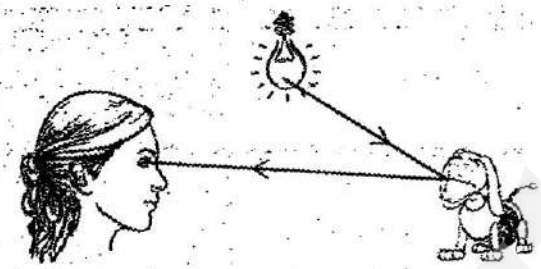
20. Look at the picture below.



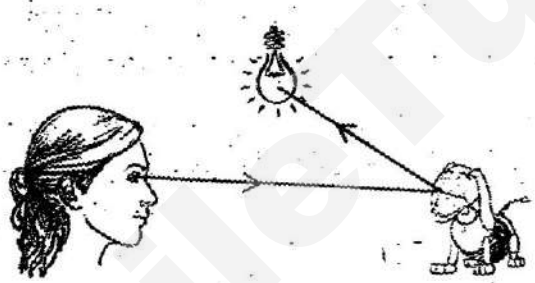

Which one of the following explains why Sally can see the toy dog?

direction of light →

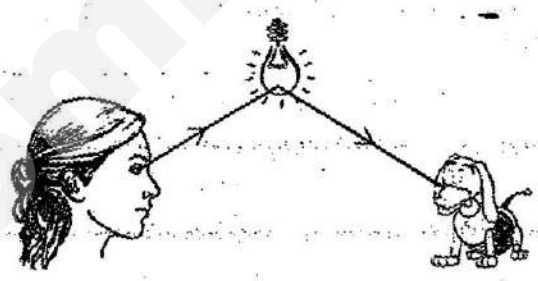
(1)



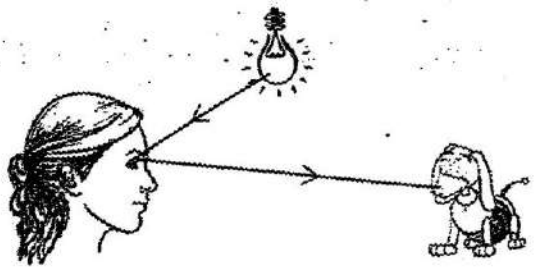
(2)



(3)



(4)





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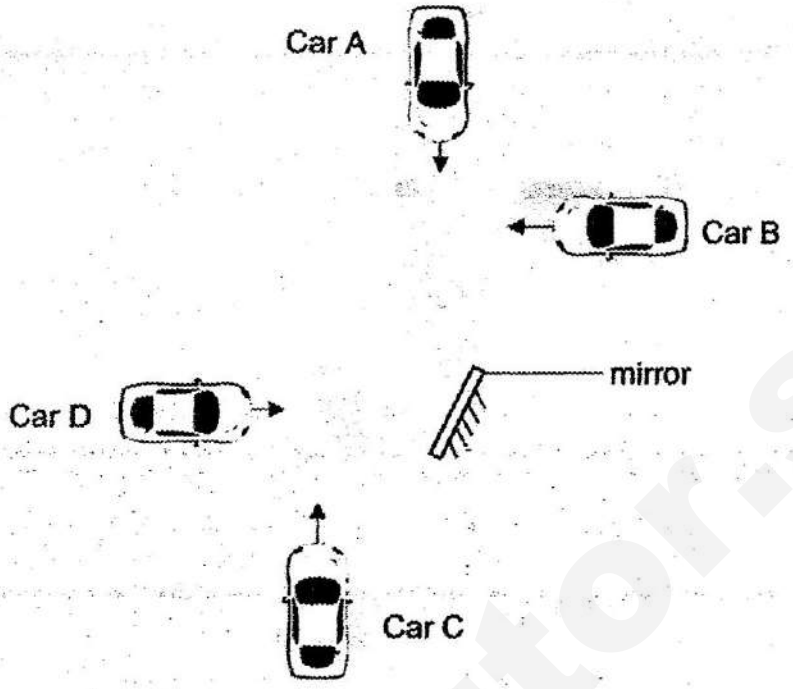
21 The diagram below shows four cars A, B, C and D. They are travelling in the directions shown by the arrows.




Which two drivers can see each other in the mirror?

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

22 Which of the following do not give out light but can be seen because they reflect light?

(1) sun, star, moon
(2) earth, man, tree
(3) lightning, candle, oil lamp
(4) firefly, fireworks, campfire



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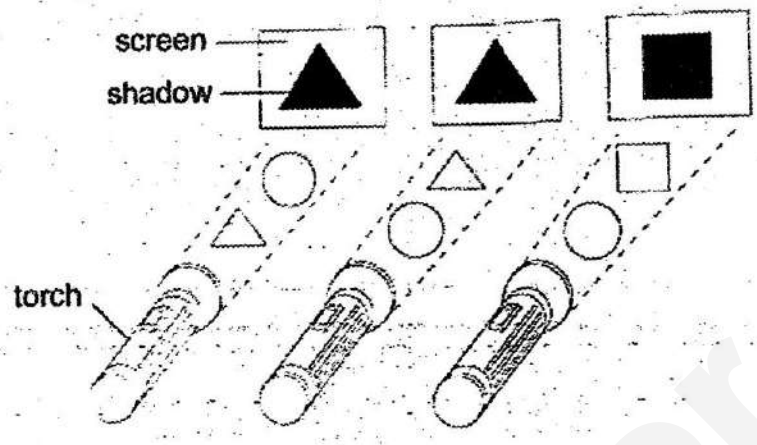
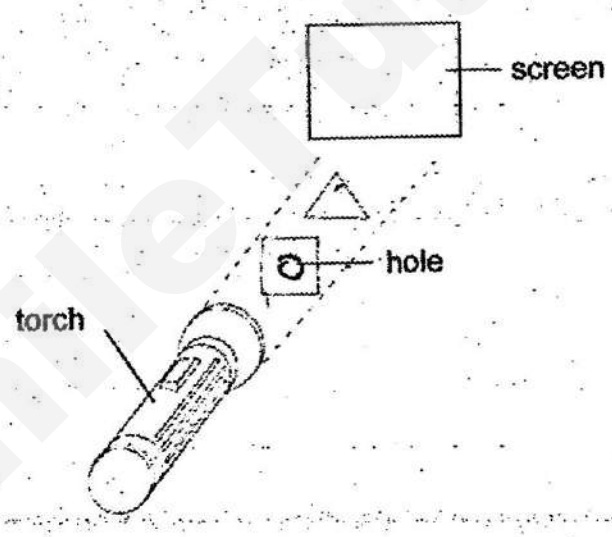
23 The diagram below shows the shapes of the shadows produced when two different objects were placed between a screen and a torch. The objects are of the same size. One of the objects allows most of the light to pass through.




A hole was made in the centre of the square object and it was then placed in front of the screen together with the triangular object, as shown below.




Which of the following shows the shadow produced on the screen?

(1)

(2)

(3)

(4)



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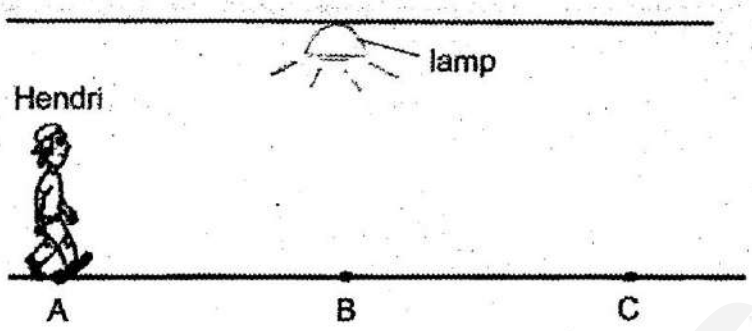
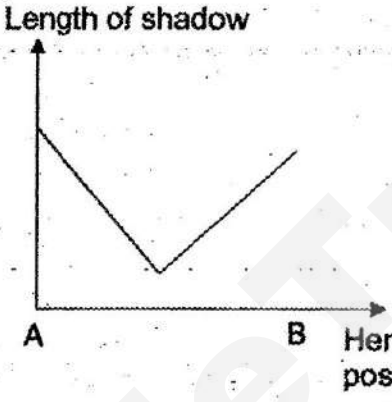
24 Hendri walked in a straight line and at the same speed from A to C as shown below. He was directly under the lamp at B. The distance between A and B is the same as the distance between B and C.

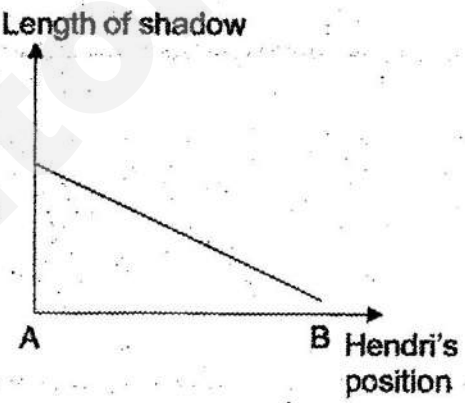



Which one of the following graphs correctly shows how the length of Hendri's shadow on the ground changed during his walk from A to B?

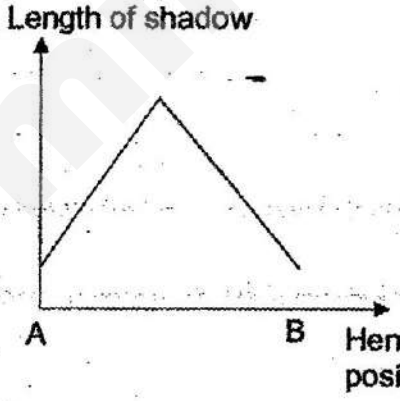
(1)



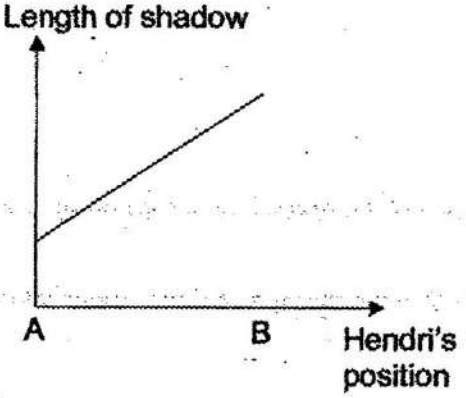

(2)




(3)




(4)




**End of Booklet A**



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# CATHOLIC HIGH SCHOOL

## SEMESTRAL ASSESSMENT ONE (2018)

## PRIMARY FOUR

## SCIENCE

## BOOKLET B

Name: _____ (  )

Class: Primary 4 - _____

Date: 11 May 2018

Parent's Signature: _____

| | |
|---|---|
| Booklet A | 48 |
| Booklet B | 32 |
| Total | 80 |

11 questions

32 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 11 printed pages, excluding the cover page.

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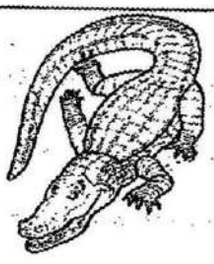
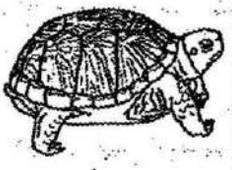
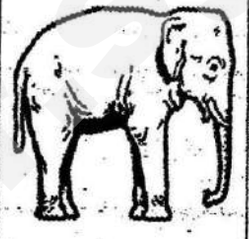
**Booklet B (32 marks)**

For questions 25 to 35, write your answers in this booklet.
The number of marks available is shown in brackets [ ] at the end of each question or part question.
(32 marks)

25 The table below shows how some animals are classified.

| P | | Q | |
|---|---|---|---|
|  |  | |  |
| crocodile | turtle | bat | elephant |

(a) Which group of living things do animals P and Q belong to? [1]

P - _____

Q - _____

(b) State one difference in the movement of a crocodile and a bat. [1]

_____

_____

(Go on to the next page)

| SCORE | 2 |
|---|---|



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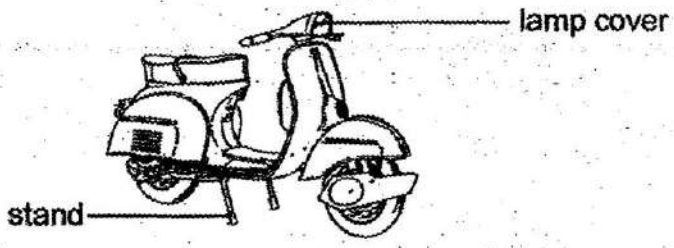
26 Different materials are used to make the lamp cover and the stand of the scooter as shown below.




Name the material and the property that makes it suitable for making the part of the object indicated above. [2]

| | Name of material | Property |
|---|---|---|
| lamp cover | | |
| stand | | |

27 The table below shows the amount of undigested food in each part of the digestive system.

| Part of digestive system | mouth | gullet | stomach | small intestine | large intestine |
|---|---|---|---|---|---|
| Amount of undigested food (g) | 100 | 100 | 60 | 10 | Y |

(a) What is the amount of undigested food in Y? [1]

_____

(b) What happens to the food that has been digested? [1]

_____

_____

(c) Why does the amount of undigested food remain the same at the gullet? [1]

_____

(Go on to the next page)

| SCORE | /5 |
|---|---|



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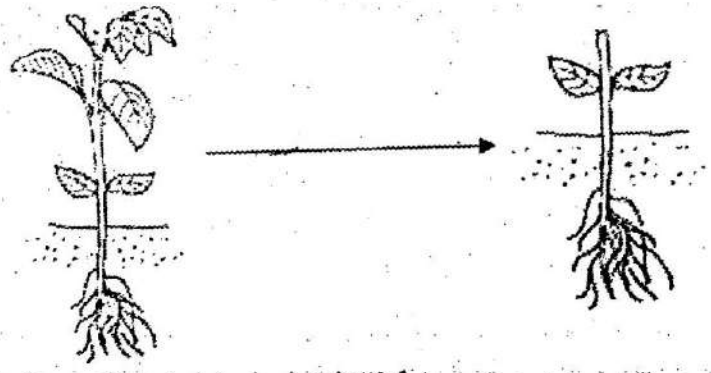
28 Some parts of plants A and B were cut off as shown below.



plant A

plant B

Which plant A or B would survive longer? Explain your answer. [2]

_____

_____

_____

(Go on to the next page)

| SCORE | / 2 |
|---|---|



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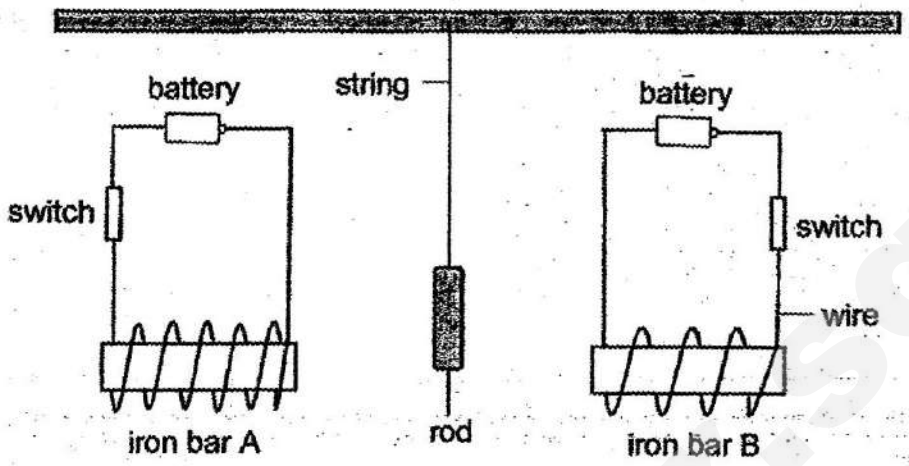
29 Harun placed a rod between two iron bars A and B as shown below. When the switches were closed, the rod moved towards iron bar A.




(a) Explain why the rod moved towards iron bar A when the switches were closed. [1]

(b) State the material that the rod can be made of in order for it to be attracted to the iron bars. [1]

(c) What could be done for the rod to move towards iron bar B when the switches were closed? [1]

(Go on to the next page)

| SCORE | / 3 |
|---|---|



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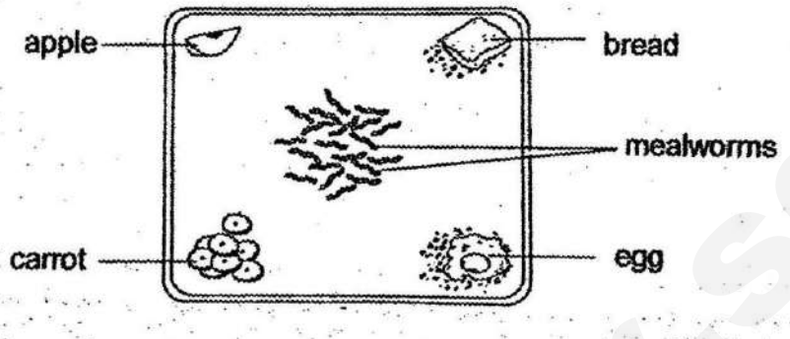
30 Doris placed 40 mealworms in the centre of a tray as shown in the diagram below. An equal amount of different types of food was placed at each corner of the tray.




After a while, the number of mealworms at each corner was counted. The results were recorded as shown below.

| | apple | bread | carrot | egg |
|---|---|---|---|---|
| Number of mealworms | 10 | 24 | 4 | 2 |

(a) What variable was changed in this experiment? [1]

_____

_____

(b) Which food is most suitable for them to continue their life cycle? Give a reason to support your answer. [1]

_____

_____

(c) After some time, Doris noticed that only a few mealworms were still moving. What could have happened to the rest? [1]

_____

_____

(Go on to the next page)

| SCORE | / 3 |
|---|---|



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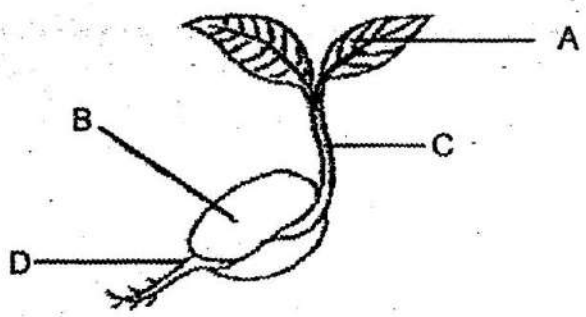
31 The diagram below shows a young plant.




(a) Which part A, B, C or D represents the seed leaf? [1]

_____

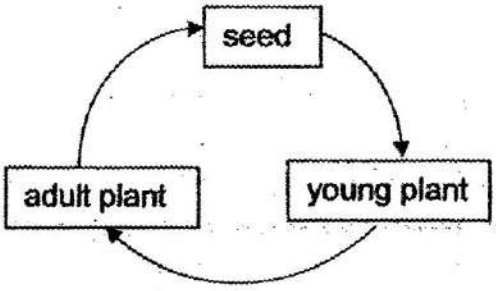
(b) State one function of a seed leaf. [1]

_____

_____

(c) What stage of its cycle is plant A in? Give a reason for your answer. [1]

plant A




_____

_____

(Go on to the next page)

| SCORE | 3 |
|---|---|



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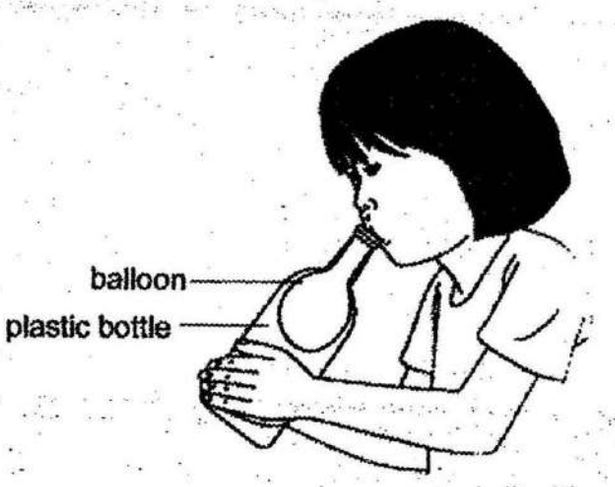
32 Rosy fits a balloon over the mouth of a plastic bottle. She blows into the balloon, but is not able to inflate the balloon to fill the bottle up fully.




(a) Explain why she cannot inflate the balloon to fill the bottle up fully. [1]

_____

_____

(b) Using the same bottle and balloon, suggest what she can do to inflate the balloon to fill the bottle up fully. [1]

_____

(Go on to the next page)

| SCORE | / 2 |
|---|---|



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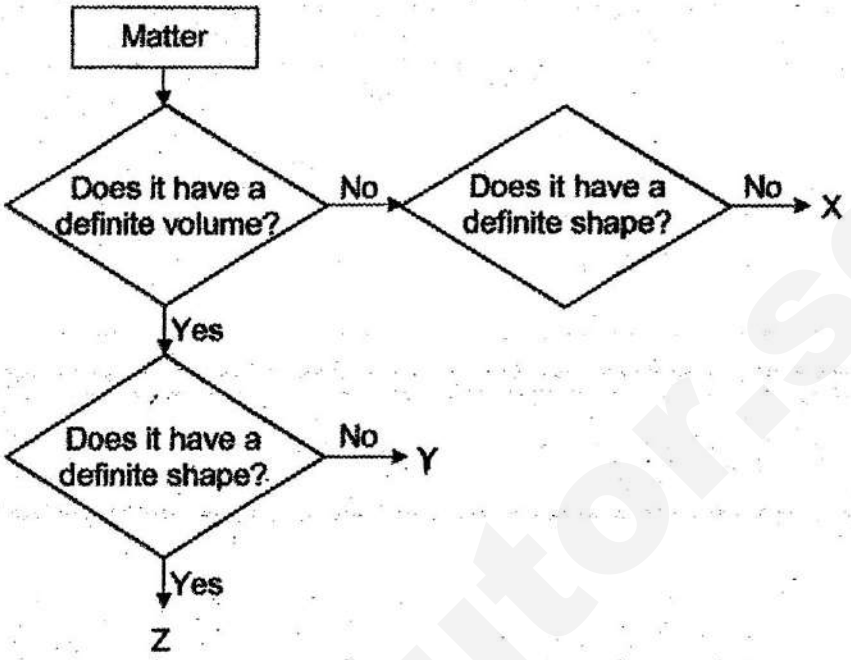
*Continue from question 32*

Rosy wanted to classify a list of items based on the flow chart as shown below.




(c) Classify the following items accordingly. [1]

| ice cube | milk | rain | oxygen |
|---|---|---|---|

| Matter | | |
|---|---|---|
| X | Y | Z |
| | | |

(d) Which one of the following is not matter? Why? [1]

| jelly | shadow | clouds | plasticine |
|---|---|---|---|

_____

_____

(Go on to the next page)

| SCORE | / 2 |
|---|---|



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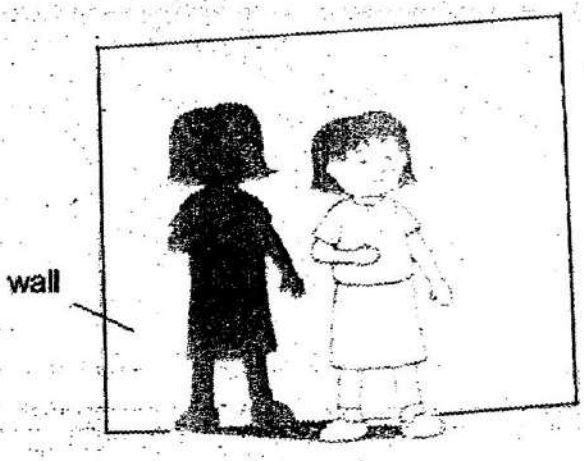
33 Look at the diagram below.



(a) How is the girl's shadow formed on the wall? [1]

_____

_____

(b) What can the girl do to form two shadows on the wall instead of one? [1]
Tick [√] the correct answer in the box provided.

| | |
|---|---|
| Move nearer to the light source. | |
| Move further away from the light source. | |
| Stand at the side of the wall instead of the centre. | |
| Use two light sources shining from different directions. | |

(Go on to the next page)

| SCORE | 2 |
|---|---|



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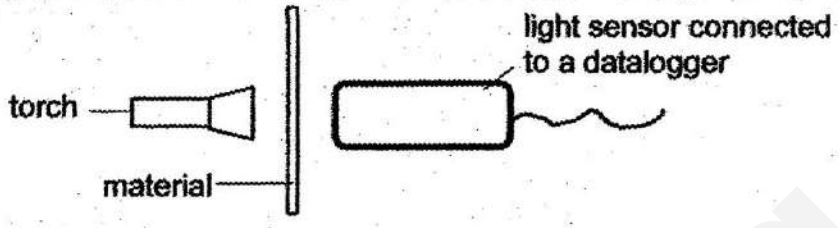
34 Devi wants to find out how much light can pass through the materials P, Q and R. Each material was placed in between a torch and a light sensor connected to a datalogger.




She recorded the results as shown below.

| Materials | Amount of light (units) |
|---|---|
| P | 0 |
| Q | 35 |
| R | 154 |

(a) Based on the table above, what can Devi conclude about material Q? [1]

_____

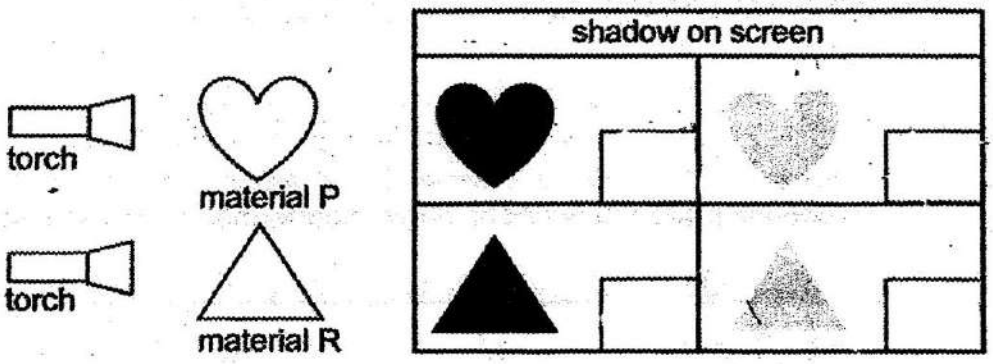
_____

(b) Which material P, Q, or R should Devi choose to make a curtain to have the darkest bedroom? Give a reason for your answer. [1]

_____

_____

(c) Based on the table above, tick [√] the shadow formed on the screen below when a torch is used to shine light on the following materials. [2]

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SCORE 4



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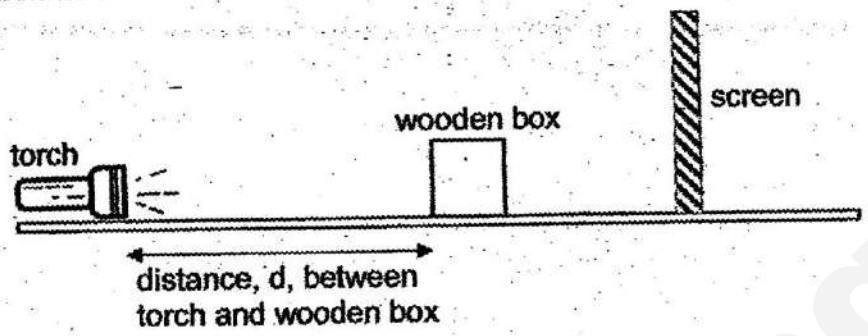
35 Fiona used a torch to shine on a wooden box as shown below. A shadow of the box was formed on the screen.




(a) Fiona measured the height of the shadow formed on the screen as she moved the torch towards the wooden box. She recorded the results in the table as shown below.

| distance, d, between torch and wooden box (cm) | Height, H, of the shadow formed on the screen (cm) |
|---|---|
| 15 | 8 |
| 12 | 10 |
| 9 | 12 |
| 6 | H |

State the height, H, of the shadow formed when the distance, d, between the torch and the wooden box is 6 cm. [1]

H : _____ cm

(b) Without moving the torch, suggest two ways that Fiona could do to make the height of the shadow formed on the screen to be less than 8 cm. [2]

(i) _____

_____

(ii) _____

_____

(c) What is the relationship between the distance of the torch and the wooden box and the height of the shadow formed on the screen? [1]

_____

_____

**End of Booklet B**

| SCORE | / 4 |
|---|---|



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# ANSWER KEY

YEAR : 2018
LEVEL : PRIMARY 4
SCHOOL : CATHOLIC HIGH SCHOOL
SUBJECT : SCIENCE
TERM : SA1

**BOOKLET A ( 48 marks )**

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

**BOOKLET B (32 marks)**

Q25a) P – Reptiles
Q- Mammals
Q25b) A crocodile can crawl while a bat can fly.
Q26) Glass; transparent
Metal; Strong
Q27a) 10g
Q27b) Digested food is absorbed into the bloodstream.
Q27c) Digestion does not take place in the gullet.
Q28) A. because there is still 2 leaves for A to make food and A would be able to grow again.
Q29a) Iron bar A has more magnetic strength as it has more coils of wire around it than B.
Q29b) Iron/steel/nickel/cobalt
Q29c) Having more coils of wire around iron B.
Q30a) Food
Q30b) Bread. Bread attracts the most mealworms.
Q30c) They develop into pupas.
Q31a) B
Q31b) It provides food for the young plants to grow.
Q31c) Adult stage. Only adult plants have flowers.
Q32a) Air in the bottle occupies space and cannot escape.
Q32b) Drilling a small hole so the air can escape.
Q32c) X- oxygen, Y- rain, Z- ice cube
Q32d) Shadow. It does not have mass and does not occupy space.
Q33a) When the girl blocks the path of light.
Q33b) (tick) Use two light sources shining from different directions.
Q34a) Q is translucent object.
Q34b) P, because light cannot pass through it.

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**Q34c)**

**Q35a) 14cm**

**Q35bi) Move the screen nearer to the wooden box.**

**Q35bii) Move the wooden box nearer to the screen.**

**Q35c) As the distance between the torch and the wooden box increases, the height of the shadow decreases.**

**THE END**



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Name: _____ (  )

Class: Primary 4 _____

# CHIJ ST NICHOLAS GIRLS' SCHOOL

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## Primary 4
## Semestral Assessment 1
## SCIENCE

**BOOKLET A**

**10 May 2018**

**Total Time for Booklets A and B: 1 hour 45 minutes**

**28 questions**
**56 marks**

**Do not open this booklet until you are told to do so.**
**Follow all instructions carefully.**
**Answer all questions.**

**This booklet consists of 19 printed pages.**

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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 provided.**

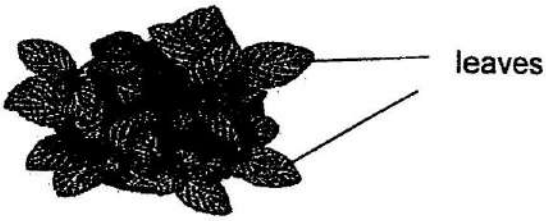
1. Four pupils, Amy, Betty, Candy and Demi, made some statements about flowering plants.

| Amy | Betty | Candy | Demi |
|---|---|---|---|
| All flowering plants reproduce through spores. | All flowering plants have fruits. | Only flowering plants can make food. | Some flowering plants produce fruits that cannot be eaten. |

Which of the pupils made statements that were true?

(1) Amy and Betty only
(2) Amy and Candy only
(3) Betty and Demi only
(4) Candy and Demi only

2. The diagram below shows the arrangement of the leaves of a plant as seen from the top.




Which one of the following statements best explains how this arrangement of the leaves helps the plant to make more food?

(1) It helps the plant to take in more air.
(2) It helps the plant to take in more light.
(3) It helps the plant to absorb more nutrients.
(4) It helps the plant to absorb more rainwater.



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3. The characteristics of plant A and B are shown in the table below.

| Characteristics | Plant A | Plant B |
|---|---|---|
| **Produces spores** | Yes | No |
| **Makes its own food** | Yes | Yes |
| **Produces fruits** | No | Yes |

Which of the following best represents plant A and plant B?

| | Plant A | Plant B |
|---|---|---|
| (1) | papaya tree | fern |
| (2) | bracket fungi | orchid |
| (3) | mushroom | papaya tree |
| (4) | fern | rose plant |

4. Elizabeth found an animal in a park.
Which of the following characteristics should she use to identify it as a fish or reptile?

(1) presence of gills

(2) type of body covering

(3) method of reproduction

(4) whether it produces milk for its young



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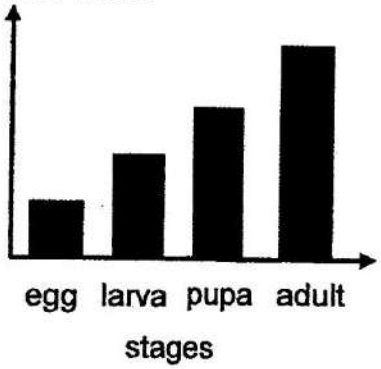
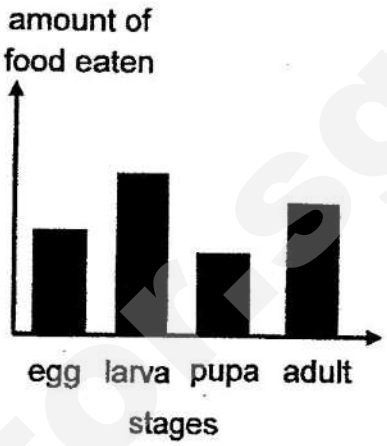
5. Which one of the following graphs shows the possible amount of food eaten during the different stages in the life cycle of a ladybird?

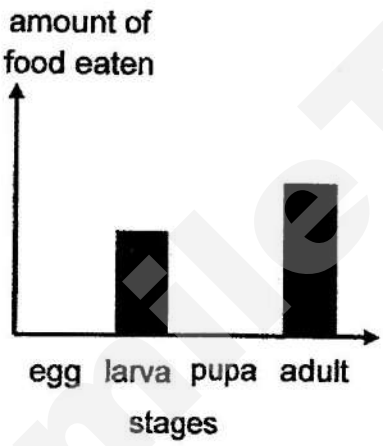
(1)



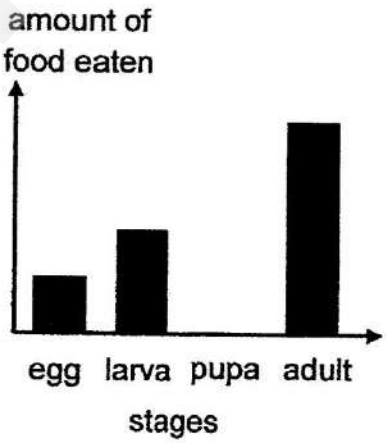

(2)




(3)




(4)



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6. Study the classification table below.

| Group A | Group B |
|---|---|
| aeroplane | dog |
| kite | eagle |

Which one of the following headings best represents group A and B?

| | Group A | Group B |
|---|---|---|
| (1) | Can fly | Cannot fly |
| (2) | Has two legs | Has four legs |
| (3) | Can reproduce | Cannot reproduce |
| (4) | Does not need air, water and food | Needs air, water and food |

7. The life cycle of a plant is shown below.

Which of the following statements about the plant are true?

A During germination, the roots appear first.

B During germination, the shoots appear first.

C The seed leaf provides food for the germinating seed.

D The seed needs air, water and sunlight to germinate.

(1) A and C only

(2) A and D only

(3) B and C only

(4) B and D only



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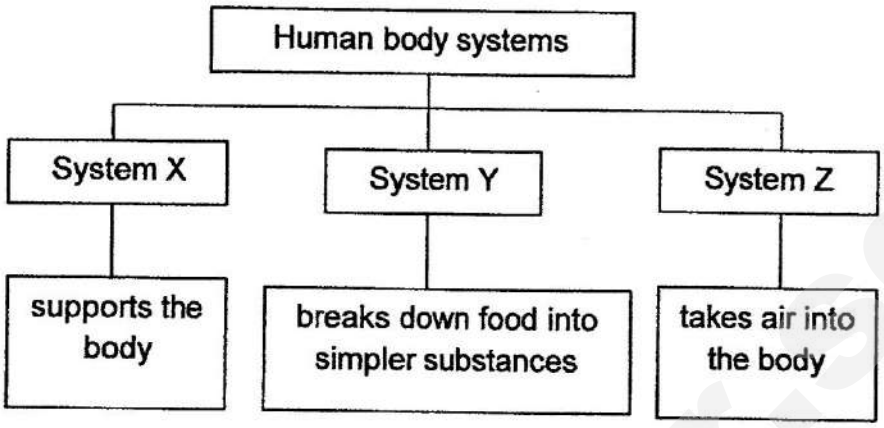
8. Study the classification chart below.




Which one of the following headings best represents systems X, Y and Z?

| | X | Y | Z |
|---|---|---|---|
| (1) | circulatory system | skeletal system | muscular system |
| (2) | muscular system | circulatory system | skeletal system |
| (3) | skeletal system | digestive system | respiratory system |
| (4) | respiratory system | muscular system | digestive system |

9. Which of the following statements about bacteria are true?

A Bacteria feed only on dead things.

B Bacteria cannot make their own food.

C All bacteria can be seen by the naked eye.

D Bacteria can be useful or harmful to humans.

(1) A and B only

(2) B and D only

(3) C and D only

(4) A, B and C only



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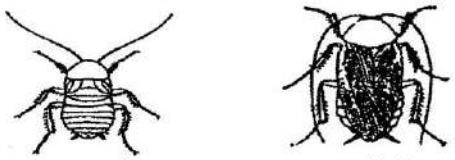
10. The diagram below shows the nymph and adult of a cockroach.



nymph adult

Which of the following statements are true?

A Both the nymph and the adult can fly.

B The adult has bigger wings than the nymph.

C The adult can lay eggs but the nymph cannot.

D The nymph moults several times but the adult does not.

(1) A and B only

(2) A and C only

(3) B and D only

(4) C and D only

11. Which of the following characteristics are commonly found in birds, but not in other animals?

A They lay eggs.

B They have a beak.

C They have feathers on their bodies.

D They breathe through their moist skin and lungs.

(1) A and B only

(2) B and C only

(3) C and D only

(4) A, B and C only



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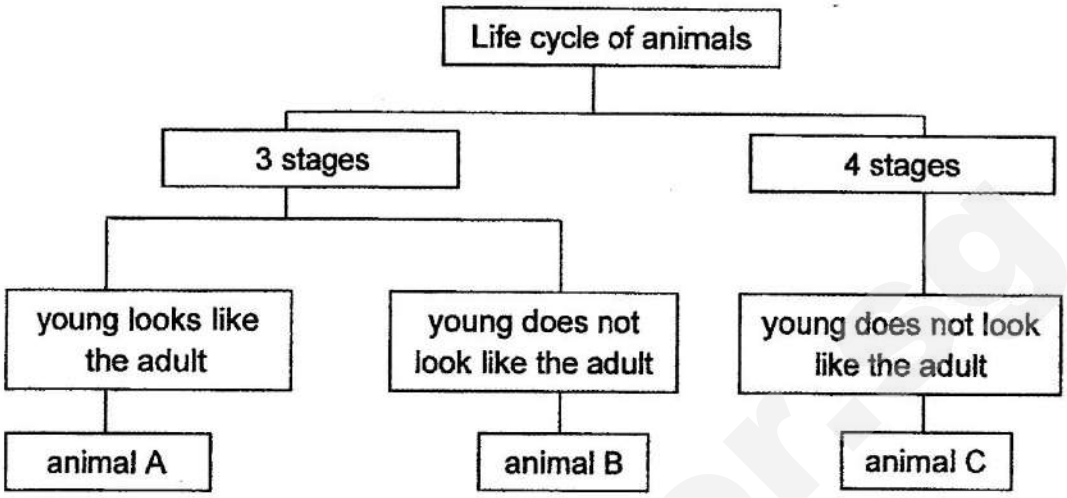
12. Study the classification chart below.




Which one of the following best represents animals A, B and C?

| | Animal A | Animal B | Animal C |
|---|---|---|---|
| (1) | giraffe | grasshopper | butterfly |
| (2) | dog | frog | beetle |
| (3) | grasshopper | butterfly | frog |
| (4) | elephant | cat | butterfly |

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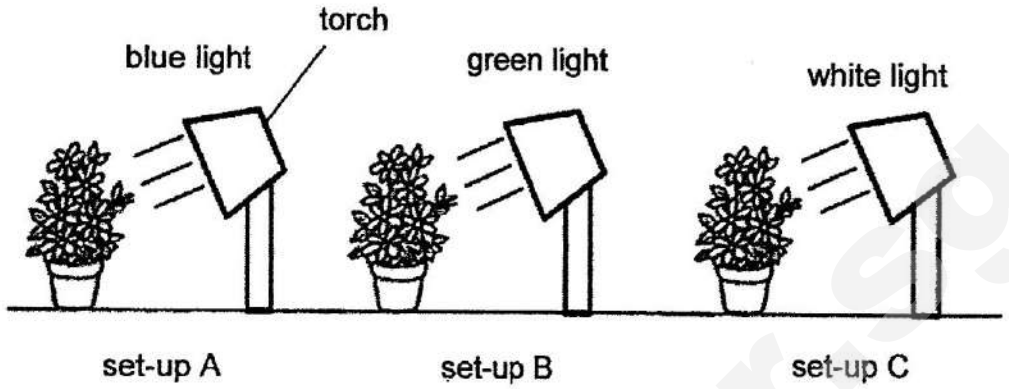
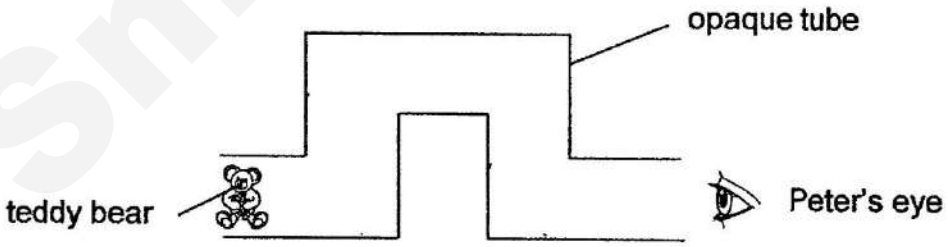
13. Adam placed three similar pots of plants in a dark room as shown below. He gave them the same amount of water and fertiliser each day.




Adam is trying to find out if the _____ affects the growth of the plants.

(1) type of fertiliser
(2) amount of water
(3) presence of light
(4) colour of the light

14. Study the diagram below.




What is the least number of mirrors Peter needs to place in the tube in order to see the teddy bear?

(1) 3
(2) 4
(3) 5
(4) 6



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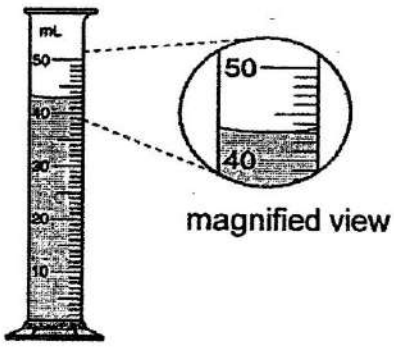
15. Study the diagram below.



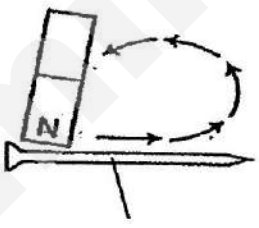

measuring cylinder

What is the volume of liquid in the measuring cylinder?

(1) 43 ml
(2) 44 ml
(3) 53 ml
(4) 57 ml

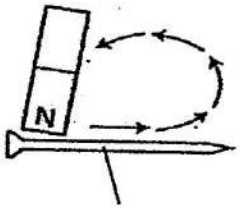
16. Yuki wanted to make a temporary magnet out of a nail.
Which one of the following nails will be magnetized?

(1)




iron nail

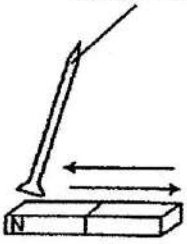
(2)




copper nail

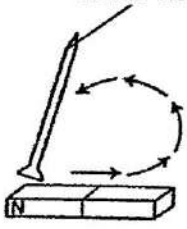
(3)

steel nail




(4)

silver nail



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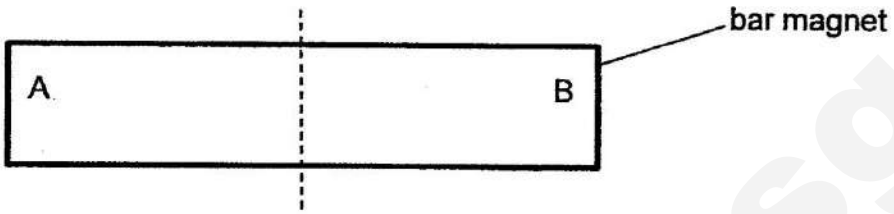
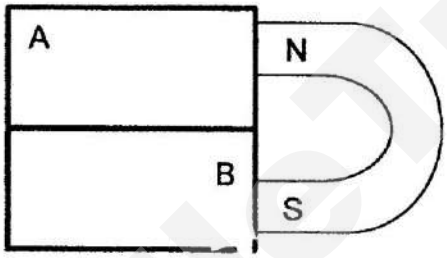
17. A bar magnet has been cut into two pieces along the dotted line as shown below. A and B represent the two poles of the magnet.

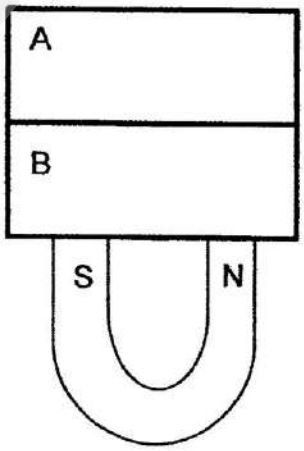



The two pieces of the bar magnet together with a U-shaped magnet are then arranged such that they attract one another. Which one of the following arrangements is possible if A is the north pole of the bar magnet?

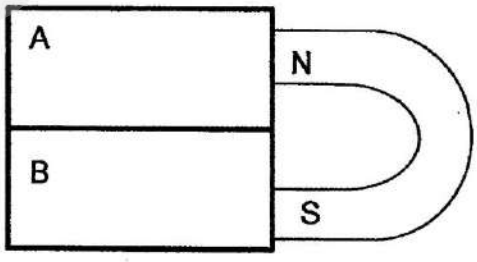
(1)



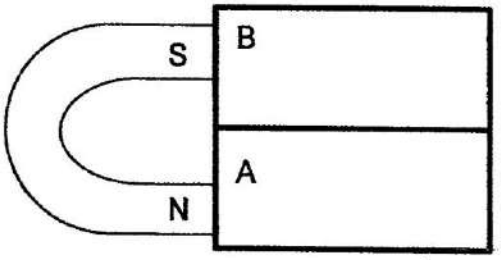

(2)




(3)




(4)



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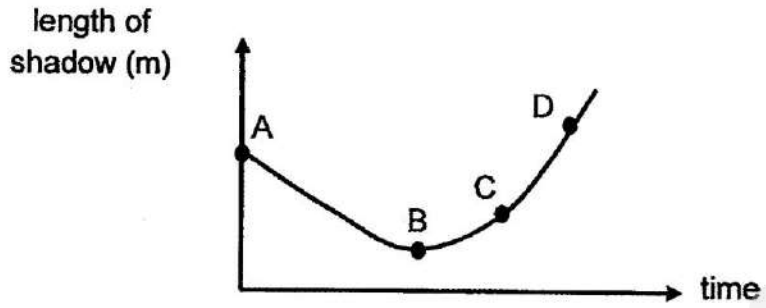
18. The line graph below shows the length of the shadow of a tree at different times of the day.




Which point on the graph A, B, C or D is most likely the length of the shadow of the tree at 12 pm?

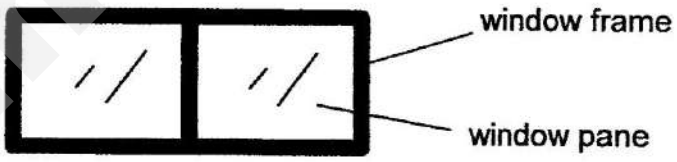
(1) A

(2) B

(3) C

(4) D

19. The diagram below shows a window frame and a window pane.




Which one of the following properties should we consider when choosing suitable materials for making the window frame and the window pane?

| | Window frame | Window pane |
|---|---|---|
| (1) | waterproof | flexibility |
| (2) | allows light to pass through | ability to float |
| (3) | flexibility | strength |
| (4) | strength | allows light to pass through |



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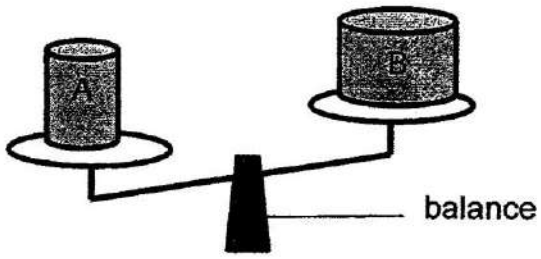
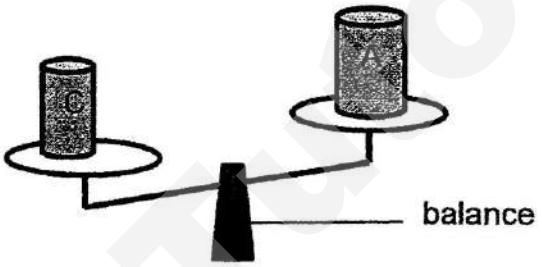
20. Jenny placed objects A and B on a balance. The balance tilted as shown in the diagram below.




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




Which one of the following statements is true?

(1) A has the least mass.

(2) B has the least volume.

(3) C has the greatest mass.

(4) B and C have the same volume.



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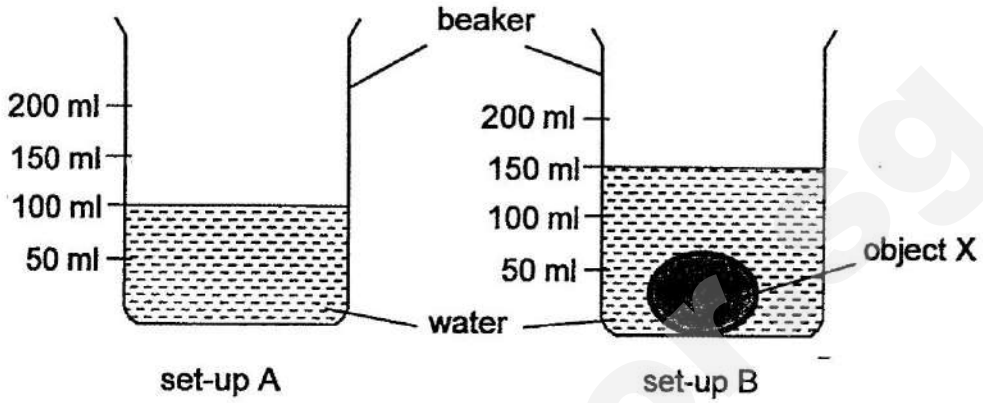
21. Fiona filled a beaker with water as shown in set-up A. She then lowered object X into the beaker and observed that the water level rose as shown in set-up B.




What was she trying to find out from her experiment?

(1) The size of object X.

(2) The mass of object X.

(3) The volume of object X.

(4) The state of matter of object X.

22. The moon is able to shine at night because it _____.

(1) glows in the dark

(2) gives off light of its own

(3) reflects light from the Sun

(4) reflects light from the Earth



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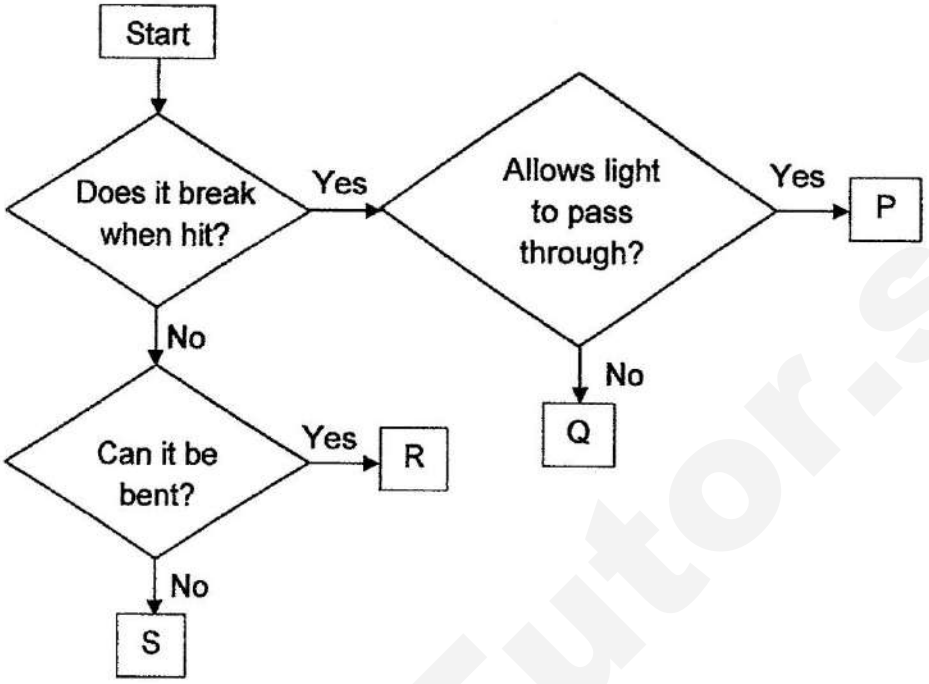
23. Study the flow chart below.




Which of the letters P, Q, R or S best represents a ceramic vase?

(1) P

(2) Q

(3) R

(4) S



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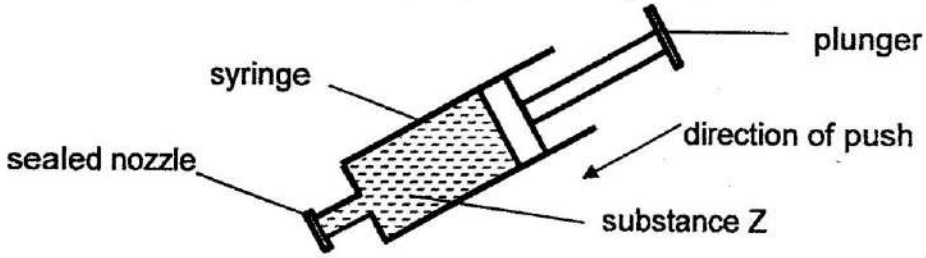
24. The diagram below shows a syringe containing substance Z.




Darren tried to push in the plunger but it did not move.

Based on his experiment, what can Darren conclude about substance Z?

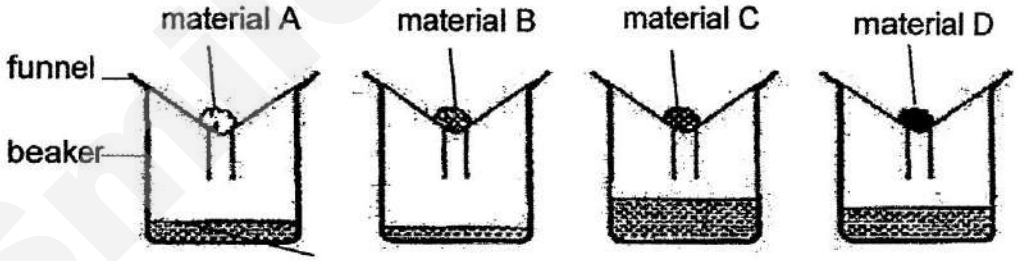
(1) Substance Z has mass.

(2) Substance Z has a fixed volume.

(3) Substance Z can be compressed.

(4) Substance Z has no definite shape.

25. Materials A, B, C, and D were placed in the funnels as shown below. 200 ml of water was poured into each funnel and some of the water was collected in the beakers.




Arrange the materials A, B, C and D based on their ability to absorb water.

| | Absorbs the least ⟶ Absorbs the most | | | |
|---|---|---|---|---|
| (1) | A | C | D | B |
| (2) | B | A | D | C |
| (3) | C | D | A | B |
| (4) | D | C | B | A |



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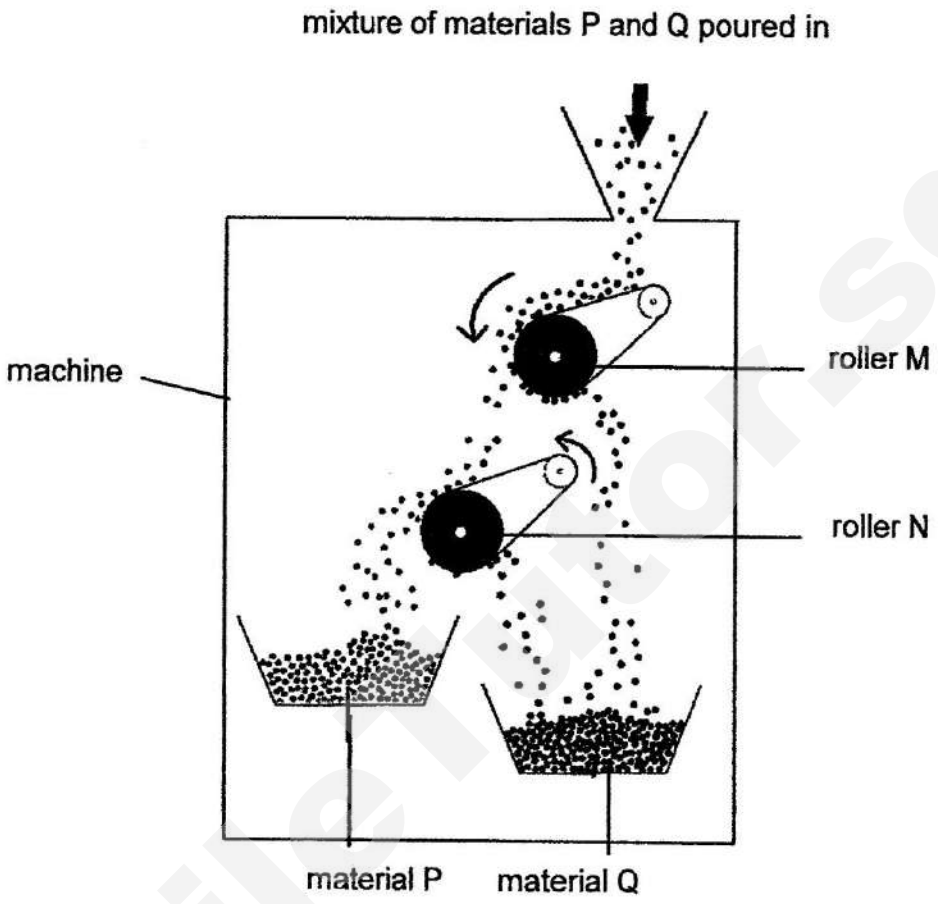
26. A mixture of materials P and Q is poured into a machine. The machine separates materials based on their magnetic properties.




Based on the diagram above, which of the following conclusions are true?

A Only roller M is a magnet.

B Material Q is a magnetic material.

C Both rollers M and N are magnets.

D Roller M has a stronger magnetic pull.

(1) A and D only

(2) B and C only

(3) A, B and C only

(4) B, C and D only



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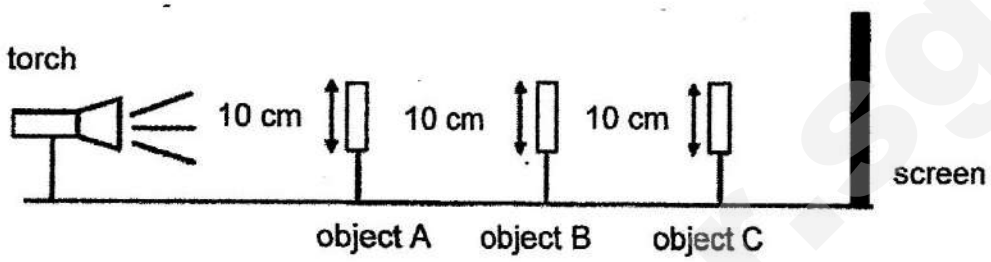
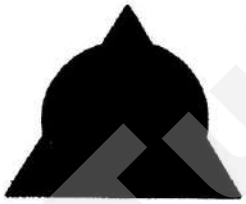
27. The diagram below shows a torch shining on objects A, B and C.




The shadow of the objects cast on the screen is shown below.



Which of the following is most likely to be objects A, B and C?

| | Object A | Object B | Object C |
|---|---|---|---|
| (1) | | | |
| (2) | | | |
| (3) | | | |
| (4) | | | |



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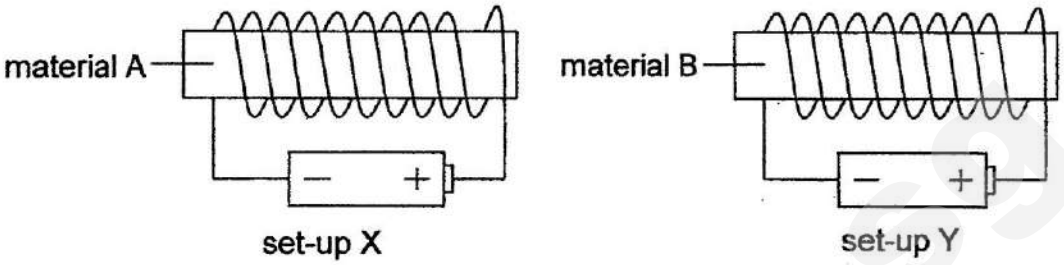
28. Yanni conducted an experiment using two different materials A and B as shown in the diagram below. She ensured that the batteries and wires were in working condition before the experiment.




set-up X set-up Y

She placed some steel clips near material A and B and recorded her observations in the table below.

| Material | Number of steel clips attracted |
|---|---|
| A | 9 |
| B | 0 |

Based on the results in the table, what could be a possible reason for her observations?

(1) Material A is made of aluminium.

(2) The battery in set-up Y was not working.

(3) Material B is made of a non-magnetic material.

(4) There were too few coils of wire around material B.

**END OF BOOKLET A**



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Name : _____ (  )

Class : Primary 4 _____

# CHIJ ST NICHOLAS GIRLS' SCHOOL

## Primary 4
## Semestral Assessment 1
## SCIENCE

**BOOKLET B**

**10 May 2018**

| | |
|---|---|
| Booklet A | 56 |
| Booklet B | 44 |
| Total | 100 |

**Total Time for Booklets A and B: 1 hour 45 minutes**

**13 questions**
**44 marks**

**Do not open this booklet until you are told to do so**
**Follow all instructions carefully.**
**Answer all questions.**

**This paper consists of 16 printed pages.**

_____

**Parent's Signature/Date**

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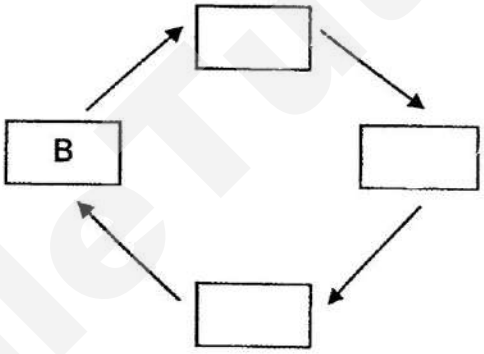
**Section B (44 marks)**
For questions 29 to 41, write your answers in this booklet.
The number of marks available is shown in the brackets at the end of each question or part question.

29. The diagram below shows the different stages A, B, C and D in the life cycle of a butterfly.

(a) Arrange the stages of the life cycle of the butterfly in the correct order, by writing the letters A, C and D in the boxes provided. [1]




(b) Judy observed some butterfly eggs on a leaf. Explain why the butterfly lays its eggs on a leaf. [1]

_____

_____

(c) Judy observed that the butterfly moulted at one stage of its life cycle. At which stage of its life cycle A, B, C or D did it moult? Explain why it moulted. [1]

_____

_____



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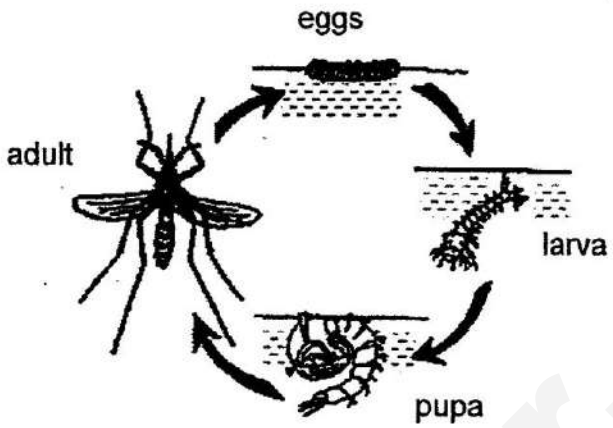
30. The diagram below shows the life cycle of a mosquito.




(a) The larva and pupa of a mosquito breathes through breathing tubes. How does pouring a layer of oil above the water surface kill them? [1]

_____

_____

(b) At which stage of a mosquito's life cycle is it considered a pest to humans? Explain why. [1]

_____

_____

(c) One way to prevent mosquito breeding at home is to change or clear all stagnant water in vases and flower pots regularly. Explain how this method can be used to prevent mosquito breeding. [1]

_____

_____



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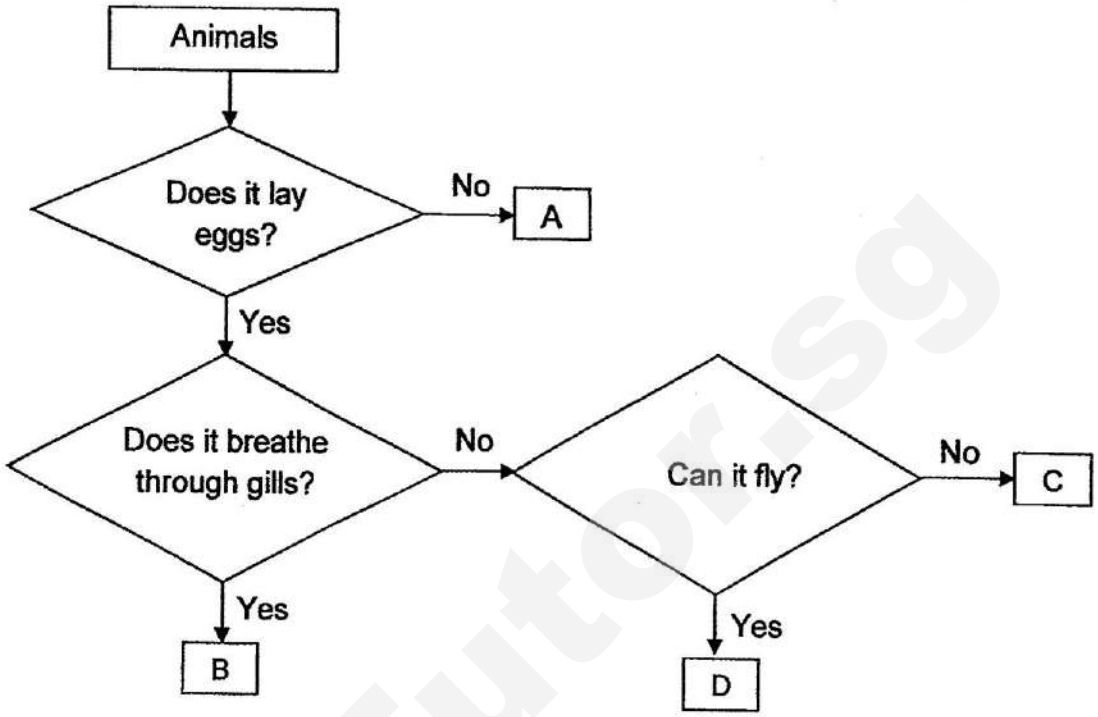
31. Study the flow chart below.




(a) Based on the flow chart, state the characteristics of animal D. [2]

(b) Based on the flow chart, state one similarity between animal B and C. [1]

(c) Which letter A, B, C or D in the flow chart best represents a snake? [1]



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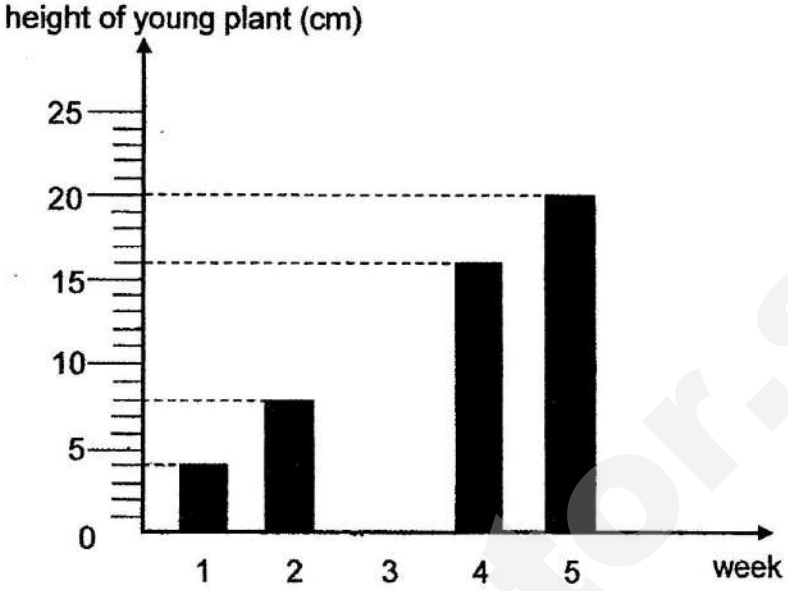
32. Gerald planted a seed in his garden and watered it daily. He recorded his observations of the development of the seed over five weeks in the graph below.




(a) Gerald observed that the plant grew at a regular rate from week 1 to week 5. Draw the height of the plant at week 3 in the graph above. [1]

(b) Based on the graph, which characteristic of living things does the plant show? [1]

_____

(c) Gerald decided to stop watering his young plant after week 5. What do you think will happen to the young plant after two weeks? Give a reason for your answer. [1]

_____

_____



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33. Vivian carried out an experiment with two similar slices of bread A and B. She added 10 ml of water to the bread in set-up A and 20 ml of water to the bread in set-up B. Both bread A and B were placed side by side near a window. After five days, she observed the amount of bread mould on the two slices of bread.

(a) State the aim of Vivian's experiment. [1]

_____

_____

(b) State two changes Vivian should make to her experiment if she wants to find out if the location where the bread slices are placed will affect the growth of bread mould. [2]

(i) _____

_____

(ii) _____

_____

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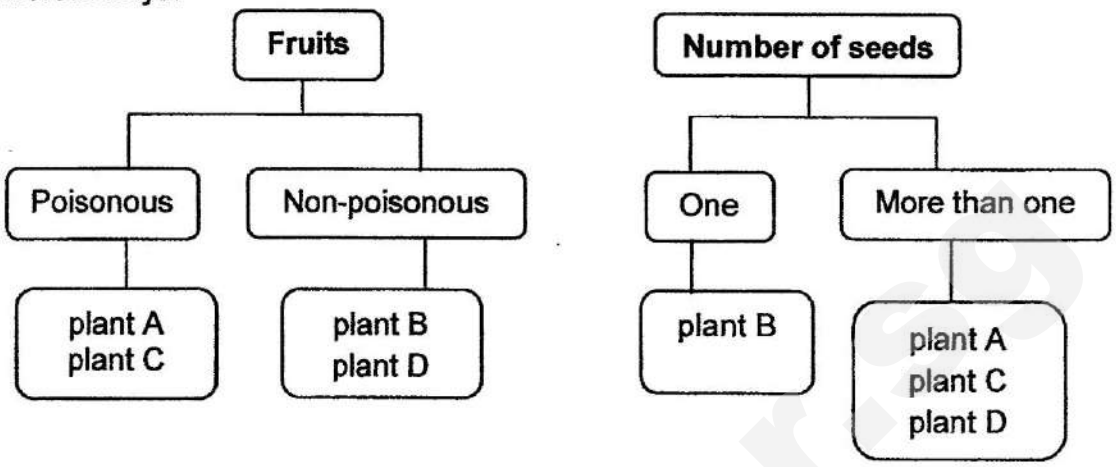
34. The two charts below shows how four plants A, B, C and D can be classified in two different ways.




(a) Based on the chart above, state the characteristics of the fruit of plant D. [1]

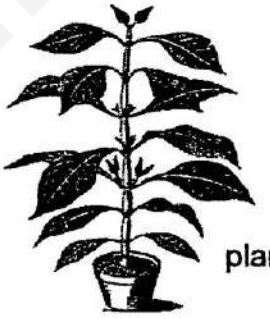
_____

_____

(b) Which plant A, B, C or D best represents a mango plant? [1]

_____

Aminah saw plant X in her garden as shown below. She observed that it had no flowers and concluded that it was a non-flowering plant.



plant X

(c) Do you agree with her? Give a reason for your answer. [1]

_____

_____



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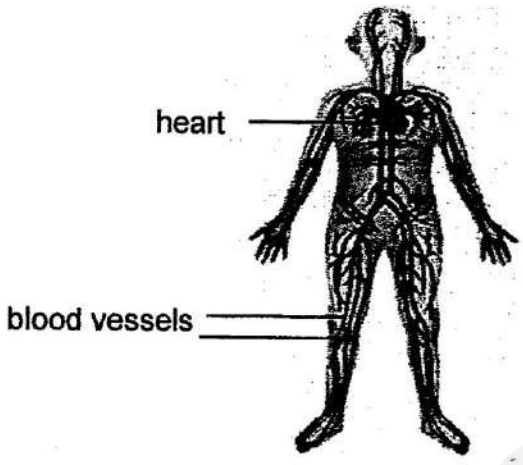
35. The diagram below shows a human circulatory system.




(a) State two functions of the human system shown above. [2]

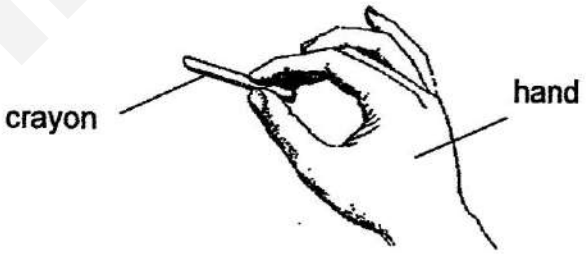
Function 1: _____

_____

Function 2: _____

_____

The diagram below shows Maya's hand holding a crayon.




(b) Name the two organ systems that work together to allow Maya to hold a crayon. [1]

(i) _____

(ii) _____



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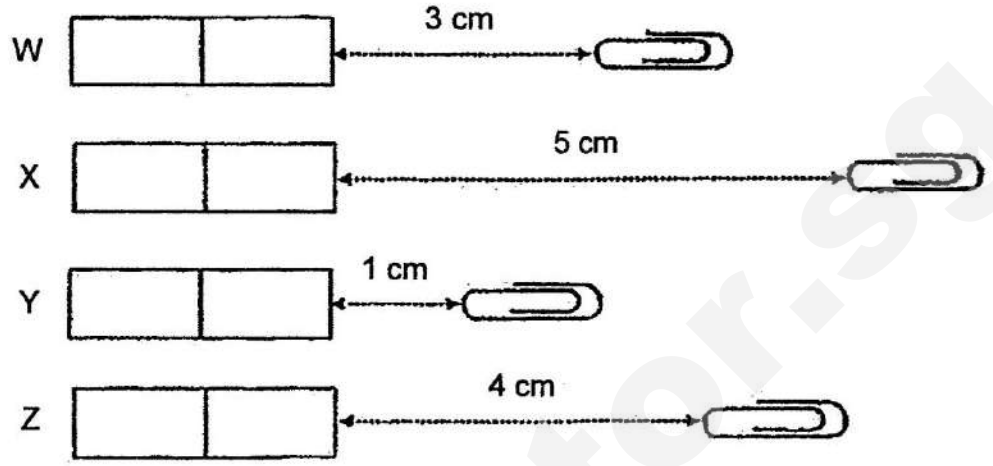
36. Timmy wanted to test the magnetic strength of four different bar magnets W, X, Y and Z. He placed them at the same starting point. He then slowly pushed the paper clips towards the magnets along the rulers and measured the distance at which the paper clips were attracted to the magnets. The results are shown below.




(a) Based on the results, arrange magnets W, X, Y and Z from the one with the greatest magnetic strength to the one with the weakest magnetic strength. Write the letters W, X, Y and Z in the boxes provided below. [2]

| Greatest magnetic strength → | | | Weakest magnetic strength |
|---|---|---|---|
| | | | |

(b) Would the results shown above be different if Timmy reduced the sizes of all the magnets? Explain your answer. [1]

_____

_____



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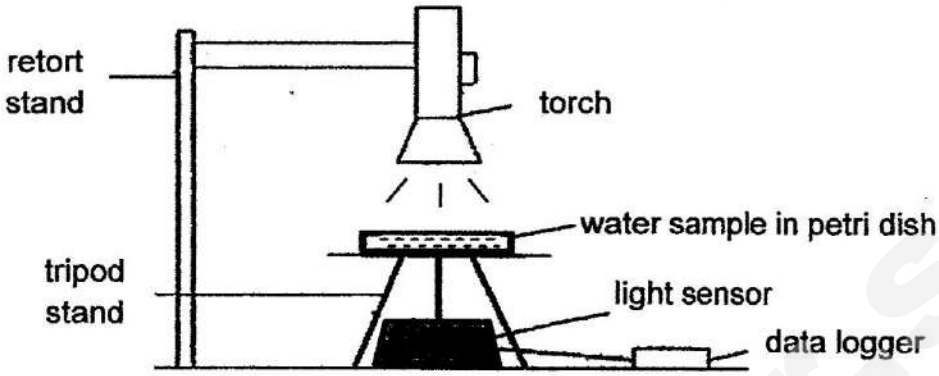
37. Ashwin collected water samples X, Y, Z from three different rivers and set up a torch and a light sensor as shown below.




He conducted the experiment in a dark room and recorded the readings from the data logger in the table below.

| Water sample | Amount of water (ml) | Amount of light detected by the light sensor (lux) |
|---|---|---|
| X | 250 | 455 |
| Y | 250 | 880 |
| Z | 250 | 100 |

(a) Ashwin then placed a coin in each of the petri dishes containing water samples X, Y and Z.
Based on the table above, in which water sample will the coin be seen most clearly? Explain your answer. [1]

(b) Besides using the same amount of water, state another variable that must be kept constant to ensure a fair test. [1]

(c) Give a reason why the experiment needs to be conducted in a dark room. [1]



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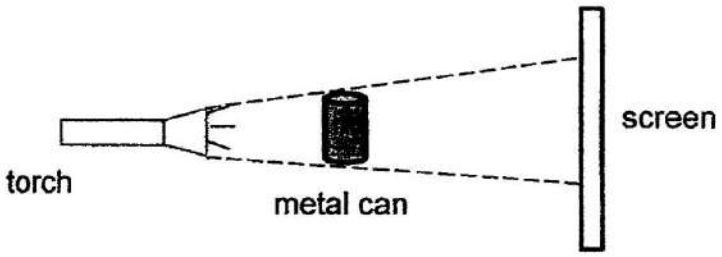
(d) Ashwin shone a torch at a metal can as shown in the diagram below.




Draw the shadow formed by the metal can in the box below. [1]

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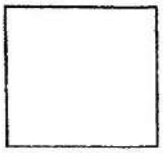

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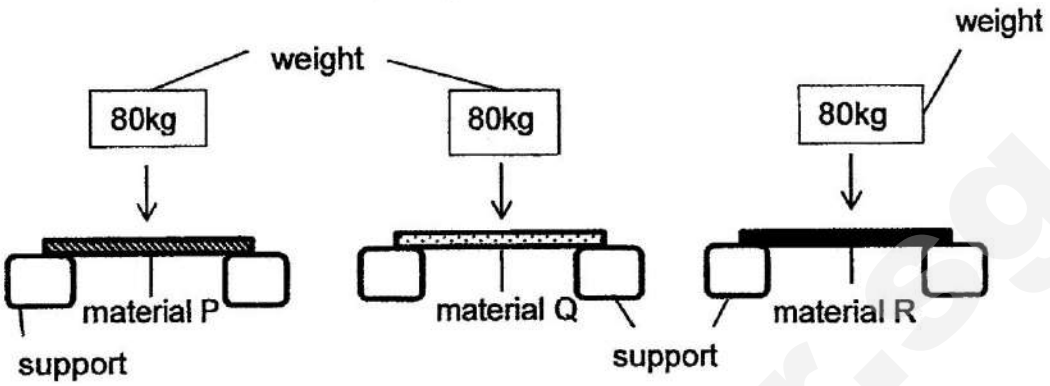
38. Linda placed a weight on three materials P, Q and R. The materials are of the same thickness. She recorded her observations in the table below.




| Material | Observation |
|---|---|
| P | It broke. |
| Q | It was able to bend. |
| R | It remained the same. |

(a) What is the aim of Linda's experiment? [1]

_____

(b) Based on the table above, put a tick (✓) to indicate if the statements are True, False or Not possible to tell, in the table below. [2]

| | Statements | True | False | Not possible to tell |
|---|---|---|---|---|
| (i) | Material Q is made of steel. | | | |
| (ii) | Material R will not break if a 70 kg weight is placed on it. | | | |
| (iii) | Material P is able to float on water. | | | |
| (iv) | Material P will be able to hold a 88 kg box. | | | |



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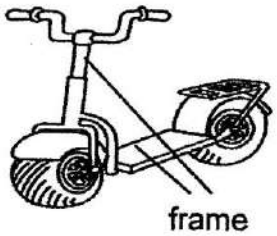
The diagram below shows a skate scooter.




(c) Based on the table, which material P, Q or R is most suitable for making the frame of the skate scooter? Give a reason for your answer. [1]

_____

_____

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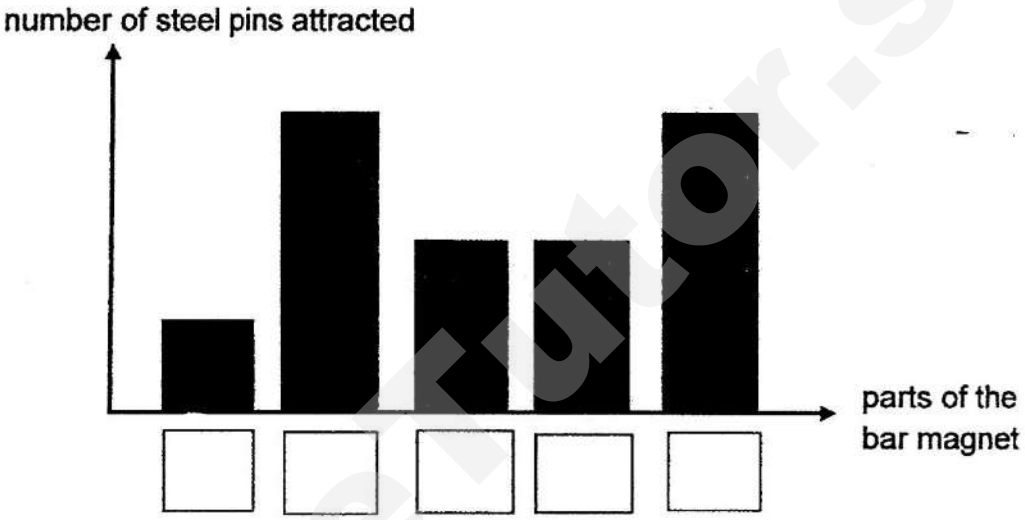
39. The diagram below shows a bar magnet labelled with letters A, B, C, D and E as shown below.

The bar magnet was lowered into a tray of steel pins. The number of pins attracted to each of the different parts of the bar magnet were counted and recorded in the graph below.




(a) Write A, B, C, D and E in the boxes in the graph to represent the different parts of the magnet. [2]

(b) Based on your answer in (a), explain your choice for part C of the magnet. [1]

_____

_____

(c) Which property of magnets does this experiment show? [1]

_____



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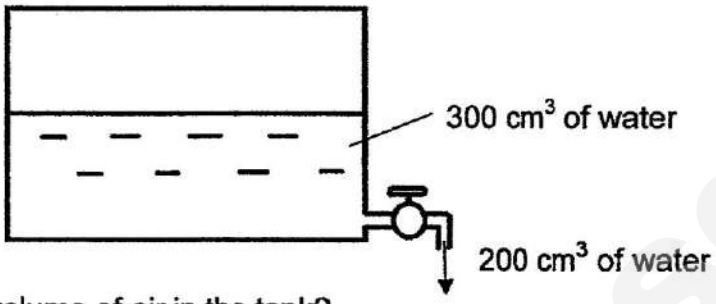
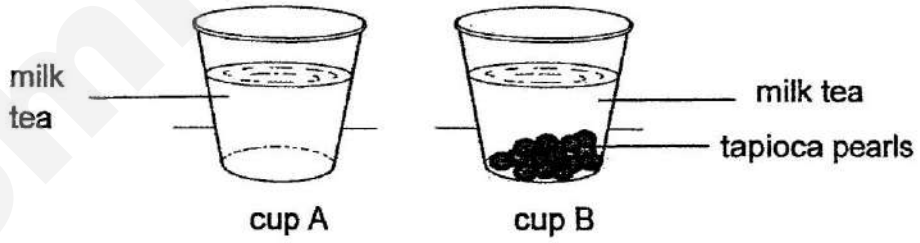
40. Shu Fen filled a 500 $cm^3$ tank with 300 $cm^3$ of water. She then turned on the tap and allowed only 200 $cm^3$ of water to flow out as shown below.




(a) What is the final volume of air in the tank? [1]

(b) What does this show about the property of air? [1]

Shu Fen prepared two cups of the same size and shape. She filled cup A with 300 ml of milk tea and cup B with 250 ml of milk tea. She then added some tapioca pearls into cup B and observed that the two cups had the same liquid level as shown below.




(c) What is the total volume of the tapioca pearls in cup B? [1]

(d) The two cups have the same liquid level although they contain different amounts of milk tea. Explain why. [1]



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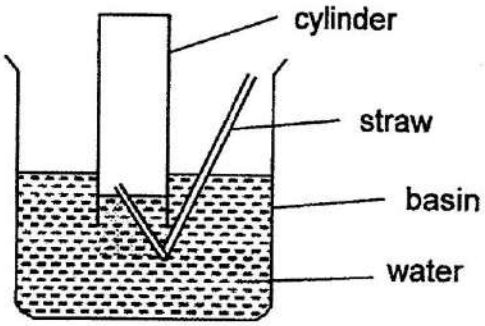
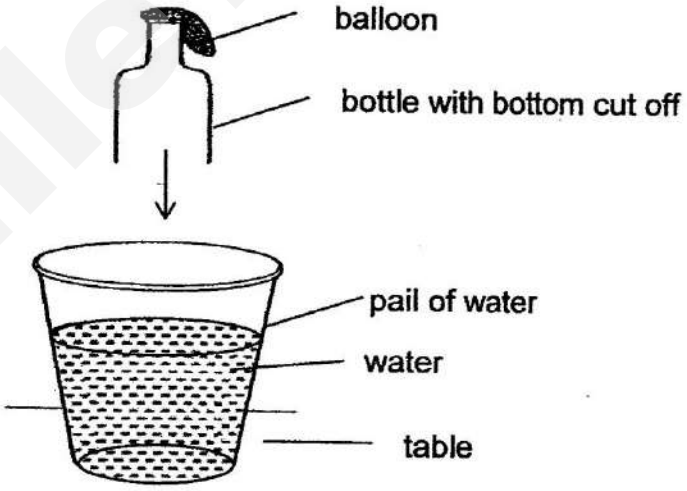
41. Study the diagram below.




(a) What would happen to the water level in the cylinder if Siti sucks out some air through the straw? [1]

Siti set up the experiment as shown below. She cut off the bottom of a bottle and attached a balloon to the opening of the bottle. She then pushed the bottle vertically into the pail of water.




(b) What do you think she will observe? Give a reason for your answer. [2]

**END OF BOOKLET B**



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**EXAM PAPER 2018**
**LEVEL : PRIMARY 4**
**SCHOOL : CHIJ ST NICHOLAS GIRLS' SCHOOL**
**SUBJECT : SCIENCE**
**TERM : SA1**

**BOOKLET A**

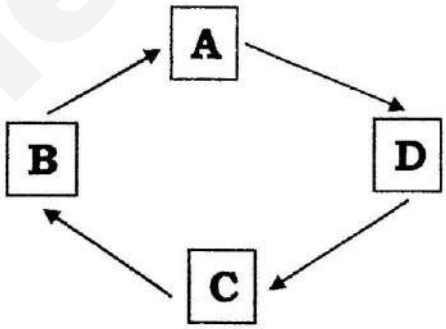
**SECTION A**

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

**BOOKLET B**

**SECTION B**

**Q29. a)**




**b) The is to ensure the butterfly larvae can feed on the leaves once they are hatched from the eggs.**

**c) It moulted at stage D as it is too big for its skin so it shed its skin and grow new skin.**



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**Q30.** **a) The layer of oil above the water surface blocks air entering the breathing tubes therefore they will not get air and they will die.**

**b) The adult stage as they suck our blood and we may get sick.**

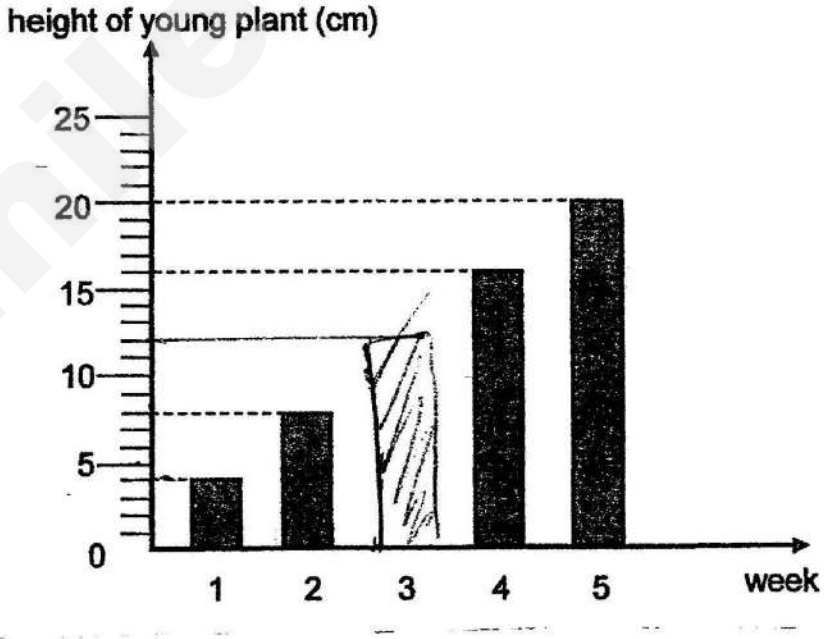
**c) The mosquito lay eggs on stagnant surfaces so by pouring away the stagnant water will prevent the mosquito's eggs from hatching and develop into adults.**

**Q31.** **a) Animal D lay eggs, does not breathe through gills and it can fly.**

**b) They both lay eggs.**

**c) C.**

**Q32.** **a)**




**b) Plants can grow.**

**c) The plant will die as plant it need water to survive.**



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**Q33.** a) The aim is to find out if the amount of water added to the bread would affect the rate of the mould growing on the bread.

b) i) She should add the same amount of water to both slices of bread.

ii) She should put one slice of bread near the window and the other slice of bread in the fridge.

**Q34.** a) The fruit of plant D is non-poisonous and it has more than one seed.

b) Plant B

c) No. The flowers will only bloom at a certain period of time. It was not bloom when Aminah saw it.

**Q35.** a) Function 1: It transport water, mineral salts, digested food, oxygen to all parts of the body.

Function 2: It removes wasted products from our body.

b) i) Muscular system.

ii) Skeleton system.

**Q36.** a)

| Greatest magnetic Strength ⟶ Weakest magnetic strength | | | |
|---|---|---|---|
| X | Z | W | Y |



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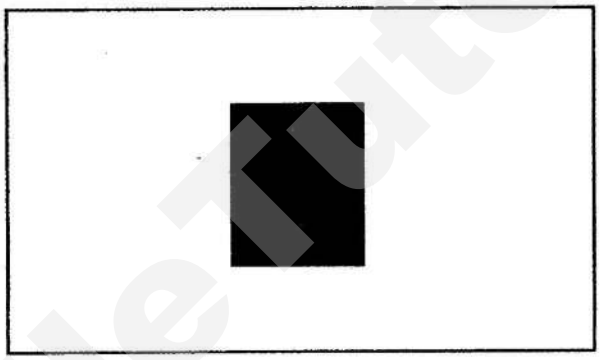
b) No, as they will still have the same magnetic strength.

Q37. a) Sample Y, as it allowed most light to pass through it. Hence, this indicating the water in sample Y is the clearest and allowing most light to pass through.

b) The distance between the troch and the water sample in the petri dish.

c) As other light not coming from the torch will not be detected by the light sensor.

d)



Q38. a) To find out if which material is the strongest.

b) i) Not possible to tell

ii) True

iii) Not possible to tell

iv) False

c) R as it is the strongest among the other materials tested. So it can withstand the body mass of the rider without breaking easily.



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**Q39.** a)

| C | A | B | D | E |
|---|---|---|---|---|

b) **Part C is the center of the magnet. It is the weakest part of the magnet. Hence, it attracted the least number of steel pins.**

c) **The strongest part of the magnet is at the both poles and the weakest part of the magnet is at the center.**

**Q40.** a) **$400cm^3$**

b) **Air takes up space.**

c) **50ml.**

d) **The tapioca pearls takes up space in cup B taking up the space of water originally in the cup causing the water level to rise.**

**Q41.** a) **The water level will increase.**

b) **The balloon would be inflated. When Siti push the bottle into the water, the air in the bottle was pushed into the balloon. The air occupied the space in the balloon and the balloon became inflated.**



**END-OF-PAPER**

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# HENRY PARK PRIMARY SCHOOL

## FIRST SEMESTRAL ASSESSMENT 2018

## PRIMARY 4

## SCIENCE

## BOOKLET 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: 14 May 2018

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

| Booklet | Marks |
|---|---|
| A | / 56 |
| B | / 44 |
| Total (A+B) | / 100 |

Parent's Signature: _____

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**Section A (56 marks)**

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

1. Which of the following statements about plants are correct?

A: Some plants have weak stems.
B: The stem holds the plant firmly to the soil.
C: A plant grows well when each plant part functions properly.

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

2. Which one of the following is correct?

| | Organ involved in digestion of food | Organ involved in the absorption of food |
|---|---|---|
| (1) | mouth | gullet |
| (2) | gullet | stomach |
| (3) | stomach | small intestine |
| (4) | small intestine | large intestine |



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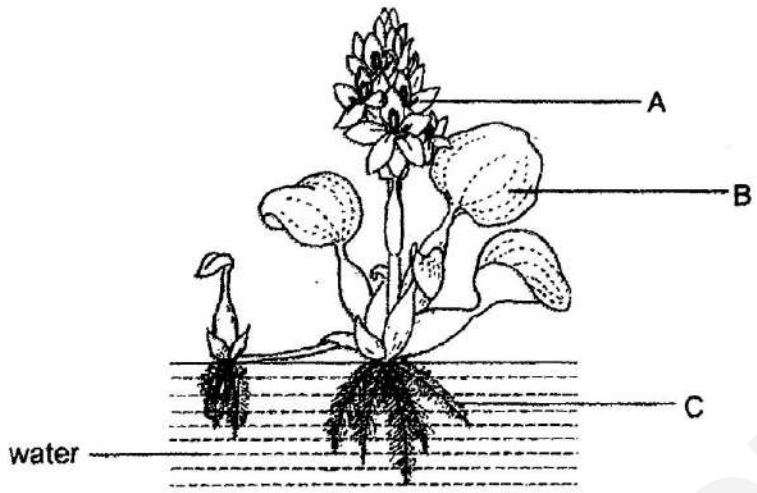
3. The diagram below shows a floating water plant.




Which of the following correctly shows the function of the parts of the plant?

| | makes food | absorbs water |
|---|---|---|
| (1) | A | B |
| (2) | B | A |
| (3) | B | C |
| (4) | C | A |



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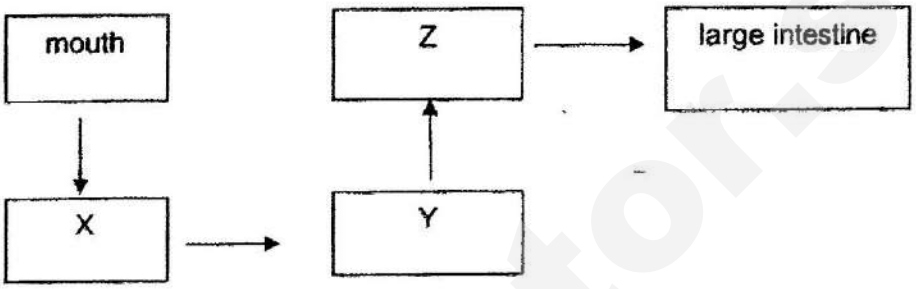
4. Which of the following have mass and occupy space?

(1) apple and ink
(2) marble and heat
(3) apple and heat
(4) ink and shadow

5. The diagram below shows how food travels in the human digestive system.




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

| | small intestine | stomach |
|---|---|---|
| (1) | X | Y |
| (2) | Z | Y |
| (3) | Y | Z |
| (4) | Y | X |

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

(1) A book
(2) The Sun
(3) A lighted match
(4) A burning candle

7. Which of the following best represents matter in gaseous state?

| | Can be compressed | Has a fixed shape |
|---|---|---|
| (1) | Yes | No |
| (2) | Yes | Yes |
| (3) | No | No |
| (4) | No | Yes |



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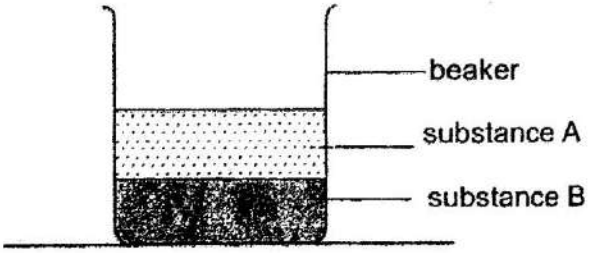
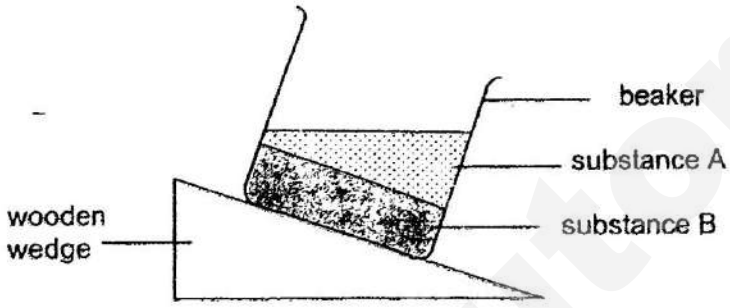
8. The diagram below shows a beaker containing two substances, A and B.



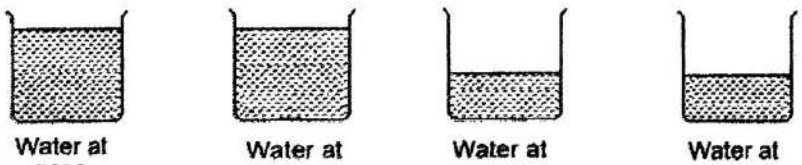

The beaker was then put on a wooden wedge, as shown below.




Which states of matter are substances A and B likely to be?

| | A | B |
|---|---|---|
| (1) | gas | solid |
| (2) | gas | liquid |
| (3) | liquid | liquid |
| (4) | liquid | solid |

9. Which of the following containers of water has the most amount of heat?




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



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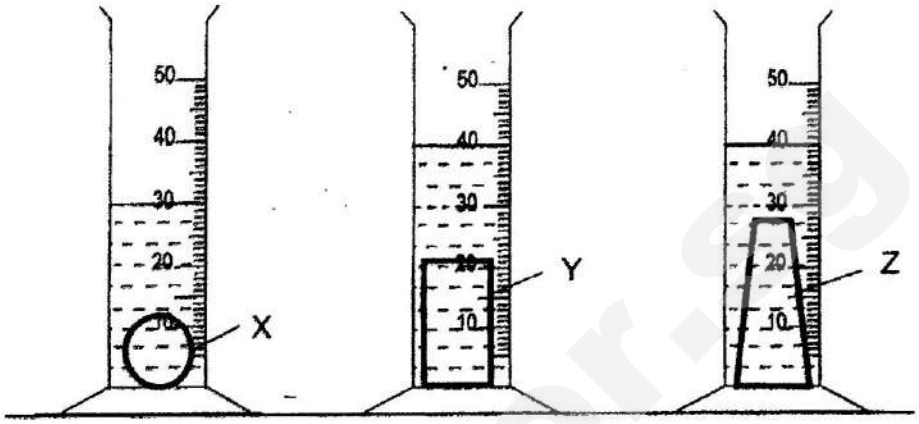
10. Jayden poured 25 ml of water into each of the three measuring cylinders. He then placed three different objects, X, Y and Z, into the measuring cylinders as shown in the diagram below.




Based on his observations, which of the following conclusions are correct?

A: Object Z has the largest volume.

B: Objects Y and Z have the same volume.

C: Object Y has a greater volume than Object X.

(1) A and B only

(2) A and C only

(3) B and C only

(4) A, B and C



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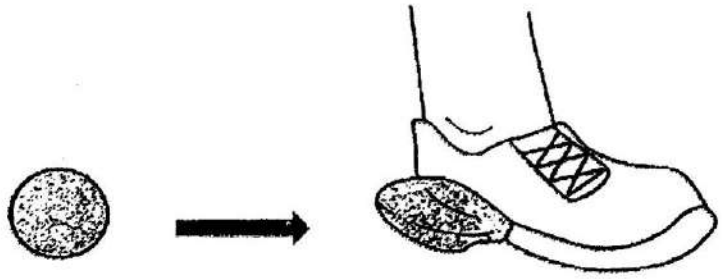
11. Joseph and his brother were playing table tennis. Joseph accidentally stepped on the table tennis ball as shown in the diagram below.



before after

Based on the information given, which of the following is correct after Joseph stepped on the table tennis ball?

| | Shape of the table tennis ball | Mass of the table tennis ball |
|---|---|---|
| (1) | changes | increases |
| (2) | changes | remains the same |
| (3) | remains the same | decreases |
| (4) | remains the same | remains the same |

12. The table below shows some properties of three objects A, B and C at room temperature.

| Properties | Object A | Object B | Object C |
|---|---|---|---|
| Has a definite shape | Yes | No | No |
| Has a definite volume | Yes | Yes | No |

Which of the following correctly represents objects A, B and C?

| | Object A | Object B | Object C |
|---|---|---|---|
| (1) | oil | stone | oxygen |
| (2) | stone | oxygen | oil |
| (3) | stone | oil | oxygen |
| (4) | oil | oxygen | stone |



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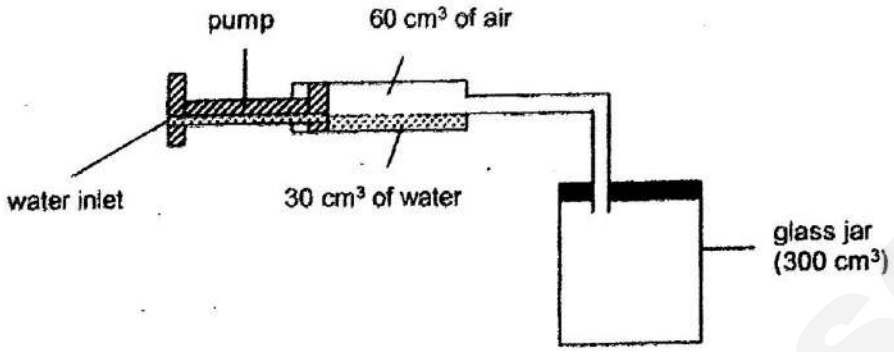
13. The diagram below shows a pump connected to a glass jar with a capacity of 300 $cm^3$.

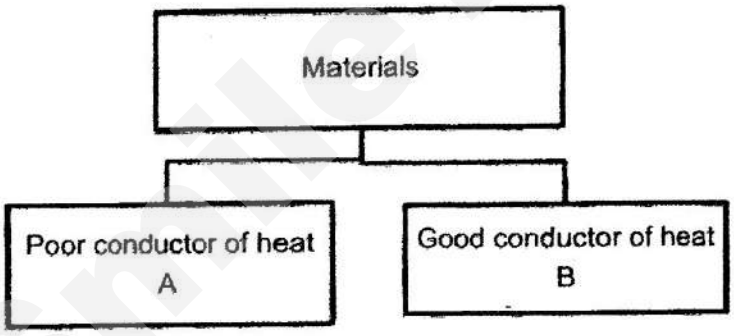



When the pump is pushed completely in, 30 $cm^3$ of water and 60 $cm^3$ of air is forced into the jar.

What is the volume of the air in the jar?

(1) 60 $cm^3$
(2) 270 $cm^3$
(3) 330 $cm^3$
(4) 360 $cm^3$

14. Study the classification table below.




Which of the following could materials A and B be?

| | A | B |
|---|---|---|
| (1) | Steel | Aluminium |
| (2) | Paper | Wood |
| (3) | Cloth | Plastic |
| (4) | Ceramic | Copper |



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15. When we add ice cubes to hot milo, the hot milo _____ heat to the ice cubes and its temperature _____.

(1) gains, falls
(2) gains, rises
(3) loses, falls
(4) loses, rises

16. The diagram below shows a frying pan.

The frying pan is made up of iron and plastic.

Why is the handle of the frying pan made of plastic?

(1) Plastic is light.
(2) Plastic is flexible.
(3) Plastic is a poor conductor of heat.
(4) Plastic is a good conductor of heat.



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17. A cup of cold water at 5°C was left on a table with a room temperature of 28°C.

What would be the likely temperature of the cup of cold water after six hours?

(1) 0°C
(2) 5°C
(3) 28°C
(4) 90°C

18. Joshua keeps himself warm by sitting near a fire as shown in the diagram below.

Which of the following best explains why he feels warm around the fire?

(1) His body loses heat to the fire.
(2) His body gains heat from the fire.
(3) His body gains heat from the wood.
(4) His body loses heat to the surrounding air.



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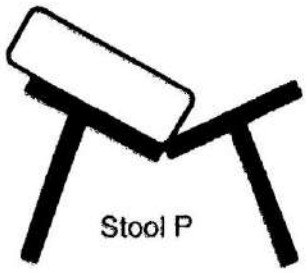
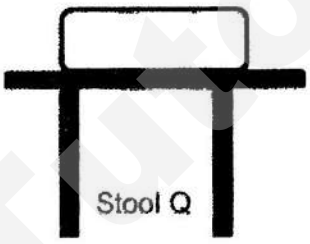
19. Which of the following are examples of water gaining heat?

A: A cup of ice melting
B: A pot of water boiling
C: A cup of water in a freezer

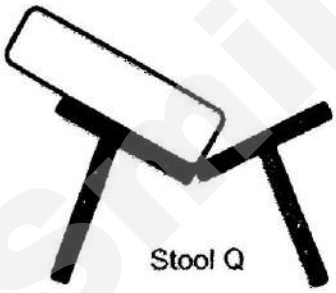
(1) A and B only
(2) B and C only
(3) A and C only
(4) A, B and C

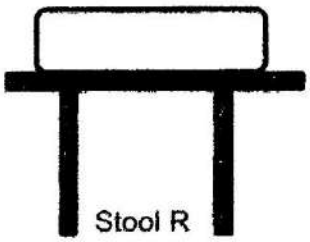
20. John placed two similar 5 kg metal blocks on two similar stools made of different materials. Within a few minutes, he observed that stool P broke as shown in the diagram below.




After that, he placed two similar 10 kg metal blocks on stool Q and another similar stool, R, made of a different material. Within a few minutes, he observed that stool Q broke as shown in the diagram below.




What conclusions can John make based on his observations?

A: Stool Q is made of the strongest material.
B: Stool Q is made of a stronger material than stool P.
C: Stool R is made of a stronger material than stool P.

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



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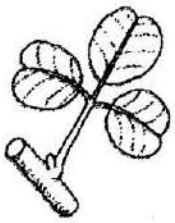
21. Jane observed some leaves. She classified the leaves as shown in the table below.

| A | B | C | D |
|---|---|---|---|
| |  | | |

The diagram below shows leaf X.

Leaf X

In which group should Jane classify leaf X?

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

22. Which of the following classifications about fungi and ferns are correct?

| | Fungi | Fern |
|---|---|---|
| A | It is a not a plant. | It is a plant. |
| B | It reproduces through spores. | It reproduces through spores. |
| C | It makes its own food. | It feeds on decaying matter. |

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



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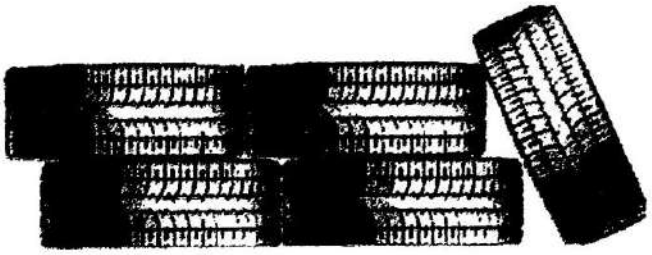
23. Old car tyres, made of rubber, are used in outdoor playgrounds for children to play hide-and-seek. Children are able to climb into the stacks of car tyres easily and safely.

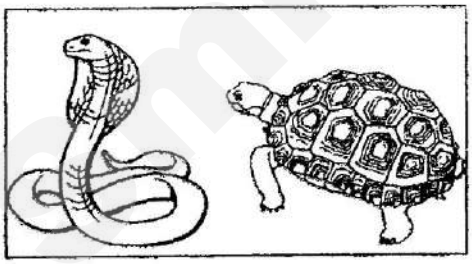


Which of the following properties make a car tyre suitable for the hide-and-seek game at an outdoor playground?

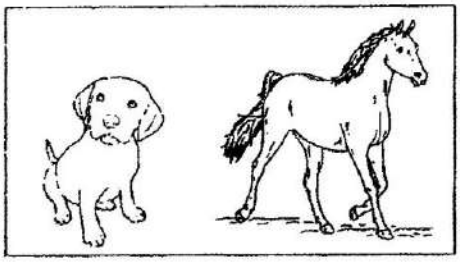
A: It is strong.
B: It does not absorb water.
C: It does not allow light to pass through.

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

24. Study the two groups of organisms, A and B, below.



A



B

Which of the following correctly describes how the organisms are grouped?

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



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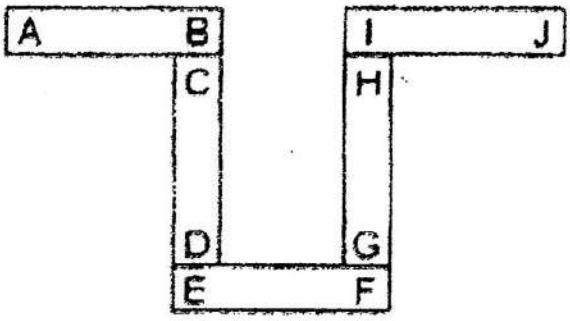
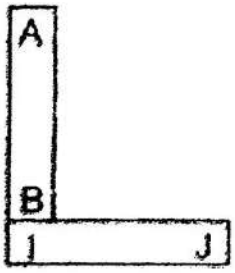
25. Five bar magnets with their poles marked A to J are arranged as shown below.

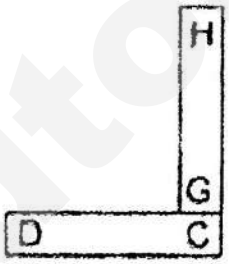



Which one of the following shows a possible arrangement of two magnets?

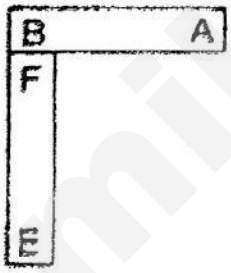
(1)



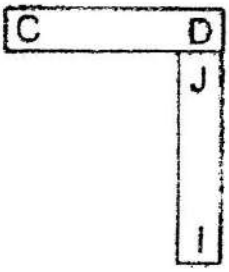

(2)




(3)




(4)



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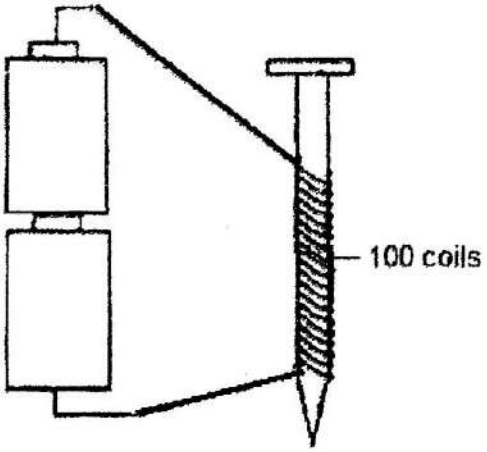
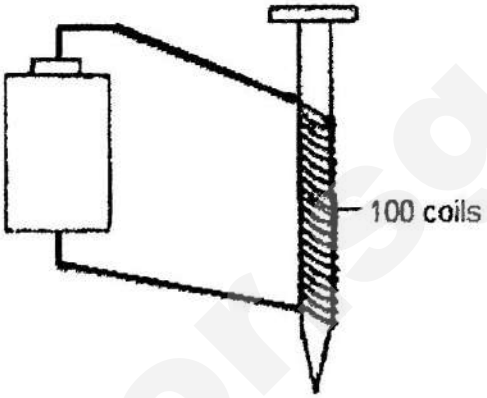
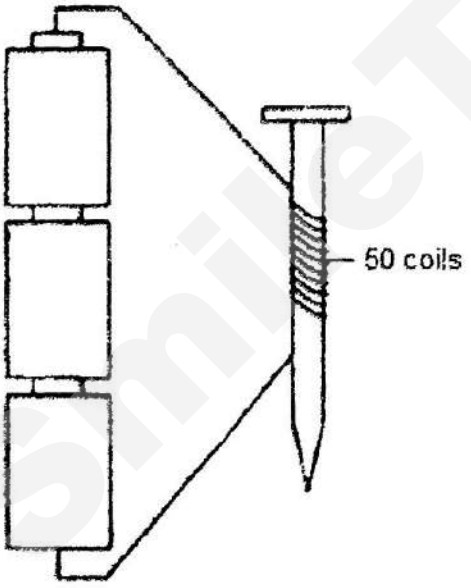
26. Peter wants to find out how the number of batteries affects the strength of an electromagnet. The diagrams below show the arrangements of each set-up.



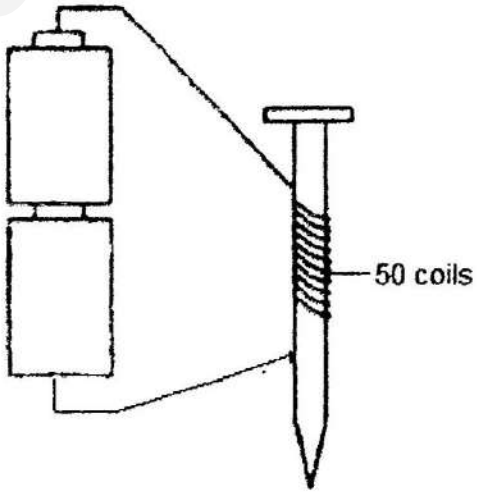

Set-up W




Set-up X




Set-up Y




Set-up Z

In order to conduct a fair test, which two set-ups should Peter choose?

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



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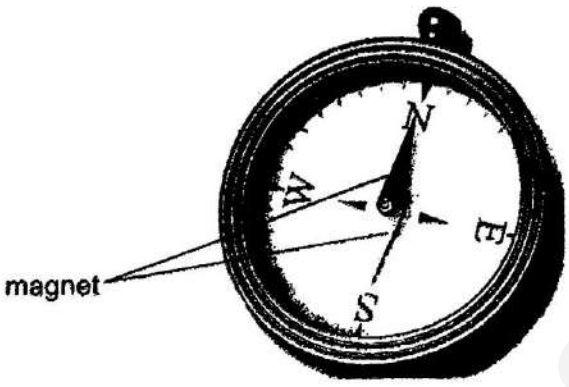
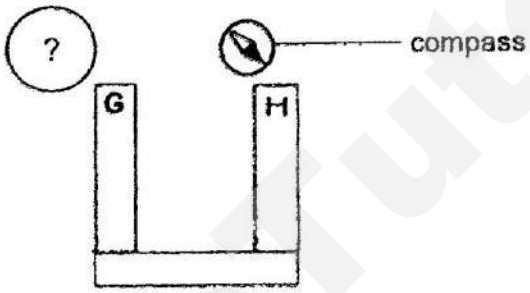
27 A compass has a small magnet that can rotate freely as shown.




Three bar magnets were arranged such that they were attracted to one another. A compass was then placed near pole H and the direction of the compass needle is as shown below.




What would be the direction of the needle when the compass (?) was placed near G?

(1)

(2)

(3)

(4)

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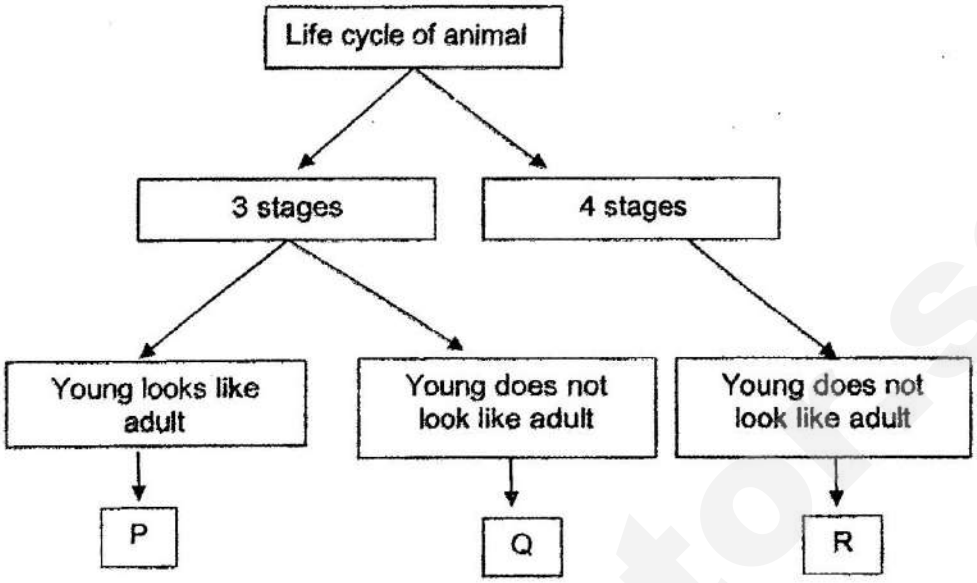
28 Look at the classification table below.




What could organism P, Q and R most likely be?

| | P | Q | R |
|---|---|---|---|
| (1) | butterfly | frog | grasshopper |
| (2) | grasshopper | frog | butterfly |
| (3) | butterfly | grasshopper | frog |
| (4) | grasshopper | butterfly | frog |

End of Section A



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# HENRY PARK PRIMARY SCHOOL

## FIRST SEMESTRAL ASSESSMENT 2018

## PRIMARY 4

## SCIENCE

## BOOKLET 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: 14 May 2018

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

Marks for Booklet B: _____

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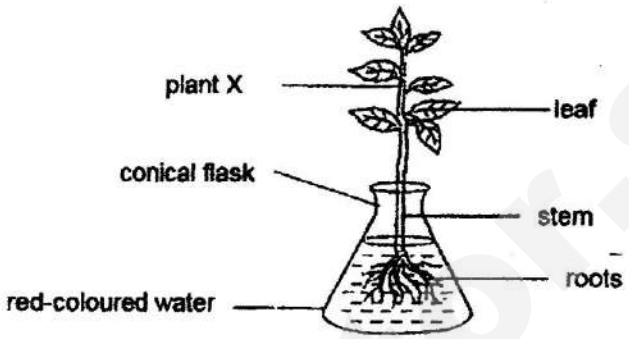
**Section B (44 marks)**

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

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

29. Ai Tong puts plant X, with green leaves into a conical flask of red-coloured water.




(a) Name the **main** function of the roots. [1]

_____

_____

(b) What would Ai Tong observe on the leaves of plant X after six hours? [1]

_____

_____

(c) Explain the observation made in (b). [2]

_____

_____

_____



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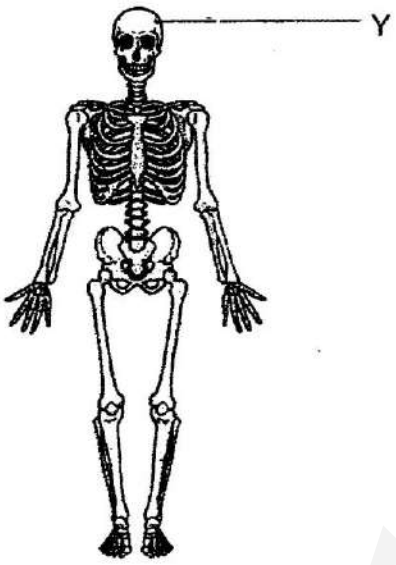
30. The diagram below shows an organ system in the human body.




(a) Name the organ system shown above. [1]

_____

(b) State **two** functions of the organ system shown above. [2]

(i) _____

(ii) _____

(c) Name part Y. [1]

_____

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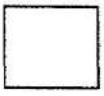

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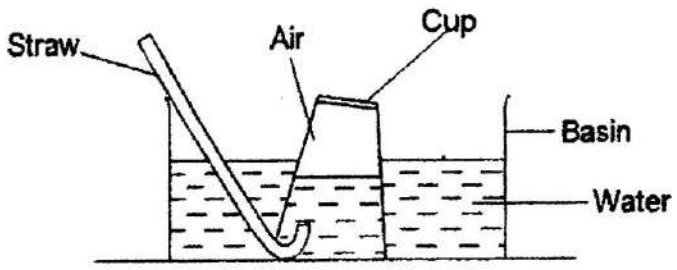
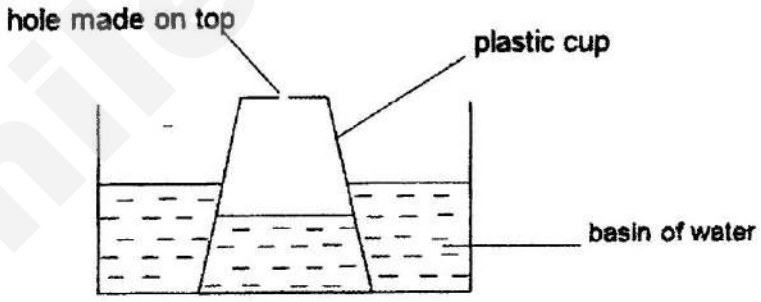
31. Ali set up an experiment as shown below.




(a) Ali used a straw to blow air into the cup as shown in the diagram above. He observed that the water level in the cup decreased.

Explain Ali's observation. [2]

Ali used the same apparatus to do a second experiment. He removed the straw and made a hole on top of the plastic cup as shown in the diagram below.




(b) What would happen to the water level in the cup after the hole was made? Explain why. [2]



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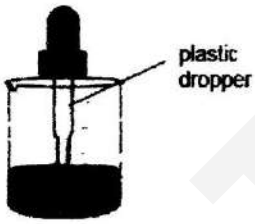
32. Classify **air, sound, coin** and **sunlight** correctly in the table below.

(a) [2]

| Matter | Non-matter |
|---|---|
| (i) | (iii) |
| (ii) | (iv) |

(b) Darren wanted to transfer 50 ml of liquid from the beaker onto a petri dish using a plastic dropper. He did the following as shown in the diagram below.




Step 1: Hold the plastic dropper in a vertical position in a beaker of water

Step 2: Insert the dropper inside the water. Squeeze the rubber end of the dropper and bubbles will appear.

Step 3: Release the rubber end of the dropper and water will enter the dropper.

Explain why bubbles were observed in step 2. [2]

_____

_____

_____



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33. Tom conducted some tests on four materials, P, Q, R and S.
He recorded his results in the table shown below.

| Property | Materials | | | |
|---|---|---|---|---|
| | P | Q | R | S |
| flexible | X | ✓ | X | ✓ |
| sinks in water | ✓ | ✓ | X | ✓ |
| waterproof | ✓ | X | ✓ | ✓ |
| allows most light to pass through | ✓ | X | X | ✓ |

A tick (✓) indicates the presence of the property while a cross (X) indicates the absence of the property.

a) Which material should be used to make a float for beginning swimmers?
Explain your answer. [2]

_____

_____

_____

b) Tom concluded that both materials Q and R do not allow any light to pass through. [2]
Is Tom correct? Explain why.

_____

_____

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34. Fiona measured the mass and volume of a measuring cylinder of water as shown in diagram 1.

She then placed five marbles in the measuring cylinder of the water as shown in diagram 2.

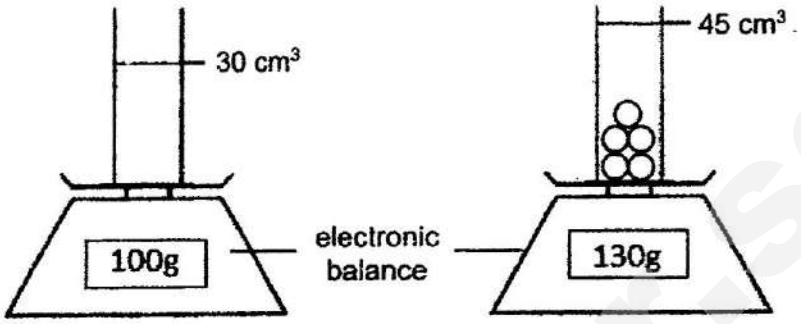



Diagram 1 Diagram 2

(a) Based on the information given, state the mass and volume of the marbles. [1]

(i) Mass of the marbles - _____

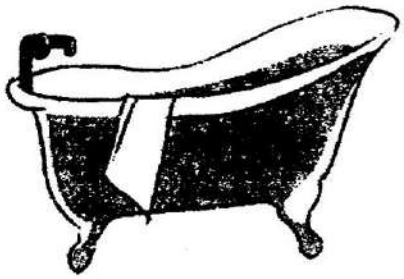
(ii) Volume of the marbles - _____

(b) State what happened to the water level when the marbles were placed inside the measuring cylinder. [1]

_____

_____

Fiona filled up her bathtub with water to the brim to take a bath as shown below.



(c) Explain why the water in the bathtub overflowed when Fiona sat in the bathtub. [2]

_____

_____



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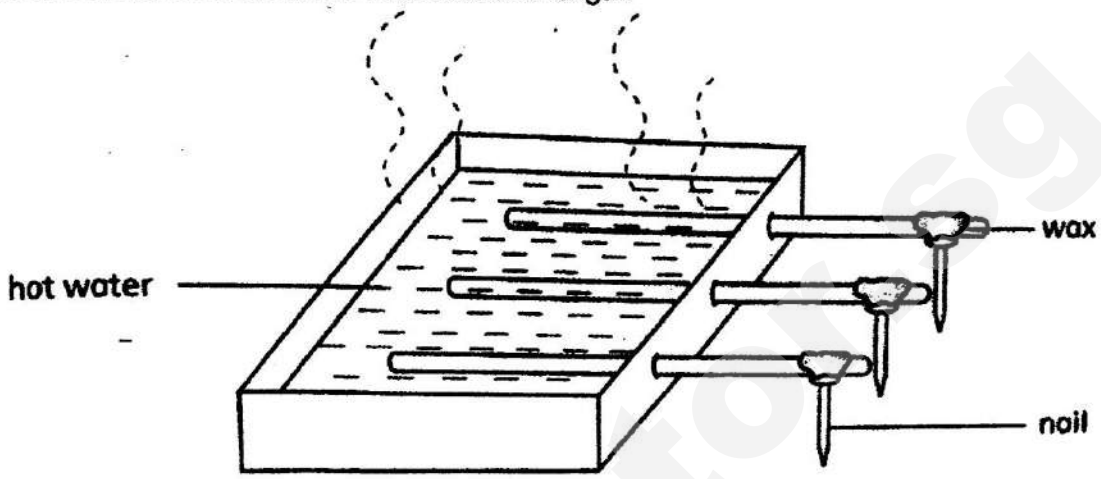
35. Nick set up an experiment as shown below.

He fixed a nail with some wax on one end of each of the three rods which are made of different materials. The other ends of the rods were inserted into the container of hot water. The same amount of wax was used for all the three rods.

The three rods have the same thickness and length.




He recorded the time taken for the nail to drop in the table below.

| Rod | Time taken for the nail to drop (min) |
|---|---|
| W | 4 |
| X | 1 |
| Y | 8 |

(a) Based on the information given, which rod is the poorest conductor of heat? Explain your answer. [2]

(b) Based on your answer in part (a), state a material that the rod is most likely made of. [1]

(c) Explain why the nails from rods X, Y and W will fall off after some time. [1]



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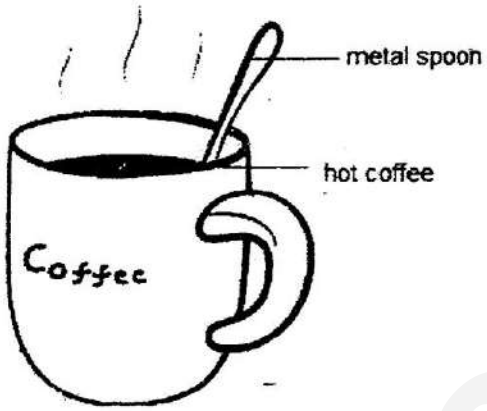
36. Mona places a metal spoon at room temperature in a cup of hot coffee. The temperature of the coffee is 90 °C.

After a few minutes, the metal spoon became very hot.




(a) Explain why the metal spoon became very hot in a short time. [2]

(b) What happens to temperature of the hot coffee after some time? Explain your answer. [2]



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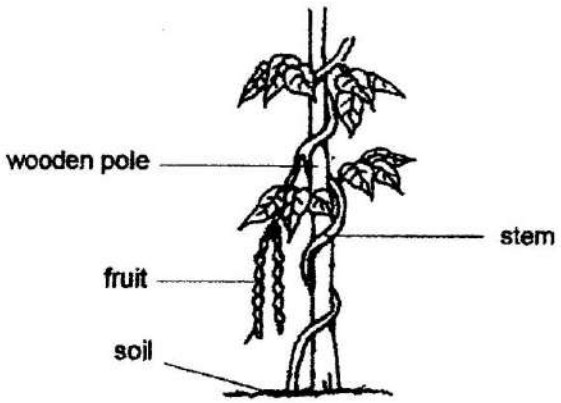
37. The diagram below shows organism Q growing in a garden.




Organism Q

Ben and Carol observed organism Q and made the following statements.

| |
|---|
| Ben: "This is not a flowering plant because it has no flowers." |
| Carol: "This is a flowering plant. It produces fruits." |

(a) Whose statement is not correct? Explain why. [2]

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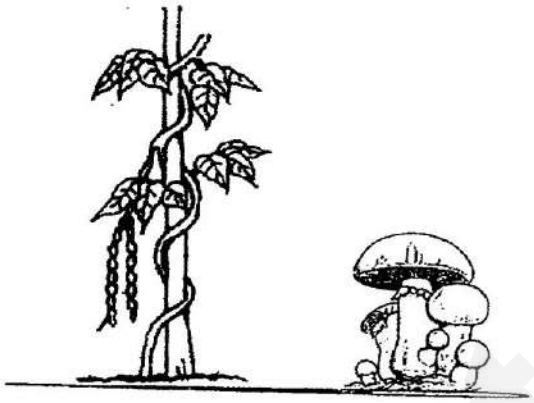
**Question 37 continued**

Ravi observed that organism R appeared the next day after it rained near organism Q.



Organism Q Organism R

(b) Based on the information given, state **one** condition necessary for organism R to grow. [1]

_____

_____



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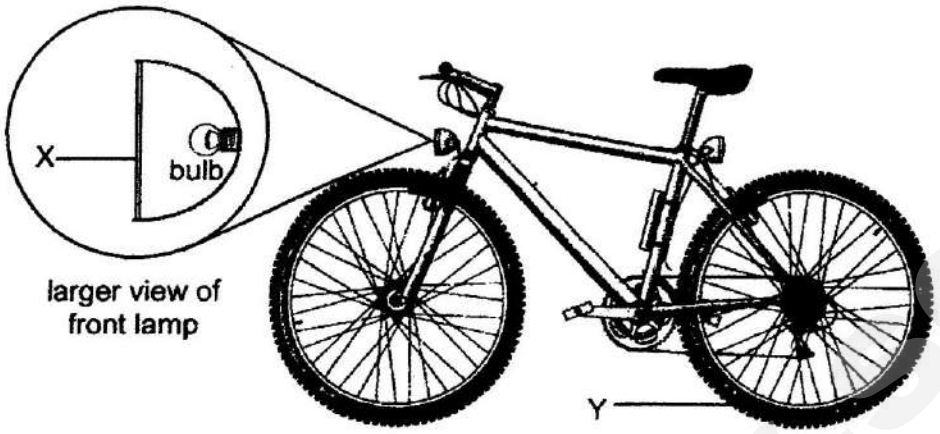
38. The diagram below shows a bicycle.




The bulb in the front lamp gives out light.

In the table below, state the useful properties of the materials parts X and Y are made of. [2]

| Part of the bicycle | State two useful properties of the material used to make each part |
|---|---|
| X | i) _____<br>ii) _____ |
| Y | i) _____<br>ii) _____ |



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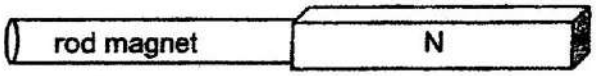
39. Mark has two bars labelled M and N and a rod magnet.
Bar N was attracted to the rod magnet as shown in the diagram below.




(a) Can this observation be used to **conclude** that bar N is a magnet? Explain why. [1]

Then he carried out an experiment using the two bars and the rod magnet. From his experiment, he concluded that bar M is a magnet.

(b) Explain what he did and the observation he made to come to the conclusion that bar M is a magnet. [2]



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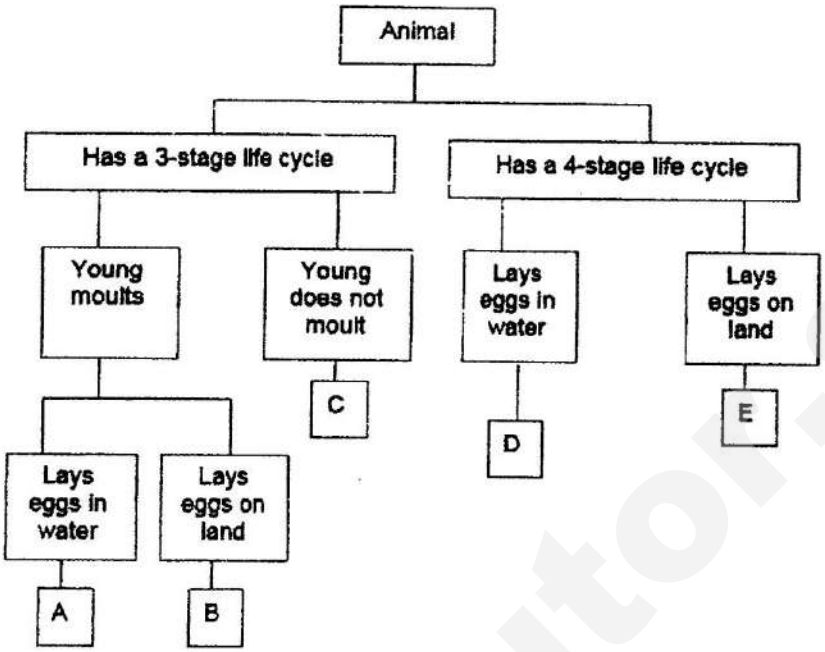
40 Study the following classification chart of some animals.




Based on the information given, answer the questions below.

(a) State one similarity between animals A and D. [1]

_____

_____

(b) State one difference between animals B and C. [1]

_____

_____

(c) Put a (✓) in the correct box for an animal that represents animal B and another animal that represents animal E. [2]

| | Animal B | Animal E |
|---|---|---|
| (i) chicken | | |
| (ii) cockroach | | |
| (iii) mosquito | | |
| (iv) beetle | | |

End of Section B



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# ANSWER KEY

| | | |
|---|---|---|
| YEAR | : | 2018 |
| LEVEL | : | PRIMARY 4 |
| SCHOOL | : | HENRY PARK PRIMARY |
| SUBJECT | : | SCIENCE |
| TERM | : | SA1 |

## Section A

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

## Section B

29 (a) The roots absorb water for the plant.

(b) The leaves would turn red colour.

(c) The roots were placed in red-coloured water so the roots would absorb the water and then the water-carrying tubes would transport the red-coloured water to the leaves.

30 (a) The skeletal system.

(b) (i) It protects vital organs in the body.

(ii) It gives the body shape and support.

(c) The skull.



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31 (a) There was air being blown into the cup and air occupies space. The air would push the water down as it could not escape.

(b) Water level will increase as the air inside the cup escapes, more water from the basin will enter the cup to occupy space.

32 (a)

| Matter | Non-matter |
|---|---|
| (i) air | (iii) sound |
| (ii) coin | (iv) sunlight |

(b) There was air in the plastic dropper and when the rubber end of the dropper was squeezed, the air was pushed inside the water and the air became bubbles in order to get out of the water.

33 (a) R. It does not sink in water and it is waterproof.

(b) No. Even though they do not allow most light to pass through, it might still be able to let some light pass through and not definitely no light allowed to pass through.

34 (a) (i) Mass of the marbles - 30 g

(ii) Volume of the marbles - 15 $cm^3$

(b) The marbles occupy space and displaced the water causing the water level to rise.

(c) The bath was filled wo the brim and so the water rose out of the bath and overflowed.



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35 (a) **Y. It took the longest time for the wax to melt, indicating that it conducted heat from the hot water to the wax the slowest out of X, Y and W. Hence, rod Y is the poorest conductor of heat.**

(b) **Plastic**

(c) **The wax gained heat from the hot water and melted and the nails were connected to the wax.**

36 (a) **The metal spoon gained heat quickly from the hot coffee.**

(b) **It would be the same temperature as the temperature of the metal spoon. The metal spoon would keep gaining heat while the coffee loses heat until they reach the same temperature.**

37 (a) **The plant had fruits but before the fruits developed, the fruits were flower and Ben said it had no flower. Hence, Ben's statement is not correct.**

(b) **Water**

38

| Part of the bicycle | State two useful properties of the material used to make each part |
|---|---|
| X | i) It is strong.<br>ii) It allows light to pass through. |
| Y | i) It is strong.<br>ii) It is waterproof. |



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39 (a) **No. Bar N attracted the magnet so it could be a magnetic material and not a magnet. It needs to show repulsion to conclude if it is a magnet as only magnets can repel another magnet.**

(b) **He held the rod magnet next to both sides of M and one hside attracted and the other repelled.**

40 (a) **They both lay their eggs in water.**

(b) **B's young moults while C's young does not moult.**

(c)

| | Animal B | Animal E |
|---|---|---|
| (i) chicken | | |
| (ii) cockroach | ✓ | |
| (iii) mosquito | | |
| (iv) beetle | | ✓ |

End



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MARIS STELLA HIGH SCHOOL (PRIMARY)

SEMESTRAL ASSESSMENT 1

SCIENCE

10 MAY 2018

BOOKLET A

NAME: _____ (  )

CLASS: Primary 4 (  )

24 questions

48 marks

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

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

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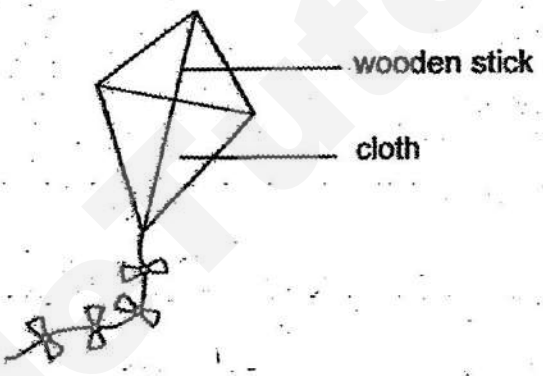
For each question from 1 to 24, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet (OAS). **(48 marks)**

---

1 Which of the following statements about living things is **false**?

(1) They reproduce.
(2) They need air to survive.
(3) They require food to grow.
(4) They cannot respond to changes.

2 The diagram below shows a kite made up of wooden sticks and cloth. The wooden stick gives the kite its shape.




Which of the following human body systems has the same function as the wooden sticks of the kite?

(1) Skeletal system
(2) Muscular system
(3) Circulatory system
(4) Respiratory system

3 Which of the following is true about insects and birds?

(1) They can fly.
(2) They have three body parts.
(3) They reproduce by laying eggs.
(4) They have the same type of body covering.



*(Go on to the next page)*

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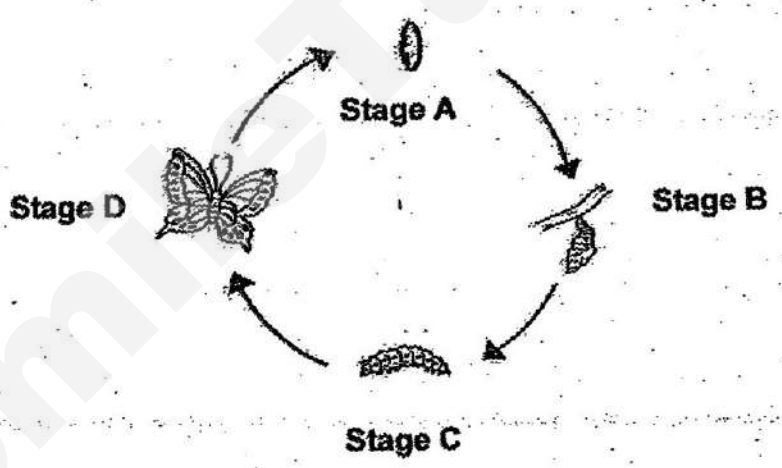
4 How are the life cycles of the cockroach and the grasshopper similar?

(1) Their young have wings.
(2) Their young are called nymphs.
(3) Both have four-stage life cycles.
(4) Their young does not look like the adult.

5 Which part of the human digestive system is digestion completed?

(1) Mouth
(2) Stomach
(3) Small intestine
(4) Large intestine

6 Alex drew the life cycle of a butterfly. His teacher told him that the order of the stages drawn in the life cycle is wrong.




Which of the following shows the correct order of the stages of the butterfly?

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



*(Go on to the next page)*

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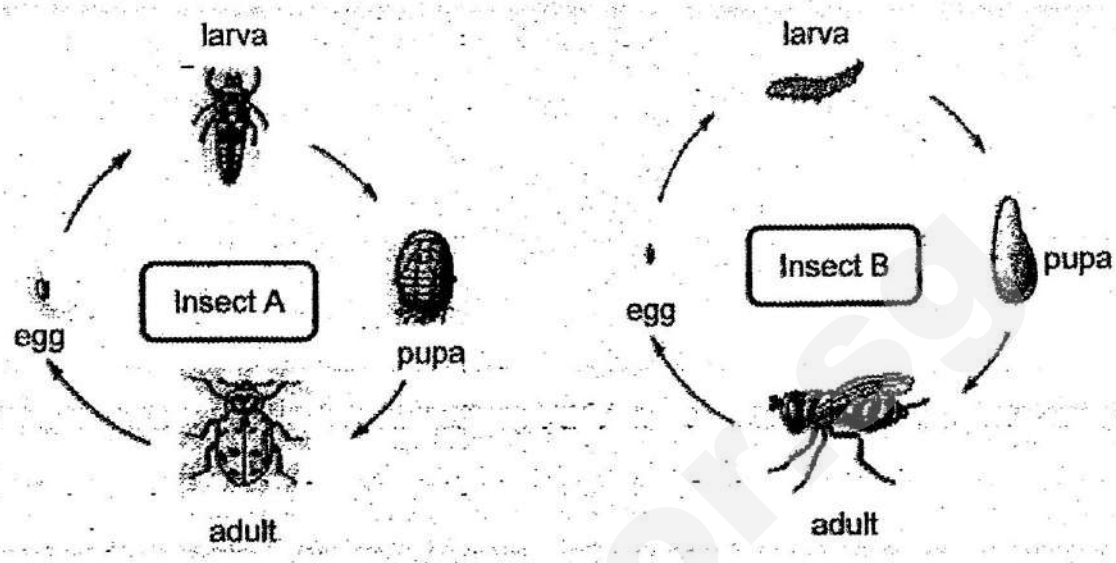
7 Study the life cycle of Insect A and Insect B.




Based only on the above information, which of the following statements is true?

(1) Insects A and B feed on plants.
(2) Insect A has a longer life span than Insect B.
(3) Insects A and B have young that do not look like their adults.
(4) Insect A takes a shorter time to hatch from an egg than Insect B.

8 The table below shows some observations of A, B and C.

| | Needs air, food and water to survive | Respond to changes around it |
|---|---|---|
| A | √ | √ |
| B | | √ |
| C | | |

Which one of the following statements is definitely true?

(1) A is a plant.
(2) B is a fungi.
(3) C is a plant.
(4) C is not an animal.



(Go on to the next page)

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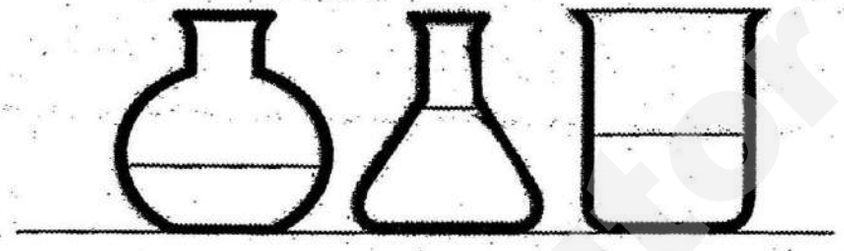
9 Which of the following is matter?

(1) Air
(2) Heat
(3) Light
(4) Sound

10 The diagram below shows 3 different containers each filled with 500 ml of water.



Based on the above observations, we can conclude that water _____.

(1) can be compressed
(2) has no definite mass
(3) has no definite shape
(4) has no definite volume

11 Which of the following statements about matter is <u>not</u> true?

(1) Both solid and liquid have mass.
(2) Both solid and liquid occupy space.
(3) Both solid and liquid have definite shape.
(4) Both solid and liquid have definite volume.



*(Go on to the next page)*

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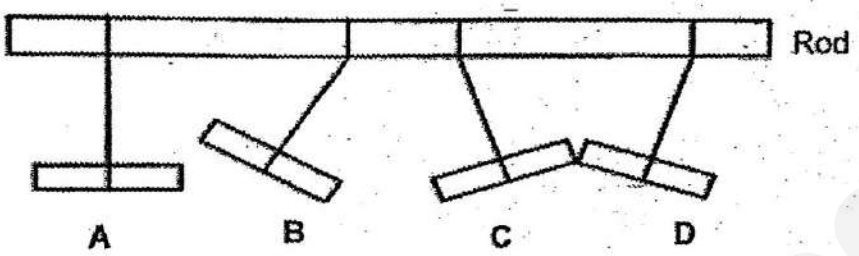
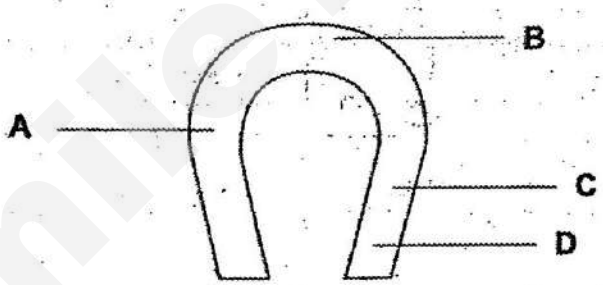
12 When four metal bars were hung from a rod, they moved in different directions as shown in the diagram below.




Which two metal bars are most likely magnets?

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

13 Fizal places a horseshoe magnet into a container of paper clips.




Which part of the magnet can attract the most number of paper clips?

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



*(Go on to the next page)*

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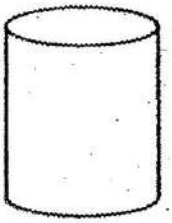
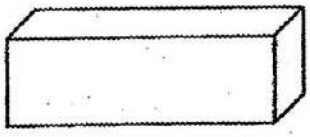
14 Gary used a piece of plasticine to make model A. He then used the same piece of plasticine to make model B.



Model A



Model B

Which of the following statements is correct about the two models?

(1) Both models have different mass and volume.
(2) Both models have the same mass and volume.
(3) Both models have the same mass but different volume.
(4) Both models have the same volume but different mass.

15 The table below shows the properties of 4 materials, W, X, Y and Z.

| Property | Material | | | |
|---|---|---|---|---|
| | W | X | Y | Z |
| Allows water to pass through | √ | | | √ |
| Bends easily without breaking | | √ | √ | √ |
| Allows light to pass through | √ | | √ | √ |

Which of the following materials represents a clear plastic sheet?

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



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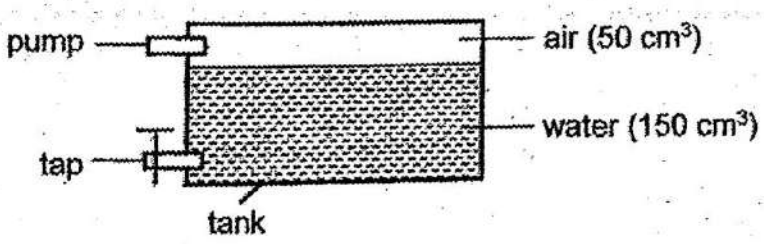
16 Timothy conducted an experiment using the set-up as shown below.




He removed 20 $cm^3$ of water from the tank and pumped 10 $cm^3$ of air into the tank.

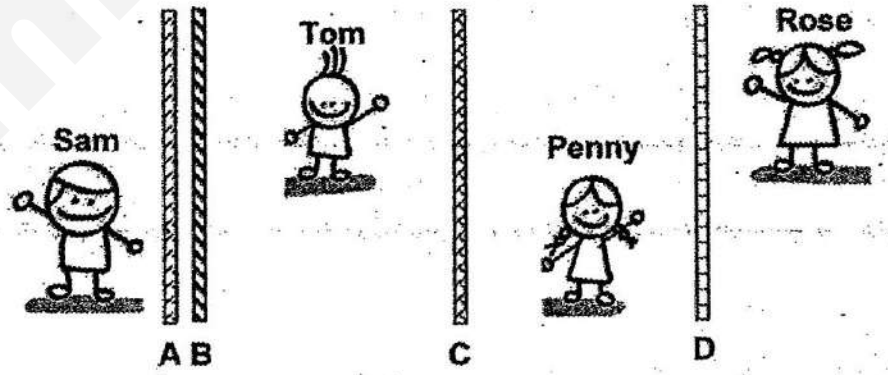
What was the final volume of air in the tank?

(1) 50 $cm^3$
(2) 70 $cm^3$
(3) 80 $cm^3$
(4) 130 $cm^3$

17 Four unknown materials, A, B, C and D, are classified in the table as shown below.

| Allows light to pass through | Does not allow light to pass through |
|---|---|
| A<br>D | B<br>C |

Four children stood between walls made of the four unknown materials as shown in the diagram below.




Which of the following statements is true?

(1) Sam can see Tom.
(2) Sam can see Penny.
(3) Penny cannot see Tom.
(4) Penny cannot see Rose.



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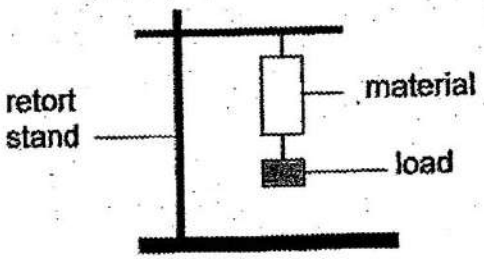
18 Ahmad used the set-up below to find out which material could hold a 50 g load without breaking.




He repeated the experiment with 4 different materials and recorded the results in the table below.

| Material | Heaviest load at which the material snapped (g) |
|---|---|
| A | 30 |
| B | 20 |
| C | 50 |
| D | 70 |

Which material(s) should Ahmad use to hold an item that is 50 g?

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



*(Go on to the next page)*

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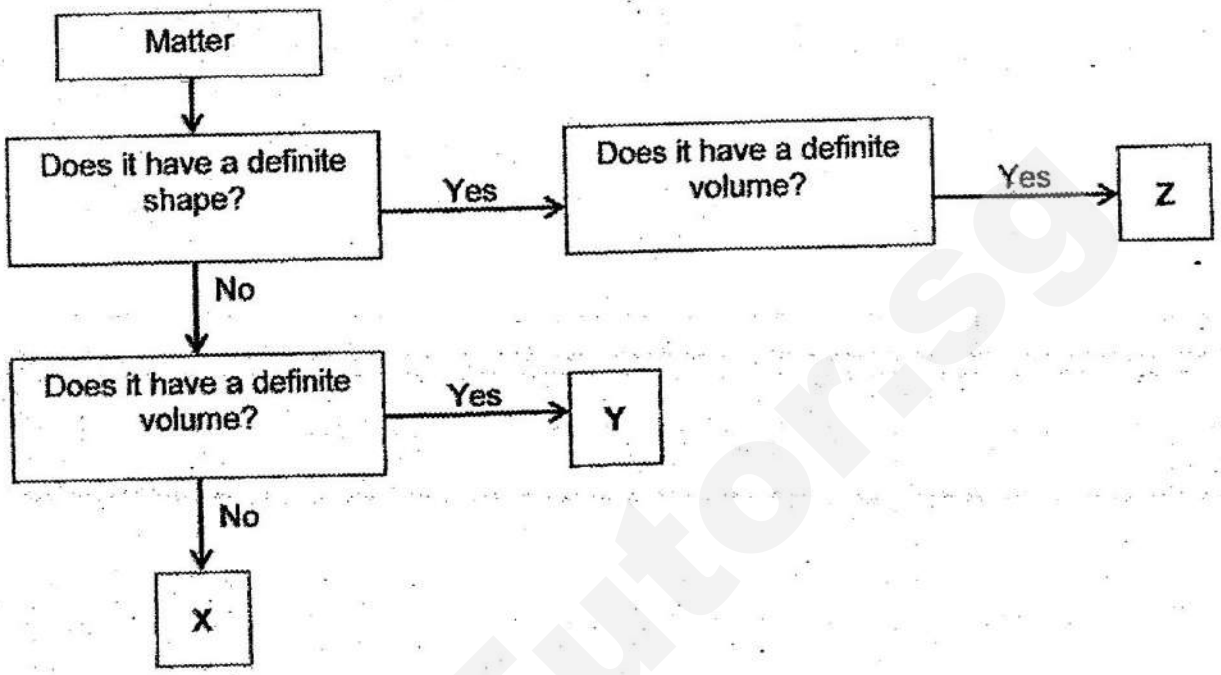
19 Study the flowchart below.




Which one of the following represents X, Y and Z?

| | X | Y | Z |
|---|---|---|---|
| (1) | air | sand | stone |
| (2) | air | sand | honey |
| (3) | sand | honey | air |
| (4) | air | honey | sand |

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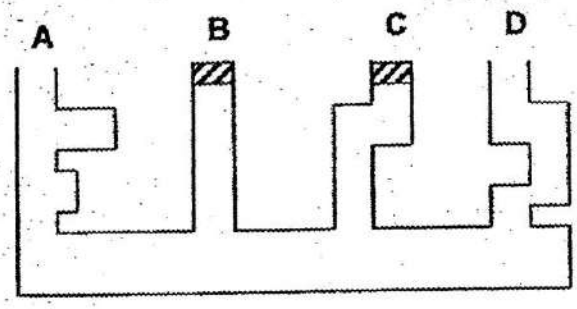
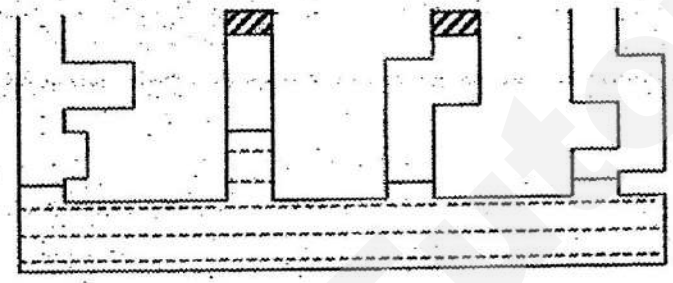
20 The diagram below shows a communicating vessel with openings B and C covered with stoppers.

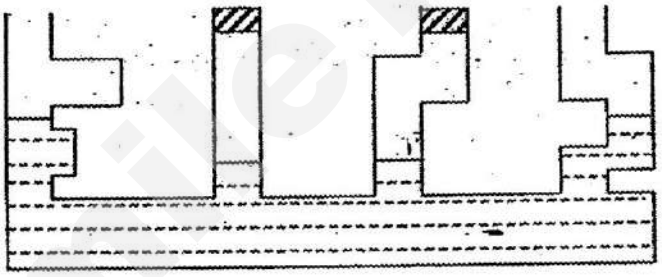



Which of the following shows the correct water level in the vessels after water is poured through opening D?

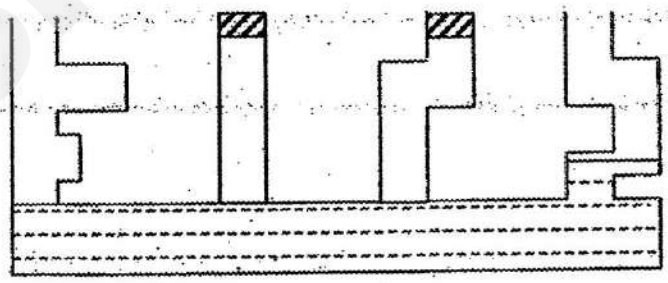
(1)



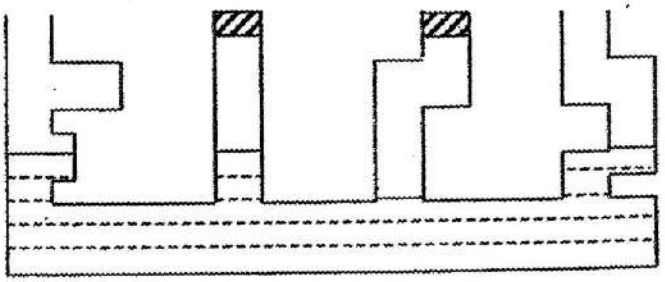
(2)



(3)



(4)





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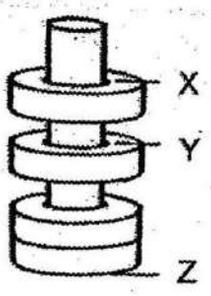
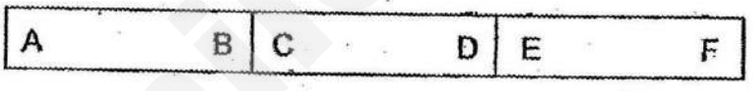
21 The diagram below shows 4 magnets placed through a wooden pole.




Identify the poles X, Y and Z.

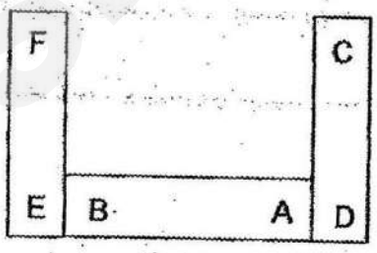
| | X | Y | Z |
|---|---|---|---|
| (1) | South | South | North |
| (2) | South | North | North |
| (3) | North | North | South |
| (4) | North | South | North |

22 The diagram below shows the arrangement of three bar magnets when placed next to each other.

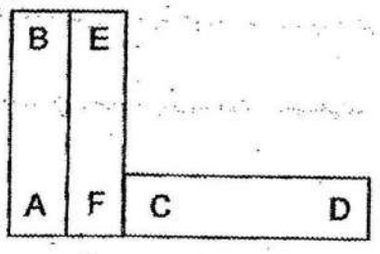



Which one of the following arrangements is **not** possible?

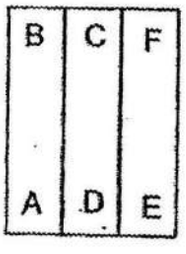
(1)



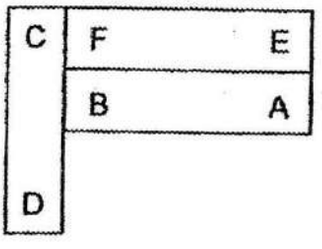

(2)




(3)




(4)



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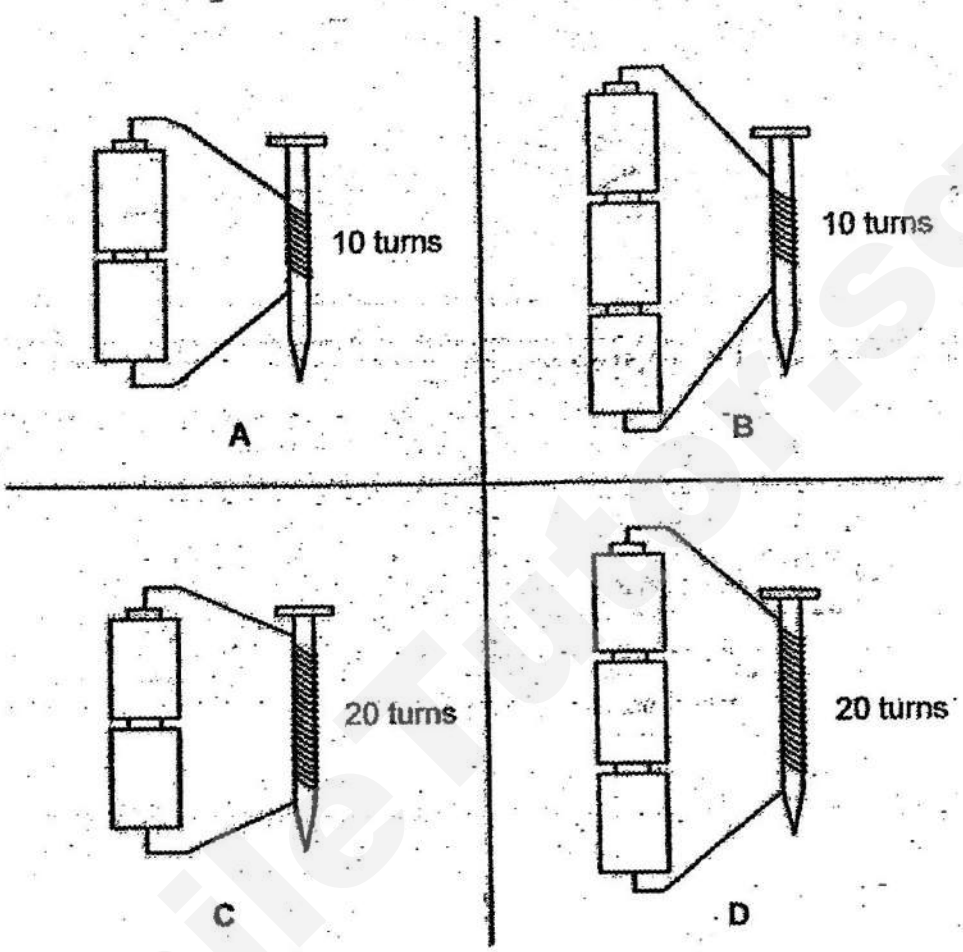
23 Benedict wants to find out if the number of coils of wire around an iron nail affects its magnetism.




Which two arrangements can he use to ensure a fair test?

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



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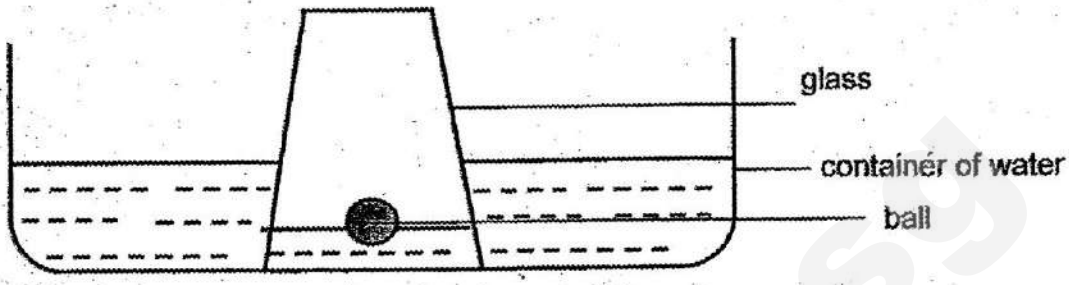
24 Deborah placed a ball inside an inverted glass as shown below. She observed that the water level inside the glass was lower than the water level in the container of water.




Which of the following best explains the difference in the water level inside and outside the glass?

(1) The air in the glass has mass.
(2) The ball in the glass has mass.
(3) The air in the glass occupies space.
(4) The ball in the glass occupies space.

**End of Booklet A**



**(Go on to Booklet B)**

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MARIS STELLA HIGH SCHOOL (PRIMARY)

SEMESTRAL ASSESSMENT 1

SCIENCE

10 MAY 2018

BOOKLET B

NAME: _____ (  )

CLASS: Primary 4 (  )

10 questions

32 marks

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

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

FOLLOW ALL INSTRUCTIONS CAREFULLY.

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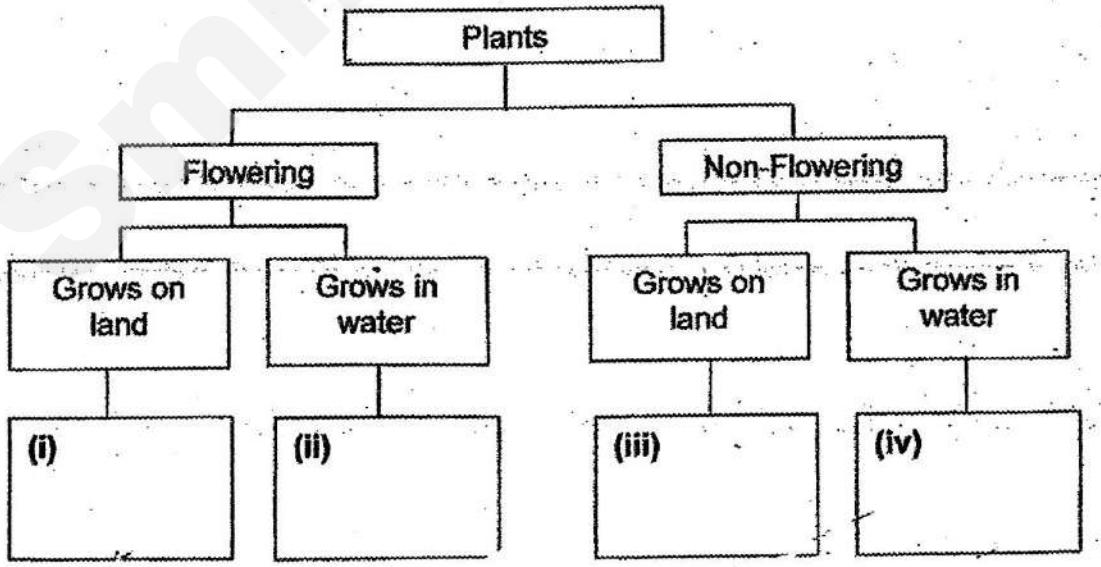
For questions 25 to 34, write your answers in this booklet. The number of marks available is shown in brackets [ ] at the end of each question or part question. **(32 marks)**

**25** Study the table below.

| Characteristics | Plant P | Plant Q | Plant R | Plant S |
|---|---|---|---|---|
| Bears flowers | √ | | √ | |
| Grows on land | | √ | √ | |

**(a)** Describe Plant Q. **[1]**

**(b)** Based on the information in the table above, classify the four plants **P**, **Q**, **R** and **S** in the classification chart below. **[1]**




2



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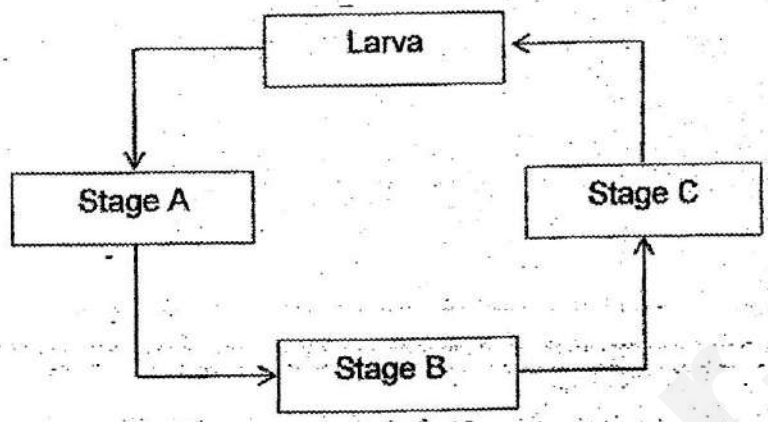
26 The diagram below shows the life cycle of an insect.




(a) Name stages A and B. [2]

Stage A: _____

Stage B: _____

(b) Which of the following insects has a similar life cycle as the one shown above? [1]
Put a tick (✓) next to your answer.

| | |
|---|---|
| Beetle | |
| Cockroach | |
| Grasshopper | |

| | 3 |
|---|---|



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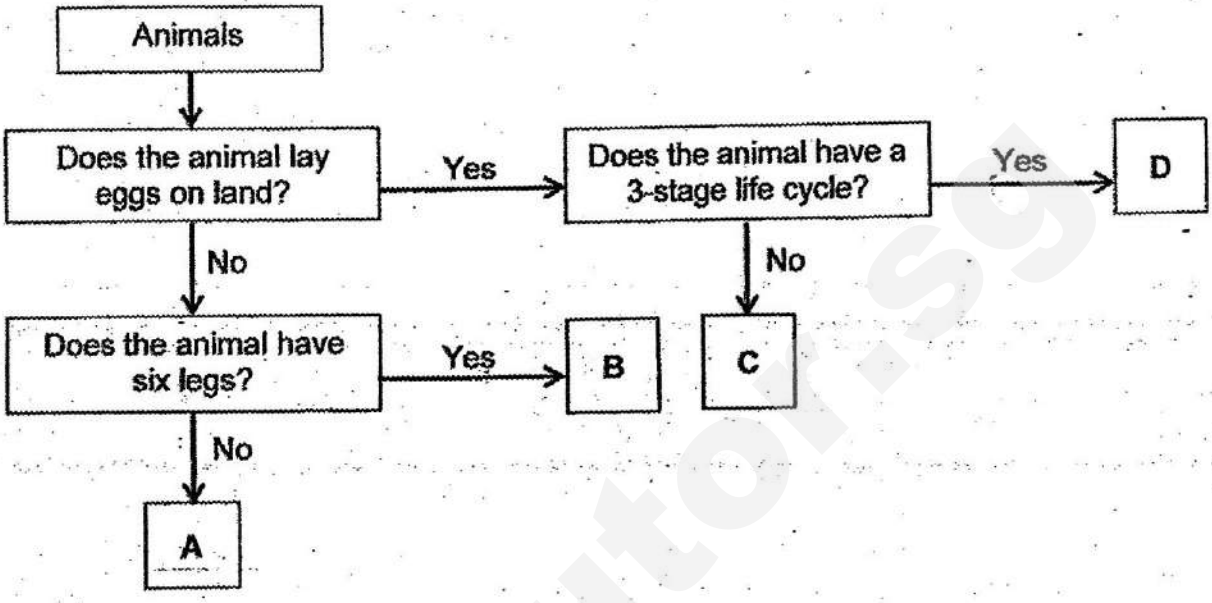
27 Study the flowchart below.




(a) Describe Animal D. [1]

(b) State one similarity between Animal C and Animal D. [1]

(c) Which animal, A, B, C or D, is most likely a mosquito? [1]

3



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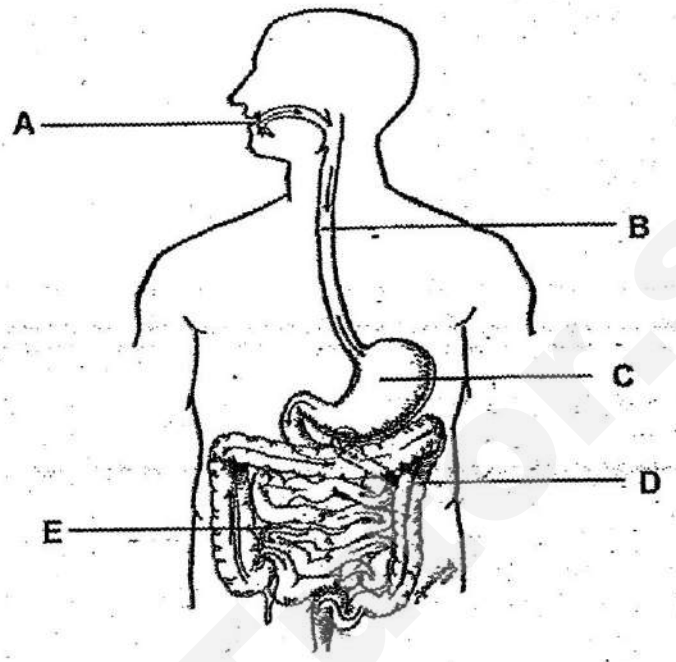
28 The diagram below shows the human digestive system.




**Human digestive system**

**(a)** In which parts, A, B, C, D and E, do digestion take place? [1]

_____

**(b)** State the function of Part D in the human digestive system. [1]

_____

_____

| | 2 |
|---|---|



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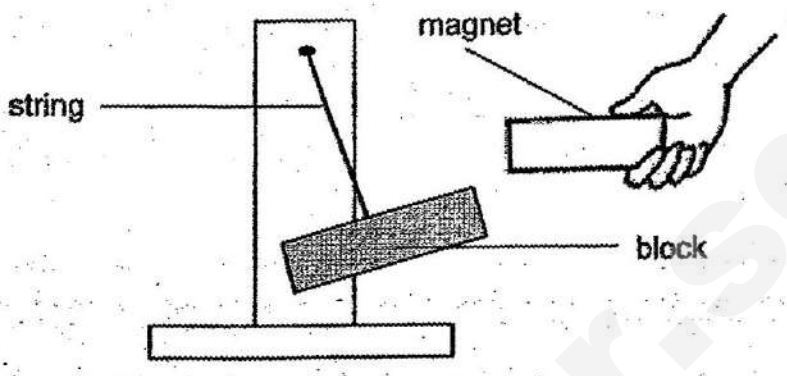
29 Susan hung a block on a string. She held a magnet near the block and observed that the block moved towards the magnet.




(a) What observation will Susan make when a piece of thin glass is placed between the block and the magnet? [1]

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

| | 3 |
|---|---|



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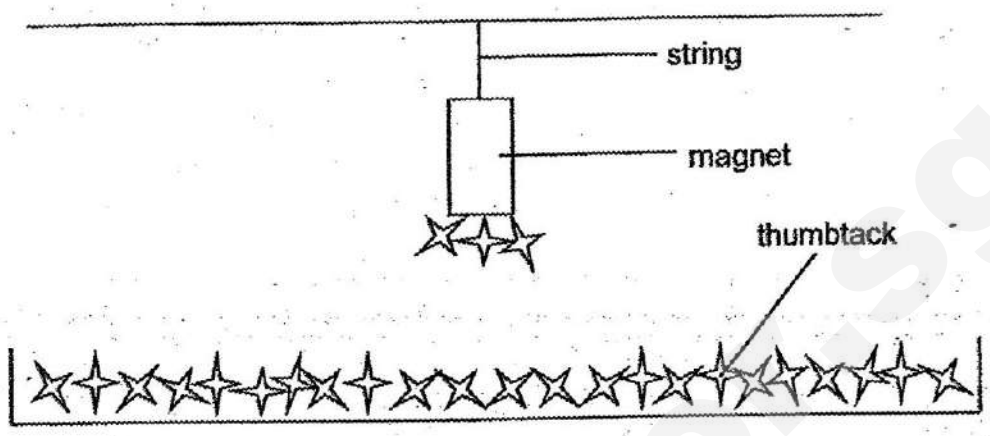
30 Oliver conducted an experiment as shown below. He changed the distance between the magnet and the tray of thumbtacks and counted the number of thumbtacks attracted.




The table below shows his results.

| **Distance between the magnet and the tray of thumbtacks (cm)** | 3 | 5 | 7 |
|---|---|---|---|
| **Number of thumbtacks attracted** | 6 | 3 | 1 |

(a) What is the aim of Oliver's experiment? [1]

(b) What is the relationship between the distance between the magnet and thumbtacks and the number of thumbtacks attracted? [1]

(c) What is the likely number of thumbtacks the magnet will attract when the distance between the magnet and the tray of thumbtacks is 10 cm? [1]

3



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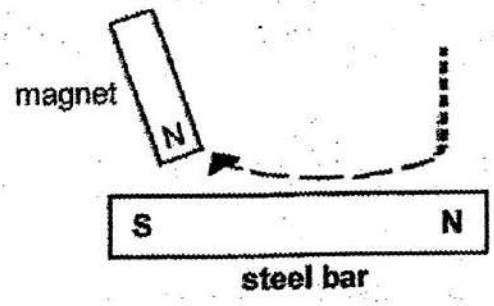
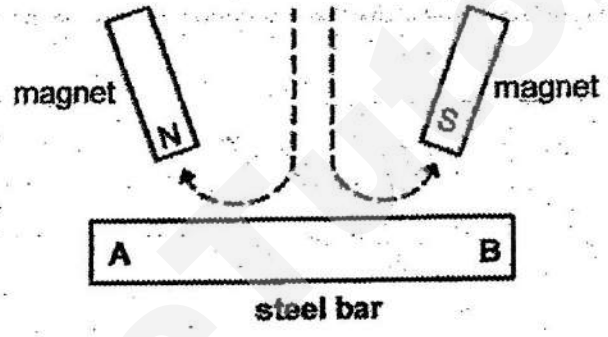
31 In Experiment 1, a steel bar was magnetised using the stroke method. The poles of the steel bar after being magnetised are shown below.




In Experiment 2, two magnets are used to stroke a steel bar in two different directions as shown below.




(a) Based on what was observed in Experiment 1, identify the poles of steel bar at A and B after it is being stroked by the two magnets. [1]

(i) A: _____

(ii) B: _____

(b) Suggest two ways to increase the magnetism of the steel bar in Experiment 1. [2]

(i) _____

(ii) _____

(c) Randy could not magnetise an aluminium bar using the same stroke method. Explain why. [1]

_____

_____

4



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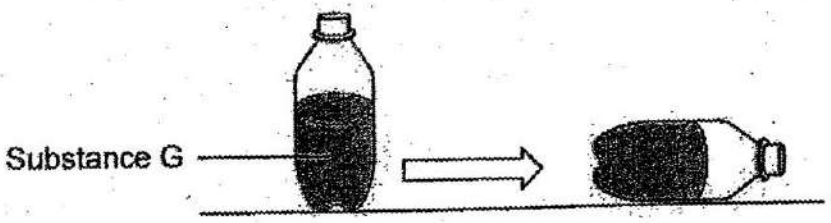
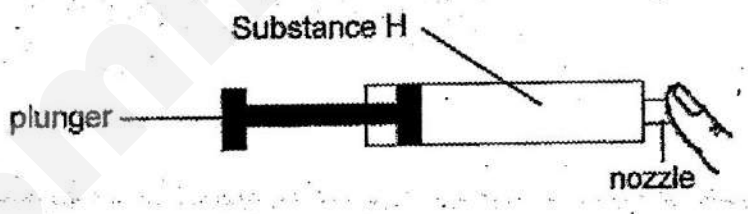
32(a) The bottle below contains Substance G. The bottle is tilted and placed in different positions as shown below.




(i) Based on the observations made on Substance G, identify the state that Substance G is in. [1]

(ii) State a property of Substance G. [1]

(b) The syringe below is filled with Substance H. When the plunger is pushed in with a finger tightly placed at the nozzle, the plunger moved in a little.




(i) Identify the state that Substance H is in. [1]

(ii) State a property of Substance H. [1]

| | 4 |
|---|---|



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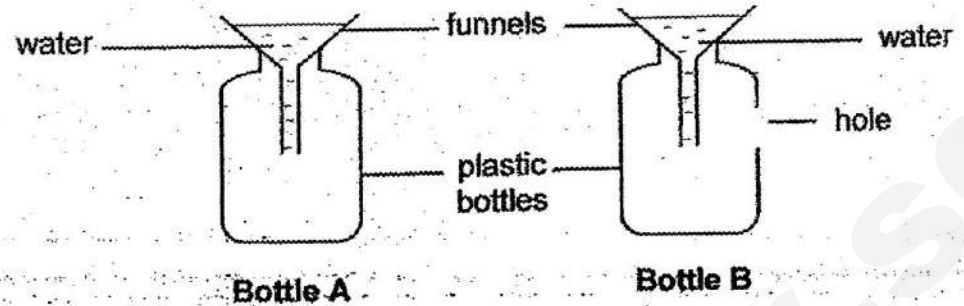
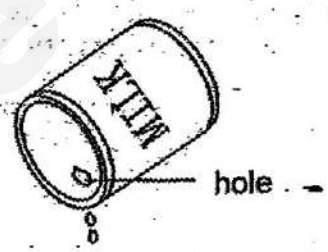
33 Bottles A and B are similar except that bottle B has a hole at the side of the bottle. Clive poured an equal amount of water into bottles A and B using two funnels as shown below.




(a) Which bottle, A or B, would water flow in faster? Explain your answer. [2]

A can of milk was emptied out as shown below.




(b) The milk flowed out of the can very slowly.
Based on your answer in (a), suggest a way to allow the milk to flow out faster. [1]

(c) Give a reason for your answer in (b). [1]

4



(Go on to the next page)

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34 A raincoat is used to prevent the user from getting wet on a rainy day.

Elena conducted an experiment to find out which material, A or B, is more suitable to make a raincoat. The mass of each material was measured before and after they were completely soaked in water.

The table below shows the results.

| Material | Mass of material before it was soaked in water (g) | Mass of material after it was soaked in water (g) |
|---|---|---|
| A | 30 | 30 |
| B | 30 | 42 |

(a) Based on Elena's results, which material, A or B, is a suitable material to make a raincoat? Explain your answer. [2]

_____

_____

(b) State two important variables that should be kept the same to ensure a fair test. [2]

(i) _____

(ii) _____

**End of Booklet B**

| | 4 |
|---|---|



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# ANSWER KEY

YEAR : 2018
LEVEL : PRIMARY 4
SCHOOL : MARIS STELLA HIGH SCHOOL (PRIMARY)
SUBJECT : SCIENCE
TERM : SA1

## BOOKLET A

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

## BOOKLET B

Q25a) Plant ~~B~~ Q bears flowers and does not grow on land.

Q25b) i: R / ii: P / iii: Q / iv: S

Q26a) Stage A: Pupa
Stage B: Adult

Q26b) Beetle

Q27a) Animal D lays eggs on land and have a 3-stage life cycle.

Q27b) Both Animal C and D lays eggs on land.

Q27c) Animal B.

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**Q28a) A, C, D ad E.**

**Q28b) It absorbs water from the remaining indigestible food/waste and then pass along the waste to the rectum area to be excreted.**

**Q29a) The block will still attract to the magnet.**

**Q29b) Magnetism can pass through the thin glass which is a non-magnetism material.**

**Q30a) To find out if the distance between the magnet and the tray of thumbtacks affects how many thumbtacks can be attracted.**

**Q30b) As the distance increases, the number of thumbtacks attracted by the magnet decreases.**

**Q30c) 0**

**Q31a) A: South**
**B: North**

**Q31b) i: Increase the number of strokes**
**ii: Use magnets with stronger magnetism**

**Q31c) It is because aluminium is not a magnetic material.**

**Q32a) i: Solid**
**ii: Solid has a definite shape**

**Q32b) i: Gas**
**ii: Gas can be compressed.**

**Q33a) Bottle B. Air escape from the bottle through the hole in bottle B, causing the water to flow faster into the bottle to fill the unoccupied space left by the air.**

**Q33b) Poke another hole at the bottom of the can.**

**Q33c) Air can enter from the additional hole and occupy the space previously occupied by the milk.**



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**Q34a) A. It is because the mass of material before and after is stil the same, meaning no water was absorbed, it means A is waterproof.**

**Q34b) i: The mass of each material at the start**

**ii: The amount of time each material was soaked**

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**END**

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# METHODIST GIRLS' SCHOOL

Founded in 1887

MID-YEAR EXAMINATION 2018
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 : 8 May 2018

This booklet consists of 22 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 Four pupils observed four animals, R, S, T and U and each made statements about the animals shown below.

R S T U

| | |
|---|---|
| Ben | R is a bird because it swims. |
| Meera | S is a bird because it has feathers. |
| Rahman | T is a fish because it breathes through its gills in water. |
| Seema | U is an amphibian because it has scales on its body surface. |

Whose statement(s) is/are **incorrect**?

(1) Ben only
(2) Meera only
(3) Meera, Rahman and Seema only
(4) Ben, Rahman and Seema only

(Go on to the next page)

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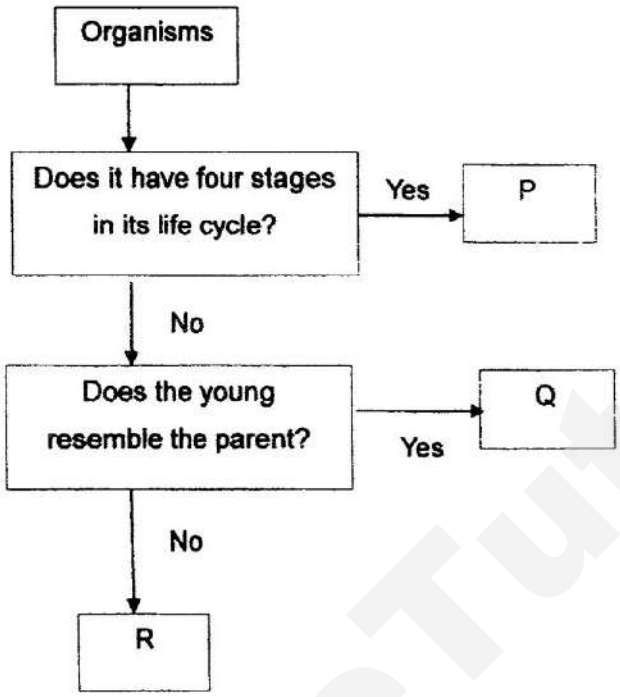
2 Study the flowchart below.




Which of the following could represent Organisms P, Q and R?

| | P | Q | R |
|---|---|---|---|
| (1) | Frog | Mosquito | Grasshopper |
| (2) | Grasshopper | Frog | Butterfly |
| (3) | Mosquito | Grasshopper | Frog |
| (4) | Mosquito | Frog | Grasshopper |

(Go on to the next page)

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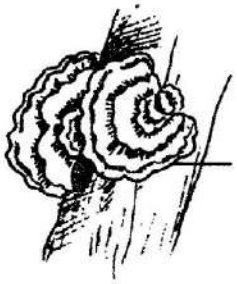
3 The diagram below shows some bracket fungi on a tree and some mould on an orange.



Bracket fungi on a tree

Mould on an orange

Which of the following statement(s) about these two organisms is/are correct?

A Both do not bear flowers.
B Both can be found in dry places only.
C The bracket fungi belongs to a part of the tree.
D The bracket fungi make their own food while the mould gets its food from the orange.

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

4 The organs below are supposed to be grouped according to the body systems that they belong to.

| Skeletal System | Digestive System |
|---|---|
| Skull | Stomach |
| Ribcage | Heart |
| Lungs | Intestines |

Which of the above are **wrongly** placed?

(1) Skull and Heart
(2) Lungs and Heart
(3) Lungs and Intestines
(4) Ribcage and Stomach

(Go on to the next page)

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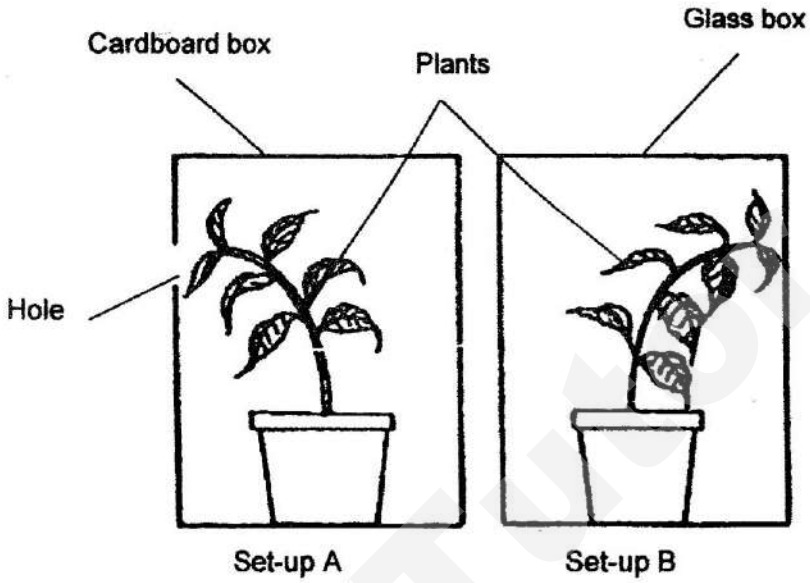
5 Jeremy wanted to find out if plants respond to sunlight. He set up an experiment using similar plants as shown below and placed them in a garden for seven days.




Why was the experiment not a fair test?

A Only one of the boxes had a hole.
B The plants had different number of leaves.
C The boxes were made of different materials.
D The duration of the experiment was too long.

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

(Go on to the next page)

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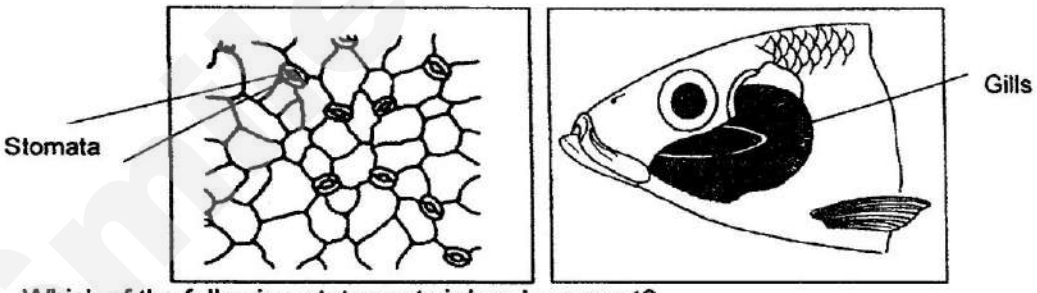
6 John had four similar pots of seedlings from the same type of plant, labelled A, B, C and D. He gave each pot of seedlings the same amount of soil and fertilizers and gave different amount of water to each pot daily. He measured their average heights after nine days.

| Pots | A | B | C | D |
|---|---|---|---|---|
| **Amount of water given per day (ml)** | 25 | 35 | 45 | 50 |
| **Average height of seedlings(cm)** | 10 | 15 | 20 | 30 |

What could John conclude based on the results he had obtained?

(1) The plants need water to make food.
(2) The plants need air, water and light to grow.
(3) The plants grew faster when more water was given.
(4) The plants reproduce faster when they received more water.

7. Study the diagram below carefully.




Which of the following statements is/are **incorrect**?

A The gills protect the fish from injuries.

B The stomata can help the plant to trap sunlight.

C Both the stomata and the gills allow the organisms to take in oxygen and give out carbon dioxide.

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

(Go on to the next page)

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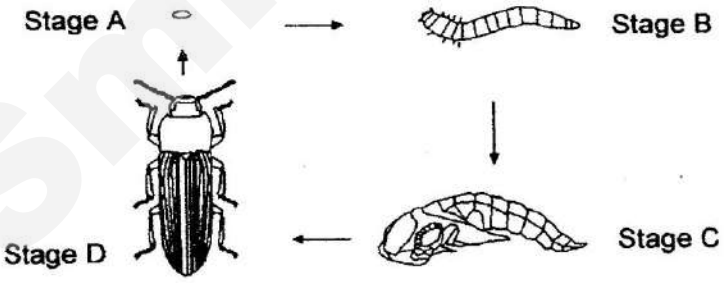
8 The diagram below shows how water and mineral salts are transported in a plant.

The function of the transport system in the plant is similar to the _____ system.

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

9 The following diagram shows the life cycle of a mealworm beetle.




At which stage does moulting takes place?

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

(Go on to the next page)

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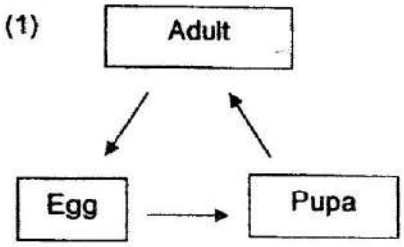
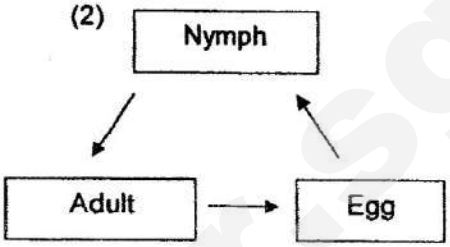
10 Which one of the following shows the correct life cycle of a mosquito?

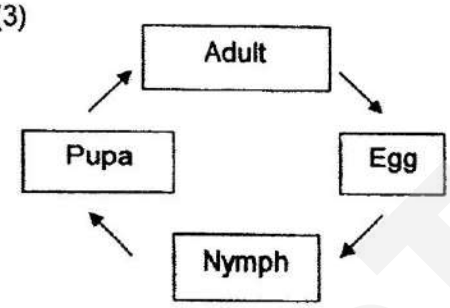
(1)



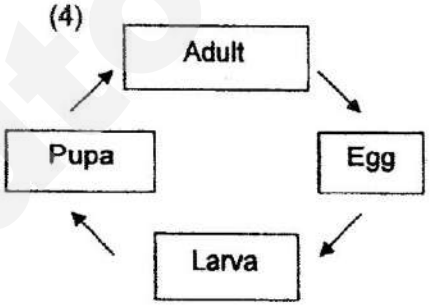

(2)




(3)




(4)




11 Muthu planted a bean seed and then wrote a journal about the growth of his bean plant. However, he did not record the growth of his bean plant in the correct order.

A The shoot appears.
B The root appears.
C The leaves grow.
D The flowers bloom.
E The fruits grow.

Which one of the following shows the correct order?

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

(Go on to the next page)

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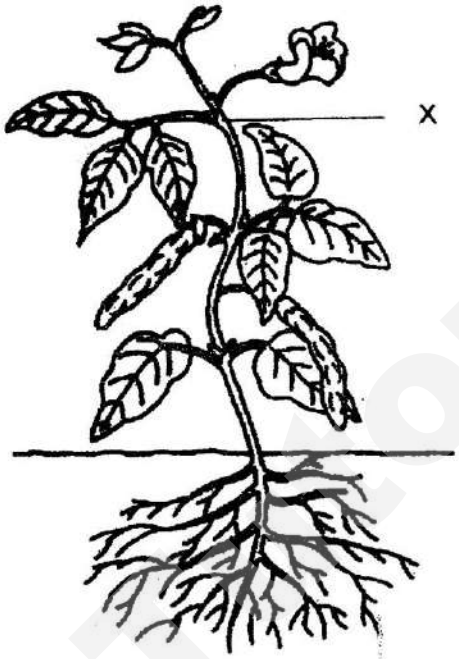
**12** The diagram below shows a plant with one of its part labelled X.




Which one of the following statements is **false** about the function of part labelled X?

(1) It holds the plant firmly to the ground.
(2) It carries food to other parts of the plant.
(3) It holds the leaves up to reach for sunlight.
(4) It carries water and mineral salts to other plant parts.

(Go on to the next page)

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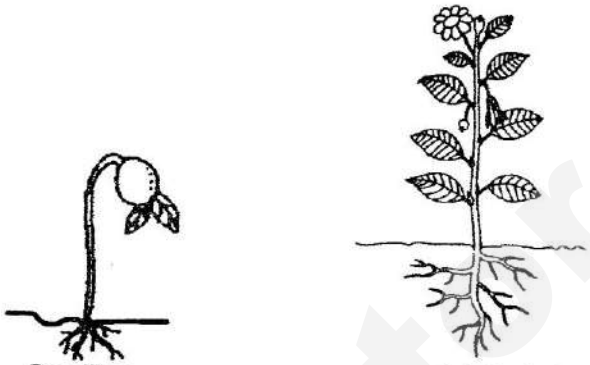
13 The diagram below shows a seedling and an adult plant.




Which of the following are true for **both** the seedling and the adult plant?

A Have strong stems
B Make their own food
C Bear fruits to reproduce
D Absorb water and mineral salts through their roots

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

(Go on to the next page)

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14 Wei Ling collected some information on three different organisms P, Q and R and recorded it in a table as shown below.

| | Organisms | | |
|---|---|---|---|
| **Characteristics** | **P** | **Q** | **R** |
| **Its young moults** | Yes | Yes | Yes |
| **Has 3 stages in its life cycle** | Yes | Yes | No |
| **Spends part of its life cycle in water** | Yes | No | No |

Based on the information given, which of the following statements are correct?

A P and Q can fly.
B P can be a frog.
C Q can be cockroach.
D The young of R does not look like its adult.

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

(Go on to the next page)

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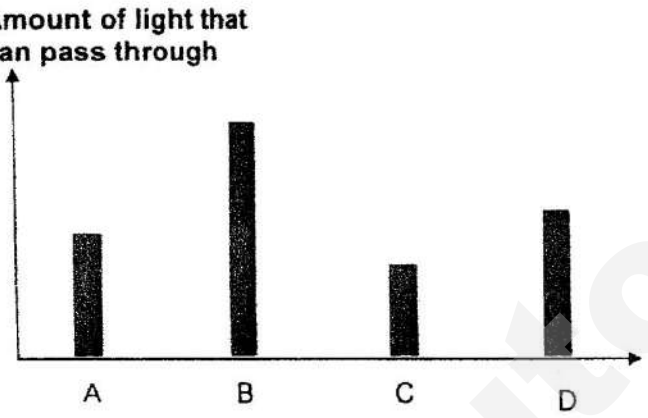
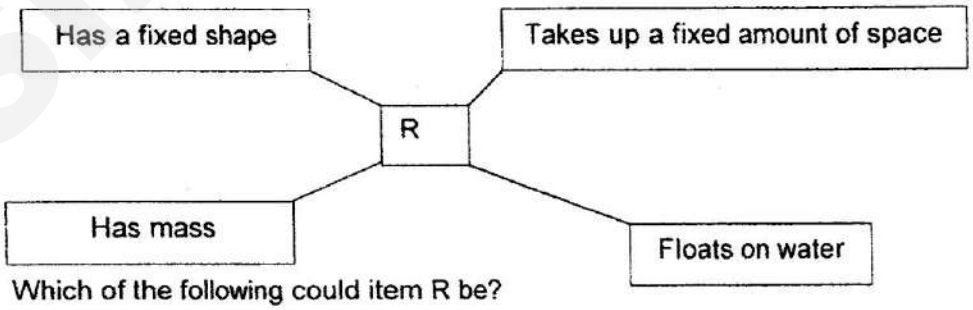
15 Mrs Sim wants to sew a set of curtains to reduce the glare from the sun during the daytime. The graph below shows the amount of light that can pass through each type of material, A, B, C and D.




Which one of the following material should Mrs Sim choose to make the window curtains?

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

16 Item R has the following characteristics.




Which of the following could item R be?

(1) Cork
(2) Stone
(3) Needle
(4) Cooking Oil

(Go on to the next page)

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17 When James pumped more air into the tyre, he observed that the size of the tyre remained the same.

Which of the following best explains James' observation?

(1) Air takes up space.
(2) Air can be compressed.
(3) Air has a definite volume.
(4) The tyre has a fixed shape.

(Go on to the next page)

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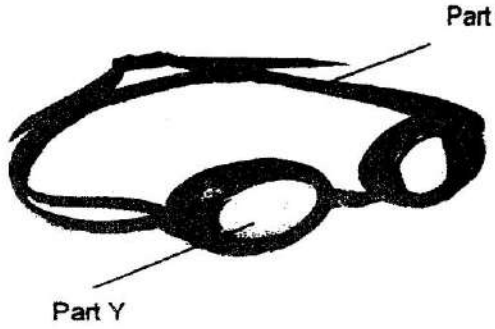
18 The diagram below shows a pair of swimming goggles.




Study the properties of the four materials as shown below.

| Material | Property of material | | |
|---|---|---|---|
| | Flexible | Transparent | Waterproof |
| A | No | Yes | Yes |
| B | Yes | Yes | Yes |
| C | Yes | No | Yes |
| D | No | No | No |

Which materials are most suitable for making Part X and Part Y?

| | Material for making | |
|---|---|---|
| | Part X | Part Y |
| (1) | A | D |
| (2) | B | C |
| (3) | C | A |
| (4) | D | A |

(Go on to the next page)

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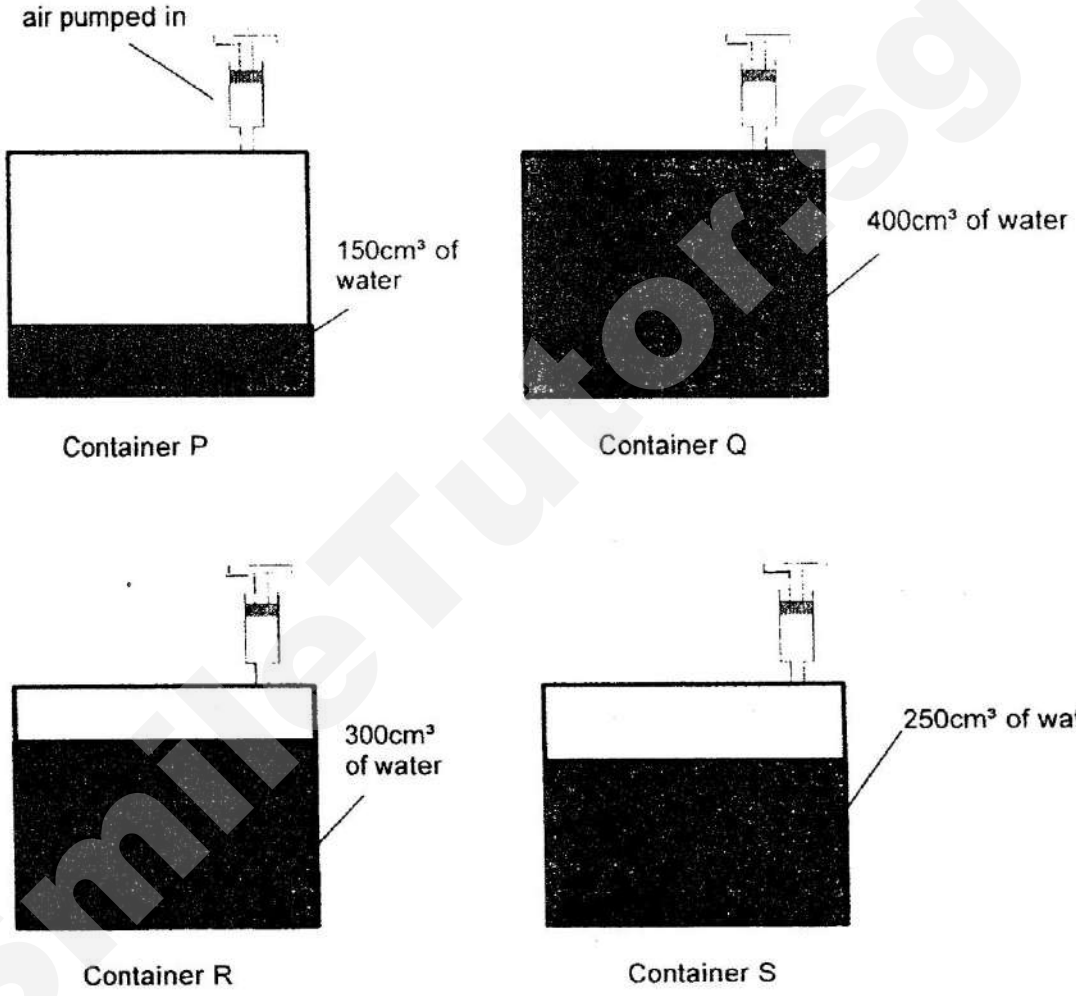
**19** Wei Chong prepared four containers P, Q, R and S with the same volume of 400cm³. He added different amount of water into each container and sealed it with an air pump attached as shown in the diagram below.




Wei Chong then pumped 300cm³ of air into each container.

Air was compressed in containers _____.

(1) P and S only
(2) P, R and S only
(3) Q, R and S only
(4) P, Q, R and S

(Go on to the next page)

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20 Adam used a table to describe the properties of the three states of matter, A, B and C as shown below.

| Property | A | B | C |
|---|---|---|---|
| Has mass | Yes | Yes | Yes |
| Can be seen | Yes | No | Yes |
| Can be compressed | No | Yes | No |
| Takes up the shape of its container | Yes | Yes | No |

The headings for A, B and C should be _____ respectively.

(1) Gas, Liquid and Solid
(2) Solid, Liquid and Gas
(3) Solid, Gas and Liquid
(4) Liquid, Gas and Solid

21 Rani filled a container with water as shown in Diagram 1. She then put in a metal cube into the container and observed that the water level rose as shown in Diagram 2 below.

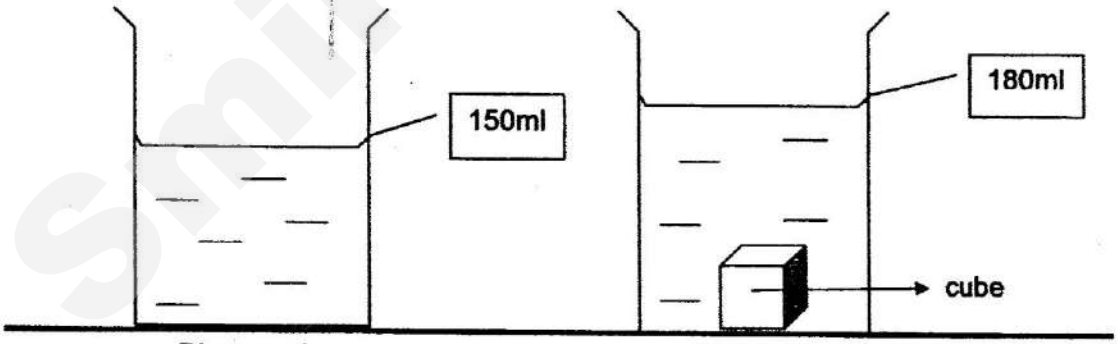


Diagram 1 Diagram 2

Which one of the following statements **best** explains Rani's observation?

(1) The cube took up space in the container.
(2) The water increased in mass when the cube was put in.
(3) The water increased in volume when the cube was put in.
(4) The cube increased in volume when it was placed into the container.

(Go on to the next page)

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22 When Raja placed two identical marbles into a beaker of water, the water rose to the level as shown in Diagram 1 below.

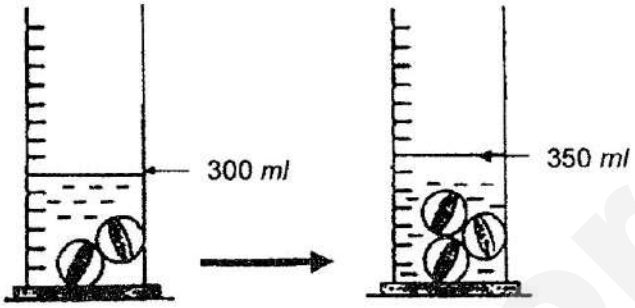


Diagram 1 Diagram 2

Raja then added one more marbles of the same size into the beaker of water. He observed that the water level rose as shown in Diagram 2.

What would the water level be if all the marbles were removed and what property of matter did it show?

| | Water level | Property of matter |
|---|---|---|
| (1) | 250 ml | Matter occupies space. |
| (2) | 200 ml | Matter has mass. |
| (3) | 200 ml | Matter occupies space. |
| (4) | 300 ml | Matter occupies space and has no definite shape |

(Go on to the next page)

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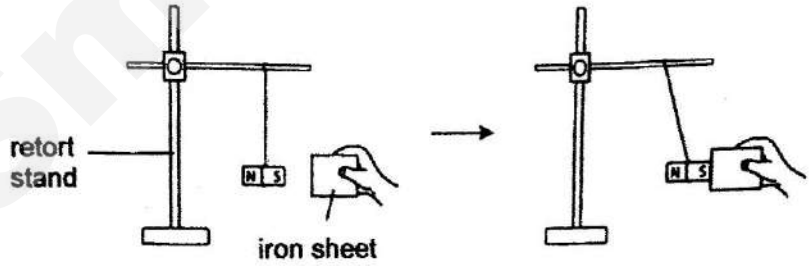
23 The diagram below shows a glass jar with a capacity of 1000 $cm^3$.

Which of the following statements are correct?

A It can store 500 $cm^3$ of air.
B It can store 1100 $cm^3$ of air.
C It can store 800 $cm^3$ of sand.
D It can store 1010 $cm^3$ of water.

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

24 Jaslin holds an iron sheet near a magnet hung on a retort stand. The diagram below shows her observation.




What could Jaslin conclude?

(1) A magnet is strongest at its poles.
(2) A magnet can repel a magnetic object.
(3) A magnet can attract a magnetic object at a distance.
(4) A magnet can make a magnetic object into a temporary magnet.

(Go on to the next page)

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25 Wei Liang set up the following experiment as shown in Diagram 1. Four rings of the same size, A, B, C and D, are stacked through a wooden rod. Three of them are magnets.

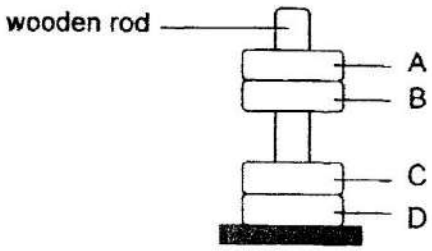

Diagram 1

The rings are then removed and stacked in another way through the wooden rod as shown in Diagram 2 and Diagram 3.

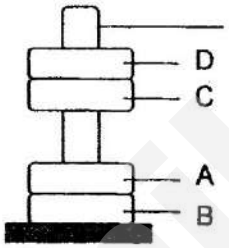

Diagram 2

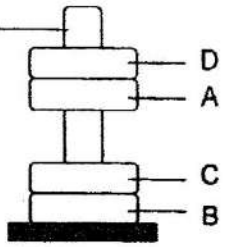

Diagram 3

Which of the following rings are definitely magnets?

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

(Go on to the next page)

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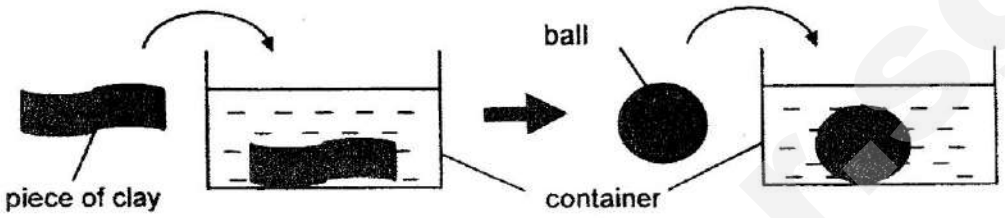
**26** Bala dropped a piece of clay into a container filled with 1000 ml of water and recorded the water level. Next, he moulded the same piece of clay into a ball and repeated his experiment.




He recorded the results in the table below.

| Original water level (ml) | Water level with the piece of clay (ml) | Water level with the ball of clay (ml) |
|---|---|---|
| 1000 | 1200 | 1200 |

Based on Bala's results, what could he conclude about the properties of clay and water?

A Both have mass.
B Both occupy space.
C Clay has a definite volume.
D Water has a definite volume.

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

(Go on to the next page)

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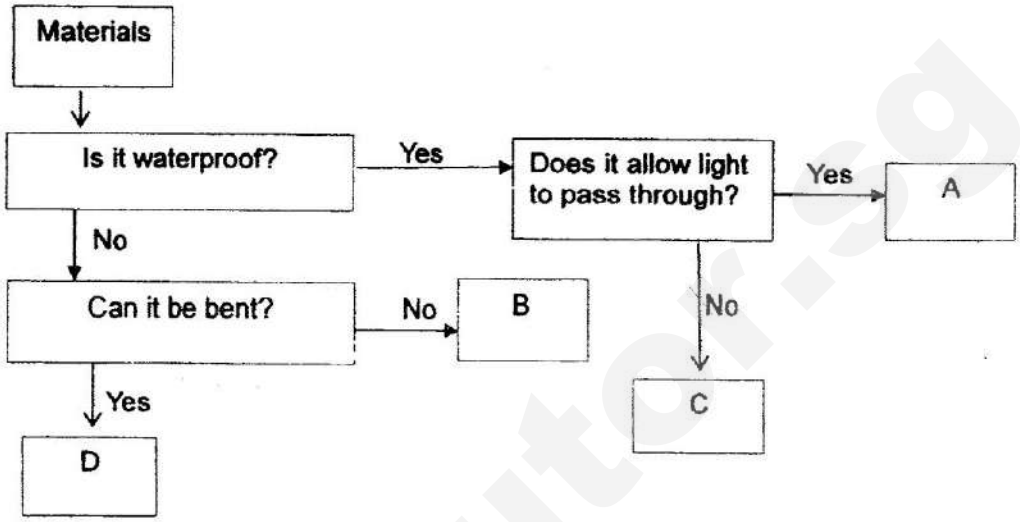
27 The flowchart below shows the properties of materials A, B, C and D.




Which one of the following best represent materials A, B, C and D?

| | A | B | C | D |
|---|---|---|---|---|
| (1) | clear glass | wood | ceramic | fabric |
| (2) | fabric | ceramic | wood | clear glass |
| (3) | ceramic | wood | clear glass | fabric |
| (4) | clear glass | ceramic | fabric | wood |

(Go on to the next page)

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**28** The diagram below shows a surfboarding activity.

What properties of a surfboard help to ensure the safety of the person?

A Strong
B Flexible
C Waterproof
D Able to float

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

End of Booklet A

(Go on to the next page)

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# METHODIST GIRLS' SCHOOL

Founded in 1887

MID-YEAR EXAMINATION 2018
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 : 8 May 2018

| | |
|---|---|
| Booklet A1 & A2 | 56 |
| Booklet B | 34 |
| Total | 90 |
| Parent's Signature | |

This booklet consists of 14 printed pages including this page.

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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** In an experiment, a group of pupils took three young seedlings and placed them in a jar with damp cotton wool as shown in Diagram A.
After one week, they noted the results as shown in Diagram B.

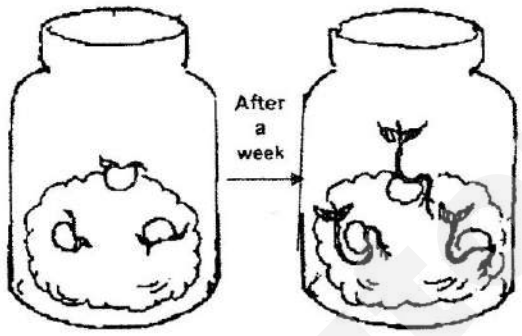
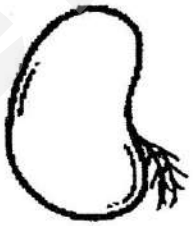



**Diagram A** **Diagram B**

(a) **Draw** and **label** the part which the pupils would first observe growing from the seed in diagram B above. [1]



(b) The pupils also noticed that the seed increased in size as shown in the diagram above. Explain what had caused the seed to increase in size. [1]

(c) State one difference between a young plant and the adult plant. [1]



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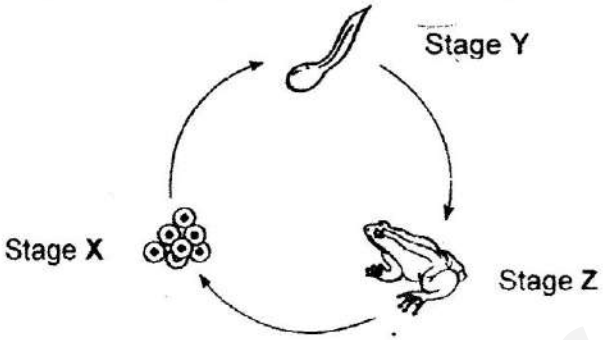
**30** Study the life cycle of the frog shown below carefully.




(a) Which two characteristics of living things are shown in the life cycle of the frog? [1]

(i) _____

(ii) _____

(b) What are two differences between the characteristics of the frog at stage **Y** and stage **Z** of its life cycle? [2]

Difference 1: _____

_____

_____

Difference 2: _____

_____

_____

3

(Go on to the next page)

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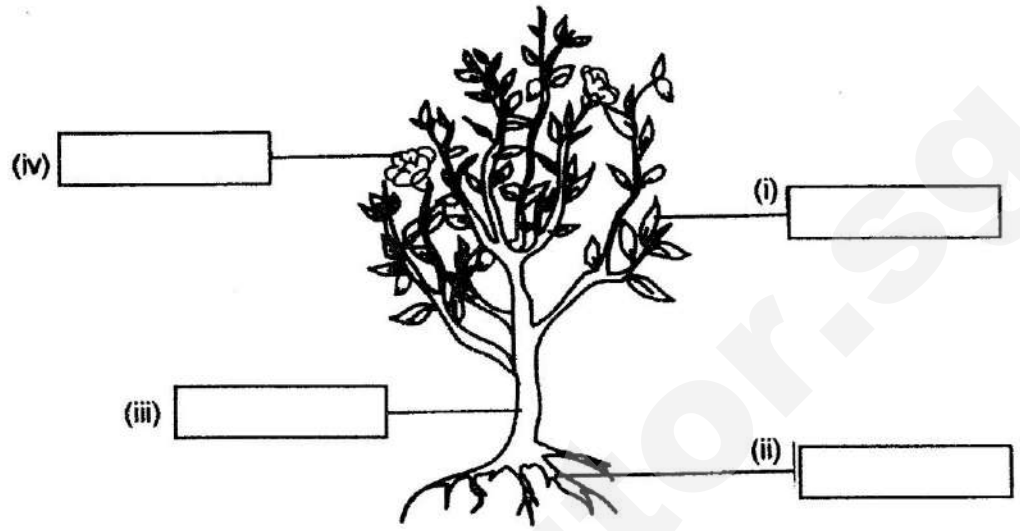
**31** The diagram below shows a plant.




(a) Label the parts of the plant in the boxes provided. [2]

(b) What are the two functions of Part (i) of the plant? [1]

(c) How does an increase in the amount of Part (ii) of the plant affect the amount of water absorbed by the plant? [1]

4

(Go on to the next page)

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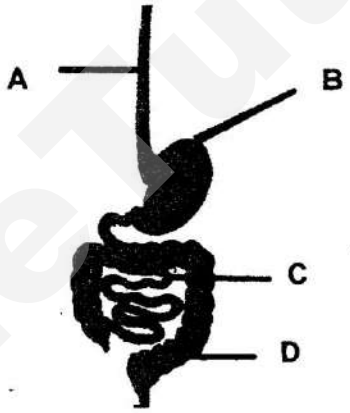
32 The diagram below shows a human body system.

(a) What is the function of this system? [1]

Study another human body system shown below.




(b) Which organs labelled above help in the digestion of food? Explain why. [1]

(c) What is the function of organ D? [1]

3

(Go on to the next page)

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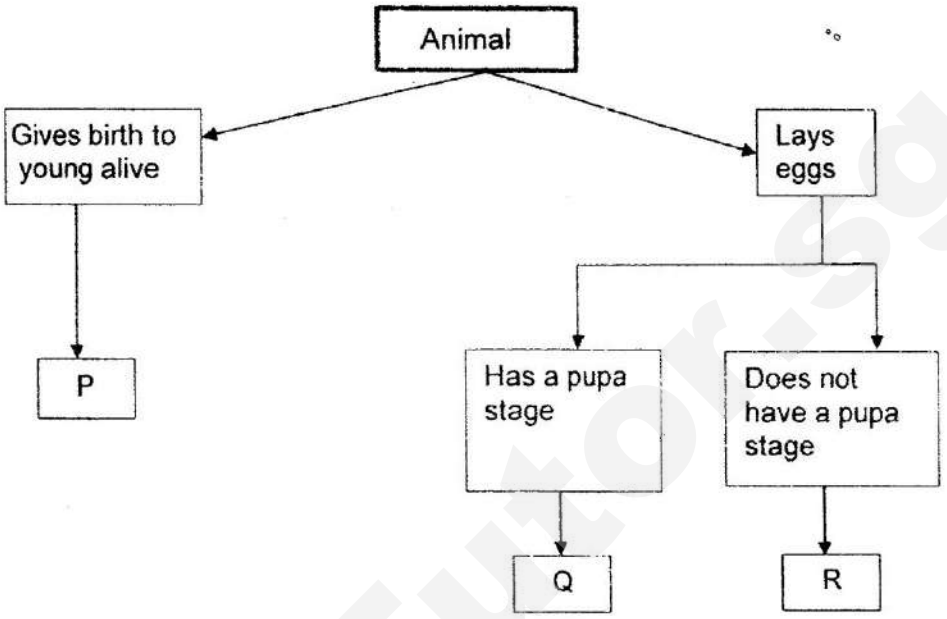
**33** The classification chart below shows the characteristics of three animals, P, Q and R.




(a) Which one of the animals is likely to have a young that looks like its parents?

[1]

(b) Draw the life cycle of an insect that has the same characteristics as animal R.

[1]

2

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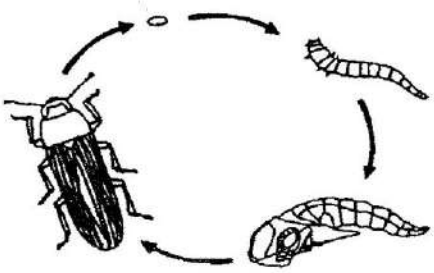
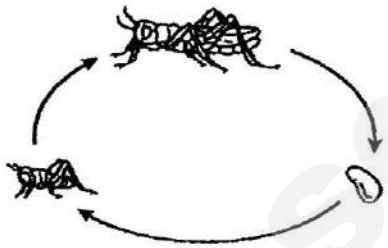
**34** The life cycles of a mealworm beetle and a grasshopper are shown below.



Mealworm beetle



Grasshopper

(a) Based on the diagrams above, write down two differences between the life cycles. [2]

Difference 1: _____

_____

Difference 2: _____

_____

(b) Why is it important for the grasshopper and mealworm beetle to lay many eggs at one time? [1]

_____

_____

_____

_____

3

(Go on to the next page)

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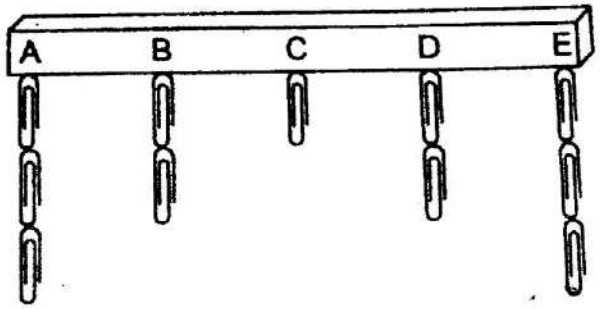
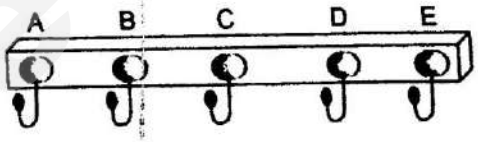
**35** Lucas conducted an experiment using a magnet. He placed one paperclip at a time on different positions, A, B, C, D and E, on the magnet until no more paperclips were attracted by the magnet.




He then recorded his results in the table shown below.

| Position | A | B | C | D | E |
|---|---|---|---|---|---|
| Number of paper clips | 3 | 2 | 1 | 2 | 3 |

Lucas then attached the magnet above on the wall and bought some strong magnetic hooks to hang some items.




(a) Based on the results above, which two positions, A, B, C, D or E, would he choose to hang a 50g weight? [1]

(i) Positions: _____ and _____

(b) Explain your answer in (a). [1]

_____

2

(Go on to the next page)

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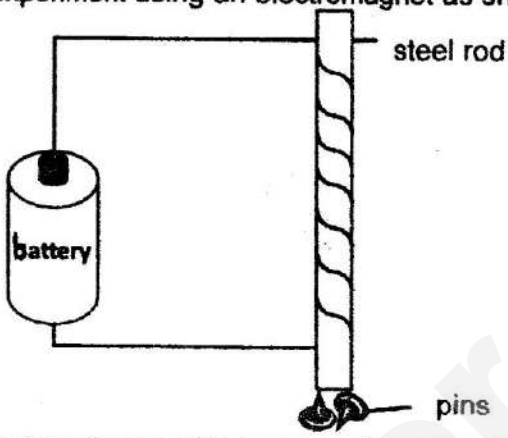
**36** Sue carried out an experiment using an electromagnet as shown below.




She changed the number of turns of the wire on the rod and the results were recorded in the table below.

| No. of turns of wire | No. of pins attracted |
|---|---|
| 12 | 2 |
| 18 | 4 |
| 25 | 7 |
| 30 | 9 |

(a) What was Sue trying to find out in this experiment? [1]

(b) How could Sue ensure that the results of her experiment were more reliable? [1]

(c) What could Sue do to attract more pins besides increasing the number of turns of wire on the steel rod? [1]

3

(Go on to the next page)

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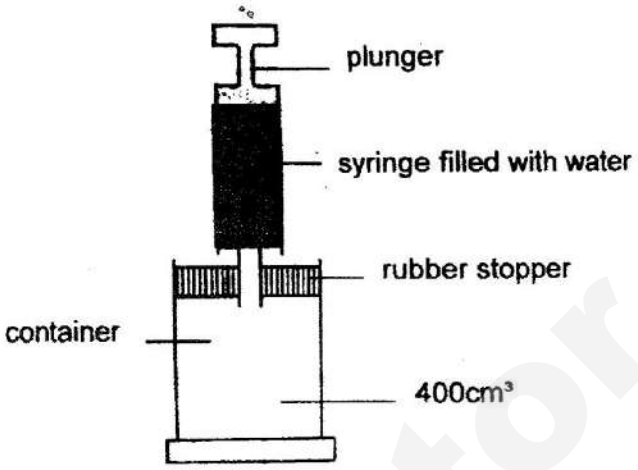
37 The container below contains 400cm³ of air. David tried to push the plunger of the syringe and he observed that only a little water could enter into the container.




(a) Explain why only a little water could enter into the container. [1]

(b) What should David do in order to allow more water in the syringe to enter the container? Give a reason for your answer. [1]

2

(Go on to the next page)

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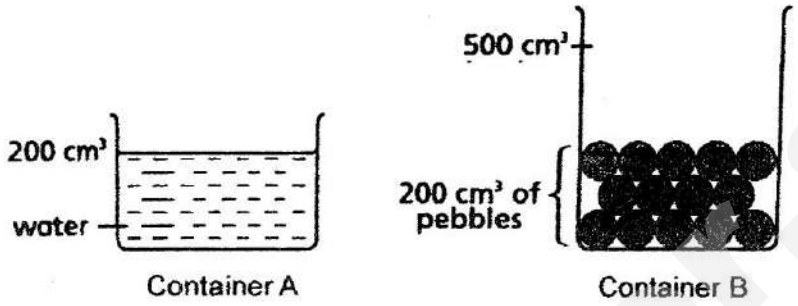
38 Sheila added 200 cm³ of water into Container A. She then put 200 cm³ of pebbles into Container B with a capacity of 500 cm³. Next, she poured the water from Container A into Container B.




(a) What would be the total volume of water and pebbles in Container B? [1]
Put a tick (√) in the correct box below.

200 cm³ ☐

350 cm³ ☐

400 cm³ ☐

(b) Explain your answer in (a). [1]

_____

_____

(c) What property of matter could Sheila observe from this experiment? [1]

_____

3

(Go on to the next page)

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Sheila explored further by using two cubes of the same size but made of different types of metals as shown in the diagram below.

50g

Cube A

80g

Cube B

She tied a string to each of the cubes. When she lowered Cube A gently into a measuring cylinder containing 30cm³ of water, the water level rose up to 45cm³. She removed Cube A and lowered Cube B into the same measuring cylinder.

(d) What would be the new water level? State the common property of the cubes. [1]

_____

_____

(e) What could Sheila conclude from this experiment? [1]

_____

_____

2

(Go on to the next page)

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39 Four thin sheets of similar size materials A, B, C and D were used for this experiment. The table below shows the mass of these sheets before and after they were put into four beakers, each containing an equal amount of water.

| Material | Before | After 20 minutes |
|---|---|---|
| A | 8 g | 8 g |
| B | 10 g | 18 g |
| C | 16 g | 20 g |
| D | 13 g | 15 g |

(a) Based on the results given, explain which material you would use to make a pair of gloves. [1]

_____

_____

Meena wears a pair of gloves made from the material chosen in (a) to keep her hands dry when doing household chores as shown below.

(b) Based on the picture, list one important property of this material and explain why. [1]

_____

_____

2

(Go on to the next page)

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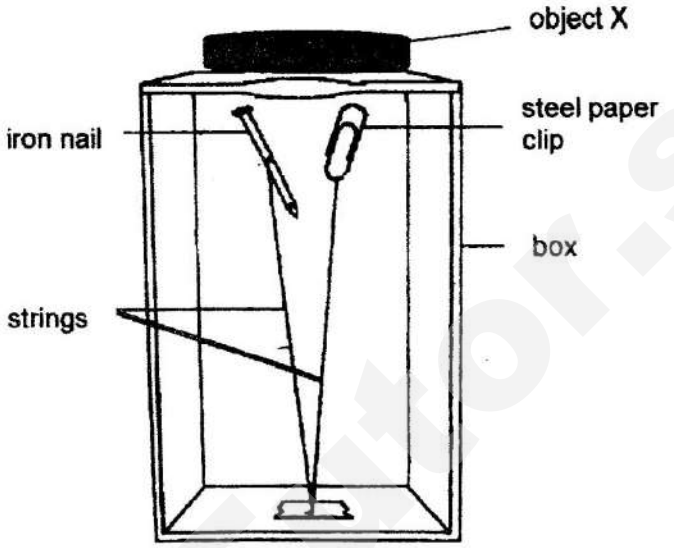
**40** Mary decided to perform a magic trick for her friends. She prepared the set-up below. An iron nail and a steel paper clip were tied to a string of length 25cm and was attached to the base of the box. Without touching the steel paper clip and the iron nail, Mary was able to make them "float" in the box.




(a) What could object X be? Explain your answer. [1]

_____

_____

(b) However, Mary was unable to perform her magic trick when she cut her strings to a shorter length. Give a reason for your answer. [1]

_____

_____

End of Booklet B

2

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# ANSWER KEY

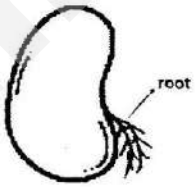
| | | |
|---|---|---|
| YEAR | : | 2018 |
| LEVEL | : | PRIMARY 4 |
| SCHOOL | : | METHODIST GIRLS' SCHOOL |
| SUBJECT | : | SCIENCE |
| TERM | : | SA1 |

## Booklet A

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

## Booklet B

29 (a)




(b) The roots would have to force its way through the seed to grow out of the seed.

(c) A young plant cannot bear fruits while an adult plant can bear fruits.



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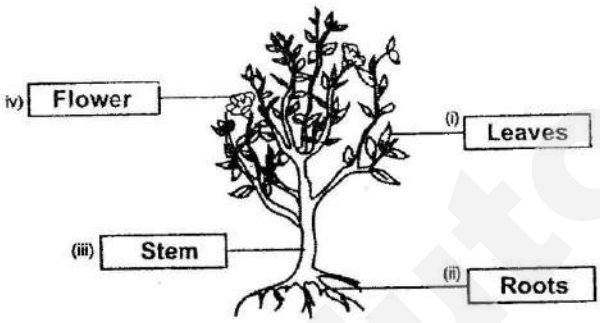
30 (a) (i) Living things reproduce.

(ii) Living things grow.

(b) Difference 1: Stage Y has a tail but stage Z has legs.

Difference 2: Stage Y breathes through gills while stage Z breathes through lungs and moist skin.

31 (a)




(b) Part (i) allows gaseous exchange to take place and also obtains sunlight to make food for the plant.

(c) The more the part (ii), the more the amount of water and mineral salts absorbed into the plant.

32 (a) The system helps the body maintain its shape.

(b) Organs B and C, as they contain digestive juices to help digest the food into simpler substance.

(c) Organ D helps to absorb water and mineral salts from the undigested food.

33 (a) Animal P



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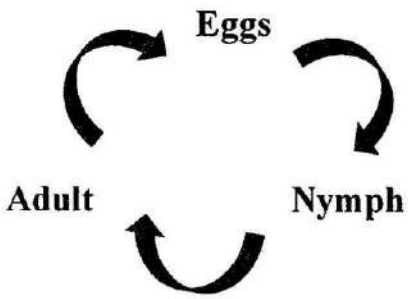
(b)




34 (a) **Difference 1: The life cycle of a mealworm beetle has 4 stages but the life cycle of a grasshopper has 3 stages.**

**Difference 2: The young of a grasshopper resembles the adult while the young of the mealworm beetle does not resemble the adult.**

(b) **To ensure that at least some will survive and grow into adults.**

35 (a) (i) **Positions: A and E**

(b) **Positions A and E are at the end of the magnet, and as the magnetic strength is at the end poles of a magnet, the magnetic strength would be the strongest there.**

36 (a) **The number of turns of wire affect the magnetic force.**

(b) **She could repeat the experiment multiple times.**

(c) **Sue could add more batteries to the electromagnet.**



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37 (a) **The air in the container cannot escape. However, air can be compressed to allow a little water to enter.**

(b) **He should remove the rubber stopper as the rubber stopper prevents the air from escaping the container.**

38 (a) **350 $cm^3$** ✓

(b) **The pebbles have air spacings in between them and the water will take up the space previously occupied by air.**

(c) **Matter occupies space.**

(d) **Water level would be the same, as both cubes have the same volume.**

(e) **The mass of an object does not affect the volume of the object.**

39 (a) **Material A, as it did not absorb any water. The pair of gloves needs to keep the person dry therefore, material A is suitable to make it.**

(b) **An important property is waterproof as it ensures that the users' hand is dry when using it.**

40 (a) **Object X could be a magnet. The iron and steel paper clips are magnetic objects. Hence, it attracted magnetic object so they "float".**

(b) **Magnetic strength wasn't strong enough to attract the iron nail and the steel paper clip at a furthest distance from the top of the box.**

End



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NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 1 – 2018
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 : 3 May 2018** **Parent's signature:** _____

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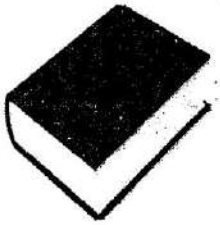
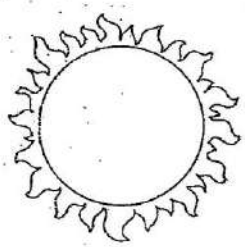
**Section A: (28 x 2 marks = 56 marks)**

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. Which of the following are sources of light?



book



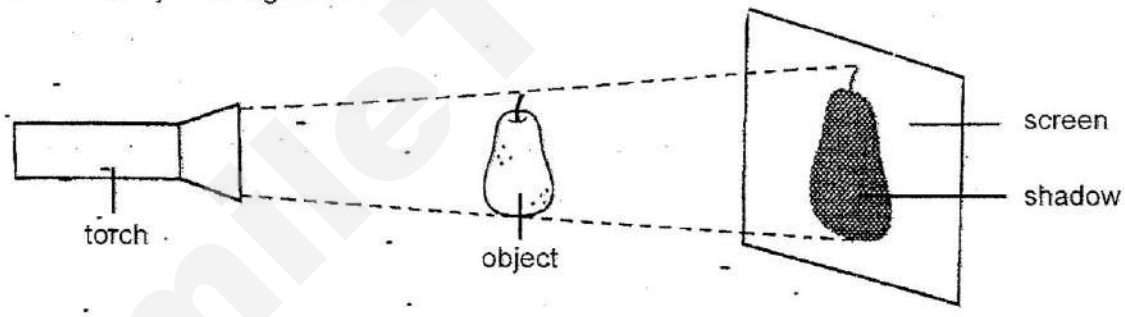
sun

fire

clock

(1) fire and sun only
(2) book and sun only
(3) clock and fire only
(4) clock and sun only

2. Study the diagram below.




What will happen to the shadow if the torch is moved nearer to the object?

(1) The shadow will disappear.
(2) The shadow will become bigger.
(3) The shadow will become smaller.
(4) The shadow will remain the same.



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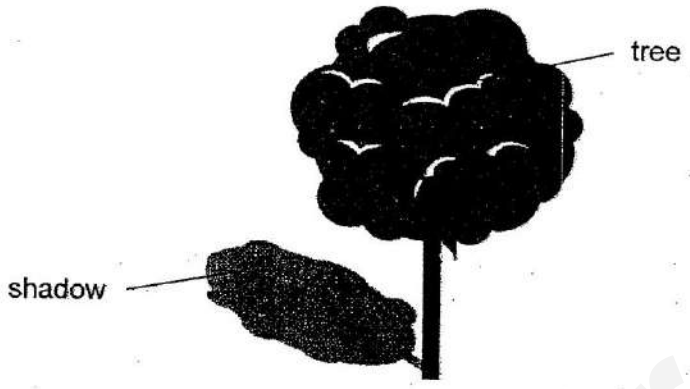
3. Study the diagram below.

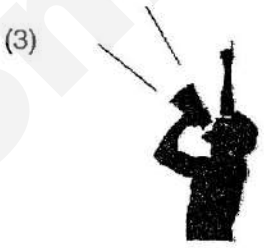



What caused the shadow of the tree to form?

(1) The tree reflected light.
(2) The tree absorbed light.
(3) The light passed through the tree.
(4) The path of light is blocked by the tree.

4. Which one of the following is a matter?

(1)



sound from a man

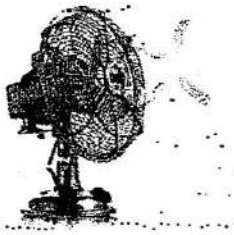
(2)

is a matter?

shadow formed by hands

(3)

(4)



wind from a fan



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5. The table below shows the properties of three matter.

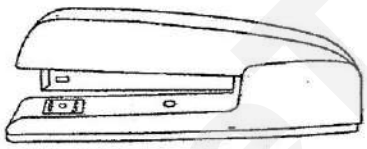
| Matter | Definite volume | Definite shape | Can be compressed |
|---|---|---|---|
| A | No | No | Yes |
| B | Yes | No | No |
| C | Yes | Yes | No |

Which one of the following matter has properties of a solid?

(1) A
(2) B
(3) C
(4) None of the above

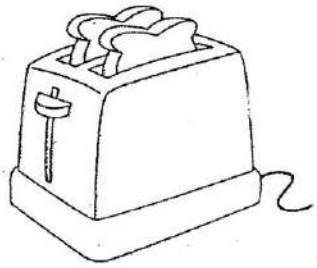
6. Which one of the following is **not** a source of heat?

(1)



Stapler

(2)

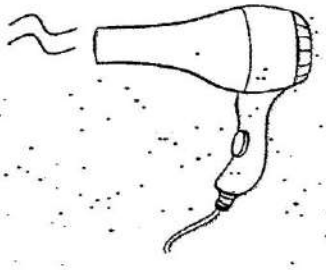


Toaster

(3)

Campfire

(4)



Hair dryer



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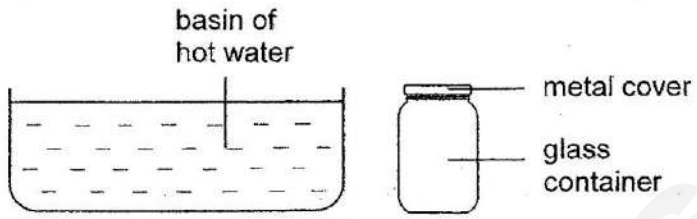
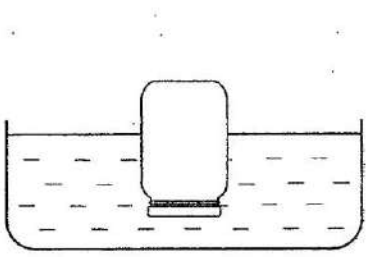
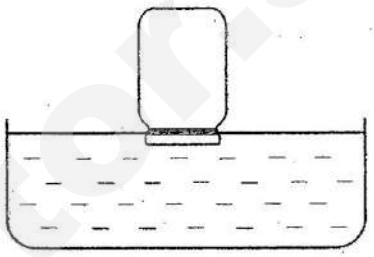
7. Ted wanted to remove the metal cover that was fitted tightly to the glass container. Using just a basin of hot water, which of the following arrangement would allow Ted to easily remove the metal cover?



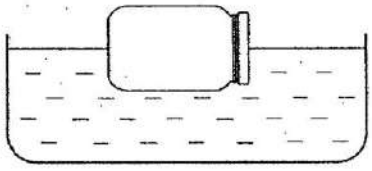



(1)



(2)

(3)



(4)



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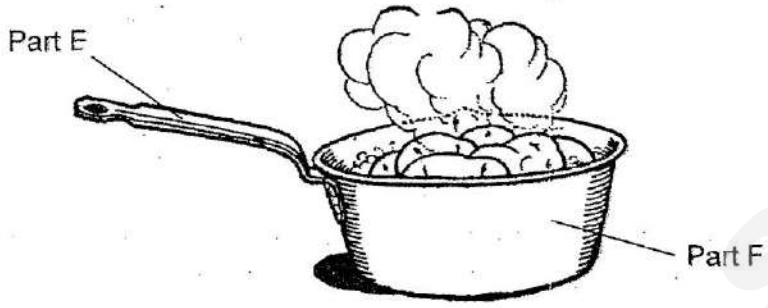
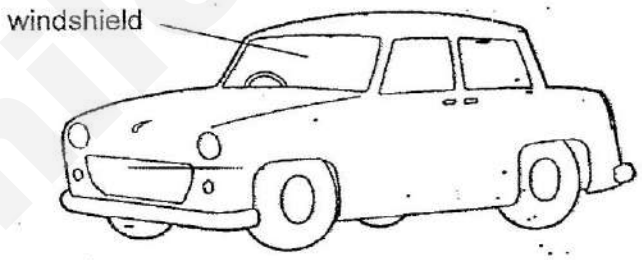
8. The diagram below shows a cooking pot with hot potatoes in it.




What properties of the materials are suitable for making part E and part F of the cooking pot?

| | Part E | Part F |
|---|---|---|
| (1) | good conductor of heat | good conductor of heat |
| (2) | poor conductor of heat | good conductor of heat |
| (3) | good conductor of heat | poor conductor of heat |
| (4) | poor conductor of heat | poor conductor of heat |

9. The windshield of a car allows the driver to see the road ahead clearly when driving under any conditions.




What properties of the windshield allow the driver to drive on rainy days?

(1) strong and flexible
(2) strong and translucent
(3) waterproof and flexible
(4) waterproof and transparent



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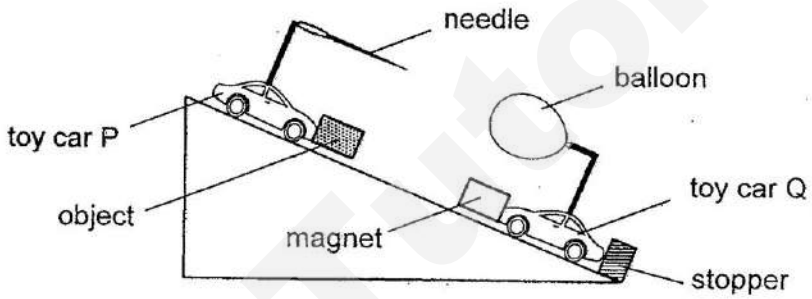
10. Which one of the following statements about magnets is true?

(1) The magnetic strength of a magnet is strongest in the middle.
(2) A temporary magnet can only be formed by the electrical method.
(3) Magnets will lose their magnetism when heated over a strong flame.
(4) A freely suspended bar magnet will come to rest in the East-West direction.

11. Danny set up an experiment as shown below. He had four different objects and wanted to find out which object when placed in front of toy car P would not be able to prevent the balloon from bursting. After attaching the object in front of toy car P, he released it at the same position and observed what happened.




The objects were:

| | Object |
|---|---|
| A | Magnet |
| B | Steel |
| C | Plastic |
| D | Rubber |

Which of the four objects above would not be able to prevent the balloon from bursting?

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



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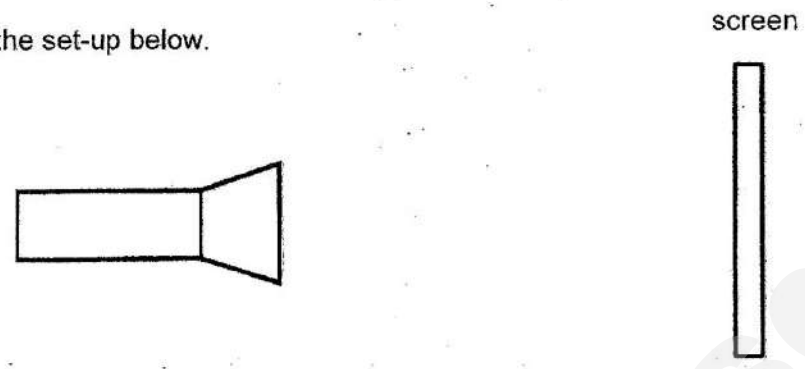
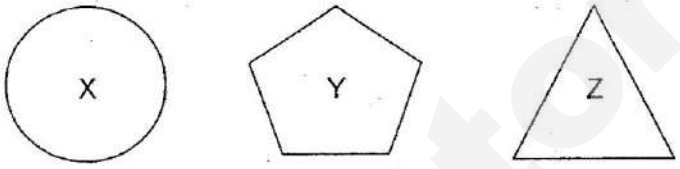
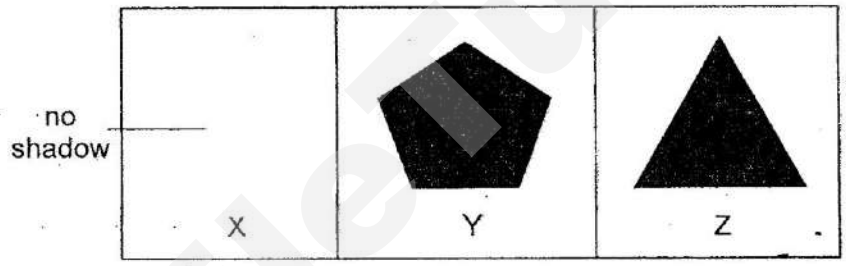
12. Study the set-up below.




Objects X, Y and Z were placed in between the light source and the screen one at a time.




The following shadows were formed on the screen.




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

A Object X blocked the most light.
B Object Y allowed most light to pass through.
C Object Z did not allow any light to pass through.
D The path of light was blocked by at least one of the objects.

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



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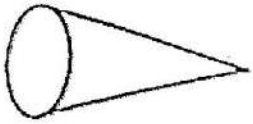
13. Annie used a torch to shine on an object. She discovered that the object could cast both the shadows shown below.

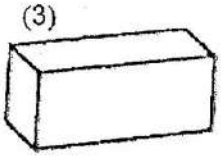
Which of the following was the object which Annie had shone the torch on?

(1)

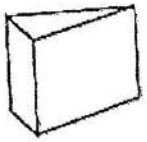


(2)

(3)



(4)



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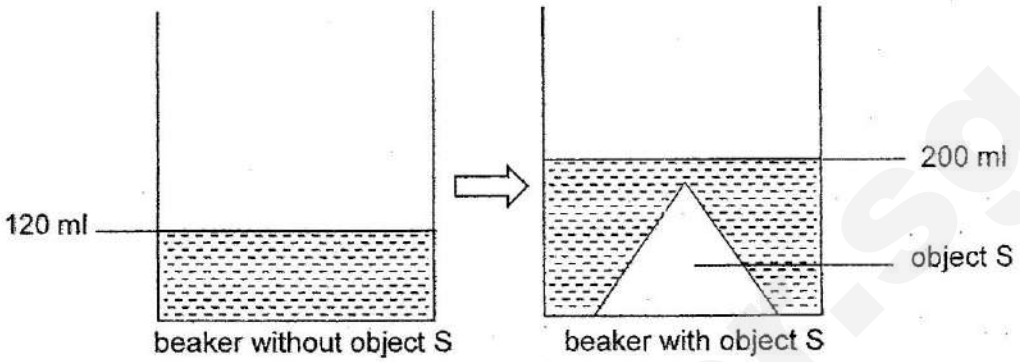
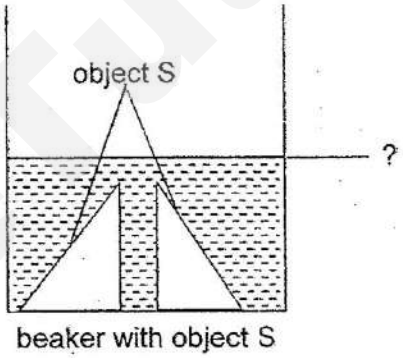
14. Arthur placed object S in a beaker that was filled with 120 ml of water and the water level rose to 200 ml.




He took out object S and cut it into two halves. He then placed the two halves back into the beaker with 120 ml of water.




What is the reading of the water level when two halves of object S are placed into the beaker?

(1) 80 ml
(2) 120 ml
(3) 200 ml
(4) 320 ml



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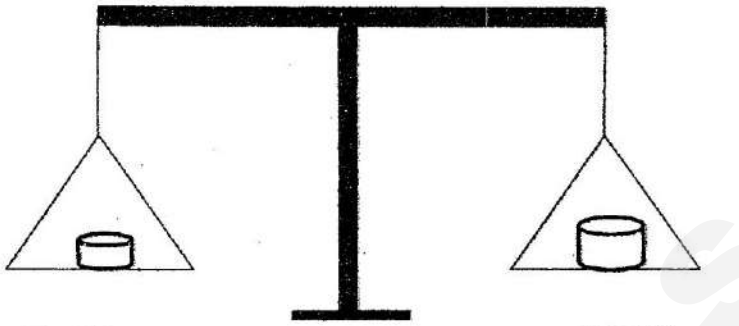
15. Study the diagram below.




Which of the following statements about objects A and B are correct?

A Both objects have different mass.
B Both objects have the same mass.
C Both objects have different volume.
D Both objects have the same volume.

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



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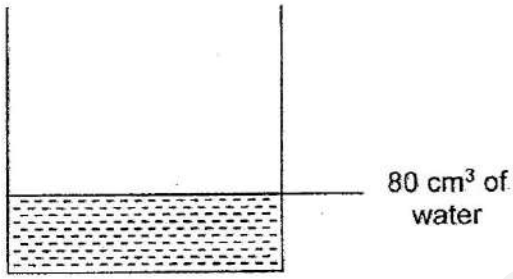
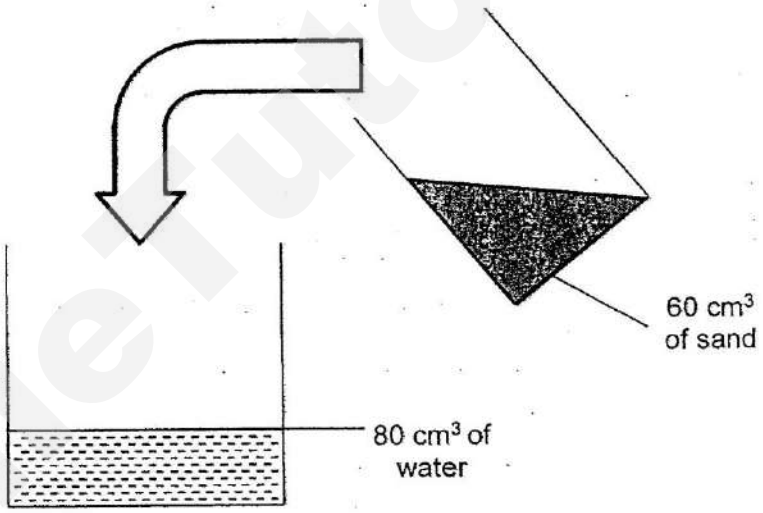
16. Ben poured 80 $cm^3$ of water into a container as shown in the diagram below.




He then poured 60 $cm^3$ of sand into the container.




Why was the water level below 140 $cm^3$?

(1) The sand can be compressed.
(2) The water can be compressed.
(3) The air trapped between the sand particles was compressed.
(4) Some water occupied the air spaces in between the sand particles.



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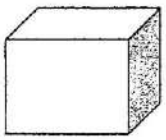
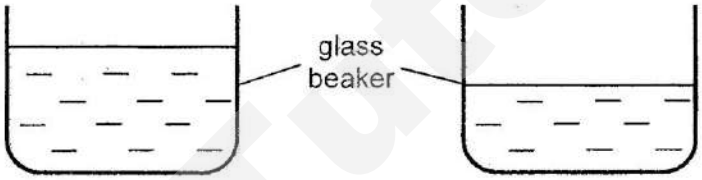
17. The diagram below shows a metal block.



What happened to the metal block after it was heated?

| | Shape | Mass | Volume |
|---|---|---|---|
| (1) | Changed | Same | Increased |
| (2) | Same | Increased | Increased |
| (3) | Same | Decreased | Decreased |
| (4) | Same | Same | Increased |

18. During a science fair, an experiment was set up as shown below.




Beaker A with 500 ml of hot water at 100°C

Beaker B with 300 ml of hot water at 100°C

Four students came along and made the following comments:

| Student | Comments |
|---|---|
| Ashton | The water in both beakers will eventually reach room temperature. |
| Berinda | The water in beaker A has more heat than the water in beaker B. |
| Caili | Temperature of water in beaker B will decrease faster than that in beaker A. |
| David | Since the water in both beakers have the same temperature, they have the same amount of heat. |

Which of the comments made is/are true?

(1) Ashton only
(2) Ashton and David only
(3) Berinda and Caili only
(4) Ashton, Berinda and Caili only



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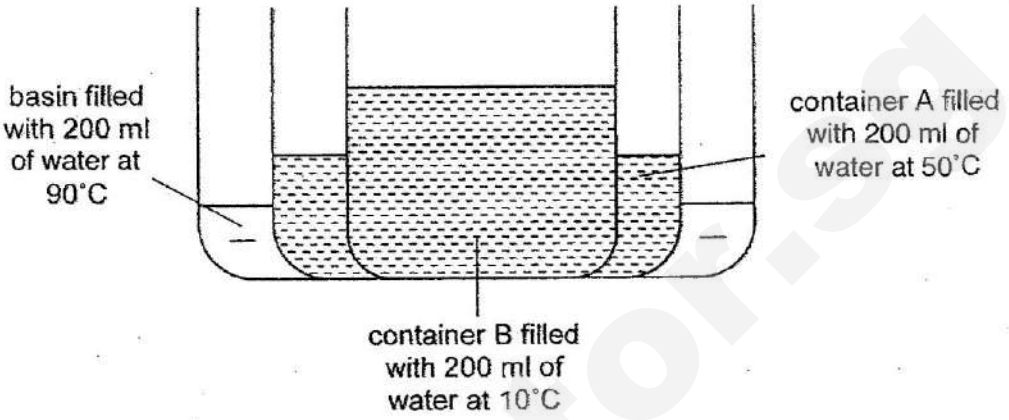
19. Two containers, A and B, were immersed into a basin of hot water at 90°C as shown in the diagram below.




If the whole set-up was placed in a room at a temperature of 23°C for 9 hours, which of the following correctly shows the temperature of the water found in the two containers and the basin?

| | Basin | Container A | Container B |
|---|---|---|---|
| (1) | 90°C | 50°C | 10°C |
| (2) | 50°C | 50°C | 50°C |
| (3) | 23°C | 23°C | 23°C |
| (4) | 50°C | 23°C | 23°C |



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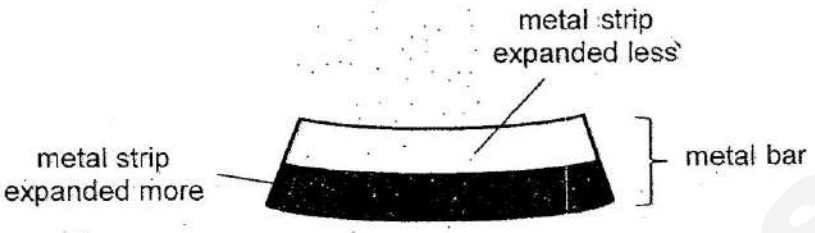
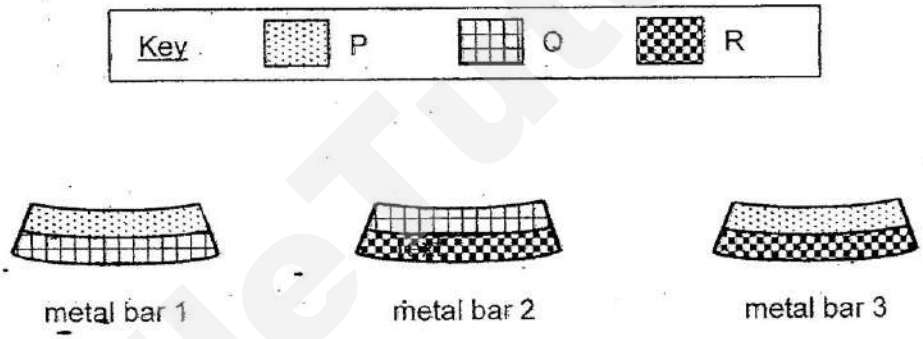
20. A metal bar was formed by joining two metal strips together. After being heated for a short period of time, one metal strip expanded more than the other, causing the metal bar to bend as shown below.




In another experiment, three metal bars, 1, 2 and 3, were heated for two minutes each and the results were shown in the diagram below.




Which one of the following correctly showed the arrangement of metals starting from the metal that expands the most to the metal that expands the least when heated?

| | expands most ⟶ expands least | | |
|---|---|---|---|
| (1) | R | Q | P |
| (2) | Q | R | P |
| (3) | P | Q | R |
| (4) | Q | P | R |



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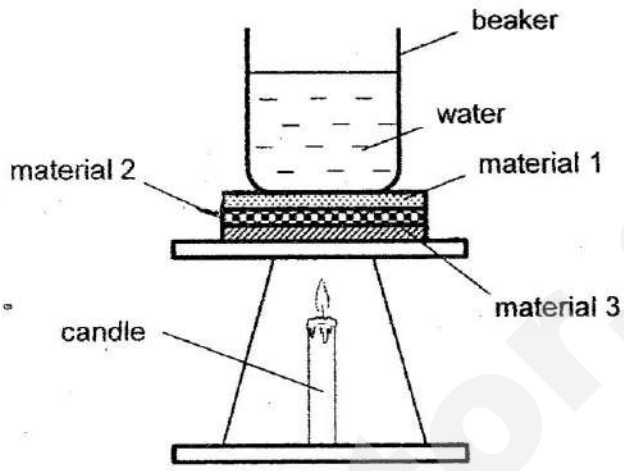
21. A beaker of water was placed on top of three different materials, and a candle was placed below to heat the water up as shown in the diagram below.




Which of the following combination of materials would allow the beaker of water to heat up the fastest?

| | Material 1 | Material 2 | Material 3 |
|---|---|---|---|
| (1) | Steel | Wood | Plastic |
| (2) | Iron | Steel | Wood |
| (3) | Plastic | Copper | Steel |
| (4) | Copper | Steel | Iron |



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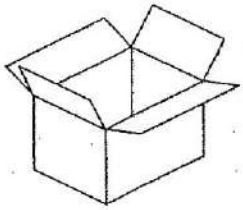
22. Study the 2 groups of objects below.

**Group G**

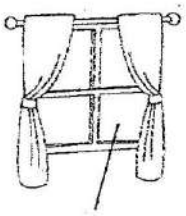


Cardboard box

T-shirt

Log

**Group H**



Window pane

Magnifying glass

Glasses

Which one of the following are possible headings for Group G and Group H?

| | Group G | Group H |
|---|---|---|
| A | Strong | Not Strong |
| B | Not flexible | Flexible |
| C | Not waterproof | Waterproof |
| D | Not transparent | Transparent |

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



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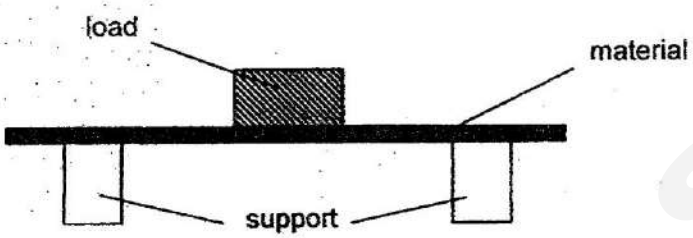
23. Mingwei conducted an experiment with three materials, X, Y and Z. He added load of different masses to each material as show in the diagram below.




His observations were shown in the table below.

| Material | Did the material break when the load was added? | | |
|---|---|---|---|
| | 5-kg | 10-kg | |
| X | no | no | no |
| Y | no | no | yes |
| Z | no | yes | yes |

Which of the following statements about materials X, Y and Z is/are true?

| | |
|---|---|
| A | Material X is the strongest. |
| B | Material Y is weaker than material Z |
| C | Material Z is more flexible than material X |
| D | Material Y can support a heavier load than material Z. |

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



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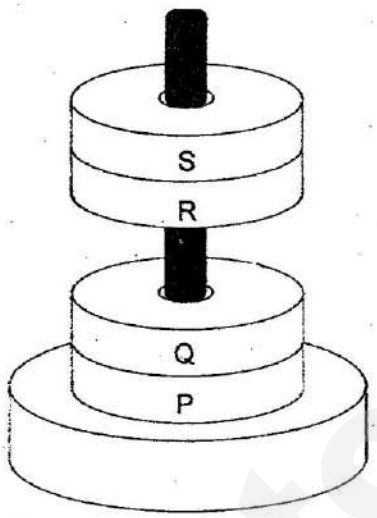
24. The set-up below is made up of four rings, P, Q, R and S.




Based on the diagram above, which of the following could objects P, Q, R and S be?

| | P | Q | R | S |
|---|---|---|---|---|
| (1) | plastic ring | magnet | magnet | steel ring |
| (2) | magnet | steel ring | magnet | plastic ring |
| (3) | plastic ring | magnet | steel ring | magnet |
| (4) | steel ring | magnet | plastic ring | magnet |



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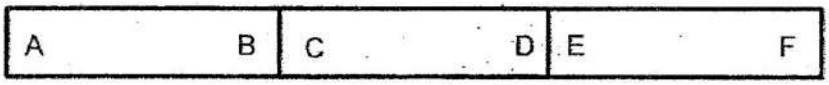
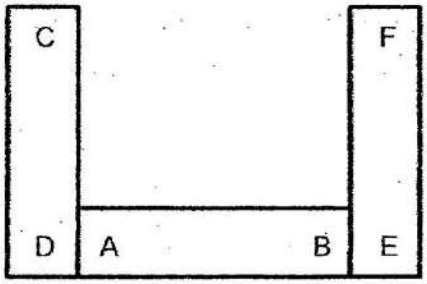
25. Three bar magnets, AB, CD and EF, can be arranged as shown below.

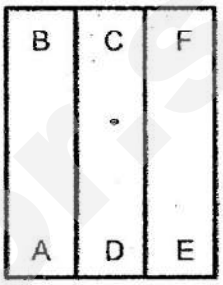



Which one of the following arrangements of the magnets is **not** possible?

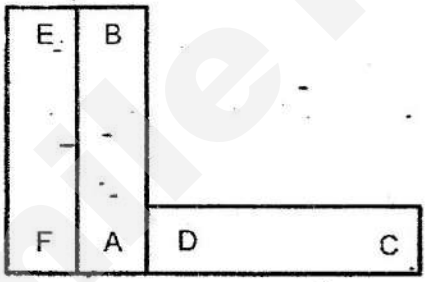
(1)



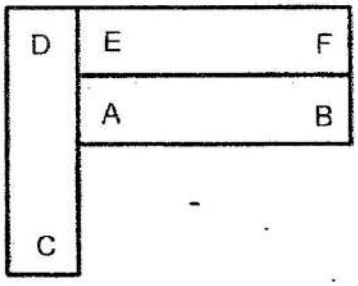

(2)




(3)




(4)



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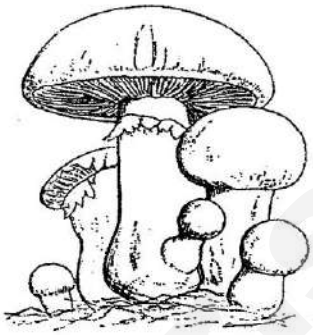
26. Study the two pictures below.

tomato plant



mushrooms

Which one of the following statements correctly describes both living things?

(1) Both reproduce from spores.
(2) Both are non-flowering plants.
(3) Both can make their own food.
(4) Both can respond to changes around them.



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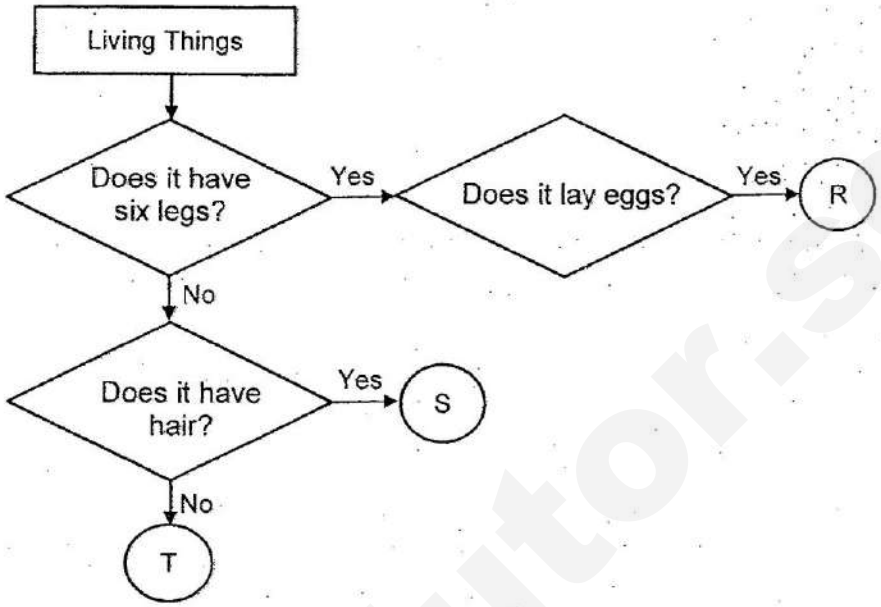
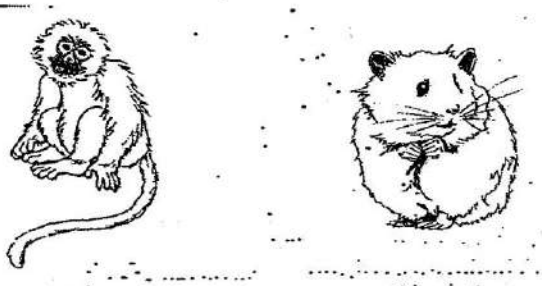
27. Study the flow chart below.




What animals could R, S and T be?

| | R | S | T |
|---|---|---|---|
| (1) | Chicken | Cow | Mosquito |
| (2) | Mosquito | Cow | Chicken |
| (3) | Cow | Mosquito | Chicken |
| (4) | Mosquito | Chicken | Cow |

28. The pictures below show a monkey and a hamster.



monkey hamster

They are similar because they _____

(1) lay eggs
(2) have feelers
(3) are covered with feathers
(4) feed their young with milk



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NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 1 – 2018
PRIMARY 4

SCIENCE

BOOKLET B

**12 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 |

**Name:** _____ ( ) **Class: P 4**_____

**Date: 3 May 2018** **Parent's Signature:**_____

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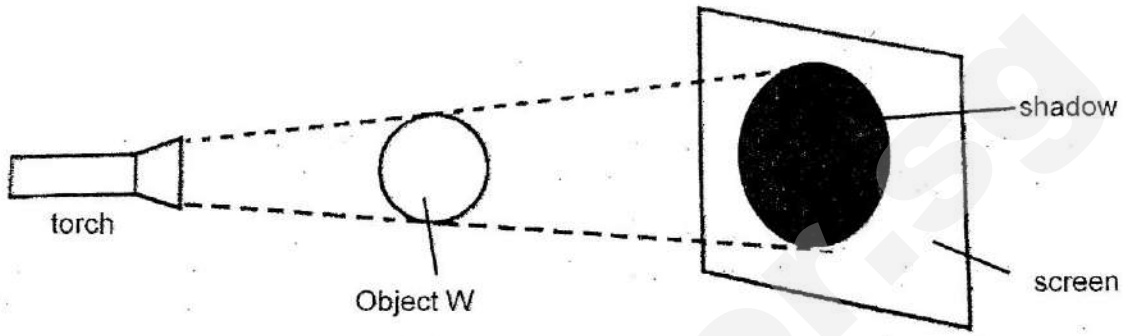
**Section B: (44 marks)**
Write your answers to questions 29 to 40.
The number of marks available is shown in brackets [ ] at the end of each question or part question.

29. Lena set up an experiment as shown below.




(a) Without moving the screen, suggest two ways that will enable Lena to obtain a bigger shadow of object W on the screen. [2]

(i) _____

_____

(ii) _____

_____

(b) Lena replaced object W with another round object made of a different material. She saw a darker shadow being formed on the screen. Why is it so? [1]

_____

_____

| Score | 3 |
|---|---|



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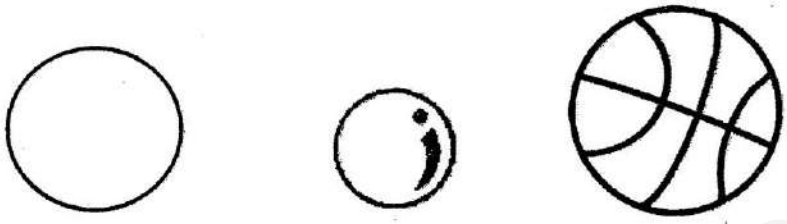
30. Sam and Sue were given three balls of different sizes and masses as shown below.



polystyrene ball | metal ball | basketball

(a) What instrument can they use to measure the masses of the balls? [1]

_____

(b) Based on the diagrams above, which object has the largest volume? [1]

_____

The mass of each ball is shown below.

| **Object** | polystyrene ball | metal ball | basketball |
|---|---|---|---|
| **Mass (g)** | 350 | 1200 | 1100 |

(c) Sam concluded that the larger the volume of the ball, the larger the mass. Do you agree with Sam? Explain. [2]

_____

_____

_____

_____

| Score | |
|---|---|
| | 4 |



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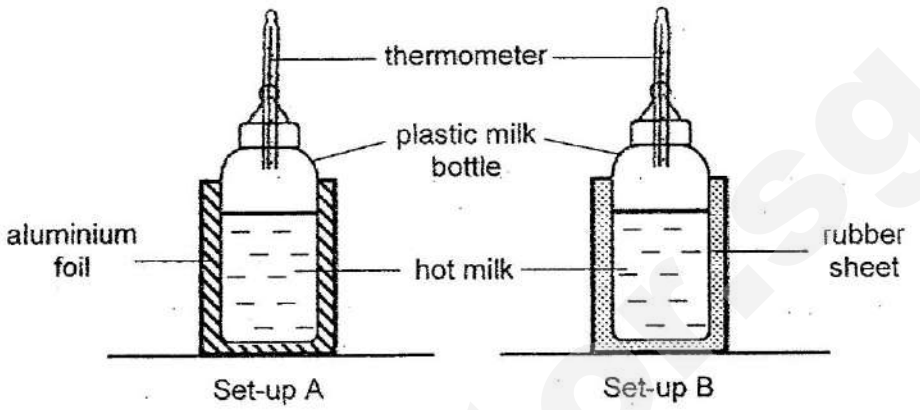
31. Martha conducted an experiment using set-ups A and B as shown below. She wrapped the plastic milk bottle in Set-up A with aluminium foil and another identical plastic milk bottle in Set-up B with a rubber sheet. She filled both bottles with the same amount of hot milk at 60°C.




(a) What would happen to the temperature of the milk in the bottles after some time? [1]

(b) Give a reason for your answer in part (a). [1]

(c) Martha placed set-ups A and B in a room at 30°C. What could be the temperature of the milk in the bottles after 5 minutes? Write your answers in the table given below. [2]

| | Temperature of the milk at the start | Temperature of the milk after 5 minutes |
|---|---|---|
| **Set-up A** | 60°C | |
| **Set-up B** | 60°C | |

| Score | 4 |
|---|---|



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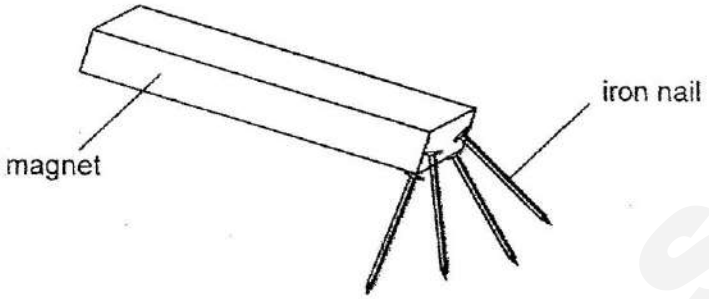
32. When Jenny brought a piece of bar magnet near a box of iron nails, it attracted some nails to it as shown in the diagram below.

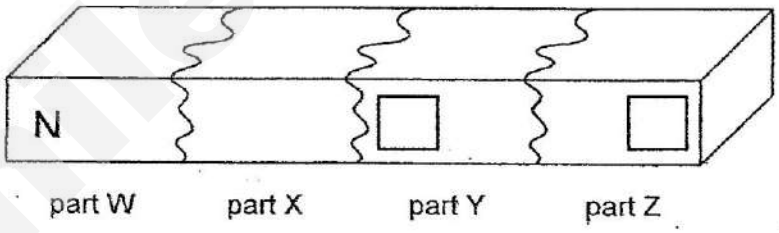



(a) What can she do to enable the same magnet to attract more iron nails? [1]

_____

_____

Jenny accidentally dropped the piece of magnet and it was broken into four parts labelled W, X, Y and Z as shown in the diagram below.




(b) Label the poles of the parts of the broken magnet in the boxes provided above. [2]

| Score | 3 |
|---|---|



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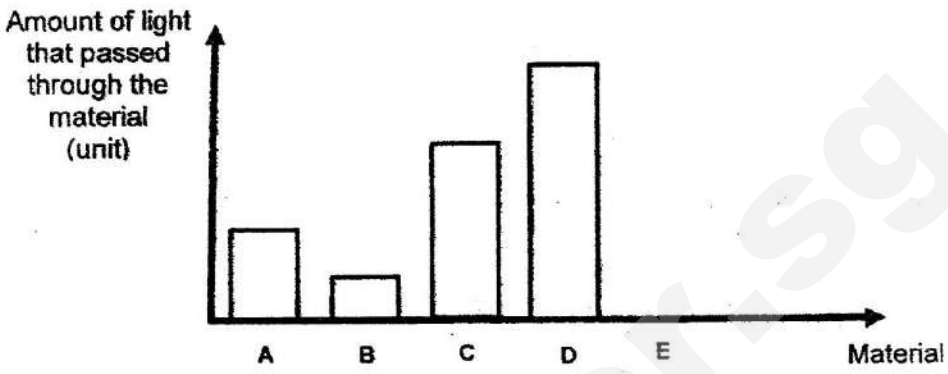
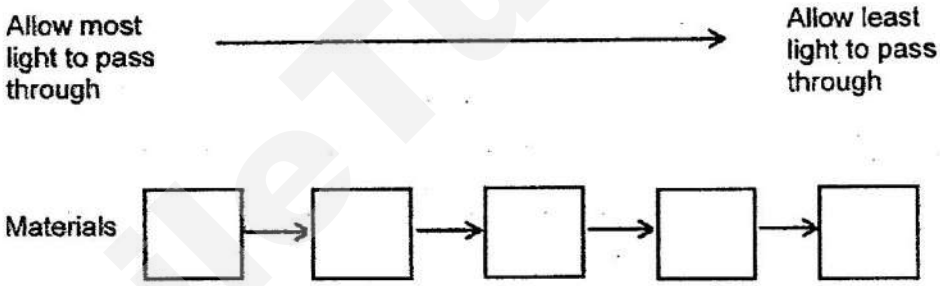
33. Leo conducted an experiment to measure the amount of light that can pass through five different materials. The results are shown in the bar chart below.




(a) Based on the results given in the bar chart above, arrange the materials in order starting from the one that allows the most light to pass through. [2]




(b) Leo wants to choose a material for making a door for the public toilet to ensure privacy. Which material would be the most suitable? Explain. [2]

| Score | 4 |
|---|---|



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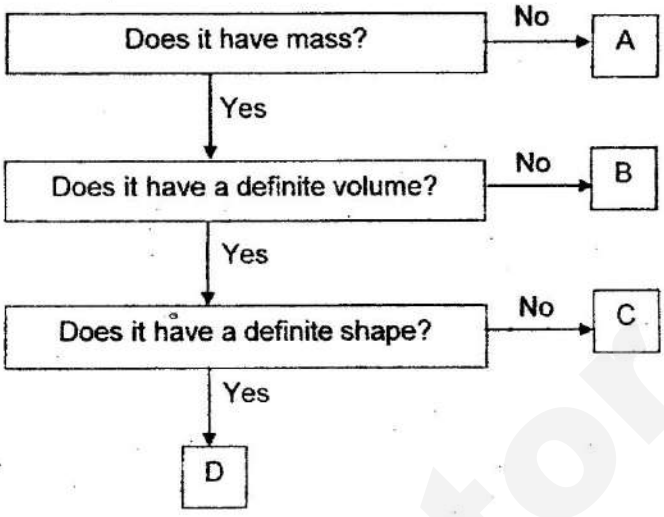
34. Study the flow chart below.




(a) Based on the flow chart, state two properties of B. [1]

(b) Which state of matter is C in? [1]

(c) Give an example of A. [1]

(d) Based on the flow chart, state one difference between B and D. [1]

| Score | |
|---|---|
| | 4 |



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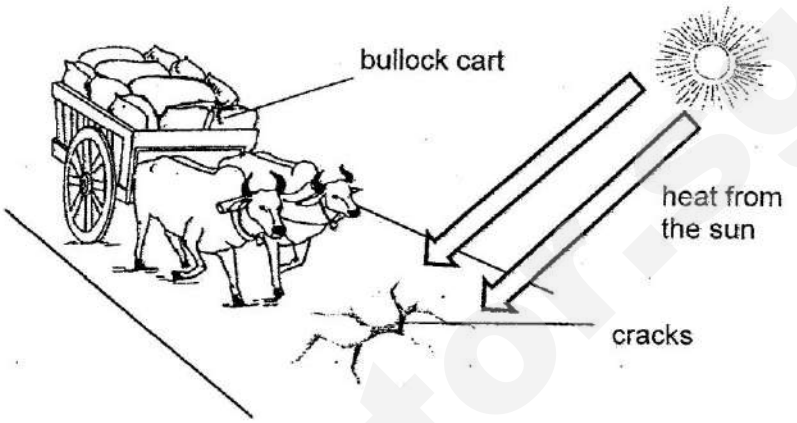
35. Benson lives in a very hot part of the world where the temperature at noon can easily reached 35°C. As a result, it is very common to see cracks on the concrete ground because of the heat from the sun as shown in the diagram below.




(a) Explain how would the heat from the sun cause the cracks on the ground to be formed?

[2]

| Score | /2 |
|---|---|



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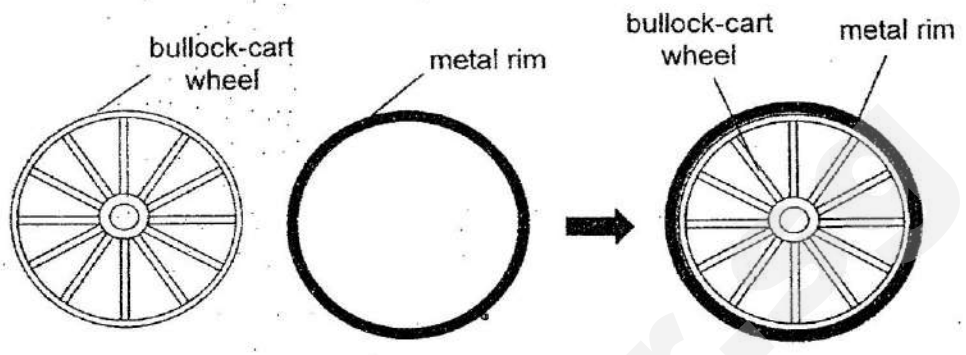
Benson's father instructed him to fit a metal rim tightly around the wheels to protect the wheels from being damaged by the uneven ground, as shown in the diagram below.




Before fitting the rim round the bullock-cart wheel

After fitting the rim round the bullock-cart wheel

However, the metal rim was not big enough to be fitted around the wheels at room temperature. His father suggested two steps to complete the task.

(b) Using only a bunsen burner, describe what should Benson do to fit the metal rim tightly round the bullock-cart wheels? [2]

| Score | |
|---|---|
| | 2 |



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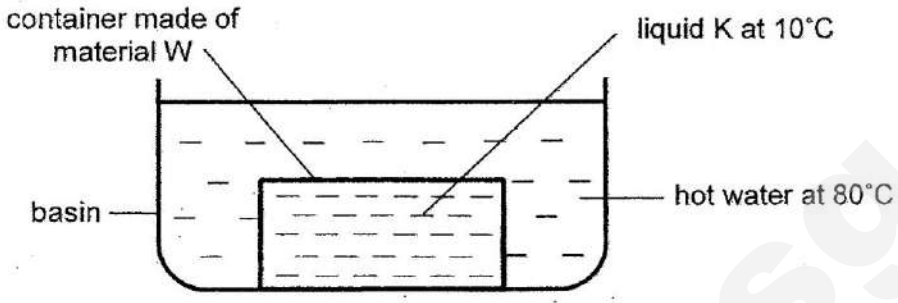
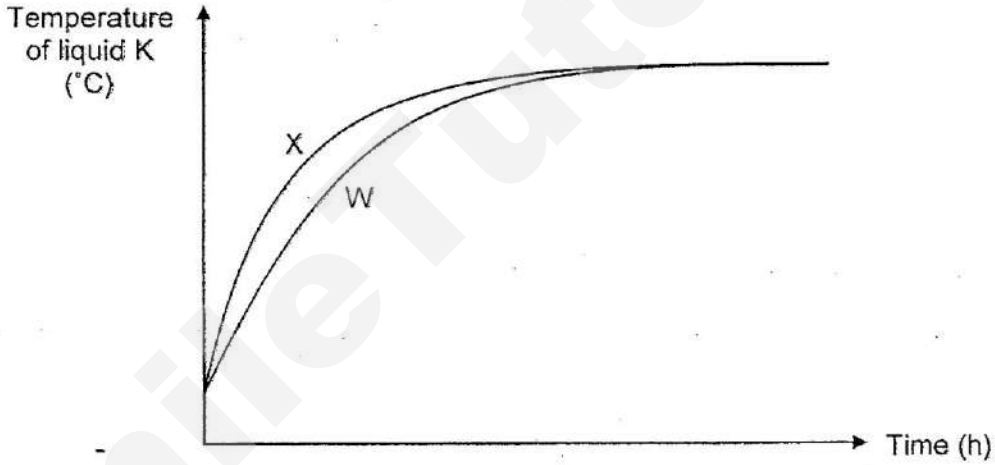
36. Thomas conducted an experiment using the set-up below.




He measured the temperature of liquid K in the container made of material W over a period of time. He repeated the experiment using a container made of material X. His results are shown in the graph below.




(a) State one variable in this experiment that must be kept the same to ensure a fair test. [1]

(b) If Thomas wanted to bring cold drinks for a school trip, which material should he use for the container to keep his cold drinks cold for a longer period of time? Explain your answer. [2]

| Score | |
|---|---|
| | 3 |



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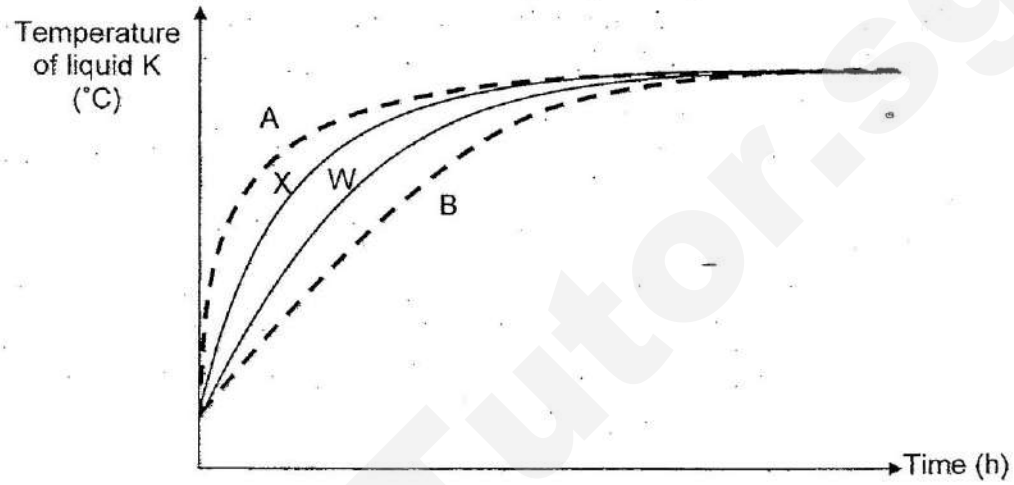
(c) Thomas managed to find a material Y that is able to keep cold drinks cold for an even longer period of time. Which one of the lines in the graph below, A or B, correctly shows how the temperature of liquid K in a container made of material Y would change over time? [1]




| Score | 1 |
|---|---|



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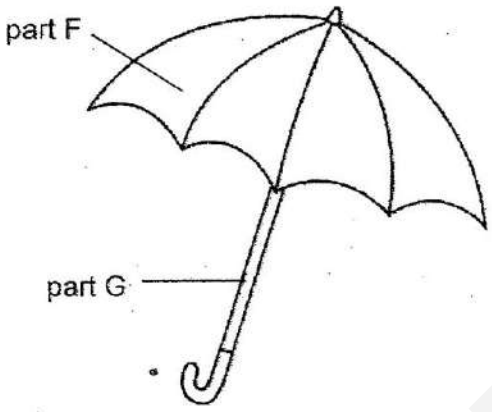
37. The diagram below shows an umbrella.




(a) What material should part F be made of? [1]

_____

(b) Complete the table below to show how two properties of the material stated in part (a) make an umbrella useful in different conditions. [2]

| | Conditions | Property |
|---|---|---|
| 1. | Sunny day | |
| 2. | Rainy day | |

(c) Part G of the umbrella is usually made of metal. Explain why metal is used to make part G instead of plastic. [1]

_____

_____

| Score | 4 |
|---|---|



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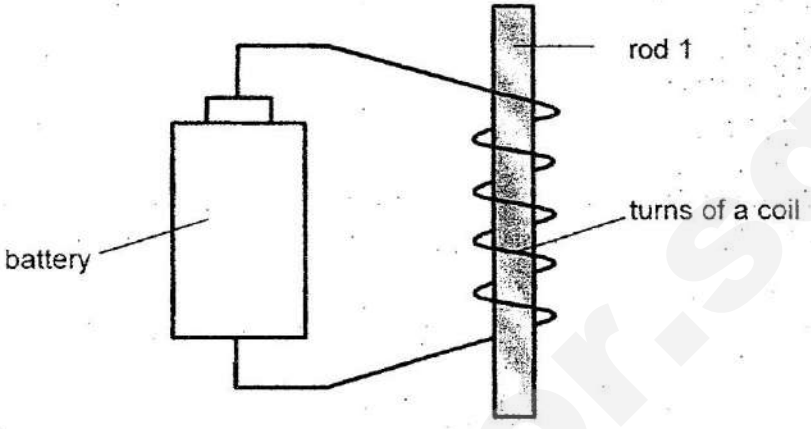
38. During a science lesson, Kendrick was given two rods and was told to make them into electromagnets. He created the set-up as shown below.




(a) Name a material that can be used to make an electromagnet. [1]

Kendrick wanted rod 2 to have a greater magnetic strength than rod 1.

(b) State one change that Kendrick can make to the set-up shown above in order for rod 2 to have a greater magnetic strength. [1]

| Score | / 2 |
|---|---|



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Kendrick was then given a third rod and was asked to bring all three rods near a dish containing similar paper clips. The number of paper clips attracted by each rod were recorded in the table below.

| Rod | Number of paper clips attracted |
|---|---|
| 1 | 5 |
| 2 | 8 |
| 3 | 0 |

(c) Give a possible reason why no paper clips was attracted by rod 3. [1]

_____

_____

| Score | /1 |
|---|---|



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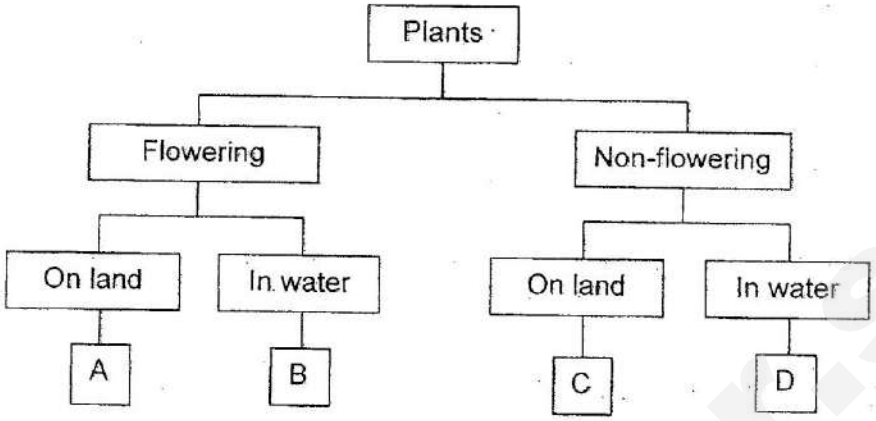
39. Study the classification chart below.




(a) Based on the chart above, state the characteristics of plants B and D. [2]

Plant B: _____

Plant D: _____

(b) Based on the chart above, which group, A, B, C and D, would you classify the following plants? [1]

| Plant | Group |
|---|---|
| Roses | |
| Ferns | |

| Score | |
|---|---|
| | 3 |



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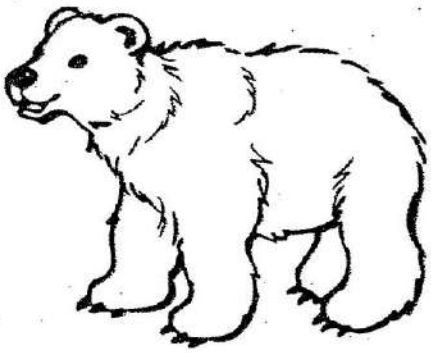
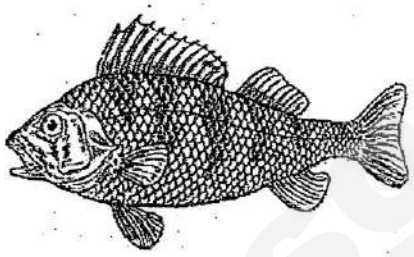
40. The pictures below show two animals, X and Y.



Animal X



Animal Y

(a) State the animal group that animal X belong to. [1]

Animal X: _____

(b) Based only on what you can observe from the pictures above, state one difference between animal X and animal Y. (Do not compare their body shape, size and colour.) [1]

_____

_____

(c) How do animal X and animal Y reproduce? [2]

Animal X: _____

Animal Y: _____

End of Paper

| Score | / 4 |
|---|---|



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# ANSWER KEY

YEAR : 2018
LEVEL : PRIMARY 4
SCHOOL : NAN HUA PRIMARY SCHOOL
SUBJECT : SCIENCE
TERM : SA1

## BOOKLET A

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

## BOOKLET B

**Q29ai) Lena can move the object closer to the torch.**

**Q29aii) Lena can move the torch closer to the object.**

**Q29b) She saw a darker shadow as the new round object is made of a material that blocks more light.**

**Q30a) They can use an electronic balance.**

**Q30b) The basketball.**

**Q30c) No. The volume of the ball does not determine the mass of the ball. The basketball has the largest volume but it does not have the largest mass.**

**Q31a) The temperature will decrease.**

**Q31b) The heat from the milk is gradually lost to its surroundings over time.**



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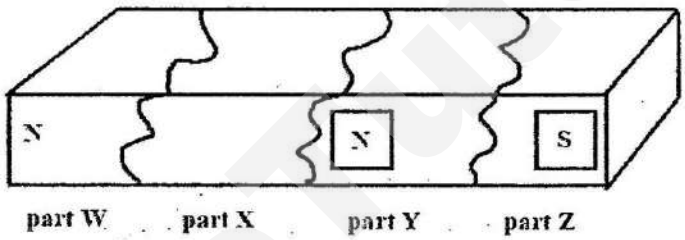
Q31c)

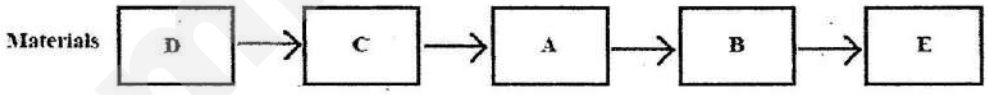
| | Temperature of the milk at the start | Temperature of the milk after 5 minutes |
|---|---|---|
| Set-up A | 60 °C | 55 °C |
| Set-up B | 60 °C | 57 °C |

Q32a) She can use a stronger magnet to stroke the magnet shown in the diagram above.

Q32b)




Q33a)




Q33b) Material E. As it blocks all of the light, it means that it is opaque. When a material is opaque it means that it is not see-through, making it a good choice when privacy is needed.

Q34a) B has mass but does not have a definite volume.

Q34b) C is in the liquid state.

Q34c) A can be sound (or non-matter)

Q34d) D has a definite volume but B does not.

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**Q35a) As the heat caused the concrete ground to expand, there was no more space for the ground so it cracked.**

**Q35b) Benson should use the Bunsen burner to heat up the metal rim. Heat will cause the metal rim to expand so that the bullock-cart wheel is able to fit into the metal rim. After which, he has to let the metal rim cool off by removing it from heat. The metal rim will then contract back and fit tightly around the bullock-cart wheel.**

**Q36a) There must be the same amount of liquid.**

**Q36b) Material W. Liquid K in the container made of material W gained heat slower from the hot water. Hence, material W is a poor conductor of heat. It means that the cold drinks stored in a container made of material W will be kept cold for longer since the container will gain heat over a longer period of time.**

**Q36c) B.**

**Q37a) Part F should be made of plastic which is waterproof and light.**

**Q37b)**

| | Conditions | Property |
|---|---|---|
| 1. | Sunny day | Shady, ~~can~~ block out heat and sunlight. |
| 2. | Rainy day | Waterproof, can prevent a person from getting wet. |

**Q37c) Metal is stronger than plastic.**

**Q38a) Nickel/Cobalt/Iron**

**Q38b) Kendrick can coil rod 2 a greater number of times.**

**Q38c) Rod 3 cannot be an electromagnet / could not be magnetized.**



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**Q39a) Plant B: Plant B is a flowering plant which lives in water.**

**Plant D: Plant D is a non-flowering plant which also lives in water.**

**Q39b) Roses → A**

**Ferns → C**

**Q40a) Animal X: Mammals**

**Q40b) Animal Y has scales while Animal X has hair.**

**Q40c) Animal X: Give birth to live young**

**Animal Y: Lays eggs**

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**END**

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# NANYANG PRIMARY SCHOOL

## PRIMARY 4 SCIENCE

## SEMESTRAL ASSESSMENT 1
## 2018

**BOOKLET A**

**Date : 8th May 2018**
**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 21 printed pages including this cover page.**



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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 provided.**

1. Which of the following statements about all living things are true?

A All living things need air, food and water.
B All living things can make their own food
C All living things can respond to surrounding changes.
D All living things can move from place to place on their own.

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

2. Amanda classified the following things into two groups.

| Living Things | Non-living Things |
|---|---|
| fern | car |
| rose | cockroach |
| orchid | textbook |

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

(1) car
(2) fern
(3) orchid
(4) cockroach

3. Which one of the following correctly states the similarity and difference between a fern and a sunflower plant?

| | Similarity | Difference |
|---|---|---|
| (1) | Both reproduce by spores. | The sunflower plant makes its own food but the fern does not make its own food. |
| (2) | Both reproduce by seeds. | The sunflower plant has a strong stem but the fern does not have a strong stem. |
| (3) | Both grow on land. | The sunflower plant bears flowers but the fern does not bear flowers. |
| (4) | Both make its own food. | The sunflower plant has roots but the fern does not have roots. |



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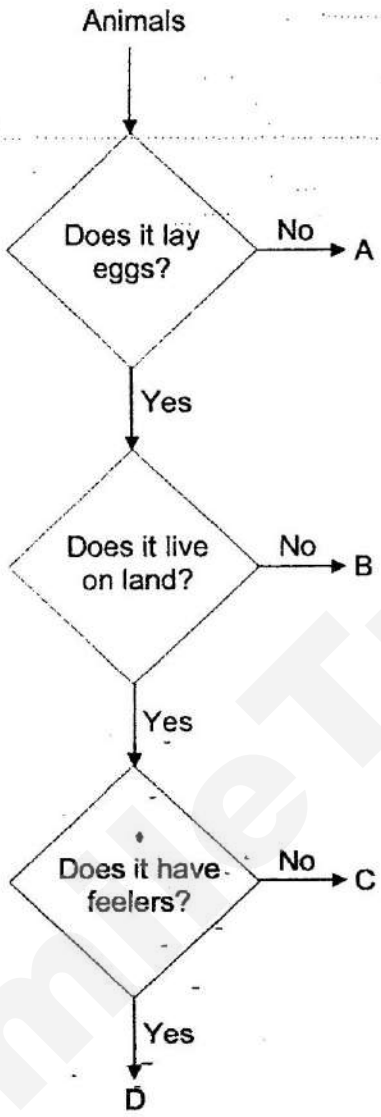
4. Study the flowchart below.




Based on the flowchart above, which animal is most likely a chicken?

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



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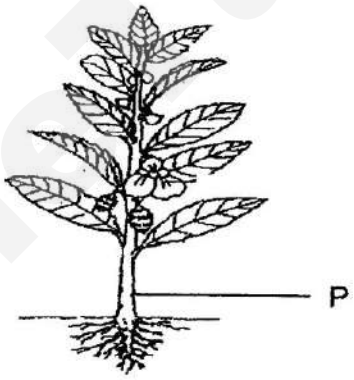
5. Study the classification table below.

| X | Y |
|---|---|
| dog | crocodile |
| rabbit | goldfish |
| tiger | snake |

Which one of the following correctly represents X and Y?

| | X | Y |
|---|---|---|
| (1) | have feathers | have hair |
| (2) | lay eggs | give birth to young alive |
| (3) | have hair | have feathers |
| (4) | give birth to young alive | lay eggs |

6. Study the diagram of the plant shown below.




Which of the following statement(s) correctly state(s) the function(s) of part P?

A It holds the plant upright.
B It makes food for the plant.
C It anchors the plant to the ground.

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



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7. Three pupils made the following statements about the function of each plant part.

| | |
|---|---|
| Anne | The stem hold the plant upright. |
| Bob | The leaves have tiny holes to take in water. |
| Chris | The roots absorb water and mineral salts for the plant. |

Which of the pupils have made the correct statements?

(1) Anne and Bob only
(2) Anne and Chris only
(3) Bob and Chris only
(4) Chris and Devi only

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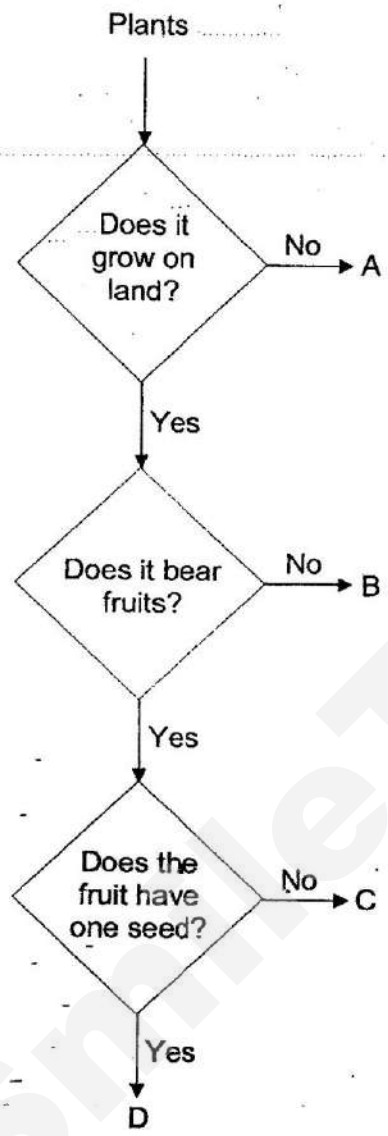
8. Study the flowchart below.




Based on the flowchart above, which plant is most likely a rambutan tree?

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



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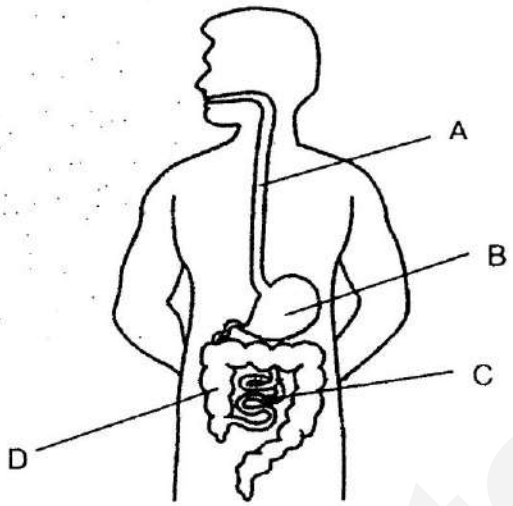
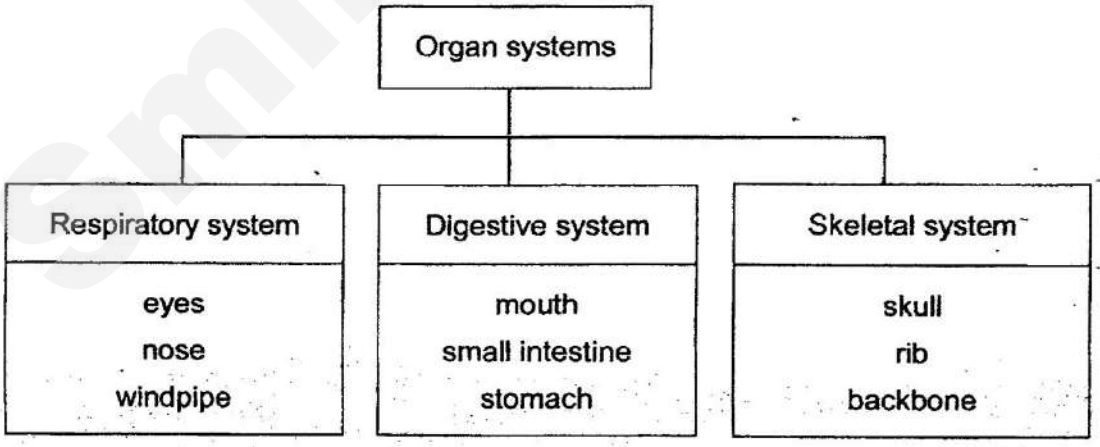
9. The diagram below shows the human digestive system.




At which part, A, B, C or D is water being absorbed from the undigested food?

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

10. Study the chart below.




Which one of the following organs has been grouped **wrongly**?

(1) skull
(2) eyes
(3) nose
(4) small intestine



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11. Which of the following activities make use of our muscular system?

A Kicking a ball.
B Playing the violin.
C Eating a hamburger.
D Walking to the bus-stop.

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

12. Which of the following organ systems work together to carry digested food to all parts of the body?

A Muscular system
B Digestive system
C Circulatory system
D Respiratory system

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



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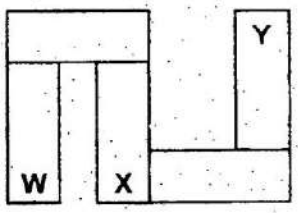
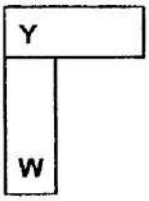
13. Jeremy arranged 5 bar magnets as shown below. W, X and Y represent the poles of the bar magnets.

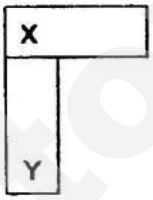



Which of the following arrangements are possible?

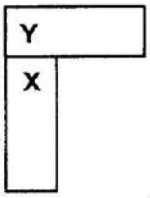
A



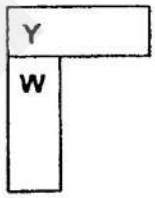

B




C




D




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



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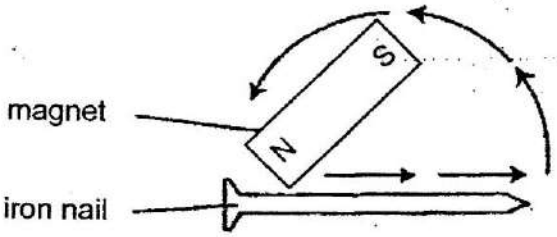
14. Kimmy set up an experiment to turn an iron nail into a temporary magnet using the stroke method. She stroked the nail 10 times in the same direction using a magnet. She then placed 10 paper clips on the table and observed that the iron nail could attract 3 paper clips.

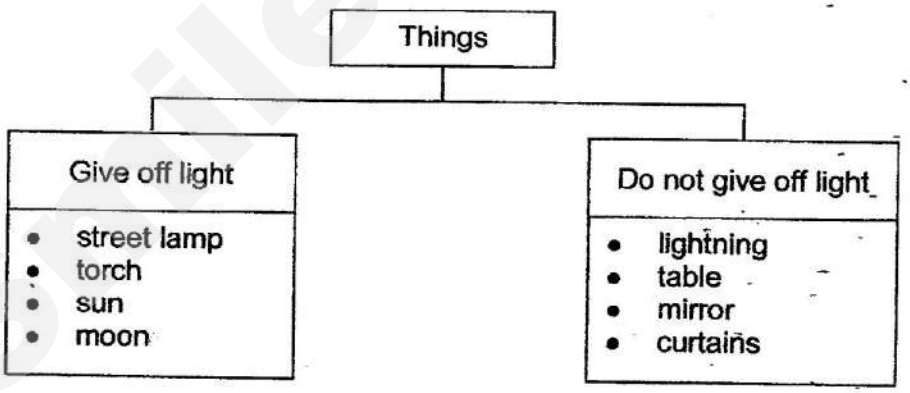



She wanted to repeat the experiment with another identical iron nail.

What could she do so that the iron nail could attract more clips in the second experiment?

(1) Stroke the nail with the magnet 5 times in one direction.
(2) Stroke the nail with the magnet 10 times in one direction.
(3) Stroke the nail with the magnet 20 times in one direction.
(4) Stroke the nail with the magnet 20 times in both directions.

15. Study the chart below.




Based on the classification chart above, which of the following things has been classified **wrongly**?

(1) sun and mirror
(2) torch and moon
(3) table and curtains
(4) moon and lightning



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16. 4 boys saw some stars in the sky at night.

Which one of the following statements they made is correct?

(1) We are able to see the stars because they give out their own light.
(2) We are able to see the stars because they reflect light from our eyes.
(3) We are able to see the stars because they reflect light from the clouds.
(4) We are able to see the stars because they take in light from the sun.

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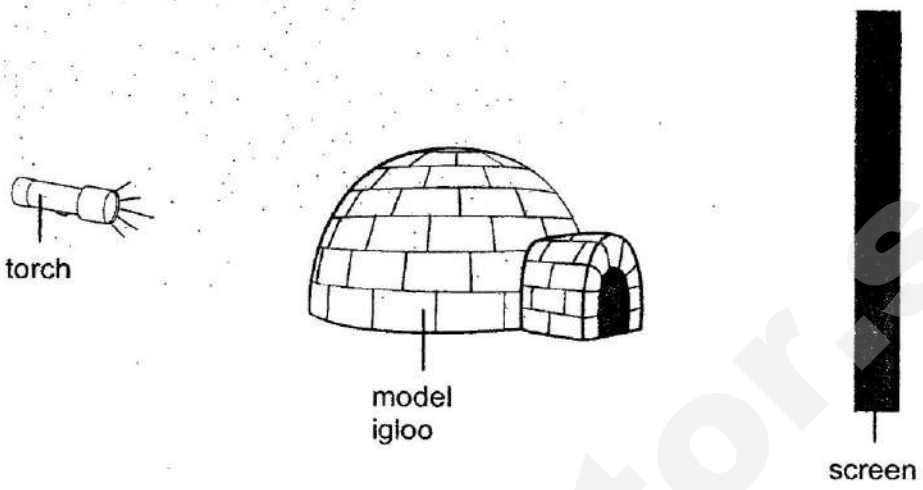
Study the diagram below and answer questions 17 and 18.
Lucas made a model igloo using lego bricks.




17. Lucas then shone his torch from the back of his model igloo to cast a shadow on the screen.

Which one of the following shows the shadow that Lucas could possibly see on the screen?

(1)

(2)

(3)

(4)

18. Lucas then moved the torch further away from the model igloo.

Which one of the following would happen to the shadow that is formed on the screen?

(1) The shadow disappeared.
(2) The shadow became bigger.
(3) The shadow became smaller.
(4) The shadow remained the same.



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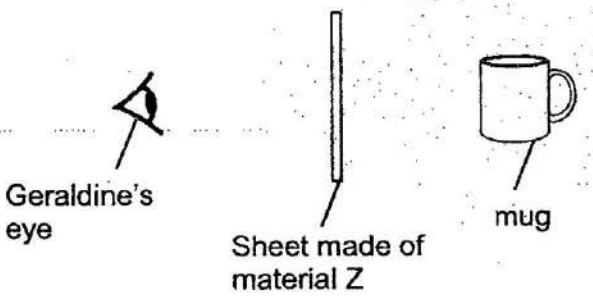
19. Geraldine placed a sheet made of material Z in front of a mug as shown in the diagram below.




She saw a blurred outline of the mug through the sheet.

Which one of the following materials could Z be?

(1) Ceramic
(2) Clear plastic
(3) Frosted glass
(4) Aluminium sheet



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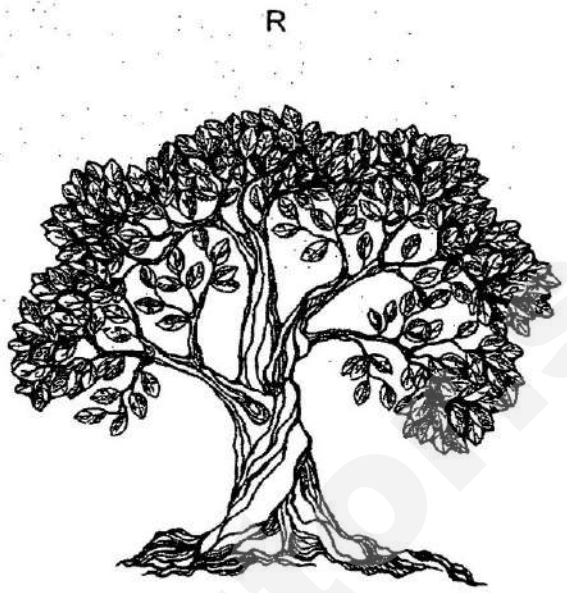
20.




P, Q, R and S represent the positions of the Sun at different times of the day.

Which one of the following positions of the Sun would cause the shadow of the tree to be the shortest?

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



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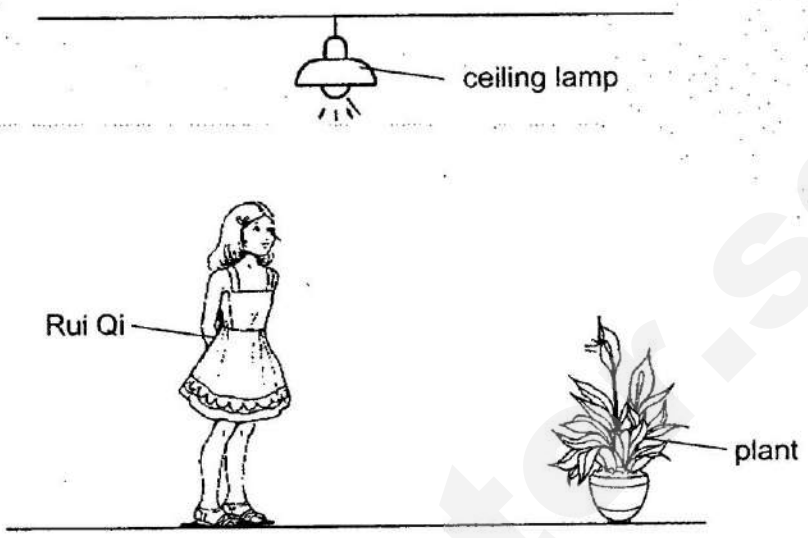
21. Study the diagram shown below.




Rui Qi is standing under the ceiling lamp and she could see the plant when the ceiling lamp is turned on.

Which one of the following statements correctly explains the observation above?

(1) The plant reflects the light from Rui Qi into the ceiling lamp.
(2) Rui Qi reflects the light from the plant into the ceiling lamp.
(3) Rui Qi reflects the light from the ceiling lamp into the plant.
(4) The plant reflects the light from the ceiling lamp into the Rui Qi's eyes.



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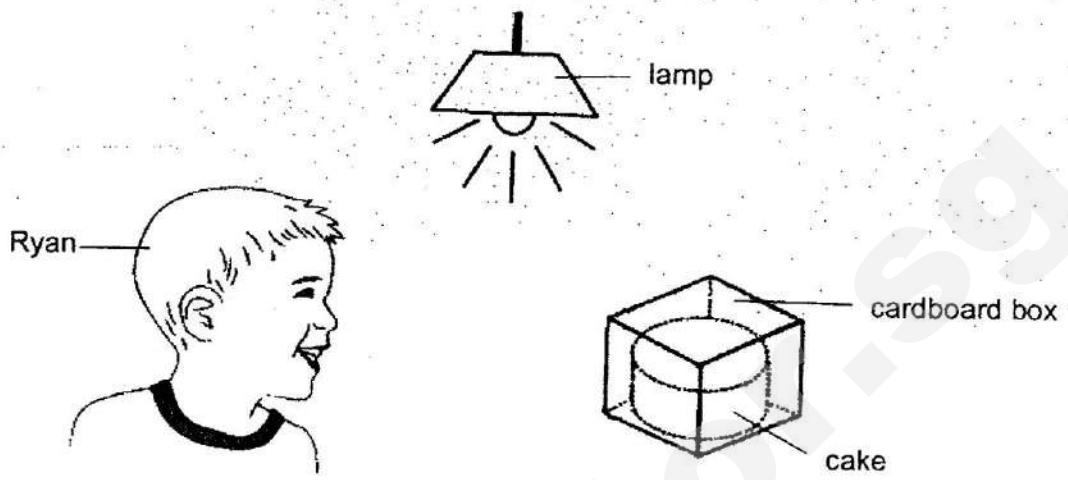
22. Ryan's mother placed a cake in a cardboard box.




Which one of the following statements explains why Ryan **cannot** see the cake?

(1) The cake does not give out enough light.
(2) Light can pass through the cardboard box.
(3) Light cannot pass through the cardboard box.
(4) The cardboard box reflects light into Ryan's eyes.

23. Study the classification table below carefully.

| Gas | Liquid | Solid |
|---|---|---|
| carbon dioxide<br>oxygen<br>shadow | milk<br>oil<br>water | ball<br>cookie<br>stone |

Which one of the following is classified **wrongly**?

(1) oil
(2) milk
(3) cookie
(4) shadow



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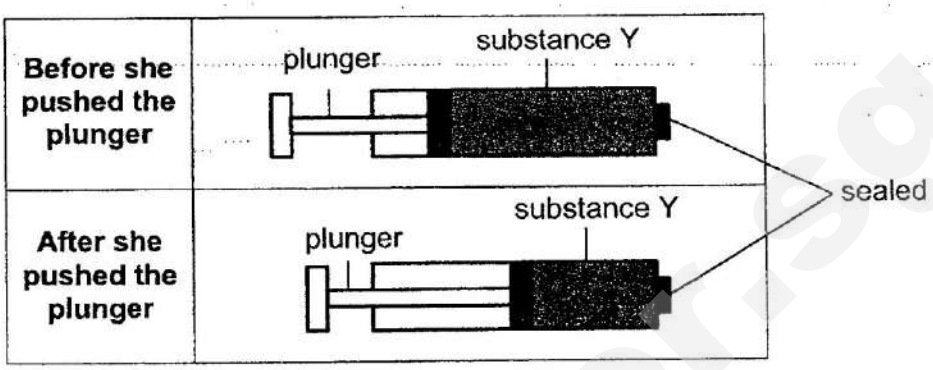
24. Grace conducted an experiment as shown below. She filled the syringe with $50cm^3$ of substance Y and sealed it tightly. She pushed the plunger until it cannot be pushed further. She then observed that the volume of substance Y was reduced to $35cm^3$.




Based only on the experiment above, which of the following property/properties of substance Y can be concluded?

A It has mass.
B It occupies space.
C It can be compressed.
D It has a definite shape.

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



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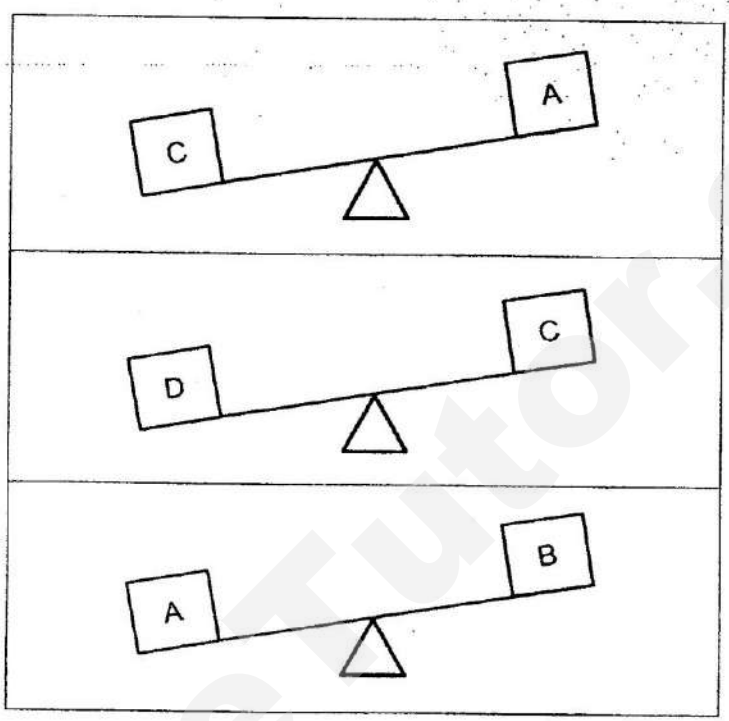
25. Samuel set up an experiment to compare the masses of four objects, A, B, C and D. He placed the objects on the lever balance as shown in the diagram below.




He then arranged the objects according to their masses.

Which of the following is the correct arrangement?

| | Smallest mass ⟶ Biggest mass |
|---|---|
| (1) | B, A, C, D |
| (2) | B, C, A, D |
| (3) | D, A, C, B |
| (4) | D, C, A, B |



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26. The table below shows the characteristics of 3 substances, X, Y and Z. A tick (✓) shows that the substance has the characteristic.

| Characteristic | Substance | | |
|---|---|---|---|
| | X | Y | Z |
| has a definite shape | | | ✓ |
| has a definite volume | ✓ | | ✓ |
| can be compressed | | ✓ | |

Which one of the following statement is true?

(1) Substance X is a gas.
(2) Substance Z is a liquid.
(3) Substance X and Z are both liquids.
(4) Substance Y is a gas and substance Z is a solid.



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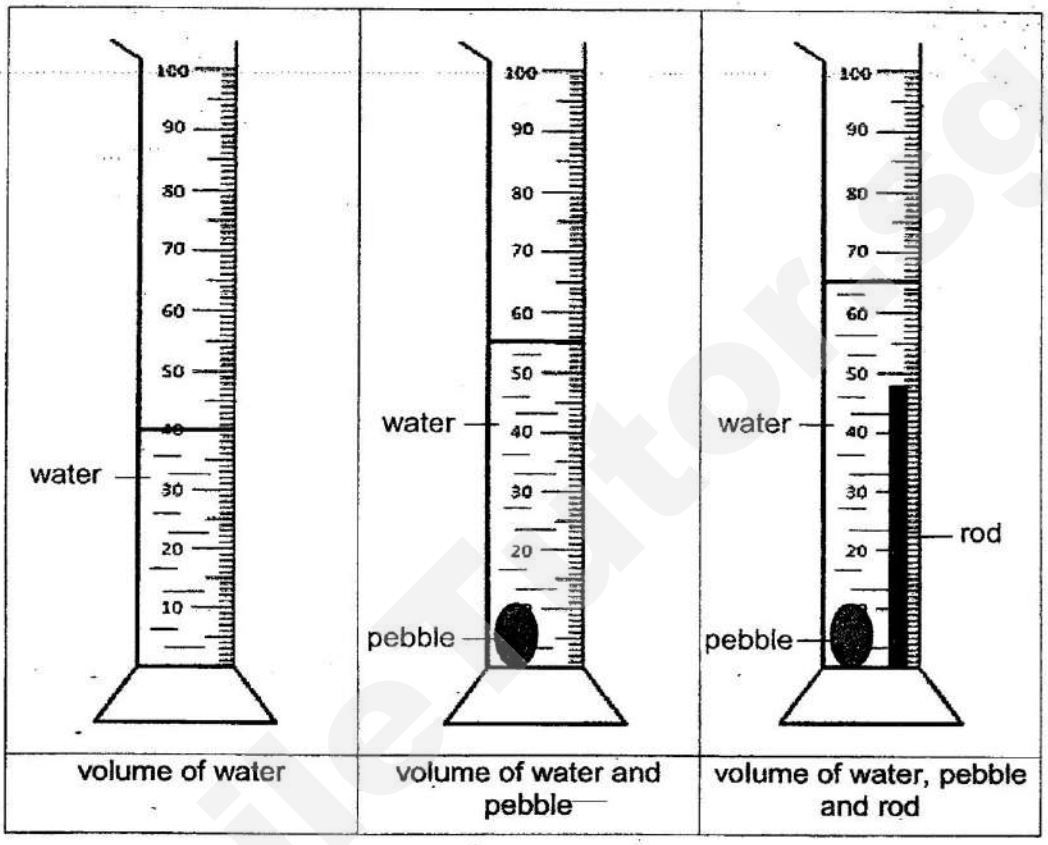
27. Rebecca wants to find the volume of a pebble and a rod using a measuring cylinder. She set up the experiment as shown below.




Based on the results from her experiment, what are the volumes of the pebble and the rod?

| | volume of pebble ($cm^3$) | volume of rod ($cm^3$) |
|---|---|---|
| (1) | 10 | 25 |
| (2) | 15 | 10 |
| (3) | 15 | 25 |
| (4) | 25 | 15 |



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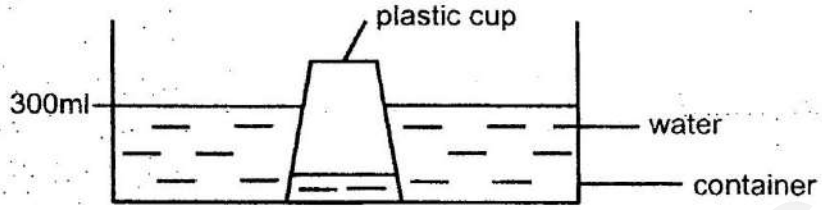
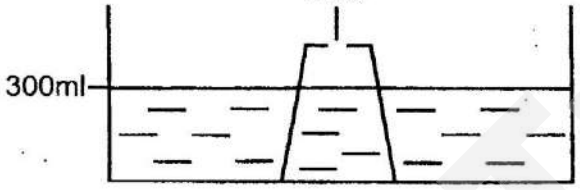
28. Monica set up an experiment as shown below. She filled a container with water and pushed an inverted plastic cup into the water in the container.



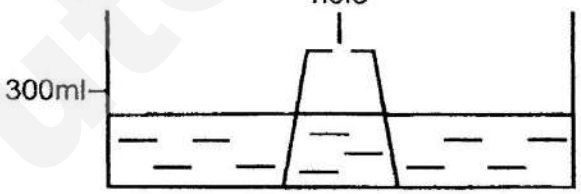

She then poked a hole at the top of the plastic cup with a needle.

Which one of the following shows the correct new water level in the cup?

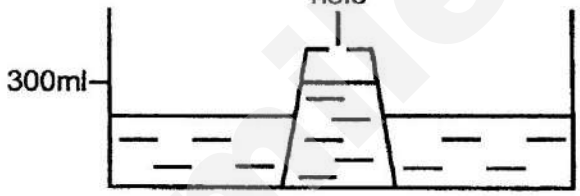
(1)



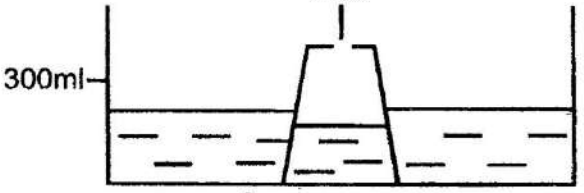

(2)




(3)




(4)



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# NANYANG PRIMARY SCHOOL

## PRIMARY 4 SCIENCE

## SEMESTRAL ASSESSMENT 1
## 2018

**BOOKLET B**

**Date : 8th May 2018**

**Duration : 1 h 45 min**

**Name :** _____ (  )

**Class: Primary 4 (  )**

**Marks Scored:**

| | | |
|---|---|---|
| **Booklet A:** | | **56** |
| **Booklet B :** | | **44** |
| **Total :** | | **100** |

**Any query on marks awarded should be raised by 17th May 2018. 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 17 printed pages including this cover page.**



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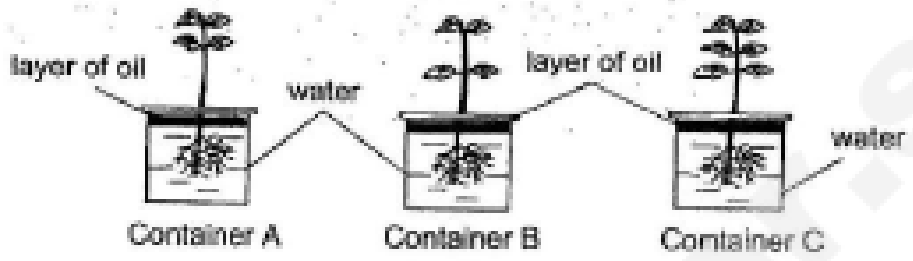
**Section B (44 marks)**
Write your answers to questions 29 to 40 in the spaces provided.

29. Mr No carried out an experiment as shown below. He put 3 similar plants into containers, A, B and C. A layer of oil was poured into each container to prevent any water loss.




The volume of water in each container was measured after a week and recorded in the table below.

| | Volume of water (ml) | |
|---|---|---|
| Container | Day 1 | Day 7 |
| A | 200 | 175 |
| B | 200 | 190 |
| C | 200 | 160 |

(a) Based on the results in the experiment above, state one characteristic of living things. [1]

_____

(b) Based on the experiment above, explain why the amount of water in Container C was the least after 7 days. [2]

_____

_____

(c) Besides absorbing water and mineral salts, state one other function of roots. [1]

_____



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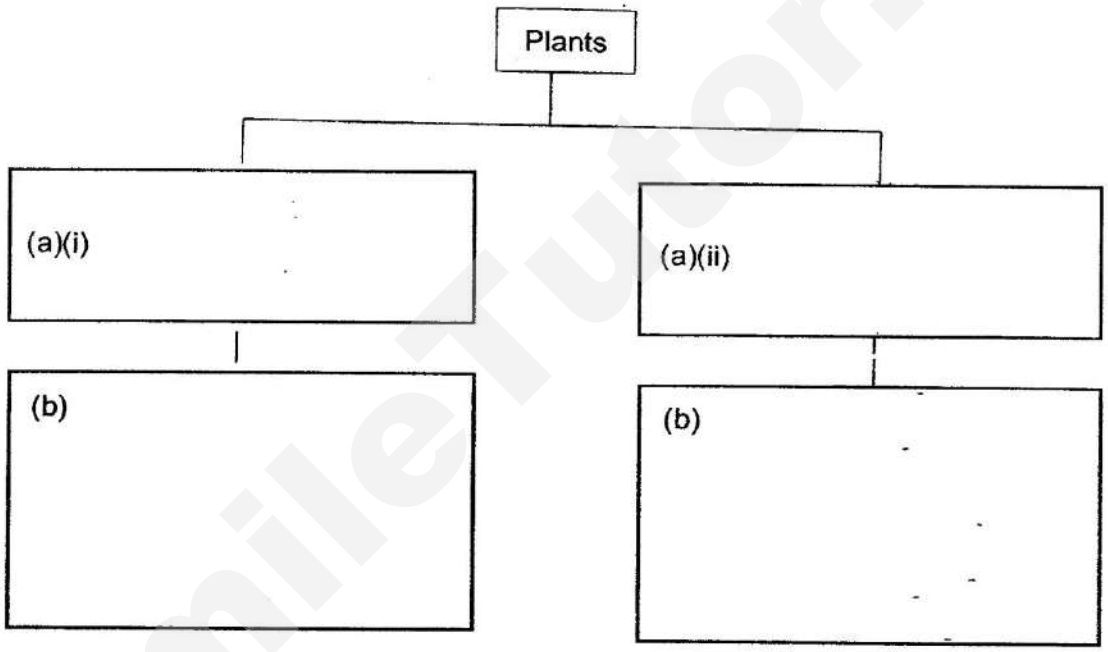
30. Study the table below.

| Characteristics | Plant A | Plant B | Plant C | Plant D |
|---|---|---|---|---|
| Has flowers | ✓ | | | ✓ |
| Has big leaves | | ✓ | | |
| Has a weak stem | | ✓ | ✓ | ✓ |

(a) Based on the table above, state a suitable heading for the classification chart below. [1]

(b) Based on your headings in (a), classify plants A, B, C and D into the classification chart below. [2]



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31. The table below shows the characteristics of animals A, B, C and D.

| Characteristics | Animal A | Animal B | Animal C | Animal D |
|---|---|---|---|---|
| Lays eggs | Yes | Yes | No | Yes |
| Breathes through gills | No | Yes | No | No |
| Has wings | Yes | No | No | Yes |
| Has 3 body parts | Yes | No | No | No |

(a) John classified animal A as an insect.
Based on the characteristics of animal A in the table above, explain why he is correct. [1]

_____

_____

(b) State another characteristic of animals that belong to the same group as animal A. [1]

_____

_____

(c) Based on the table above, write A, B, C and D to identify the animals which best represents the animals below. [2]

| | |
|---|---|
| goldfish | |
| monkey | |
| mosquito | |
| penguin | |



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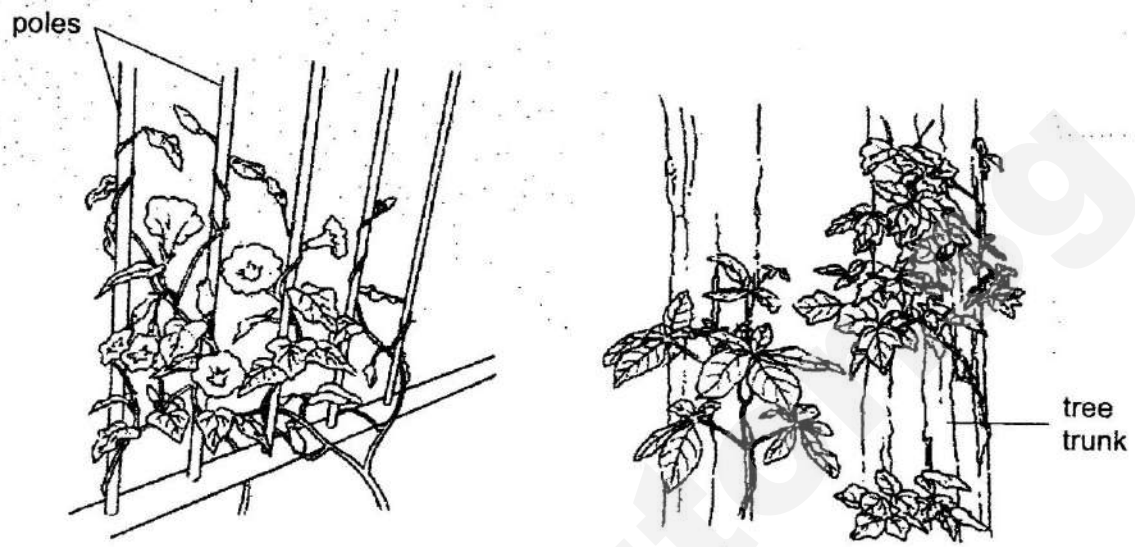
32. The diagram shows two plants, A and B.




Plant A

Plant B

(a) **Label** clearly the stem of plant A in the diagram above. [1]

(b) How are the stems of plants A and B similar? [1]

(c) Explain how the poles and the tree trunk help plants A and B get more sunlight to make food. [1]



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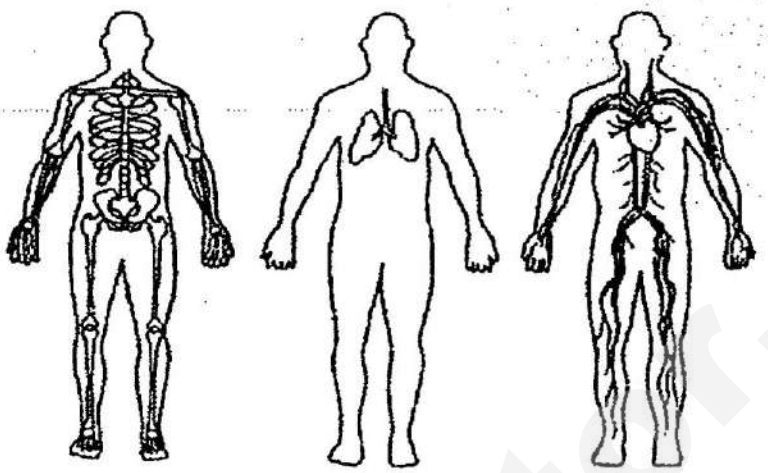
33. The diagrams below represent 3 human organ systems.



A B C

(a) (i) Which one of the above organ systems, A, B or C, work with the muscular system to enable us to move? [1]

(ii) Identify the human organ system that you have chosen in (a)(i). [1]



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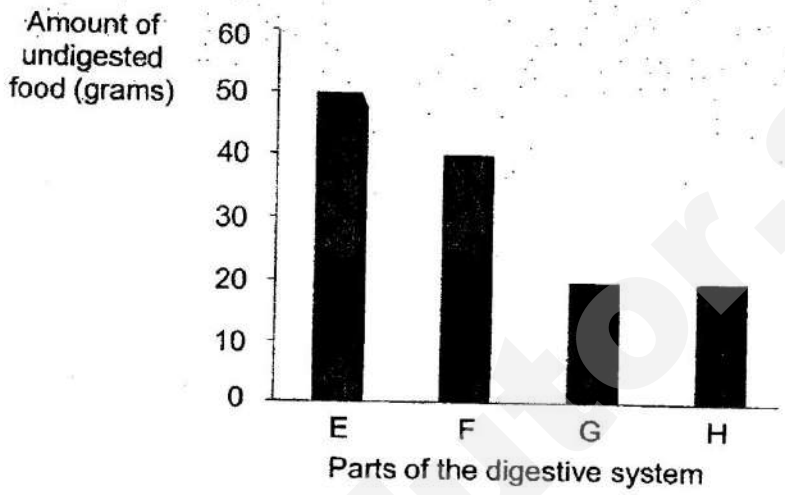
(Continue from Question 33)

En Jie ate 50 grams of fried chicken for lunch. The graph below shows the amount of undigested food leaving the four different parts of En Jie's digestive system.




(b) Based on the graph above, which part(s) of the digestive system, E, F, G or H, does/do digestion take place? Explain your answer using the data from the graph above. [2]



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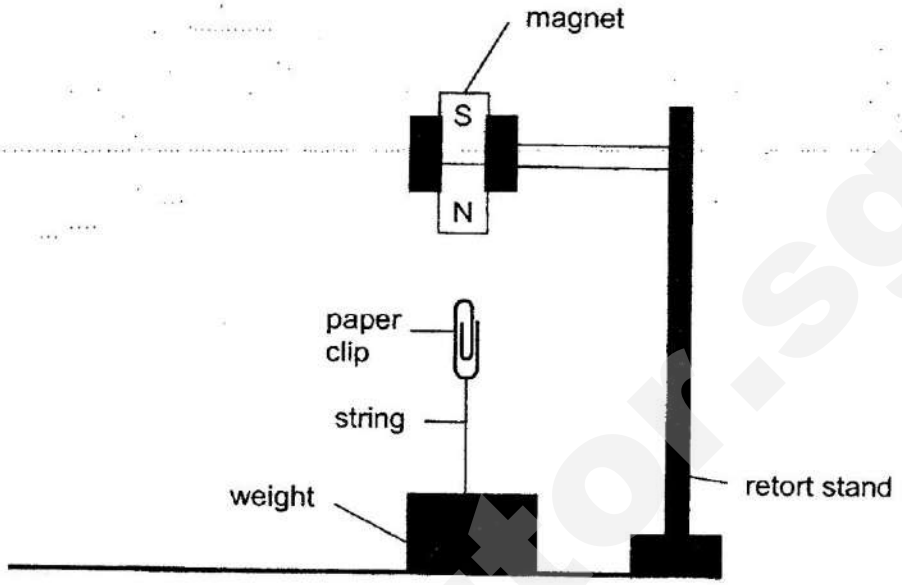
34. Mei Ling set up an experiment as shown below.




(a) Explain why the paper clip is able to "float" in the air. [2]

(b) State a possible material of the paper clip. [1]



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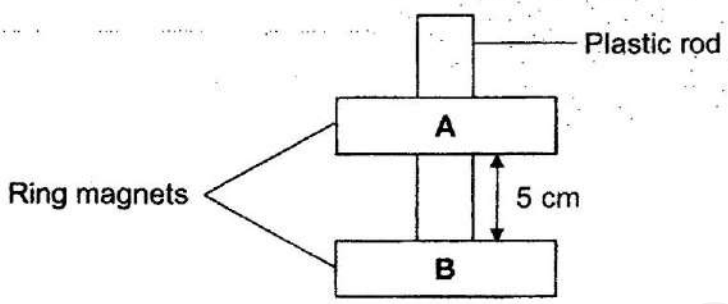
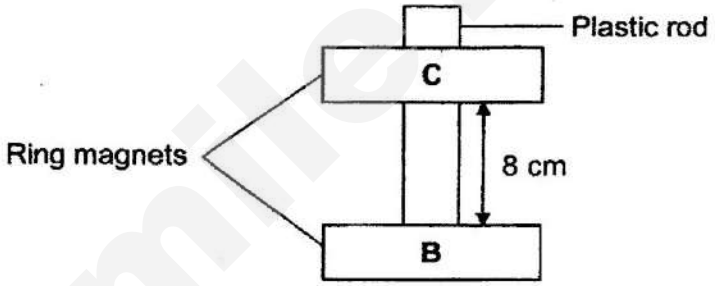
(Continue from Question 34)

Mei Ling saw a "floating" toy with two ring magnets which pass through a smooth plastic rod as shown below.




(c) State a property of magnets which is shown in the diagram above. [1]

Mei Ling replaced magnet A with magnet C. She observed that the distance between magnets B and C became greater.




(d) Explain her observation. [1]



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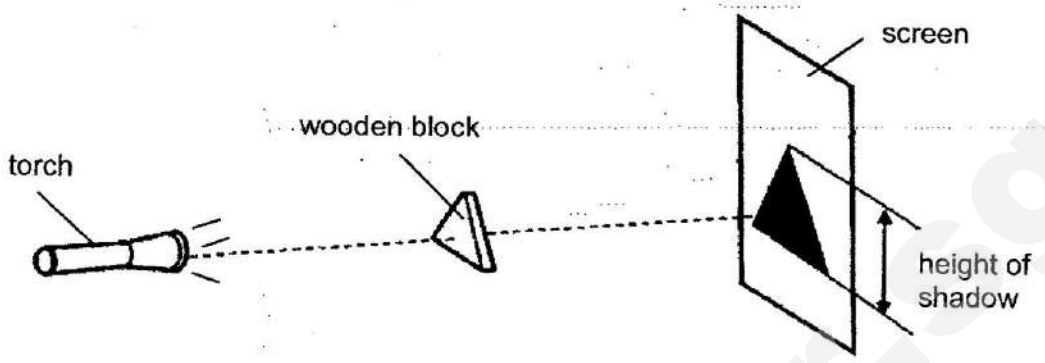
35. Colin set up an experiment as shown in the diagram below.




He moved the wooden block away from the screen and recorded the height of the shadow formed in the table below.

| Distance between the wooden block and the screen (cm) | Height of the shadow (cm) |
|---|---|
| 2 | 11 |
| 4 | 12 |
| 6 | 13 |

(a) Explain how the shadow of the wooden block is formed. [1]

_____

_____

(b) Based on the table above, what would happen to the height of the shadow when Colin increased the distance between the wooden block and the screen? [1]

_____

_____

(c) If the positions of the wooden block and screen are fixed, suggest one way Colin can increase the height of the shadow using the same set-up as shown above. [1]

_____

_____



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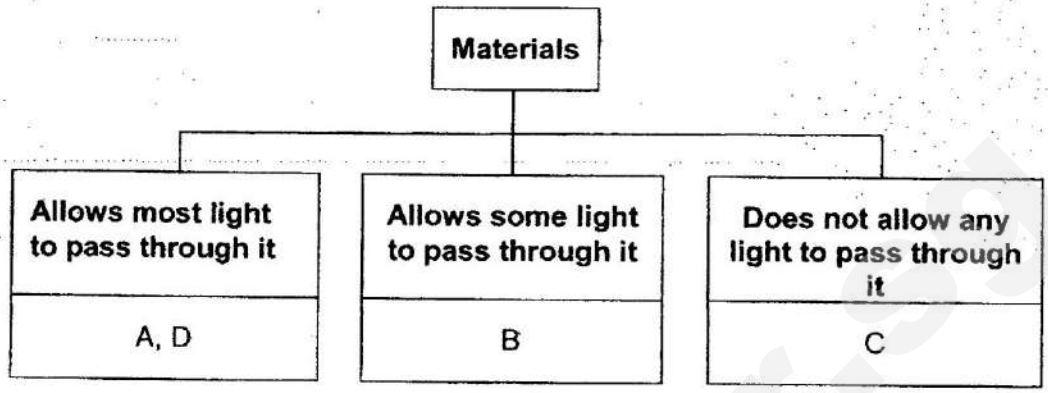
36. The classification chart below shows four different materials, A, B, C and D.

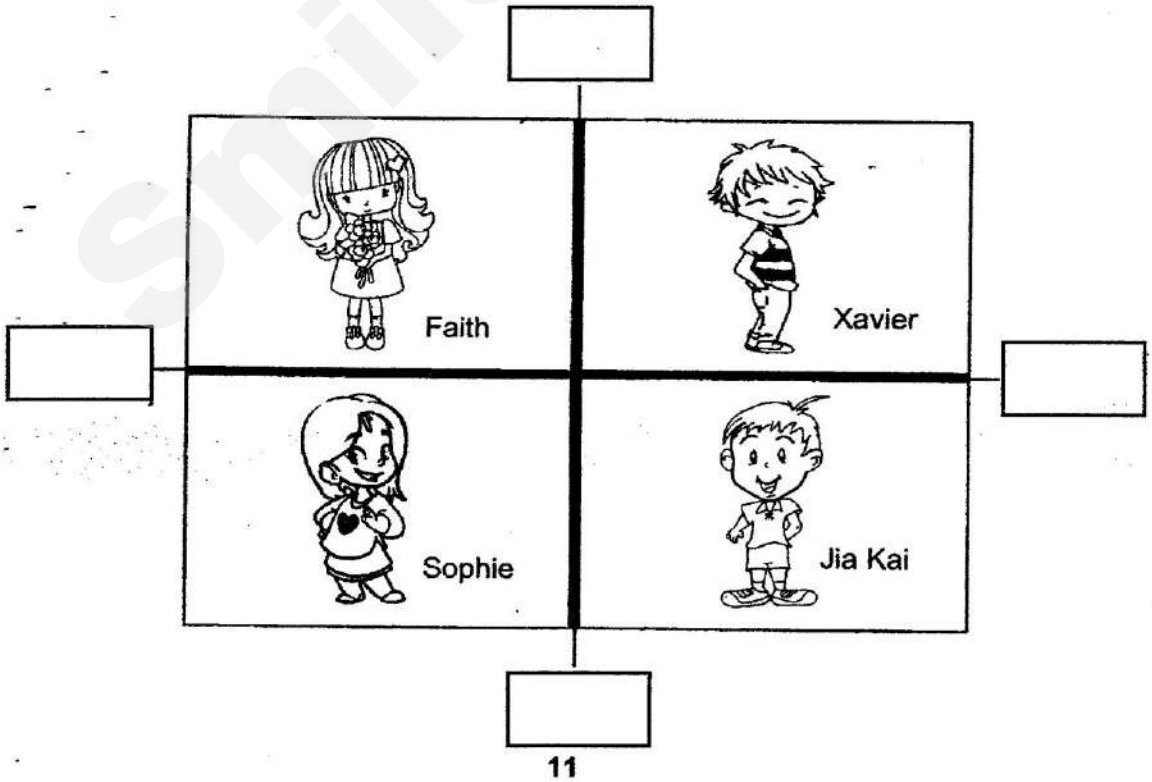



Mr Tan used each of these materials to build four walls of the same thickness to divide his playroom into 4 equal cubicles. Each material was used **once.**

Mr Tan's children stood in the 4 cubicles and observed the following:-

i) Faith and Xavier could not see each other.
ii) Xaiver and Jia Kai could see each other clearly.
iii) Sophie and Faith could see a blurry outline of each other.
iv) Sophie and Jia Kai could see each other clearly.

**Based on the information above, identify the materials used for building each wall and write the letters, A, B, C and D, in each of the boxes below. Each letter can only be used once.** [2]



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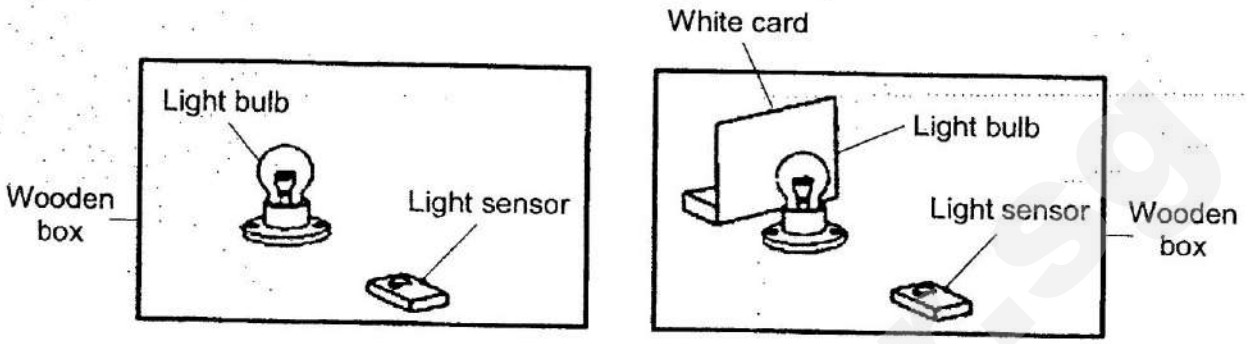
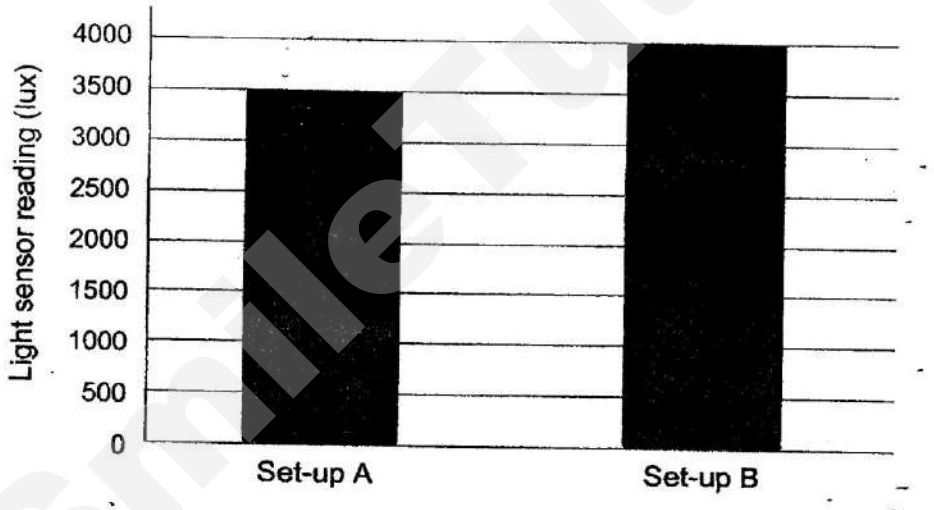
37. Kyan conducted an experiment using 2 identical lit light bulbs as shown in Set-ups A and B below. He used a light sensor to measure the amount of light given out by each of the light bulb.




**Set-up A** **Set-up B**

He showed the results of his experiment in the bar graph below.




(a) Explain the results observed above. [2]



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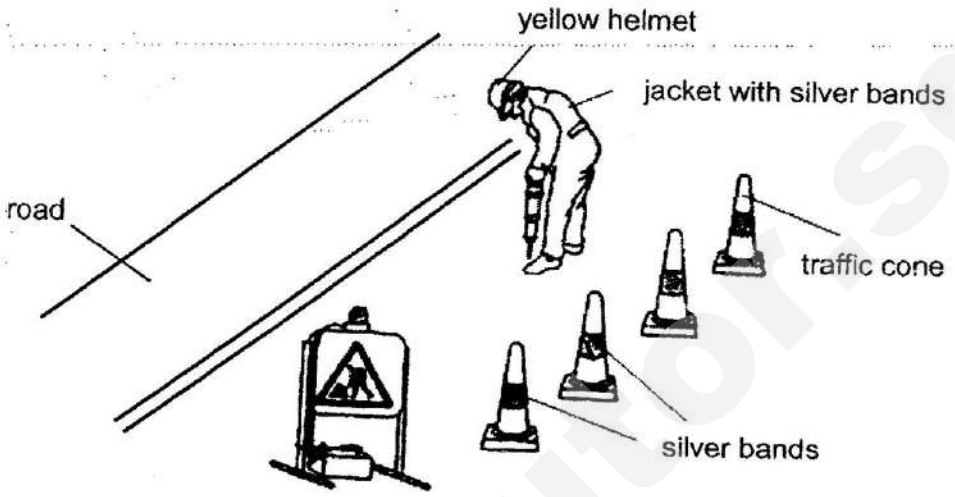
(Continue from Question 37)

The diagram below shows a man working along the road.




(b) During the day, the man wears a yellow helmet when he is working along the road. Explain how the car driver can see the yellow helmet from a distance. [1]

During the night, silver bands on the cones and the man's jacket ensure that car drivers can see him better when he is working along the road.

(c) Explain how having the silver bands help car drivers see the man and the traffic cones better at night when the car headlights shine on them. [1]



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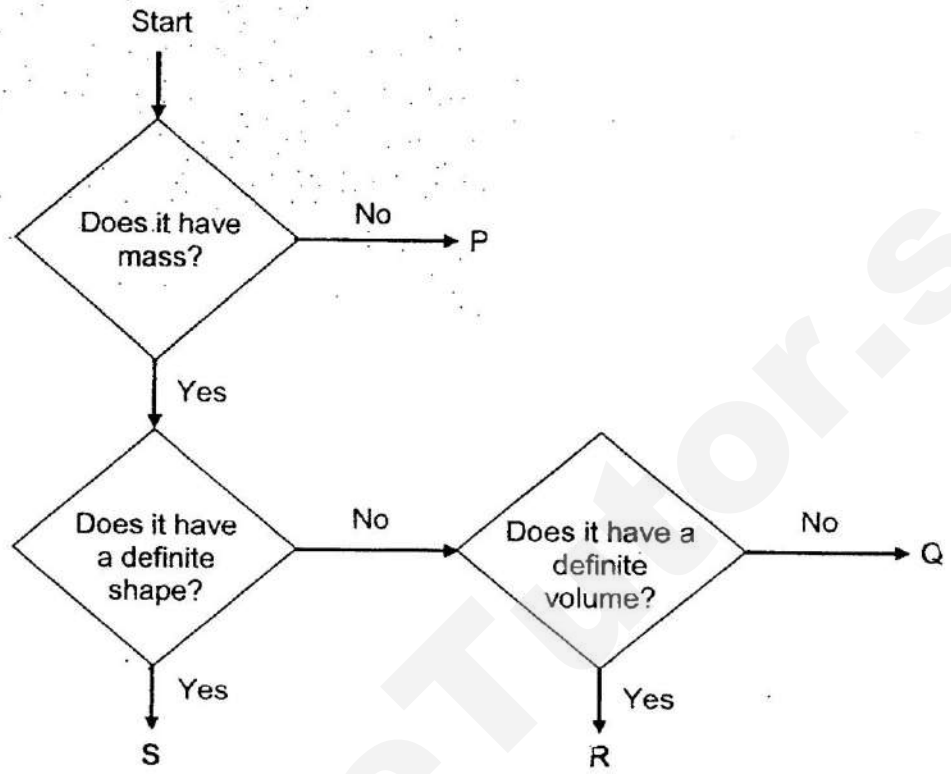
38. Study the flowchart below.




(a) Based on the flowchart above, state all the properties of substance S. [1]

_____

_____

(b) Based on the flowchart above, state the difference between substance R and Q. [1]

_____

_____

(c) State an example of P.

_____



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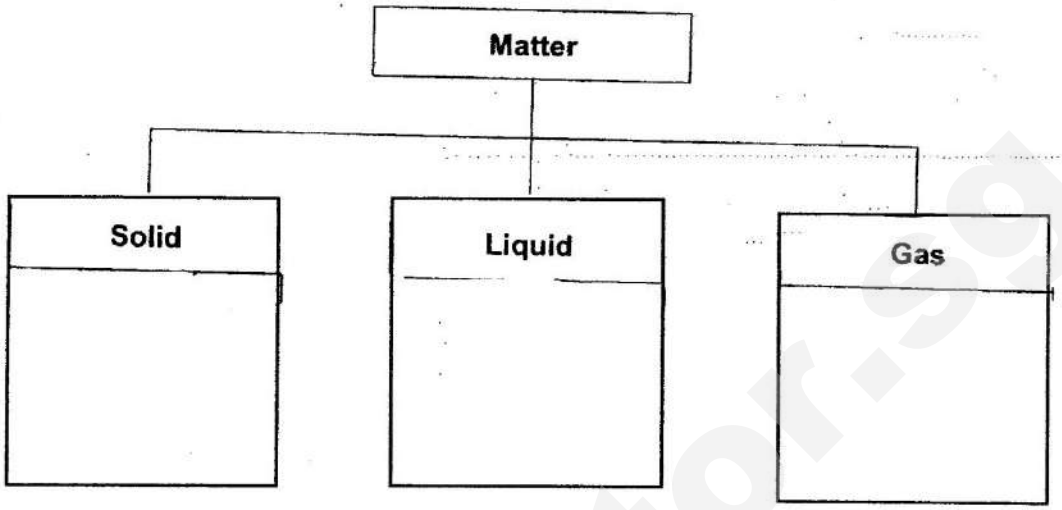
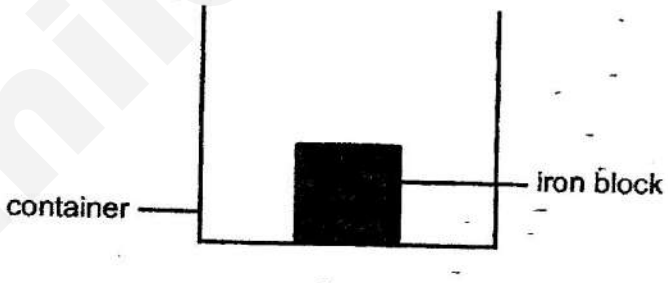
39. Study the classification chart below carefully.




(a) Classify all the following objects into the chart above. [2]

| | | | |
|---|---|---|---|
| air | oil | pencil | sand |

Cheryl placed an iron block in a container as shown below.




(b) (i) Identify the state of matter that the iron block is in. [1]

(ii) Based on the observation above, explain your answer in (b)(i). [2]



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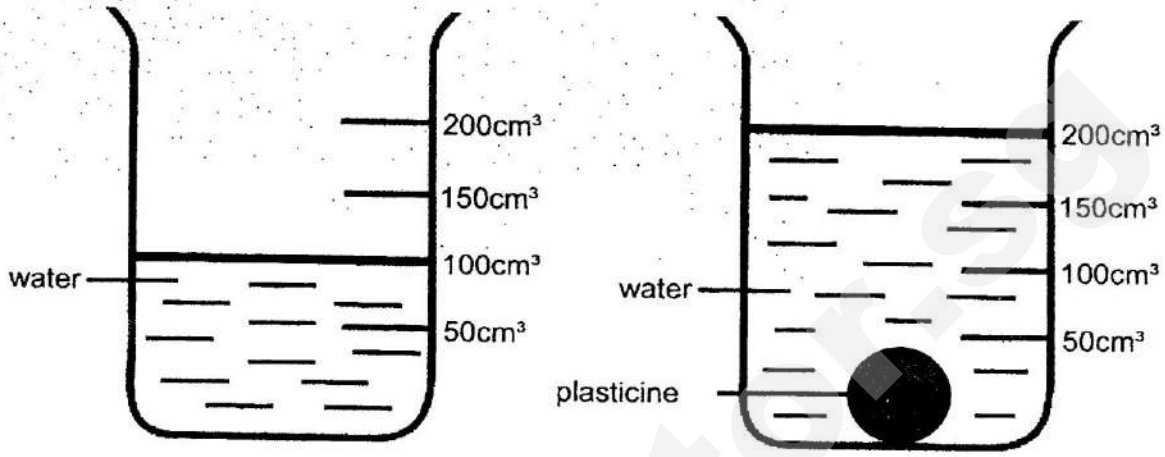
40. Sandra set up an experiment as shown below. She filled a beaker with 100cm³ of water. She then placed a 40g ball of plasticine into the beaker of water.




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

_____ cm³

(ii) Based on the results above, state a property of the plasticine. [1]

_____

_____



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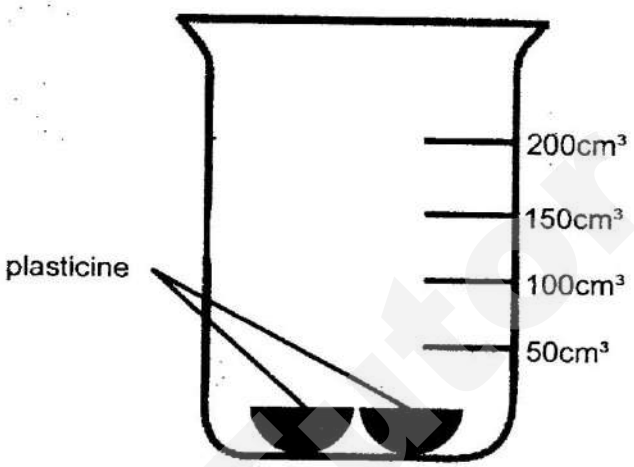
(Continue from Question 40)

Cheryl then cut the ball of plasticine into 2 equal pieces and placed them back into the **same beaker of water**.

(b) (i) In the diagram below, **draw a line** to indicate the water level of the beaker of water. [1]




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



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# ANSWER KEY

YEAR : 2018
LEVEL : PRIMARY 4
SCHOOL : NANYANG PRIMARY SCHOOL
SUBJECT : SCIENCE
TERM : SA1

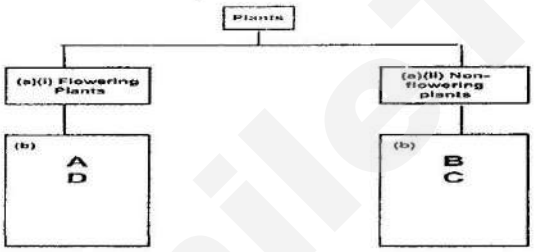
BOOKLET A

| Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 4 | 3 | 3 | 4 | 1 | 2 | 4 | 4 | 2 |
| Q11 | Q12 | Q13 | Q14 | Q15 | Q16 | Q17 | Q18 | Q19 | Q20 |
| 4 | 2 | 3 | 3 | 4 | 1 | 2 | 3 | 3 | 3 |
| Q21 | Q22 | Q23 | Q24 | Q 25 | Q26 | Q27 | Q28 | | |
| 4 | 3 | 4 | 2 | 1 | 4 | 2 | 2 | | |

BOOKLET B

Q29a) Living things need water to survive.
b) It takes in the most water because it has the most leaves to make the food for the plant.
c) It holds the plant firmly to the ground.

Q30)




Q31a) Animal A has 3 body parts and only insects have 3 body parts , thus it is an insect.
b) They have 3 pair of legs .
c)

| | |
|---|---|
| Goldfish | B |
| Monkey | C |
| mosquito | A |
| penguin | D |



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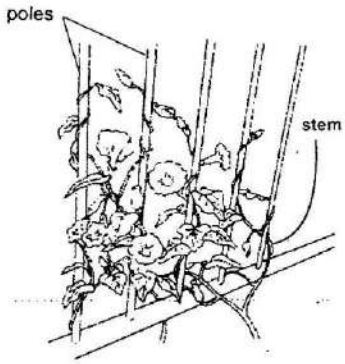



Plant A

**Q32a)**

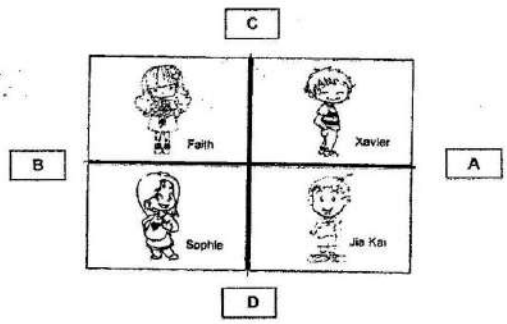
**b) Both stems of plant A and B are weak.**
**c) It supports the stem of plant A and B so that the stems can hold the leaves up and get sunlight to make food.**

**Q33a)i) A**
**ii) Skeletal system**
**b) Part E to F , the amount of undigested food decreased from E to F. From F to G , the amount of undigested food decreased.**

**Q34a) It is made of a magnetic material which can be attracted to a magnet but the string is holding it back.**
**b) Iron**
**c) The like poles of the magnet repels.**
**d) Magnet C had a stronger magnetic strength than magnet A so it is attracted over a longer distance.**

**Q35a) The shadow of the wooden block is formed when it blocks light from passing through since light travels in a straight line a shadow is casted on the screen.**
**b) The height of the shadow would increase when colin increased the distance between the wooden block and the screen.**
**c) He could move the torch closer to the wooden block.**

**Q36**



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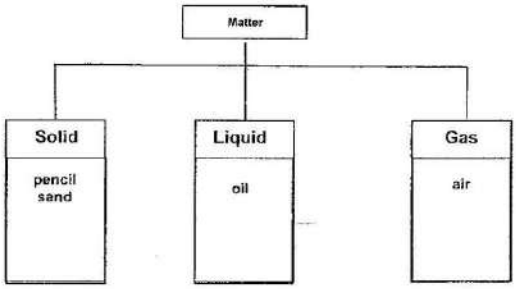
**Q37a)The white card in set-up B reflect light into the light sensor , hence the light sensors detects more light in set-up B.**
**b) The yellow helmet would reflect light into the car driver's eyes.**
**c) The silver band reflects more light into the car drivers' eyes when the headlight shine on them.**

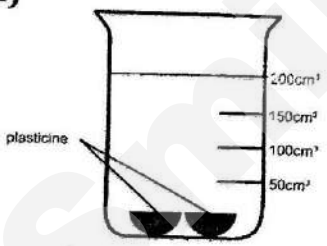
**Q38a) Substance S has mass and has a definite shape.**
**b) Substance R has a definite volume but substance Q does not have definite volume.**
**c) Shadow.**

**Q39)a)**




**b)i) solid**
**ii) The iron block is a solid so it has a definite shape and does not take the shape of the container.**

**Q40a)i) 100 $cm^3$**
**ii) The plasticine has volume.**
**b)i)**




**ii) Although cut in half , the plasticine still has the same amount of volume so the water level will be the same.**

**THE END**



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# RAFFLES GIRLS' PRIMARY SCHOOL

## SEMESTRAL ASSESSMENT (1) 2018

| | |
|---|---|
| Section A | /56 |
| Section B | /44 |
| Your score **out of 100 marks** | |
| Parent's signature | |

**Name :** _____ **Index No :** ____ **Class: P4** __ **Date:** _____

**8 May 2018** **SCIENCE** **ATT: 1 h 45 min**

**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 (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet (OAS) provided.

1. The graph below shows the mass of a baby over a period of twelve months.

The graph shows that living things _____.

(1) grow
(2) reproduce
(3) need air, food and water
(4) respond to changes in its surroundings



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2. Which one of the following is **not** a characteristic of an insect?

(1) They can fly.
(2) They have feelers.
(3) They have six legs.
(4) They have three body parts.

3. The table below shows some information on the characteristics of animals W, X, Y and Z. A tick (✓) shows the presence of the characteristic.

| | W | X | Y | Z |
|---|---|---|---|---|
| Can it swim? | ✓ | ✓ | | ✓ |
| Does it have gills? | | ✓ | | |
| Does it have an outer covering of scales? | ✓ | ✓ | | |

Which one of the following is a fish?

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

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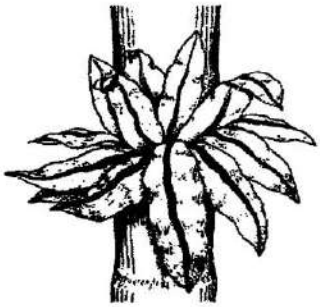
4. The table below shows how some living things can be grouped.

| Group P | Group Q |
|---|---|
| apple tree | bracket fungus |
| daisy plant |  bird's nest fern |

Which one of the following shows the most suitable heading for groups P and Q?

| | Group P | Group Q |
|---|---|---|
| (1) | Has leaves | Does not have leaves |
| (2) | Flowering Plants | Non-Flowering Plants |
| (3) | Makes its own food | Does not make its own food |
| (4) | Reproduce by seeds | Reproduce by spores |



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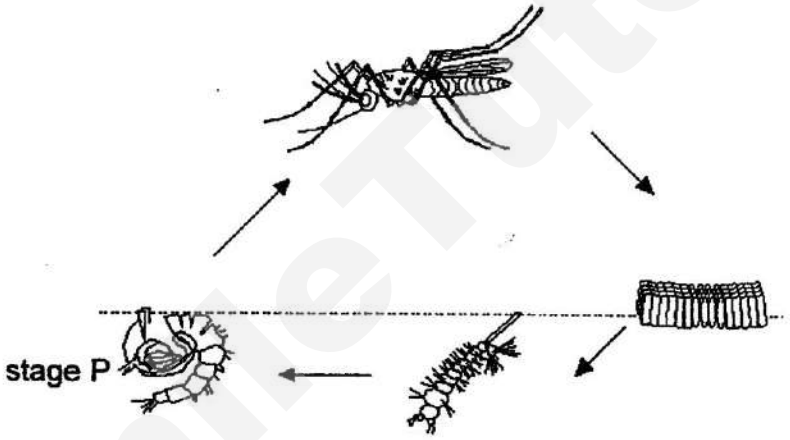
5. Which of the following statement(s) describe(s) the similarities between plants and fungi?

A They have a stem.
B They reproduce by seeds.
C They do not make their own food.
D They respond to changes around them.

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

6. The diagram below shows the life cycle of a mosquito.




Which one of the following statements is true about stage P?

(1) It can fly.
(2) It does not feed.
(3) It can reproduce.
(4) It resembles the adult.

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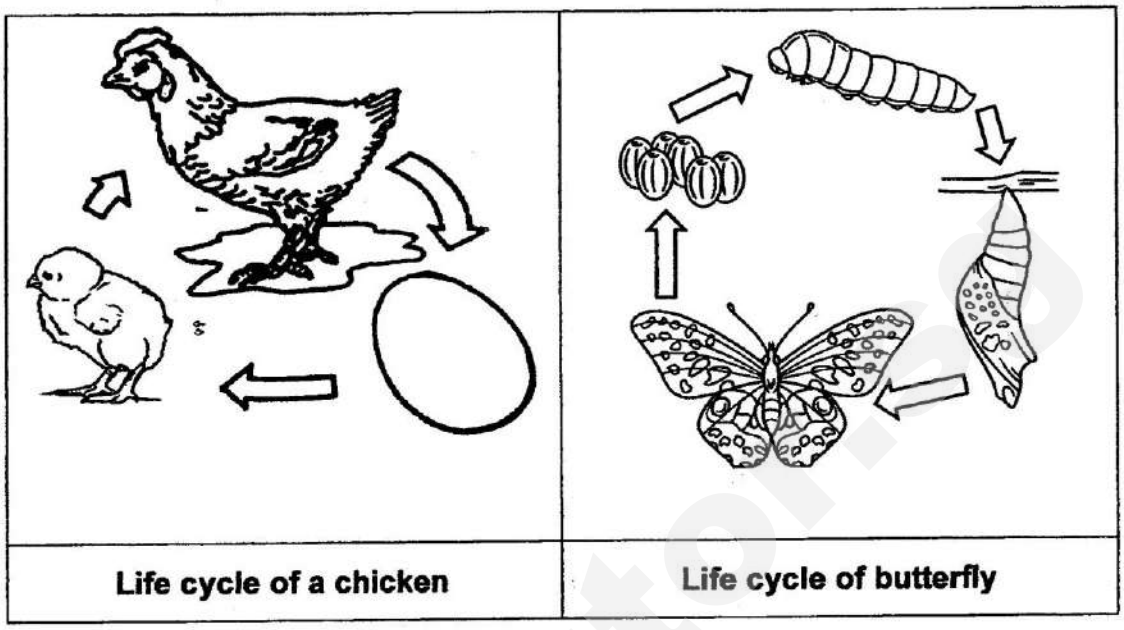
7. The diagrams below show the life cycle of a chicken and a butterfly.



| Life cycle of a chicken | Life cycle of butterfly |
|---|---|

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

A Both reproduce by laying eggs.
B Both have three-stage life cycle.
C Both the young resemble the adults.
D Both have wings as soon as they are hatched.

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



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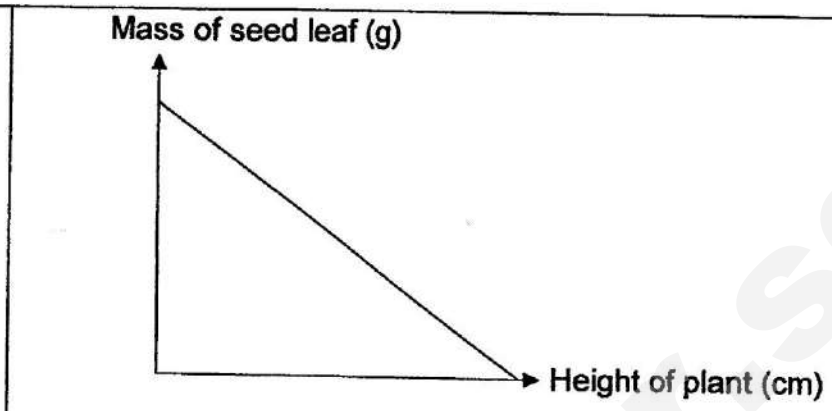
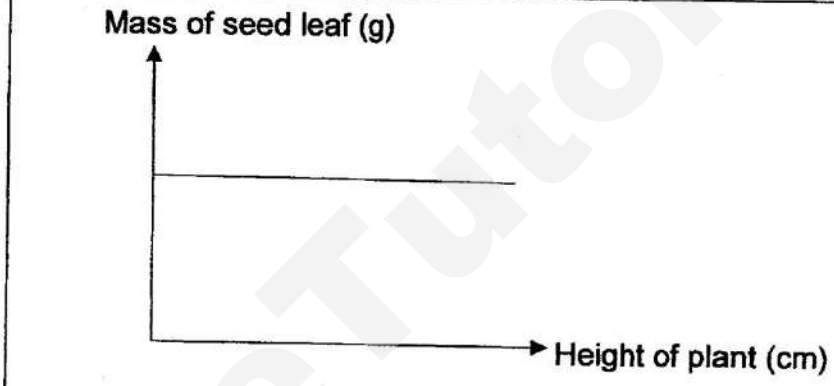
8. Joshua grew some beans. Which of the following correctly shows the dry mass of the seed leaf as the seedling increases in height?

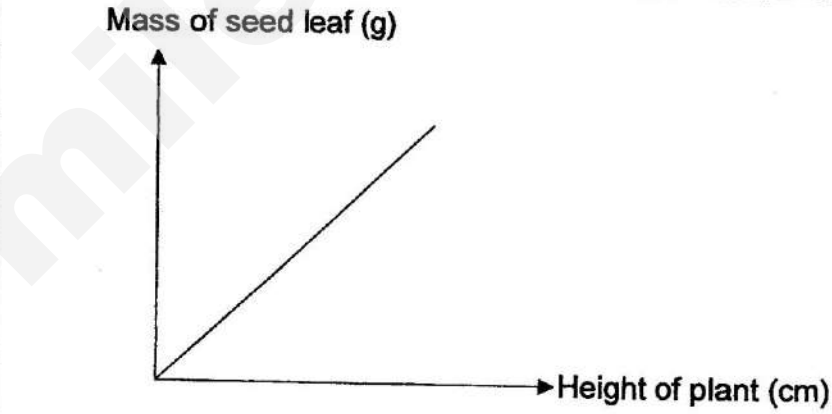
(1)



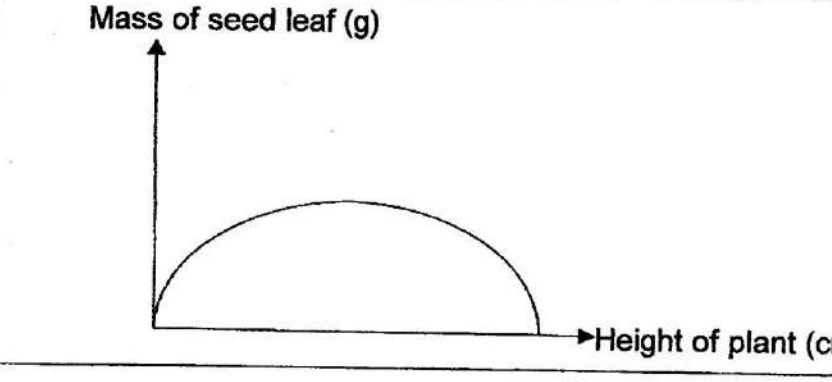

(2)




(3)




(4)

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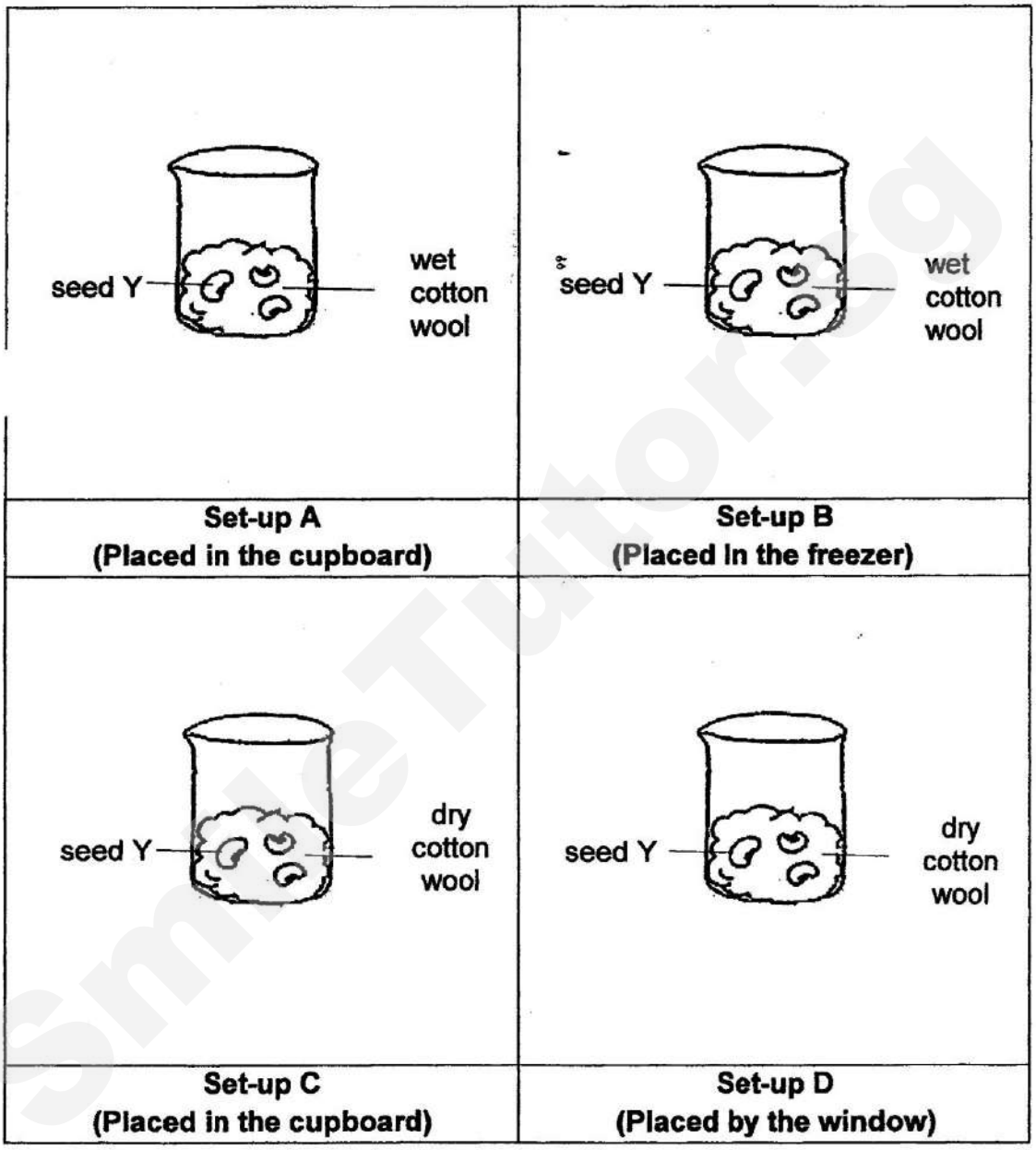
9. The diagram below shows four set-ups with identical number of seeds Y placed in different conditions.




In which of the following set-ups will seeds Y germinate?

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

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10. Which one of the following set of organs belongs to human digestive system?

| | | | | |
|---|---|---|---|---|
| (1) | nose | lungs | gullet | heart |
| (2) | heart | stomach | blood | blood vessels |
| (3) | mouth | windpipe | small intestine | large intestine |
| (4) | gullet | stomach | small intestine | mouth |

11. Which one of the following shows the function of the skeletal system?

(1) Remove carbon dioxide from the body.
(2) Protect organs like the brains and lungs.
(3) Breaks down food into simpler substances.
(4) Transports nutrients to other parts of the body.

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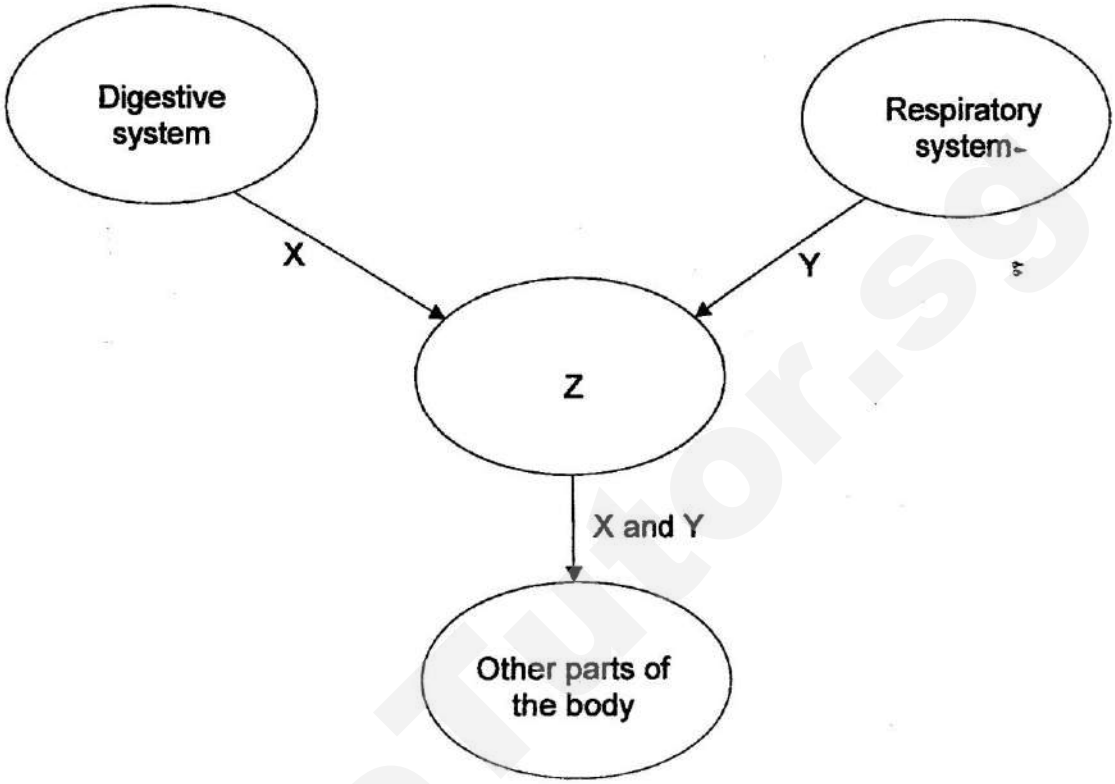
12. The diagram below shows how substance(s) is/are moved from one system to another. The arrow indicates the direction in which the substance(s) is/are moved.




Which of the following best represent substances X and Y and system Z?

| | X | Y | Z |
|---|---|---|---|
| (1) | carbon dioxide | nutrients | Circulatory system |
| (2) | oxygen | nutrients | Muscular system |
| (3) | nutrients | oxygen | Circulatory system |
| (4) | oxygen | carbon dioxide | Muscular system |

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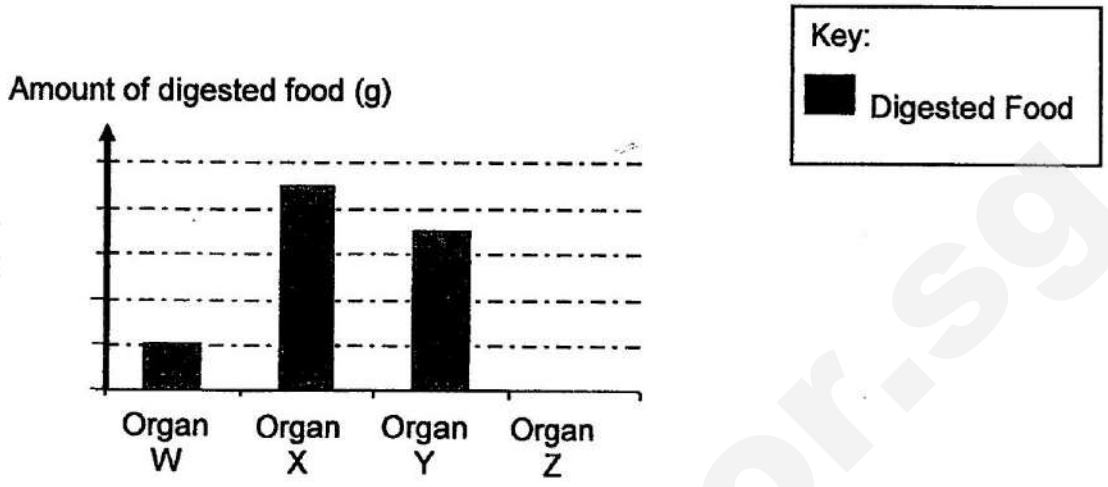
13. Jeremy ate a bowl of noodles for lunch. The graph below shows the amount of digested food in different organs of the digestive system.




Which of the following organs is likely to be the small intestines?

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

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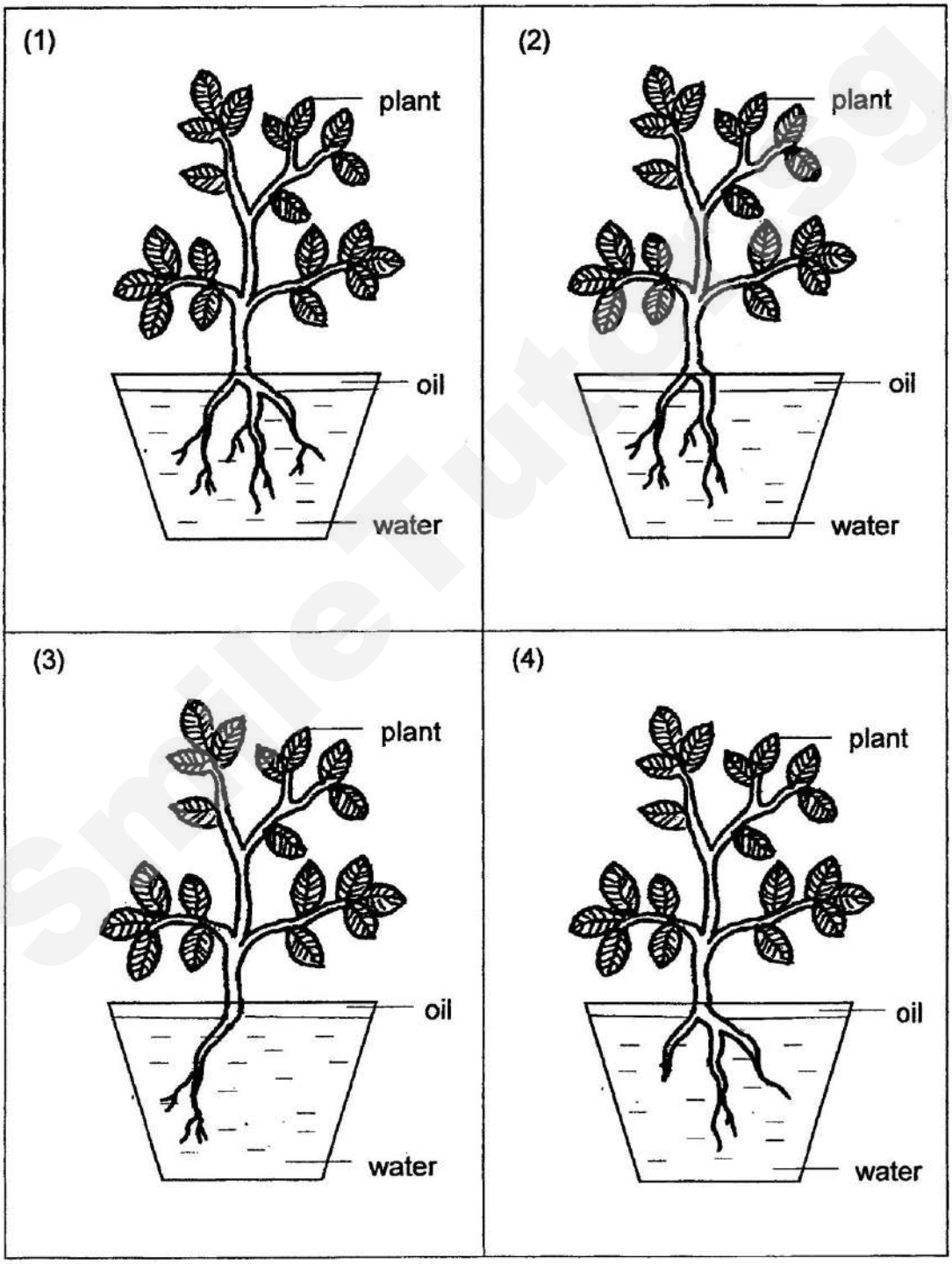
14. Four identical plants with different number of roots were placed into four identical pots filled with same amount of water.

Which one of the following set-ups would most likely to have the least amount of water left in the pot after one week?



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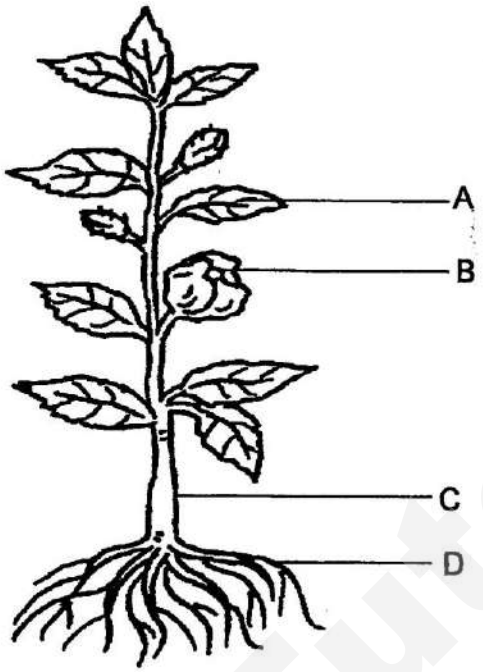
15. Four different parts of a plant, A, B, C and D are labelled as shown below.




Which one of the following parts helps to make food?

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

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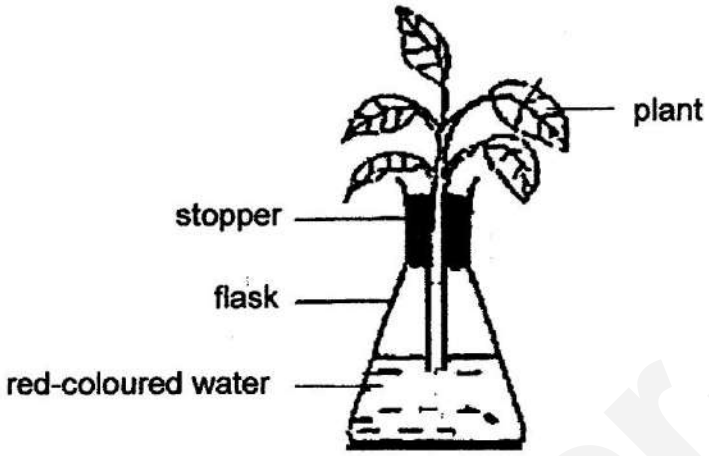
16. Jerry put a plant into a flask of red-coloured water as shown in the diagram below.




The table below shows some information of plants of the same type, A, B and C, that were placed in red-coloured water. A tick (✓) shows the presence of parts of the plant.

| Parts of plants | Plants | | |
|---|---|---|---|
| | A | B | C |
| Water-carrying tubes | ✓ | ✓ | |
| Food-carrying tubes | ✓ | | |

In which plant(s) would the leaves turn red after three days?

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



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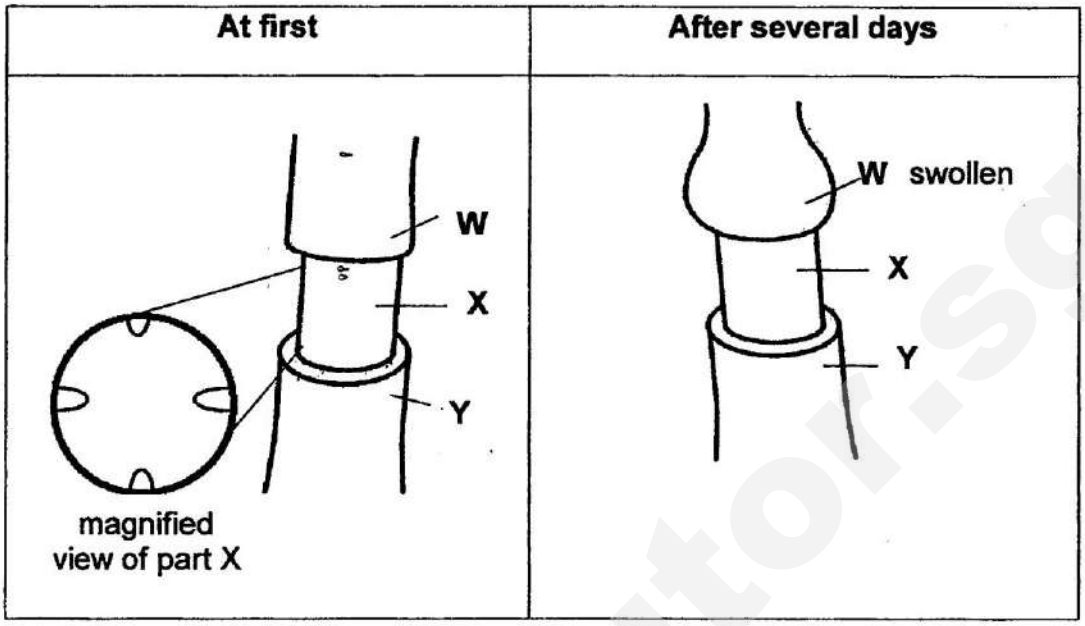
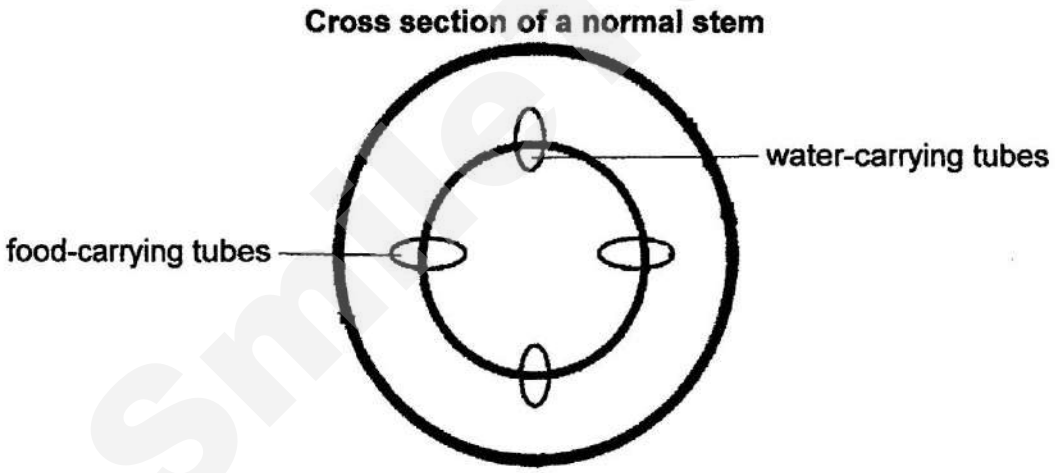
17. Allie removed part of the outer ring of a plant. After several days, she observed swelling near the top part of the stem where the ring was removed.




Which one of the following is likely the explanation for the swollen part of the stem observed at W?

(1) Food cannot be transported from W to Y.
(2) Food cannot be transported from Y to W.
(3) Water cannot be transported from W to Y.
(4) Water cannot be transported from Y to W.



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18. John uses a personal flotation device placed around his arms to help keep him float on his back while he relaxes in the pool as shown in the diagram below.

The table below shows some information on the properties of materials P, Q, R and S. A tick (✓) shows the presence of the property.

| Property / Material | Flexible | Able to float | Waterproof | Allow light to pass through |
|---|---|---|---|---|
| P | ✓ | | | ✓ |
| Q | | | ✓ | ✓ |
| R | | ✓ | ✓ | |
| S | ✓ | | ✓ | |

Which one of the following materials is most suitable to be used to make the flotation device?

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



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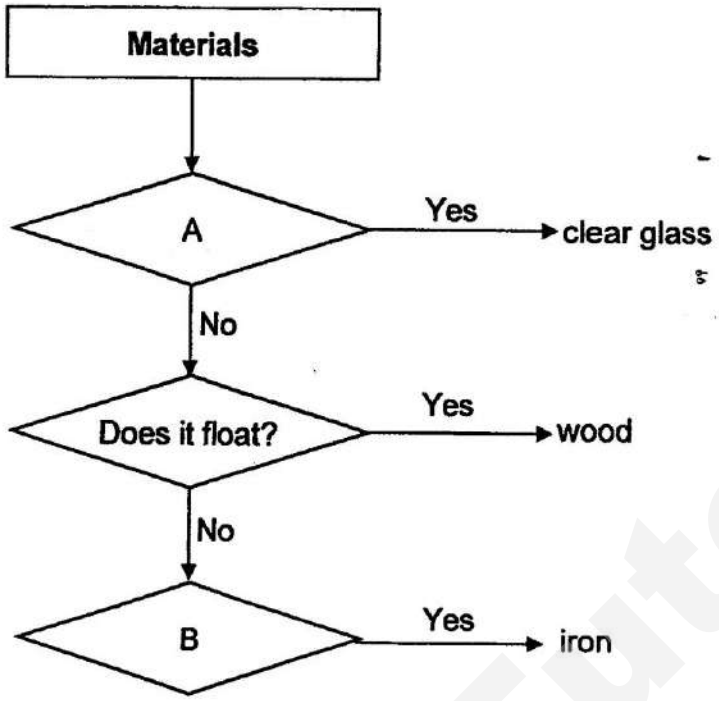
19. The flow chart below shows how some materials are grouped.




Which one of the following correctly represents questions in A and B?

| | A | B |
|---|---|---|
| (1) | Is it hard? | Is it light? |
| (2) | Is it strong? | Does it break easily? |
| (3) | Does it allow light to pass through? | Is it strong? |
| (4) | Does it allow light to pass through? | Is it flexible? |

20. Which one of the following is a matter?

(1) Sunlight
(2) Thunder
(3) Lightning
(4) Raindrops



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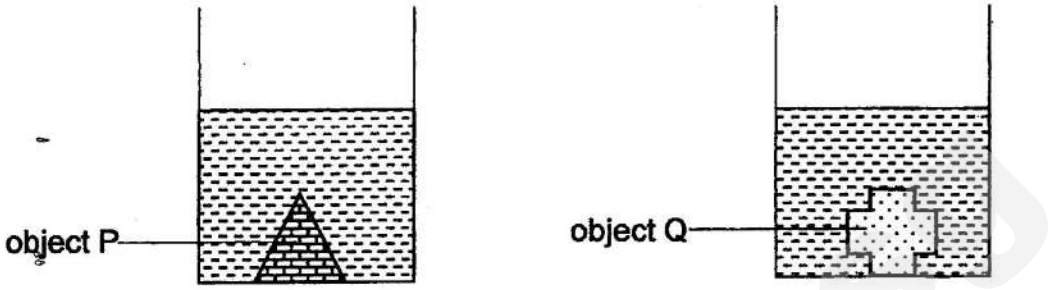
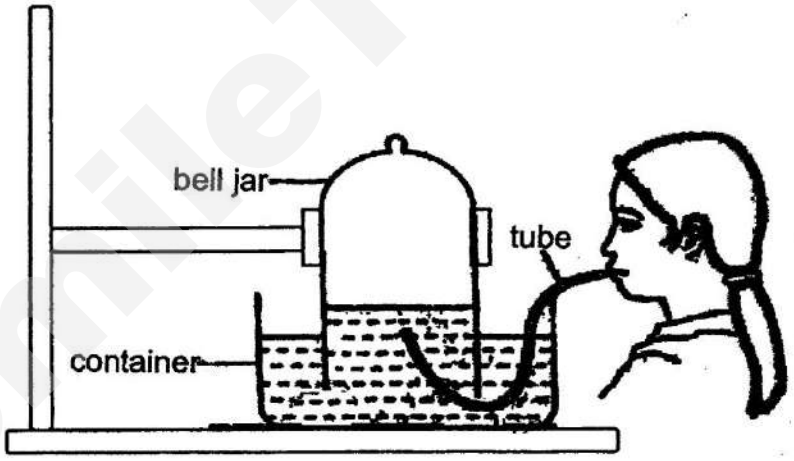
21. Meili filled two beakers with equal amount of water. She then placed objects P and Q in each of the beaker and observed that the water level rose to the same height as shown in the diagram below.




Which one of the following statements about objects P and Q is correct?

(1) They have the same mass.
(2) They have the same volume.
(3) They have the same weight.
(4) They are made of the same material.

22. Izzy set up the experiment shown below.




What would she observe after she had blown air into the tube for twenty seconds?

A Water level in the bell jar would increase.
B Water level in the container would increase.
C Volume of air in the bell jar would increase.
D Volume of water in the container would decrease.

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



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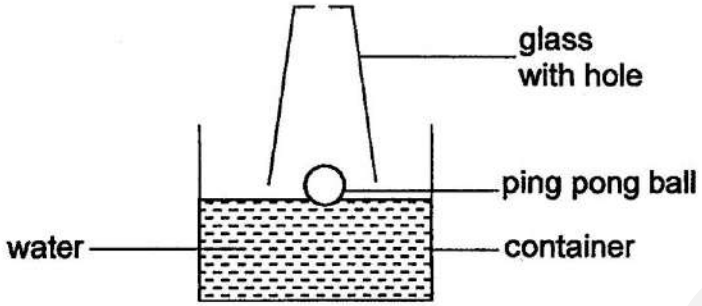
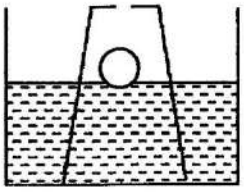
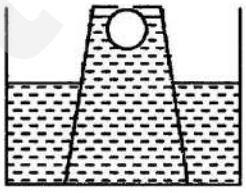
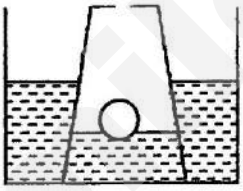
23. A ping pong ball was placed in a container of water as shown below. An empty glass with a hole was then pushed into the container.

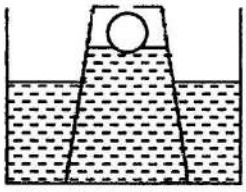



Which one of the following shows the correct observation after the glass was pushed into the container of water?

(1) 

(2) 

(3) 

(4) 

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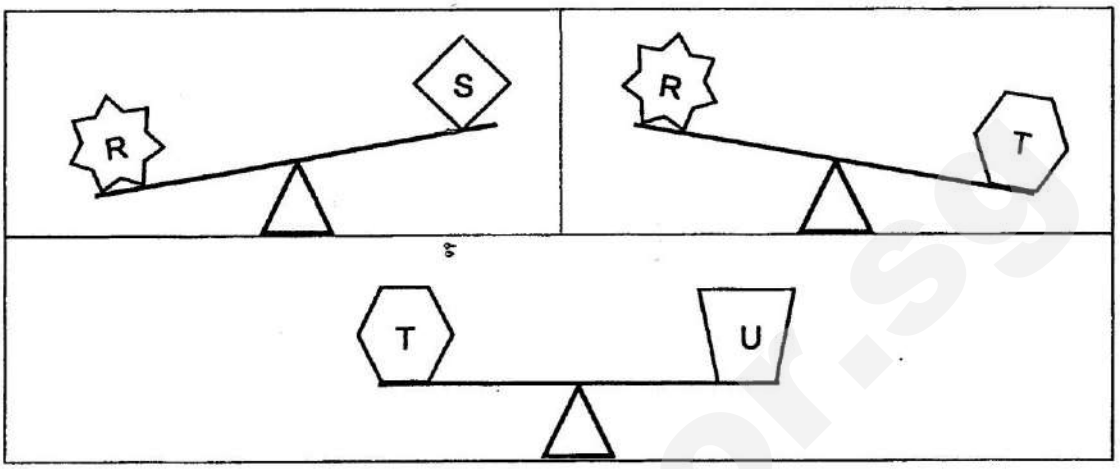
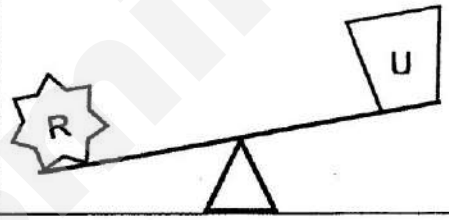
24. The diagrams below shows the results of placing objects R, S, T, and U on a balance.

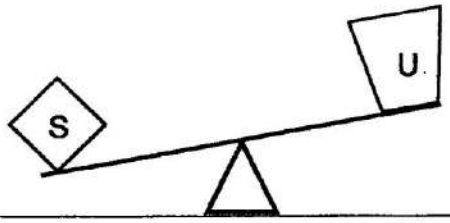



Which one of the following shows the correct observation?

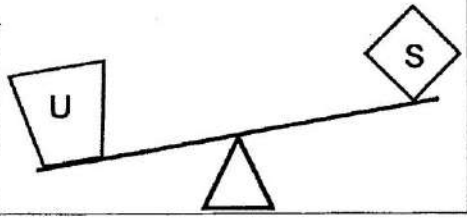
(1)



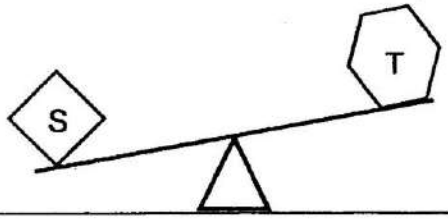

(2)




(3)




(4)

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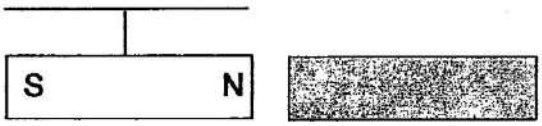
25. Isabella hung a magnet from the top of her table and labelled the north-pole and south-pole as N and S respectively. She then placed three bars, W, X, and Y, next to both poles of the magnet one at a time.




magnet bar W

She then recorded the interactions between the magnet and the bars in the table below.

| | Interaction between the bar and poles of magnet | |
|---|---|---|
| **Bar** | **N-Pole** | **S-pole** |
| W | Attraction | Attraction |
| X | No interaction | No interaction |
| Y | Attraction | Repulsion |

Which one of the following represent bars W, X and Y correctly?

| | Bar W | Bar X | Bar Y |
|---|---|---|---|
| (1) | Steel | Wood | Magnet |
| (2) | Steel | Magnet | Wood |
| (3) | Magnet | Steel | Wood |
| (4) | Magnet | Wood | Steel |



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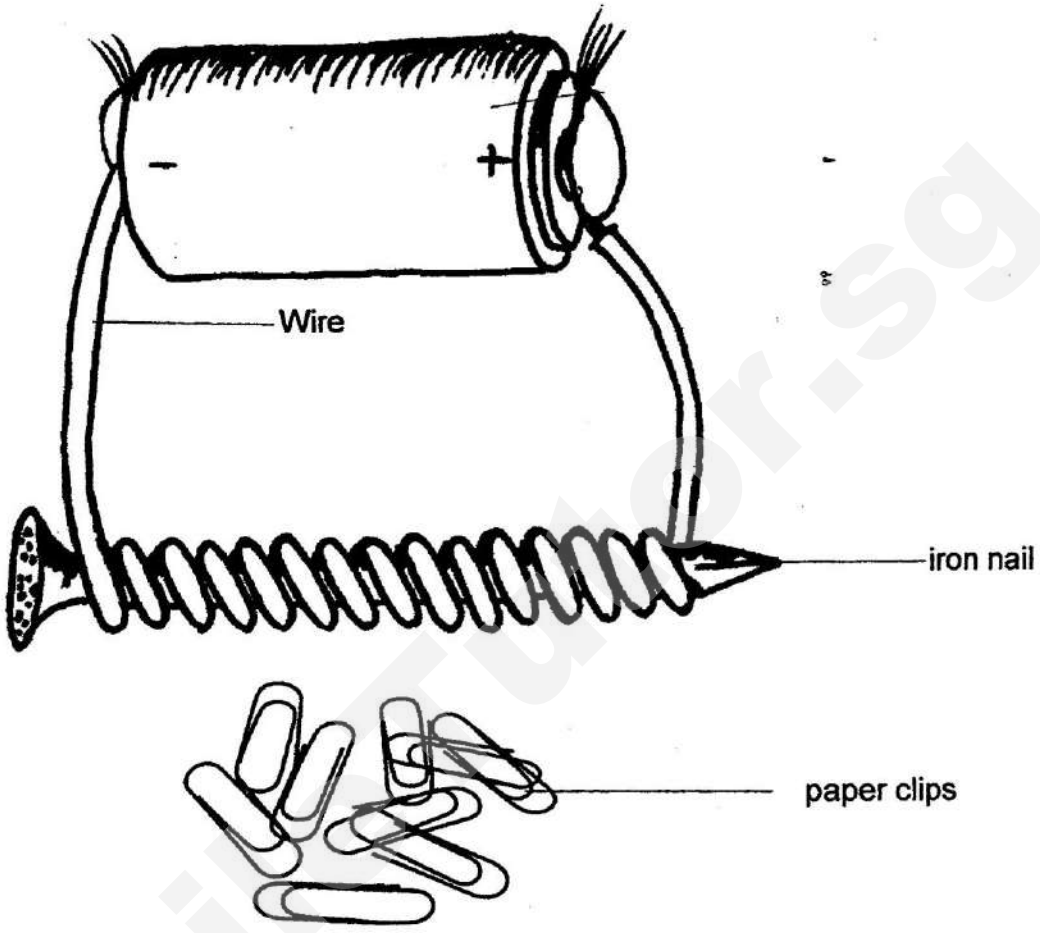
26. Sam made an electromagnet using an iron nail placed in an electric circuit as shown below. He observed that only some paper clips were attracted to it.




Which of the following statement(s) suggest(s) way(s) of increasing the number of paper clips attracted by the electromagnet?

A Increase the size of the nail.
B Increase the length of the wire.
C Increase the number of batteries.
D Increase the number of coils around the nail.

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



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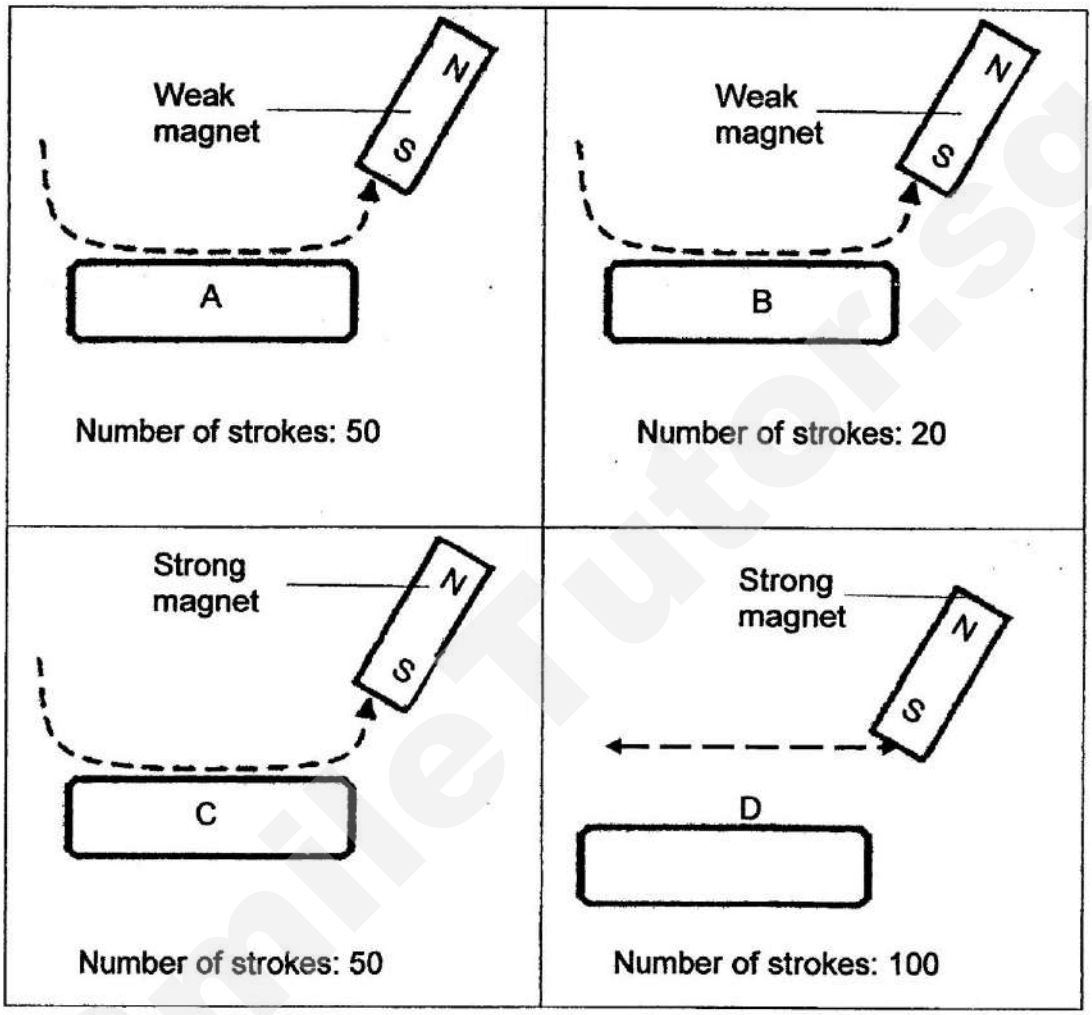
27. Estelle stroke four identical iron rods, A, B, C and D, using magnets of different magnetic strength in the directions indicated by the arrows shown below.




Which one of the following shows the correct arrangement in order of strength for the temporary magnets, starting with the weakest magnet?

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



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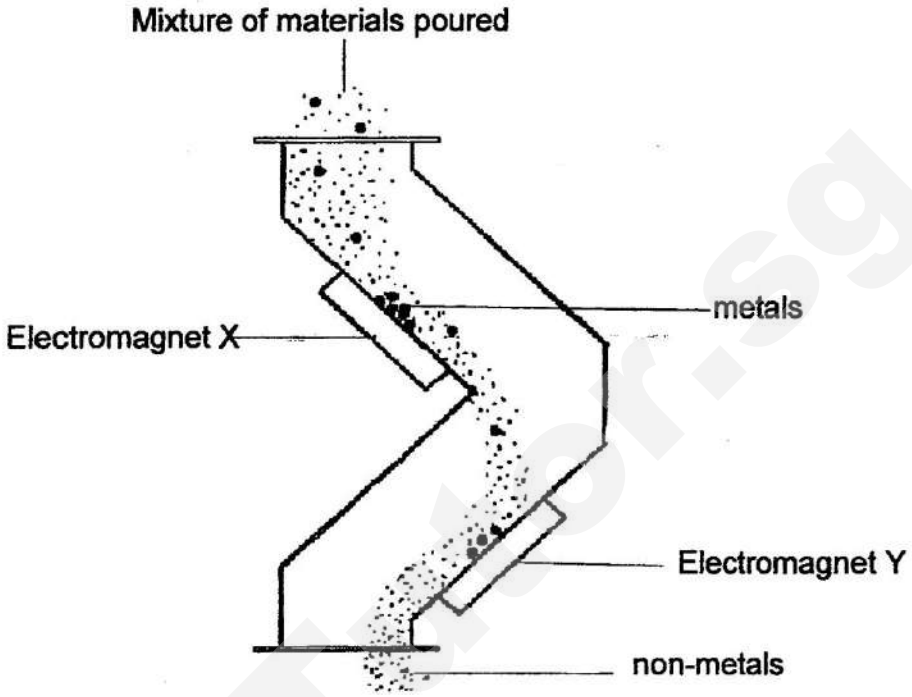
28. The diagram below shows a separator used in a recycling plant to separate metals from non-metals.




Unfortunately, one of the electromagnets was damaged and a replacement had to be used.

Allen placed electromagnets same distance above a tray of nails and observe the number of nails attracted to each of them in the table below.

| Electromagnets | Number of iron nails attracted |
|---|---|
| A | 6 |
| B | 15 |
| C | 8 |
| D | 12 |

Which one of the following electromagnets would be the most suitable as the replacement?

(1) A

(2) B

(3) C

(4) D



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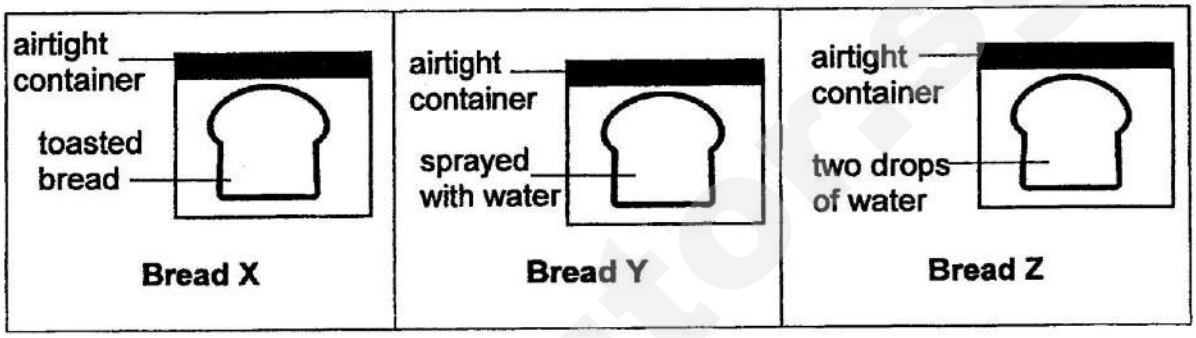
Name : _____ Index No: ___ Class: P4_____

44

**SECTION B (44 marks)**

**For questions 29 to 41, 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.**

29. The experiment below aims to find out if water affects the growth of moulds on bread. Three slices of bread, X, Y and Z, were kept in an airtight container and left on a table top for a week.



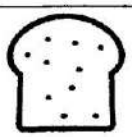

(a) State one other condition needed for moulds to grow. [1]

_____

(b) Toasting bread will help to remove a substance from the bread. Name the substance. [1]

_____

(c) The table below shows the observations of the three slices of bread after one week. The black spots indicate the presence of moulds. Identify breads X, Y and Z. [1]

|  | | |
|---|---|---|
| Bread _____ | Bread _____ | Bread _____ |

Score 3



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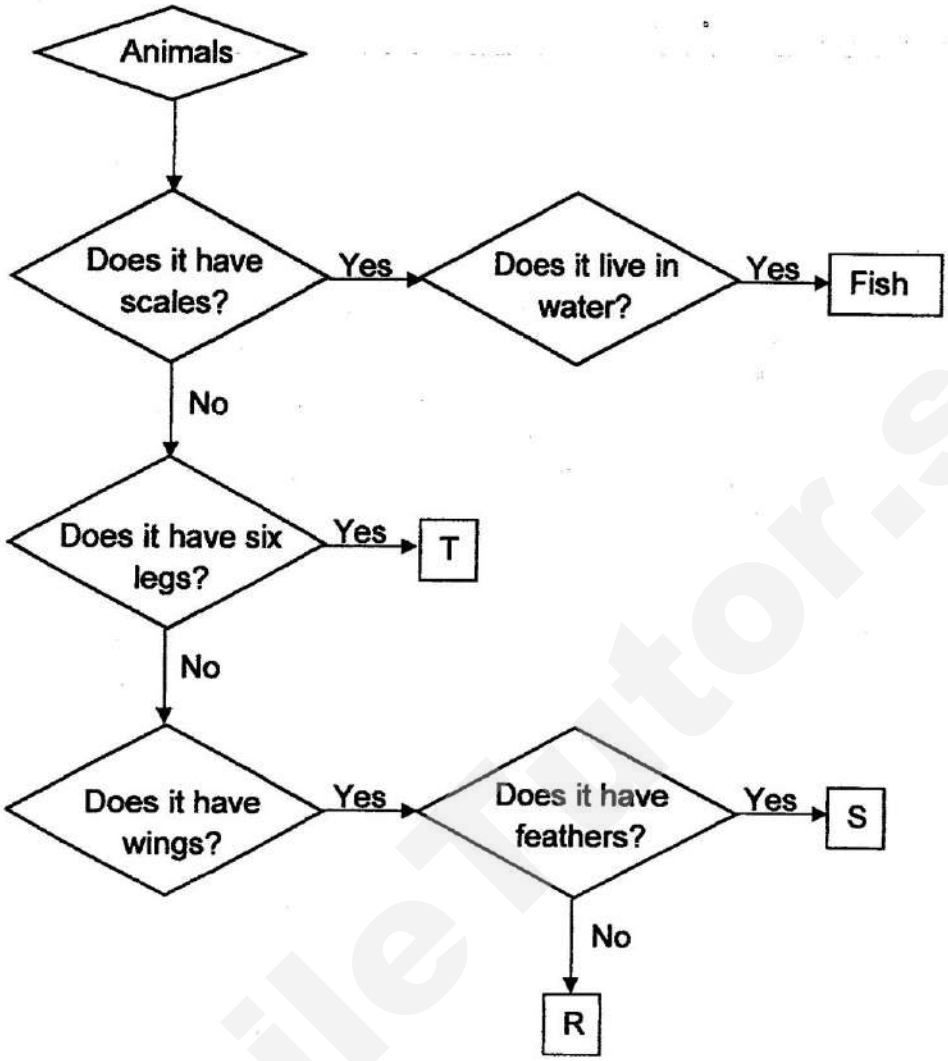
30. The flow chart below shows how some animals were classified.




(a) State one similarity between animals T and S. [1]

_____

_____

(b) State one difference between animals R and T. [1]

_____

_____

| Score | / 2 |
|---|---|

**Continue on next page**



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The diagram below shows an animal.

(c) Based on the information on the flowchart, which group of animals, R, S or T, does this animal belong to? [1]

_____

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| Score | / 1 |
|---|---|



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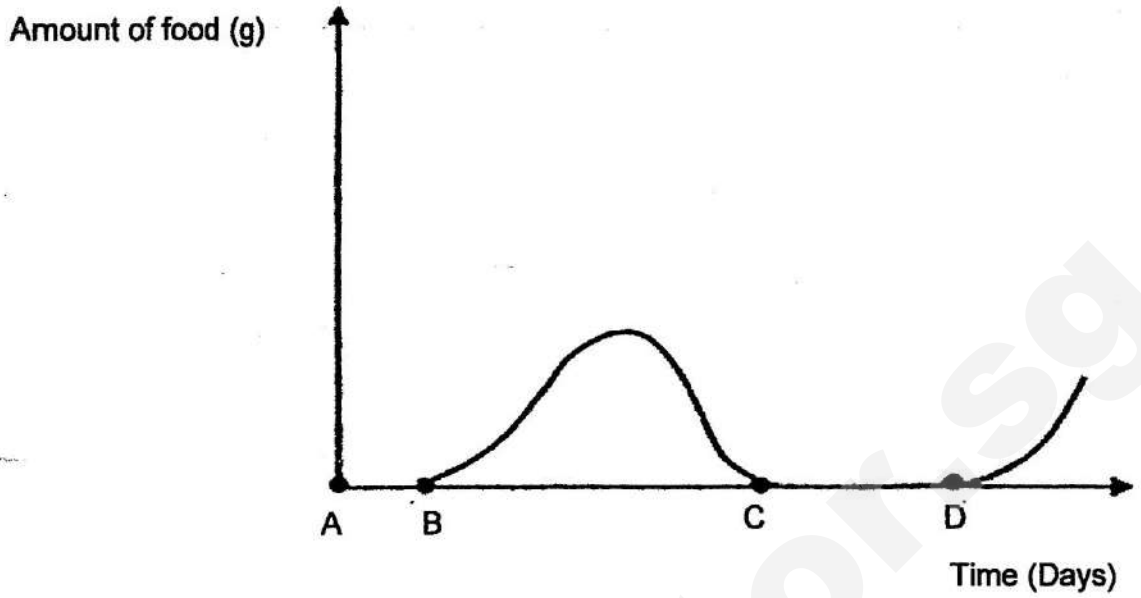
31. The graph below shows the amount of food consumed by organism X during different stages of its life cycle.




What stages of the life cycle of organism X are represented from A to B and C to D? [2]

(i) A to B _____

(ii) C to D _____

(a) Name one animal which goes through a similar life cycle as organism X. [1]

_____

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| Score | / 3 |
|---|---|



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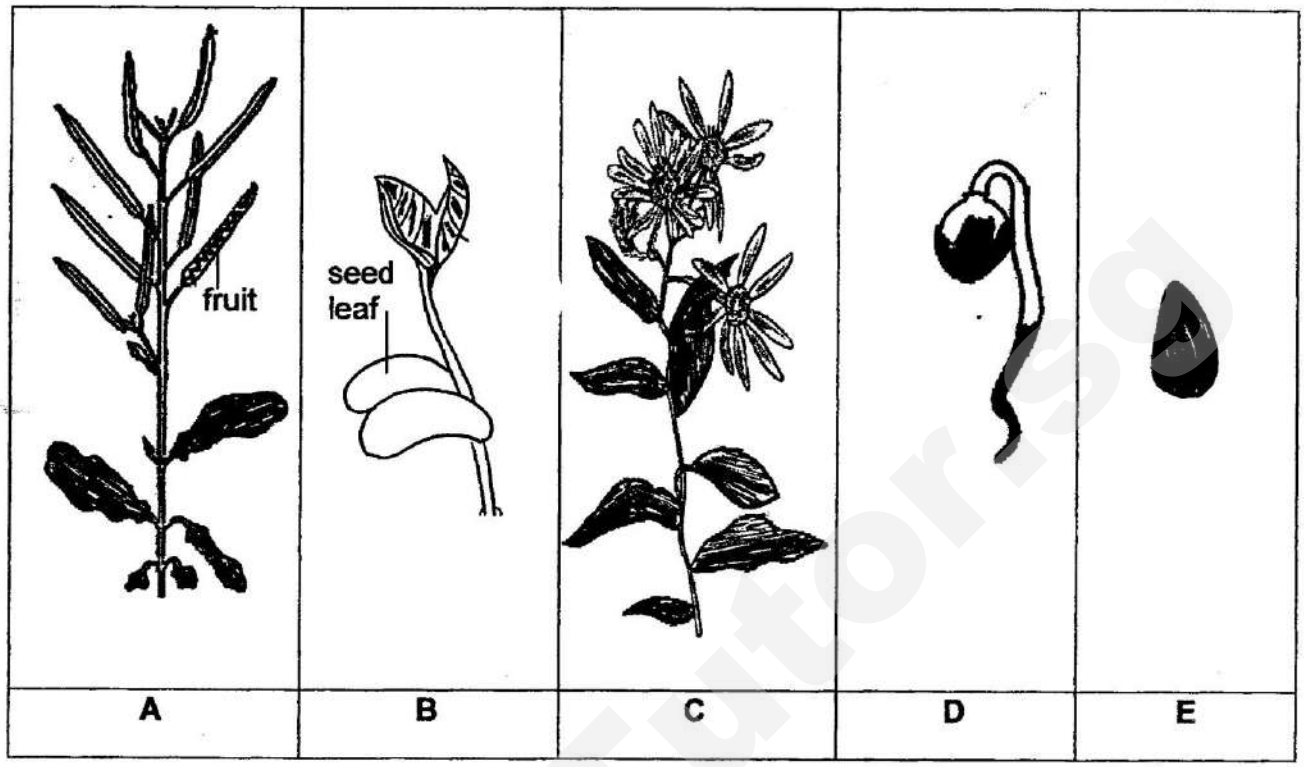
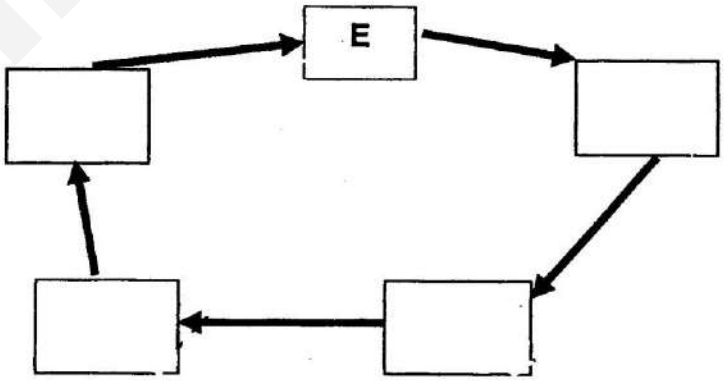
32. The diagram below shows the different stages of development of a plant.




(a) Arrange the stages of development of the plant correctly by writing the letters A, B, C, and D in the correct boxes in the diagram below.

Use the letter **ONCE** only. [2]




**Continue on next page**

| Score | / 2 |
|---|---|



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(b) James commented that when the seed leaves in stage B are removed, the plant will die.
Do you agree? Give a reason for your answer. [2]

_____

_____

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| Score | / 2 |
|---|---|



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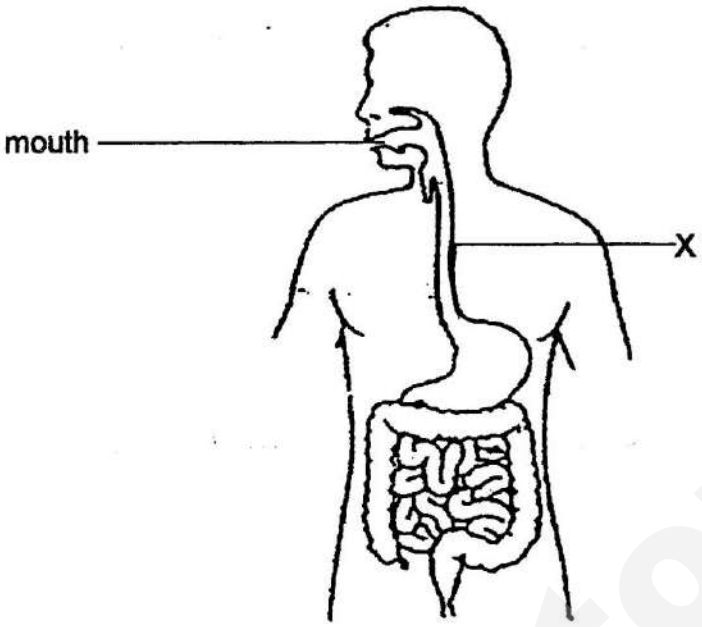
33. The diagram below shows the human digestive system.




(a) Identify part X in the diagram above. [1]

X: _____

(b) Identify the parts where, [1]

(i) Digestion begins: _____

(ii) Digestion ends : _____

(c) Name the parts of the digestive system where digestive juices are secreted. [1]

_____

_____

| Score | / 3 |
|---|---|



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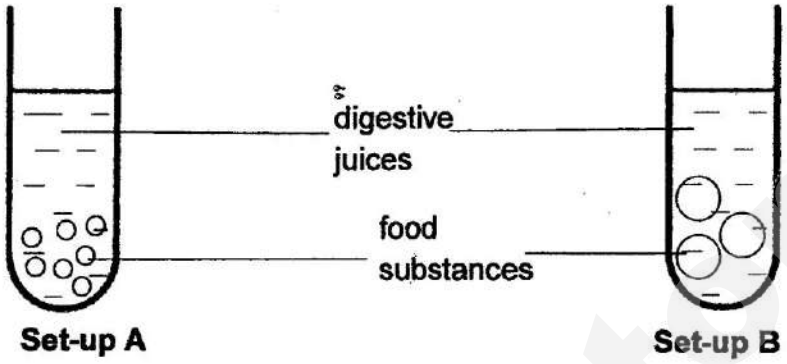
34. Joseph's grandmother said that her rate of digestion had slowed down because she had lost most of her teeth. She claimed to have chewed the same number of time as compared to when she had all teeth.

Joseph set up the experiment as seen below to test if her claim was true. He prepared set-ups A and B with identical amount of food substances put in identical amount of digestive juice as shown in the diagram below.




He repeated the experiments and recorded the results in the table below.

| | Time taken for food substance to digest completely (mins) | | |
|---|---|---|---|
| **Result** | **1st try** | **2nd try** | **3rd try** |
| X | 3 | 2 | 3 |
| Y | 15 | 14 | 16 |

(a) Based on the information above, which set of test results, X or Y, most likely belongs to set-up A? Give a reason for your answer. [2]

_____

_____

**Continue on next page**

| Score | / 2 |
|---|---|



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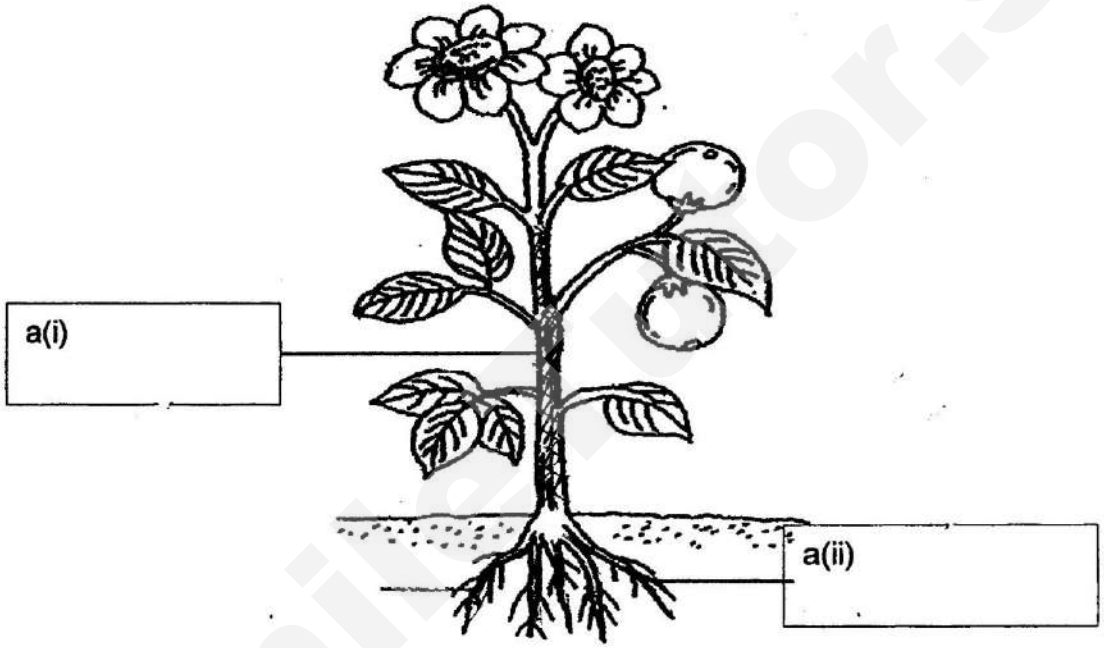
(b) Joseph chewed a piece of apple twenty times, while his sister chewed an identical piece of apple of the same size forty times. Who would take a shorter time to digest the piece of apple? [1]

_____

35. The diagram below shows parts of a plant system.

Based on the diagram below, answer the following questions:




(a) In the diagram above, write the name of the plant parts in the boxes. [2]

(b) State one function of plant part stated in your answer in a (i). [1]

_____

_____

(c) What would happen if plant part stated in your answer in a(ii) are totally removed? Give a reason for your answer. [1]

_____

_____



| Score | /5 |
|---|---|

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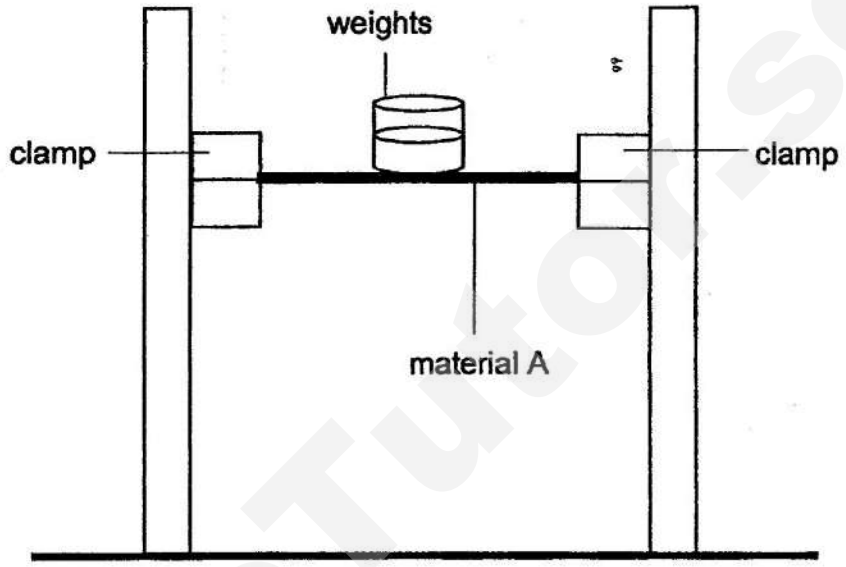
36. Kelly wanted to find out the most suitable material to make a shopping bag. She prepared a set-up using material A and added weights onto material A until it started to tear.




She repeated the experiment with materials B, C and D respectively and recorded the maximum weight the material could hold before it started to tear in the table below.

| Materials | Maximum weight it can hold before it start to tear (g) |
|---|---|
| A | 300 |
| B | 100 |
| C | 160 |
| D | 100 |

**Continue on next page**



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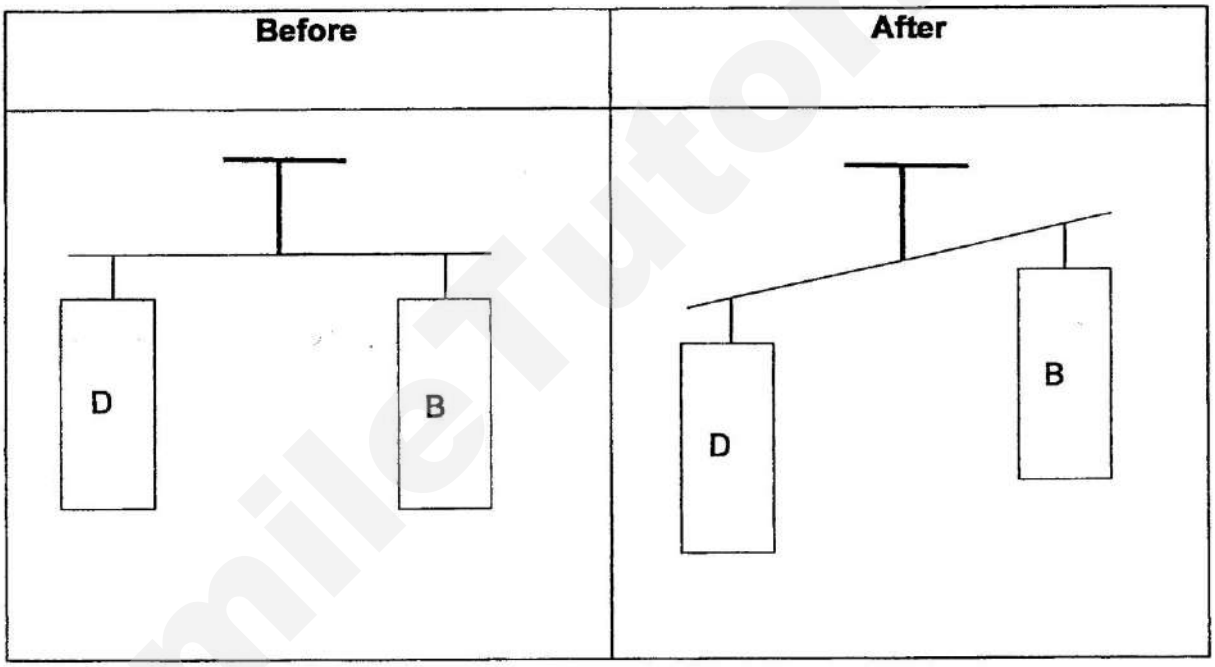
**Continue from previous page**

(a) Based on the information above, which material(s) is/are most suitable to be made into a shopping bag that can hold a content with a mass of 150g? Give a reason for your answer. [1]

Kelly dipped two materials, B and D, of same size and mass in container containing same amount of water. She then removed them at the same time and hung them on a balance as shown below.




(b) Explain why there was a change in mass in materials B and D. [1]

**Continue on next page**

Score 2



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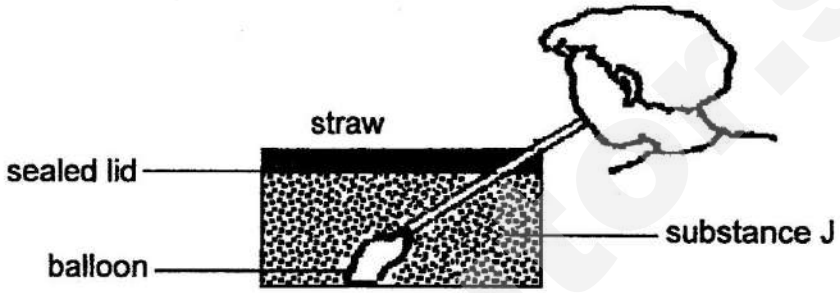
(c) Which material, B or D, would be more suitable to make into a bathing towel? Explain your choice clearly. [2]

_____

_____

37. A deflated balloon was fixed to a straw using rubber band. It was then placed in a container filled with substance J. The container was then sealed tightly and air was then blown into the straw as shown in the diagram below. The balloon did not inflate.

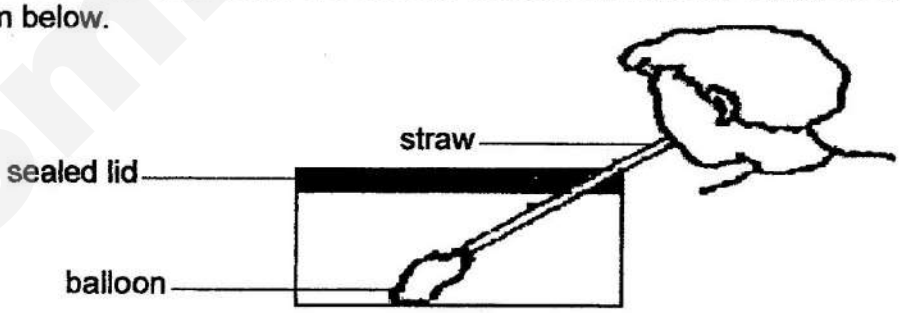



(a) Based on the information above, what is the state of matter of substance J? Explain your answer. [2]

_____

_____

Substance J was then removed and air was blown into the straw as shown in the diagram below.




(b) The balloon inflated in the container. Give a reason for this observation. [1]

_____

_____

| Score | |
|---|---|
| | 5 |



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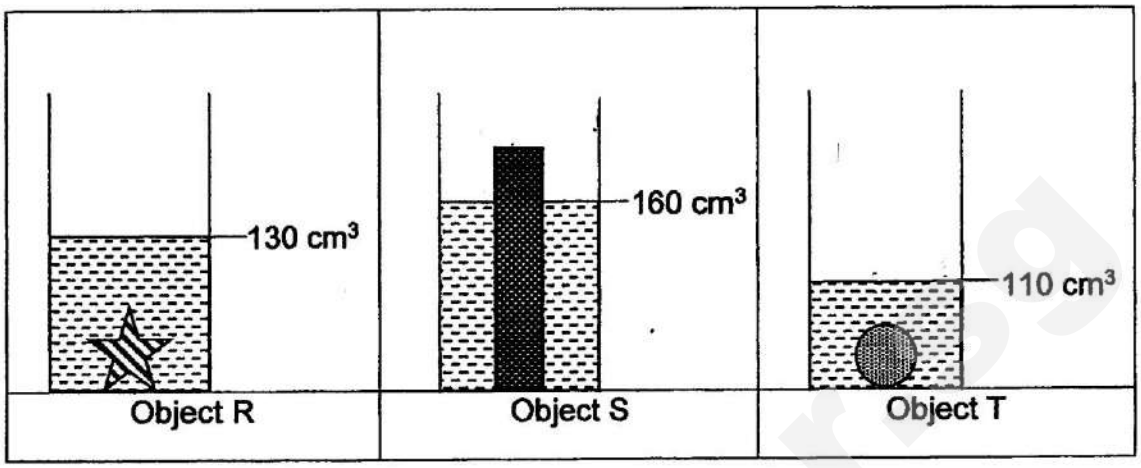
38. A beaker was filled with 100 $cm^3$ of water. Three objects, R, S and T were lowered into the beaker and the new volume was recorded as shown below.




(a) Based on the results above, arrange the objects according to their volume, starting with the smallest volume. [1]

Smallest ⟶ largest

| | | |
|---|---|---|
| | | |

(b) Devi commented that it is not possible to tell the exact volume of object S. Do you agree with Devi? Explain your answer. [1]

(c) Without removing any parts of the set-up, suggest one way to find the volume of object S. [1]

| Score | 3 |
|---|---|



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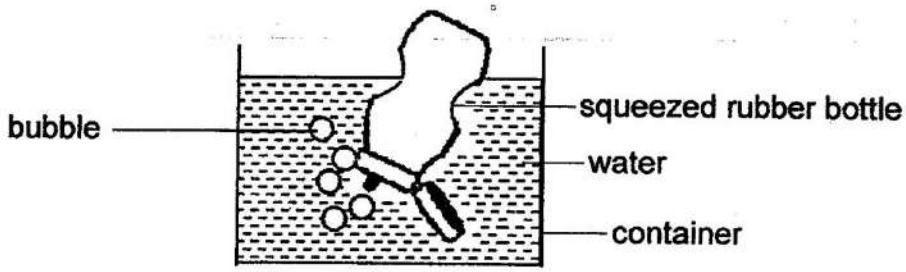
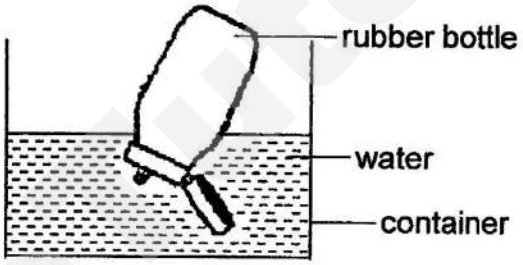
39. Peter placed a rubber bottle in a container of water as shown below. When he squeezed the bottle, bubbles were observed.




(a) Explain why bubbles were formed. [1]

_____

_____




(b) After all the bubbles had disappeared, he released his grip on the bottle until the bottle returned to its original shape as shown in the diagram above. He then observed that there was a decrease in the water level in the container.

Explain the decrease in the water level in the container. [2]

_____

_____

_____

| Score | 3 |
|---|---|



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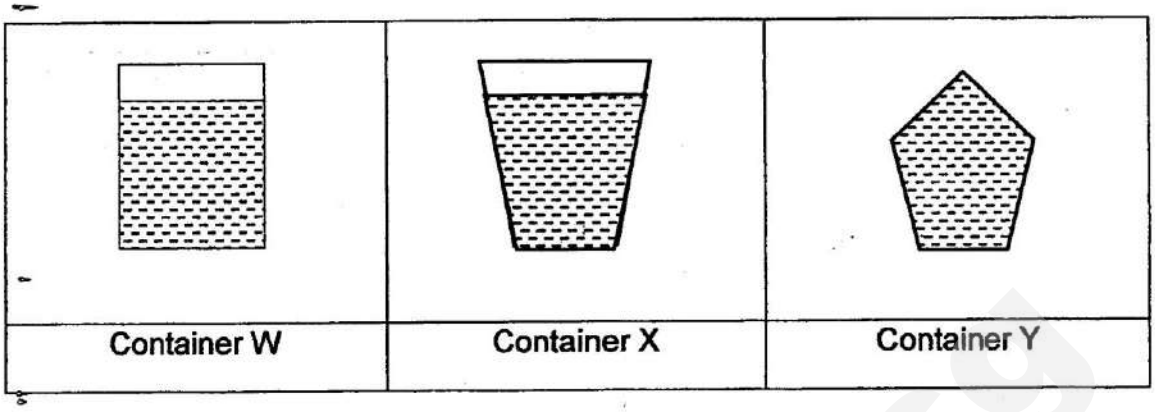
40. Three containers were filled with equal amount of water as shown below.




(a) Based on your observation, state one property of liquid. [1]

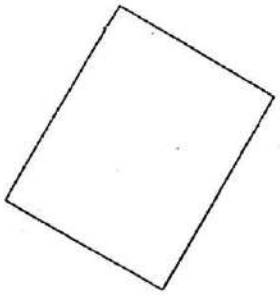
_____

_____

(b) Container W was placed in the freezer overnight.

The water has turned into ice. Container W was tilted as shown in the diagram below.

In the diagram below, draw a line to show what would be observed immediately after removing container W from the freezer. [1]



(c) Explain your answer in (b). [2]

_____

_____

_____

Score 4



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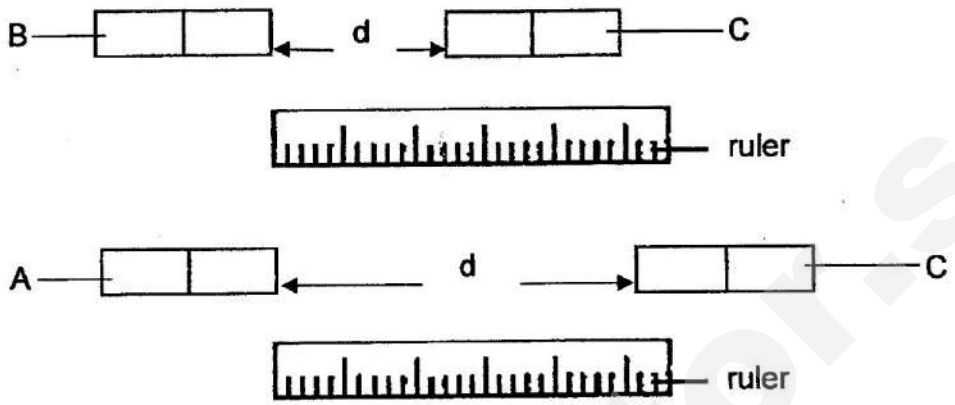
41. Jaime had three magnets, A, B, and C, of similar size. Each of these magnets had different strength.

When the magnets were brought close to each other, Jamie observed the interactions between the magnets and measured the distance(d) between them.

The diagrams below show Jaime's observations.




Based on the information above, answer the following question:

(a) Which of the magnets, A or B, was stronger? Explain your answer. [2]

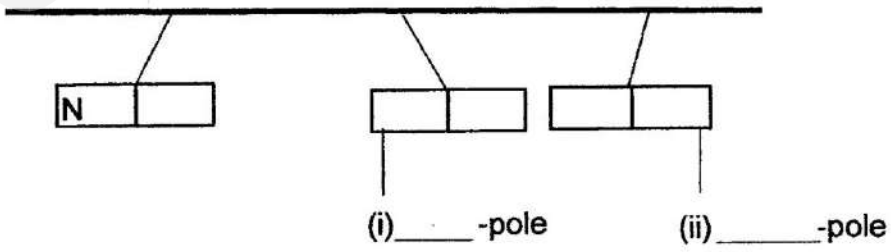
_____

_____

(b) Jaime then tried to place the magnets side by side.

The figure below shows what happened when she released the magnets. Write letter N or S in the diagram below to show clearly the poles of the magnets at locations (i) and (ii). The first one has been done for you.

[2]




**End of Paper**

Setters: Ms K. Shaheena, Mr Yeo Siah Ong

| Score | / 4 |
|---|---|



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# ANSWER KEY

| | | |
|---|---|---|
| YEAR | : | 2018 |
| LEVEL | : | PRIMARY 4 |
| SCHOOL | : | RAFFLES GIRLS' PRIMARY |
| SUBJECT | : | SCIENCE |
| TERM | : | SA1 |

## Section A

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

## Section B

29 (a) One other condition is warmth.

(b) Moisture / water

(c)

| Bread Z | Bread X | Bread Y |
|---|---|---|

30 (a) Both animals T and S do not have scales.

(b) Animal T has six legs but animal R does not have six legs.

(c) This animal belongs to group R.



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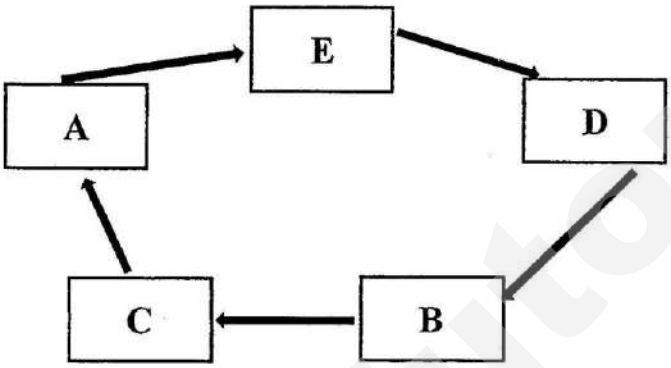
31 (i) A to B <u>egg</u>.

(ii) C to D <u>pupa</u>.

(a) The butterfly.

32 (a)




(b) No, I do not agree. Stage B's plant has leaves. The leaves can help the plant make food to survive.

33 (a) X : <u>Gullet</u>

(b) (i) Digestion begins : <u>mouth</u>

(ii) Digestion ends : <u>small intestine</u>

(c) The parts are the mouth, stomach and small intestine.

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34 (a) Test results X. The same amount of food substances is cut into smaller pieces to increase the exposed surface area of increased the rate of digestion.

(b) Joseph's sister would take a shorter time to digest the piece of apple.

35 (a) (i) Stem

(ii) Roots

(b) The stem transports water and mineral salts from the roots to other parts of the plant.

(c) The plant would wither and die. If the roots are removed, it will not be able to take in water and mineral salts for the plant to stay healthy.

36 (a) Materials A and C. They were the only materials that could withstand the weight until more than 150g before it started to tear.

(b) Material B and D absorb water.

(c) Material D. It has a greater mass after soaking in water. This shows that it absorbs more water than B.

37 (a) Solid / Liquid. Substance J has a definite volume, hence no air could enter to occupy space taken up by substance J as there was no space for air to enter the balloon.

(b) The air in the container does not have a definite volume so it could be compressed.



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38 (a)

| Object T | Object R | Object S |
|---|---|---|

(b) Yes, I do. Object S was not fully submerged in the water so it is not possible to tell.

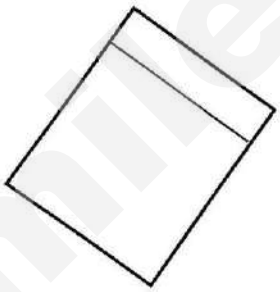
(c) Increase the amount of water in the beaker so that object S is completely submerged in water.

39 (a) The bubbles formed as air escaped from the bottle and water entered the bottle.

(b) Some water from the container entered the bottle to take up the space which was previously occupied by the air.

40 (a) Liquids do not have a definite shape.

(b)



(c) Ice is a solid and solids have a definite shape.

41 (a) Magnet A is the stronger magnet, it repelled magnet C further.

(b) (i) South-pole

(ii) North-pole

End



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SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)

FIRST SEMESTRAL ASSESSMENT 2018

NAME: _____ (  )

CLASS: PRIMARY 4 SY / C / G / SE / P

DATE: MONDAY 7 MAY 2018

Parent's Signature:

**SCIENCE**

**BOOKLET A**

25 questions

50 marks

Total time for Booklets A & B: 1 h 25 min

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

**FOLLOW ALL INSTRUCTIONS CAREFULLY.**



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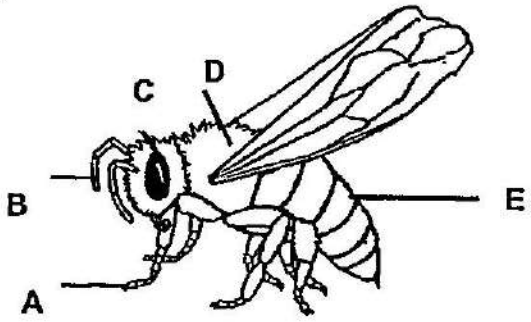
**Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.**

1. The picture below shows a honeybee.




Which of the following parts are labelled correctly?

| | Antenna | Thorax | Abdomen |
|---|---|---|---|
| (1) | A | C | D |
| (2) | A | D | E |
| (3) | B | C | D |
| (4) | B | D | E |

2. The table below shows the properties of materials A, B and C. A ti indicates that the material has the property.

| Material | Properties | | | |
|---|---|---|---|---|
| | Flexible | Waterproof | Ability to float | Breaks easily |
| A | ✓ | ✓ | ✓ | |
| B | ✓ | | ✓ | |
| C | ✓ | | | |
| D | | ✓ | ✓ | ✓ |

Which material, A, B, C or D, would you use to make a shower cap to ke the hair dry in the shower?

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



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3. Which one of the following shows the correct order when food moves through part of the digestive system?

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

4. Which one of the following shows how water travels in a plant?

(1) stem → leaf → roots
(2) roots → stem → leaf
(3) stem → roots → leaf
(4) roots → fruit → flowers

5. Which one of the following is a flowering plant?

(1) Bread Mould

(3) Mushroom

(2) Bird's Nest Fern

(4) Mango Tree



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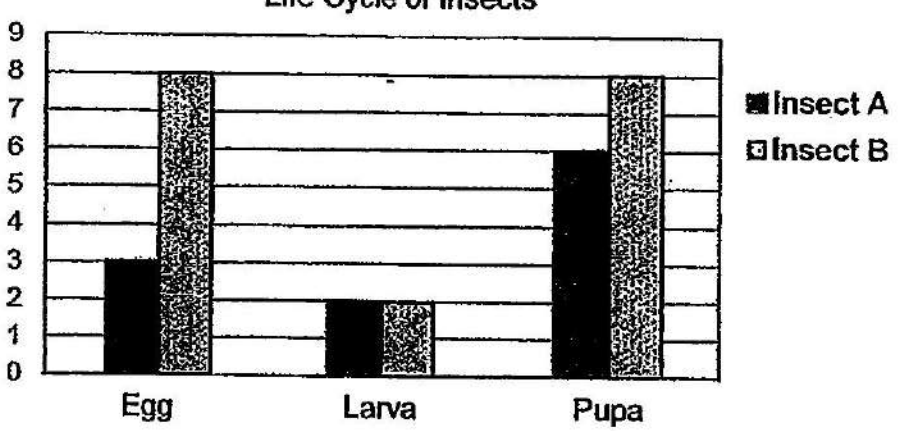


Which of the following is most likely to represent Insect A and Insect B respectively 9 days after the eggs were hatched?

| | Insect A | Insect B |
|---|---|---|
| (1) | Pupa | Larva |
| (2) | Pupa | Adult |
| (3) | Adult | Pupa |
| (4) | Adult | Adult |

7. The characteristics of 3 types of living things, X, Y and Z, are shown in th table below.

| | X | Y | Z |
|---|---|---|---|
| Does it make its own food? | Yes | No | Yes |
| Can it produce flowers? | Yes | No | No |

Which of the following statements is/are true?

A: X and Z have green leaves.
B: X and Z reproduce by seeds.
C: Y and Z are ferns.
D: X is a flowering plant.

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



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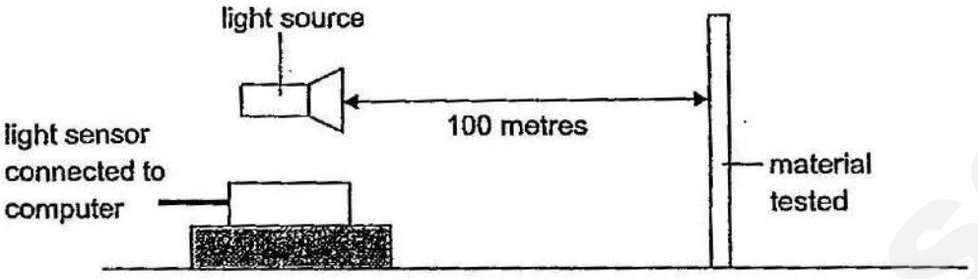
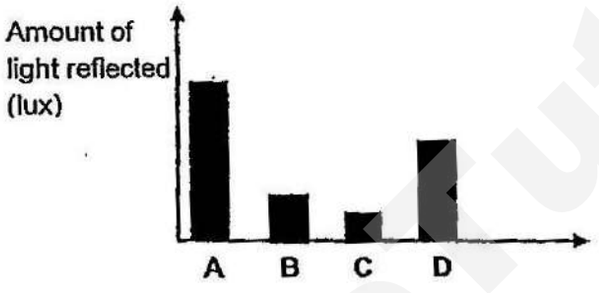
8. Daniel conducted an experiment to find out the amount of light reflected by four different materials, A, B, C and D. He set up his experiment as shown in the diagram below.




He placed the material at 100 metres away from the light source and he used a light sensor to record the amount of light reflected. The results are shown in the graph below.




Based on the results of his experiment, which material would be most suitable to make the letterings of a signboard along the road so that motorists can see them clearly from far away at night?

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



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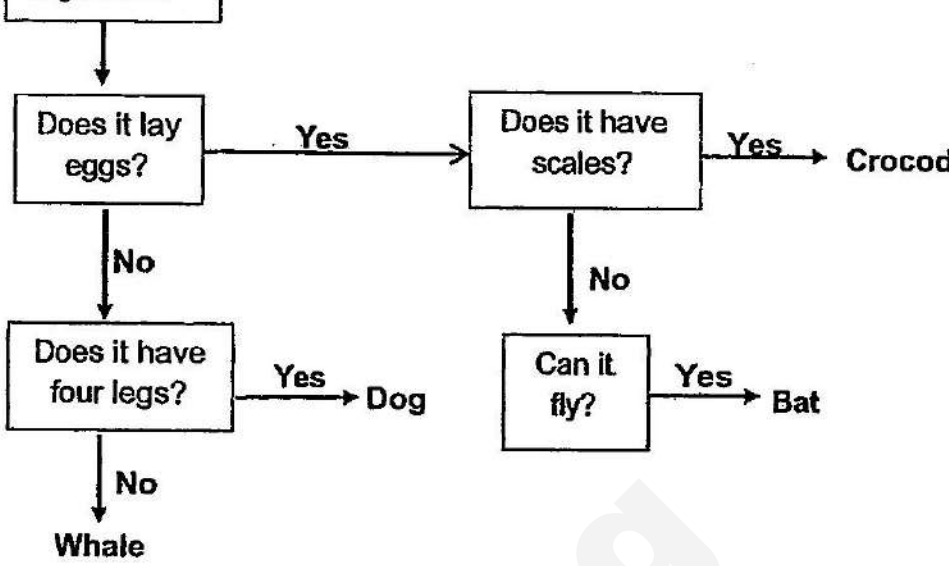


Which animal is classified **wrongly**?

(1) Crocodile
(2) Whale
(3) Dog
(4) Bat

10. Rachel wanted to find out what is the best temperature for seed germin and prepared 4 set-ups similar to the one shown in the diagram below.

She placed the 4 set-ups at different locations as shown in the table belov

| Set-up | Location | Temperature |
|---|---|---|
| A | In the oven | 85°C |
| B | In the fridge | 2°C |
| C | In the cupboard | 26°C |
| D | In the classroom | 30°C |

In which 2 set-ups would the seed germinate?

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



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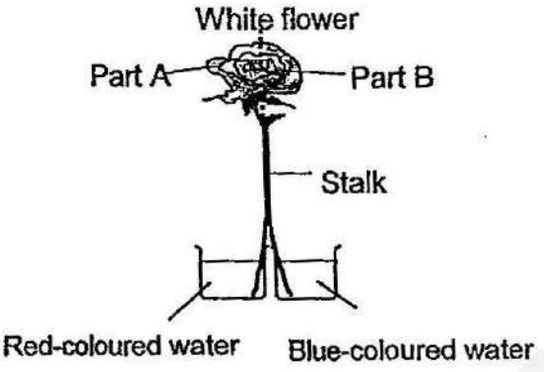
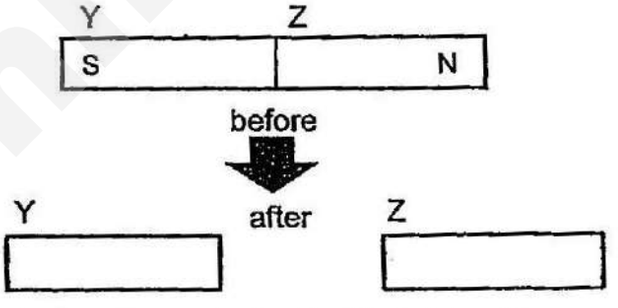
11. Eve split the stalk of white flower into 2 halves. She placed half of the stalk in red-coloured water and the other half in blue-coloured water as shown below. The set-up was left overnight.




The next day, what would Eve observed?

| | Part A | Part B |
|---|---|---|
| (1) | White | White |
| (2) | Blue | Red |
| (3) | Red | Blue |
| (4) | Purple | Purple |

12. Paul broke a bar magnet into two pieces.




Which of the following shows what poles Y and Z are?

| | Y | Z |
|---|---|---|
| (1) | North | North |
| (2) | South | South |
| (3) | North | South |
| (4) | South | North |



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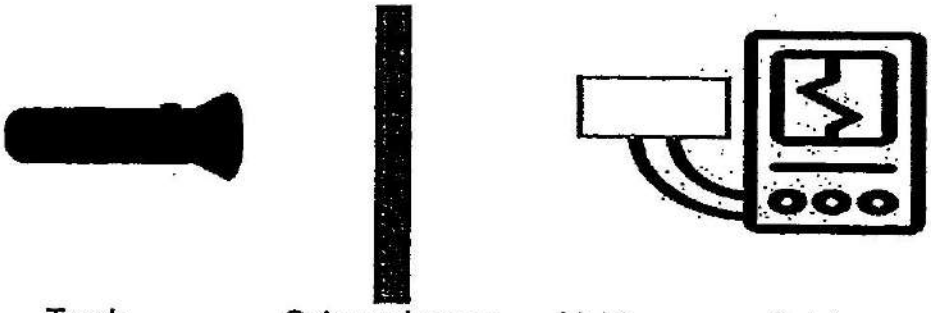
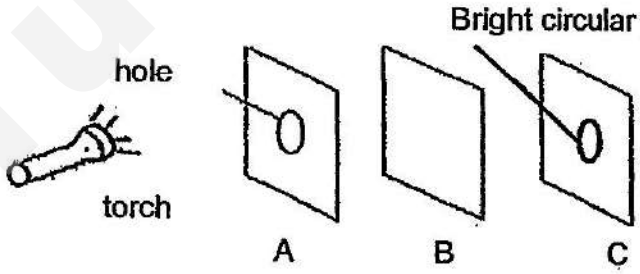


Torch Coloured paper Light sensor Datalogger

Which of the following must Sammi change to conduct the experiment?

(1) Types of coloured paper
(2) Amount of light that passes through the coloured paper
(3) Distance of torchlight to the coloured paper
(4) Thickness of coloured paper

14. Pamela conducted the experiment as shown below in a dark room sheets, A, B and C, are arranged in a straight line. When the torch is t on, a circular patch of bright light is seen on sheet C only.




Which of the following materials are sheets A, B and C made of respectiv

| | Sheet A | Sheet B | Sheet C |
|---|---|---|---|
| (1) | Wood | Clear plastic | Rubber |
| (2) | Rubber | Wood | Clear plastic |
| (3) | Clear plastic | Wood | Rubber |
| (4) | Clear plastic | Clear plastic | Wood |



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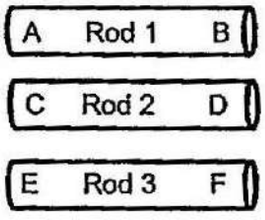
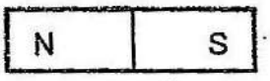
15. Jimmy has three rods, 1, 2 and 3 as shown below. They are made of different materials.



magnet

When a magnet is placed near the ends of each rod at a time, he observed the following results.

| Rod | End | Response to North Pole | Response to South Pole |
|---|---|---|---|
| 1 | A | Attracted | Attracted |
| | B | Attracted | Attracted |
| 2 | C | Did not move | Did not move |
| | D | Did not move | Did not move |
| 3 | E | Attracted | Repelled |
| | F | Repelled | Attracted |

Identify the materials of Rod 1, 2 and 3.

| | Rod 1 | Rod 2 | Rod 3 |
|---|---|---|---|
| (1) | Copper | Iron | Steel |
| (2) | Steel | Plastic | Copper |
| (3) | Iron | Plastic | Steel |
| (4) | Aluminium | Steel | Iron |



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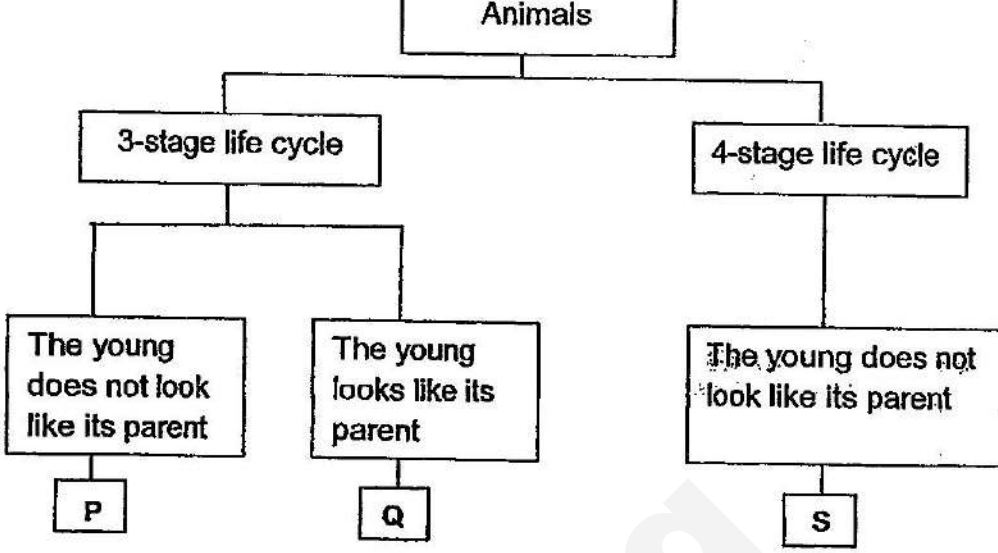


Which of the following animals represent P, Q and S ?

| | P | Q | S |
|---|---|---|---|
| (1) | Frog | Cockroach | Mealworm Beetle |
| (2) | Grasshopper | Mealworm Beetle | Cockroach |
| (3) | Frog | Mealworm Beetle | Cockroach |
| (4) | Grasshopper | Cockroach | Mealworm Beetle |

17. Annie conducted an experiment to find out if the amount of sunlight affe the rate of growth of a plant. She listed the following variables below:

A : Amount of sunlight

B : Amount of water

C : Type of seed

D : Duration of experiment

Which variables should Annie keep the same in order to conduct a fair tes

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



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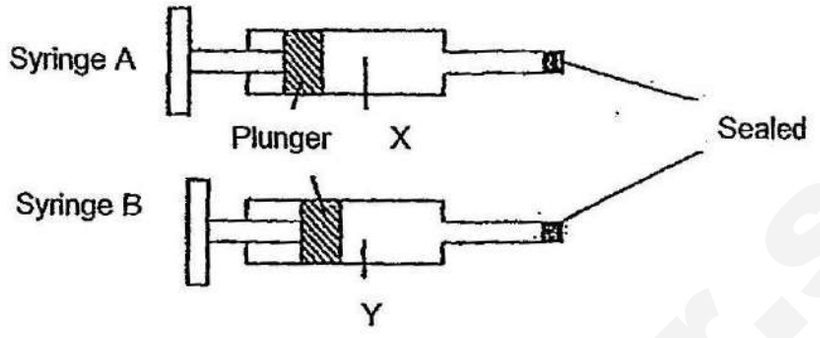
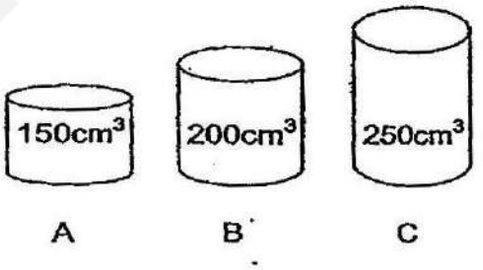
18. Two syringes, A and B, contained substances X and Y respectively. The nozzles of the syringes were sealed. The plunger in syringe A could not be pushed in while the plunger in syringe B could be pushed in slightly as shown in the diagram below.




Which of the following substances are most likely to be X and Y?

| | X | Y |
|---|---|---|
| (1) | Liquid | Solid |
| (2) | Gas | Liquid |
| (3) | Liquid | Gas |
| (4) | Solid | Liquid |

19. Tom wants to transfer 200cm$^3$ of oxygen into each of the containers A, B and C. Which of the following containers can he use to hold all of the oxygen?




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



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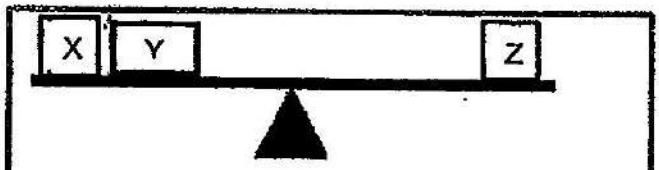
Lever is balanced without object

He placed objects X, Y and Z on the balance as shown in diagram below




Lever is balanced with objects, X, Y and Z

Which of the following can be concluded from the setup above?

(1) Object X has a greater mass than Object Z.

(2) Object Y has a greater mass than Object Z.

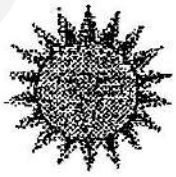
(3) Object Y has the greatest mass.

(4) Object Z has the greatest mass.

21. Which of the following does not have mass ?

(1) feather
(2) lightning
(3) ping pong ball
(4) water

22. Which of the following is **not** a source of light?



(1) Sun

(3) Mirror

(2) Lighted bulb

(4) Fire



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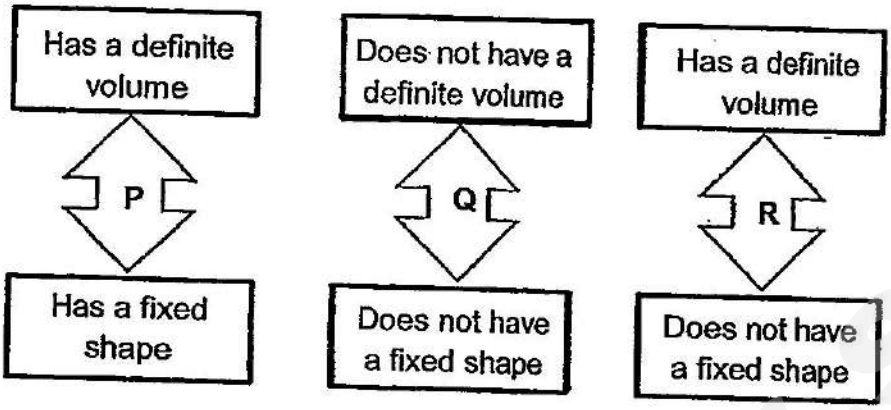
23. Study the diagram below.




Which of the following could be P Q and R?

| | P | Q | R |
|---|---|---|---|
| (1) | Water | Ice | Sand |
| (2) | Juice | Oxygen | Water |
| (3) | Paper | Oxygen | Juice |
| (4) | Ice | Sand | Oxygen |

24. The table below shows properties of K, L, M and N.

| Properties | K | L | M | N |
|---|---|---|---|---|
| Has a definite shape | | | | √ |
| Has a definite volume | | | √ | √ |
| Can be seen | √ | √ | √ | √ |
| Can be compressed | | √ | | |
| Can occupy space | | √ | √ | √ |

Which one, K, L, M or N, is an ice cube?

(1) K
(2) L
(3) M
(4) N



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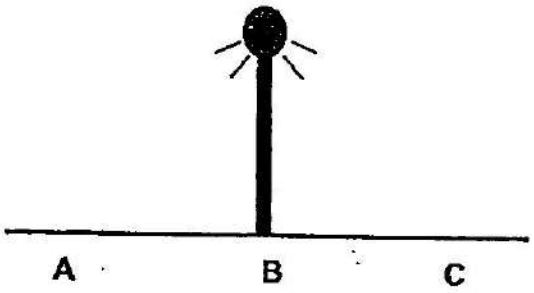
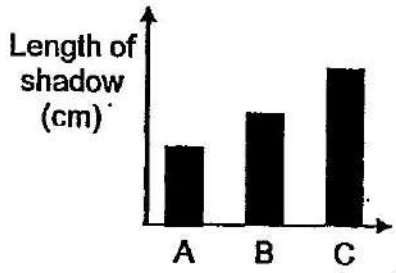
25. Amy walked past a lighted street lamp from A to C on a dark night.

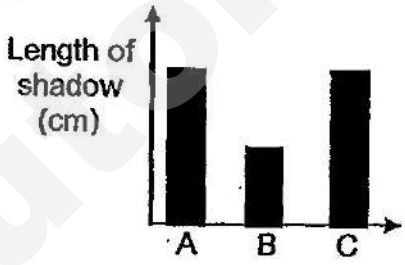



Which one of the following shows the likely changes in the length of Amy's shadow when she walked past the lighted street lamp from A to C?

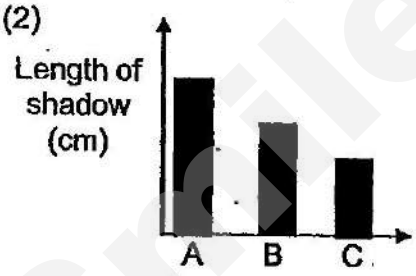
(1)



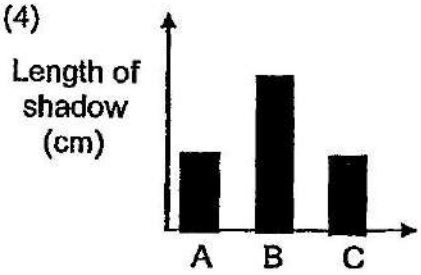

(3)




(2)




(4)




**End of Booklet A**



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SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)

FIRST SEMESTRAL ASSESSMENT 2018

NAME: _____ (  )  DATE: MONDAY 7 MAY 2018

CLASS: PRIMARY 4

Parent's Signature:

_____

# SCIENCE

## BOOKLET B

| | Total Actual Marks | Total Possible Marks |
|---|---|---|
| **Booklet A** | | **50** |
| **Booklet B** | | **30** |
| **Total** | | **80** |

9 questions

30 marks

Total time for Booklets A & B: 1 h 25 min

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

**FOLLOW ALL INSTRUCTIONS CAREFULLY.**



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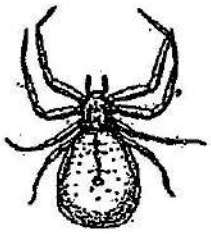
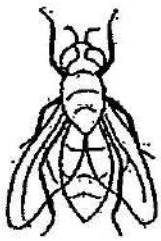
26. Study the 2 animals below.



Animal A



Animal B

(a) Based on what you can see only, state two differences between the two animals. (2m)

(i) _____

_____

(ii) _____

(b) Study the animal below and compare it to Animals A and B.

Animal C

Which animal, A or B, is Animal C more similar to? Explain your answer.

_____

(c) State 1 similarity between the life cycle of a grasshopper and a cockroach (1m)

_____

_____



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27. Study the characteristics of the four living organisms, D, E, F and G, shown below.

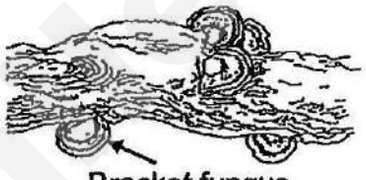
| | Living organisms | | | |
|---|---|---|---|---|
| **Characteristics** | **D** | **E** | **F** | **G** |
| Found on land | √ | | √ | √ |
| Bear flowers | √ | √ | | |
| Reproduce from spores | | | | √ |

(a) Describe Organism D. (1m)

_____

_____

(b) Based on the characteristics of the four living organisms above, match the letters (D, E, F or G) to the ones shown below. (2m)

| | Living organisms | Letter |
|---|---|---|
| (i) |  Bracket fungus | |
| (ii) | Water lily | |

(c) Based on the characteristics in the table above, state a difference between bracket fungus and water lily. (1m)

_____

_____



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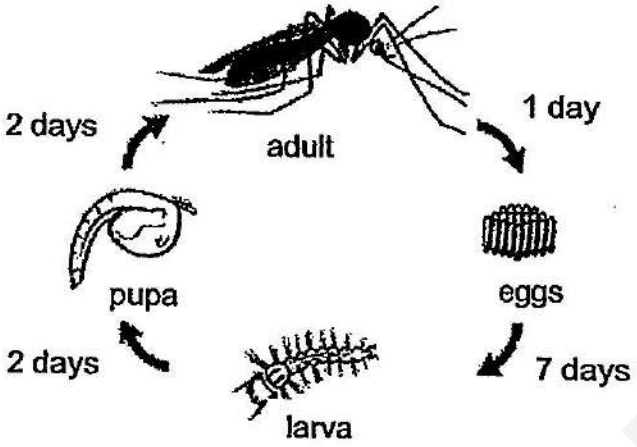
28. The diagram below shows a detailed life cycle of a mosquito.




(a) State a similarity between the life cycle of a mosquito and a frog. (1m)

_____

(b) Which stage(s) of the life cycle of the mosquito is/are found in water? (1m)

_____

(c) How long does it take for the mosquito to become an adult after the egg is laid? (1m)

_____

(d) Give one reason why getting rid of stagnant water will reduce the number of mosquitoes. (1m)

_____

| |
|---|
| /4 |



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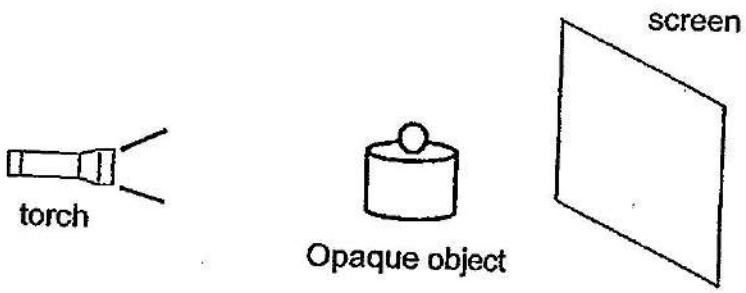
29. Study the set-up below. When a torch is switched on, a shadow is formed on the screen.




(a) Draw the shadow of the object on the screen provided below. (1m)

(b) **Without moving the torch**, state 2 ways that will cause a smaller shadow to be formed on the screen. (2m)

(i) _____

_____

(ii) _____

_____

3



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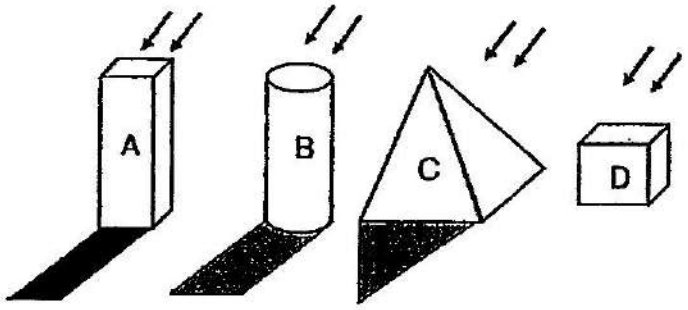
30. John placed four objects, A, B, C and D on the floor in a dark room. He shone a torchlight on the objects and recorded his observations of the shadows in the diagram below.




Based on the above observations, classify the four objects, A, B, C and D, in the table below. (2m)

| Amount of light allowed to pass through | | |
|---|---|---|
| **Most** | **Some** | **None** |
| | | |

31. Mervin carried out an experiment on the germination of seeds of two plants, Plant X and Plant Y. The seeds were placed in a room with suitable conditions for germination and the mass of Plants X and Y was recorded over a period of 9 days as shown in the table below.

| | Mass of Plant (g) | | | | |
|---|---|---|---|---|---|
| Plant | Day 1 | Day 3 | Day 5 | Day 7 | Day 9 |
| X | 1 | 0.8 | 0.6 | 0.4 | 0.2 |
| Y | 0.4 | 0.4 | 0.4 | 0.6 | 0.8 |

(a) Mervin made a mistake in the results of one of the plants. Which plant did he record the results wrongly? (1m)

Plant _____.

(b) Mervin cut off the seed leaves for both plants X and Y on Day 10 of his experiment. He noticed that both plants still continued to grow healthily. Explain how the plants were still able to survive after the seed leaves were cut off. (2m)

_____

_____



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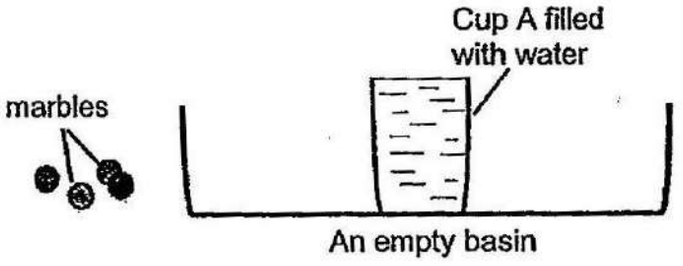
32. Jared filled Cup A with water to the brim and placed it in an empty basin.

(a) Jared had some marbles.




(i) Without touching or tilting Cup A and the basin, suggest how Jared can transfer some water from Cup A into the basin. (1m)

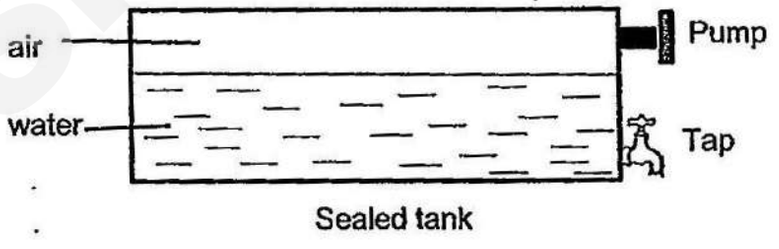
_____

_____

(ii) Using the method in (i), what does the amount of water transferred into the basin represent? (1m)

_____

(b) The capacity of the tank below is 300cm$^3$. It is filled with 200cm$^3$ of water and 100cm$^3$ of air.
Jared removed 50cm$^3$ of water using the tap and then pumped in 100cm$^3$ of air into the sealed tank.




Complete the table below to indicate the final volume of the water and air in the sealed tank. (2m)

| | Before (cm$^3$) | After (cm$^3$) |
|---|---|---|
| Air | 100 | |
| Water | 200 | |



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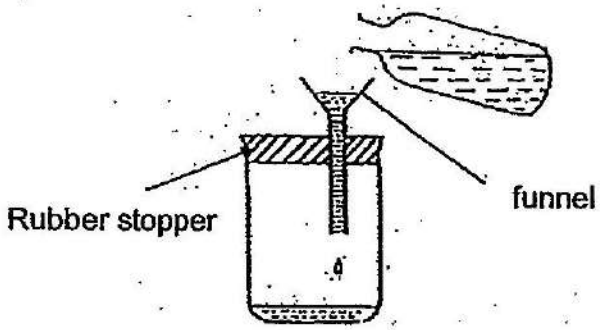
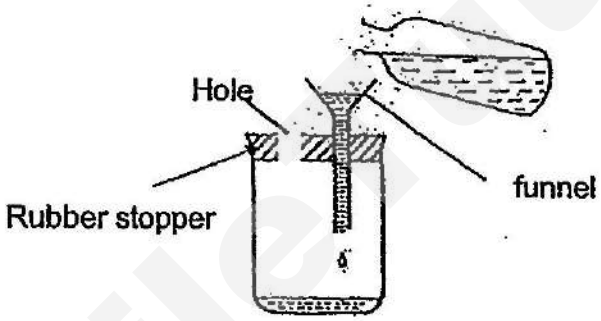
33. Ken set up the experiment as shown below. He observed that water dripped into the beaker at a very slow rate.




(a) Give a reason why the water drips into the beaker so slowly. (1m)

_____

(b) Ken made a hole in the stopper as shown below.




Ken noticed that the water can flow faster after making a hole in the rubber stopper. Explain why the water can flow faster. (2m)

_____

_____

3



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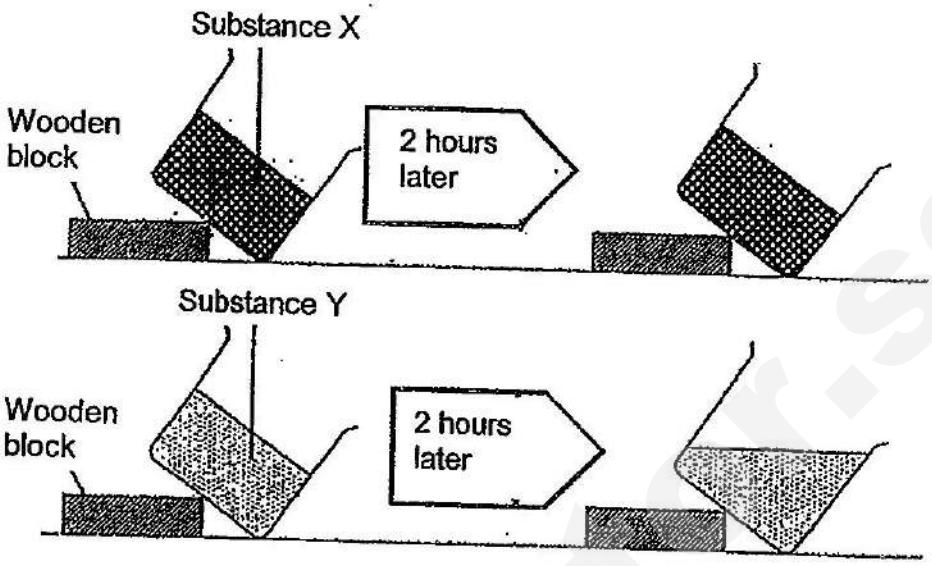
34. Jamie set up an experiment in the classroom as shown below. She tilted the 2 beakers and observed the shape of Substances X and Y.




(a) Based on the diagram above, what is the state of Substances X and Y after 2 hours? (2m)

Substance X: _____

Substance Y: _____

(b) Explain your answer in (a). (1m)

_____

_____

**End of Booklet B**

3



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# ANSWER SHEET

EXAM PAPER 2018 (P4)

SCHOOL : SCGS

SUBJECT : SCIENCE

TERM : SA1

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

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Name: _____ Class: _____

# P4 SCIENCE SA1 2018 OPEN-ENDED ANSWERS

**All Science concepts (in bold) must be clearly shown.**
**In cases where they are unclear or not shown, marks will not be awarded.**

| Qn No. | Answer |
|---|---|
| 26a | Any 2 of the following:<br>Animal A **has 8 legs** but Animal B has 6 legs<br>OR Animal A **does not have a pair of wings** but Animal B **has a pair of wings**<br>OR Animal A **has 2 main body parts/segments** but Animal B has **3 main body parts/segments.** |
| 26b | Animal B<br>**Because** Animal C has **6 legs/ a pair of wings** like Animal B. |
| 26c | Both lay eggs on land/ Both have **3-stage life cycle.** |
| 27a | D is **found on land, bear flowers** (and do not reproduce from spores).<br>*'Bear Flowers' already negates 'reproduce from spores' in this case.* |
| 27b | Bracket Fungus – G ; Water lily – E |
| 27c | Bracket fungus **reproduces from spores** while water lily **reproduces from seed.**<br>OR Bracket fungus is **found on land** but water lily is not **found on land.** |
| 28a | Both lay eggs in water. OR<br>Both spend part of their life cycles in water (and part of their life cycles on land). |
| 28b | Egg, larva, pupa |
| 28c | 11 days |
| 28d | Mosquitoes have no place to breed/ lay eggs. |

| | |
|---|---|
| 29a | |
| 29b | Any two of the following:<br>Move the **screen nearer to the object**<br>OR Move the **object nearer to the screen**<br>OR Move the **object away from the torch**<br>*(Based on question - torch must not be moved)* |
| 30 | **Amount of light allowed to pass through**<br>**Most**: D ; **Some**: B and C ; **None**: A |
| 31a | Plant X. |
| 31b | The seedlings has already grown its **green leaves** and which **can now make food/ photosynthesize for the plant.** |
| 32ai | Put the marbles into Cup A |
| 32aii | It represents the **volume of the marbles.** |
| 32b | Air : 150cm$^3$ Water : 150cm$^3$ |
| 33a | Air **in the beaker occupies space** and cannot escape. |
| 33b | **Air in the beaker can escape through the hole**<br>AND **water flow in to take the space previously occupied by air.** |
| 34a | **Substance X : Solid** **Substance Y : Liquid** |
| 34b | **Substance X keeps its shape / has a definite shape** when the beaker is tilted<br>BUT **Substance Y does not have a definite shape** / is unable to keep its shape when the beaker is tilted.<br>*(Must specify which is Substance X and Y)* |

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TAO NAN SCHOOL 道南学校

SINCERITY & PERSEVERANCE

## 2018 PRIMARY 4 SEMESTRAL ASSESSMENT 1

Name : _____ (  )

Class : Primary 4 (  )

Parent's Signature: _____

Date: 10 May 2018

Time: 8.00 a.m. - 9.45 a.m.

Duration: 1 hour 45 minutes

Marks: _____ / 56

# 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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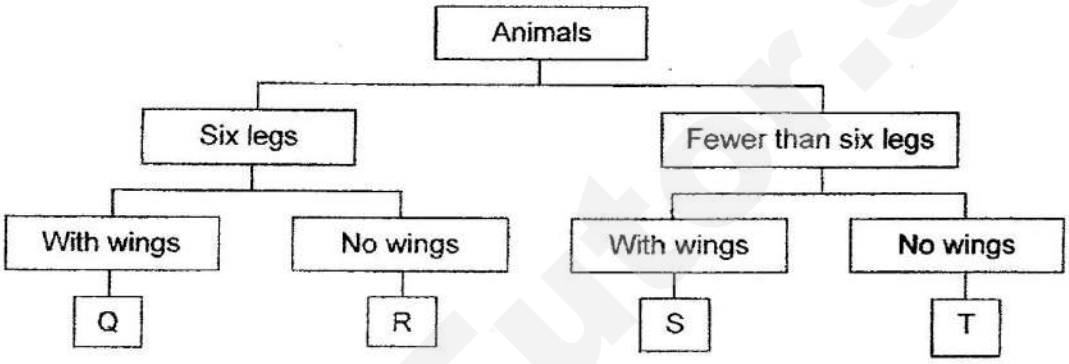
**Booklet A (28 x 2 marks)**

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

---

1. Study the flowchart below carefully. Q, R, S and T are animals.




Observe the animal shown below.

Which letter, Q, R, S or T, represents the animal above?

(1) Q

(2) R

(3) S

(4) T



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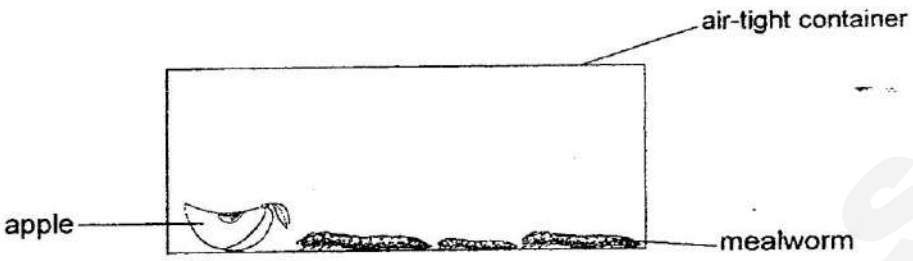
2. Ida placed some mealworms in an air-tight container as shown below




She observed that the mealworms died after a few weeks. Based on the above experiment, what can she conclude about living things.

(1) Living things can reproduce.

(2) Living things need air to stay alive.

(3) Living things can respond to changes.

(4) Living things can live without air, food and water.

3. Which of the following is a common characteristic of fern and fungi?

(1) They reproduce by spores.

(2) They trap sunlight to make food.

(3) They feed on dead plants and animals.

(4) They only need water and food to survive.



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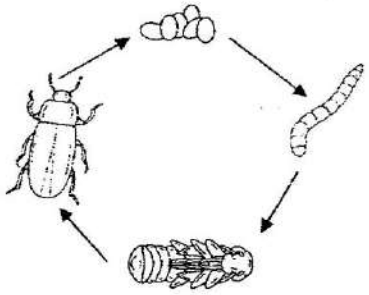
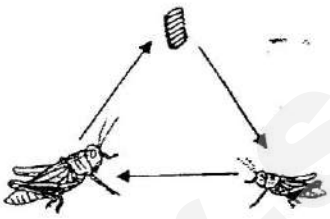
4. Study the life cycles of Insects A and B below.



Life cycle of Insect A



Life cycle of Insect B

Which of the following is true of the life cycles shown above?

(1) The young of Insect A and B do not feed.

(2) Insect A has an egg stage while Insect B does not have an egg stage.

(3) Insect A has a larval stage while Insect B does not have a larval stage.

(4) The young of Insect B does not look like its adult but the young of Insect A does.



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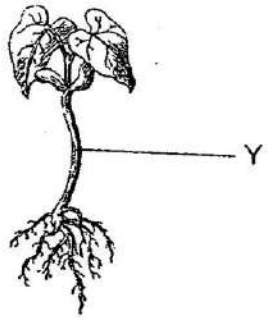
5. Megan planted a seed which grew into a young plant as shown below.




Which of the following statements is true about the main function of the part labelled Y?

(1) It grows away from light.

(2) It holds the plant firmly to the soil.

(3) It supports the plant and keeps it upright.

(4) It absorbs water and minerals salt from the soil.

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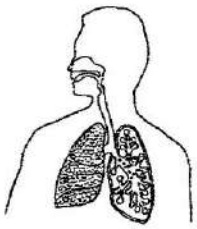
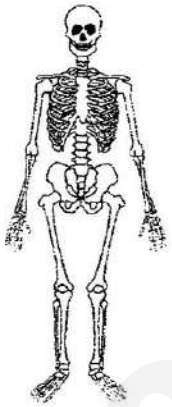
6. Which of the following systems takes in air in a human body?

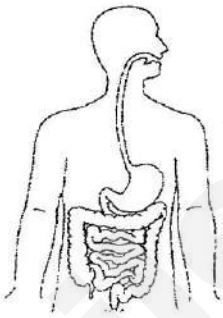
(1)



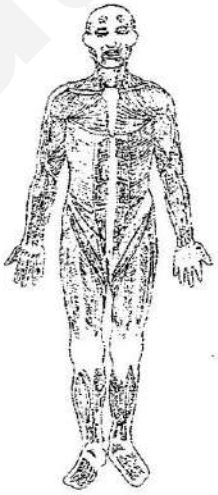
(2)



(3)



(4)



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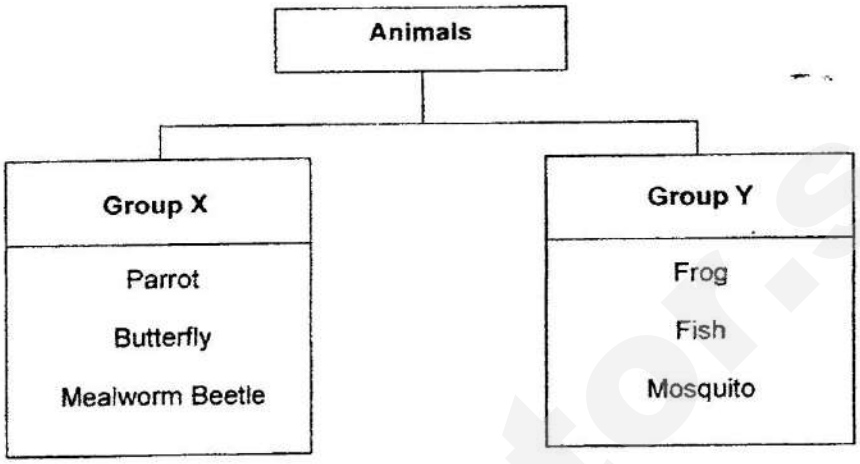
7. Study the classification chart below.




Which of the following best describe Groups X and Y?

| | Group X | Group Y |
|---|---|---|
| (1) | Adult stage lives on land | Adult stage lives in water |
| (2) | Life cycle has a pupa stage | Life cycle does not have a pupa stage |
| (3) | Has a 4-stage life cycle | Has a 3-stage life cycle |
| (4) | Eggs are not laid in water | Eggs are laid in water |



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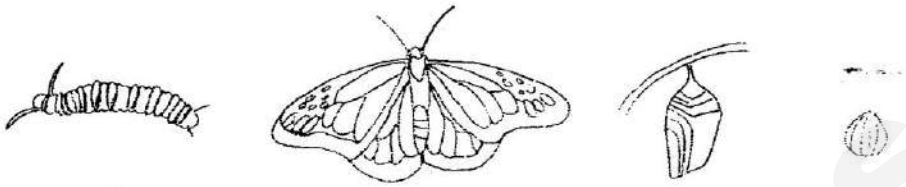
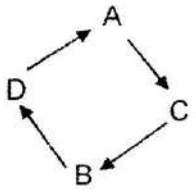
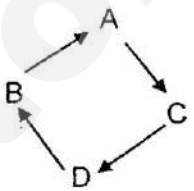
8. Which of the following arrangement represents the 4 stages of the butterfly in its life cycle?



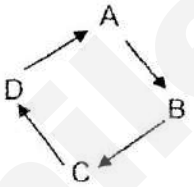

(1)



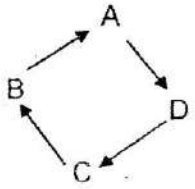

(2)




(3)




(4)




9. A butterfly usually lays its eggs on leaves. How does this help in the survival of its young?

(1) Its larva can obtain more air.

(2) Its pupa has space to grow larger.

(3) Its larva will have a ready food source.

(4) When hatched, the adult can fly off easily.



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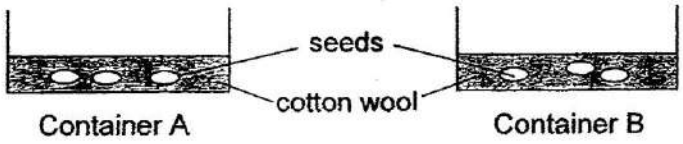
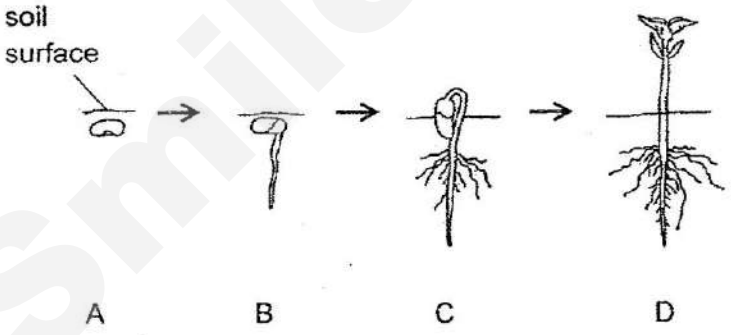
10. Hui Hui was given similar seeds to grow at home. She placed the seeds in two containers, A and B. After two weeks, only seeds in Container A germinated.




Which of the following was likely the changed variable for Hui Hui's experiment?

| | Container A | Container B |
|---|---|---|
| (1) | Placed in the garden | Placed in a dark room |
| (2) | No water given daily | Water given daily |
| (3) | No air | Has air |
| (4) | Placed in the cupboard | Placed in a refrigerator |

11. The diagram below shows the stages of germination (A, B, C and D) of Plant Y.




Which stage, A, B, C or D, shows the start of germination?

(1) A

(2) B

(3) C

(4) D



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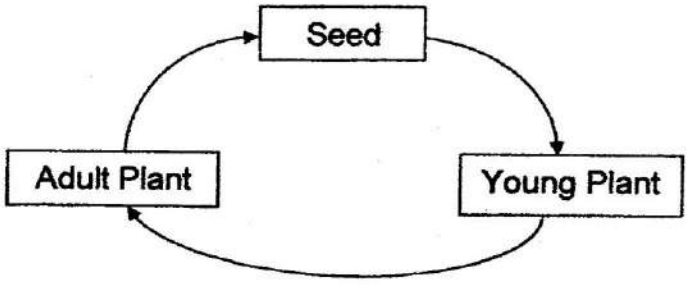
12. Study the life cycle shown below.




Which of the following living things has the above life cycle?

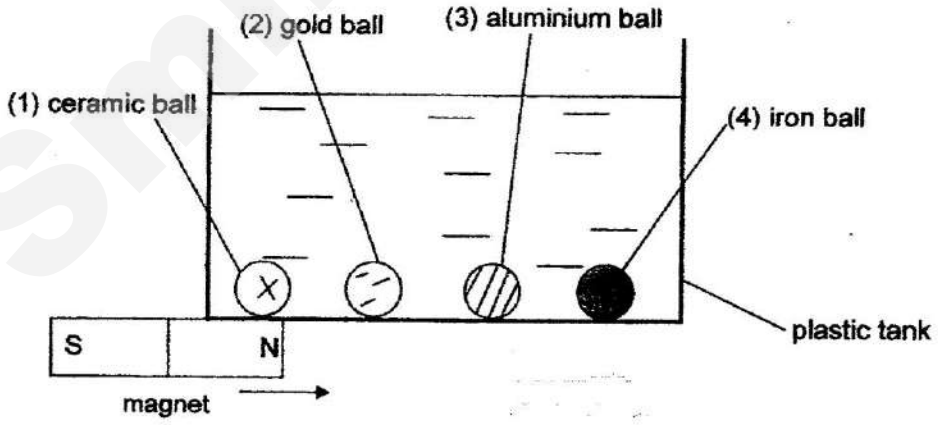
(1) Moss

(2) Papaya Tree

(3) Bird's Nest Fern

(4) Bracket Mushroom

13. In a plastic tank, there are 4 balls of different materials. Matthew takes a magnet and moves it under the tank in the direction as shown below. Which of the following balls will move with the magnet?



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14. Mr Lee wanted to select a material for making the outer-casing of an air-conditioner remote controller.

The following table shows the properties of four materials.

| **Material** | **Can it break easily?** | **Is it light?** |
|---|---|---|
| A | No | Yes |
| B | Yes | Yes |
| C | No | No |
| D | Yes | No |

Which of the following materials, A, B, C and D, is most suitable for Mr Lee to make the outer casing of the air-conditioner remote control?

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



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15. Muthu carried out an experiment with a bar magnet and 4 other bars, A, B, C and D, of different materials. The ends of the objects are labelled X and Y.

He brought the north-seeking pole of the bar magnet near both ends of A, B, C and D and recorded his observations in the table below.

| Bar | Reaction to the north-seeking pole of the magnet | |
|---|---|---|
| | X | Y |
| A | attract | attract |
| B | repel | attract |
| C | no reaction | no reaction |
| D | attract | repel |

Which of the following statements is correct?

(1) Only A is a magnet.

(2) B, C and D are magnets.

(3) Only A is made of a magnetic material.

(4) Only A, B and D are made of magnetic materials.

16. Which of the following is **not** matter?

(1) air

(2) salt

(3) light

(4) water



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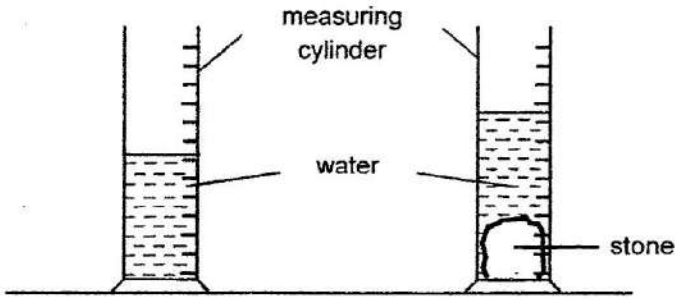
17. Kevin lowered a stone into a measuring cylinder containing some water. He observed a change in water level as shown in the diagram below.




Which of the following explains why the water level changed?

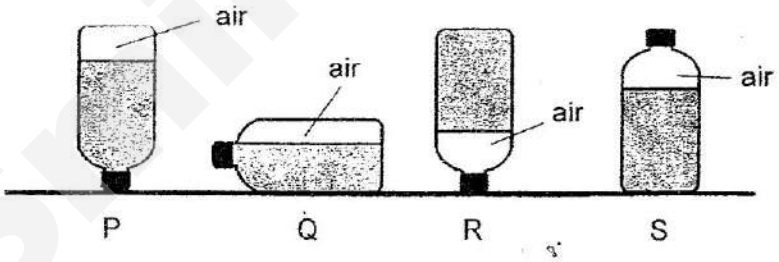
(1) The water has mass.

(2) The water is not matter.

(3) The stone occupies space.

(4) The volume of water increased.

18. Four bottles, P, Q, R and S, contained water. One of them had been put into a freezer.




Which of the bottles had definitely been placed in a freezer?

(1) P

(2) Q

(3) R

(4) S



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19. A clown inflated a long yellow balloon and twisted it into the shape of a dog. What properties of air in the balloon did he change?

A: The shape of the air

B: The mass of the air

C: The colour of the air

D: The volume of the air

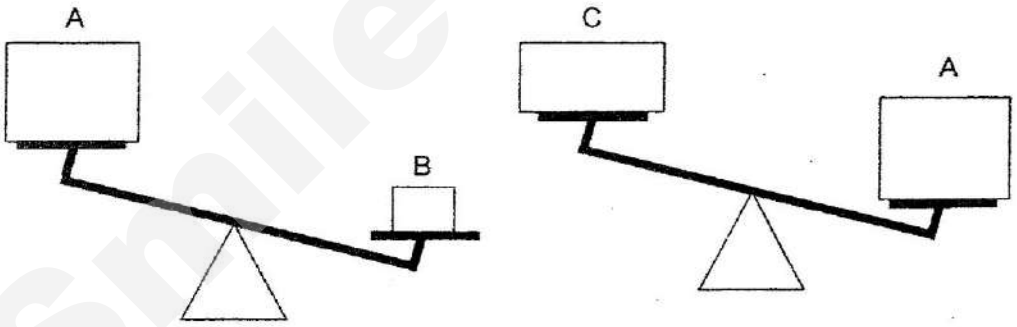
(1) A and B only

(2) A and D only

(3) B and C only

(4) C and D only

20. Three objects, A, B and C, are placed on a balance.




Which of the following statements is correct?

(1) A is the heaviest.

(2) B is the heaviest.

(3) A is heavier than B.

(4) C is heavier than B.



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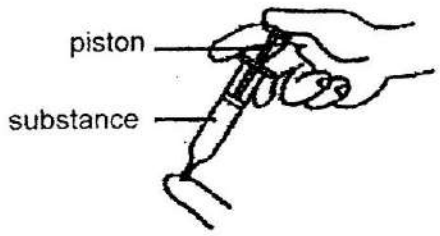
21. Two identical syringes are filled fully with unknown substances, E and F. Siti used her finger to cover each syringe as shown in the diagram below. The piston is pushed down and the distance moved by the piston is recorded by Siti in the table below.




| Distance moved by piston (cm) | |
|---|---|
| **Syringe with E** | **Syringe with F** |
| 2 | 0 |

Which of the following are the substances, E and F?

| | Substance E | Substance F |
|---|---|---|
| (1) | Slime | Water |
| (2) | Water | Slime |
| (3) | Air | Water |
| (4) | Slime | Air |



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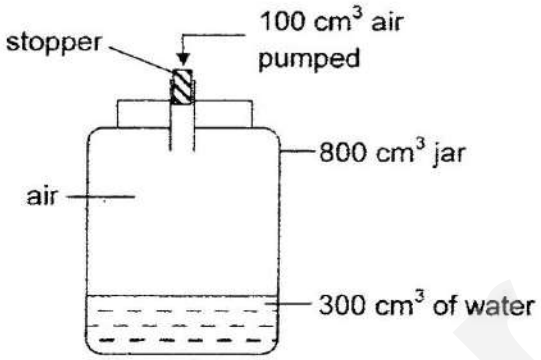
22. John pumped 100 $cm^3$ of air into an 800 $cm^3$ jar that had 300 $cm^3$ of water in it as shown in the diagram.




What is the volume of air in the jar now?

(1) 100 $cm^3$

(2) 500 $cm^3$

(3) 600 $cm^3$

(4) 800 $cm^3$

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

(1) sun

(2) moon

(3) mirror

(4) aluminium sheet



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24. James has an object that allows some light to pass through and another object that does not allow light to pass through. Which objects does he have?

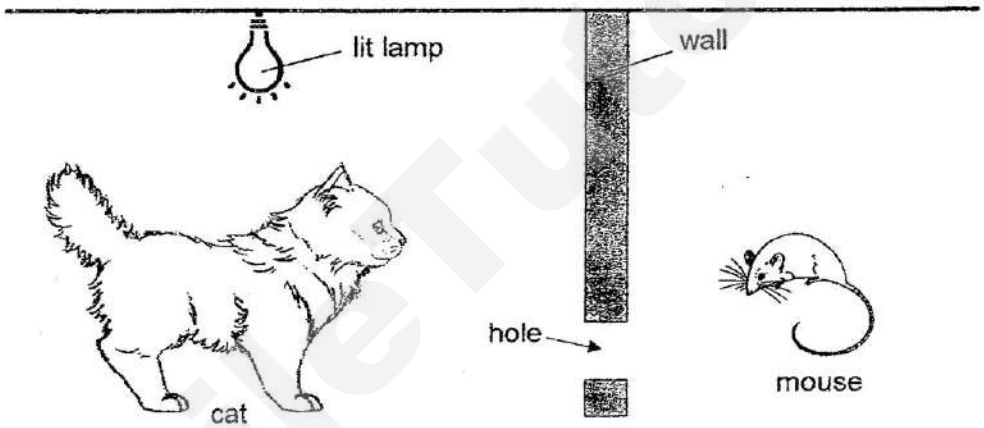
(1) Wood and clear plastic

(2) Clear glass and magnet

(3) Tracing paper and cardboard

(4) Frosted glass and tracing paper

25. A cat ran after a mouse. The mouse ran into a hole in a wall. The cat stopped in front of the wall as it was unable to see the mouse.




Which of the following is a correct explanation of why the cat could not see the mouse?

(1) The mouse is not able to reflect light.

(2) The wall allows light to pass through.

(3) The light of the lamp travels in a straight line.

(4) The hole does not allow light to pass through.



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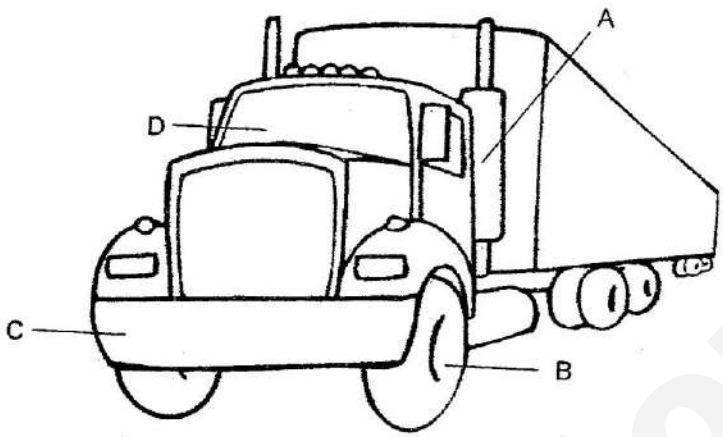
26. The diagram below shows a truck on the road.




Which part, A, B, C or D, of the truck must be made of a transparent material?

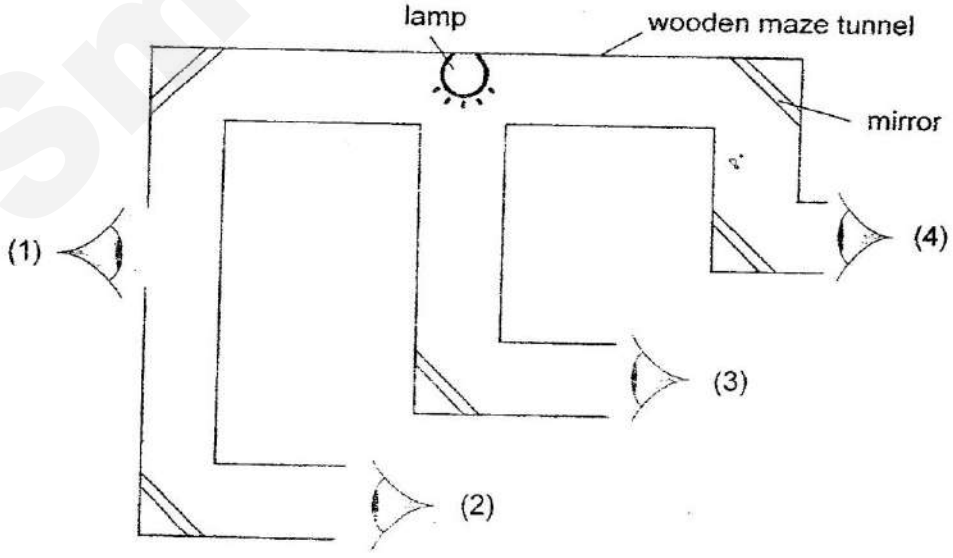
(1) A

(2) B

(3) C

(4) D

27. Four boys are peering into a wooden maze tunnel that has five pieces of mirrors as shown below. Which boy cannot see the lit lamp?



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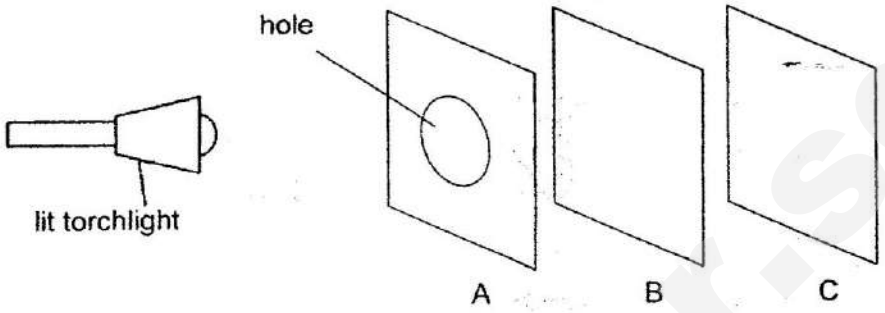
28. Fred carried out an experiment in a dark room. Sheets, A, B and C, are arranged in a straight line as shown in the diagram below.




Fred observed a bright circular patch of light on B only. Which of the following is definitely true?

(1) A is made of clear plastic.

(2) B allows light to pass through.

(3) C does not allow light to pass through.

(4) A and B do not allow light to pass through.



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TAO NAN SCHOOL 道南学校

SINCERITY & PERSEVERANCE

## 2018 PRIMARY 4 SEMESTRAL ASSESSMENT 1

Name : _____ (  )

Class : Primary 4 (  )

Parent's Signature : _____

Date: 10 May 2018

Time: 8.00 a.m. – 9.45 a.m.

Duration: 1 hour 45 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 | 56 |
| Booklet B | 44 |
| Total | 100 |

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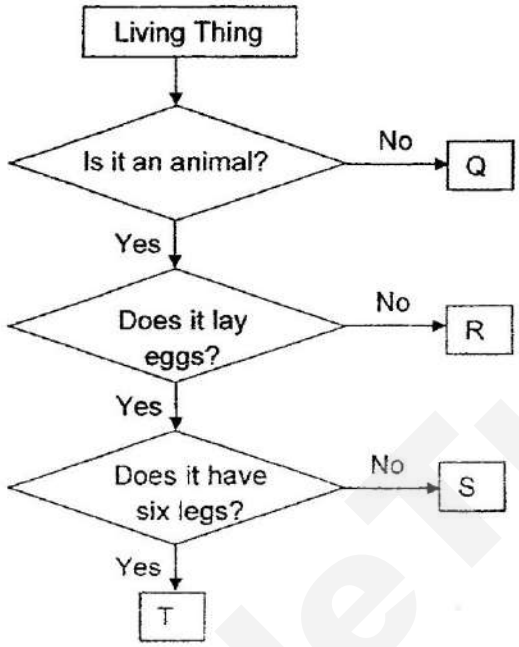
**Booklet B (44 marks)**

For questions 29 to 42, write your answers clearly in the spaces provided.

29. Study the flowchart below carefully. Q, R, S and T are living things.




(a) Based on the flowchart above, state one difference between R and S. [1]

(b) Based on the flow chart above, state one similarity in the characteristics of S and T. [1]

(c) Can Q be a plastic ball? Explain why. [1]

| Score | 3 |
|---|---|



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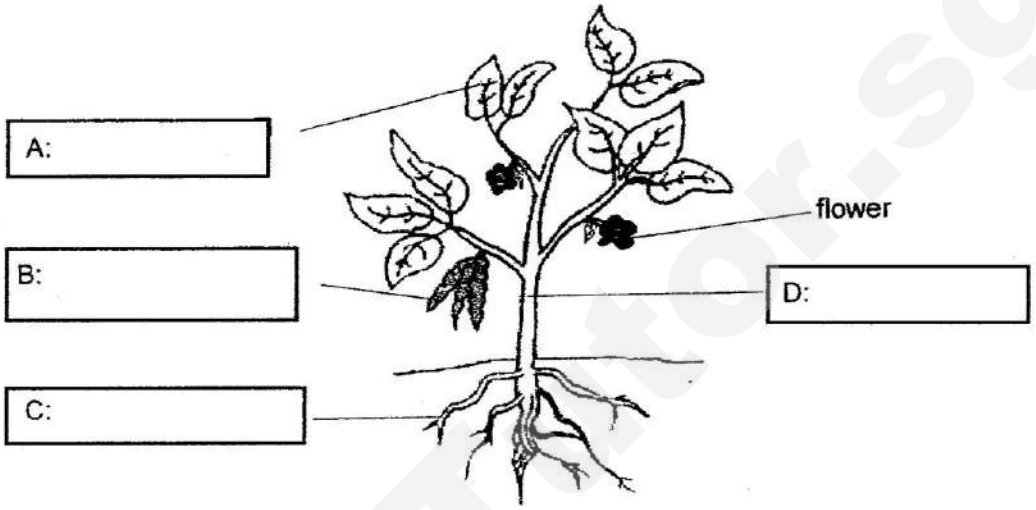
30. The diagram below shows a plant and its parts.

(a) Name the plant parts, A, B, C and D, in the boxes below. [2]




(b) State a function of plant part C. [1]

_____

| Score | 3 |
|---|---|



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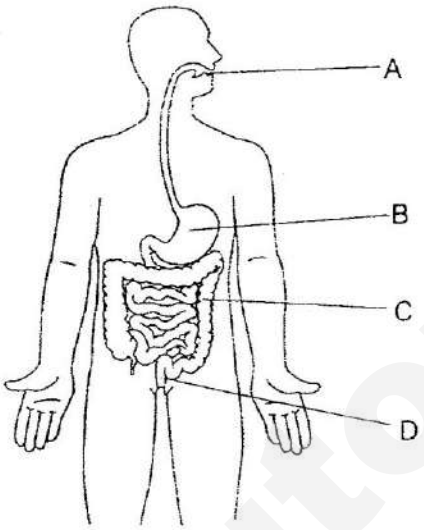
31. The diagram below shows the human digestive system.




(a) State the part where digestion begins. Part: _____ [1]

(b) Explain how biting and chewing of food by the teeth affects the amount of food digested in the mouth. [1]

_____

_____

| Score | / 2 |
|---|---|



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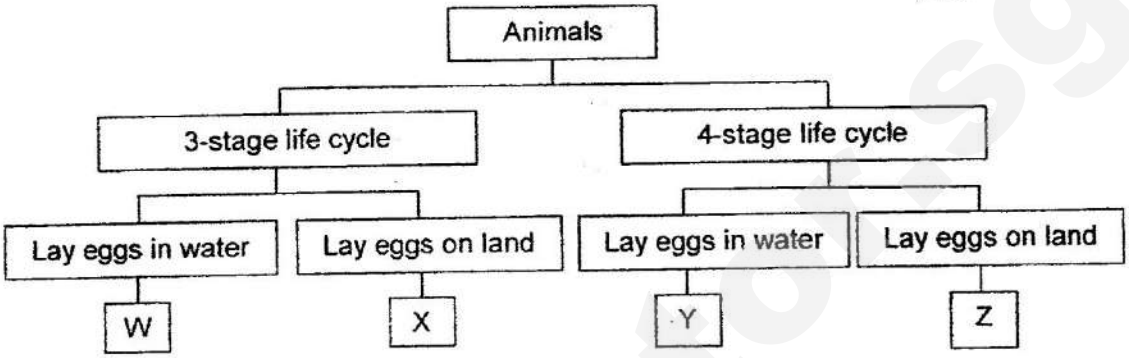
32. Study the classification chart below.




(a) State one similarity in the life cycle of Animal X and the life cycle of a cat. [1]

_____

_____

(b) Which of the letters, W, X, Y, Z, represent the following animals? [1]

(i) A butterfly: _____

(ii) A frog: _____

| Score | 2 |
|---|---|



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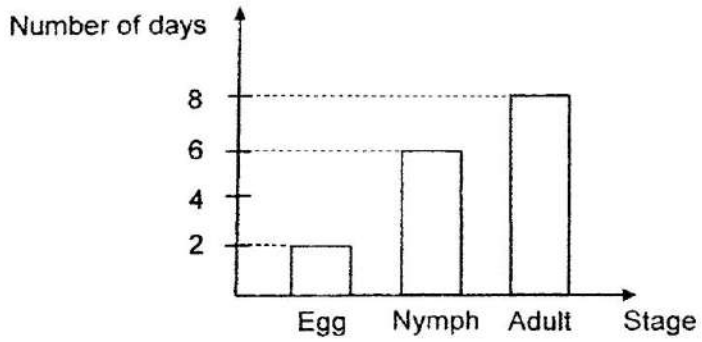
33. An unknown insect has 3 stages in its life cycle. The graph below shows the duration of each stage.




(a) At which of the above stages is the insect able to reproduce? [1]

_____

(b) i) Based on the graph above, how long would it take for an egg to become an adult after it has been laid? [1]

_____

ii) Based on the graph above, how long does it take for the insect to complete one life cycle. [1]

_____

(c) If the above insect is a cockroach, give a difference between the characteristic of its nymph and its adult. [1]

_____

_____

| Score | 4 |
|---|---|



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34. Eric placed similar seeds, J, K, L, M and N in a room. They are given different conditions and the results of his experiment are shown below.

| | Conditions | | | |
|---|---|---|---|---|
| **Seeds** | **Given water daily** | **Exposed to light** | **Given Substance X** | **Seed grew into seedling (Germination)** |
| J | Yes | Yes | Yes | Yes |
| K | No | Yes | Yes | No |
| L | Yes | Yes | No | Yes |
| M | No | No | Yes | No |
| N | Yes | No | No | Yes |

(a) Based on the above results, which condition(s) stated in the table is/are necessary for the seed to germinate? [1]

_____

(b) What can Eric conclude about the presence of Substance X and light on the germination of a seed? [1]

_____

_____

(c) Eric's teacher suggested that Eric repeats his experiment three more times. How will doing this help in the results of Eric's experiments? [1]

_____

_____

| Score | 3 |
|---|---|



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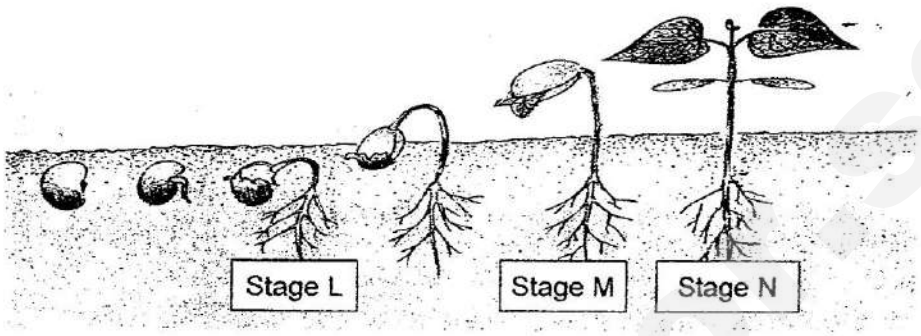
35. The diagram below shows some of the stages in the life cycle of a plant.




(a) At which stage, L, M or N, does the plant make its own food? Explain. [1]

_____

_____

(b) How can you tell if a plant has grown into an adult plant? [1]

_____

_____

| Score | / 2 |
|---|---|



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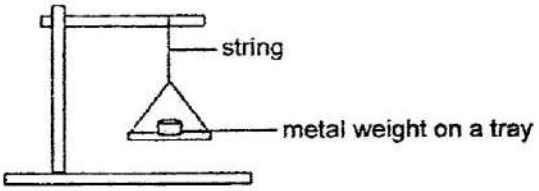
36. Sam set up an experiment to find out how the thickness of a string would affect the strength of the string.




He used 3 strings, A, B and C. He added weights on the tray until the string broke. The table below shows the number of weights that each string could hold before it broke.

| String | Thickness of string (unit) | Number of weights that each string could hold before it broke |
|---|---|---|
| A | 1 | 5 |
| B | 2 | 10 |
| C | 3 | 15 |

(a) Which string, A, B or C is the strongest? Explain your answer. [2]

_____

_____

(b) Put a tick (√) in the boxes below to select the constant variable to ensure a fair test in the above experiment. [1]

| Variable | To be kept the same |
|---|---|
| Length of string | |
| Material of string | |
| Thickness of string | |
| Mass of weights | |

| Score | / 3 |
|---|---|



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37. Beth placed two identical ring magnets, A and B, through a wooden rod on a wooden base. She observed that the magnets, A and B, were at a distance away from each other as shown in the diagram below.

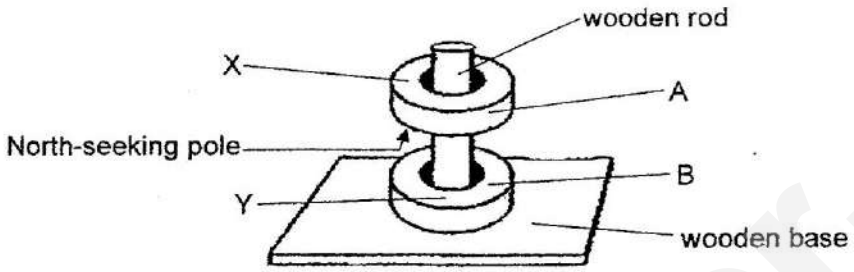



Diagram 1

(a) Explain why the magnets, A and B, were at a distance away from each other. [1]

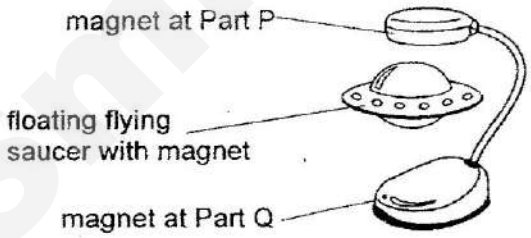
_____

_____

(b) The north-seeking pole of the magnet, A, is shown. Identify the magnetic poles of the surfaces, X and Y. [1]

X: _____ Y: _____

Beth has a toy flying saucer as shown below.




(c) Explain why the flying saucer is floating. [2]

_____

_____



| Score | / 4 |
|---|---|

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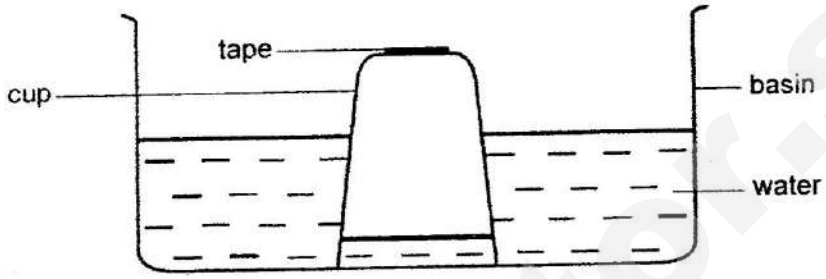
38. Abdul made a hole at the base of a plastic cup and then sealed it with tape. When he pushed the inverted cup into the basin of water, only a small amount of water entered the cup.




(a) Explain why a small amount of water entered the cup? [1]

_____

_____

(b) Give a reason why the water level in the cup does not move any higher. [1]

_____

_____

(c) Describe what would happen to the water level in the cup if Abdul removed the tape from the cup. [1]

_____

(d) Give an explanation for your answer in (c). [1]

_____

_____

| Score | 4 |
|---|---|



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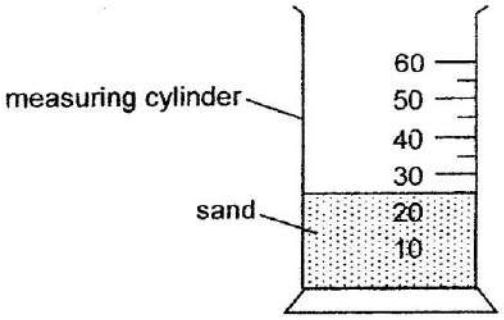
39. James filled a measuring cylinder with 25 $cm^3$ of sand as shown in the diagram below.




He then poured 35 $cm^3$ of water into the same measuring cylinder.

(a) What would be the total volume of sand and water shown on the measuring scale of the cylinder? Tick your answer in the table below. [1]

| Total volume of water and sand | Tick (√) |
|---|---|
| More than 60 $cm^3$ | |
| At 60 $cm^3$ | |
| Between 60 $cm^3$ and 25 $cm^3$ | |
| Below 25 $cm^3$ | |

(b) Explain your choice in (a). [2]

_____

_____



| Score | / 3 |
|---|---|

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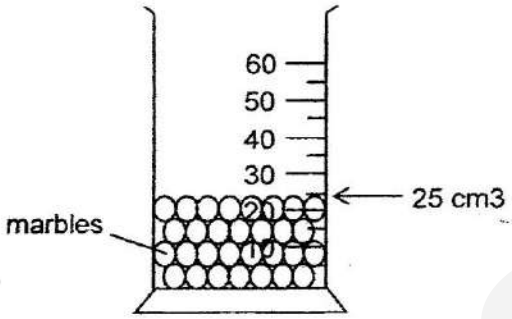
(c) James repeated the experiment but used marbles instead of sand.




After pouring the 35 $cm^3$ of water into the cylinder, will the water level be higher or lower than in (a)? Explain why. [1]

| Score | 1 |
|---|---|



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

| Properties | A | B | C | D |
|---|---|---|---|---|
| Does it have mass? | Yes | No | Yes | Yes |
| Can it be seen? | No | No | Yes | Yes |
| Does it have a definite shape? | No | No | Yes | No |
| Does it have definite volume? | No | No | Yes | Yes |

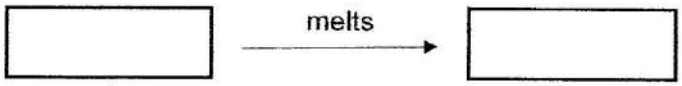
(a) Which of the above, A, B, C or D, can represent music? [1]

_____

(b) If D is matter, what state of matter is it? [1]

_____

(c) When the above candle is lit, the wax melts. State "solid", "liquid" or "gas" for the change of state of the wax as it melts in the boxes below. [1]




Change of state of candle wax

| Score | 3 |
|---|---|



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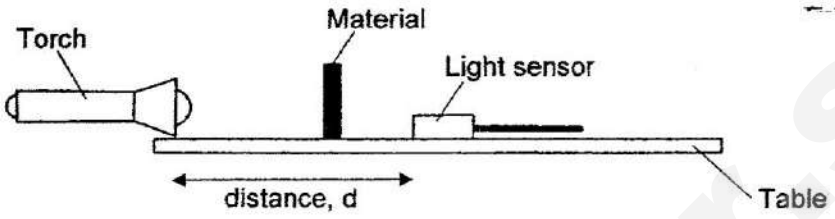
41. An experiment was conducted to find out the amount of light that would pass through 4 different materials, P, Q, R and S. A light sensor was used to detect how much light passes through each material. The setup for the experiment is shown below.

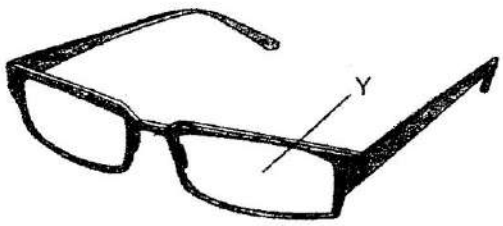



When no material was placed between the torch and light sensor, the amount of light detected was 500 units.

The following table shows the results when different materials were placed between the torch and light sensor.

| Material | Amount of light detected (units) |
|---|---|
| P | 470 |
| Q | 390 |
| R | 180 |
| S | 0 |

(a) Based on the table above, which of the materials, P, Q, R or S, will be most suitable to make part Y of the spectacles below which is used for reading? Give a reason for your answer. [2]






| Score | / 2 |
|---|---|

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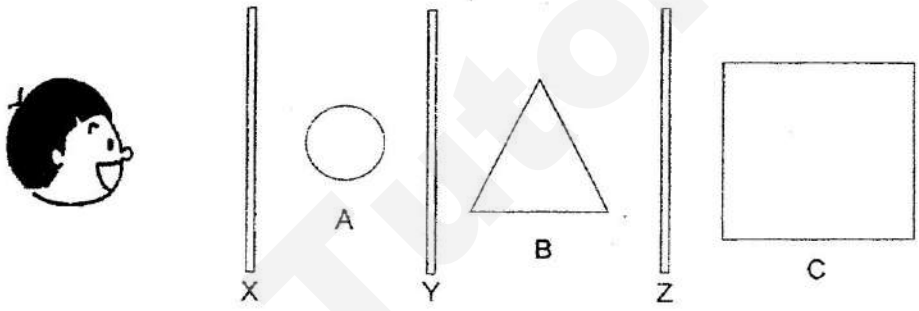
(b) Without changing any of the apparatus or equipment used, suggest how you can increase the readings on the light sensor for all the materials? [1]

A boy looked across the room at objects, A, B and C, and three pieces of glass, X, Y and Z. They were arranged in a row as shown below.




| Screen | Property |
|---|---|
| X | Allow most light to pass through |
| Y | Allow some light to pass through |
| Z | Does not allow light to pass through |

(c) Which of the objects, A, B or C, can the boy see? [1]

Score 2



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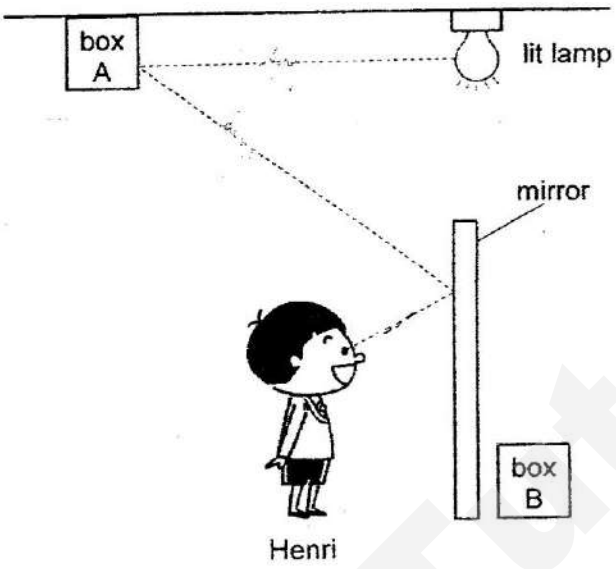
42. Henri set up an experiment as shown in the diagram below.




When Henri faces the mirror, he is able to see box A clearly behind him but not box B. The path of light shown in the above diagram as dotted lines allows Henri to see box A.

(a) Draw in the arrows on the dotted line in the above diagram to show the direction of the path of light. [1]

(b) With the help of the diagram, explain how Henri is able to see box A even though it is behind him. [2]

_____

_____

_____

| Score | 3 |
|---|---|



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# ANSWER KEY

**YEAR : 2018**

**LEVEL : PRIMARY4**

**SCHOOL : TAO NAN SCHOOL**

**SUBJECT : SCIENCE**

**TERM : SA1**

## Booklet A

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

## Booklet B

**Q29A) Living thing R does not lay eggs but living thing S lays eggs.**

**Q29B) Both living things S and T lay eggs.**

**Q29C) No, Q cannot be a plastic ball. A plastic ball is not a living thing.**



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**Q30A)**

**A: leaf** **B: fruit**

**C: root** **D: stem**

**Q30B) Plant part C helps to absorb water and mineral salts from the ground.**

**Q31A) A**

**Q31B) The more biting and chewing, the food will be cut into smaller pieces to be digested by the saliva in the mouth.**

**Q32A) Both animal X and the cat has an egg stage in their life cycle.**

**Q32BI) Z**

**Q32BII) W**

**Q33A) At the adult stage, the insect is able to reproduce.**

**Q33BI) It would take 8 days.**

**Q33BII) 16 days**

**Q33C) The cockroach has wings but its nymph does not have wings.**

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**Q34A) Water is necessary for the seed to germinate.**

**Q34B) Eric can conclude that the presence of substance X and light are not needed for germination.**

**Q34C) It will increase the reliability of the results of Eric's experiments.**

**Q35A) Stage N. The leaves can trap sunlight.**

**Q35B) The plant has flowers/fruits.**

**Q36A) String C. String C could hold the most number of weights before it broke.**

**Q36B)**

| Variable | To be kept the same |
|---|---|
| Length of string | √ |
| Material of string | √ |
| Thickness of string | |
| Mass of weights | √ |



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**Q37A) Magnets A and B had their like poles facing each other and they repelled each other.**

**Q37B) X: South-seeking pole Y: North-seeking pole**

**Q37C) The like poles of Part P and the magnet in the floating flying saucer are facing each other. The like poles of magnet at Part Q and the magnet in the flying saucer are facing each other so those magnets are repelling each other.**

**Q38A) Air in the cup occupies space but air can be compressed slightly so when it was pushed into the basin of water, only a small amount of water entered the cup.**

**Q38B) The hole on the base of the plastic cup was sealed, it prevented air from escaping so the water cannot occupy the space that was previously occupied by air.**

**Q38C) The water level in the cup will rise until it is the same as the water level in the basin.**

**Q38D) The air in the cup escaped from the hole allowing water to occupy the space that was previously occupied by the air.**

**Q39A)**



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| Total volume of water and sand | Tick (√) |
|---|---|
| More than 60cm$^3$ | |
| At 60cm$^3$ | |
| Between 60cm$^3$ and 25cm$^3$ | √ |
| Below 25cm$^3$ | |

**Q39B) The water occupied the space between the sand which was previously occupied by air.**

**Q39C) The water level will be lower than in (a). The air space/gap between the marbles were bigger than in (a) and the water could occupy the space which was occupied by the air.**

**Q40A) B**

**Q40B) Liquid**

**Q40C) Solid melts liquid**

**Q41A) Material P. Material P allows most light to pass through so that the person wearing it can see the words in a book clearly and will be able to read properly.**

**Q41B) Move the torch and light sensor closer to the material.**

**Q41C) Objects A and B**



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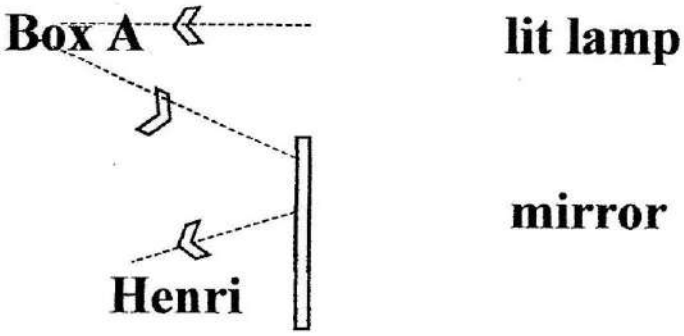
**Q42A)**




**Q42B) The light from the lit lamp reflects on Box A, bounces off the mirror and enters Henri's eyes. Therefore, he is able to see Box A even though it is behind him.**

6
END

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# Anglo-Chinese School (Junior)

**SEMESTRAL ASSESSMENT 2 (2018)**

**PRIMARY 4**

**SCIENCE**

**BOOKLET A**

**Wednesday** **31 October 2018** **1 hr 45 min**

Name: _____ ( ) Class: 4.( )

**INSTRUCTIONS TO PUPILS**

1 Do not turn over the pages until you are told to do so.

2 Follow all instructions carefully.

3 There are 28 questions in this booklet.

4 Answer ALL questions.

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

---

**This question paper consists of 18 printed pages (inclusive of cover page).**

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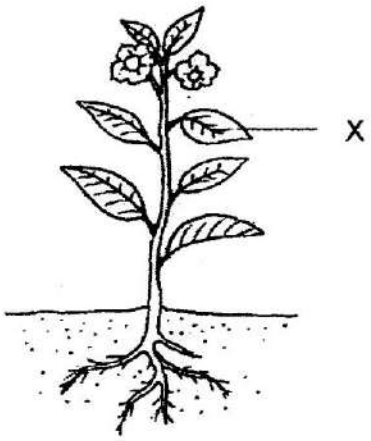
For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet.

(56 marks)

---

1. The diagram shows a plant.




Which one of the following is a function of X on the plant?

(1) makes food
(2) takes in water
(3) holds plant upright
(4) takes in mineral salts

2. Sam 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 Sam observing?

(1) Frog
(2) Beetle
(3) Butterfly
(4) Chicken



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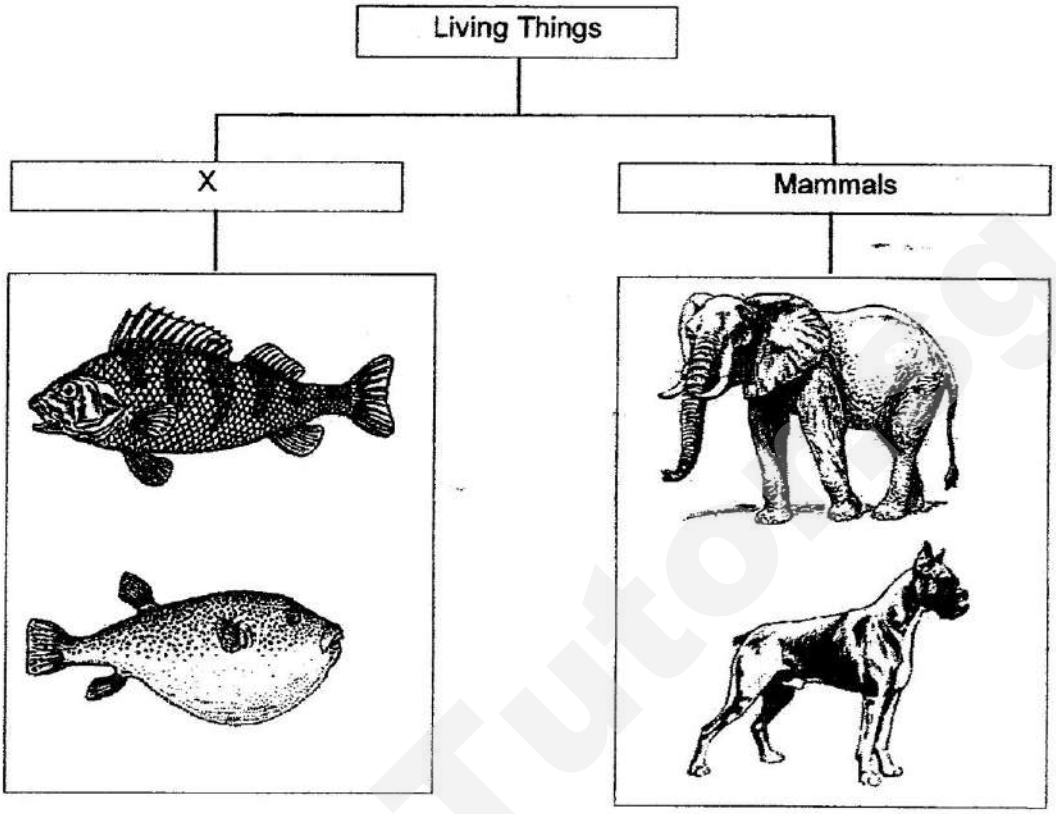
3. The table shows how some living things can be grouped. The diagrams are not drawn to scale.




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

(1) Fish

(2) Insects

(3) Bacteria

(4) Reptiles



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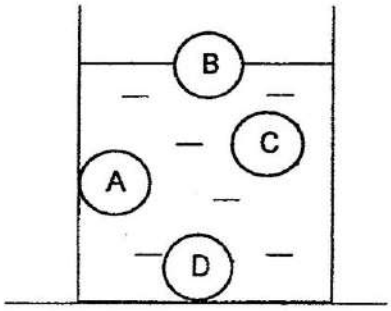
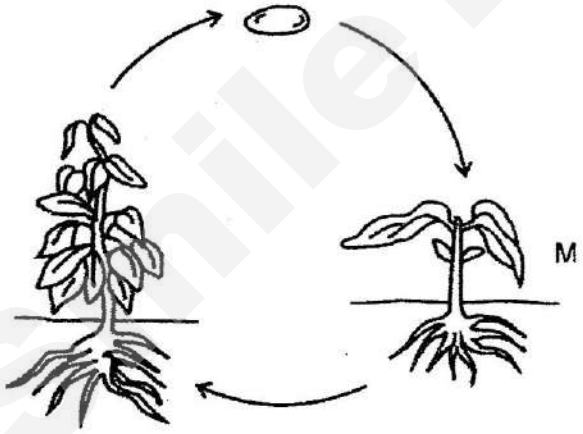
4. Elijah placed a solid ball made of metal into a container of water.




At which position, A, B, C or D, would the ball most likely to be found?

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

5. The diagram shows the stages in the life cycle of a plant.




What is the stage marked M?

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



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

(1) stomach → large intestine → small intestine

(2) large intestine → stomach → small intestine

(3) stomach → small intestine → large intestine

(4) small intestine → large intestine → stomach

7. The diagram shows a bottle of paint.

What is the state of the lid and paint?

| | Lid | Paint |
|---|---|---|
| (1) | Gas | Liquid |
| (2) | Liquid | Gas |
| (3) | Gas | Solid |
| (4) | Solid | Liquid |



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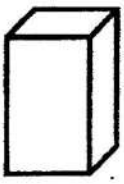
8. The set-up shows light shining on a metal container.

torch

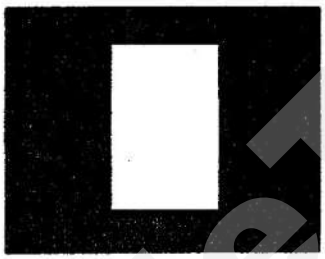


metal container

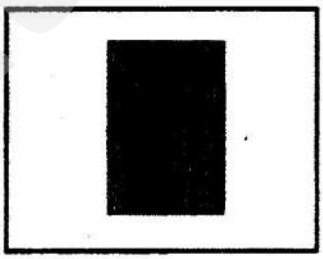
screen

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

(1)

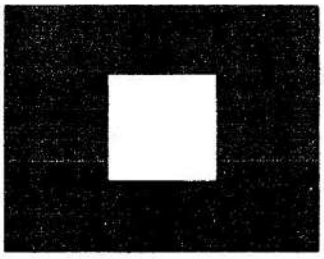


(2)



(3)

(4)





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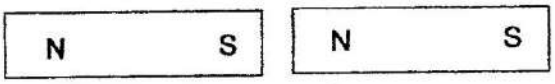
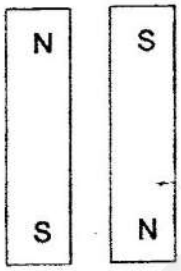
9. In which of the following set-ups will the two magnets repel each other?

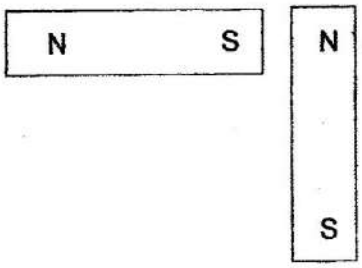
(1)



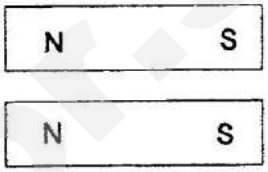

(2)



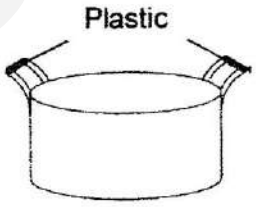

(3)




(4)




10. Hashim boiled some water in the pot shown.




He is able to hold the pot of boiling water using the plastic handles. This is because plastic is a _____.

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



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11. The graph shows the amount of food eaten by the young of Animal A during the stages of its life cycle after its egg stage.

Animal A **cannot** be a _____.

(1) butterfly

(2) mosquito

(3) grasshopper

(4) mealworm beetle

12. Which of the following statements is **not** true?

(1) The nose is part of the circulatory system.

(2) The skeletal system gives the body its shape.

(3) The digestive system helps to break down food into simpler substances.

(4) The respiratory system takes in oxygen and removes carbon dioxide from the body.



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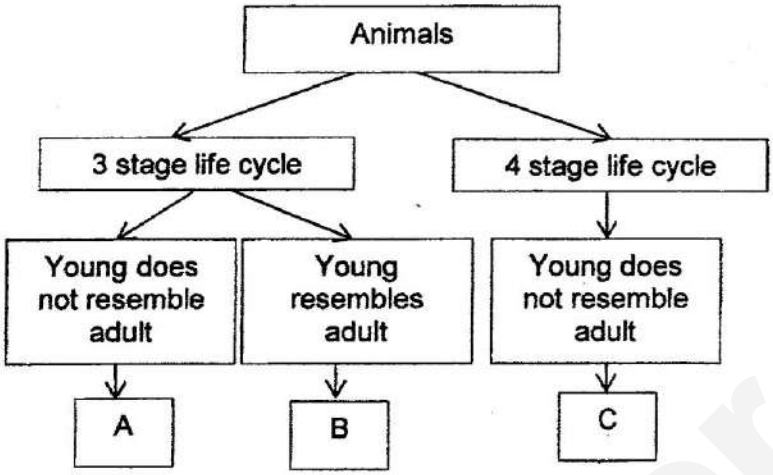
13. Study the flowchart.




Which of the following represents animals A, B and C?

| | A | B | C |
|---|---|---|---|
| (1) | grasshopper | frog | butterfly |
| (2) | butterfly | cockroach | frog |
| (3) | mosquito | grasshopper | frog |
| (4) | Frog | cockroach | mosquito |



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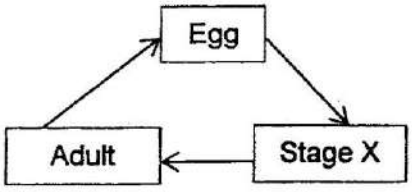
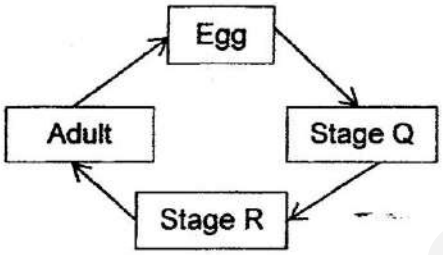
14. Pam observed the life cycles of two animals, A and B.




Animal A

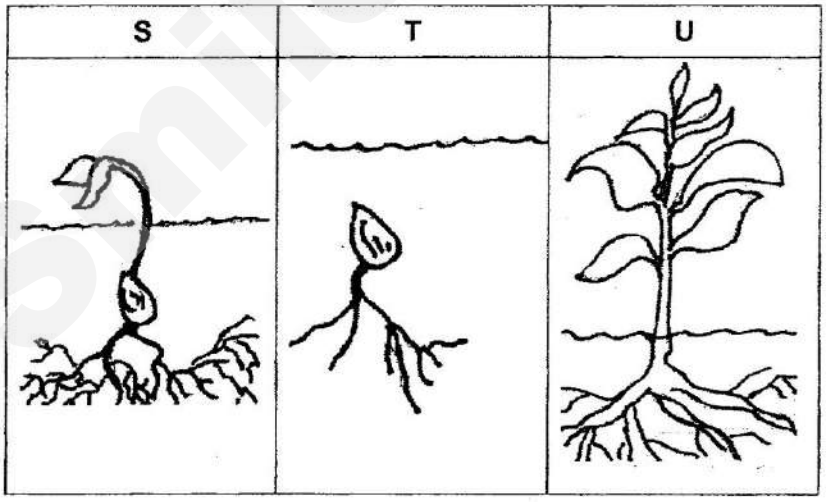



Animal B

She made statements based on the information given about the two life cycles.
Which of the following statements is true?

(1) The young of both animals live in water.
(2) Both Animal A and Animal B have an egg stage.
(3) Animal A and Animal B have young that resemble their adult.
(4) Animal A has a four-stage life cycle while Animal B has a three-stage life cycle.

15. S, T, and U show the different stages in the growth of Plant X.




Which of the following shows the correct order of the stages of growth of Plant X?

(1) S, T, U
(2) T, U, S
(3) T, S, U
(4) U, T, S



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16. The table shows the properties of substances X, Y and Z. A tick (✓) indicates that the substance has the property.

| Substances | Property | | |
|---|---|---|---|
| | Has a definite shape | Has a definite volume | Can be compressed |
| X | ✓ | ✓ | |
| Y | | ✓ | |
| Z | | | ✓ |

Which one of the following best represents substances X, Y and Z?

| | X | Y | Z |
|---|---|---|---|
| (1) | Book | Air | Orange Juice |
| (2) | Orange Juice | Book | Air |
| (3) | Book | Orange Juice | Air |
| (4) | Air | Orange juice | Water |

17. The diagrams show what happened when James placed Object A in the beaker of water and the balance.

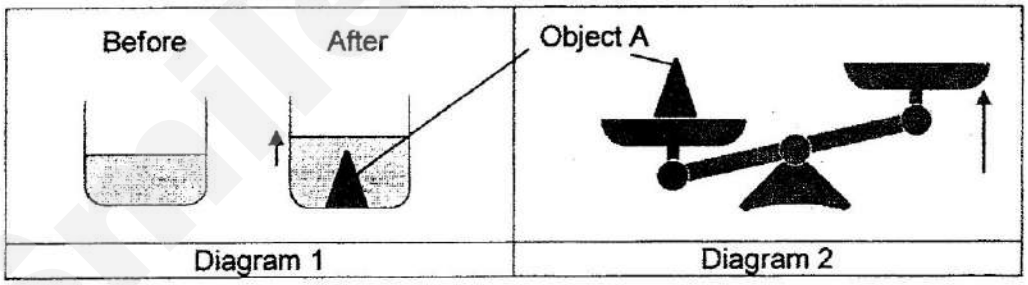


Diagram 1 | Diagram 2

Based on his observations, he made the following conclusions:

A: Object A has mass.
B: Object A has volume.
C: Object A does not have a definite volume.
D: The mass and volume of Object A is the same.

Based on the above experiment, which of his conclusions is/are true?

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



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18. Which of the following actions shows a change in state?

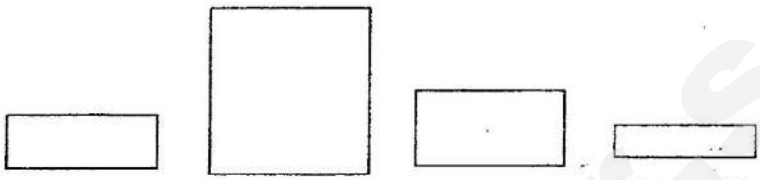
(1) Building a sandcastle

(2) Erasing part of a drawing

(3) Tearing a piece of tissue paper

(4) Placing a cup of water into a freezer for an hour

19. Peter had four magnets A, B, C and D as shown.




He conducted an experiment to compare the strength of the magnets. He brought each magnet near a box of paper clips and recorded the number of paper clips attracted by each magnet as shown in the table.

| Magnet | Distance between the magnet and the paper clips (cm) | Number of paper clips attracted |
|---|---|---|
| A | 5 | 12 |
| B | 5 | 8 |
| C | 5 | 7 |
| D | 5 | 14 |

Based on Peter's experiment, which of the following is correct?

(1) The strength of the magnet is dependent on its shape.

(2) The strength of the magnet is not dependent on its size.

(3) The bigger the magnet, the weaker its magnetic strength.

(4) The smaller the magnet, the stronger its magnetic strength.



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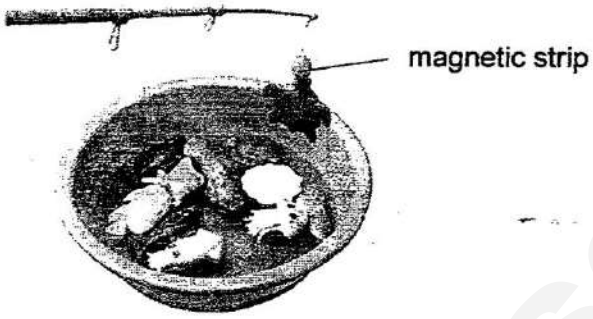
20. Danny created a toy. During the game, the fishing rod that contains a magnetic strip interacts with the 3 different toys, fish, squid and jellyfish made of different materials.




The table shows what happens to the toys when the fishing rod is brought closer to them.

| Toys | Reaction to fishing rod |
|---|---|
| Fish | Attracted |
| Squid | Attracted |
| Jellyfish | No interaction |

Which of the following options shows the most likely materials the toys are made of?

| | Fish | Squid | Jellyfish |
|---|---|---|---|
| (1) | Glass | Iron | Aluminum |
| (2) | Iron | Glass | Steel |
| (3) | Iron | Steel | Aluminium |
| (4) | Aluminium | Plastic | Iron |



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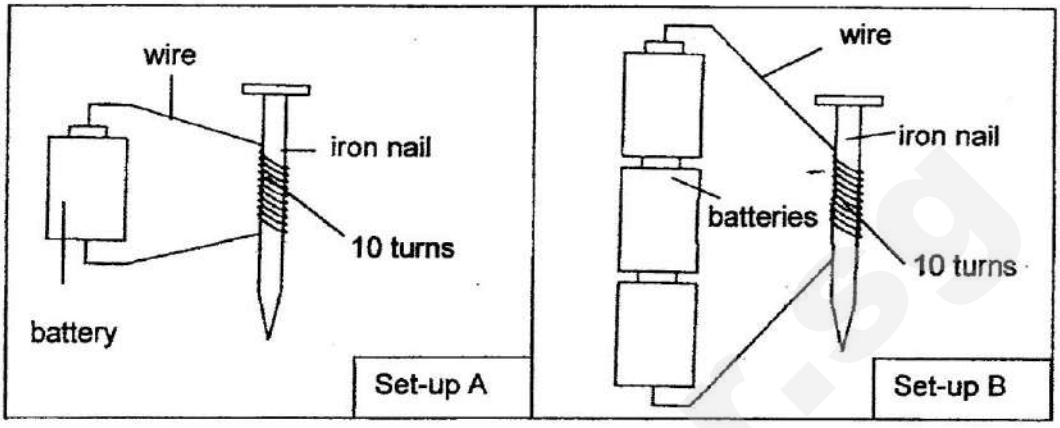
21. Xiaoli sets up the following experiment as shown. She then placed some iron pins near these electromagnets.




She noticed that the electromagnet in Set-up B attracted more pins than the electromagnet in set-up A. The aim of Xiaoli's experiment is to find out if the _____.

(1) size of the electromagnet affects its strength
(2) number of batteries used affect the strength of the electromagnet
(3) arrangement of the wires affect the strength of the electromagnet
(4) number of coils of wire around the iron nails affects the strength of the electromagnet

22. Which of the following is **not** a light source?

(1) Fire
(2) Star
(3) Sun
(4) Moon



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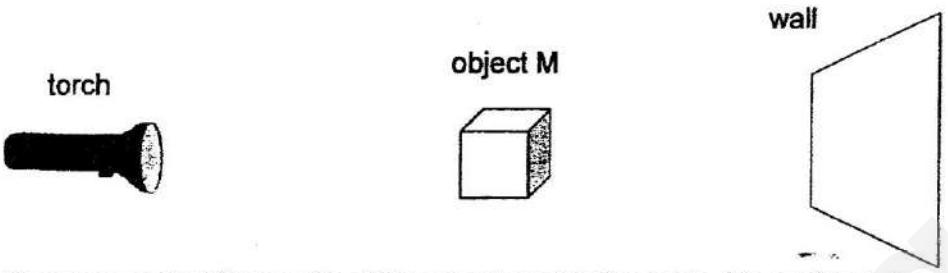
23. Danny carried out an experiment to find out how the distance between object M and the torch affects the height of the shadow formed on the wall.




Danny recorded the results of his experiment in the table. He accidentally spilled some Milo onto his results sheet and it covered part of his result.

| Distance between object M and torch (cm) | Distance between wall and torch (cm) | Height of shadow on the wall (cm) |
|---|---|---|
| 4 | 15 | 16 |
| 7 | 15 | 13 |
| 10 | 15 | |
| 13 | 15 | 7 |

Which of the following conclusions can Danny make based on the results?

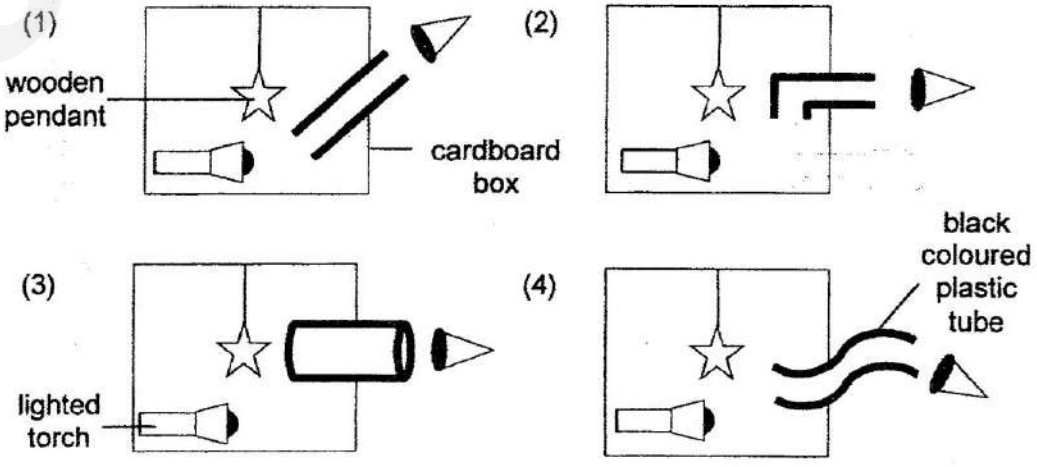
(1) The nearer object M is to the wall, the taller the shadow.

(2) The nearer object M is to the torch, the taller the shadow.

(3) The nearer object M is to the torch, the shorter the shadow.

(4) The distance between object M and the torch does not affect the height of the shadow.

24. A wooden pendant was hung in a cardboard box. Sandy used black coloured plastic tubes of different shapes to look into the box. Which of the following black coloured plastic tubes will enable her to see the wooden pendant?



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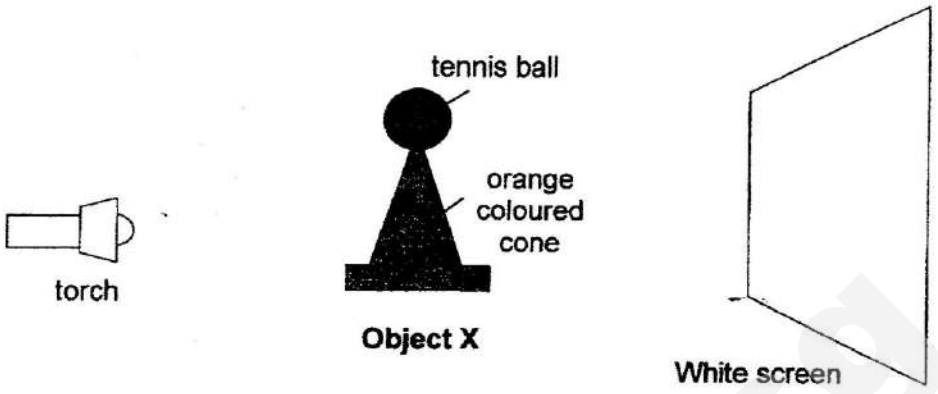
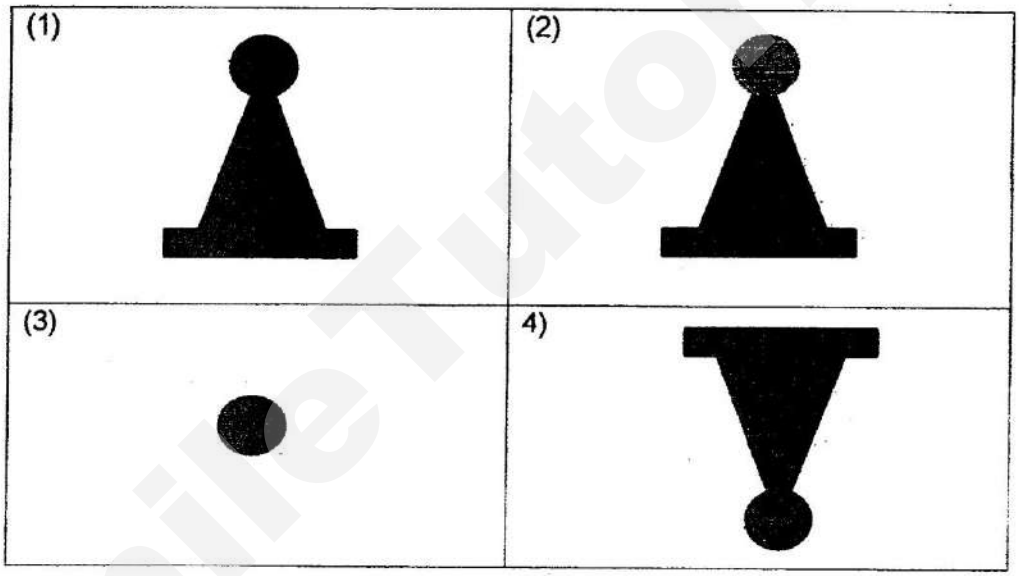
25. Joleen shines a torch on Object X as shown.




Which of the following shows the correct shadow of object X on the white screen?




26. Which of the following statements are true about how heat travels?

A Heat travels from solid to liquid only.

B Heat can change the state of matter.

C Heat travels from a hotter place to a colder place.

D Heat travels from a colder place to a hotter place.

(1) A and B only

(2) B and C only

(3) C and D only

(4) A, B, C and D



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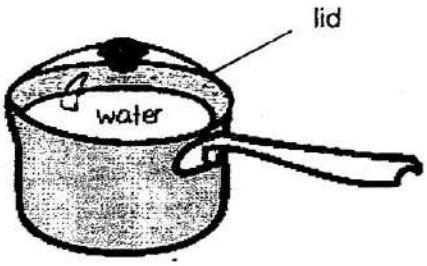
27. Mdm Feezah conducted an experiment to find out if water can boil faster in a saucepan with a closed lid. She filled two identical saucepans with 1 litre of water and heated them using a similar flame. She observed that the water in saucepan A boiled faster than that in saucepan B.




Saucepan A

Saucepan B

Which of the following explains her observation?

(1) The heat from the surrounding air enters saucepan B causing the water to boil faster.

(2) The heat in saucepan A escaped through the bottom of the saucepan, causing it to boil faster.

(3) The heat in saucepan B traveled only to the bottom of the saucepan, causing the water to boil slower.

(4) The heat in saucepan A was trapped inside the pot due to the lid and caused the water to boil faster.



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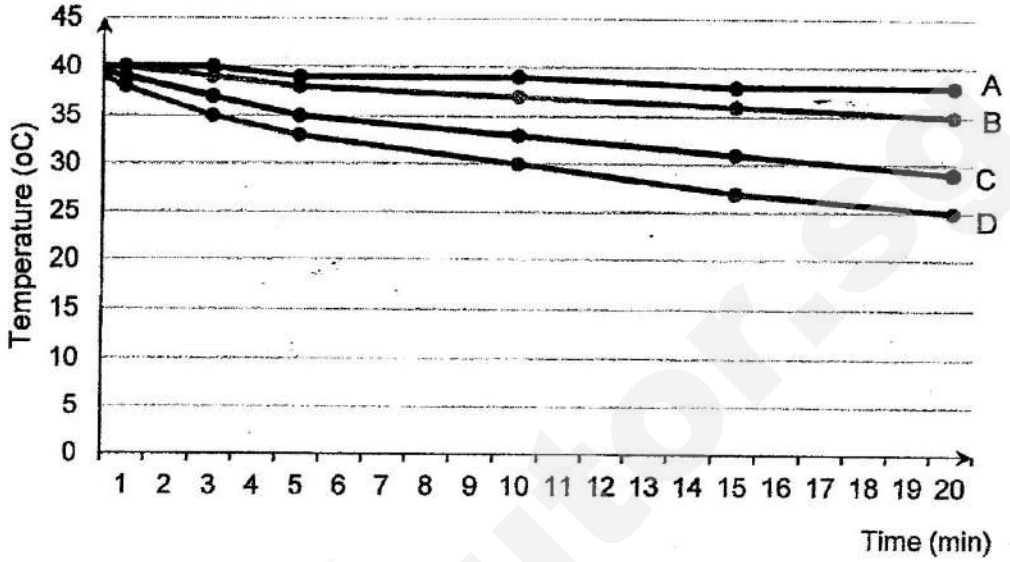
28. Zachary set up an experiment to find out which material is most suitable to keep Milo warm for the longest period of time. He poured equal volume of Milo at 40°C into four identical sized cups made of different materials. He recorded the change in temperature of Milo for 20 minutes in the graph as shown.




Which material A, B, C, or D is most suitable for Zachary to keep Milo warm for the longest period of time?

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

**End of Booklet A**



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# Anglo-Chinese School (Junior)

**SEMESTRAL ASSESSMENT 2 (2018)**

**PRIMARY 4**

**SCIENCE**

**BOOKLET B**

**Wednesday** **31 October 2018** **1 hr 45 min**

Name: _____ ( ) Class: 4.( ) Parent's Signature: _____

**INSTRUCTIONS TO PUPILS**

1 Do not turn over the pages until you are told to do so.

2 Follow all instructions carefully.

3 There are 13 questions in this booklet.

4 Answer ALL questions.

5 The marks are given in the brackets [ ] at the end of each question or part question.

| Booklet | Possible Marks | Marks Obtained |
|---|---|---|
| A | 56 | |
| B | 44 | |
| Total | 100 | |

This question paper consists of 12 printed pages (inclusive of cover page).

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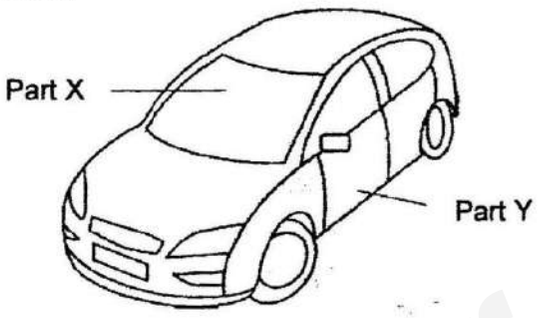
For questions 29 to 41, write your answers in this booklet.

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

---

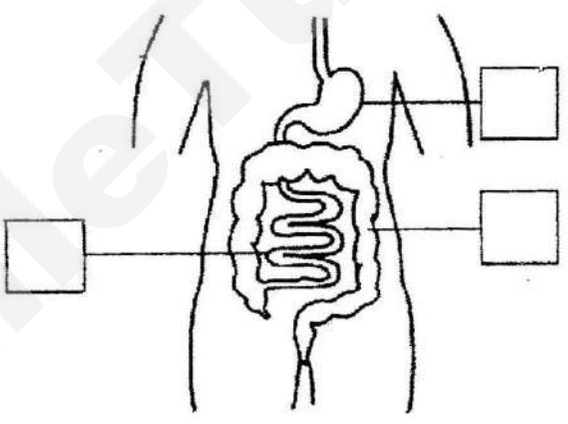
29. The diagram shows a car.




(a) Part X is made of glass because it allows _____ to pass through so that the driver can see the road. [1]

(b) Part Y is made of _____ because Part Y has to be strong. [1]

30. The diagram shows parts of the human digestive system.



(a) Place a tick (✓) in the box that shows where the stomach is. [1]

(b) Place a cross (X) in the box where there is no digestion. [1]

(c) Fill in the blank using one of the following helping words.

| large intestine | small intestine | mouth |
|---|---|---|

Food from the stomach is next passed on to the _____. [1]

| SCORE | 5 |
|---|---|



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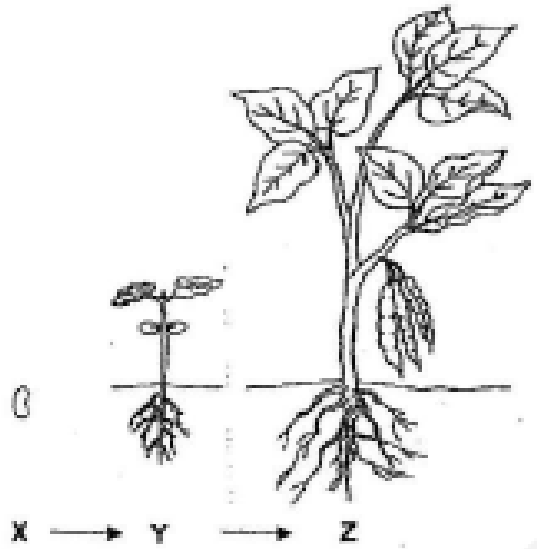
31. The diagram shows the growth of Plant J.




(a) Choose the correct word from the box to answer the questions. [2]

| egg | seed | young plant | adult plant |
|---|---|---|---|

Name stages **X** and **Z** in the growth of Plant J.

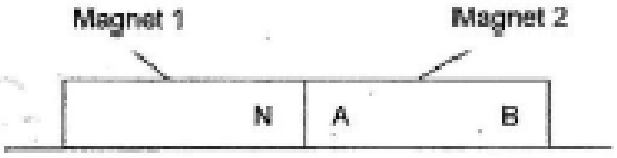
X: _____

Z: _____

(b) At which stage, X or Y, can Plant J make its own food? [1]

Stage: _____

32. Two magnets are placed together as shown.
The north pole of Magnet 1 is labelled **N**.




Name the poles labelled A and B on Magnet 2. [2]

A : _____

B : _____

| SCORE | |
|---|---|
| | 5 |



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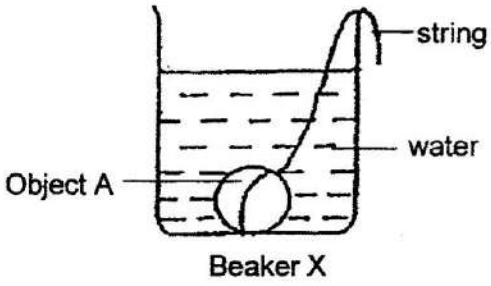
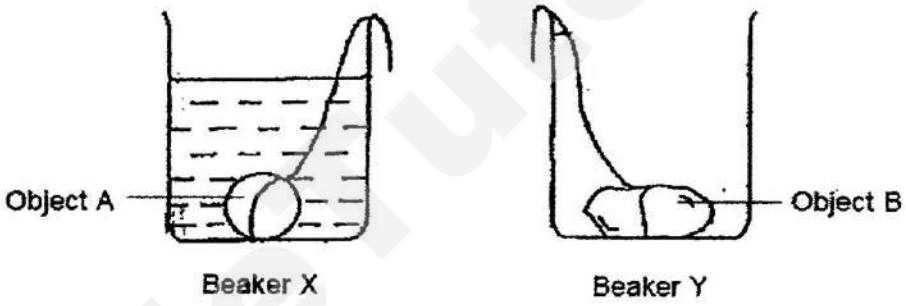
33. Larry set up an experiment to find out which object, A or B, has a greater volume. He filled beaker X with some water. He then lowered Object A into Beaker X and observed the water level in the beaker.




Larry repeated the experiment with the same amount of water with Object B and lowered it into Beaker Y and observed the water level in the beaker. He then concluded that Object B has a greater volume than Object A.

(a) Using a ruler, draw the water level in Beaker Y after Object B had been lowered into it. [1]




(b) The water level in both beakers increased when the objects were lowered into them. Using the property of matter, explain clearly why the water level increased. [2]

_____

_____

_____

| SCORE | / 3 |
|---|---|



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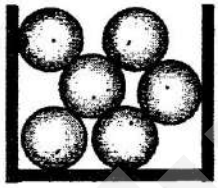
34. The diagram shows two objects, A and B of the same volume and made of glass, placed on each side of a balance.

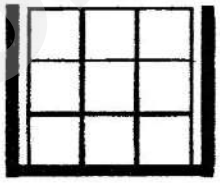
(a) Based on your observation, state a similarity between objects A and B. [1]

_____

Ray filled two identical containers to the brim, with objects A and B, as shown. He placed 6 pieces of object A in container M and 9 pieces of object B in container N.



Container M



Container N

(b) Which container, M or N, could he fill with more liquid? Explain your answer. [2]

_____

_____

_____

(c) Ray then breaks each object in container M into smaller pieces. Would the amount of liquid used to fill container M, with all the broken pieces of object A, increase, decrease or remain the same? Give a reason for your answer. [1]

_____

_____

_____

| SCORE | / 4 |
|---|---|



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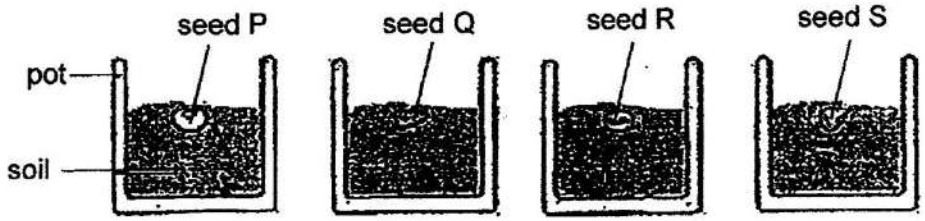
35. Danny carried out an experiment where he placed seeds into four identical pots as shown in the diagram.




(a) State all the conditions necessary for the seeds to germinate? [1]

Danny measured the height of the seedlings over five days and recorded his observations in the table.

| Seed | Height of seedling (cm) | | | | |
|---|---|---|---|---|---|
| | Day 1 | Day 2 | Day 3 | Day 4 | Day 5 |
| P | 0 | 1 | 3 | 5 | 7 |
| Q | 0 | 2 | 3 | 4 | 5 |
| R | 0 | 3 | 5 | 9 | 11 |
| S | 0 | 2 | 4 | 8 | 12 |

(b) Which seed, P, Q, R or S grew the fastest? [1]

(c) Place a tick (✓) in the box next to the variables that should be kept the same in order for the experiment to be a fair one. [1]

| Variable | Tick (✓) the constant variables |
|---|---|
| Number of seeds | |
| Amount of soil | |
| Amount of water | |
| Type of seeds | |
| Type of soil | |

(d) What was the aim of Danny's experiment? [1]

| SCORE | 4 |
|---|---|



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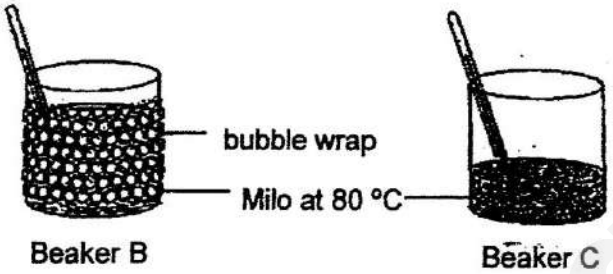
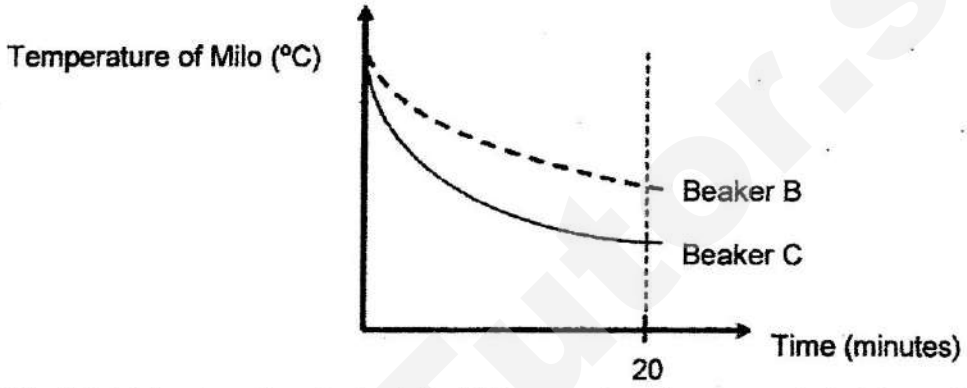
36. Rueben conducted an experiment with two identical beakers, B and C. He wrapped beaker B with bubble wrap, a plastic sheet with air pockets. He then poured hot Milo at 80°C into each beaker.




He measured the temperature of the Milo in each beaker for 20 minutes, and drew a line graph of changes in temperature.




(a) Which beaker, B or C, kept the Milo warm for a longer period of time? Explain your answer, based on the graph. [1]

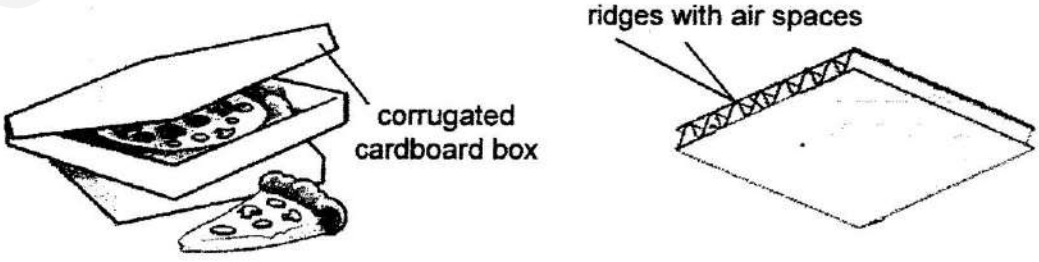
_____

_____

(b) State another variable that he has to keep constant to ensure a fair test. [1]

_____

Pizzas are usually delivered in corrugated cardboard boxes which have ridges with air spaces in between them, as shown.




(c) Explain why these boxes can keep pizzas warm for a longer period of time. [2]

_____

_____

| SCORE | 4 |
|---|---|



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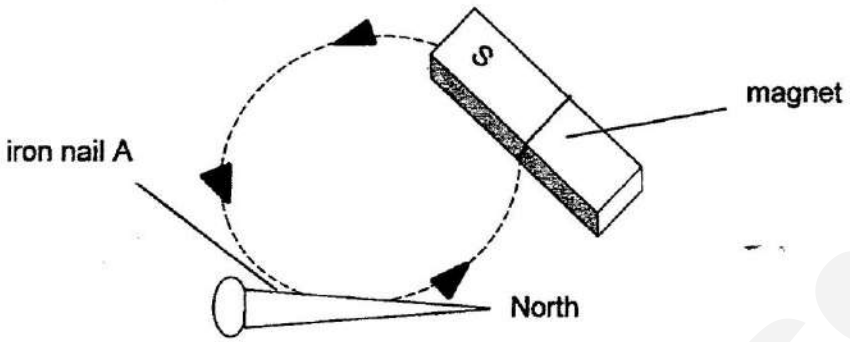
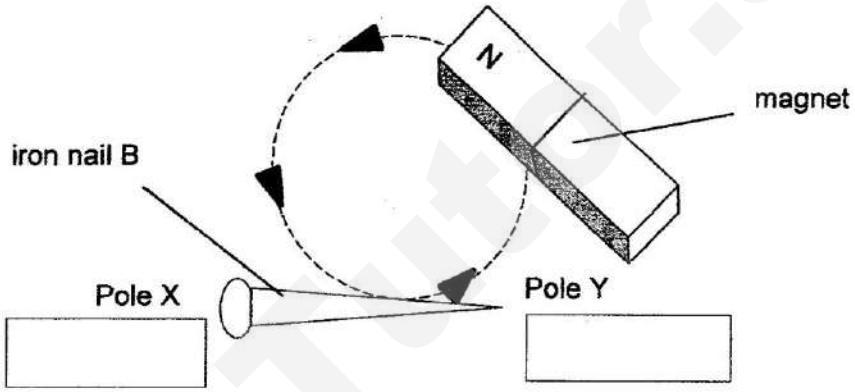
37. Harry used the stroke method to magnetize iron nail A as shown. The tip of the nail became the north pole of the temporary magnet.




Harry then used the stroke method to magnetize iron nail B.




(a) Write 'North' or 'South' in the boxes to indicate the poles at X and Y. [1]

Harry wanted to carry out an experiment. He stroked the magnet along iron nail B different number of times and placed it into a box of paper clips and recorded the number of paper clips it attracted in the table.

| Number of strokes | Number of paper clips attracted |
|---|---|
| 30 | 20 |
| 10 | 8 |
| 5 | 2 |

(b) What was the aim of his experiment? [1]

_____

_____

(c) State two ways the above temporary magnet can be demagnetized. [2]

_____

_____

| SCORE | |
|---|---|
| | 4 |



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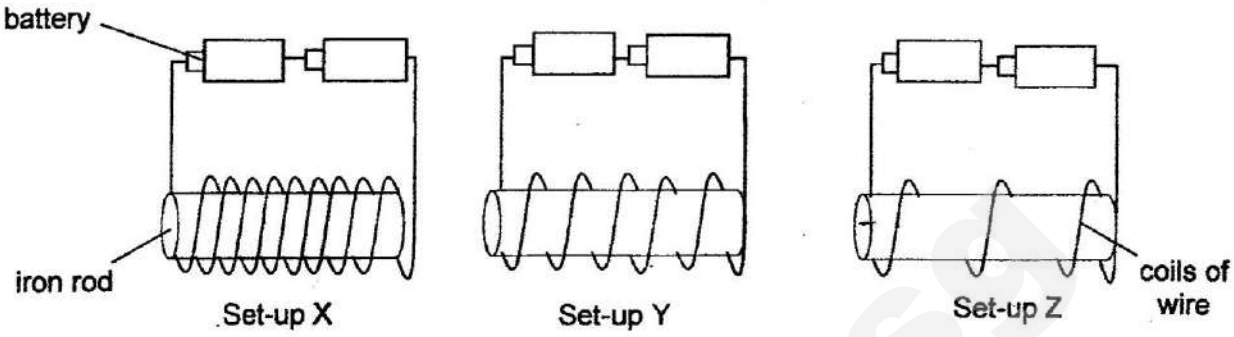
38. Amanda wanted to find out how the number of coils of wire around the iron rod affects the magnetic strength of an electromagnet.




She brought electromagnet X, Y and Z near a box of paper clips and recorded the number of paper clips attracted by each electromagnet in the table.

| Set-up | Number of paper clips attracted |
|---|---|
| X | 10 |
| Y | 7 |
| Z | 4 |

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

(b) Predict the number of ~~iron nails~~ paperclips that will be attracted to electromagnet X when the ~~battery is~~ batteries are removed? Explain your answer. [1]

(c) Give a reason why no paper clips were attracted when a gold rod was used in Set-up X. [1]

(d) Suggest another way to decrease the strength of the electromagnet. [1]

| SCORE | / 4 |
|---|---|



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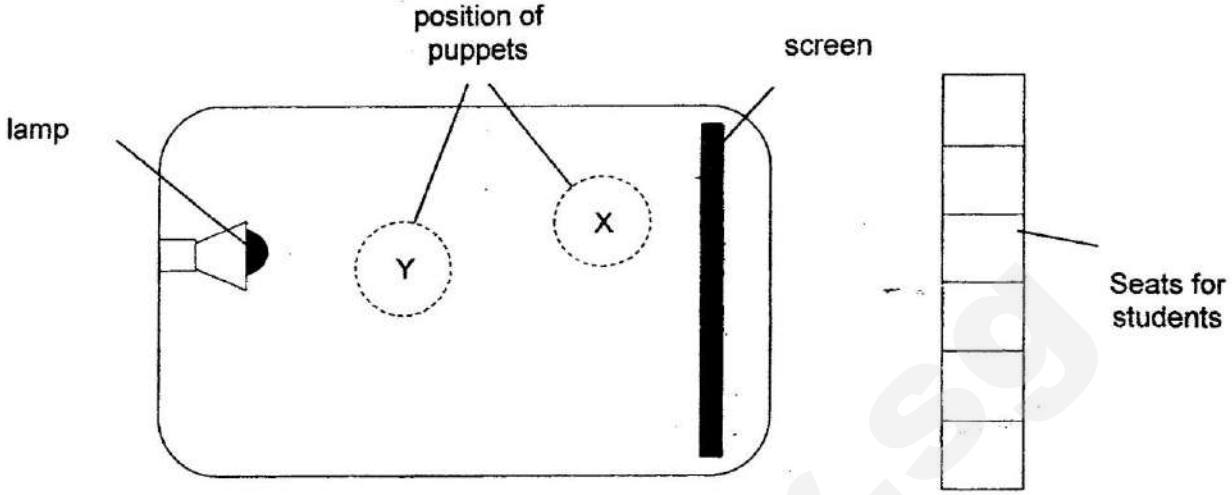
39. (a) The diagram shows the layout of the stage for a shadow puppet show.




During the show two puppets of identical shape and size were used. The students at the puppet show saw the two shadows on the screen as shown.

(a) In order to form the above shadows, at which positions, X and Y, were the puppets? [1]

Puppet A – _____

Puppet B – _____

(b) Give a reason for your answer in (a) [1]

_____

_____

(c) What is the property of the material of the screen that enables shadow to be formed on it? [1]

_____

_____

| SCORE | / 3 |
|---|---|



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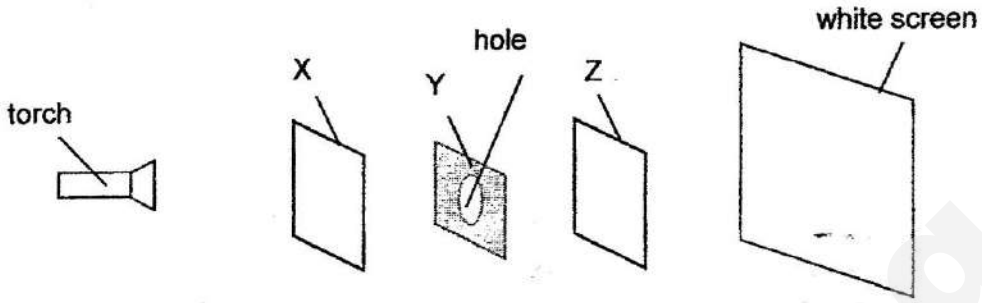
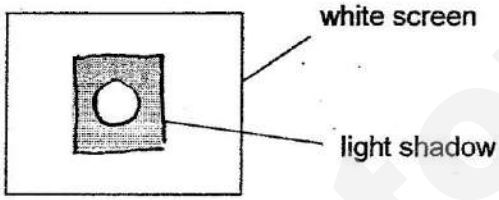
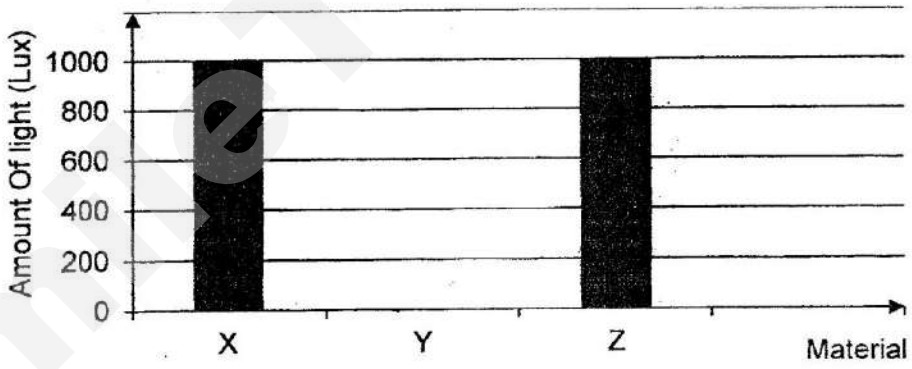
40. Rahul carried out an experiment in a completely dark room to find out the shadow formed by three objects, X, Y and Z as shown. Object Y has a hole in the middle.




When the torch was switched on, the shadow shown below, was formed on the white screen.




Rahul used a data-logger to measure the amount of light passing through the three different materials, X, Y and Z and recorded the results in the graph.




(a) Draw the bar graph for Material Y to show the amount of light that can most likely pass through it. [1]

(b) What is the property of Material X and Y? [1]

Material X: _____

Material Y: _____

| SCORE | 2 |
|---|---|



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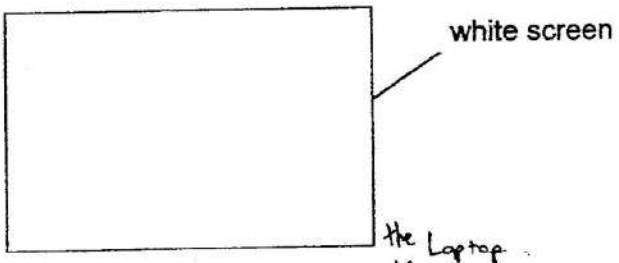
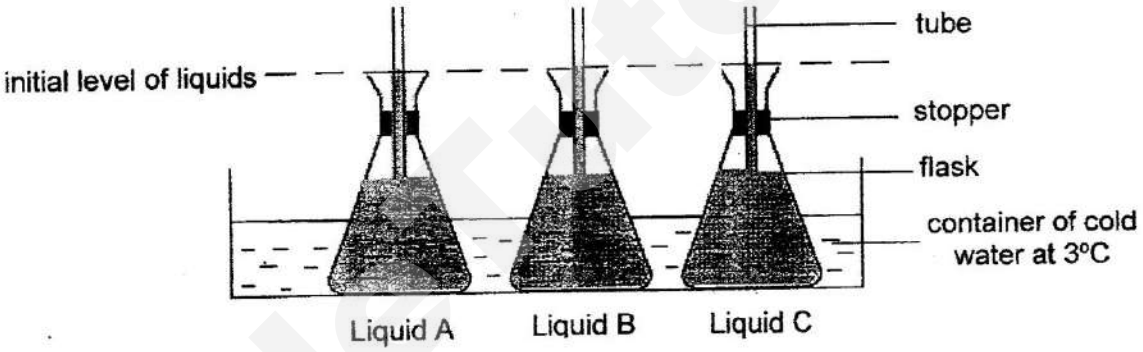
(c) Rahul replaced object Z with a laptop of the same size. Draw the new shadow that will form on the white screen below. [1]




(d) What is the property of light that allows the shadow of ~~object Z~~ to be formed on the screen? [1]

_____

41. Jean set-up the experiment shown with equal volume of each liquid, A, B and C, and identical stoppers.




(a) After 10 minutes, Jean noticed that the level of liquid B in the flask decreased more than liquids A and C. Explain why. [2]

_____

_____

(b) Predict what will happen to the temperature of the liquids in each flask after 5 hours. Explain your answer. [2]

_____

_____

_____

**End of Paper**

| SCORE | |
|---|---|
| | 6 |



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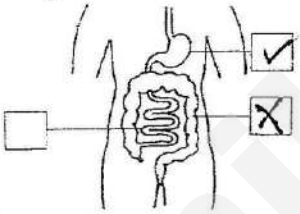
# ANSWER KEY

**YEAR : 2018**
**LEVEL : PRIMARY 4**
**SCHOOL : ANGLO-CHINESE SCHOOL(JUNIOR)**
**SUBJECT : SCIENCE**
**TERM : SA2**
**BOOKLET A**

| Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 4 | 1 | 4 | 4 | 3 | 4 | 2 | 4 | 3 |
| Q11 | Q12 | Q13 | Q14 | Q15 | Q16 | Q17 | Q18 | Q19 | Q20 |
| 3 | 1 | 4 | 2 | 3 | 3 | 2 | 4 | 2 | 3 |

| Q21 | Q22 | Q23 | Q24 | Q25 | Q26 | Q27 | Q28 |
|---|---|---|---|---|---|---|---|
| 2 | 4 | 2 | 3 | 1 | 2 | 4 | 1 |

**BOOKLET B**
**Q29a) light**
**b) metal**
**Q30)**

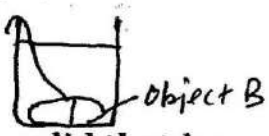


**c) small intestine**

**Q31**
**X: Seed**
**Z:** adult plant
**b) Stage Y**

**Q32 A: South**
**B: North**

**Q33a)**




**b) Both objects are solid that have definite volume and occupies space , since water does not have definite shape , the water level increase.**

**Q34a) They both have the same mass**



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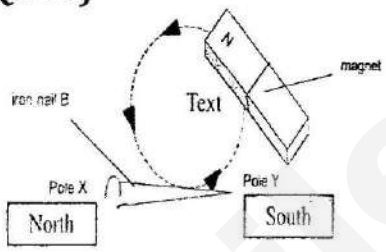
b) M. There are more air spaces and water can take up the space occupied by air in the container.
c) Remain the same , the object has a definite volume.

Q35a)Air, water and warmth.
b) Seed S
c) ✓ Number of seeds
✓ Amount of soil
✓ Amount of water
✓ Type of soil
d) To find out which seed grows the fastest .

Q36)a) B. The temperature of Milo in beaker B is higher than beaker C after 20 minutes.
b) The amount of milo.
c) Air is a poor conductor of heat so the pizzas lose heat slower to the surrounding.

Q37a)




b) To find out if the number of strokes affect the number of paper clips attracted.
c) Drop the magnet repeatedly or put it under a flame.

Q38a) The more coils around the electromagnet the more the strength the electromagnet will have
b) 0 , The iron nail will be demagnetised and loses it magnetism.
c) Gold is not a magnetic material.
d) Reduce the number of batteries used.

Q39)a) Puppet A- Y
Puppet B – X
b) The closer the puppet is to the lamp the bigger the shadow.
c) The material is a translucent object and allows light to pass through it.



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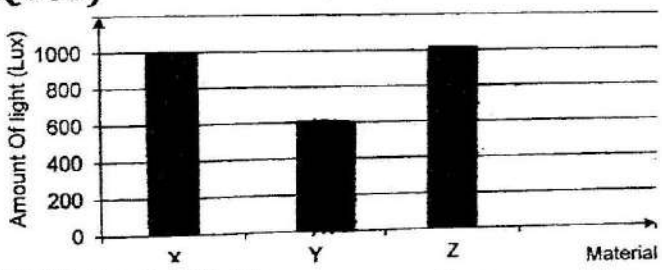
**Q40a)**




**b) Material X: Transparent**
**Material Y: Translucent**
**c)**

**d)light travel in a straight line**

**Q41a) B is the best conductor of heat. It lost heat to the cold water the fastest and contracted the most.**
**b) The temperature of the liquids will increase because they gained heat from the surrounding air until it reach room temperature.**

**THE END**



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# CATHOLIC HIGH SCHOOL

## SEMESTRAL ASSESSMENT TWO (2018)

## PRIMARY FOUR

## SCIENCE

## BOOKLET A

Name: _____( )

Class: Primary 4 - _____

Date: 31 October 2018

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 22 printed pages, excluding the cover page.

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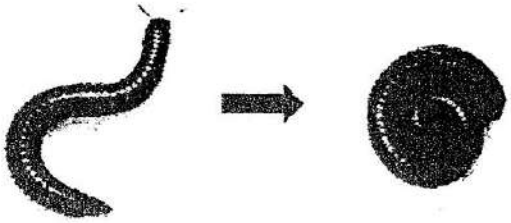
**Booklet A (28 × 2 marks)**

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 millipede coils itself into a tight spiral when touched.

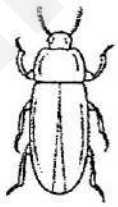


This shows that the millipede is a living thing because it can _____.

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

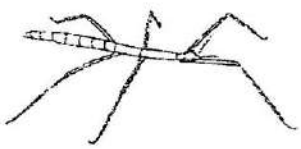
2 Which one of the animals shown below is not an insect?

(1)

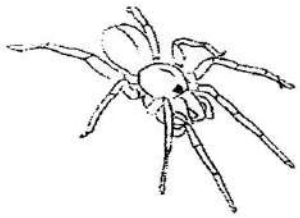


(2)

(3)



(4)





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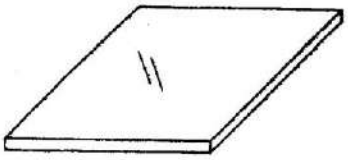
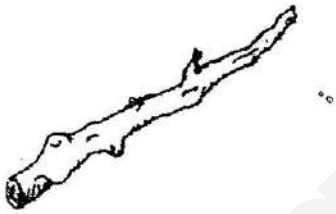
3 Which one of the following objects can be bent easily without breaking?

(1)



a sheet of glass

(2)



a wooden stick

(3)

a plastic fork

(4)

a towel

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

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



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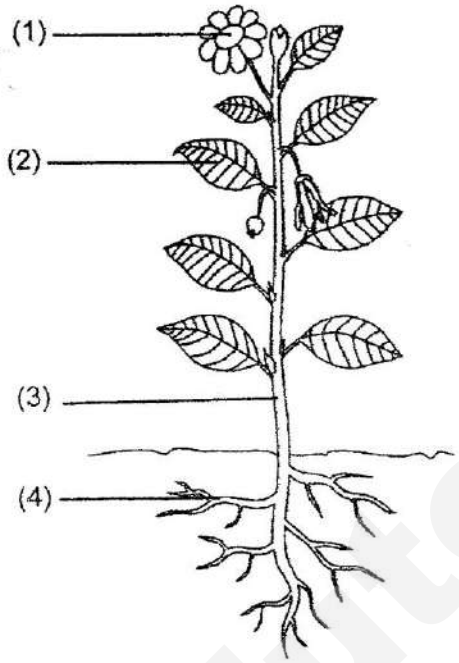
5 Which part, (1), (2), (3) or (4), makes food for the plant?

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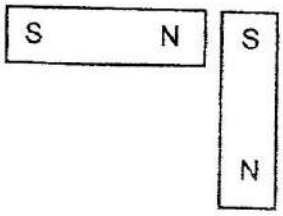
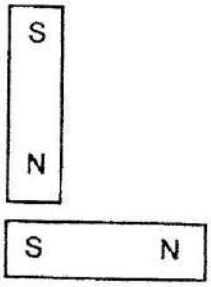
6 In which one of the following will the two magnets push each other away?

(1)

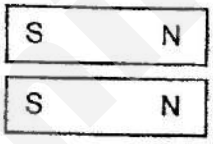
(2)




(3)




(4)

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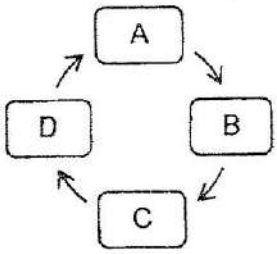
7 A, B, C and D are the various stages in the life cycle of a mosquito.

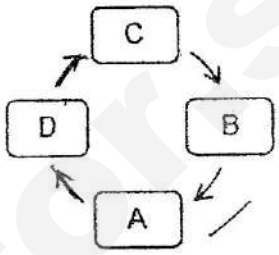
A B C D

Which one of the following correctly shows the life cycle of a mosquito?

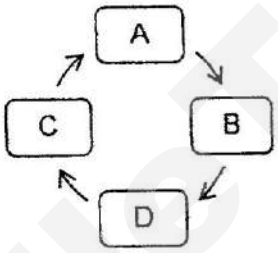
(1)



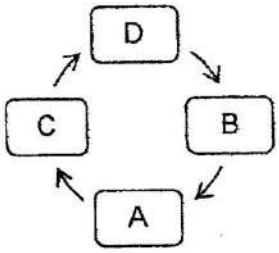

(2)




(3)




(4)




8 Which one of the following properties is correct for both air and water?

(1) They can be seen.
(2) They take up space.
(3) They have definite shapes.
(4) They have definite volumes.



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

(1)

eyes

(2)

lamp

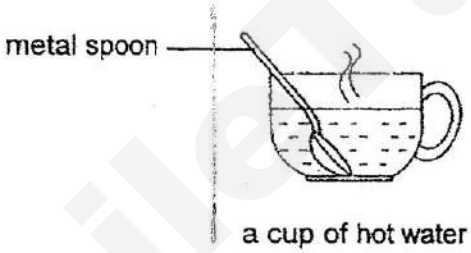
(3)

mirror

(4)

moon

10 Jason placed a metal spoon in a cup of hot water.




The spoon became hot after a while.

Which one of the following explains this?

(1) The cup lost heat to the spoon.
(2) The spoon lost heat to the hot water.
(3) The hot water gained heat from the spoon.
(4) The spoon gained heat from the hot water.



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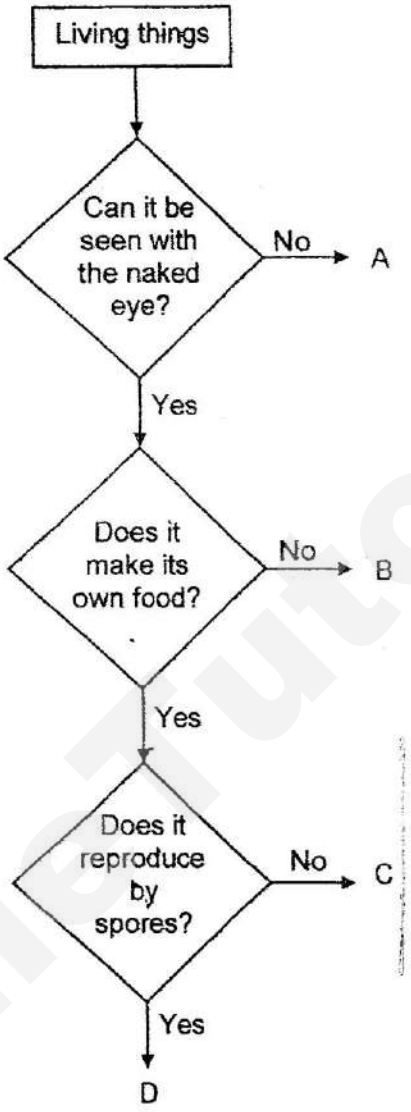
11 Study the chart below.




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

| | A | B | C | D |
|---|---|---|---|---|
| (1) | bacteria | mushroom | rose | bird's nest fern |
| (2) | bracket fungi | bread mould | mushroom | moss |
| (3) | bread mould | hibiscus | moss | bird's nest fern |
| (4) | bacteria | bracket fungi | hibiscus | rose |



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12 Dennis conducted an experiment to find out more about bread mould. He took four similar slices of bread, A, B, C and D, and added different amounts of water on bread B, C and D. They were all placed in sealed bags on the dining table.

The amount of bread mould growing on them was recorded in the table below after 8 days.

| | Bread A | Bread B | Bread C | Bread D |
|---|---|---|---|---|
| Amount of water added to the bread (ml) | 0 | 10 | 20 | 5 |
| Amount of bread mould observed | None | 3 patches | 6 patches | 1 patch |
| | | | | |

Dennis made the following statements based on his observations.

P Bread mould needs water to grow.
Q Bread mould grows better in bags.
R Bread mould grows faster when there is more water.

Which of the statements above is/are correct?

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



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13 To keep the floor dry in a building on a rainy day, people entering the building are to keep their wet umbrellas in umbrella bags placed at the entrance as shown in the diagram below.

What are the two most important properties the umbrella bag must have to best serve this purpose?

A flexible
B waterproof
C able to float
D allows most light to pass through

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

14 Some children were discussing about the human digestive system.

| | |
|---|---|
| Peter | Digestion of food starts in the stomach only. |
| Jenny | Chewing our food is part of the digestion process. |
| Mary | The digestive system only breaks down food but does not absorb food. |

Who made the correct statement(s)?

(1) Jenny
(2) Peter and Mary
(3) Mary and Jenny
(4) Peter, Mary and Jenny



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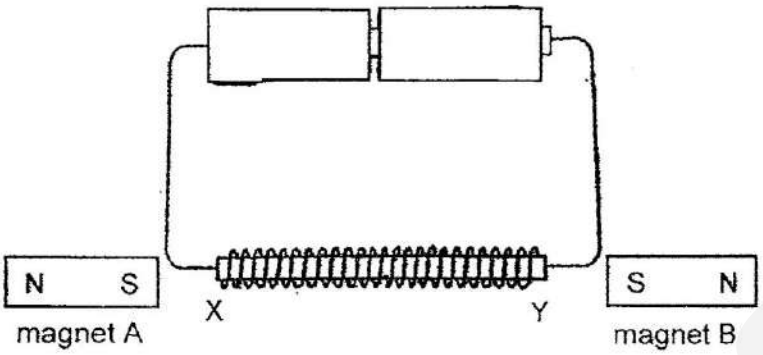
15 Janet magnetised an iron rod XY as shown in the diagram below.




She observed that magnet A was attracted to the iron rod at point X while magnet B was repelled from the iron rod at point Y.

Based on Janet's observation, what would the poles X and Y of the iron rod be when it was magnetised?

| | X | Y |
|---|---|---|
| (1) | North | South |
| (2) | North | North |
| (3) | South | North |
| (4) | South | South |



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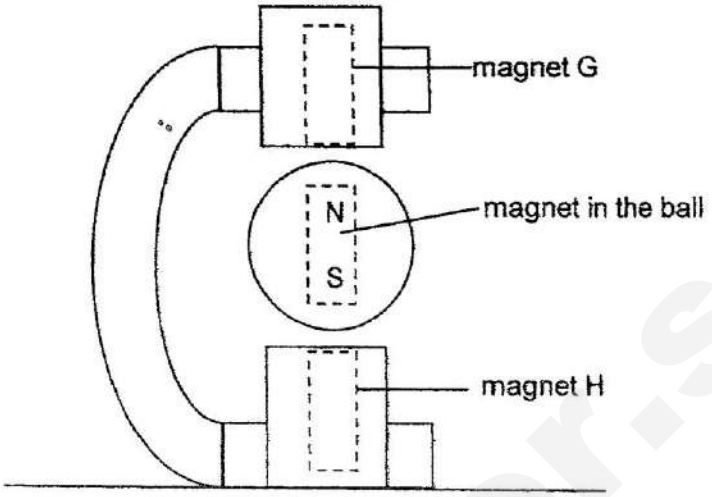
16 The diagram below shows a toy that makes use of magnets. A ball with a magnet in it floats in between two magnets G and H.




How should the magnets G and H be placed for the ball to float?

| | magnet G | magnet H |
|---|---|---|
| (1) | N<br>S | N<br>S |
| (2) | N<br>S | S<br>N |
| (3) | S<br>N | S<br>N |
| (4) | S<br>N | N<br>S |



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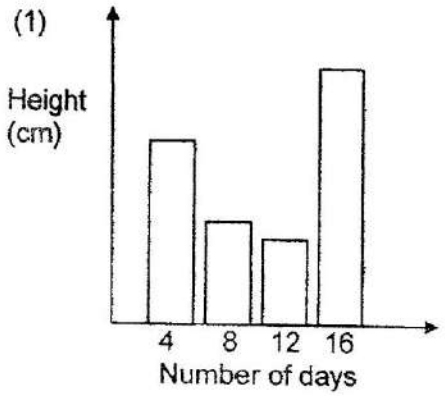
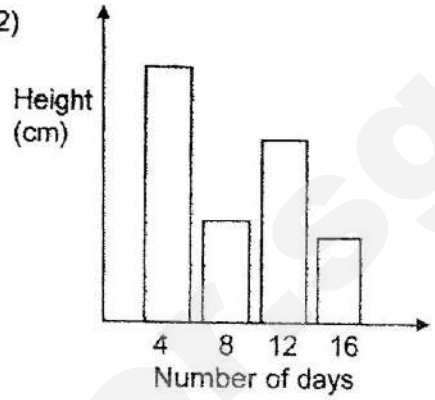
17 Daryl grew some green bean seeds in a cup and placed it near a window. He then measured the height of the seedlings every four days.

Which one of the following graphs best represents the height of the seedlings over 16 days?

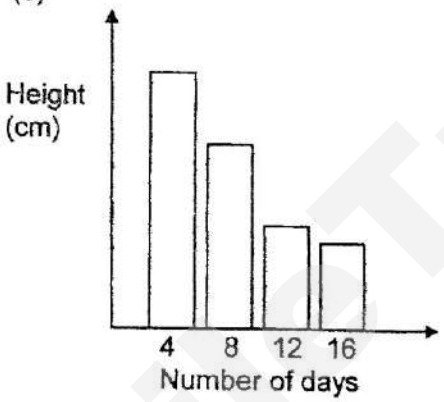
(1)



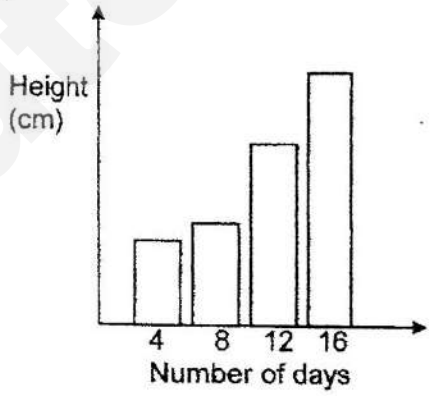

(2)




(3)




(4)

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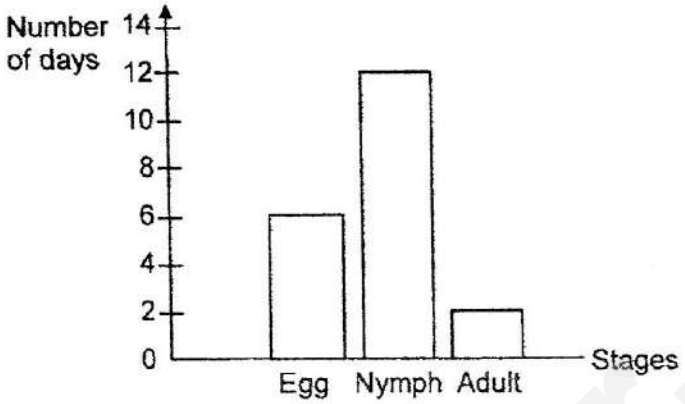
18 The graph below shows the length of each stage in the life cycle of an insect.




How many days would it take for the insect to become an adult after the egg is laid?

(1) 6

(2) 12

(3) 18

(4) 20

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19 Three identical glasses contained the following objects.

marbles juice air

A jug of water was poured into each glass at the same time.

In what order, from first to last, would the water overflow?

| | First → | | Last |
|---|---|---|---|
| (1) | air | juice | marbles |
| (2) | marbles | juice | air |
| (3) | juice | marbles | air |
| (4) | marbles | air | juice |



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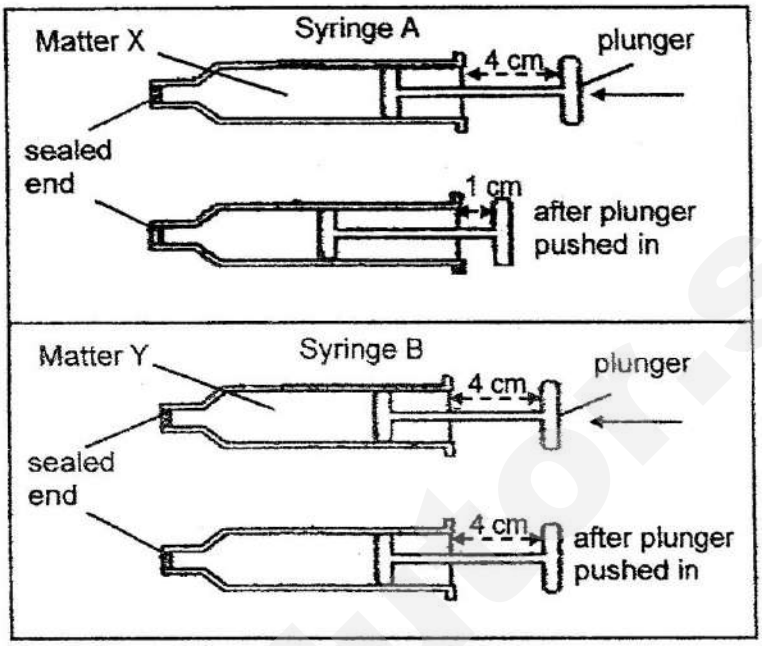
20 Abdul prepared two identical syringes, A and B, each containing different types of matter, X and Y.




Abdul tried pushing the plunger in each syringe and observed what happened. He recorded the distance moved by each syringe in the table below.

| Syringe | Distance moved by plunger (cm) |
|---|---|
| A | 3 |
| B | 0 |

Which one of the following correctly identifies X and Y?

| | X | Y |
|---|---|---|
| (1) | oil | sand |
| (2) | rice | oxygen |
| (3) | air | milk |
| (4) | water | sugar |



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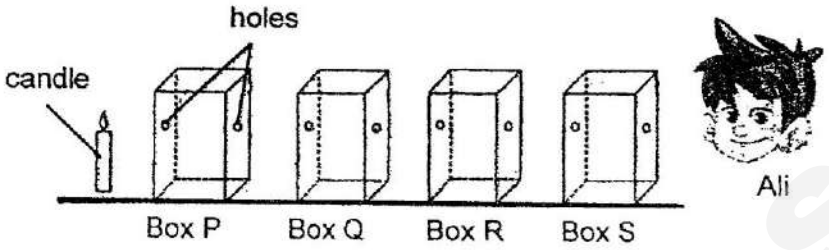
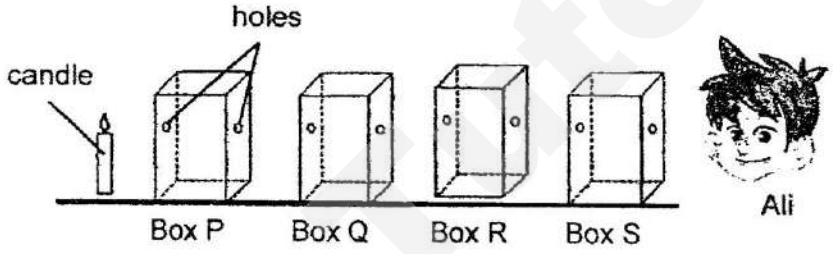
21 Ali conducted an experiment in a dark room. He placed four wooden boxes with holes, P, Q, R and S, in a straight line on a table as shown below.

When the candle was lighted, Ali could see the light through the hole in Box S.




Ali moved Box R such that it was no longer in line with the rest. He realised that he could no longer see the light through the hole in Box S.




Which one of the following statements best explains his observations?

(1) Light can be reflected.

(2) Light travels in a straight line.

(3) Light cannot pass through small holes.

(4) Light is reflected off the box in other directions.



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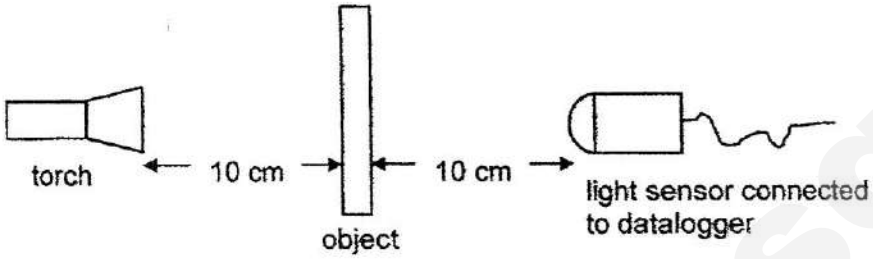
22 Gopal set up an experiment as shown below. He placed object A 10 cm away from the torch and the light sensor 10 cm away from the object.




He repeated the same experiment using objects, B, C and D. The four objects, A, B, C and D, were similar in size and thickness, but were made of different materials. He recorded the amount of light detected by the light sensor in the table below.

| Object | Amount of light detected by light sensor (units) |
|---|---|
| A | 0 |
| B | 425 |
| C | 150 |
| D | 259 |

What was the aim of Gopal's experiment?

(1) To find out how the thickness of the object affects the amount of light passing through.

(2) To find out how the amount of light passing through the object affects the materials used.

(3) To find out how the materials used affects the amount of light passing through the object.

(4) To find out how the position of the light source affects the amount of light passing through the object.



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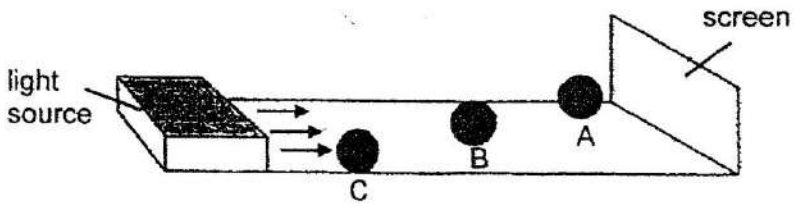
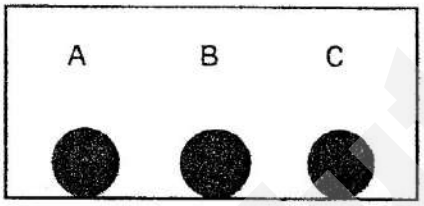
23 The diagram below shows three identical balls, A, B and C, placed at different distances in front of a screen. A light source was switched on and the shadows of the balls were cast on the screen.

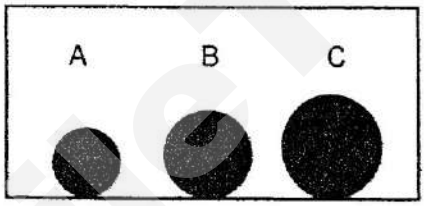



Assuming the balls do not block one another, which one of the following diagrams correctly shows the shadows of the balls, A, B and C, on the screen?

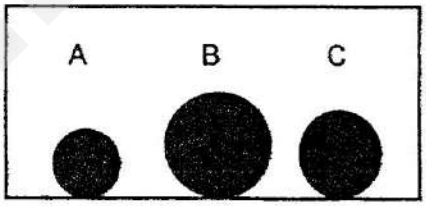
(1)



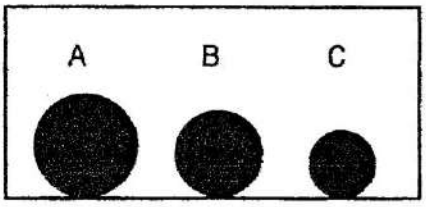

(2)




(3)




(4)



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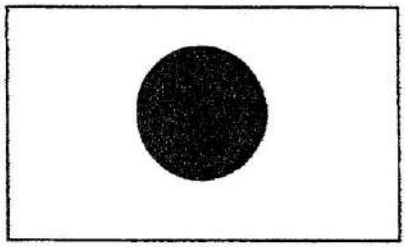
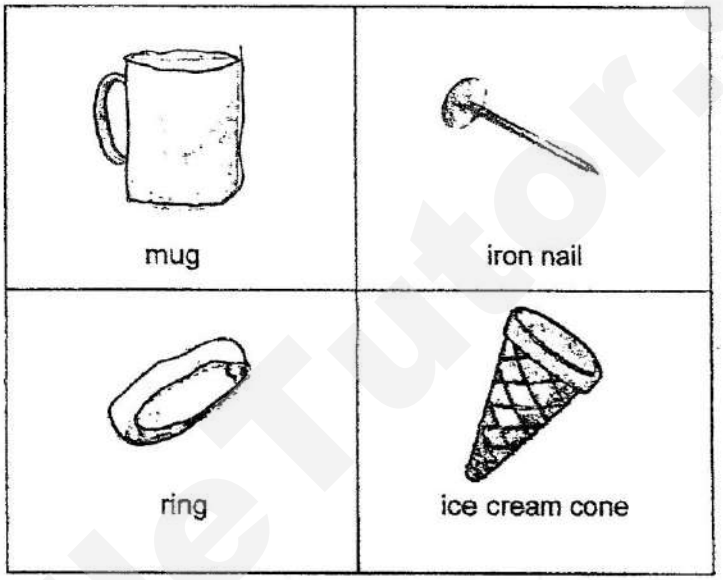
24 The diagram below shows a shadow formed on a screen.



Which of the following could not have formed the shadow shown above?




(1) ring and mug
(2) mug and iron nail
(3) ice cream cone and ring
(4) iron nail and ice cream cone



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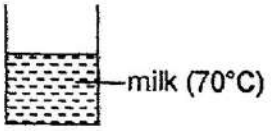
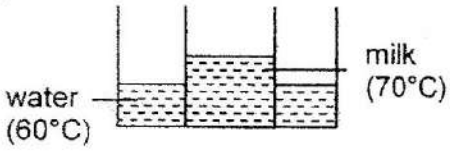
25 Nancy poured some hot milk into a cup as shown below. She wanted to keep her milk hot for as long as possible.

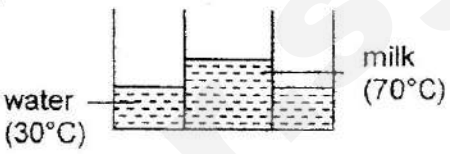



Which one of the following arrangements is the best method to keep the milk hot for the longest time?

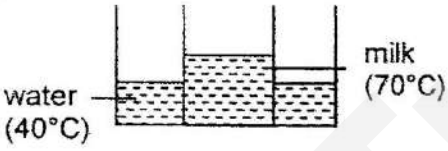
(1)



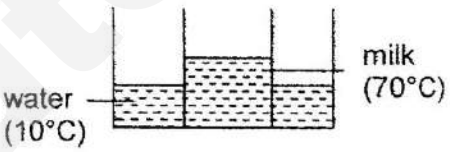

(2)




(3)




(4)




26 Some ice cubes are put into a glass of drink. The ice cubes melt after a while.

How does adding ice cubes make the drink colder?

(1) The ice cubes melt so there is more drink.

(2) The ice cubes gain heat from the drink as they melt.

(3) The heat from the ice cubes moves to the drink as they melt.

(4) The heat from the ice cubes moves to the glass holding the drink.



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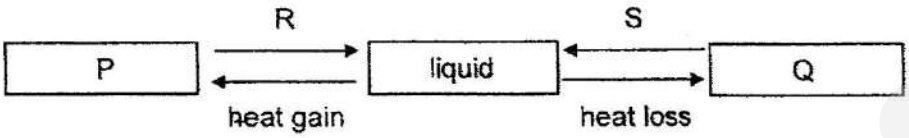
27 Matter can exist in three states, solid, liquid or gas, depending on the temperature.

The diagram below shows how matter can change from one state to another.




What could P, Q, R and S be?

| | P | Q | R | S |
|---|---|---|---|---|
| (1) | gas | solid | heat gain | heat loss |
| (2) | solid | gas | heat gain | heat loss |
| (3) | solid | gas | heat loss | heat gain |
| (4) | gas | solid | heat loss | heat gain |



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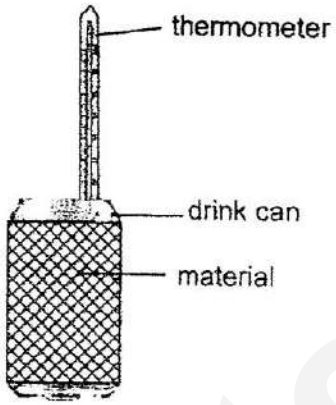
28 Joe carried out an experiment to find out how well different materials reduce heat loss.

He wrapped three identical empty drink cans in different materials. He then put equal amounts of water at 50°C into each can.




After five minutes, he measured the temperature of the water and recorded it in the table below.

| Material | Temperature of water after five minutes (°C) |
|---|---|
| A | 39 |
| B | 45 |
| C | 42 |

Which one of the following lists the materials from the most effective at reducing heat loss to the least effective?

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

**End of Booklet A**



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# CATHOLIC HIGH SCHOOL

## SEMESTRAL ASSESSMENT TWO (2018)

## PRIMARY FOUR

## SCIENCE

## BOOKLET B

Name: _____( )

Class: Primary 4 - _____

Date: 31 October 2018

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.

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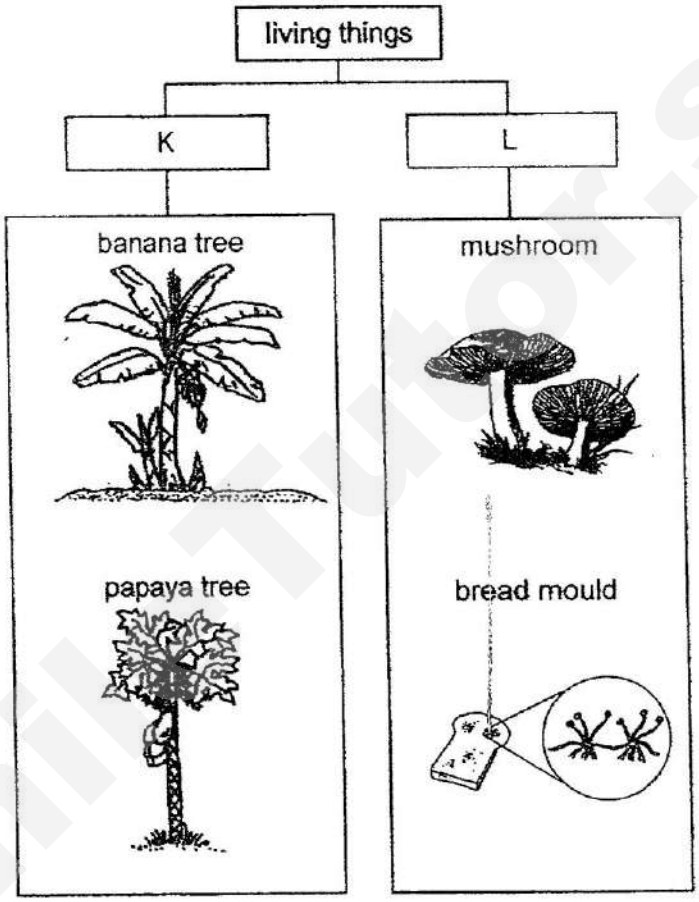
**Booklet B (44 marks)**

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 Study the chart below.




Choose the correct words from the box to give suitable headings for K and L. [2]

| flowering plants | non-flowering plants | bacteria | fungi |
|---|---|---|---|

K: _____

L: _____

(Go on to the next page)

| SCORE | 2 |
|---|---|



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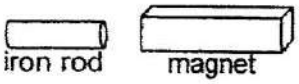
30 Mary places a magnet near an iron rod and the iron rod moves towards the magnet.



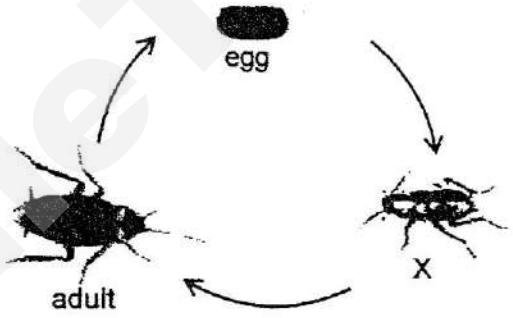

(a) The magnet exerts a _____ on the iron rod. [1]

(b) Choose the correct word from the box to answer the question. [1]

| strong | magnetic | flexible |
|---|---|---|

Mary's observation shows that iron is a _____ material.

31 The diagram below shows the stages in the life cycle of a cockroach.




(a) Name stage X. [1]

_____

(b) State one other animal that has a similar life cycle as a cockroach. [1]

_____

(Go on to the next page)

| SCORE | 4 |
|---|---|



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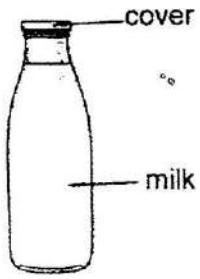
32 The diagram below shows a bottle of milk.




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

(a) The cover is a _____. [1]

(b) Milk is a _____. [1]

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(Go on to the next page)

| SCORE | /2 |
|---|---|



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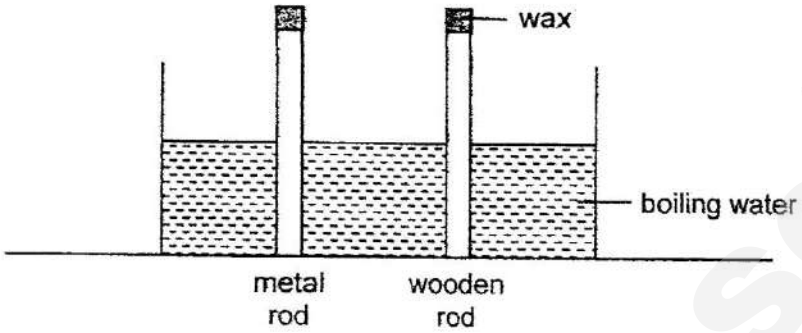
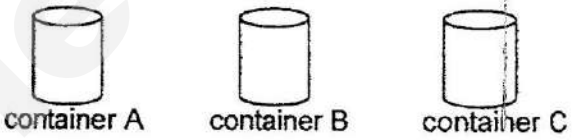
33 (a) James placed a metal rod and a wooden rod into a tank of boiling water as shown below. Equal amounts of wax were put on both rods.




What would he observe and 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.

(b) Some children wanted to find out which material keeps a drink hot for the longest period of time. They filled three containers, A, B and C, with hot water. They placed them in the same place.




What other variables must be kept the same for the experiment to be fair? Put a tick (✓) in the correct boxes. [2]

| Variables | Kept constant |
|---|---|
| Size of containers | |
| Material of containers | |
| Volume of water in containers | |
| Final temperature of water in containers | |

(Go on to the next page)

| SCORE | 4 |
|---|---|



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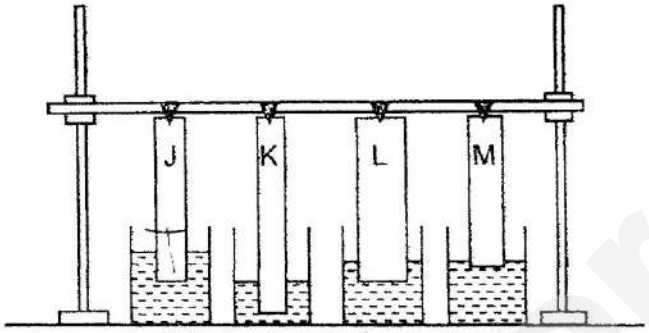
34 (a) Sheela hung four different strips of material, J, K, L and M, each with different thickness from the same height. The ends of the four strips of material were dipped in four similar containers of water.

She wanted to find out which material absorbs the most water after ten minutes.




Set-up at start of experiment

However, Sheela's classmates said that she had not conducted a fair test.

Besides the length and width of the materials, write down two other changes that Sheela should make in order for her experiment to be fair. [2]

Change 1 : _____

_____

Change 2 : _____

_____

(Go on to the next page)

| SCORE | / 2 |
|---|---|



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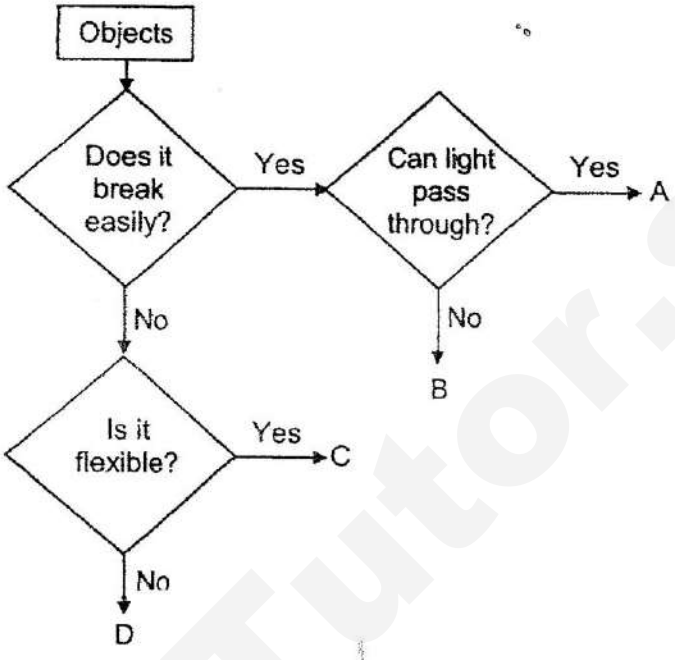
*Continue from question 34*

(b) Study the chart below.




(i) Based on the chart above, state the properties of object D [1]

_____

(ii) Name the material that object A can be made of. [1]

_____

(Go on to the next page)

| SCORE | 2 |
|---|---|



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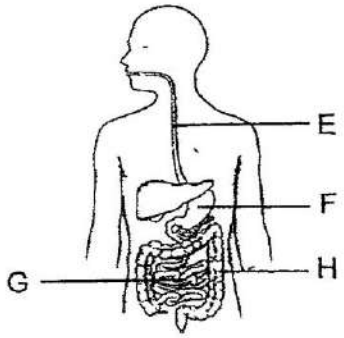
35 The diagram below shows the human digestive system.




(a) Name the parts of the digestive system represented by F and H. [1]

F : _____

H : _____

(b) In which part(s), E, F, G and H, is/are digestive juices added? [1]

_____

(c) Explain what happens at parts G and H. [2]

G : _____

H : _____

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(Go on to the next page)

| SCORE | 4 |
|---|---|



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36 Jeremy wanted to make a magnet using the electrical method.

(a) Other than a battery, what other items would he need?
Tick (✓) the correct box(es).

| Items | Tick (✓) |
|---|---|
| iron rod | |
| aluminium rod | |
| copper wire | |
| eraser | |

(b) When he tested the electromagnet that he had made, he had the following results.

| | plastic clips | steel clips |
|---|---|---|
| Number of clips attracted | 0 | 4 |

He re-constructed his electromagnet and tested again. The number of steel clips attracted increased. Predict the number of plastic clips attracted by writing your prediction in the table below. [1]

| | plastic clips | steel clips |
|---|---|---|
| Number of clips attracted | | 8 |

(c) Give a reason for your answer in (b). [1]

_____

_____

(d) Without replacing any of the items or adding new items, suggest what he had done to the electromagnet in order to attract 8 steel clips. [1]

_____

_____

(Go on to the next page)

| SCORE | / 4 |
|---|---|



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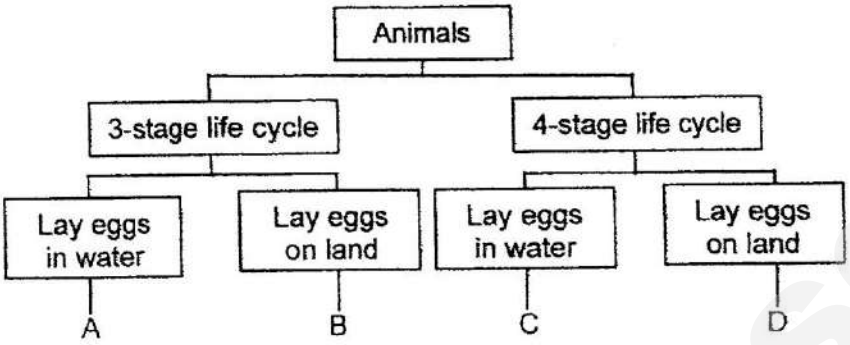
37 Study the chart below.



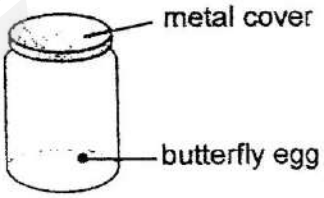

(a) Based on the chart above, state one difference between animals B and D. [1]

_____

(b) Which animal, A, B, C or D, represents a beetle? [1]

_____

(c) Jack placed a butterfly egg in a sealed jar as shown. After one week, the egg hatched into a larva.




Give two suggestions how Jack can improve the above set-up to ensure that the butterfly larva survives after it hatches. [2]

Suggestion 1 : _____

_____

Suggestion 2 : _____

_____

(Go on to the next page)

| SCORE | / 4 |
|---|---|



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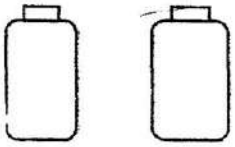
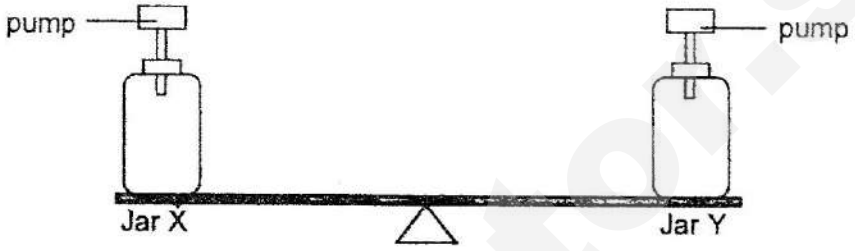
38 Justin conducted an experiment with two identical jars, X and Y, of capacity 300 $cm^3$. Each jar contained 300 $cm^3$ of air.




He connected a pump to both jars as shown in the diagram below.
He then pumped in another 100 $cm^3$ of air into Jar X. Both jars were then placed on a balance.




(a) State what would happen to the balance after 100 $cm^3$ of air was pumped into Jar X. [1]

_____

_____

(b) What was the final volume of air in Jar X? [1]

_____ $cm^3$

(c) State two properties of air that are shown in the experiment above. [2]

Property 1 : _____

_____

Property 2 : _____

_____

(Go on to the next page)

| SCORE | / 4 |
|---|---|



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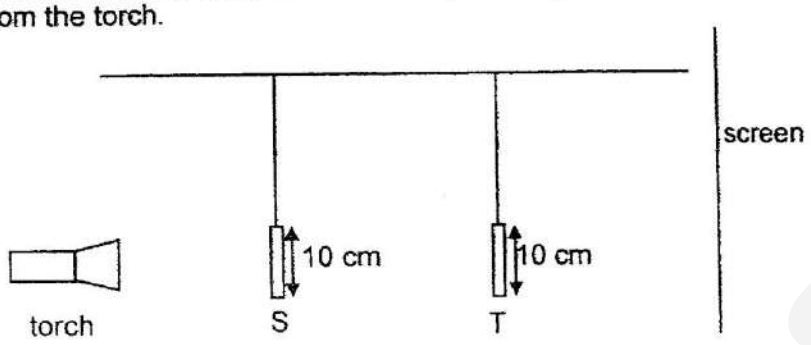
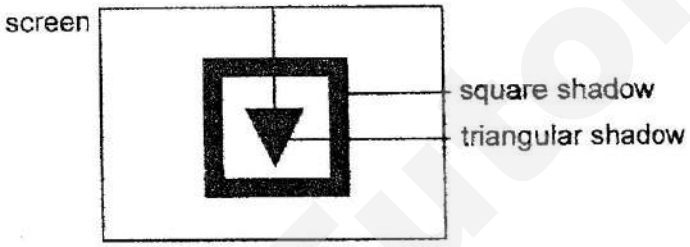
39 The set-up below shows light from a torch shining on two shapes, S and T, made from thick cardboard. The shapes are placed at different distances from the torch.




The diagram below shows the shadow that was formed on the screen.




(a) Which shape, S or T, is a triangle? [1]

_____

(b) Suggest one way to increase the size of the triangular shadow without changing the size of the square shadow. [1]
(You cannot add, remove or replace any of the materials.)

_____

_____

(Go on to the next page)

| SCORE | 2 |
|---|---|



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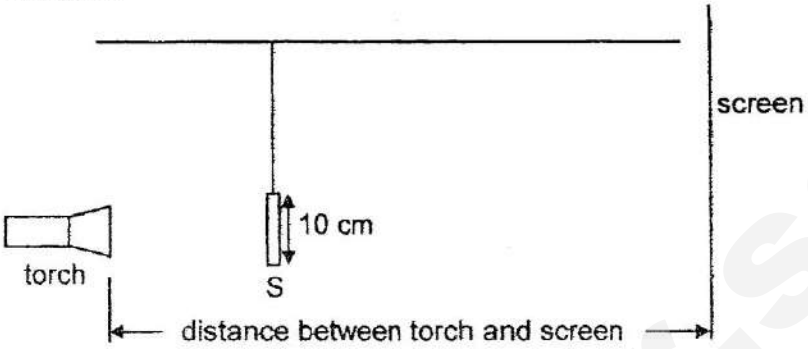
*Continue from question 39*

Object T was removed and the distance between the torch and the screen was changed.




The height of the shadow formed on the screen was recorded in the table below.

| Distance between torch and screen (cm) | Height of shadow (cm) |
|---|---|
| 60 | 28 |
| 55 | 30 |
| 50 | 32 |
| 45 | X |
| 40 | 36 |

(c) Based on the table above, what could be the value of X? [1]

_____

(d) Based on the table above, what is the relationship between the distance between the torch and the screen and the height of the shadow? [1]

_____

_____

(Go on to the next page)

| SCORE | / 2 |
|---|---|



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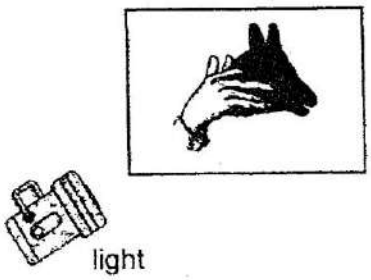
40 (a) Shawn wants to investigate if the size of his hand shadow will be affected by the distance of his hands from the light source as shown in the diagram below.



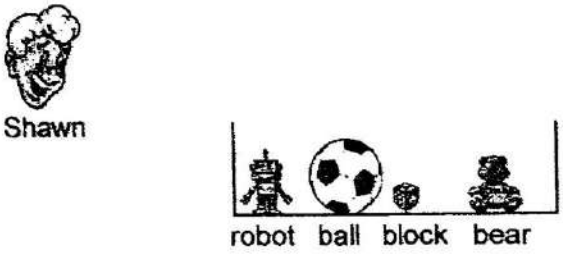

(i) How is a shadow formed? [1]

_____

(ii) What should Shawn do if he wants a bigger shadow? Tick (✓) the correct box(es). [2]

| Shawn should... | Tick (✓) |
|---|---|
| move the torch nearer to his hand | |
| move his hand nearer to the screen | |
| move the torch further away from his hand | |
| move his hand further away from the screen | |

(b) Some toys are placed in a box. Shawn looks into the box from a distance.




Which object(s) can Shawn see clearly? [1]

_____

(Go on to the next page)

| SCORE | / 4 |
|---|---|



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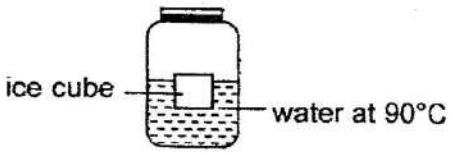
41 Mike filled a jar with some water at a temperature of 90°C. He placed an ice cube into it as shown in the diagram below.

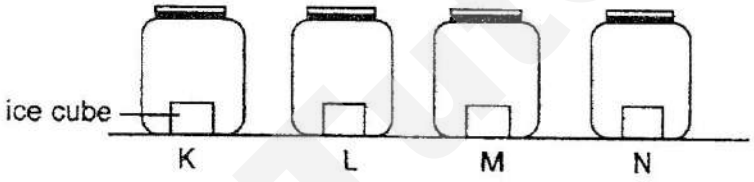



(a) Would the temperature of the water in the jar after five minutes be higher than, same as or lower than 90°C? Give a reason why. [2]

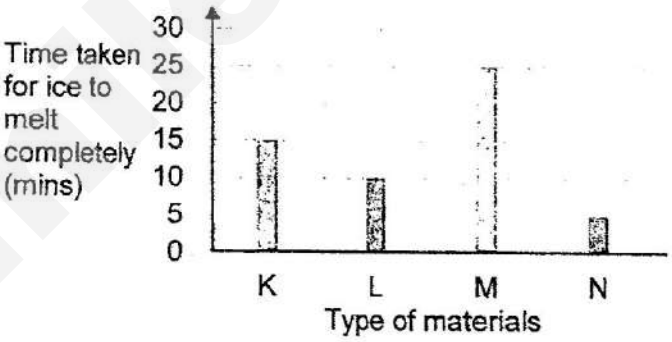
_____

_____

(b) Mike placed four similar ice cubes in four jars, K, L, M and N. The jars were of similar size but made of different materials. He left the jars on a table in the living room.




He recorded the time taken for the ice to melt completely and plotted the readings in the graph below.




Which material is most suitable to make an ice cream container so that the ice cream will not melt so quickly? Explain your answer. [2]

_____

_____

_____

**End of Booklet B**

| SCORE | 4 |
|---|---|



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# ANSWER KEY

**YEAR : 2018**
**LEVEL : PRIMARY 4**
**SCHOOL : CATHOLIC HIGH SCHOOL**
**SUBJECT : SCIENCE**
**TERM : SA 2**

## BOOKLET A

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

## BOOKLET B

**Q29) K: Flowering plants**
**L: Fungi**

**Q30) a: attract**
**b: magnetic**

**Q31) a: nymph**
**b: grasshopper**

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**Q32) a: Solid**
**b: Liquid**

**Q33a) faster, better**

**Q33b) Size of containers, volume of water in containers**

**Q34a) Change 1: Same amount of water**
**Change 2: Size, thickness and length of strips**

**Q34b) i: It does not break easily and it is not flexible.**
**ii: Glass**

**Q35a) F: stomach**
**H: Large intestine**

**Q35b) F, G**

**Q35c) G: Digestion is complete, and food gets absorbed into the blood stream.**
**H: Water is absorbed from the undigested food.**

**Q36a) Iron rod, copper wire**

**Q36b) 0 plastic clips**

**Q36c) Plastic is a non-magnetic material so it will not get attracted.**

**Q36d) He added the number of coils to the electromagnet.**

**Q37a) Animal B has 3 stage life cycle while Animal D has 4.**

**Q37b) D**

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**Q37c) Suggestion 1: Remove the metal cover.**
**Suggestion 2: Add food and water into the jar.**

**Q38a) Jar X will tip the scale as it has increased in mass.**

**Q38b) 300cm3**

**Q38c) Property 1: Air has mass.**
**Property 2: Air can be compressed.**

**Q39a) T.**

**Q39b) Move T closer towards the torch.**

**Q39c) 34**

**Q39d) As the distance between the torch and screen decreases, the height of the shadow increases.**

**Q40a) i: When light is completely or partially blocked.**

**ii: Move the torch nearer to his hand.**
**Move his hand further away from the screen.**

**Q40b) Bear**

**Q41a) The water lost heat to the ice-cube and to the surrounding air.**

**Q41b) M. Material M is the poorest conductor of heat among all the materials. Thus, the ice cream will gain heat from the surrounding air slower.**



**END**

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Name: _____( )

Class: Primary _____

# CHIJ ST NICHOLAS GIRLS' SCHOOL

SIMPLE IN VIRTUE

STEADFAST IN DUTY

## Primary 4
## Semestral Assessment 2
## SCIENCE

**BOOKLET A**

**25 October 2018**

**Total Time for Booklets A and B: 1 hour 45 minutes**

**28 questions**
**56 marks**

**Do not open this booklet until you are told to do so.**
**Follow all instructions carefully.**
**Answer all questions.**

***This booklet consists of 19 printed pages.***

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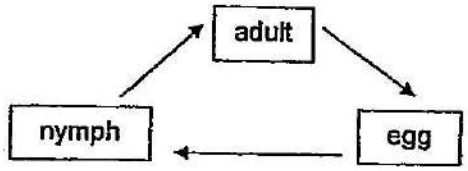
**Section A (28 x 2 marks = 56 marks)**
For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). **Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.**

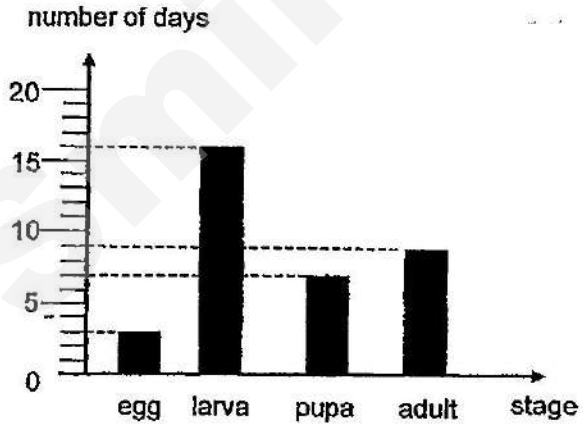
1. The diagram below shows the life cycle of an animal.




Which animal is likely to have the life cycle shown above?

(1) Frog
(2) Chicken
(3) Mosquito
(4) Cockroach

2. The graph below shows the number of days for each stage of the life cycle of organism X.




How many days would organism X take to become an adult after the egg is hatched?

(1) 9 days
(2) 19 days
(3) 23 days
(4) 26 days



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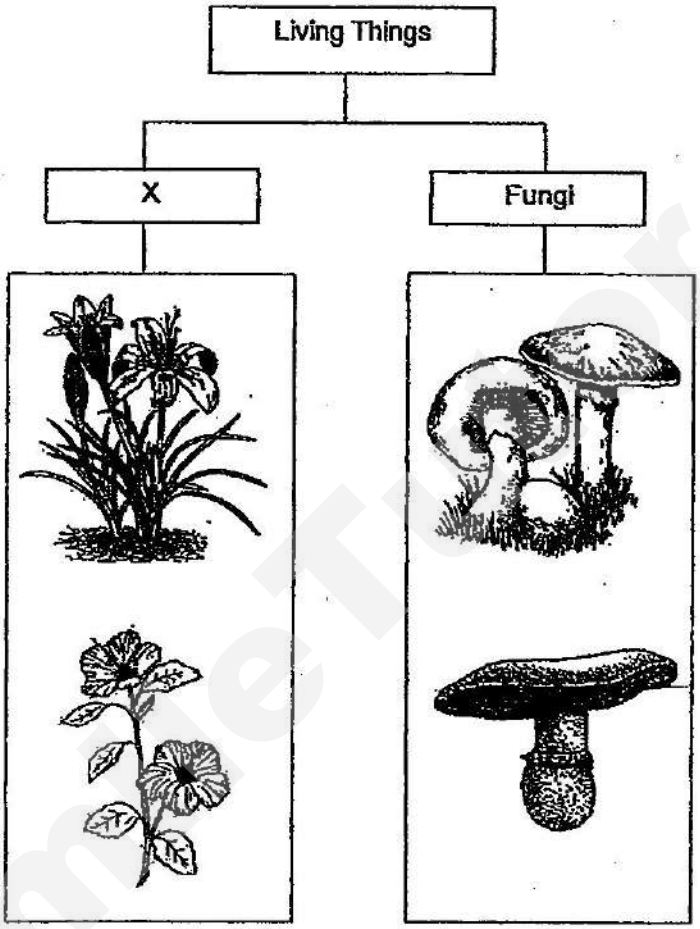
3. The table below shows how some living things can be grouped.




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

(1) Ferns
(2) Mosses
(3) Bacteria
(4) Flowering plants



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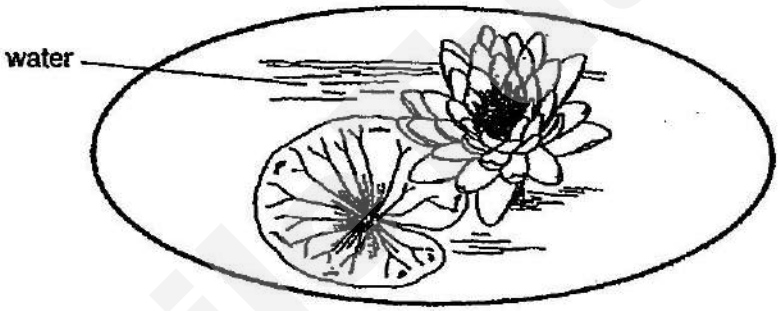
4. The table below shows the characteristics of four organisms A, B, C and D. A tick (✓) shows that the organism has the characteristic.

| Characteristics | Organisms | | | |
|---|---|---|---|---|
| | A | B | C | D |
| produces flowers | | | ✓ | ✓ |
| grows on land | ✓ | ✓ | | ✓ |
| makes food | ✓ | | ✓ | ✓ |

Joanna saw a plant in a pond shown below.




Which one of the following organisms A, B, C or D represents the plant shown above?

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



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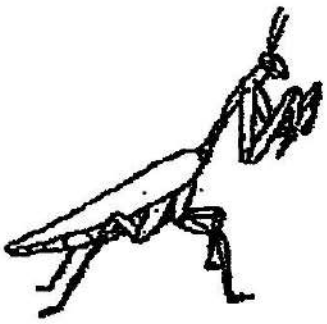
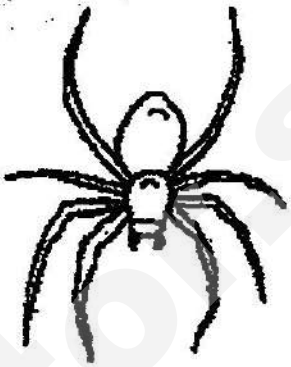
5. Which one of the animals shown below is **not** an insect?

(1)

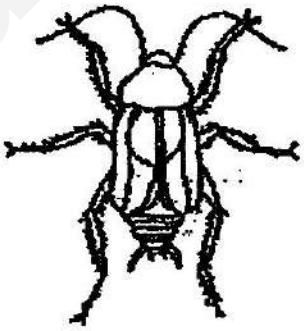


(2)

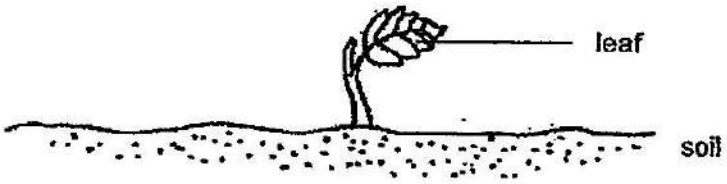


(3)

(4)



6. The diagram below shows a young plant.




The leaf helps the plant to _____.

(1) make food
(2) grow upright
(3) take in water
(4) take in minerals



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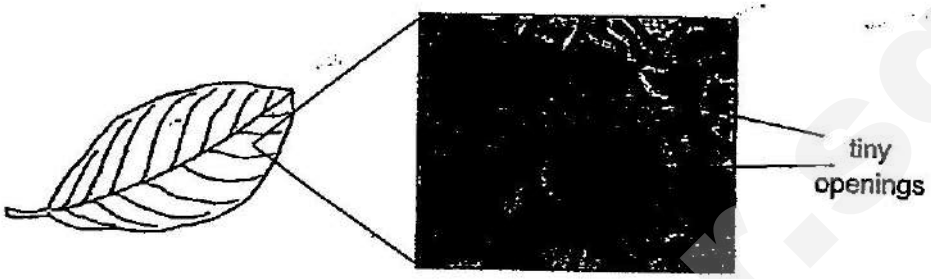
7. The diagram below shows the tiny openings found on a leaf.




magnified view

What is the function of the tiny openings on the leaf?

(1) To trap light
(2) To take in water
(3) To help the plant reproduce
(4) To help the plant take in and give out gases

8. What is generally common among insects and birds?

(1) They have three body parts.
(2) Their young look like the adult.
(3) They reproduce by laying eggs.
(4) They have the same type of body covering.



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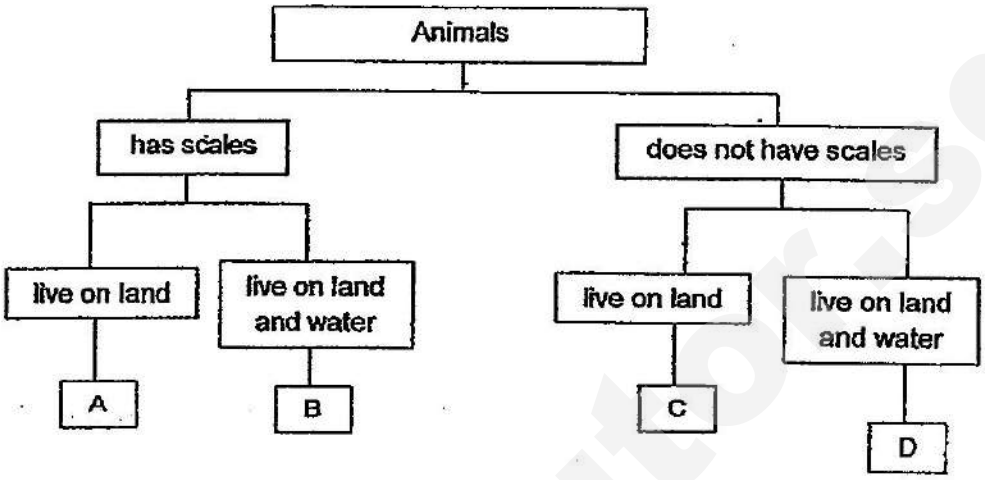
9. Study the classification chart below.




The diagram below shows animals X and Y.

| Animal X | Animal Y |
|---|---|
| | |

Which group A, B, C or D do animals X and Y belong to?

| | Animal X | Animal Y |
|---|---|---|
| (1) | A | C |
| (2) | A | D |
| (3) | B | C |
| (4) | B | D |



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10. The picture below shows Faisal playing basketball.

Which organ systems in his body work together when he plays basketball?

A Skeletal system
B Muscular system
C Circulatory system
D Respiratory system

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



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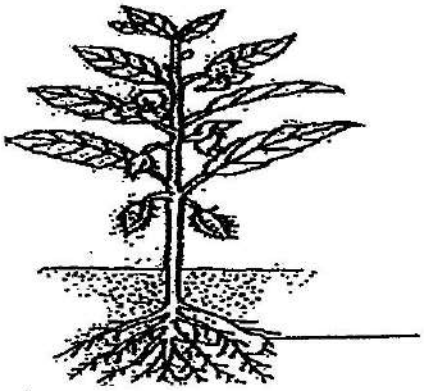
11. Study the diagram below.

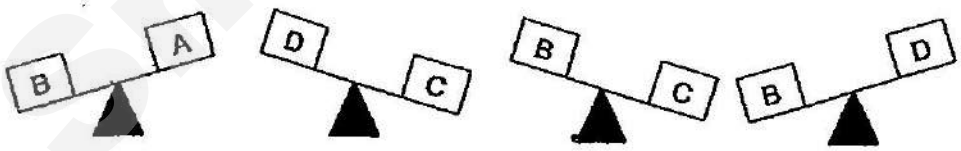



What is the function of part X?

A Support the plant
B Absorb water from the soil
C Absorb minerals from the soil
D Hold the plant firmly to the ground

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

12. Study the diagram below.




Which block A, B, C or D has the most mass?

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



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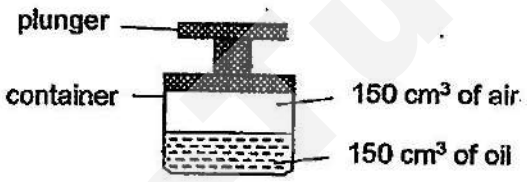
13. Matter is anything that has mass and occupies space. Which one of the following is not matter?

(1) air
(2) sand
(3) water
(4) shadow

14. Study the diagram below.




What will happen to the mass and volume of air inside the container when the plunger is pushed in?

| | Mass | Volume |
|---|---|---|
| (1) | remain the same | decreases |
| (2) | decreases | decreases |
| (3) | increases | increases |
| (4) | remain the same | increases |



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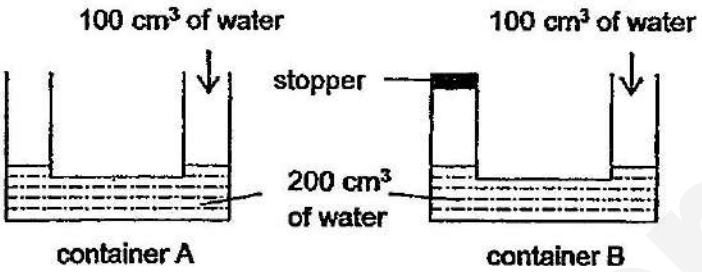
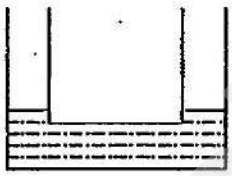
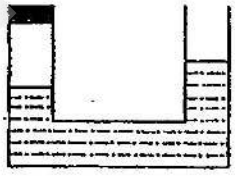
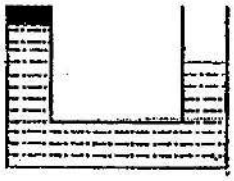
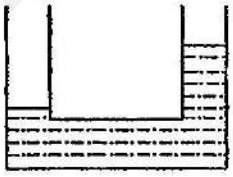
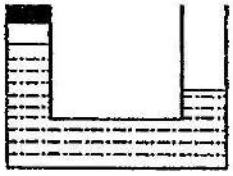
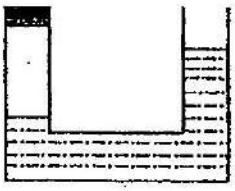
15. Evelyn filled containers A and B with 200 $cm^3$ of water. Next, she placed a stopper on one opening of container B. Then, she added another 100 $cm^3$ of water to each container.




Which of the following shows the possible water level in both containers at the end of the experiment?

| | Container A | Container B |
|---|---|---|
| (1) |  |  |
| (2) | |  |
| (3) |  |  |
| (4) | |  |



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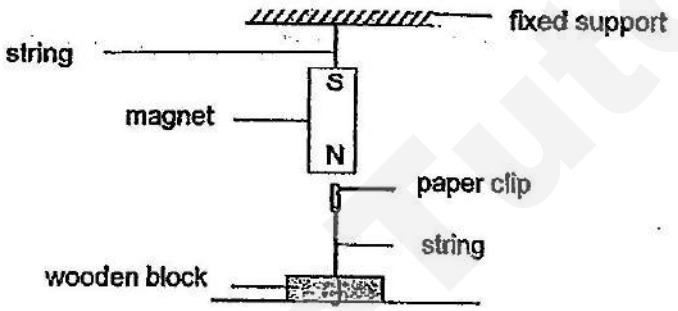
16. Which one of the following can be attracted by a magnet?

(1) steel ruler
(2) plastic ruler
(3) wooden ruler
(4) aluminium ruler

17. Study the diagram below.




Sue observed that the string with the paper clip remained upright when it was placed near the magnet.

What can Sue conclude from her observation?

A The string is made of a magnetic material.
B The paper clip is made of a magnetic material.
C The magnet and the paper clip are repelling each other.
D Magnetic force can act at a distance.

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



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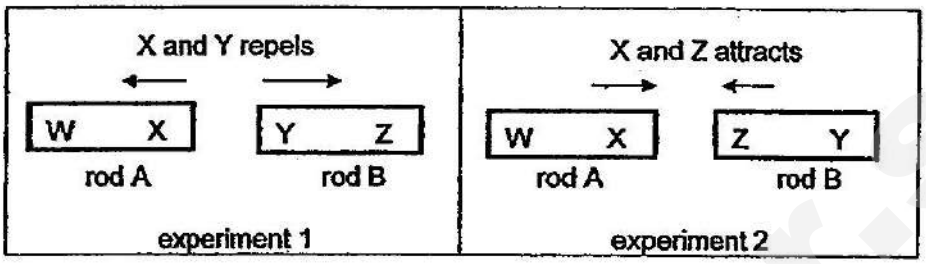
18. Tessa placed two metal rods A and B next to each other. The results of her experiment are shown below.




Based on the information given, which of the following statement(s) is/are true?

A X and Y are unlike poles.
B Metals rods A and B are magnets.
C Metal rod B is made of copper.

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



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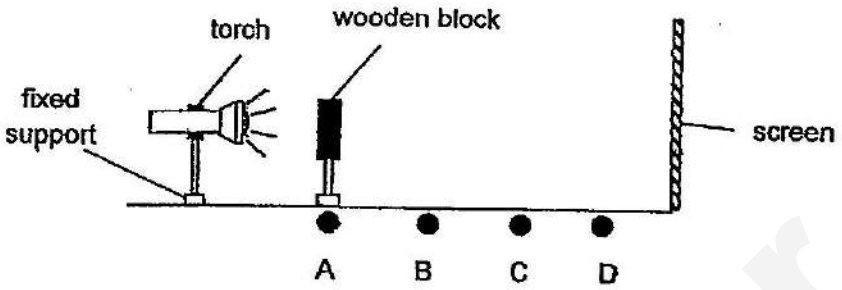
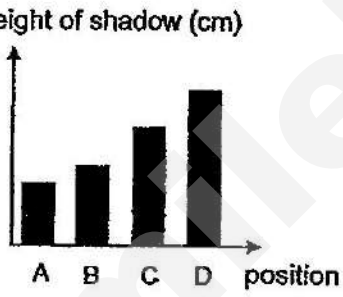
19. Study the diagram below.



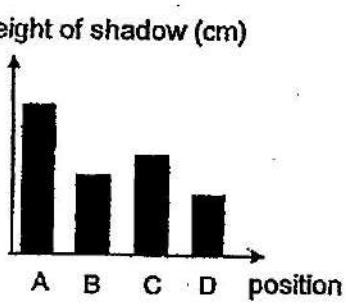

Ali placed the wooden block at position A and recorded the height of the shadow formed on the screen. He repeated the experiment by placing the wooden block at positions B, C and D.

Which of the following graphs correctly shows the height of the shadow of the wooden block at positions A, B, C and D?

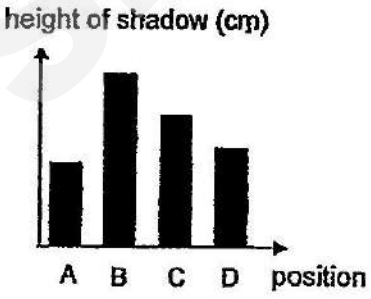
(1)



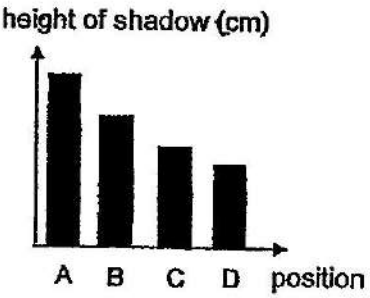

(2)




(3)




(4)



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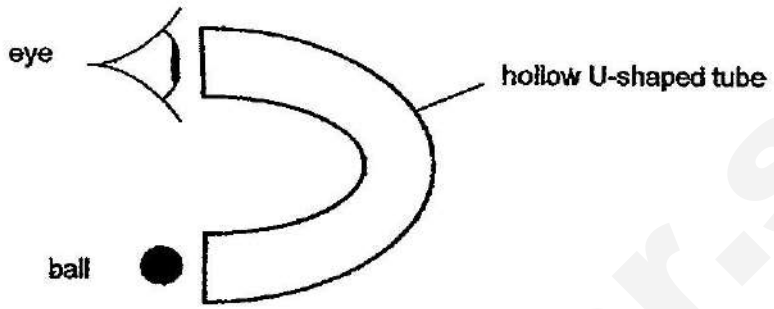
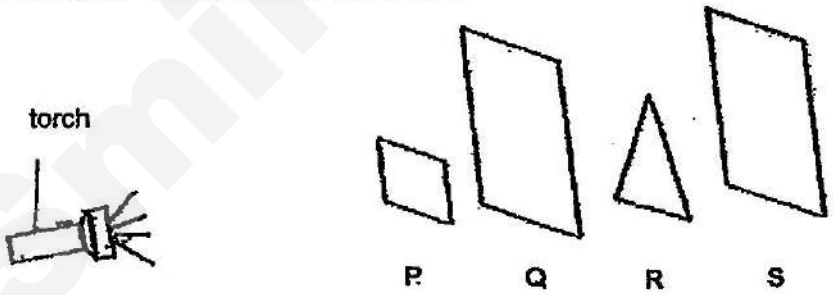
20. Study the diagram below.




Ivan cannot see the ball through the U-shaped tube because _____.

(1) light has no mass
(2) light can be reflected
(3) light travels in a straight line
(4) light does not occupy space

21. Kelly arranged four sheets of different shapes P, Q, R and S in a straight line and shone a torchlight as shown in the set-up below. She observed that a small triangular shadow formed on sheet S.




Which one of the following is most likely true?

| | P | Q | R |
|---|---|---|---|
| (1) | Allow most light to pass through | Allow most light to pass through | Allow no light to pass through |
| (2) | Allow most light to pass through | Allow no light to pass through | Allow no light to pass through |
| (3) | Allow some light to pass through | Allow no light to pass through | Allow some light to pass through |
| (4) | Allow no light to pass through | Allow most light to pass through | Allow some light to pass through |



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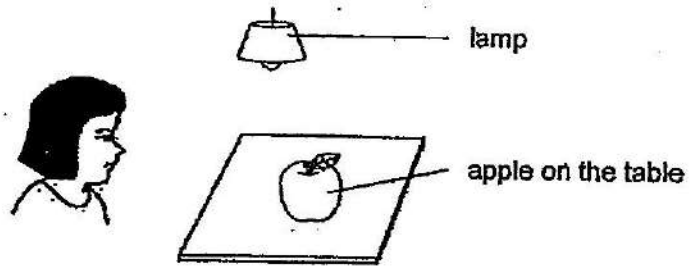
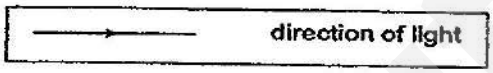
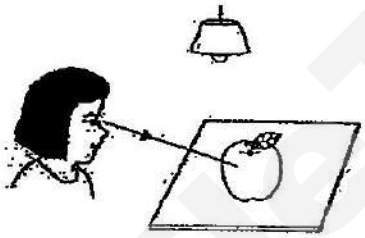
22. Look at the picture below.



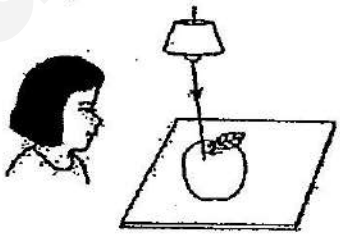

Which one of the following explains why Nirmala can see the apple on the table?



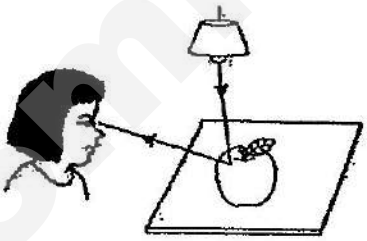

(1)



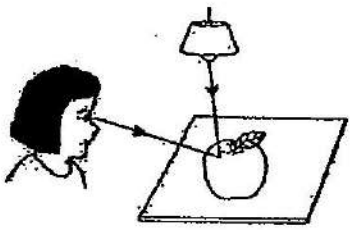
(2)



(3)



(4)



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

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



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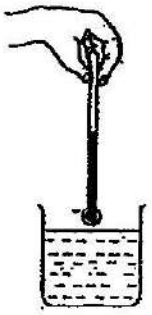
24. Bohnie wants to measure the temperature of cold water in a beaker.

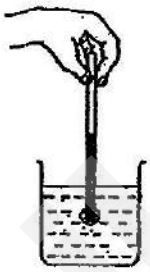
Which one of the following diagrams shows the correct position of the thermometer when taking the temperature reading?

(1)

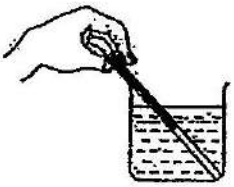


(2)

(3)



(4)



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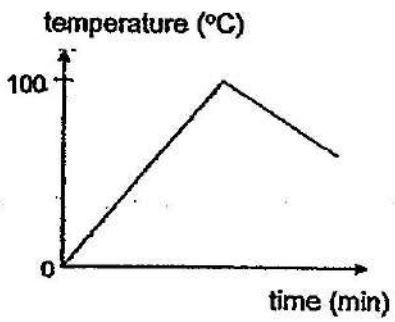
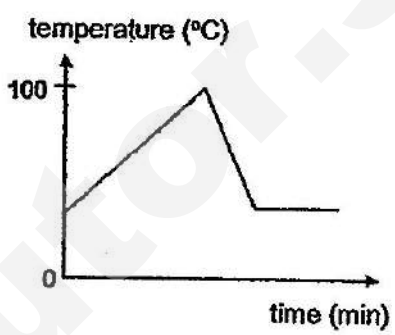
25. Mary heated a beaker of tap water until it boiled. She kept it boiling for another two minutes. Then, she placed the beaker of water in the refrigerator

Which of the following graphs shows the changes in the water temperature from the time she started to heat the water to the time she placed it in the refrigerator?

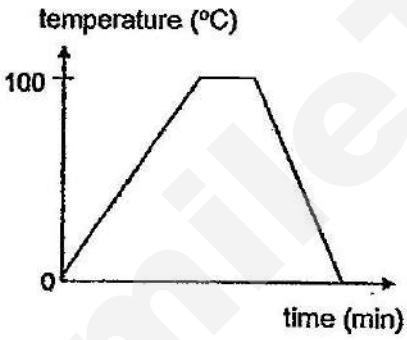
(1)




(2)




(3)

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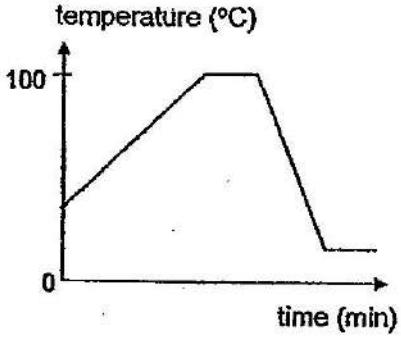




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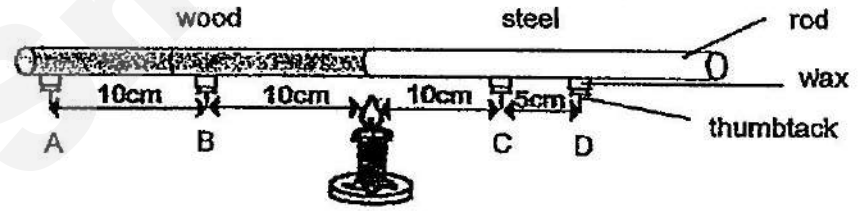
26. Rahima had four similar cups P, Q, R and S made of different materials. She poured an equal amount of hot water into each cup. She measured the temperature of the water after ten minutes and recorded her observations in the table below.

| Cup | P | Q | R | S |
|---|---|---|---|---|
| Temperature of water at the start of experiment ( °C ) | 55 | 55 | 55 | 55 |
| Temperature of water after 10 minutes ( °C ) | 21 | 30 | 43 | 19 |

Based on the table, which one of the cups is made of a material that is the best conductor of heat?

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

27. The diagram below shows four similar thumbtacks A, B, C and D attached to a rod made of equal lengths of wood and steel. Each thumbtack was attached to the rods using equal amounts of wax.




Arrange the time taken for each thumbtack to drop off the rods from the fastest to the slowest.

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



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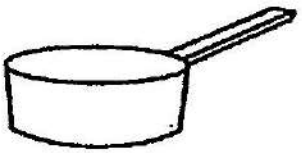
28. Which of the following objects is not made of waterproof material?

(1)

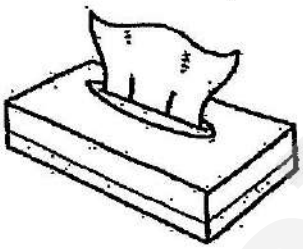


metal pot

(2)

rubber boots

(3)



tissue paper

(4)

plastic bottle

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Name:_____( )

Class: Primary 4_____

# CHIJ ST NICHOLAS GIRLS' SCHOOL

## Primary 4
## Semestral Assessment 2
## SCIENCE

**BOOKLET B**

**25 October 2018**

| | |
|---|---|
| Booklet A | 56 |
| Booklet B | 44 |
| Total | 100 |

**Total Time for Booklets A and B: 1 hour 45 minutes**

**13 questions**
**44 marks**

**Do not open this booklet until you are told to do so.**
**Follow all instructions carefully.**
**Answer all questions.**

**This paper consists of 13 printed pages.**

_____

**Parent's Signature/Date**

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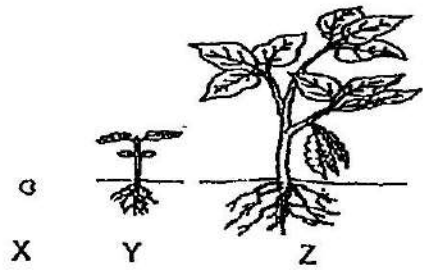
**Section B (marks)**
For questions 29 to 41, write your answers in this booklet.
The number of marks available is shown in the brackets [ ] at the end of each question or part question.

29. The diagram below shows the stages in the life cycle of a plant.




(a) Choose the correct words from the box to answer the question below.

| fruit | seed | young plant | flower | adult plant |
|---|---|---|---|---|

Name stages X and Y in the life cycle of the plant. [2]

Stage X: _____

Stage Y: _____

Ivan carried out an experiment with three similar pots of plants of height 7 cm. He measured the height of each plant at the end of ten days and recorded the results in the table below.

| Pot | Amount water given daily (ml) | Amount of fertiliser given (g) | Height of plant after 10 days (cm) |
|---|---|---|---|
| A | 10 | 5 | 10 |
| B | 15 | 5 | 12 |
| C | 20 | 5 | 15 |

(b) What was he trying to find out from his experiment? [1]

_____

_____



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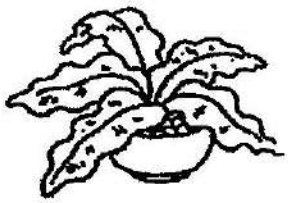
30. Study the diagram below.



bird's nest fern

moss

sunflower

(a) How does the moss obtain its food? [1]

_____

_____

(b) State two differences between the bird's nest fern and the sunflower in terms of their method of reproduction and their plant parts. [2]

Method of reproduction: _____

_____

Plant parts: _____

_____



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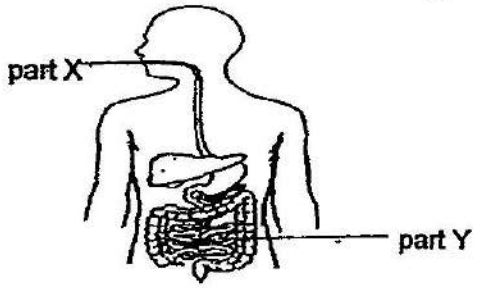
31. The diagram below shows the human digestive system. Substance P found in part X of the human digestive system helps in the digestion process.




(a) Other than breaking down some food into simpler substances, state another function of substance P. [1]

_____

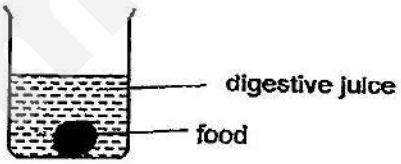
_____

(b) Explain what happens to the digested food at part Y of the human digestive system. [1]

_____

_____

Hannah conducted an experiment as shown below. She wanted to find out if the amount of digestive juices affects the time taken for food to be digested.




| Set-ups | Amount of digestive juices (ml) | Amount of food (g) |
|---|---|---|
| X | 200 | 50 |
| Y | 200 | 100 |
| Z | 150 | 50 |

(c) Based on the table above, which two set-ups should she use to conduct a fair test? [1]

_____



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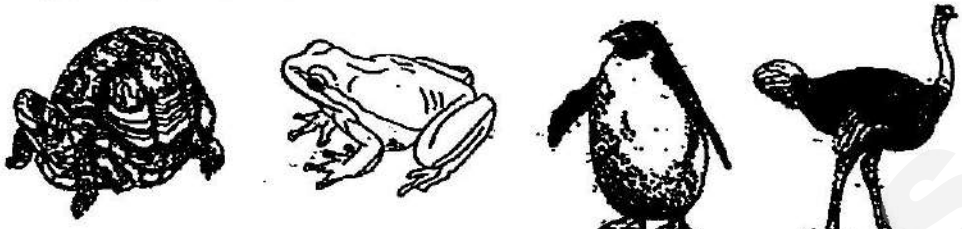
32. Study the diagram below.



animal A animal B animal C animal D

(a) State one similarity between animals A, B, C and D. [1]

_____

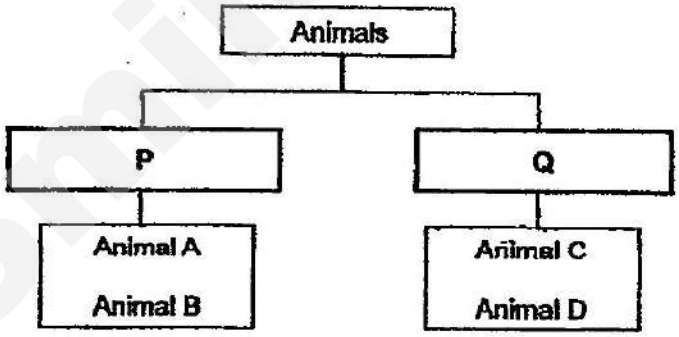
_____

(b) State one difference between animal B and C in terms of their outer covering. [1].

_____

_____

Angeline classified the animals A, B, C and D into two groups shown below.




(c) Write suitable headings for P and Q in the blanks below. [2]

P: _____

Q: _____



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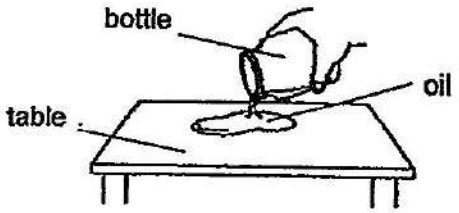
33. Choose the correct words from the box to fill in the blanks below.

| gas | solid | liquid |
|---|---|---|

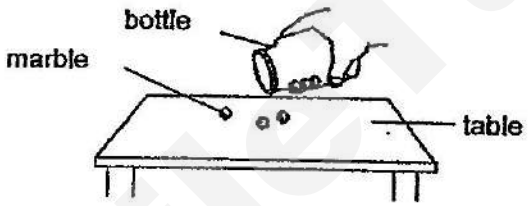
Adam accidentally spills the oil from a bottle onto a table shown below.




The volume of oil remains the same but its shape changes

(a) This shows that oil is a _____. [1]

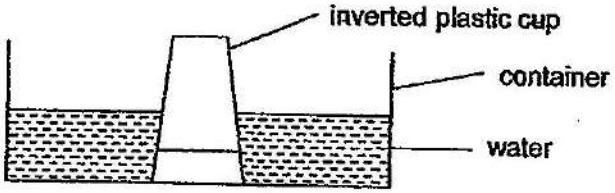
Adam pours some marbles from a bottle onto a table shown below.




The shape and volume of the marbles remain the same.

(b) This shows that a marble is a _____. [1]

(c) Adam inverted a plastic cup shown below.
In the diagram, draw a line to indicate the water level in the inverted cup as he slowly pushed it straight into the container of water. [1]




(d) Give a reason for the water level you have drawn in (c).

_____

_____



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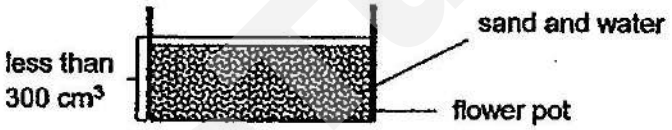
34. Mrs Tan filled a flower pot with sand as shown in the diagram below.

(a) She observed that the sand took the shape of the flower pot so she concluded that sand is a liquid. Do you agree with her? Give a reason for your answer. [1]

She observed that after adding 100 cm³ of water into the flower pot, the total volume of water and sand in the flower pot was less than 300 cm³.




(b) Explain why the total volume of sand and water is less than 300 cm³. [2]



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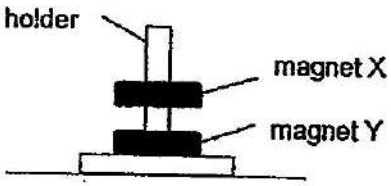
35. Jing Jing placed two ring magnets X and Y through a holder shown below.



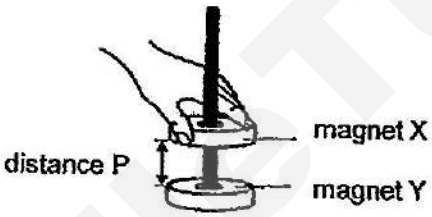

The holder was made of wood and did not attract the magnets.

(a) Wood is a _____ material. [1]

(b) Why was magnet X floating above magnet Y?

Magnet Y was _____ magnet X. [1]

Jing Jing tried to push magnet X towards magnet Y as shown below.

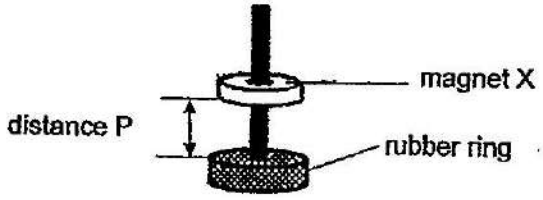



(c) She observed that she had to push harder as distance P decreased. Give a reason for her observation. [1]

_____

_____

Jing Jing replaced magnet Y with a rubber ring shown below.




(d) What will happen to distance P? Give a reason for your answer. [1]

_____

_____



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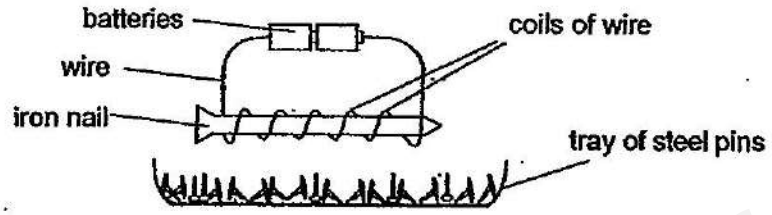
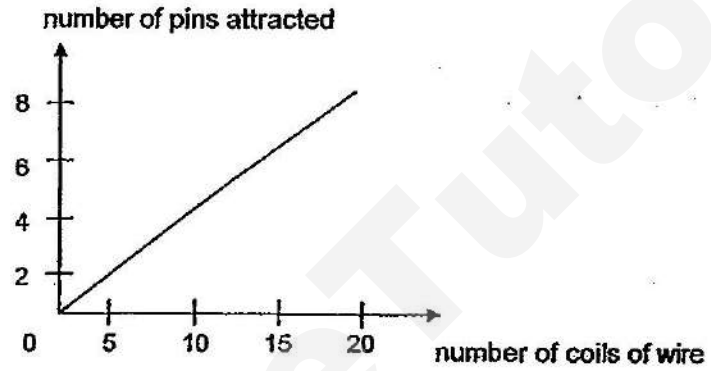
36. Yvonne carried out an experiment to investigate how the number of coils of wire around an iron nail affects the number of steel pins attracted by it.




She recorded her results in the graph below.




(a) Based on Yvonne's graph, what can she conclude about the number of coils of wire and the number of pins attracted by the electromagnet? [1]

(b) State one <u>other</u> variable that should be kept unchanged for Yvonne's experiment to be fair. [1]

(c) Yvonne changed the iron nail to a copper nail for her electromagnet. What would she observe? Give a reason for your answer. [1]



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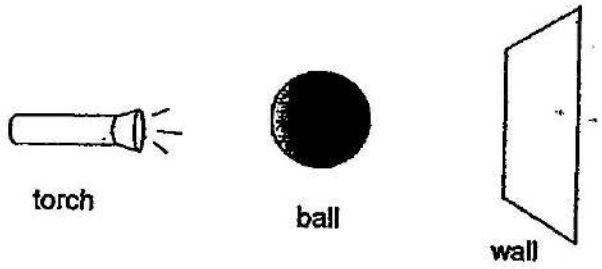
37. Zoey shines a torch on a ball and a shadow is formed on a smooth wall.




(a) A shadow is formed when path of light is _____ by an object. [1]

(b) Draw the shadow of the ball that is formed on the wall in the box below.

Zoey conducted another experiment by replacing the ball with object X. She observed that there was no shadow formed by object X on the wall.

(c) Based on her observation, state the property of object X. [1]

_____

_____



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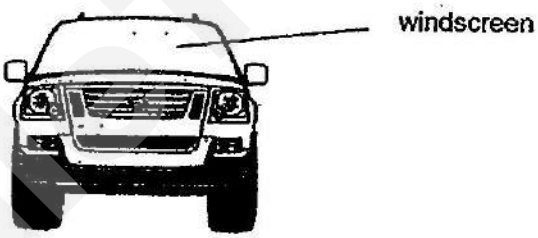
38. Nina conducted an experiment as shown below. She wanted to find out the amount of light that is able to pass through four different materials A, B, C and D. She shone the torch at material A and recorded the amount of light detected by the light sensor.

She repeated the experiment with materials B, C and D and recorded her results in the table below.

| Material | Amount of light detected by the light sensor (lux) |
|---|---|
| A | 235 |
| B | 0 |
| C | 433 |
| D | 798 |

The diagram below shows a windscreen of a car.




(a) Which material A, B, C or D is most suitable for making a windscreen of a car? Give a reason for your answer. [2]

_____

_____

(b) Other than the torch and the light sensor, state two variables that should remain the same for the experiment to be fair. [2]

(i) _____

_____

(ii) _____

_____



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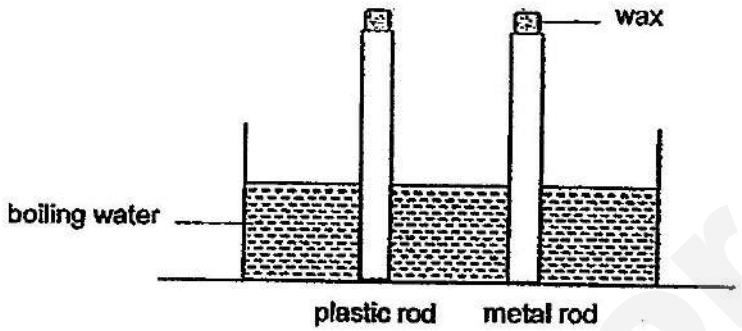
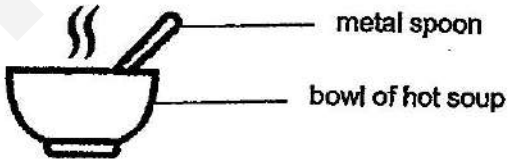
39. Zuffri placed a plastic rod and a metal rod into a tank of boiling water shown below. Equal amounts of wax were placed on both rods.




(a) What would he observe and why? [2]

The wax on the plastic rod melted _____ than the wax on the metal rod, as plastic is a _____ conductor of heat than metal.

Zuffri placed a metal spoon in a bowl of hot soup shown below. Zuffri observed that the spoon became hot after a while.




(b) Explain why the spoon became hot after a while. [1]

_____

_____



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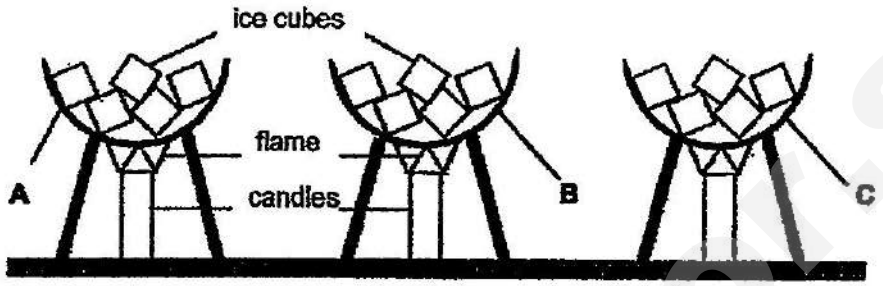
40 Liza heated an equal number of similar-sized ice cubes in three containers A, B and C shown below. The containers were of the same shape and size but they were made of different materials.




She recorded the results of her experiment in the table below.

| Container | Time taken for all the ice cubes to melt completely (min) |
|---|---|
| A | 2 |
| B | 4 |
| C | 3 |

(a) From the results, which container A, B or C is the best conductor of heat? Explain why. [2]

Liza wanted to pack some ice-cream in a container to bring to her friend's house.

(b) Based on the results shown above, which container A, B or C should she use to pack the ice-cream? Give a reason for your answer. [2]



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41. Sandra conducted an experiment using three rods made of materials S, T and U. She measured the distance bent by the rods when the same weight was hung on the rods and recorded the results in the table below.

| Material | Distance bent (cm) |
|---|---|
| S | 12 |
| T | 3 |
| U | 6 |

(a) State the property of the material that is being tested in this experiment. [1]

Sandra wanted to make part A of a fishing rod shown below.

(b) Based on her results, which material S, T or U is most suitable for making part A of the fishing rod? Explain your answer. [2]

**End of Paper**



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**EXAM PAPER 2018**
**LEVEL : PRIMARY 4**
**SCHOOL : CHIJ ST NICHOLAS GIRLS' SCHOOL**
**SUBJECT : SCIENCE**
**TERM : SA2**

**BOOKLET A**

**SECTION A**

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

**BOOKLET B**

**SECTION B**

**Q29.** a) Stage X: seed

Stage Y: young plant

b) To find out if the amount of water given daily to the plant affects the height of the plant after 10 days.

**Q30.** a) It traps light and makes food via photosynthesis.

b) Method of reproduction: The bird's nest fern reproduce by spores but the sunflower reproduce by seeds.

Plant parts: The bird's nest fern does not have a flower but the sunflower has a flower.



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**Q31.** a) It soften the partially digested food and makes it easy to swallow.

b) The digested food would be absorbed into the bloodstream.

c) Set ups X and Z.

**Q32.** a) All of them lay eggs.

b) Animal B has moist skin while Animal C has feathers.

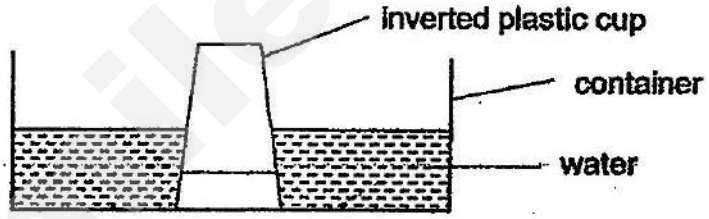
c) P: <u>Do not have feathers.</u>

Q: <u>Have feathers.</u>

**Q33.** a) liquid

b) solid

c)




d) Air occupies space in the cup and hence water rise a little or falls below the water level of the container.

**Q34.** a) No. Sand is a solid because each grain of sand is a tiny solid that has a definite shape.

b) Water is a liquid that occupies the small air spaces in between the solid grains of sands.



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Q35. a) non-magnetic

b) repelling

c) As distance P decreases, the repulsion between two magnets increases.

d) Distance P would become zero as rubber is not a magnet.

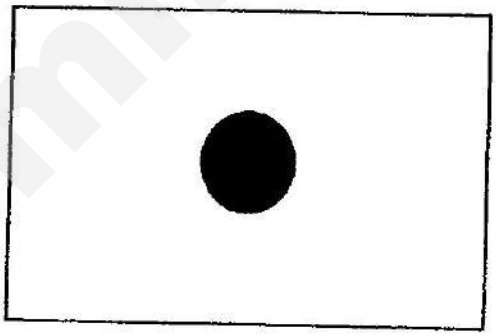
Q36. a) The greater the number of coils of wire, the greater the number of pins attracted by the electromagnet.

b) The number of batteries used in the set-up should be the same.

c) The copper nail would not attract any steel pins. Only magnetic materials such as the iron nail can be made into electromagnets. Copper is a non-magnetic material, and thus, the copper nail would not attract and steel pins.

Q37. a) blocked

b)



wall

c) Object X allows most light to pass through.



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Q38. a) Material D. It allows 796 lux of light pass through indicating that it allow most light to pass through and it is transparent. The windscreen of a car has to allow most light to pass through so that the driver can see other cars. Thus, Material D is most suitable to make a windscreen.

b) i) The thickness of the material.

ii) The distance of the material and the torch must be kept the same.

Q39. a) slower, poorer

b) Metal is a good conductor of heat, the heat from the bowl of hot soup heated the spoon quickly, the spoon gained heat, so it is hot.

Q40. a) Container A. It conducted heat from the fire to the ice cubes the fastest as it only took 2 minutes to melt which is the fastest time to melt.

b) Container B. It took 4 minutes to melt indicating that it took the longest time to melt the ice and it is the poorest conductor of heat. A container of ice cream has to keep the ice cream cold for the longest time and Container B kept the ice cold for the longest time. Hence, Container B is most suitable to make a container to contain ice cream.

Q41. a) The property is flexibility.

b) Material S. It can bend the most without breaking and it can withstand the pull of the fish without breaking so easily.

END-OF-PAPER

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# HENRY PARK PRIMARY SCHOOL

## SECOND SEMESTRAL ASSESSMENT 2018

## PRIMARY 4

## SCIENCE

## BOOKLET 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: 26 October 2018

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

| Booklet | Marks |
|---|---|
| A | / 56 |
| B | / 44 |
| Total (A+B) | / 100 |

Parent's Signature: _____

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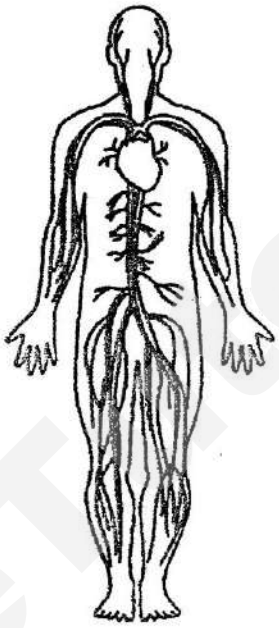
**Booklet A (56 marks)**

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. Which organ system is shown in the diagram?



(1) digestive system

(2) muscular system

(3) circulatory system

(4) respiratory system



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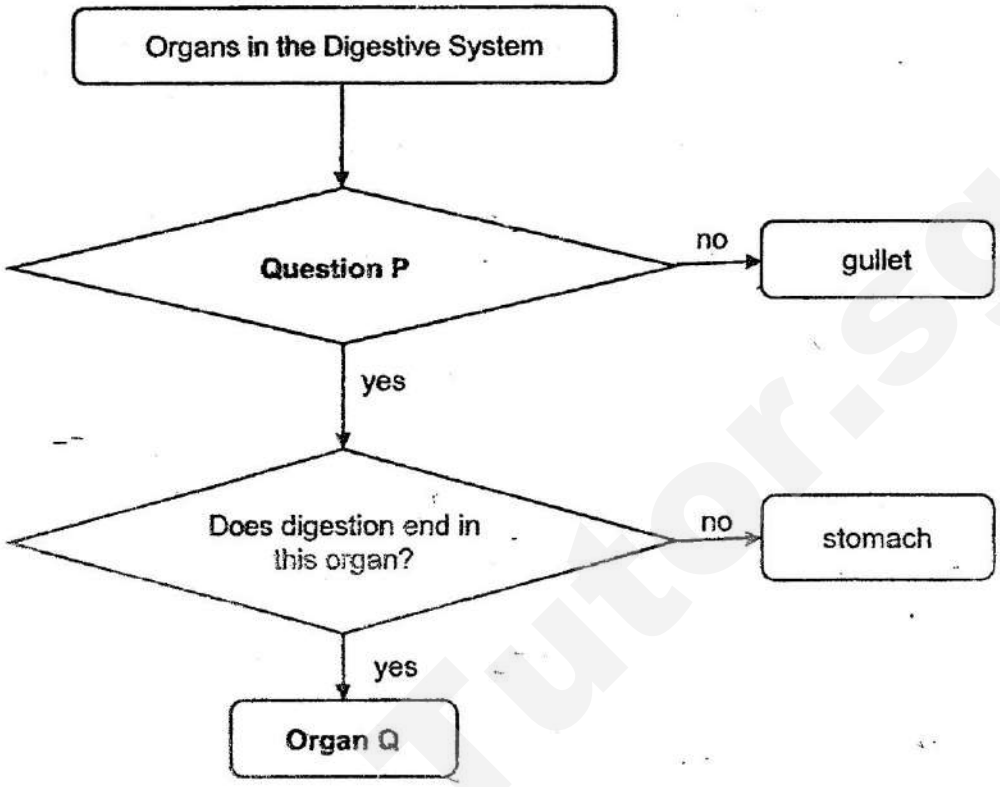
2. Study the flow chart shown below.




Which one of the following is correct?

| | Question P | Organ Q |
|---|---|---|
| (1) | Does it produce digestive juice? | Small intestine |
| (2) | Does it lead food to the stomach? | Large intestine |
| (3) | Does it break food into smaller pieces? | Mouth |
| (4) | Does it remove water from undigested food? | Small intestine |

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

roots ⟶ stem ⟶ leaves

What is this substance?

(1) soil
(2) food
(3) water
(4) oxygen



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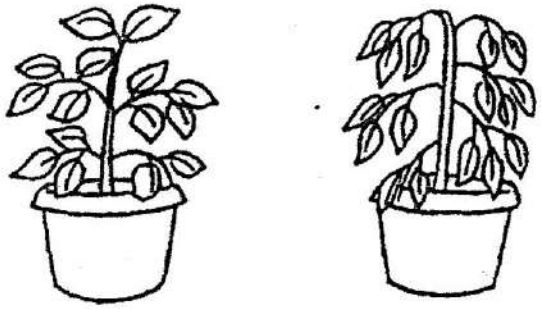
4. Sally spread a layer of clear cooking oil on the stem and both surfaces of the leaves of a plant. The plant was then placed in the sun and watered every day.



Before After

A few days later, she noticed that the plant had withered.

The plant withered because the layer of clear cooking oil prevented the plant from _____.

(1) exchanging gases
(2) absorbing nutrients
(3) absorbing water from the ground
(4) transporting food to other parts of the plant



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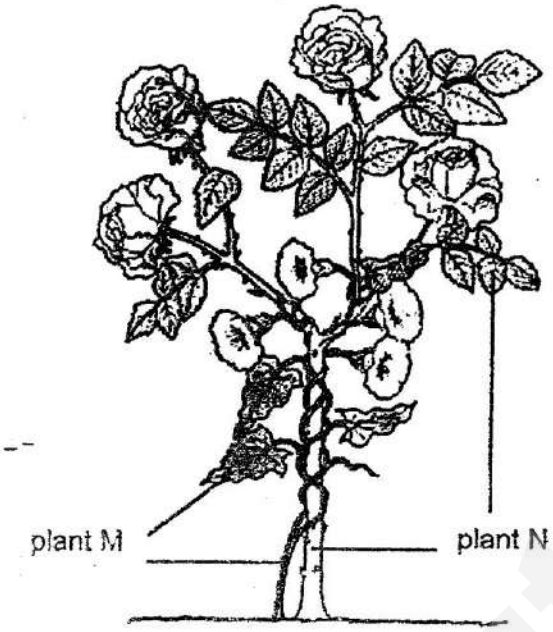
5. The diagram shows two different types of plants, M and N, growing in a garden.




Which of the following statements are correct about plants M and N?

A Plant M has a weak stem.

B Only plant N is a flowering plant.

C The stems of both plants help the leaves to get sunlight.

(1) A and B only

(2) B and C only

(3) A and C only

(4) A, B and C



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

(1) mouth

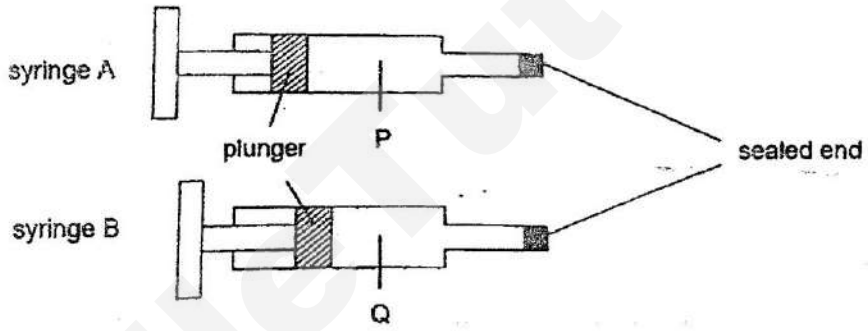
(2) stomach

(3) large intestine

(4) small intestine

7. Two syringes, A and B, contain the same amount of substances P and Q respectively.

The plunger in the syringe A could not be pushed in while the plunger in syringe B could be pushed in slightly as shown in the diagram below.




Which of the following substances are most likely to be P and Q?

| | P | Q |
|---|---|---|
| (1) | air | oil |
| (2) | oxygen | carbon dioxide |
| (3) | oil | water |
| (4) | water | air |



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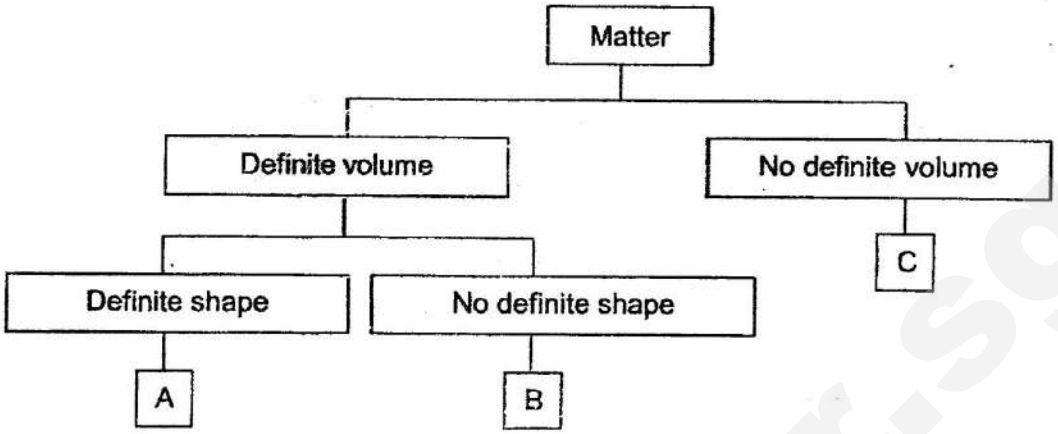
8. Study the classification table shown below.




Based on the information given above, which one of the following is correct?

| | A | B | C |
|---|---|---|---|
| (1) | pebble | water | air |
| (2) | pebble | air | water |
| (3) | water | pebble | air |
| (4) | water | air | pebble |



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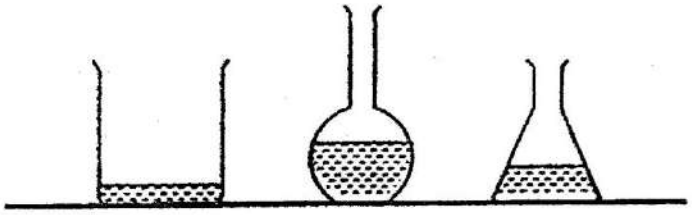
9. Michael filled three different containers with the same amount of water as shown below.



What can he conclude from his experiment?

A Liquids have mass.
B Liquids occupy space.
C Liquids cannot be compressed.
D Liquids take the shape of the container.

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

10. 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



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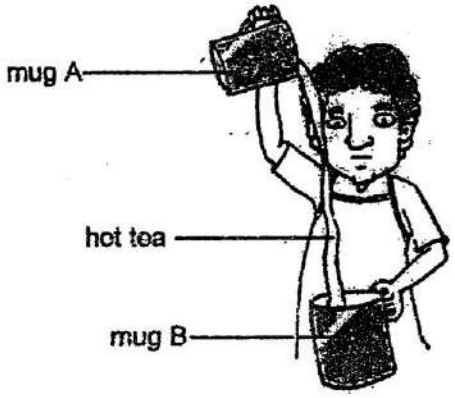
11. The picture below shows a man pouring hot tea from mug A to mug B and back to mug A.




The hot tea is cooled through this process of pouring and "pulling" it between the two mugs. The man repeats these actions continuously for a number times.

The man did this to transfer heat from the _____.

(1) mugs to the tea
(2) tea to the surrounding
(3) surrounding to the tea
(4) mugs to the surrounding

12. The best way to tell if someone is having a fever is to _____.

(1) ask if the person feels warm
(2) use a data logger with a light sensor on the person
(3) use your hand and feel if the person's forehead is hot
(4) use a thermometer to measure the person's temperature



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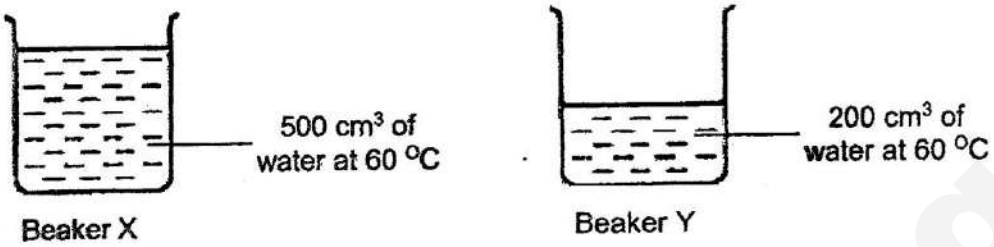
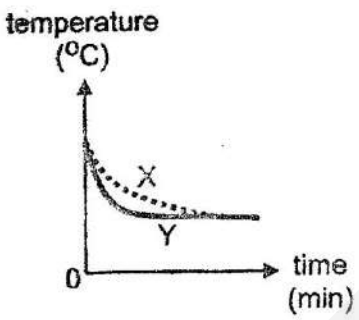
13. Yoo Jin left two identical beakers X and Y in her living room.

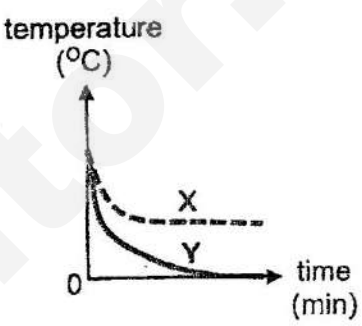



Which of the following graphs shows the likely changes in the temperature of the water in beakers X and Y?

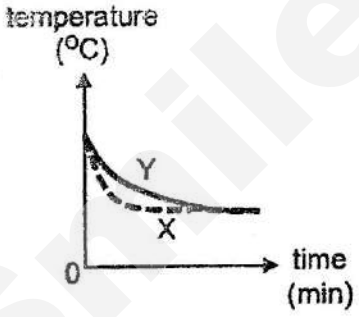
(1)



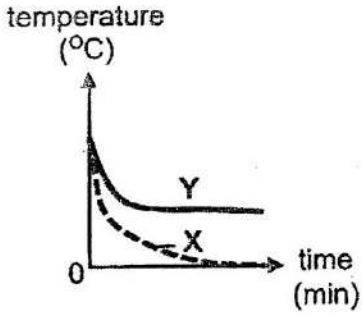

(2)




(3)




(4)

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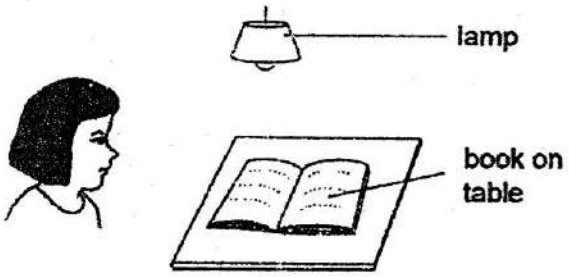
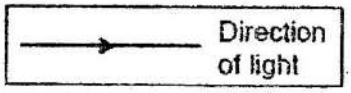
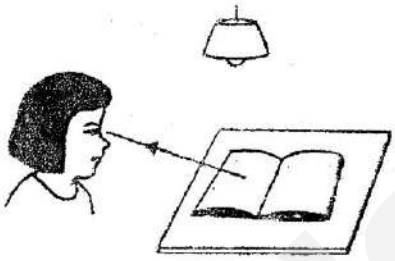
14. Look at the picture below.



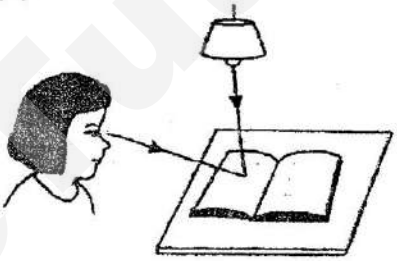

Which one of the following explains why Sue can see the book on the table?



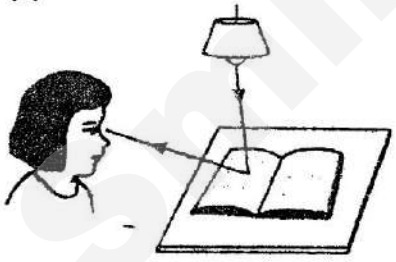

(1)



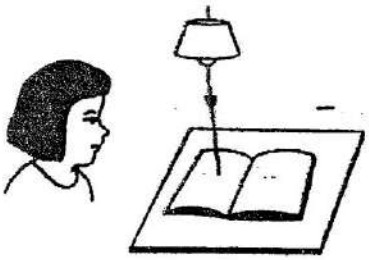
(2)



(3)



(4)





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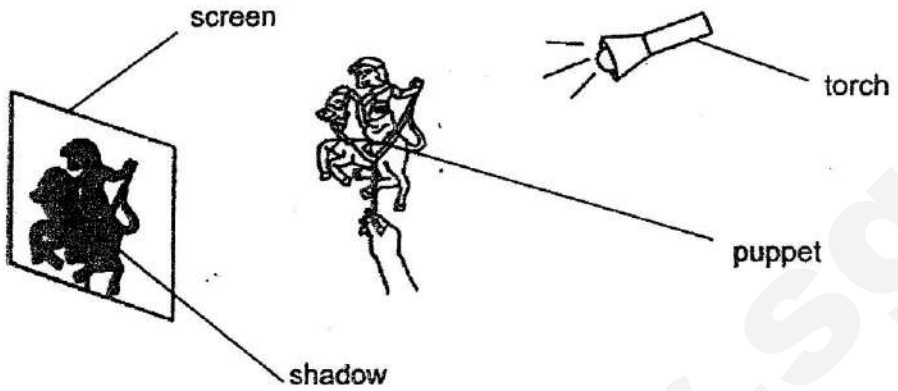
15. A shadow play is performed by placing a puppet between a screen and a torch.




The shadow cast on the screen can be made bigger by _____.

A moving the torch further from the puppet
B moving the torch closer to the puppet
C moving the screen closer to the puppet
D moving the screen further from the puppet

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



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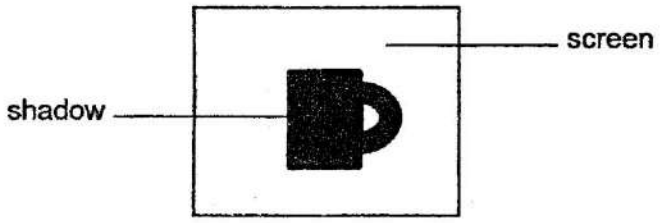
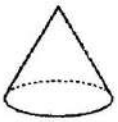
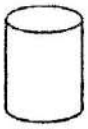
16. An object is placed in front of a light source. A shadow is formed on the screen as shown below.




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

(1) 

(2)

(3) 

(4)

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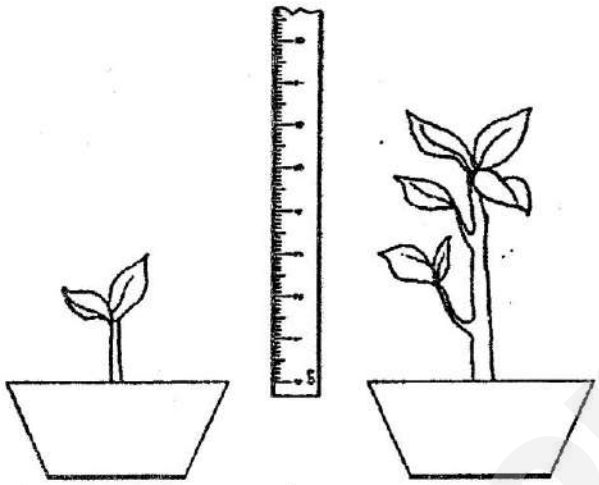
17. Sarah found a plant in the garden and measured its height.



At the start After two weeks

After two weeks, she measured its height again.

From her observation, Sarah concluded that the plant is a living thing because it can _____.

(1) grow

(2) breathe

(3) respond

(4) make food

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

(1) iron rod

(2) glass rod

(3) plastic rod

(4) wooden rod



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19. The diagrams below show a fern and some mushrooms.

Fern

Mushrooms

Which of the following statements about the mushrooms and the fern is correct?

(1) Both the mushrooms and the fern make their own food.
(2) The fern produces flowers but the mushroom does not.
(3) The mushrooms reproduce by spores but the fern does not.
(4) The mushrooms and the fern need air, food and water to survive.



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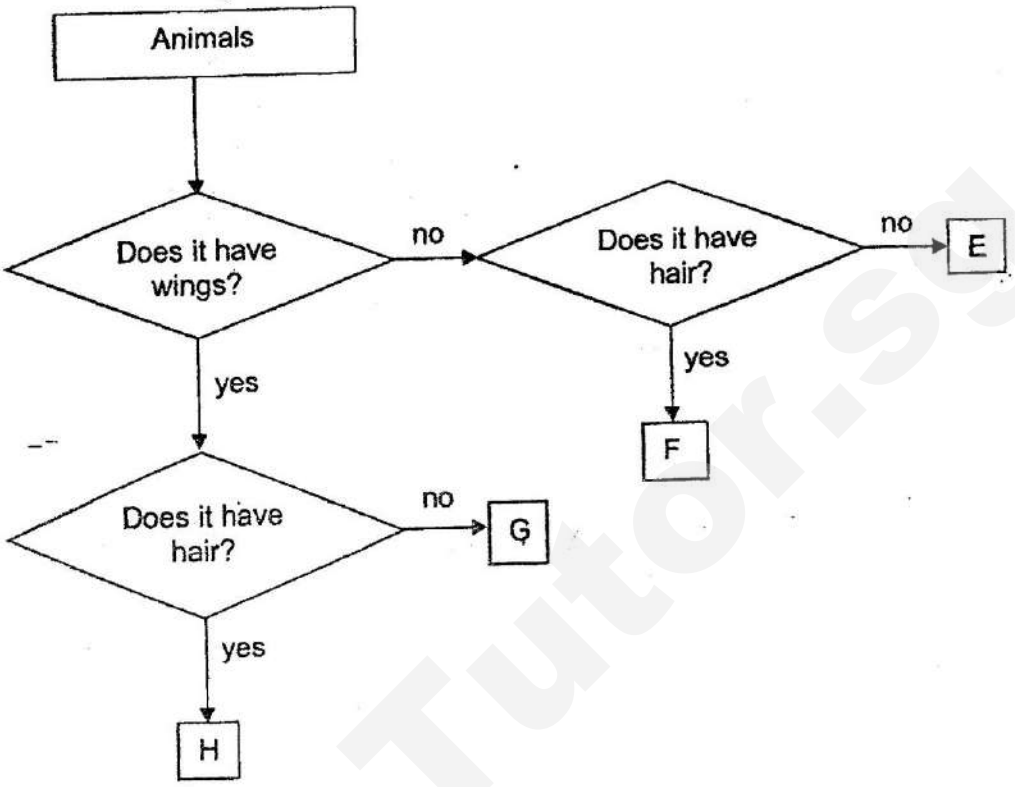
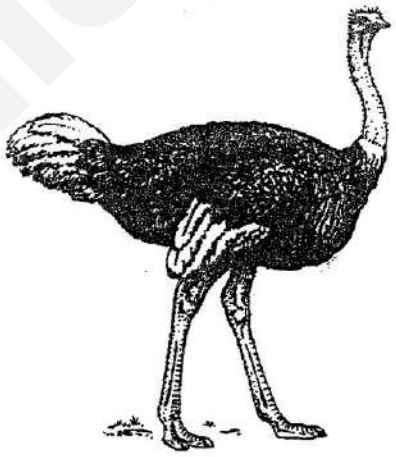
20. Study the flow chart carefully.




In which group should animal Q be placed?



Animal Q

(1) E
(2) F
(3) G
(4) H



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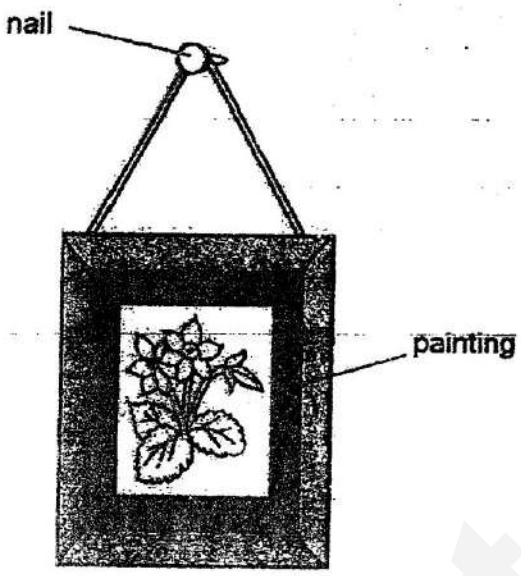
21. The diagram shows a painting hanging on a wall.




Steel is used to make nails because it _____.

(1) is shiny

(2) is strong

(3) is magnetic

(4) sinks in water

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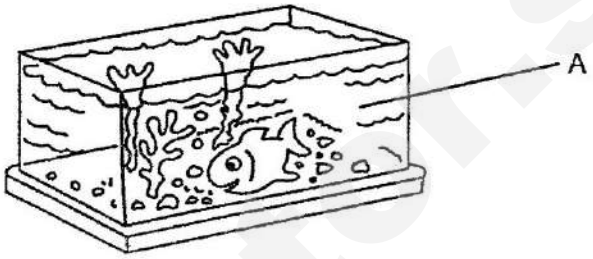
22. The table below shows the properties of 4 different materials, W, X, Y and Z.

| | Allows most light to pass through | Waterproof | Flexible |
|---|---|---|---|
| W | | ✓ | ✓ |
| X | ✓ | | ✓ |
| Y | ✓ | ✓ | |
| Z | ✓ | ✓ | ✓ |

Key
✓ : present




Which of the following materials, W, X, Y, or Z, is most suitable for making part A of the fish tank shown above?

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

23. Which animal has a pupa as a stage in its life cycle?

(1) frog

(2) chicken

(3) grasshopper

(4) mosquito



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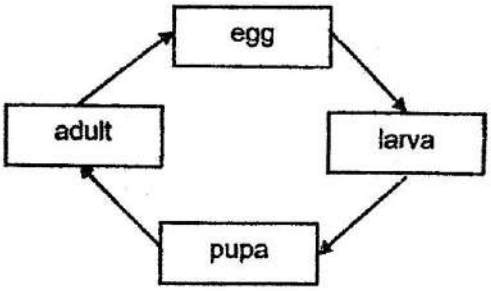
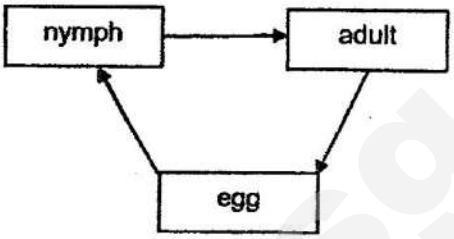
24. The diagram below shows the life cycles of animals Y and Z.




Animal Y




Animal Z

Based on the life cycles above, which of the following statement(s) is likely to be correct?

A Animal Y has 4 stages in its life cycle but animal Z has 3.

B Animal Y lays eggs in water but animal Z lays eggs on land.

C The young of animal Y looks like the adult but the young of the animal Z does not look like the adult.

D Animal Y takes a longer time than animal Z to develop from an egg to an adult.

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



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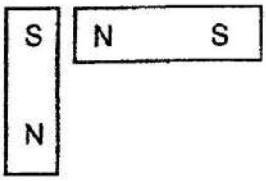
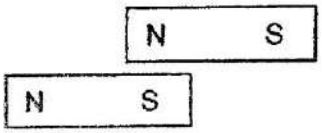
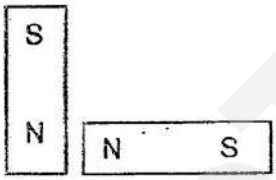
25. In which of the following would the two magnets push each other away?

(1)


(2) 


(3) 


(4) 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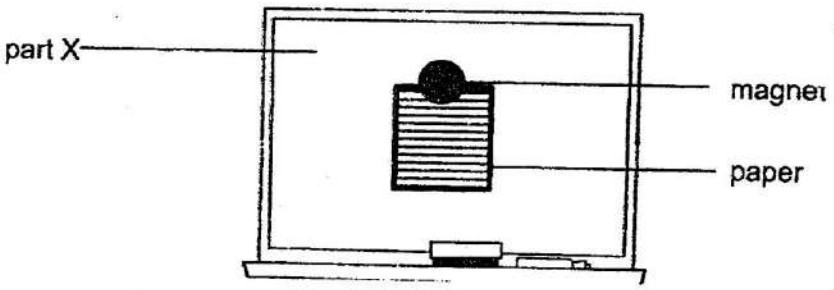
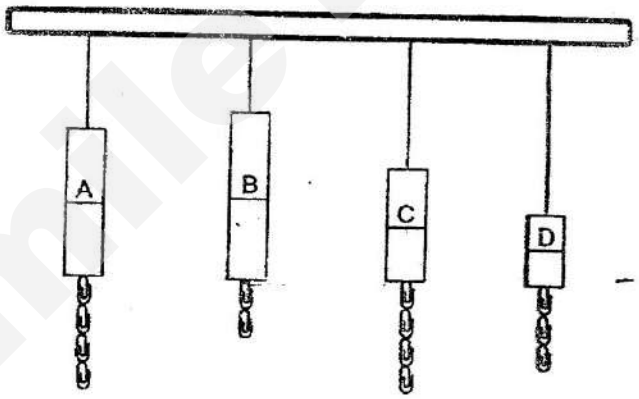
26. A magnet is used to hold a piece of paper on the whiteboard as shown below.




Which one of the following is part X of the whiteboard likely to be made of?

(1) Iron
(2) Plastic
(3) Copper
(4) Aluminium

27. Raja has four magnets, A, B, C and D. He carried out an experiment to find out which magnet was the strongest. The diagram below shows the number of steel paper clips attracted by each magnet.




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

(1) Magnet D is the weakest.
(2) Magnet B is the strongest.
(3) Magnet B is weaker than Magnet D.
(4) Magnet A is stronger than Magnet C.



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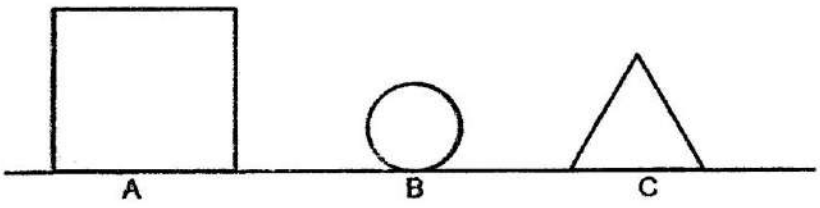
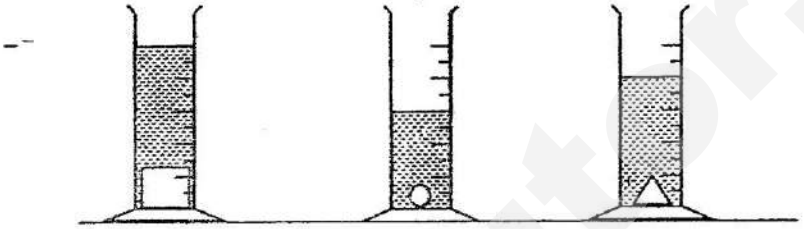
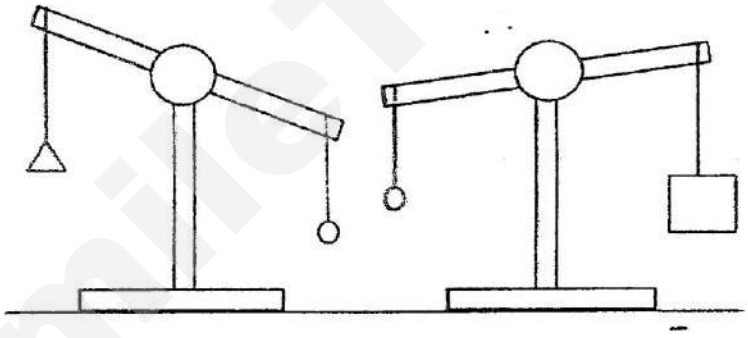
28. Benny has three objects, A, B and C as shown below.




He placed these objects into measuring cylinders, each containing 2ml of water.



He compared their mass as shown below.



Which of the following correctly identifies the objects with the largest volume and mass?

| | Largest volume | Largest mass |
|---|---|---|
| (1) | A | C |
| (2) | B | A |
| (3) | A | B |
| (4) | B | C |

End of Booklet A



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# HENRY PARK PRIMARY SCHOOL

## SECOND SEMESTRAL ASSESSMENT 2018

## PRIMARY 4

## SCIENCE

## BOOKLET 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: 26 October 2018

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

Marks for Booklet B : _____

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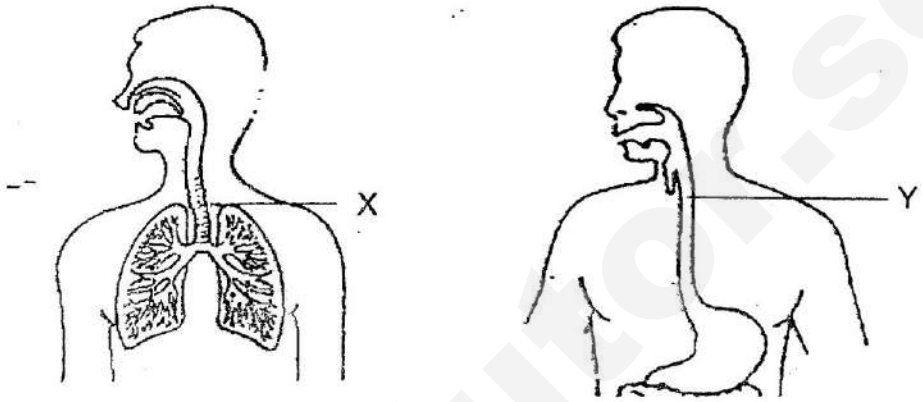
**Booklet B (44 marks)**

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 diagrams below show two different organ systems in the human body.




(a) Based on the diagrams, complete the table shown below. [2]

| | Name of organ | Substance that passes through the organ | Name of system that the organ belongs to |
|---|---|---|---|
| X | windpipe | | |
| Y | | food | |

(b) Name another organ in the digestive system where digestion does not take place. [1]

_____

(c) Besides digested food, name two substances that are carried in the blood to all parts of the body. [1]

_____



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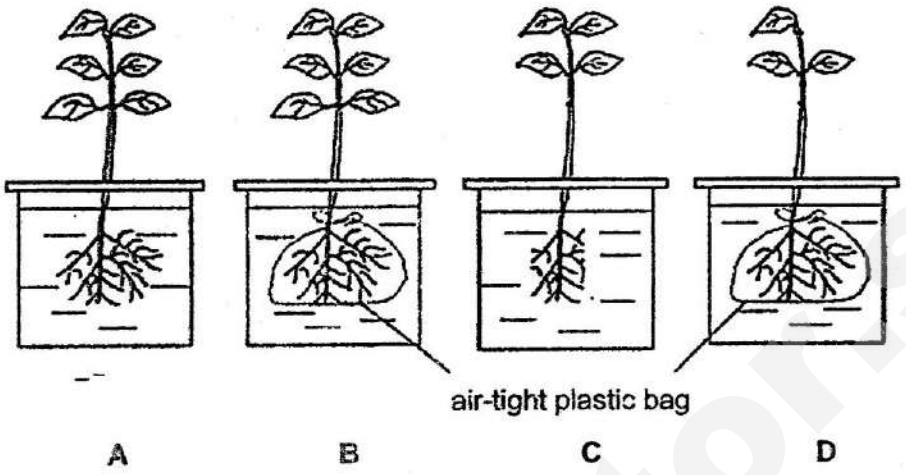
30. Gina prepared four experimental set-ups (A, B, C and D) with plants as shown below. She wanted to know whether plants take in water through their roots.




The roots of the plants in set-ups B and D were tied with air-tight plastic bags at the start of the experiment before putting into the beaker of water. Each set-up had the same amount of water.

(a) Can she use set-ups B and D to conduct a fair experiment? [2]

Explain your answer.

_____

_____

_____

(b) Gina uses set-ups A and B to conduct a fair experiment. [1]

What is she trying to find out from this experiment?

_____

_____

(c) State **another** function of the roots. [1]

_____



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31. Classify the following into matter and non-matter. [3]

| heat | water | shadow |
|---|---|---|

| Matter | Non-matter |
|---|---|
| | |

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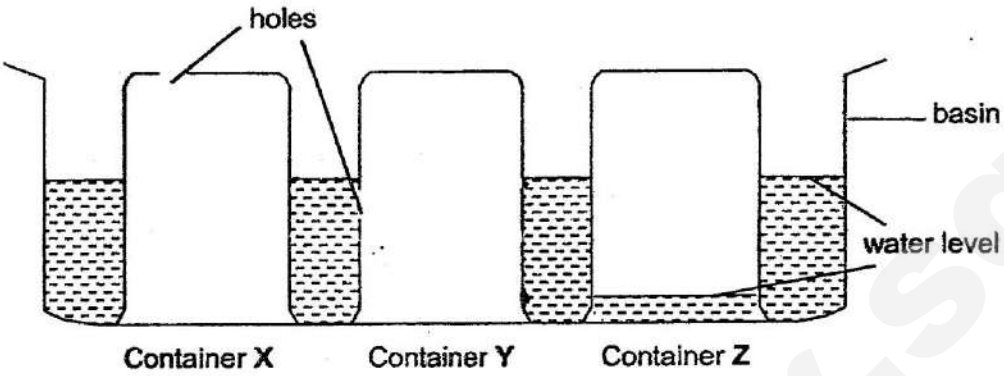
32. Three plastic containers, **X**, **Y** and **Z**, are inverted into a basin of water as shown below. A hole is made on containers **X** and **Y**.




(a) Draw the water levels in containers **X** and **Y** in the diagram above. [1]

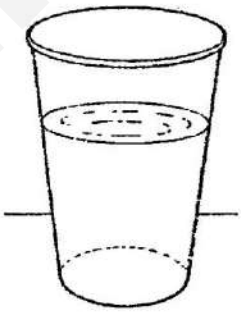
(b) Explain your answer for the water level in container **X** in part (a). [2]

_____

_____

_____

33. The diagram below shows a glass of water.



Fill in the blanks using the correct words in the box. [2]

(a) When the water gains heat, its temperature _____ .

(b) The glass of water is put in the freezer. After some time, the water will change its state to become _____.



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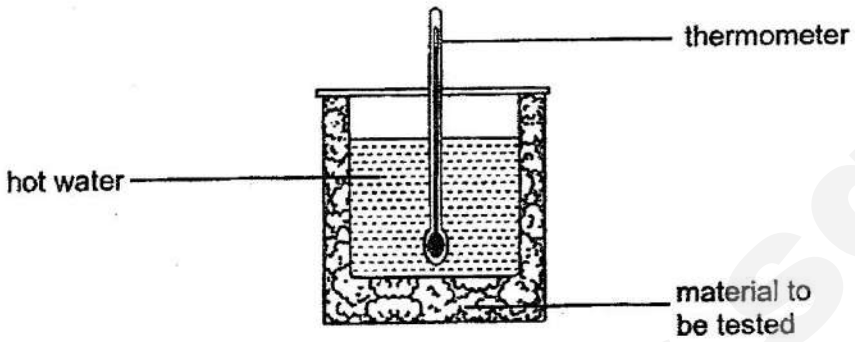
34. Ahmad wanted to find out which material, **P**, **Q**, **R** or **S**, is the best conductor of heat. He set up his experiment in the Science room as shown below.




The table below shows Ahmad's results.

| Time (min) | Temperature of the water (°C) | | | |
|---|---|---|---|---|
| | Material P | Material Q | Material R | Material S |
| 0 | 60 | 60 | 60 | 60 |
| 10 | 55 | 40 | 45 | 58 |
| 20 | 50 | 22 | 31 | 55 |

(a) State the source of heat in this experiment. [1]

_____

(b) Using the information given in the table, state which material, **P**, **Q**, **R** or **S**, is the best conductor of heat. [1]

Give a reason for your answer.

_____

_____



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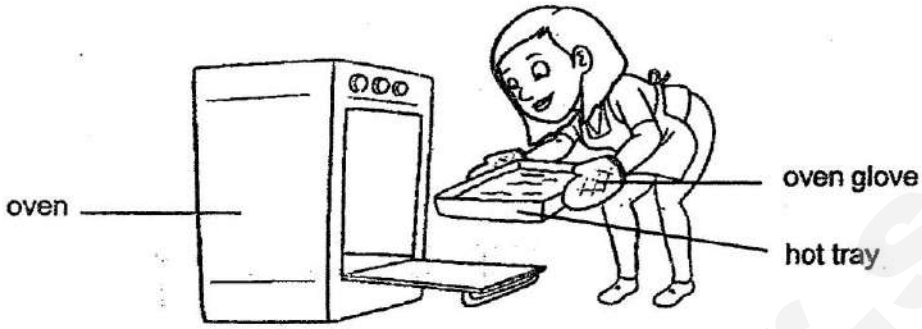
Question 34 continued

(c) The diagram below shows Mary using a pair of oven gloves to remove a hot tray from the oven.




Which material, P, Q, R or S, would be most suitable to make the oven gloves? [2]

Explain your answer.

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35. The diagram below shows a desert.

A desert is a hot and dry place that has a lot of sand and few plants.

The table below shows the temperature of the sand at a particular time of the day.

| Time | Temperature at the surface of the sand (°C) | Temperature underground (°C) |
|---|---|---|
| 12 noon | 38 | 14 |

Diagram X shows a lizard which lives in the desert.

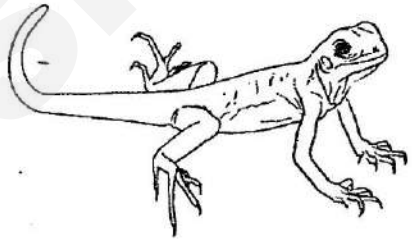

Diagram X

Diagram Y

During the day, the lizard will bury itself in the sand as shown in diagram Y.



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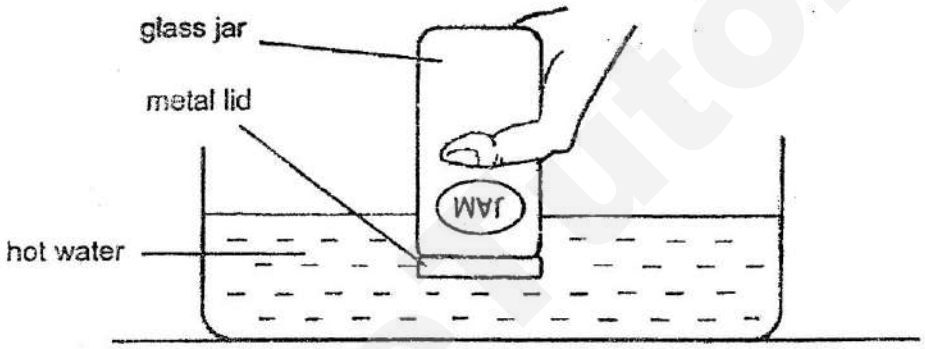
Question 35 continued

(a) Using the information given in the table, explain how burying itself in the sand helps the lizard to stay cool. [2]

A metal lid was fitted tightly on a glass jar.

Mani placed the metal lid and part of the glass jar into a container of hot water as shown in the diagram below.




(b) After a few minutes, Mani could remove the metal lid easily. [2]

Explain why.



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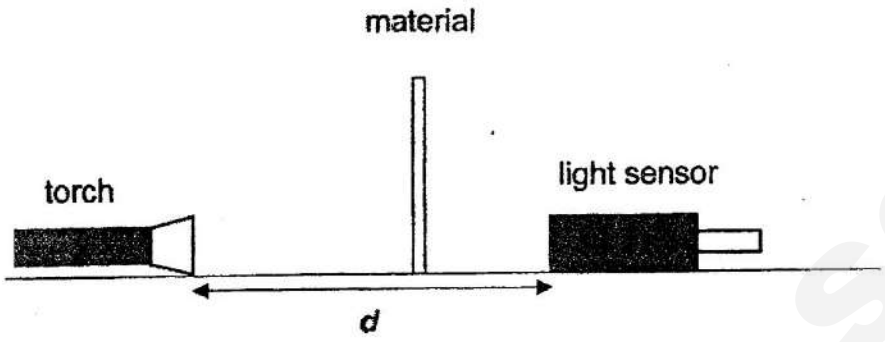
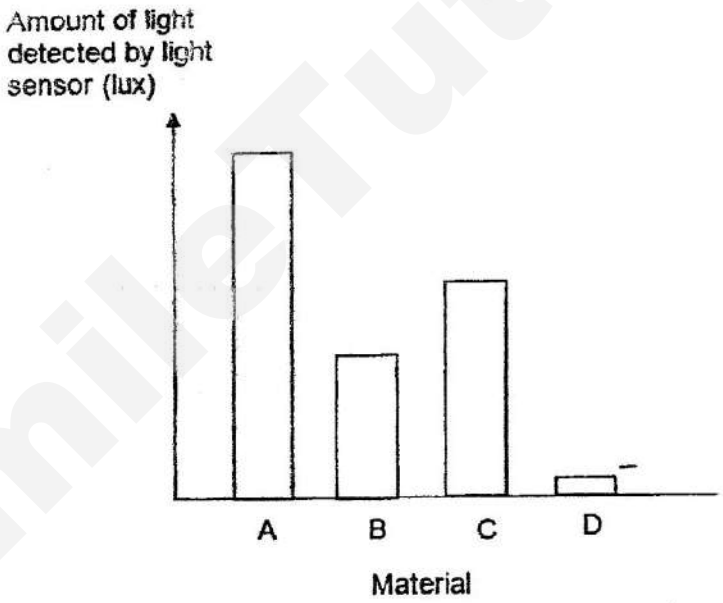
36. Ali set up an experiment as shown below.




He wanted to find out how much light passes through four materials, A, B, C and D.

The same light sensor was used to detect the amount of light that passed through each material. He recorded his results in the bar graph below.




(a) Which of following variable(s) must be kept the same so that his experiment would be a fair test?

Place a tick (✓) in the box if the variable must be kept the same. [2]

| Variable | To be kept the same (✓) |
|---|---|
| Distance between the torch and the light sensor, *d* | |
| The thickness of the material | |
| Type of material | |



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Question 36 continued

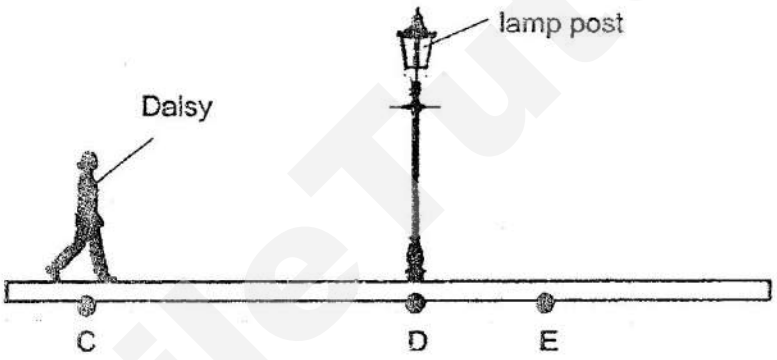
(b) Ali wants to make window curtains that would keep his room as dark as possible.

Based on information given in the bar graph, which material, A, B, C or D, should Ali choose to make his window curtains? [1]

Explain your answer.

(c) Daisy was walking from point C to D and then to E as shown in the diagram below.

The length of her shadow changed as she walked past points C, D and E.




Describe how the length of Daisy's shadow changed as she walked from point C to point D to point E. [1]



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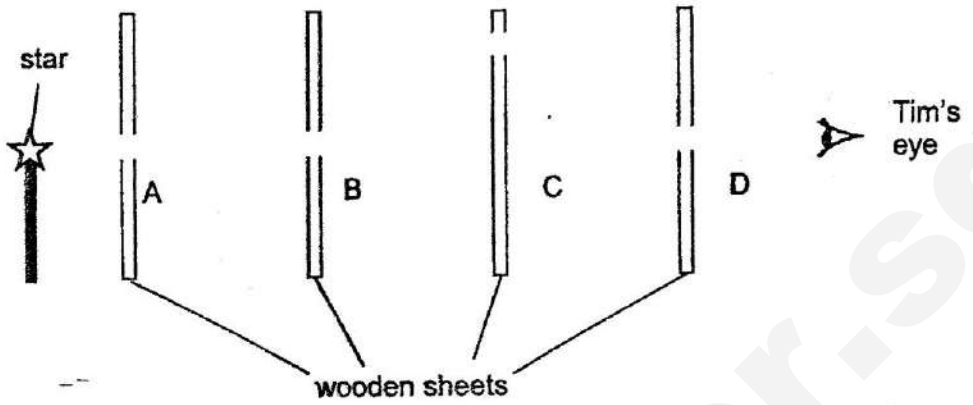
37. In a lighted room, wooden sheets A, B, C and D are placed in a straight line as shown in the diagram below. Tim is looking through the holes of the wooden sheets.




(a) Will Tim be able to see the star on the other side of the wooden sheets? [2]

Explain why.

_____

_____

_____

(b) Which wooden sheet (A, B, C or D) must Tim remove in order to see the star at the other end? [1]

_____



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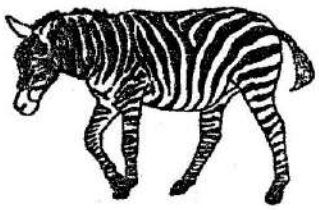
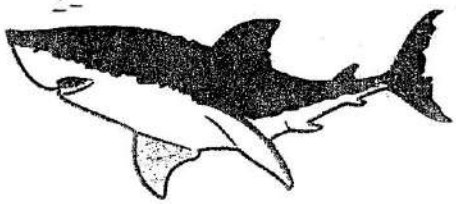
38. **Draw** lines to match the following animals to the correct groups. [3]

| Animal | Group |
| --- | --- |
|  | fish |
|  | bird |
| | insect |
| | mammal |

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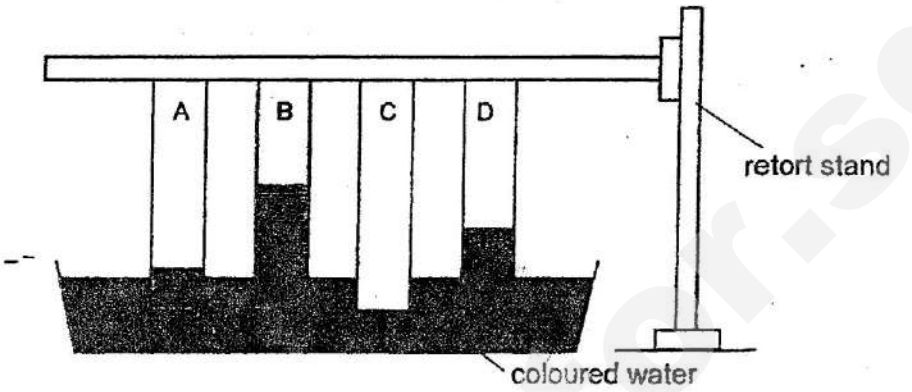
39. Ben carried out an experiment to test how well each material can absorb water.

Materials A, B, C and D, which are of the same size and thickness, were immersed in a tray of coloured water.

The results of his experiment are shown in the diagram below.



raincoat

(a) Based on the results of the experiment, which material, A, B, C or D, is the most suitable for making a raincoat shown above? [1]

Explain your answer.

_____

_____

(b) Ben suggested that material B is plastic. Is he correct? [1]

Explain your answer.

_____

_____



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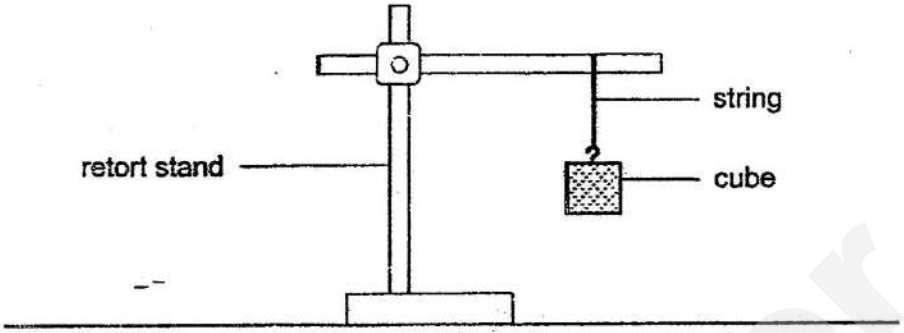
Question 39 continued

Jane conducted an experiment with the set-up shown below. She hung cubes of different masses on the string until it broke. She repeated the experiment with strings made of materials, S, T and U. The strings are of equal thickness and length.



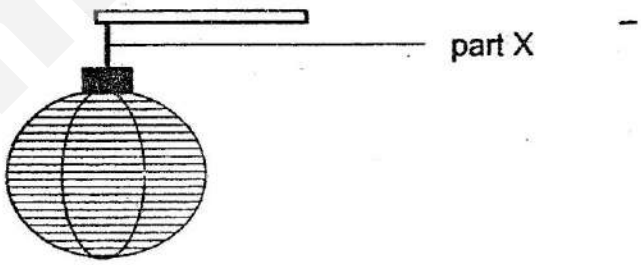

The results of the experiment are shown in the table below.

| String | Mass of cube needed to break the string (kg) |
|---|---|
| S | 3 |
| T | 5 |
| U | 8 |

(c) State the property of the string Jane is testing. [1]

_____

(d) The diagram below shows a lantern that has a mass of 6 kg.




Based on the results of the experiment, which string, S, T or U is most suitable to make part X of the lantern? Explain your answer. [1]

_____

_____



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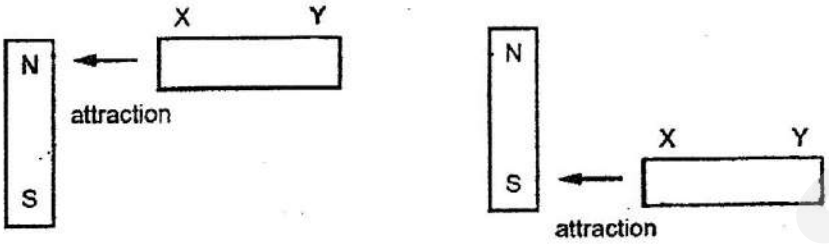
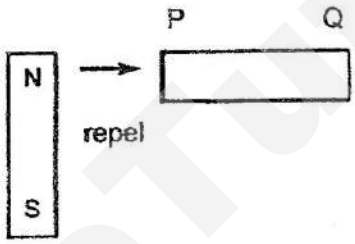
40. A metal rod XY is placed near a bar magnet.

End X is attracted when it is placed near to the North Pole (N) of the magnet, and also when it is placed near to the South Pole (S) as shown in the diagrams below.




Another metal rod PQ is also placed near the same bar magnet.

End P repelled when it is placed near to the North Pole (N) of the magnet as shown in the diagram below.




(a) In the boxes below state what will be observed when end Y and end P are brought near the South Pole (S) of the bar magnet. [1]

| | Write **repel** or **attract** |
|---|---|
| (i) end Y brought near South Pole (S) | |
| (ii) end P brought near South Pole (S) | |



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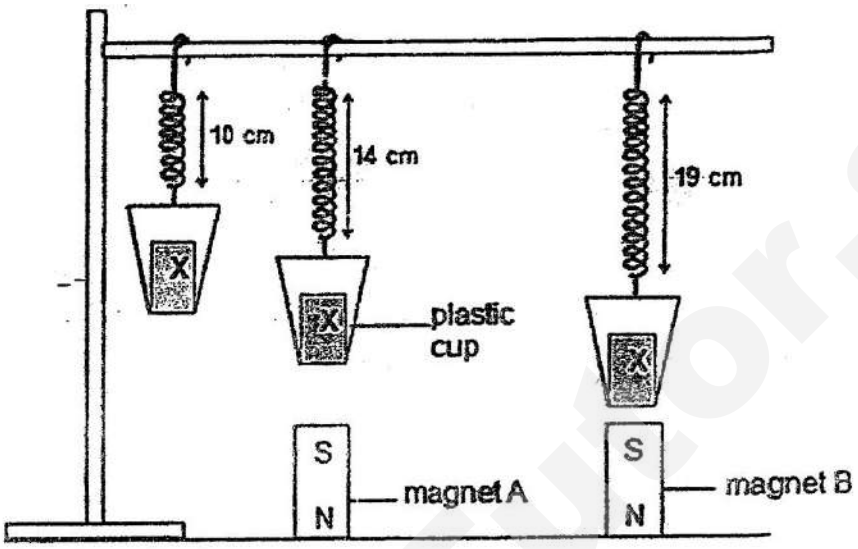
Question 40 continued

The diagram below shows three identical plastic cups with object X in each one of them.

The cups are attached to three identical springs.




When magnets A and B were placed directly below the plastic cups, it was observed that the springs stretched longer as shown in the diagram above.

b) Explain why the springs stretched longer. [2]

c) Which magnet, A or B, is stronger? [1]

Based on the diagram shown above, explain your answer.



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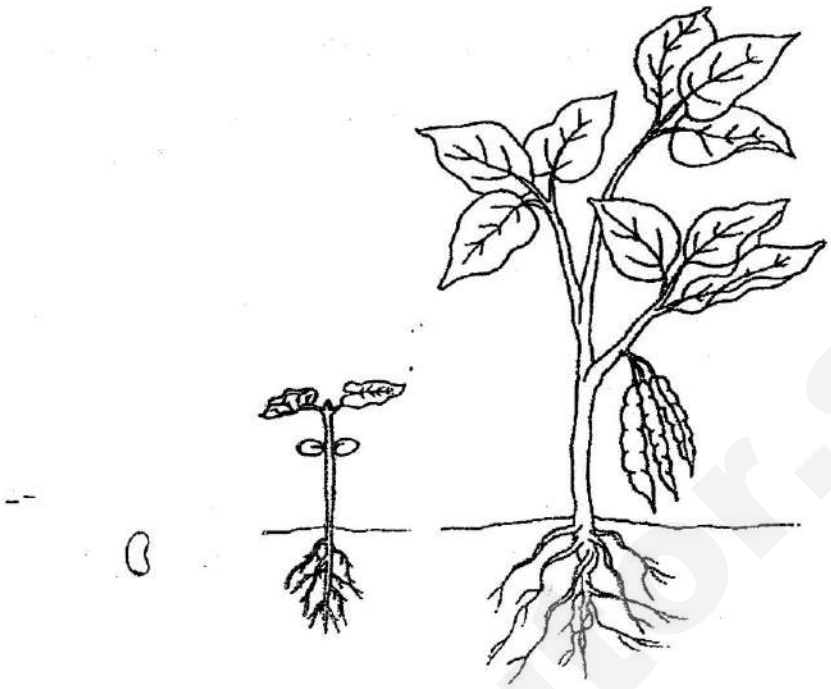
41. The diagram below shows the stages in the life cycle of a plant.



A B C

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

| egg | seed | young plant | adult plant |
|---|---|---|---|

Name the stages **A** and **C** in the life cycle of the plant. [2]

A : _____

C : _____

End of Booklet B



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# ANSWER KEY

**YEAR : 2018**
**LEVEL : PRIMARY 4**
**SCHOOL : HENRY PARK PRIMARY SCHOOL**
**SUBJECT : SCIENCE**
**TERM : SA2**

## BOOKLET A

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

## BOOKLET B

**Q29a)**

| | | | |
|---|---|---|---|
| X | Windpipe | Air | Respiratory |
| Y | Gullet | Food | Digestive |

**Q29b) The large intestine**

**Q29c) Oxygen and water**

**Q30a) No. Roots in both B and D are tied in air-tight plastic bags and the number of leaves in each set-up are different.**



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**Q30b) She is trying to find out if the plants take in water through their roots.**

**Q30c) The roots anchor the plant firmly to the ground.**

**Q31)**

| Matter | Non-matter |
|---|---|
| Water | Shadow<br>Heat |

**Q32a) *X and Y should have same water level as basin***

**Q32b) In container X, air can escape. Water enters to fill up the space in the container.**

**Q33a) increases**

**Q33b) solid**

**Q34a) The hot water**

**Q34b) Material Q. After 20 minutes, the temperature of the hot water in Q was the lowest. It indicates that Q is the best conductor of heat since it transferred heat away from the water the fastest.**

**Q34c) Material S. The temperature of hot water in S is the highest after 20 minutes. It indicates that S is the poorest conductor of heat and thus is the most suitable for oven gloves as it will transfer heat from the hot tray to her hands the slowest.**



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**Q35a) The underground temperature shown in the table is cooler than the surface of the sand. Hence, the lizard buries itself in the sand, going deeper underground so it can lose heat to the sand and become cooler.**

**Q35b) The metal lid is a better conductor of heat than the jar so it gained heat faster and expanded more than the glass jar.**

**Q36a) *Tick* - Distance between the torch and the light sensor, *d***
**- The thickness of the material**

**Q36b) Material D. The light sensor detected the least amount of light that passed through Material D. This indicates that D allows the least light to pass through and is favourable to make curtains to keep his room as dark as possible.**

**Q36c) As Daisy walked to D, her shadow became shorter but lengthened when she walked to E.**

**Q37a) No. Light travels in a straight line and the hole in C was not aligned with the rest of the other holes. Wood does not allow any light to pass through and therefore light reflected from the star will not go to Tim's eyes.**

**Q37b) C**

**Q38) 1st animal: Mammal**
**2nd animal: fish**
**3rd animal: bird**

**Q39a) C. There was no coloured water absorbed by C. This indicates that C is waterproof and is ideal to make a raincoat which aims to keep the water away from the wearer.**



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**Q39b) No. B absorbed water but plastic is waterproof.**

**Q39c) Strength**

**Q39b) U. U is the only material that can carry more than 6kg without breaking. Since the lantern is 6kg, U is the suitable choice.**

**Q40a) i: attract ii: attract**

**Q40b) The magnets were facing X, which is a magnetic material so they attracted and were pulled down along with the springs.**

**Q40c) B. The spring stretched further with Magnet B than with Magnet A. This indicates that Magnet B has greater magnetic strength than A.**

**Q41) A: Seed**
**C: Adult plant**



**END**

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MARIS STELLA HIGH SCHOOL (PRIMARY)

SEMESTRAL ASSESSMENT 2

SCIENCE

1 NOVEMBER 2018

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.

FOLLOW ALL INSTRUCTIONS CAREFULLY.

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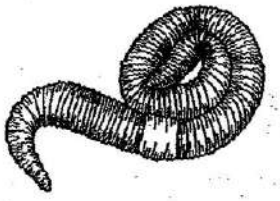
For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet (OAS). **(56 marks)**

---

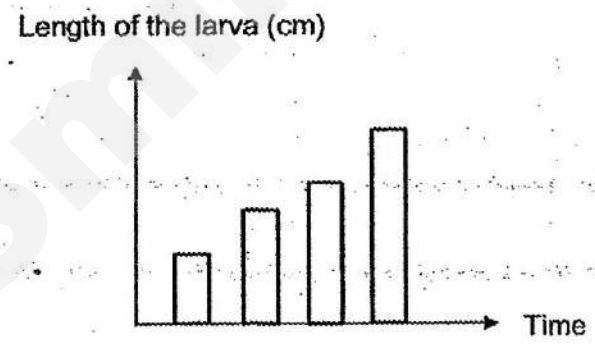
**1** An earthworm coils itself up when touched.



This shows that the earthworm is a living thing because it can _____.

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

**2** Nancy observed the larva of an insect over three weeks. She measured the length of the larva and plotted the graph shown below.




Which characteristics of living things is shown from the above results?

(1) Living things die.
(2) Living things grow.
(3) Living things reproduce.
(4) Living things need air, food and water to survive.



*(Go on to the next page)*

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3 The table below shows the characteristic(s) of organisms A, B and C.
A tick (✓) indicates that the characteristic is present.

| | A | B | C |
|---|---|---|---|
| **Has a 3-stage life cycle** | ✓ | ✓ | |
| **Young resembles adult** | | ✓ | |
| **Adult has wings** | | ✓ | ✓ |

Which one of the following is correct?

| | A | B | C |
|---|---|---|---|
| (1) | cockroach | frog | butterfly |
| (2) | cockroach | butterfly | frog |
| (3) | butterfly | frog | cockroach |
| (4) | frog | cockroach | butterfly |

4 Which one of the following comparisons between fungi and non-flowering plants is correct?

| | Fungi | Non-flowering plant |
|---|---|---|
| (1) | can only be seen under a microscope | can be seen without a microscope |
| (2) | reproduces from spores | reproduces from seeds |
| (3) | cannot make its own food | can make its own food |
| (4) | does not move by itself | moves by itself |



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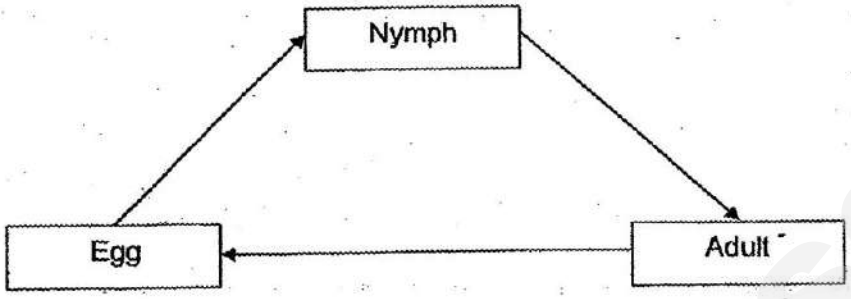
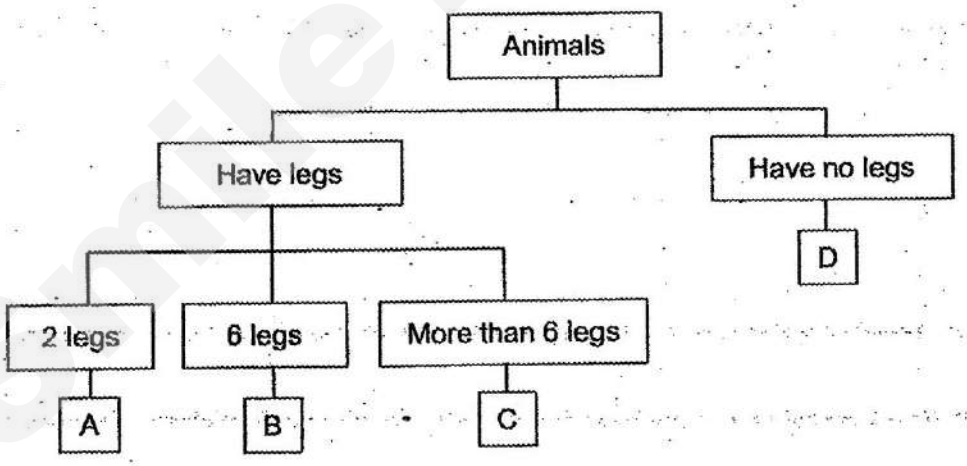
5 The diagram below shows the life cycle of an animal.




Which animal is likely to have the life cycle as shown above?

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

6 Study the classification chart below.




Which animal is most likely an insect?

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



*(Go on to the next page)*

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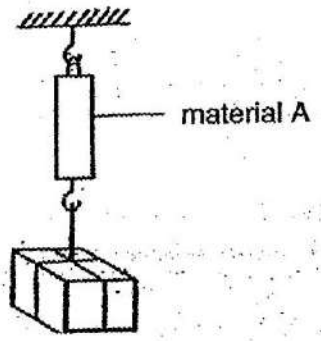
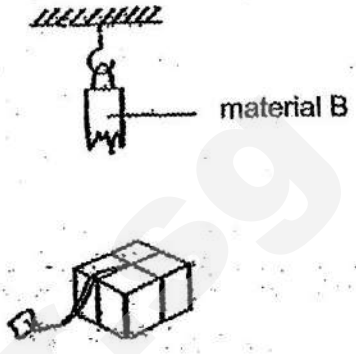
7 Two identical boxes were hung on material A and material B. The strip of material B broke after the box was hung on it.



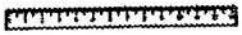

Based on the observation above, what can we conclude about materials A and B?

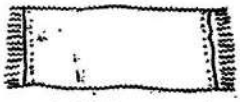
(1) Material A is stronger than material B.
(2) Material B is stronger than material A.
(3) Material A is more flexible than material B.
(4) Material B is more flexible than material A.

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

(1)
A sheet of glass

(2)
A wooden spoon

(3) 
A metal ruler

(4) 
A towel



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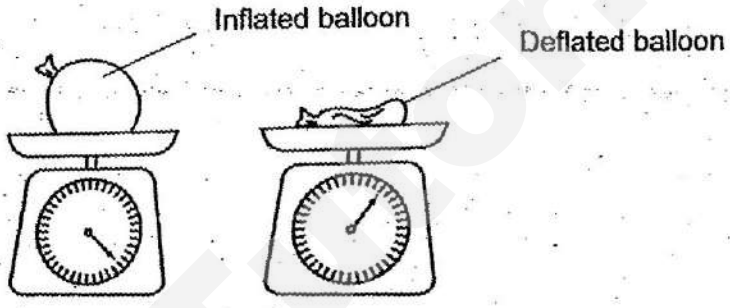
9 Which one of the following is true for both air and water?

(1) They can be seen.
(2) They take up space.
(3) They have fixed shapes.
(4) They have fixed volumes.

10 Sally set up an experiment as shown below.




What is the aim of her experiment?

(1) To find out if air has mass.
(2) To find out if air has volume.
(3) To find out if air can be compressed.
(4) To find out if air has a definite shape.

11 Matter is anything that has mass and occupies space.
Which one of the following is **NOT** matter?

(1) air
(2) oil
(3) light
(4) stone



*(Go on to the next page)*

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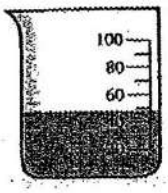
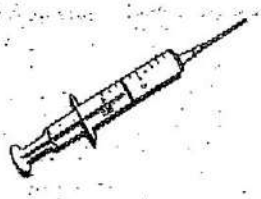
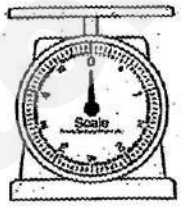
12 Bala was asked to measure the volume of a marble.
Which of the apparatus shown below should he use to get a more accurate reading?

(1)


(2) 


(3) 

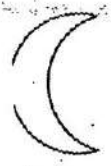
(4) 


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

(1)
a mirror

(2)
a shadow

(3)
candle

(4) 
moon



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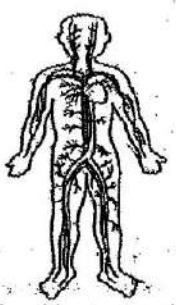
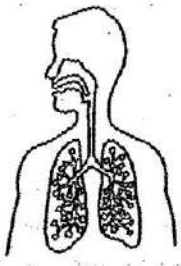
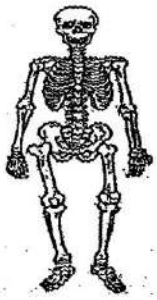
14 The diagrams below show the human body systems.



System P



System Q



System R

System S

Which of the following body systems carries substances to all parts of our body?

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

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

(1) Gullet
(2) Stomach
(3) Small intestine
(4) Large intestine

16 Which one of the following is the function of a leaf of a plant?

(1) makes food
(2) takes in water
(3) holds plant upright
(4) takes in mineral salts



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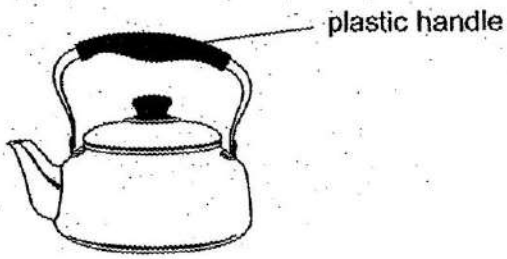
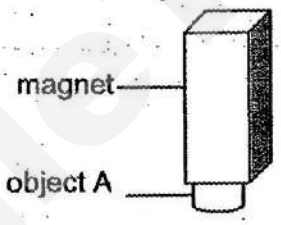
17 Noah boiled some water in the kettle shown below.




He is able to hold the kettle of hot water using the plastic handle because plastic is a _____.

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

18 Object A was attracted to a magnet as shown in the figure below.




Which of the following could object A be made of?

(1) steel
(2) wood
(3) plastic
(4) rubber

19 In which direction will a freely-suspended magnet come to rest?

(1) East – West
(2) South – East
(3) North – South
(4) North – West



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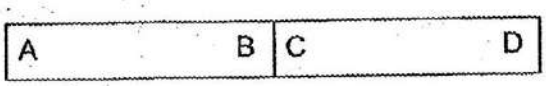
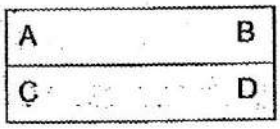
20 Dylan arranged two magnets AB and CD as shown below.

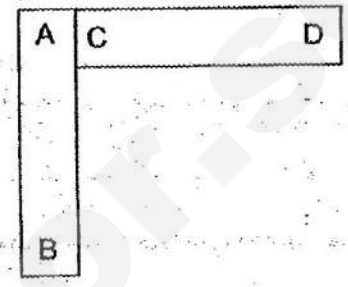



Which one of the following arrangements is possible?

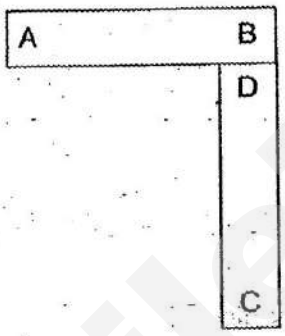
(1)



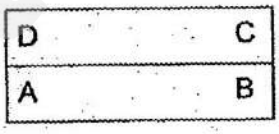

(2)



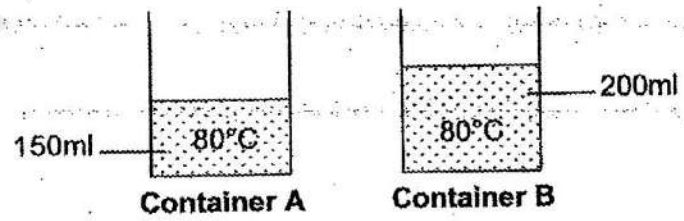

(3)




(4)




21 The diagram below shows two identical containers filled with different amounts of water at the same temperature.




Which of the following statements is true?

(1) A has more heat than B.

(2) B has more heat than A.

(3) B has a higher temperature than A.

(4) A and B have the same amount of heat.



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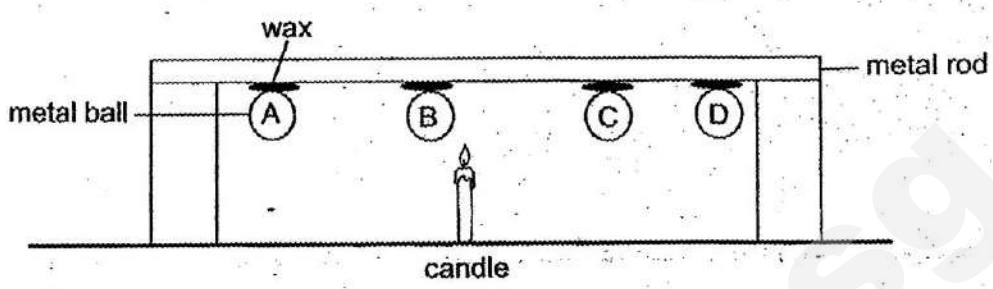
22 Ali stuck four metal balls, A, B, C and D, to a metal rod using equal amounts of wax. A lit candle was placed below the metal rod as shown in the diagram.




The metal balls will fall off the metal rod when the wax melts.

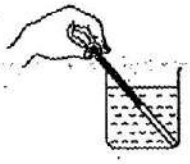
Which of the following metal balls will fall off first?

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

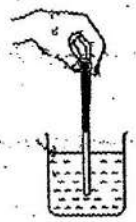
23 Cathy wants to measure the temperature of hot water in a beaker.

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

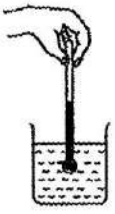
(1)



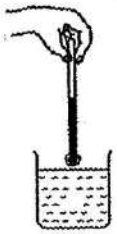
(2)



(3)



(4)





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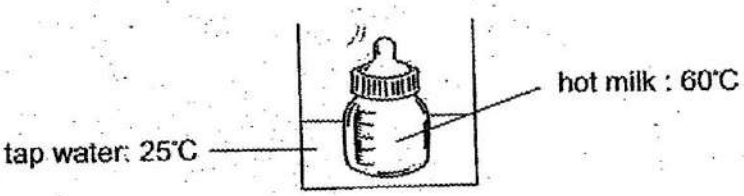
24 Jack's mother put the bottle of hot milk into a basin of tap water to cool it down.




The temperature of the milk after 5 minutes will likely be _____.

(1) 20°C
(2) 38°C
(3) 60°C
(4) 85°C

25 Hannah tested the magnetic strength of the 4 electromagnets and recorded the results in the table below.

| Electromagnet | Number of coils of wire | Number of paper clips attracted |
|---|---|---|
| W | 6 | 1 |
| X | 13 | 3 |
| Y | 22 | 5 |
| Z | 35 | 9 |

What can Hannah conclude from the results above?

(1) W has not been magnetised.
(2) Y is the strongest electromagnet.
(3) The more coils of wire the weaker the magnetism.
(4) The more coils of wire, the stronger the magnetism.



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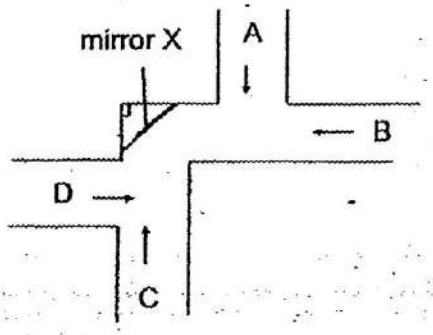
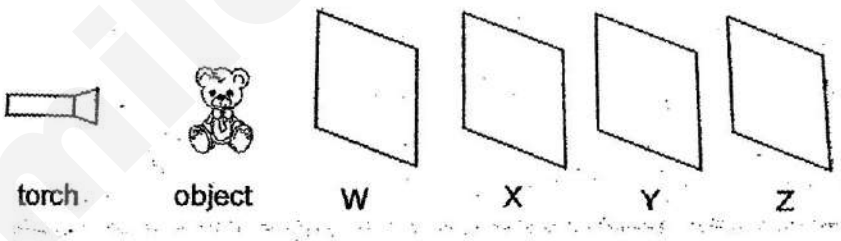
26 The diagram below shows four boys, A, B, C and D, walking from different directions.




Which two boys can see each other in mirror X?

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

27 Samuel carried out the following experiment in a dark room. He arranged sheets W, X, Y and Z in a straight line and placed an object in front of the torch.




He switched on the torch and a shadow of the object was formed on sheet Y.

Which of the following about the properties of sheets W, X, Y and Z is correct?

| | Allow most light to pass through | Do(es) not allow light to pass through |
|---|---|---|
| (1) | W and X | Y |
| (2) | W and X | Z |
| (3) | Y | W and X |
| (4) | Z | W and X |



(Go on to the next page)

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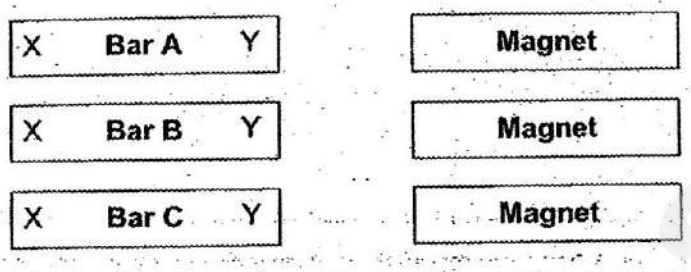
28 Kate has three bars, A, B and C. She carried out an experiment by placing a magnet near each of these bars. X and Y shows the ends of the bars.




Kate recorded her observations in the table below.

| Bar | Observations |
|---|---|
| A | X is attracted to both poles of the magnet.<br>Y is attracted to both poles of the magnet. |
| B | X is attracted to one pole of the magnet.<br>Y repelled one pole of the magnet. |
| C | Both X and Y are not attracted by the magnet. |

Which of the following statements about bar A, B and C is correct?

(1) Both bars A and B are magnets.

(2) Bar C can be made into a magnet.

(3) Bar A cannot be made into a magnet.

(4) Both bars A and B are made of magnetic materials.

**- End of Booklet A -**



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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 table below.

| W | X |
|---|---|
| tiger<br>ant<br>mushroom | stone<br>cloth<br>pen |

**(a)** What are the suitable headings for W and X? [2]

**Group W:** _____

**Group X:** _____

**(b)** Would you place yeast in group W or group X? [1]

_____

| | 3 |
|---|---|

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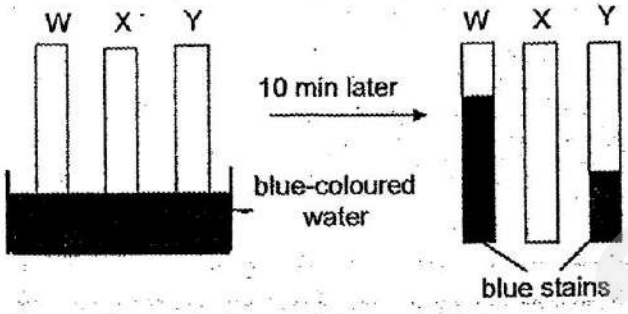
30 An experiment was conducted to find out the absorbency of 3 materials, W, X and Y. The results are as shown below.




(a) Arrange materials W, X and Y starting from the most absorbent material. [1]

Most absorbent

☐ , ☐ , ☐

Swimmers wear goggles to allow them to see clearly underwater.

(b) Which material, W, X or Y, is most suitable to make part A of the goggles? [1]

(c) Based on the results of the experiment, give a reason for your answer in (b).[1]

(d) State another property of material that part A must have to allow the swimmer to see clearly underwater. [1]

| | 4 |
|---|---|

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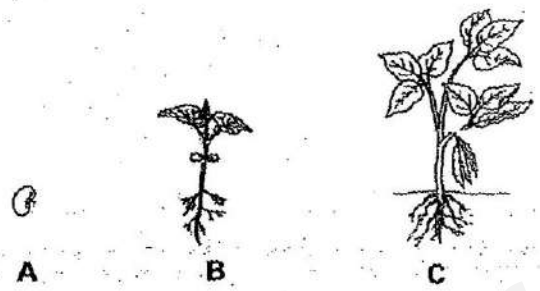
31 The diagram below shows the stages in the life cycle of a plant.




Choose the correct words from the box to answer question 31 (a).

| egg | seed | young plant | adult plant |
|---|---|---|---|

(a) Name stages A and B in the life cycle of the plant. [2]

A : _____

B : _____

(b) Draw the life cycle of the plant using letters A, B and C. [1]

| |
|---|
| |

| | 3 |
|---|---|

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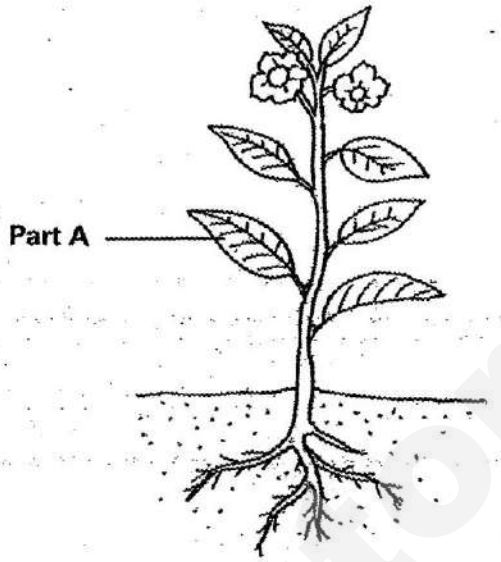
32 The diagram below shows a plant.




(a) Name plant part A. [1]

Part A: _____

(b) Name one substance that the roots of the plant take in from the soil. [1]

_____

(c) Besides taking in substances from the soil, state another function of the roots. [1]

_____

_____

| | 3 |
|---|---|

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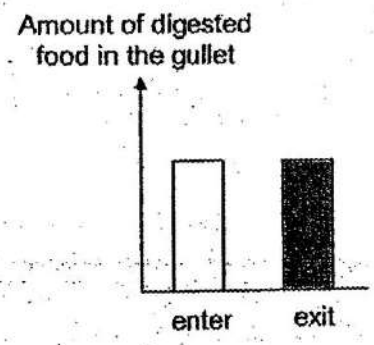
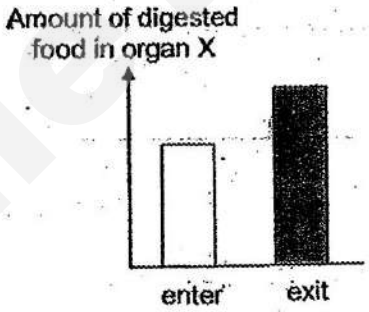
33 The graph below represents the amount of digested food entering and exiting the gullet.




(a) Why was there no change in the amount of digested food entering and exiting the gullet? [1]

Study the graph below.




(b) Circle the correct answer.

The amount of digested food exiting organ X was

(more than/ less than/ the same as) the amount of food entering it. [1]

(c) What could organ X be? [1]

| | 3 |
|---|---|

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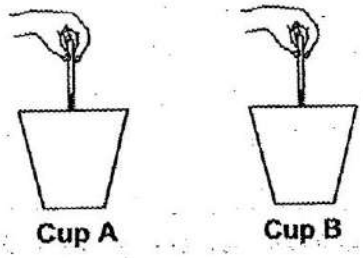
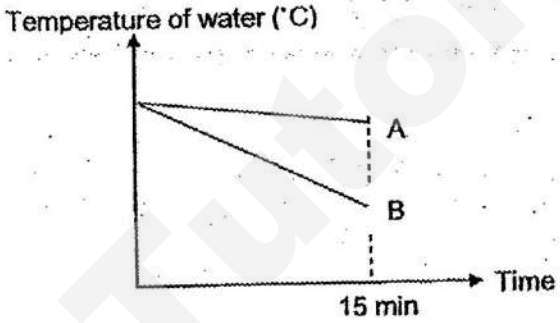
34 Ali conducted an experiment to find out which cup is made of a better conductor of heat. He poured the same amount of hot water into each cup and measured the temperature of the water over a period of 15 minutes.




The graph below shows his results.




**(a)** Which cup, A or B is made of a better conductor of heat? [1]

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

**(c)** Put a tick (✓) in the correct boxes to indicate the heat transfer **between the hot water and the cup** when hot water was poured into the cup. [1]

| | Heat Gain | Heat Loss |
|---|---|---|
| Cup | | |
| Hot water | | |

| | 3 |
|---|---|

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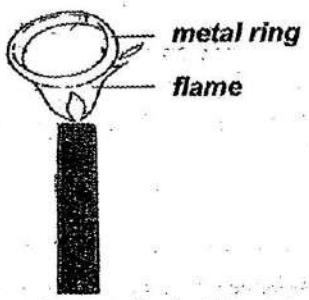
35 A metal ring was heated over the flame.




(a) Will the size of the metal ring increase, decrease or remain the same after heating? [1]

_____

(b) Give a reason for your answer in (a). [1]

_____

_____

(c) Two pots were stuck together as shown together.

(i) Which pot, A or B, should be heated so that the pots can be separated more easily? [1]

_____

(ii) Pots are usually made of metal because metal is a

_____ conductor of heat. [1]

| | 4 |
|---|---|

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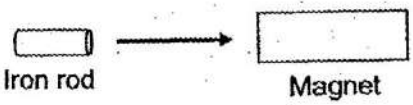
36 Sarah places a magnet near an iron rod. The iron rod moves towards the magnet.



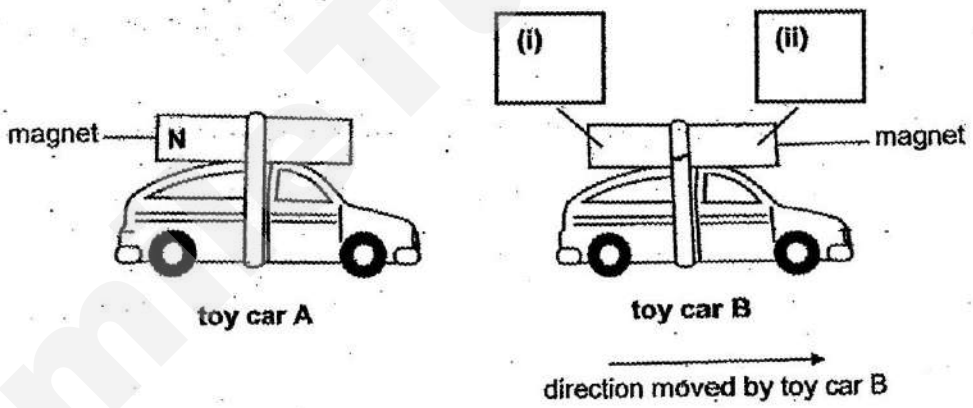

(a) The magnet exerts a _____ on the iron rod. [1]

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

| flexible | magnetic | strong |
|---|---|---|

Sarah's observation shows that iron is a _____ material.

Sarah placed toy cars A and B next to each other as shown in the diagram below.




She observed that toy car B moved away from toy car A.

(c) The N-pole of the magnet on car A has been labelled. Label the poles of the magnet on car B with letters 'N' and 'S' in the diagram above. [1]

| | 3 |
|---|---|

*(Go on to the next page)*



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37 Study the table below.

| Set-up | Number of batteries | Number of coils of wire | Number of paper clips attracted |
|---|---|---|---|
| P | 1 | 15 | 10 |
| Q | 1 | 20 | 20 |
| R | 2 | 15 | 25 |

(a) Joan wants to find out if the number of batteries affects the magnetic strength of the electromagnet.

Which two set-ups should she choose? [1]

(b) What is the relationship between the number of batteries and the number of paper clips attracted by the electromagnet? [1]

(c) Besides changing the number of batteries, what is another way to increase the magnetic strength of the electromagnet? [1]

(d) State another method to make a temporary magnet. [1]

| | 4 |
|---|---|

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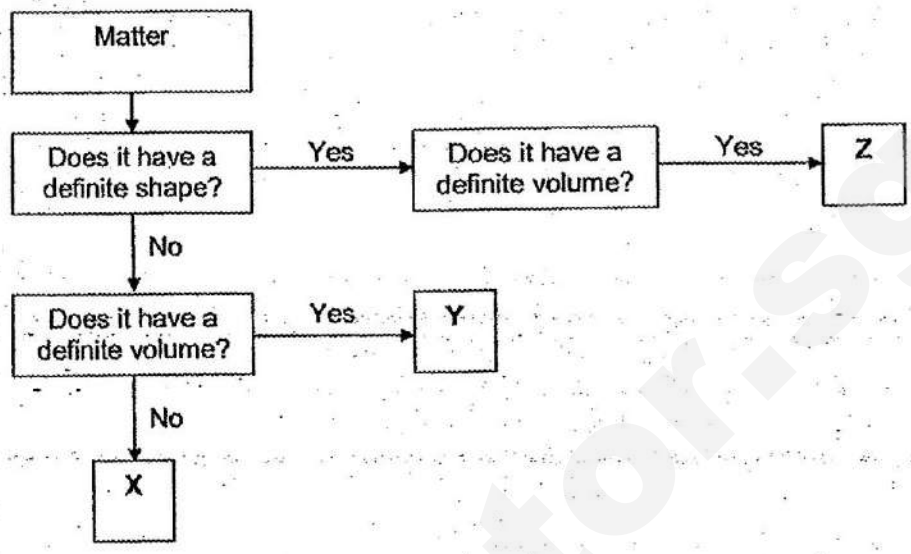
38 Study the flow chart below.




(a) Which letter, X, Y or Z, represents the following states of matter? [2]

**Solid:** _____

**Liquid:** _____

(b) State one similarity between X and Y. [1]

_____

_____

(c) State one difference between Y and Z. [1]

_____

_____

| | 4 |
|---|---|

*(Go on to the next page)*



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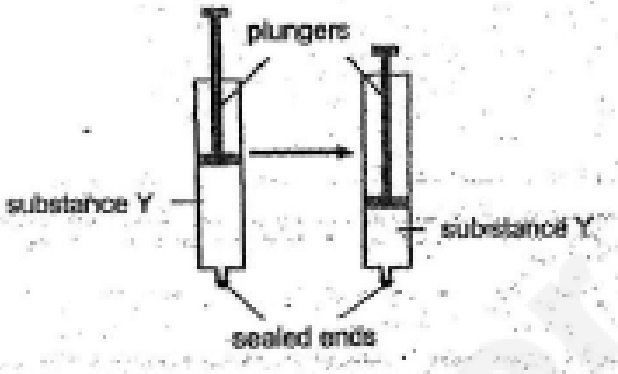
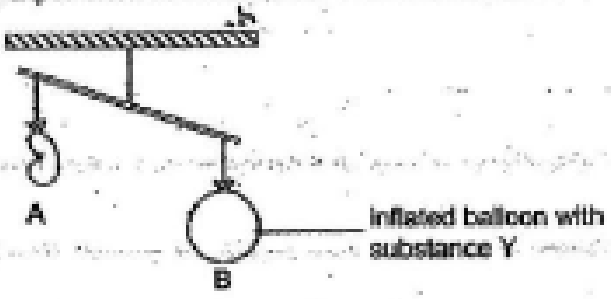
39 Tom filled a syringe with substance Y and sealed the end of the syringe to stop substance Y from coming out. The diagram below shows what happens when the plunger is pushed into the syringe.




(a) Based on the observation above, what is the state of matter of substance Y? [1]

(b) Based on the observation above, state one property of substance Y. [1]

Tom conducted another experiment with substance Y as shown below.




It was observed that B moved downwards.

(c) Based on his observation, what can you conclude about substance Y? [1]

| | 3 |
|---|---|

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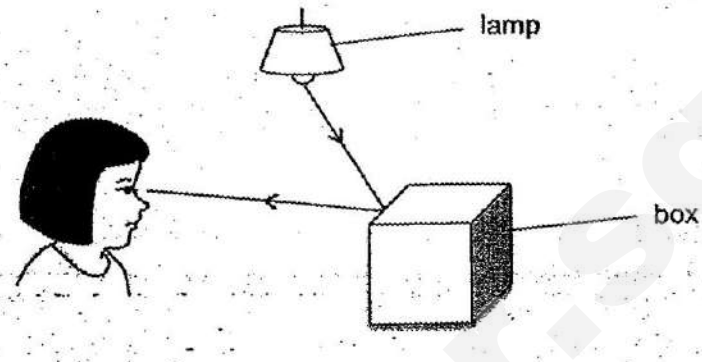
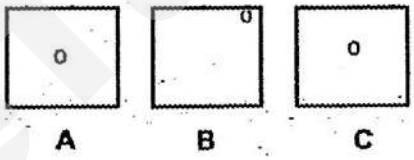
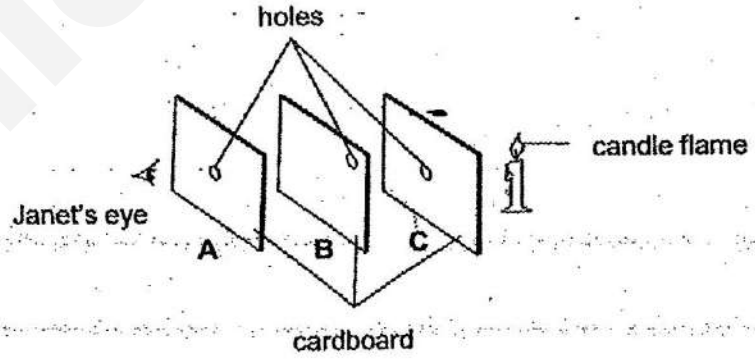
40 The diagram below shows how Janet sees the box.




(a) The _____ from the lamp is _____ by the box and enters Janet's eye. [2]

Janet made some holes in three pieces of cardboard and arranged them as shown below.




(b) Janet could not see the flame from where she is.
Which property of light does this show? [1]

3

(Go on to the next page)



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41 Edward conducted an experiment as shown below.

Torch Material Light sensor

The amount of light detected by the light sensor when different materials were placed between the torch and the light sensor is recorded below.

| Material | No material | X | Y |
|---|---|---|---|
| Amount of light detected (lux) | 500 | 200 | 0 |

(a) Based on the results, state the properties of materials X and Y. [2]

**Material X:** _____

**Material Y:** _____

Material Y is placed between a torch and the screen as shown in the diagram below.

Torch Material Y Screen

(b) What will Edward observe on the screen when the torch is switched on? [1]

_____

(c) Without moving the screen and torch, how can Edward make the shadow bigger? [1]

_____

_____

4

**- End of Booklet B -**



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YEAR : 2018
LEVEL : PRIMARY 4
SCHOOL : MARIS SETLLA HIGH SCHOOL (PRIMARY)
SUBJECT : SCIENCE
TERM : SA2

## BOOKLET A

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

## BOOKLET B

Q29. a) Group W: Living things

Group X: Non-living things

b) W

Q30. a) W , Y , X

b) X

c) Because it does not allow water to be absorbed.

d) Transparent



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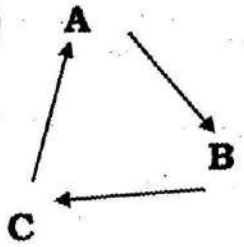
**Q31.** a) A: seed

B: young plant

b)




**Q32.** a) Part A: leaves

b) Mineral salts

c) The roots anchors the plant down.

**Q33.** a) No digestion takes place in the gullet.

b) more than

c) stomach

**Q34.** a) B

b) The temperature of water in B decreased faster.

c)

| | Heat gain | Heat loss |
|---|---|---|
| Cup | ✓ | |
| Hot water | | ✓ |



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**Q35.** a) Increase.

b) Because the metal ring was heated. Thus, the metal ring gained heat and expanded.

c) (i) B

(ii) Good conductor of heat.

**Q36.** a) attraction

b) magnetic

c) (i) S

(ii) N

**Q37.** a) P and R

b) As the number of batteries increase, the more number of paper clips attracted.

c) Increase the number of coils.

d) The stroking method.

**Q38.** a) Solid: Z

Liquid: Y

b) Both X and Y does not have a definite shape.

c) Z has a definite shape while Y does not have a definite shape.

**Q39.** a) Gas

b) Substance Y can be compressed.

c) Substance Y has mass.



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**Q40.** a) **light and reflected**

b) **Light travels in a straight line.**

**Q41.** a) **Material X: translucent**

**Material Y: opaque**

b) **A shadow**

c) **He could move Material X nearer to the torch.**

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**END OF PAPER**

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METHODIST GIRLS' SCHOOL
Founded in 1887

END-OF-YEAR EXAMINATION 2018
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 : 30 October 2018

This booklet consists of 20 printed pages including this page.

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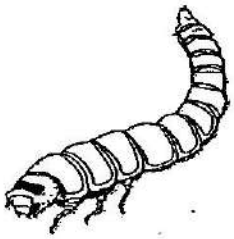
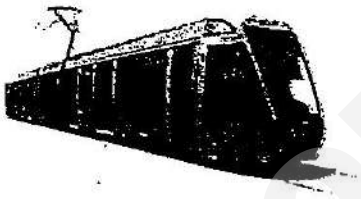
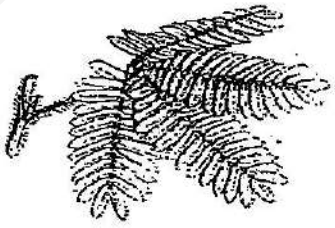
For each question from 1 to 28, four options are given. One of them is the correct answ
Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet (OA
[56 marks]

1 Which one of the following is not a living thing?

(1) 

(2) 

(3)

(4) 

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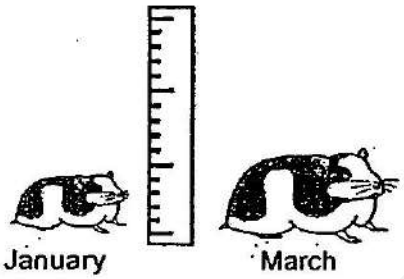
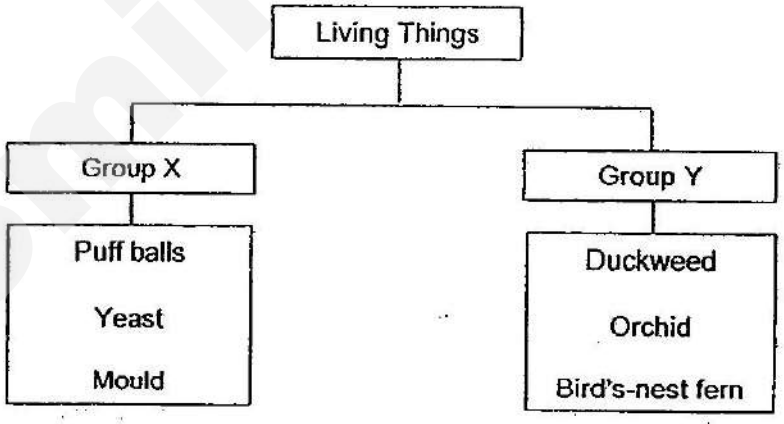
2 Sarah bought a hamster from the pet store in January and measured its height. Two months later, she measured its height again.




Based on her observation, Sarah concluded that the hamster is a living thing because it can _____.

(1) die
(2) grow
(3) reproduce
(4) respond to change

3 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) Plants
(3) Bacteria
(4) Animals

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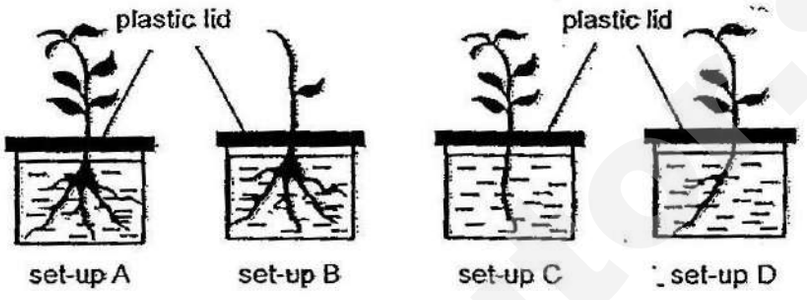
4 Adrian wanted to find out if plants take in water through their roots.

He prepared four set-ups A, B, C and D. Each set-up contains a similar plant with some of the plant parts removed as shown below. Each set-up contains 250 ml of water.




Which two set-ups above should Adrian use to conduct a fair test?

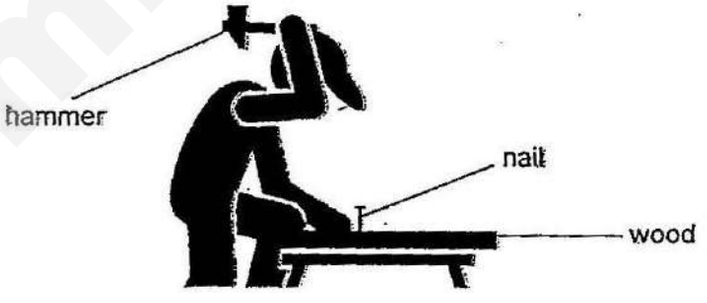
(1) A and B

(2) B and C

(3) A and C

(4) A and D

5 A carpenter used a hammer to hit a nail into a piece of wood.




Steel is used to make the hammer because steel _____.

(1) is shiny

(2) is strong

(3) sinks in water

(4) conducts heat well

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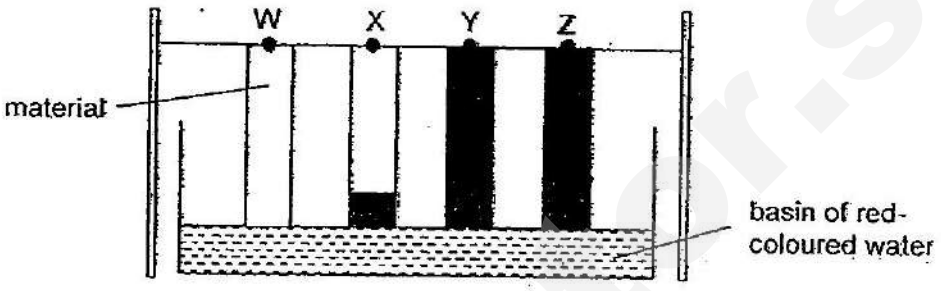
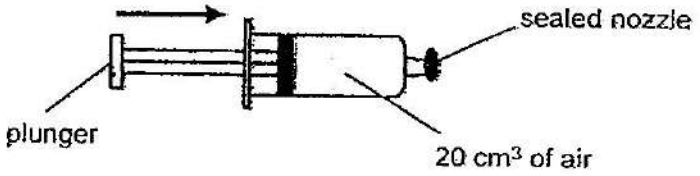
6 Mark conducted an experiment to compare the absorbency of different materials. He placed four strips of materials W, X, Y and Z, of identical size, into a basin of red-coloured water for 10 minutes. Mark recorded his observations as shown in the diagram below. He shaded the part of each material that had absorbed the red-coloured water.




Based on the on the diagram above, which of the following shows the most suitable material to make a raincoat, handkerchief and toilet paper?

| | Raincoat | Handkerchief | Toilet paper |
|---|---|---|---|
| (1) | X | Y | Y |
| (2) | W | Z | X |
| (3) | X | Y | Z |
| (4) | W | Z | Y |

7 The diagram below shows a syringe filled with 20 $cm^3$ of air. The nozzle was sealed before the plunger was pushed in.




What was the volume of air after the plunger was pushed in?

(1) 0 $cm^3$

(2) 20 $cm^3$

(3) Less than 20 $cm^3$

(4) More than 20 $cm^3$

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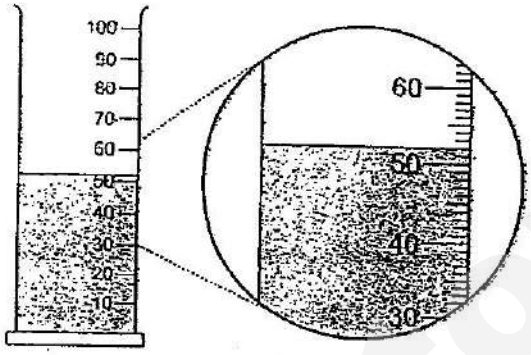
8 The diagram below shows a measuring cylinder containing liquid Y.




What is the volume of liquid Y?

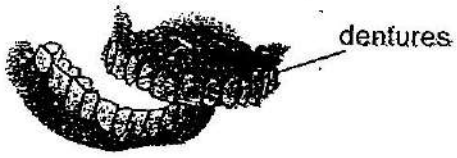
(1) 50 ml

(2) 52 ml

(3) 50.2 ml

(4) 51.5 ml

9 Mr Lim, who is 68 years old, needs to put on his **dentures (false teeth)** before he eats.




Why does Mr Lim need to put on his dentures before he starts eating?

(1) They help to digest the food.

(2) They help to release digestive juices into his mouth.

(3) They help to break down the food into smaller pieces.

(4) They help to make food soft and wet so that it can be swallowed easily.

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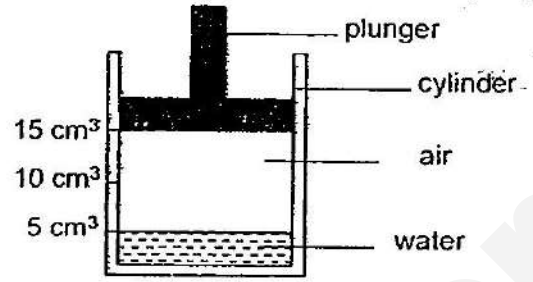
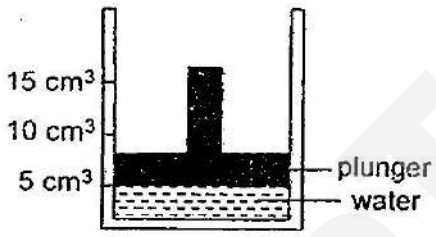
10 Stacy filled a cylinder with 5 $cm^3$ of water and sealed it with a plunger as shown below.

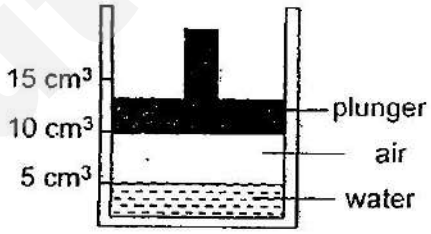



What would Stacy see after she pushed the plunger downwards as far as she could without any air or water escaping?

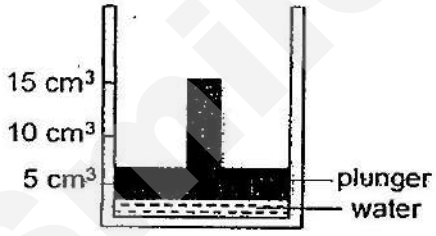
(1)



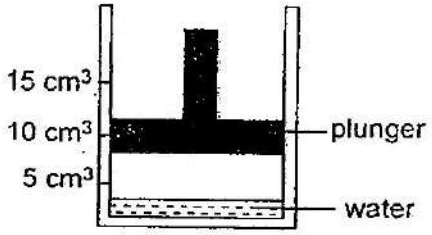

(2)




(3)




(4)




11 Which one of the following properties is true for both air and a block of ice?

(1) They can be seen.

(2) They take up space.

(3) They have fixed shapes.

(4) They have fixed volumes.

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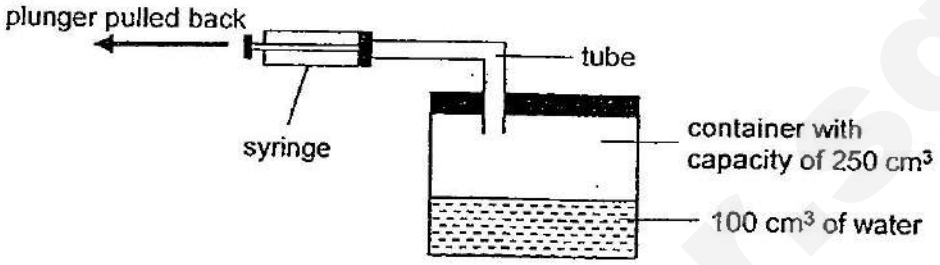
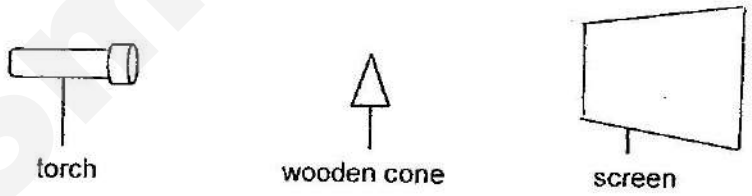
12 The diagram below shows a syringe that was fitted to a container through a tube.



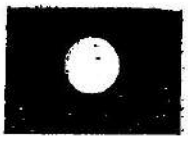

Each time the plunger of the syringe was pulled back completely, 30 $cm^3$ of air would be drawn out of the container. Which one of the following shows the correct volume of air and water in the container after the plunger was pulled back completely once?

| | Volume of air ($cm^3$) | Volume of water ($cm^3$) |
|---|---|---|
| (1) | 120 | 130 |
| (2) | 120 | 100 |
| (3) | 150 | 100 |
| (4) | 180 | 100 |

13 The set-up below shows light shining on a wooden cone.

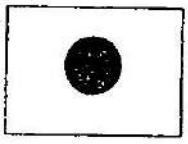



Which one of the following shadows would most likely be seen on the screen?

(1) 

(2)

(3)

(4) 

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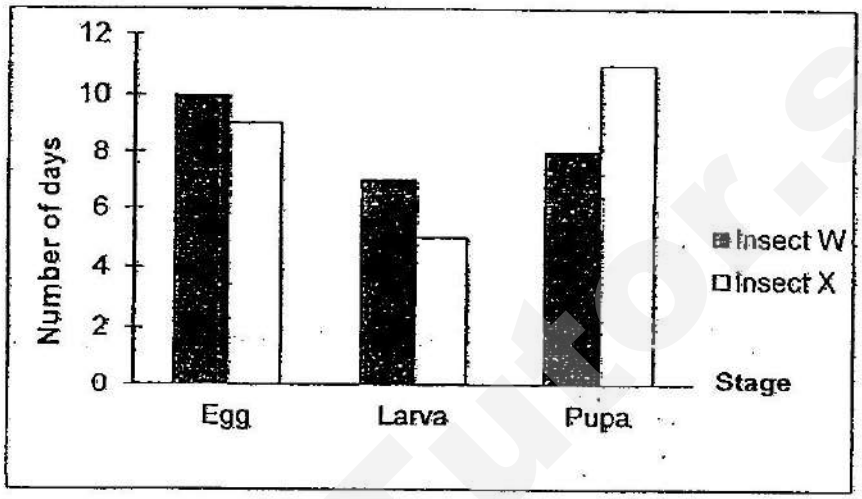
14 The graph below shows the number of days it takes for each stage in the life cycles of insects W and X.




Which stage would insect W and X be in, on the 21st day of their life cycles?

| | Insect W | Insect X |
|---|---|---|
| (1) | Larva | Larva |
| (2) | Larva | Pupa |
| (3) | Pupa | Larva |
| (4) | Pupa | Pupa |

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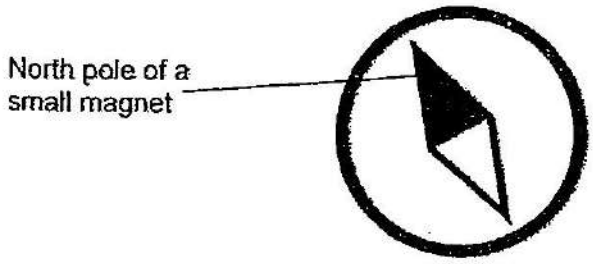
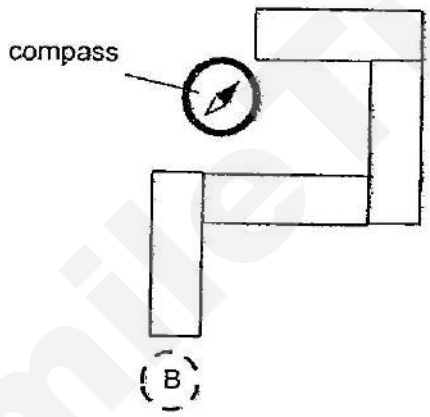
15 A compass has a small magnet that can rotate freely as shown.



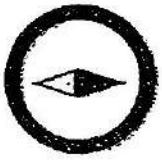

Four bar magnets were arranged such that they were attracted to one another. A compass was then placed near end A and the direction of the compass needle is as shown below.




What would be the direction of the needle when the compass was placed at position B?

(1)

(2)



(3)

(4)

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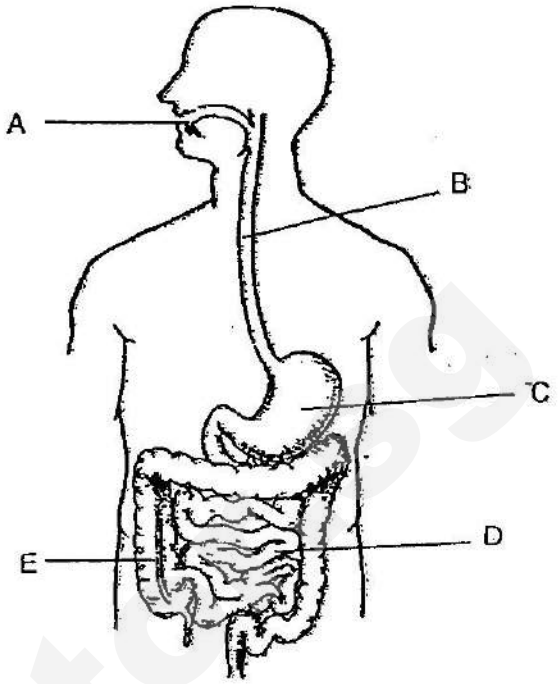
16 Study the human digestive system below.




Which of the following correctly identifies organ E and its function?

| | Organ E | Function |
|---|---|---|
| (1) | Large intestine | Removes water. |
| (2) | Large intestine | Digests food completely. |
| (3) | Small intestine | Absorbs digested food into the blood. |
| (4) | Small intestine | Breaks down food into simpler substances. |

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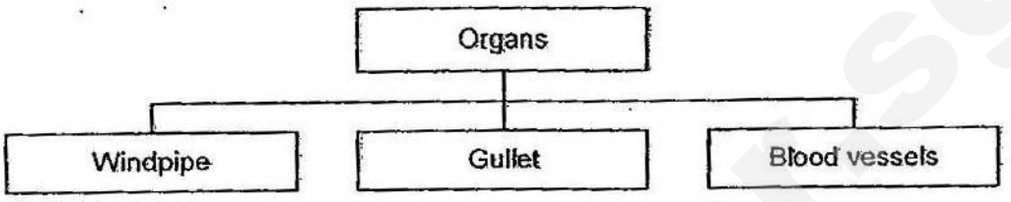
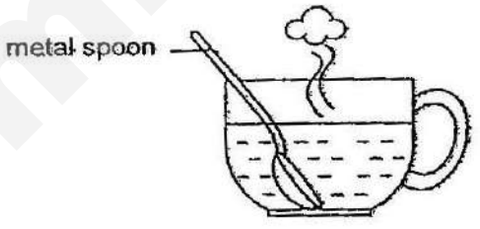
17 The classification chart below shows three body organs from different human body systems.




Which one of the following matches the human body systems to the respective organs correctly?

| | Windpipe | Gullet | Blood vessels |
|---|---|---|---|
| (1) | Respiratory | Circulatory | Digestive |
| (2) | Digestive | Respiratory | Circulatory |
| (3) | Respiratory | Digestive | Circulatory |
| (4) | Circulatory | Respiratory | Digestive |

18 Kumar places a metal spoon into a cup of hot coffee.




a cup of hot coffee

The spoon becomes hot after a while. Which one of the following explains why?

(1) The cup loses heat to the spoon.

(2) The spoon loses heat to the hot coffee.

(3) The hot coffee gains heat from the spoon.

(4) The spoon gains heat from the hot coffee.

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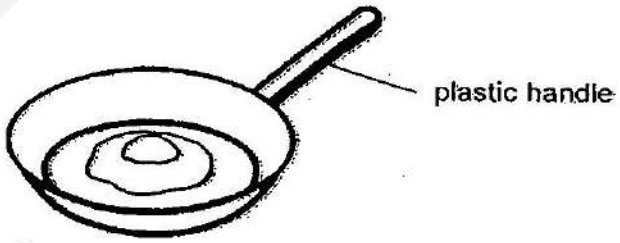
19 The table below shows the properties of three matters P, Q and R.

| Properties | Matter | | |
|---|---|---|---|
| | P | Q | R |
| Has a definite volume | ✓ | X | ✓ |
| Has a definite shape | ✓ | X | X |
| Can be compressed | X | ✓ | X |

Which of the following best represent P, Q and R?

| | P | Q | R |
|---|---|---|---|
| (1) | plasticine | milk | wind |
| (2) | oil | wind | aluminum foil |
| (3) | aluminum foil | air | oil |
| (4) | wind | oil | plasticine |

20 Hashim fried an egg in a pan as shown in the diagram below.




He is able to hold the frying pan using the plastic handle. This is because plastic is a _____.

(1) light material

(2) flexible material

(3) poor conductor of heat

(4) good conductor of heat

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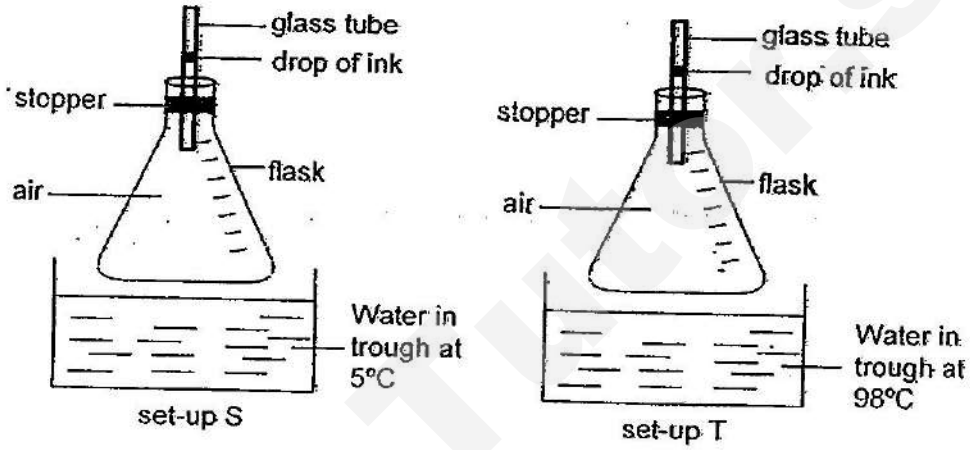
21 Adeline carried out an experiment with two set-ups, S and T, as shown in the diagram below. Both set-ups were placed in the Science laboratory with a room temperature of 27°C.




Which of the following would be observed two minutes after the flask was placed in the trough of water in set-ups S and T?

| | Observation for set-up S | Observation for set-up T |
|---|---|---|
| (1) | The drop of ink will rise. | The drop of ink will fall. |
| (2) | The drop of ink will fall. | The drop of ink will rise. |
| (3) | The water level in the trough will rise. | The water level in the trough will fall. |
| (4) | The water level in the trough will fall. | The water level in the trough will rise. |

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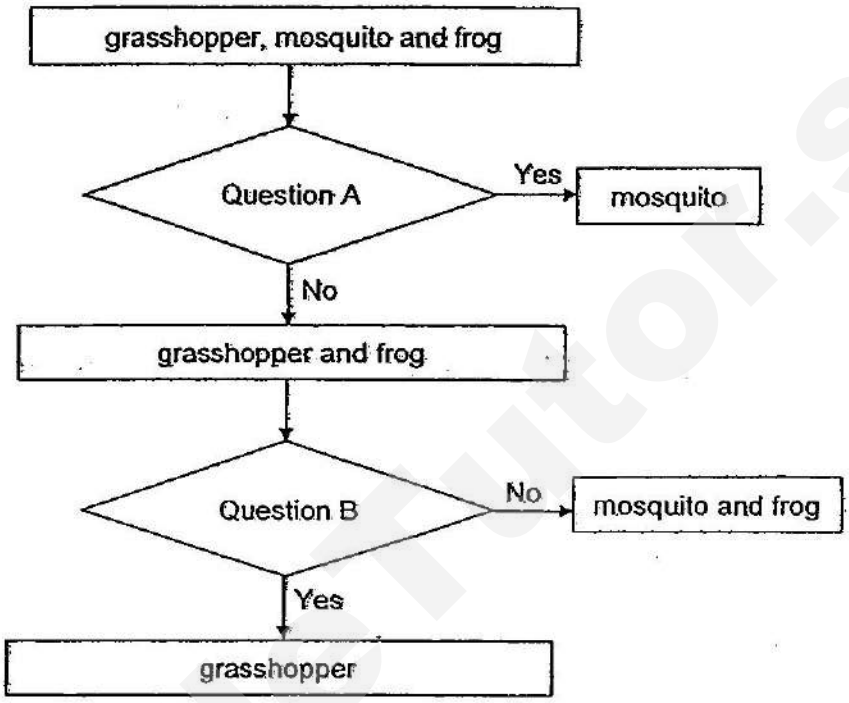
22 Mei Ling classified the three animals with the help of a flow chart as show below.




What are the two questions?

| | Question A | Question B |
|---|---|---|
| (1) | Does it have four-stage life cycle? | Does it have a young stage? |
| (2) | Does it have four-stage life cycle? | Does the adult look like the young? |
| (3) | Does it have three-stage life cycle? | Does the adult look like the young? |
| (4) | Does it have three-stage life cycle? | Does the adult lay eggs in water? |

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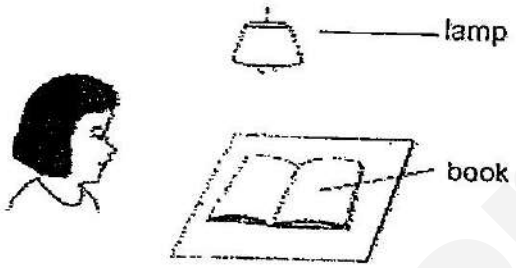
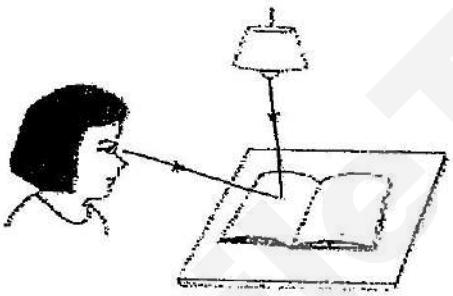
23 Look at the picture below.

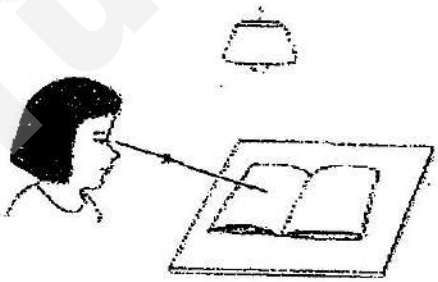



Which one of the following shows how Sue can see the book on the table?

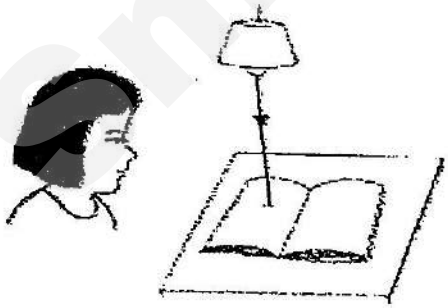
(1)



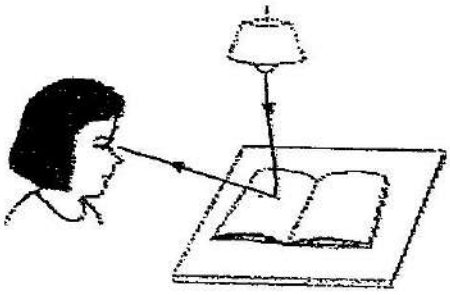
(2)



(3)



(4)



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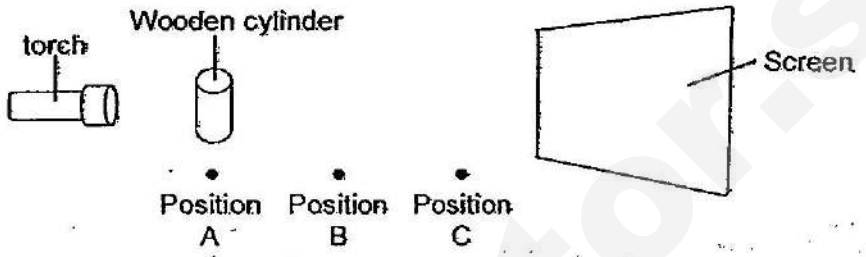
24 Nicholas shone a torch on a piece of wooden cylinder and a shadow was formed on the screen. He placed the wooden cylinder at positions A, B and C. At each position, he measured the height of the shadow formed on the screen as shown in the diagram below.




Which of the following correctly represents the results?

| | Height of shadow (cm) | | |
|---|---|---|---|
| | Position A | Position B | Position C |
| (1) | 15 | 7 | 11 |
| (2) | 7 | 15 | 11 |
| (3) | 15 | 11 | 7 |
| (4) | 7 | 11 | 15 |

25 Diagram 1 below shows a ring magnet lowered onto a tray of iron nails. Diagram 2 shows the bottom view of a ring magnet.

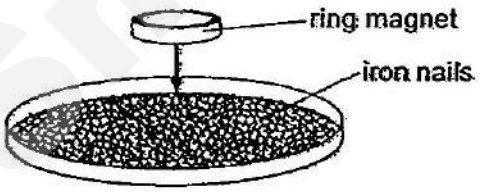



Diagram 1

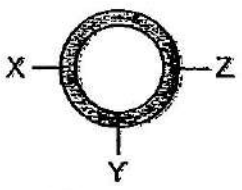



Diagram 2

Which one of the following most likely shows the number of iron nails attracted to the bottom of the magnet at Position X, Y and Z?

| | Position X | Position Y | Position Z |
|---|---|---|---|
| (1) | 15 | 7 | 11 |
| (2) | 7 | 15 | 11 |
| (3) | 15 | 15 | 15 |
| (4) | 7 | 11 | 15 |

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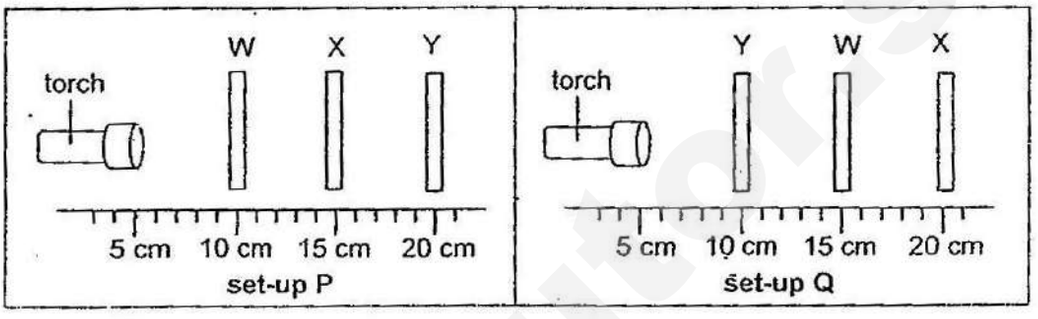
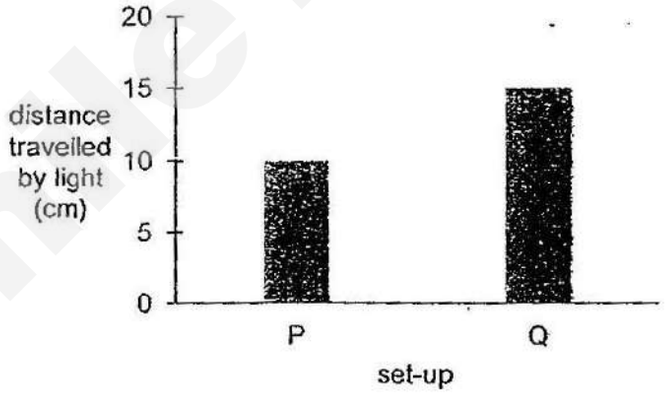
26 Denise conducted an experiment to investigate the amount of light that could pass through three sheets W, X and Y which were made of different materials. The three different sheets were positioned in two set-ups P and Q as shown in the diagrams below.




The distance travelled by the light for each set-up was measured and the results are shown in the graph below.




Which of the following correctly describe sheets W, X and Y?

| | Does it allow light to pass through? | | |
|---|---|---|---|
| | W | X | Y |
| (1) | Yes | Yes | No |
| (2) | Yes | No | Yes |
| (3) | Yes | No | No |
| (4) | No | Yes | Yes |

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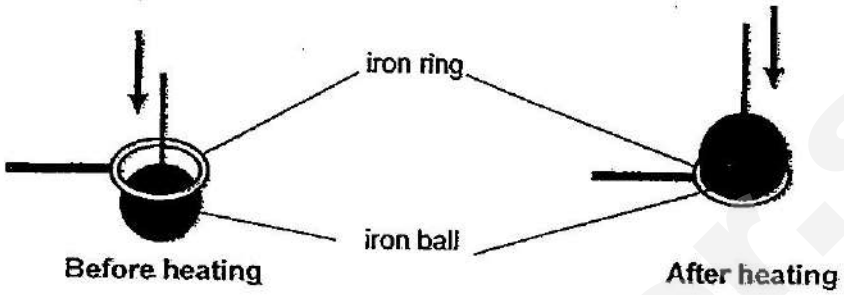
27 The diagram below shows what happened before and after an iron ball was heated.




What could be done to enable the iron ball to pass through the iron ring again?

A Place the iron ball in a beaker of ice water.

B Place the iron ring in a beaker of ice water.

C Place the iron ball in a beaker of boiling water.

D Place the iron ring in a beaker of boiling water.

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

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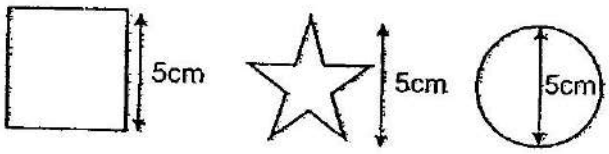
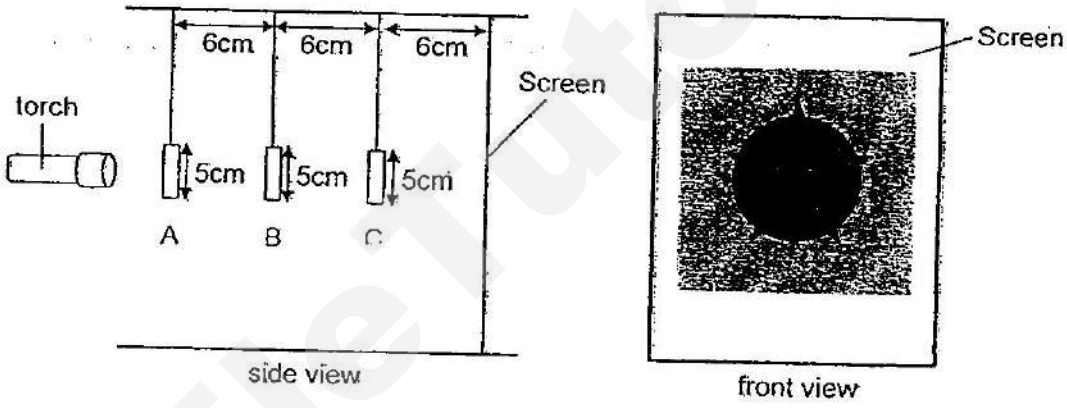
28 The diagram below shows three shapes, a square, a star and a circle, each made of different materials.




The three cut-outs were then hung in between the torch and a white screen at different positions A, B and C. When the torch was switched on, a shadow was cast on the screen as shown in the diagram below.




Based on the observation of the shadow formed on the screen, which of the following statements are correct?

A The circle is nearer to the torch than the star.
B The square is further from the torch than the circle.
C The star does not allow light to pass through.
D The square allows more light to pass through than the circle.

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

End of Booklet A

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METHODIST GIRLS' SCHOOL
Founded in 1887

END-OF-YEAR EXAMINATION 2018
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 : 30 October 2018

| | |
|---|---|
| Booklet A | 56 |
| Booklet B | 34 |
| Total | 90 |
| Parent's Signature | |

This booklet consists of 13 printed pages including this page.

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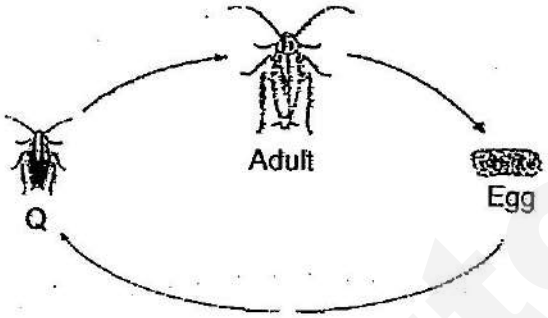
For questions 29 to 40, write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question or part question.

[34 marks]

29 The diagram below shows the stages in the life cycle of a cockroach.




(a) Name stage Q. [1]

_____

(b) State one other insect that has a similar life cycle as a cockroach. [1]

_____



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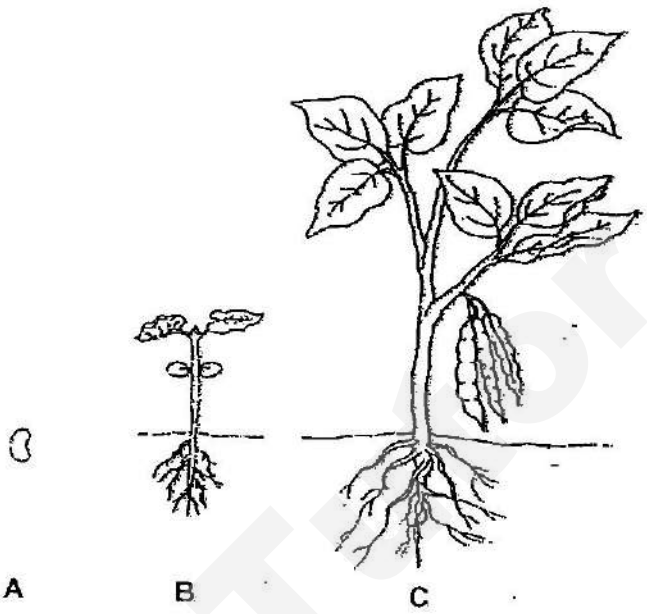
30 The diagram below shows the stages in the life cycle of a plant.




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

| egg | seed | young plant | adult plant |
|---|---|---|---|

Name stages A and B in the life cycle of the plant. [2]

A: _____

B: _____

2

(Go on to the next page)

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31 The diagrams below show two plants.

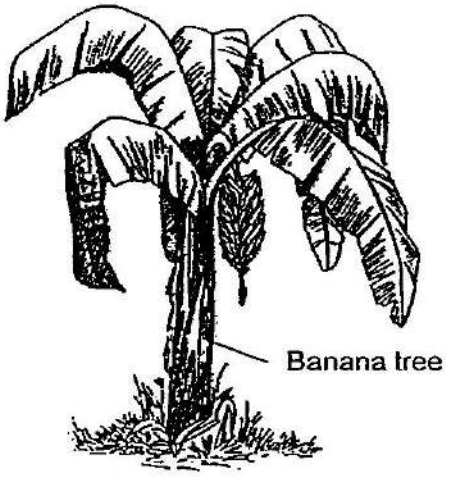


Diagram A

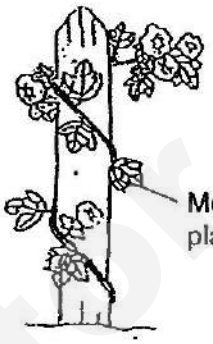


Diagram B

(a) Based on the diagrams above, which stage of the life cycle are both plants at? Explain your answer. [1]

(b) On diagram A and B, **label** with the letter "X", the part of the plant that helps support the leaves, flowers and fruits. [1]

(c) Explain why it is important for the part labelled in (b) to hold the leaves up in both plants? [1]

3

(Go on to the next page)

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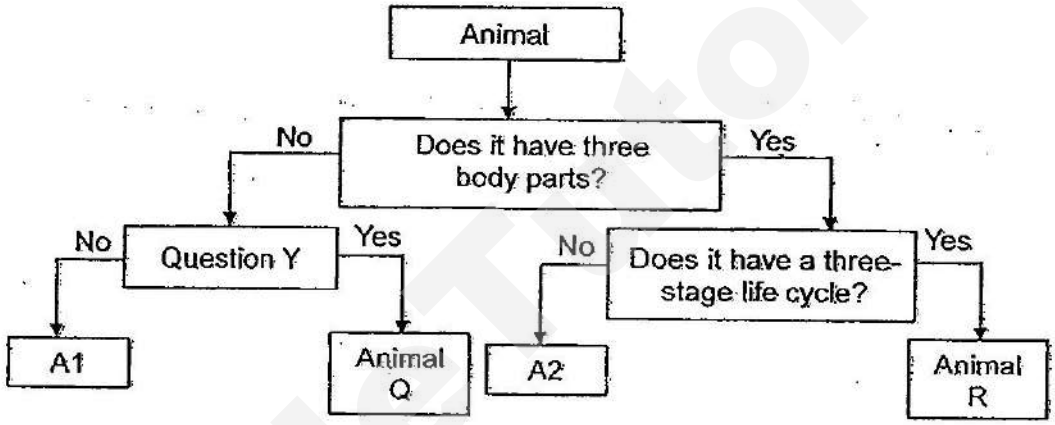
32 The characteristics of animals P, Q, R and S are described in the table below.

| Animal | Characteristic(s) |
|---|---|
| P | It gives birth to young alive. |
| Q | It breathes through its moist skin and lungs. |
| R | It has six legs. There are three stages in its life cycle. |
| S | Its life cycle consists of the egg, larval, pupal and adult stages. |

Animal Q and R have been identified in the flow chart shown below.




(a) What would question Y likely be? [1]

Question Y: _____

_____

(b) Which animal, P or S, does A2 represent? Explain your answer. [1]

_____

_____

(c) Give an example of animal Q.

_____

3



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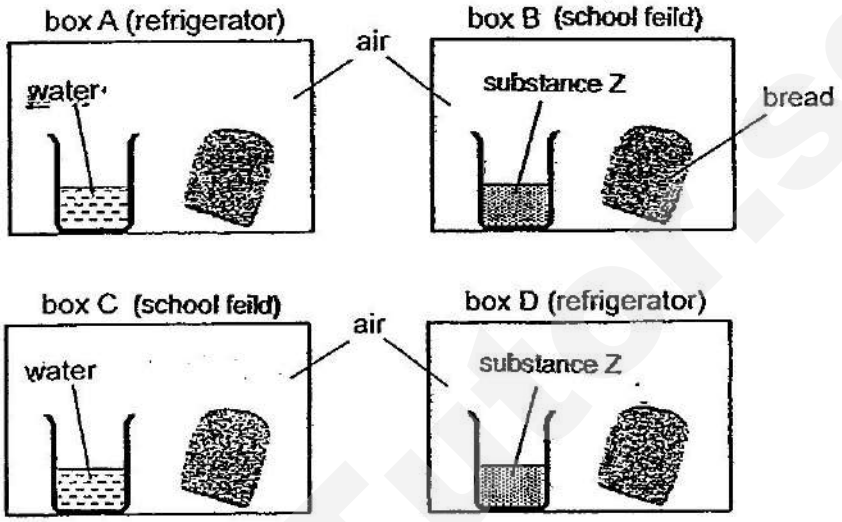
33 Jerome placed four similar slices of bread in four identical sealed boxes. He placed the boxes A and D in the refrigerator and boxes B and C out in the school field. Substance Z absorbs water from the surrounding.




(a) After one week, Jerome found black patches growing on the bread in one of the boxes. What are the black patches? [1]

_____

_____

(b) In which box A, B, C or D did Jerome find the black patches? Explain why [2]

_____

_____

(c) Jerome compared his observations of the bread in boxes A and C. What was he trying to find out? [1]

_____

_____

4

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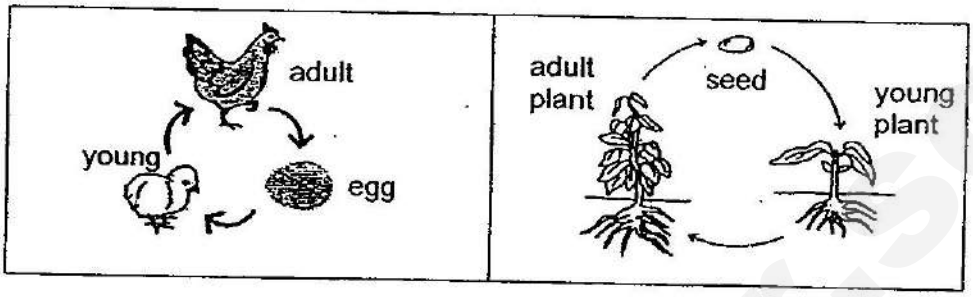
34 The diagram below shows the life cycle of two living things.




(a) Why is it important for living things to have an adult stage in their life cycle?

[1]

Farmer Tan studied the effect of the temperature on the hatching of chicken eggs. The table below shows the results of his study.

| Temperature | Number of eggs hatched |
|---|---|
| 35°C | 0 |
| 36°C | 4 |
| 37°C | 9 |
| 38°C | 15 |
| 39°C | 24 |
| 40°C | 6 |
| 41°C | 0 |

(b) Based on the results above, what would be the **best** temperature to hatch the most number of chicken eggs?

[1]

(c) What is the relationship between the temperature and the number of eggs hatched?

[1]

3

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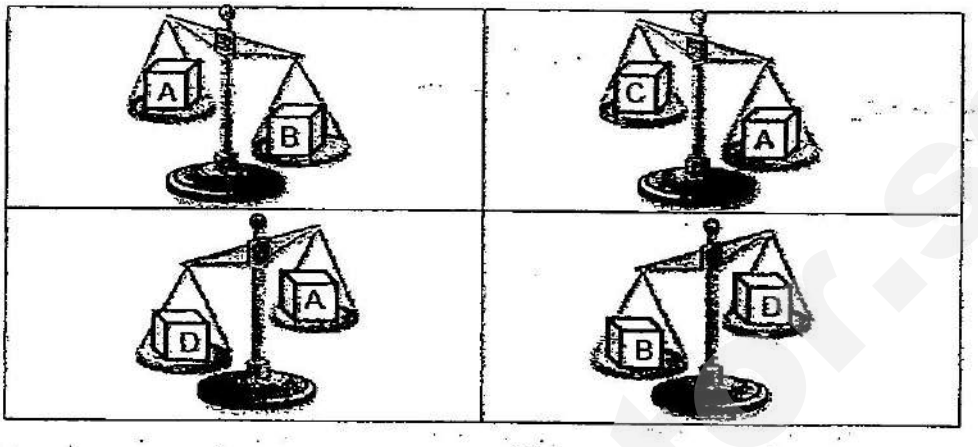
35 The diagram below shows four objects A, B, C and D of identical size placed on a lever balance.

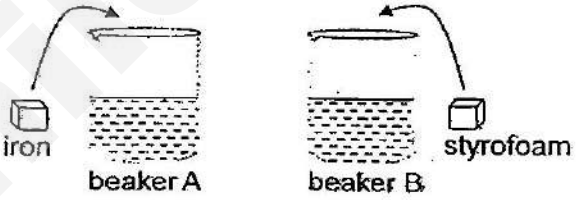



(a) Arrange the objects according to their mass, beginning with the greatest mass. [1]

| | | | |
|---|---|---|---|
| | | | |

Greatest mass Smallest mass

Penny placed two identical cubes made of different materials, into two beakers, each containing 200 ml of water.




(b) Penny then observed that the water level in beaker A is higher than in beaker B. Explain why. [2]

_____

_____

_____

3

(Go on to the next page)

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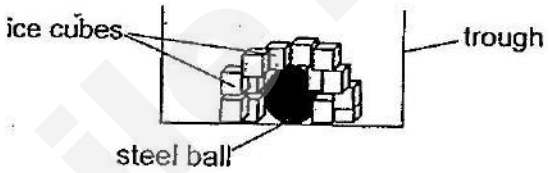
36 Classify the following into matter and non-matter. [3]

| | | |
|---|---|---|
| thunder | sand | heat |
| light | petrol | glue |

| Matter | Non-matter |
|---|---|
| | |

37 Mrs Spenser placed a steel ball that was heated to 85°C into the trough. She then placed some ice cubes into it.




(a) After 10 minutes, Mrs Spenser observed that all the ice cubes melted. Give a reason for her observation. [1]

_____

_____

(b) After 10 minutes, Mrs Spenser took the steel ball out of the trough. Suggest a reason why she was able to pick up the steel ball easily without burning her hand. [1]

_____

_____

5

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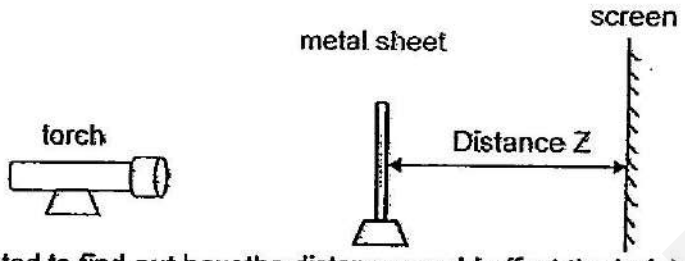
38 Athirah set up an experiment as shown in the diagram below. When she switched on the torch, a shadow of the metal sheet was formed on the white screen.




She wanted to find out how the distance would affect the height of the shadow formed on the white screen. She did not move the torch throughout her experiment.

Athirah recorded her results as shown in the table below.

| Distance Z (cm) | Height of shadow (cm) |
|---|---|
| 4 | 9 |
| 8 | 13 |
| 12 | 19 |

(a) What is the relationship between distance Z and the height of the shadow? [1]

(b) Explain how the shadow of the metal sheet is formed on the white screen. [1]

(c) Athirah then replaced the metal sheet with a similar sized piece of frosted plastic sheet. Explain how the shadow formed by the frosted plastic sheet is different from the shadow formed by the metal sheet. [1]

3

(Go on to the next page)

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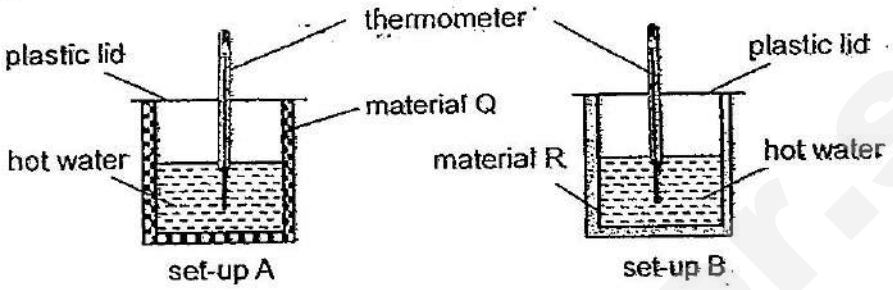
39 Sophia conducted an experiment using set-ups A and B as shown below. She wrapped a glass container with material Q and another identical glass container with material R. She filled both containers with the same volume of hot water at 95°C.




Sophia measured the temperature of the water at different times and plotted her results in the graph shown below.

(a) Based on the graph above, Sophia concluded that material R conducts heat better than material Q. Explain why. [1]

Material Q in set-up A was used to make an oven glove. This material had small air spaces inside it.

(b) Explain how the air spaces in material Q would help protect the user's hands from hot objects. [2]

3

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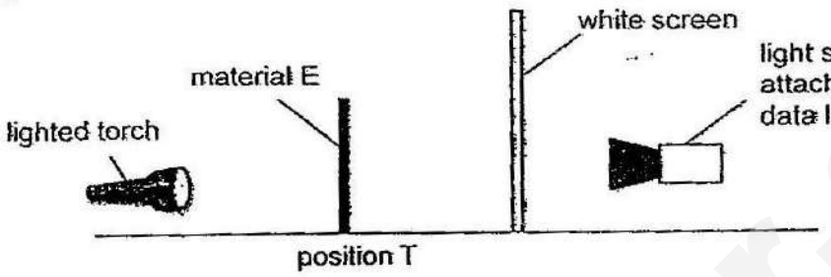
40 Maurice conducted an experiment in a dark room to compare the degree of transparency of four different materials E, F, G and H as shown in the diagram below.




Maurice placed material E at position T and observed the shadow formed on the white screen. She repeated the same experiment with materials F, G and H. Her observation is recorded in the table below.

| Material | Shadow formed |
|---|---|
| E | light |
| F | Very dark |
| G | Dark |
| H | Very light |

Maurice presented her results in the bar graph below.

(a) Based on the results in the table, write the letters E, F, G and H in the boxes provided above. [1]

(b) Based on the results above, which material E, F, G or H is the most suitable to make a pair of swimming goggle lens? Explain your answer.[1]

_____

_____

2

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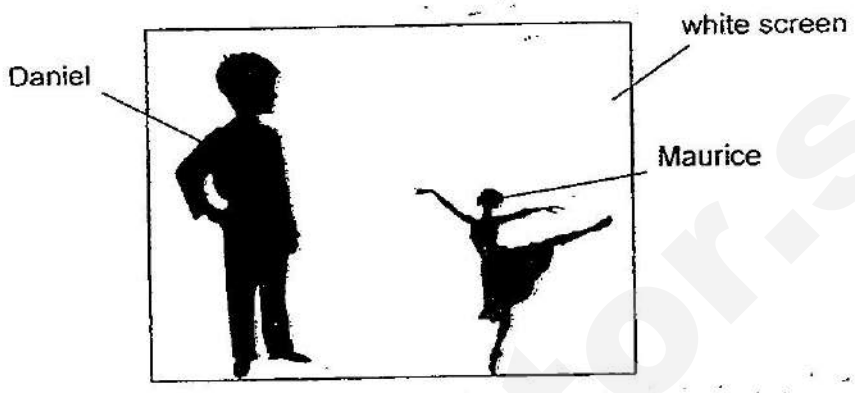
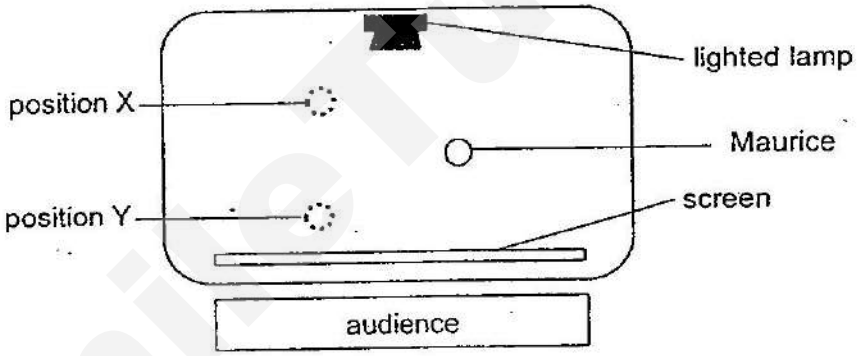
Maurice put up a shadow performance with her friend, Daniel, who is the same height as her. The diagram below shows what the audience saw on the white screen.




The diagram below shows the layout of the stage for the shadow performance.




(c) At which position, X or Y, was Daniel standing? Explain your answer. [1]

_____

_____

1

End of Booklet B

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# ANSWER KEY

| | | |
|---|---|---|
| YEAR | : | 2018 |
| LEVEL | : | PRIMARY 4 |
| SCHOOL | : | METHODIST GIRLS' SCHOOL |
| SUBJECT | : | SCIENCE |
| TERM | : | SA2 |

**BOOKLET A**

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

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## 2018 SA2 Booklet B1 Answer Key

| Qn | Answer |
|---|---|
| 29a | Q: Nymph |
| 29b | Grasshopper/dragonfly/damselfly. |
| 30 | A. Seed.<br>B: Young plant. |
| 31a | Both plants both bear fruits and flowers as they are at the adult stage. |
| 31b | |
| 31c | The part labelled X helps to support the leaves to absorb more sunlight to make food for the plant. |
| 32a | Question Y: Does it breathe through its moist skin and lungs? |
| 32b | Animal S. It has three body parts and a four-stage life cycle. |
| 32c | frog/toads/ salamander. |
| 33a | Mould/bread mould/fungi |
| 33b | Box C. All living things need water, warmth, air and food to grow. |
| 33c | Jerome wants to find out if temperature affects the growth of the black patches. |
| 34a | Only the adult stage can reproduce and ensure the continuity of their own kind. |
| 34b | 39°C |
| 34c | The higher the temperature, the higher the number of chicken eggs hatched until the temperature of 40°C the number of chicken eggs hatched would decrease. |
| 35a | B, D, A, C |
| 35b | The iron cube sinks and occupies more space while the Styrofoam cube floats and occupy less space in the water. |
| 36 | Matter: sand, glue, petrol<br>Non-matter: heat, light, thunder |
| 37a | The ice cubes gained heat from the hot steel ball. |
| 37b | The steel ball lost heat to the ice cubes. |
| 38a | The shorter/greater the distance Z, the smaller/longer the shadow will be. |

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| | |
|---|---|
| 38b | A shadow is formed when light is blocked by the metal sheet. |
| 38c | Frosted plastic is translucent/allows some light to pass through, so shadow formed is lighter. |
| 39a | The temperature of water in set-up B is decreasing faster than set-up A. |
| 39b | Air is a poor conductor of heat and would slow down heat gain from the hot object to the user's hand. |
| 40a | G F H E |
| 40b | Material H, because it is transparent / allows the most light to pass through, so that the swimmer can see through it. |
| 40c | Position X as Daniel can cast a bigger shadow when he is nearer to the lighted lamp. |

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**NAN HUA PRIMARY SCHOOL**
**SEMESTRAL ASSESSMENT 2 – 2018**
**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: 1 November 2018** **Parent's Signature:** _____

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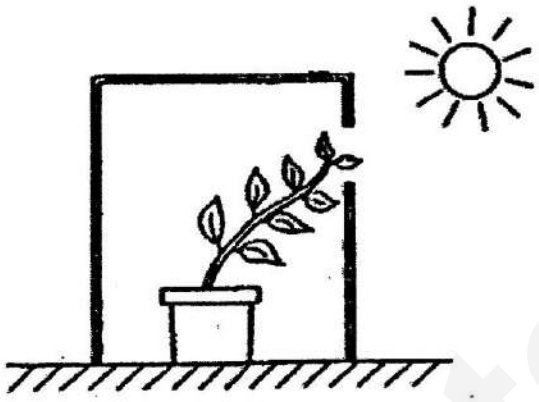
**Section A: (28 x 2 marks = 56 marks)**
For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

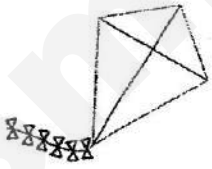
1. The plant grows towards the opening of the box where light is able to enter.



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

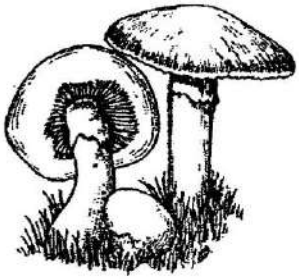
(1) grow
(2) breathe
(3) respond
(4) reproduce

2. Which one of the following is a living thing?



(1)

(2)



(3)

(4)



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3. The diagram below shows an old man with a walking stick.

Iron is used to make the walking stick because iron _____.

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

4. Which one of the following is the function of the roots of a plant?

(1) makes food
(2) takes in mineral salts
(3) holds the plant upright
(4) helps in gaseous exchange

5. In which part of the digestive system is water removed from food?

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



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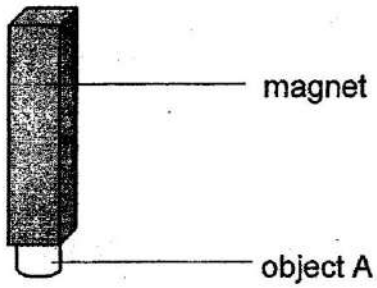
6. Object A was attracted to a magnet as shown in the diagram below.




Object A is made of _____.

(1) iron
(2) plastic
(3) rubber
(4) ceramic

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

Lighted candle

(1)

Moon

(2)

Battery

(3)

Mirror

(4)



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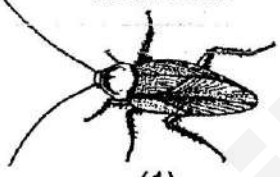
8. Kim boiled some water in the kettle shown below.

She is able to hold the kettle of boiling water using the wooden handle.
This is because wood is a _____.

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

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

cockroach



(1)

mosquito

(2)

frog

(3)

chicken

(4)

10. Matter is anything that has mass and occupies space.
Which one of the following is **NOT** a matter?

(1) ice
(2) tree
(3) water
(4) sunlight



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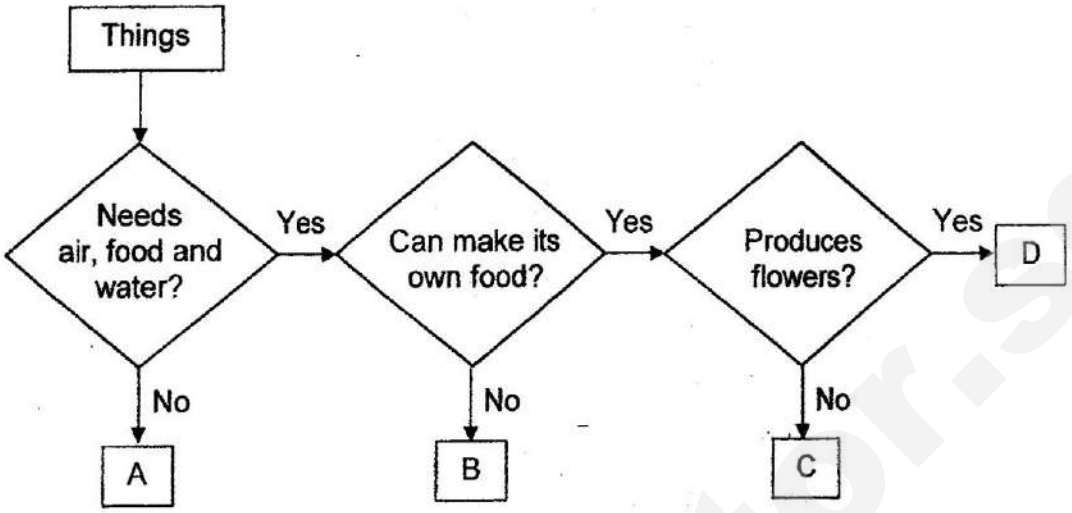
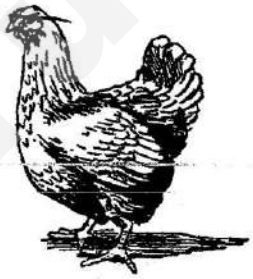
11. Study the flowchart below.



Plant



Chicken

Which of the following letters best represent the plant and the chicken shown above?

| | Plant | Chicken |
|---|---|---|
| (1) | A | B |
| (2) | D | B |
| (3) | C | A |
| (4) | D | C |



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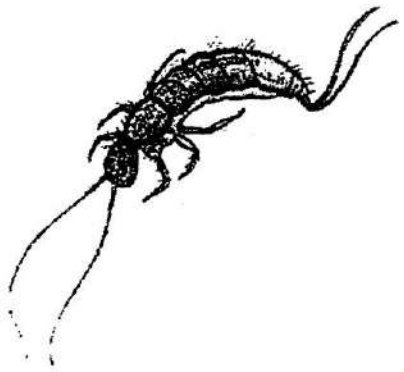
12. Some students found Animal X in the soil of their school garden as shown below.



After making some observations about Animal X, the students concluded that Animal X belongs to the insect group.

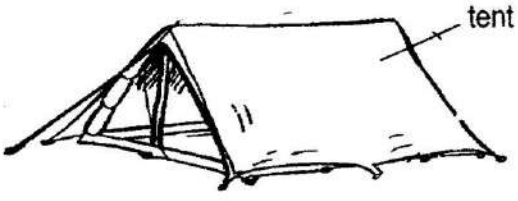
Which one of the following observations shows that Animal X is an insect?

(1) It is hairy.
(2) It has six legs.
(3) It has no wings.
(4) It has many body parts.

13. P, Q, R and S are four different materials. A tick ( ✓ ) shows the property of the material.

| | P | Q | R | S |
|---|---|---|---|---|
| **fragile** | ✓ | | | |
| **strong** | | ✓ | ✓ | ✓ |
| **flexible** | ✓ | | ✓ | ✓ |
| **waterproof** | ✓ | ✓ | | ✓ |

Which material, P, Q, R or S, is most suitable to make a tent as shown below?




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



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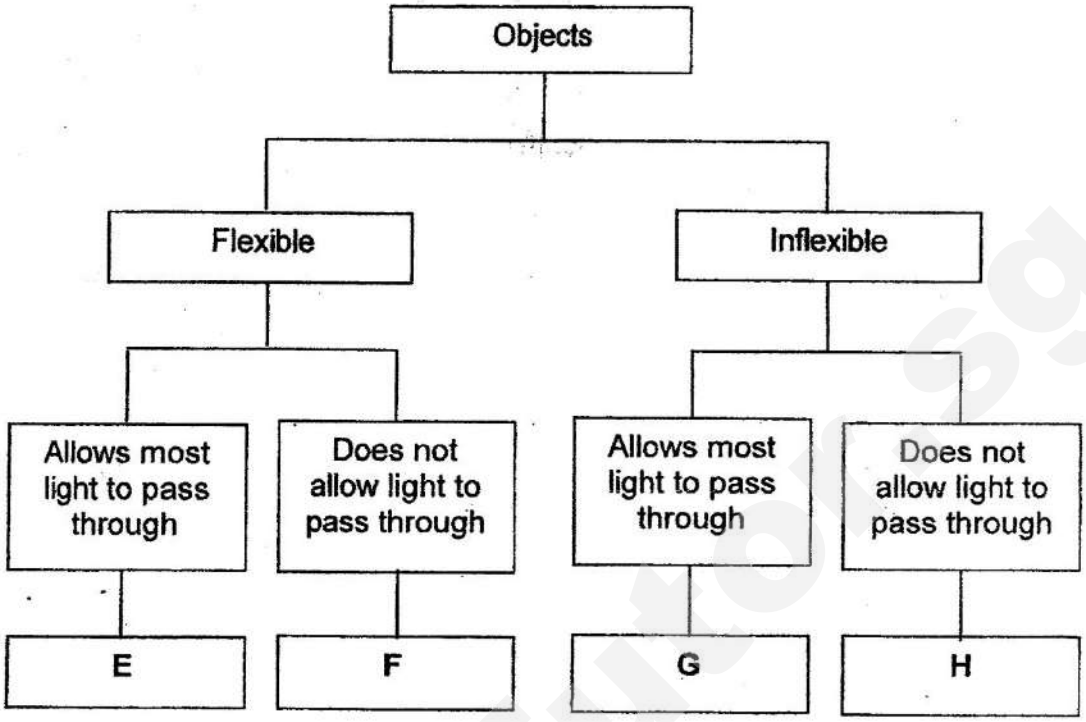
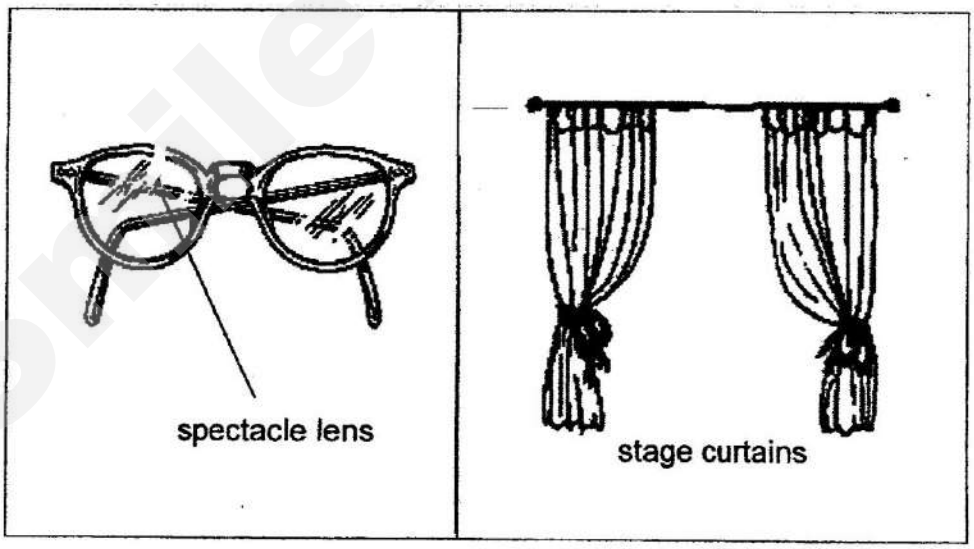
14. Study the classification chart below carefully.




In which groups, E, F, G or H, should the spectacle lens and stage curtains be placed?




| | Spectacle lens | Stage curtains |
|---|---|---|
| (1) | G | H |
| (2) | G | F |
| (3) | E | F |
| (4) | E | G |



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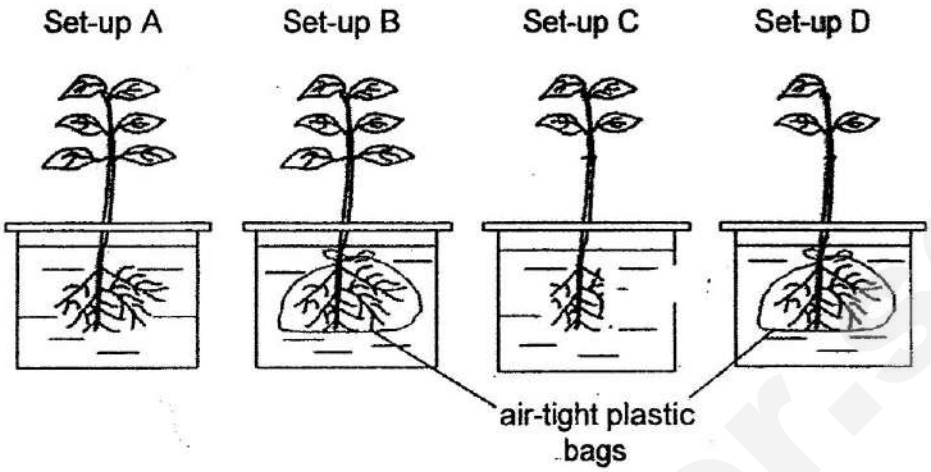
15. Devi wanted to find out if a plant takes in water through their roots. She prepared the following set-ups and placed them near an open window.




The roots of the plants in set-up B and set-up D were tied with air-tight plastic bags at the start of the experiment before putting the plants into the beaker of water. Each set-up had the same amount of water.

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

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



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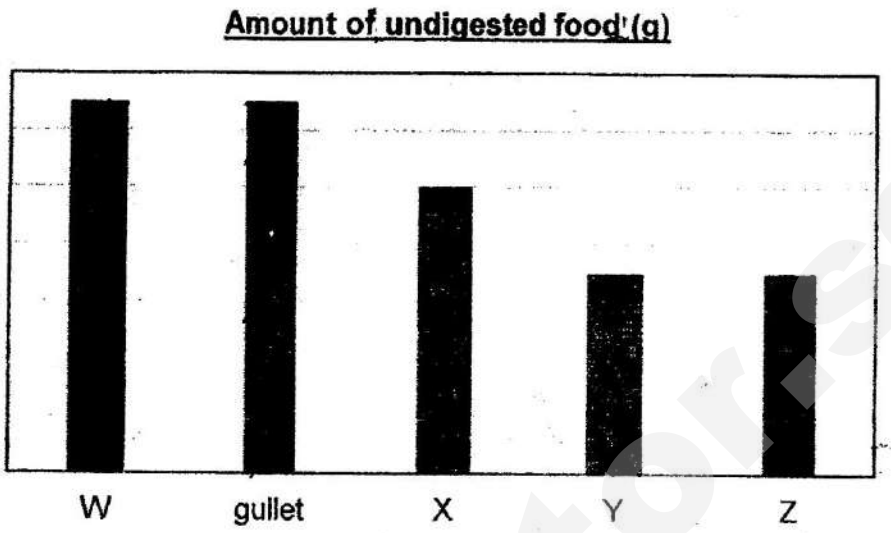
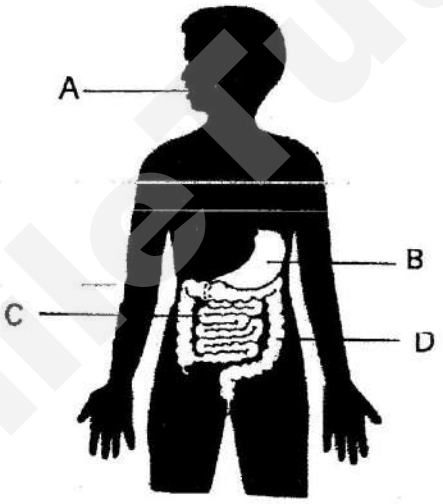
16. The bar graph below shows the amount of undigested food as it leaves each organ of the human digestive system.




Which one of the following parts identifies part W in the graph above?

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



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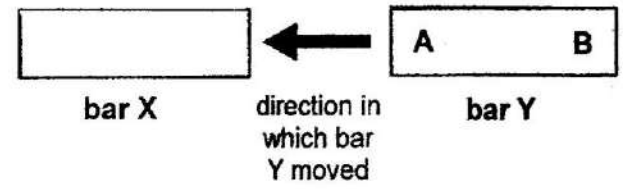
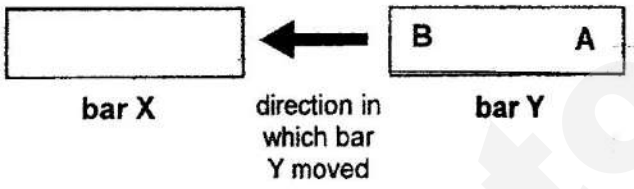
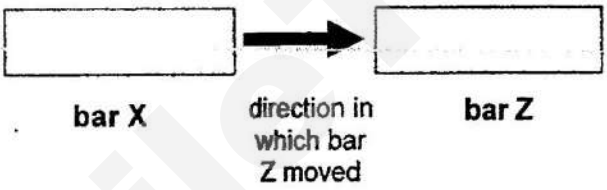
17. Shaun wanted to find out the magnetic properties of three metal bars, X, Y and Z. He placed one end of bar X to poles A and B of bar Y, one at a time. He observed that bar Y moved towards bar X.




Shaun placed one end of bar X next to one end of bar Z. She observed that bar Z moved away from bar X.




Based on the information above, which of the following conclusions that Shaun made were correct?

A Bar Y is a magnetic material.
B Only bars X and Z are magnets.
C Bar X will repel both ends of bar Y.
D Bar Z will repel both ends of bar Y.

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



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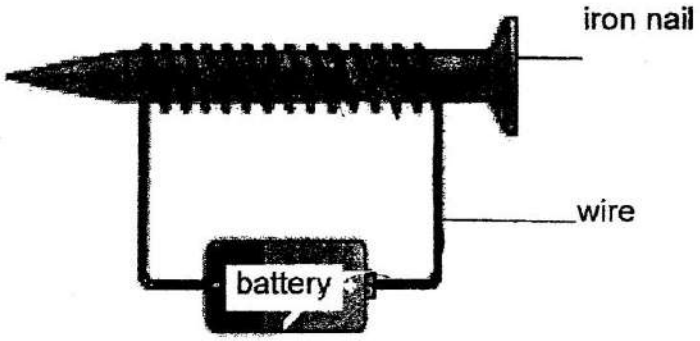
18. Using the set-up shown below, Ken wanted to find out if the number of batteries affects the strength of an electromagnet.




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

A material of nail used
B thickness of wire used
C number of batteries used
D number of coils around the nail

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



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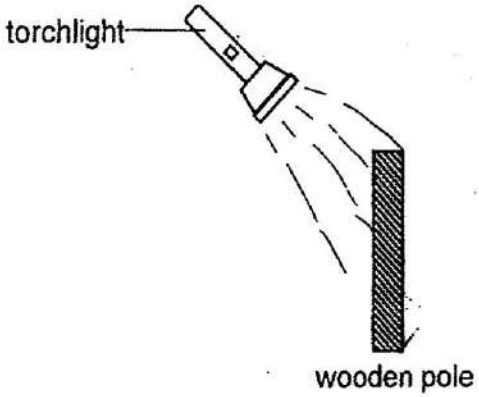
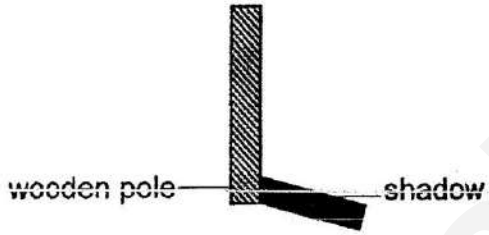
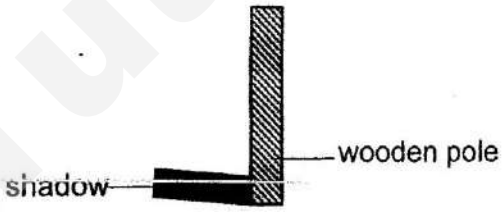
19. Yong Kang conducted an experiment in a dark room. He shone a torchlight at a wooden pole as shown in the diagram below.



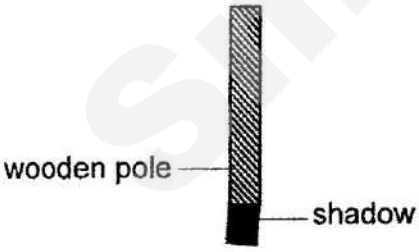

Which one of the following is the shadow that Yong Kang would observe?



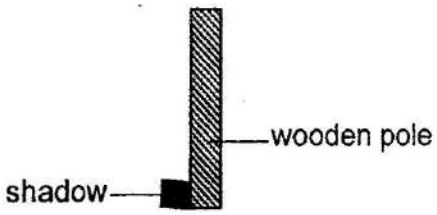

(1)




(2)




(3)




(4)



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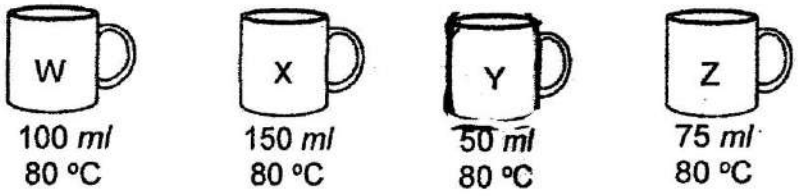
20. Four identical cups, W, X, Y and Z, were filled with different amount of coffee and placed on a table in the classroom as shown below.

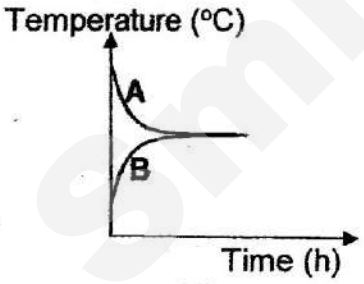



Which cup of coffee will cool to room temperature first?

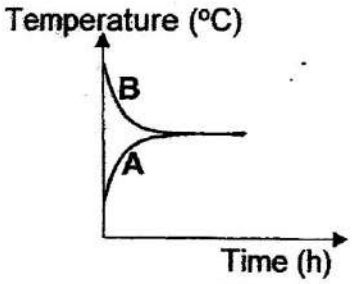
(1) W
(2) X
(3) Y
(4) Z

21. Mrs Ho brought two identical boxes, A and B, to a class party as shown below.

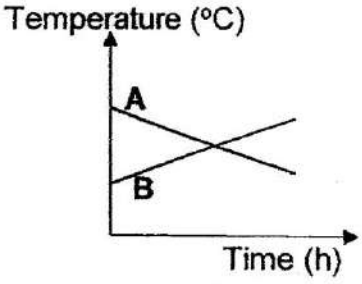
Based on the above set-ups, which of the following graph correctly show the change in temperature of the items inside the two boxes after 2 hours?



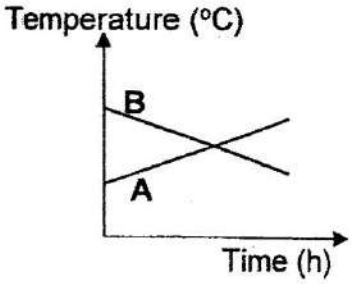
(1)



(2)



(3)



(4)



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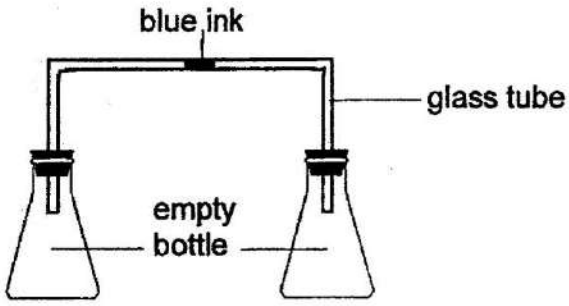
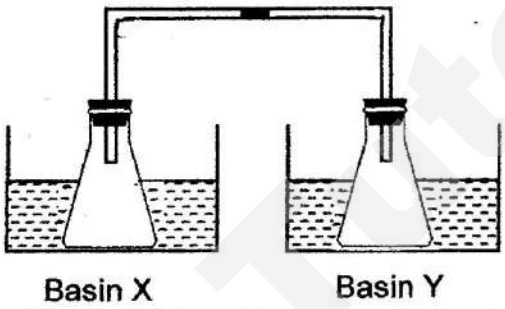
22. Danny connected two identical bottles with a glass tube. The glass tube contains a drop of blue ink as shown below.




The two bottles were placed into Basin X and Basin Y as shown below. Basin X and Basin Y have the same amount of water at different temperature.




Which of the following is correct?

| | Temperature of water in Basin X | Temperature of water in Basin Y | Direction of the movement of the ink |
|---|---|---|---|
| (1) | 90 °C | 10 °C | → |
| (2) | 90 °C | 10 °C | ← |
| (3) | 40 °C | 20 °C | ← |
| (4) | 10 °C | 40 °C | → |



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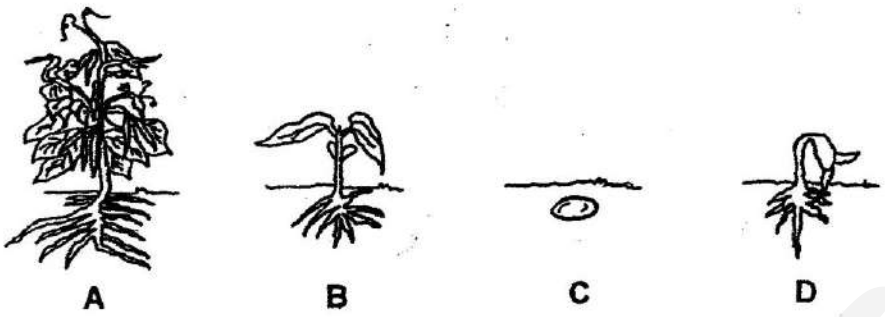
23. The diagram below shows the different stages in the life cycle of a plant.




Arrange the stages in the correct order to show the life cycle of a plant.

(1) A → B → D → C

(2) B → D → C → A

(3) C → D → B → A

(4) D → C → A → B

24. The table below shows what a pupil observed about the life cycle of an insect.

| Date | Observation |
|---|---|
| 10 March | Eggs were laid. |
| 11 March | Eggs hatched into larvae. |
| 18 March | Some larvae became pupae. |
| 22 March | Some pupae became adults. |

Which one of the following statement about the insect is **false**?

(1) The insect lays eggs.
(2) The insect spends most of its life as a pupa.
(3) The insect has a similar life cycle as the butterfly.
(4) The insect has three body parts and six legs in its adult stage.



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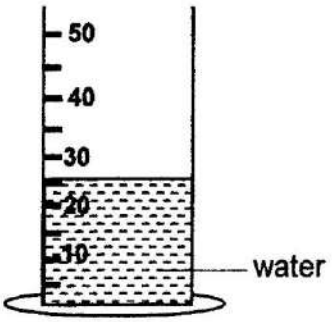
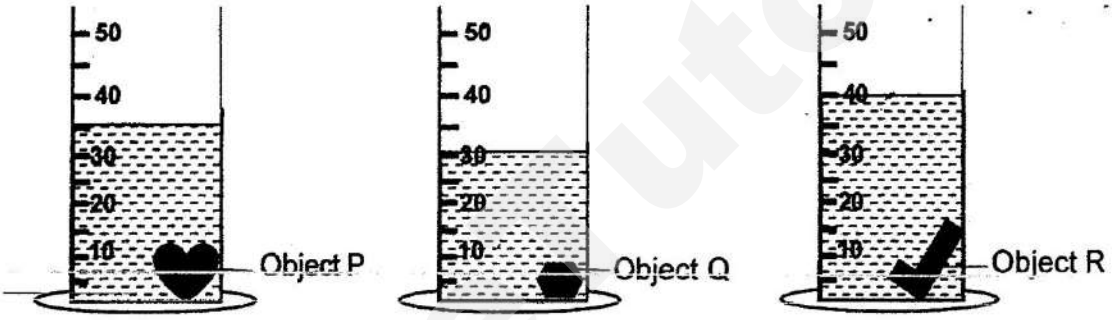
25. Kailing poured 25 ml of water into each of the three containers as shown in the diagram below.




She added one object into each of the three containers as shown below.




Based on the above observation, which of the following conclusion(s) is/are **correct?**

**A** Object R has the largest volume.
**B** Object Q and Object R has the same volume.
**C** Object P has a greater volume than Object Q.

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



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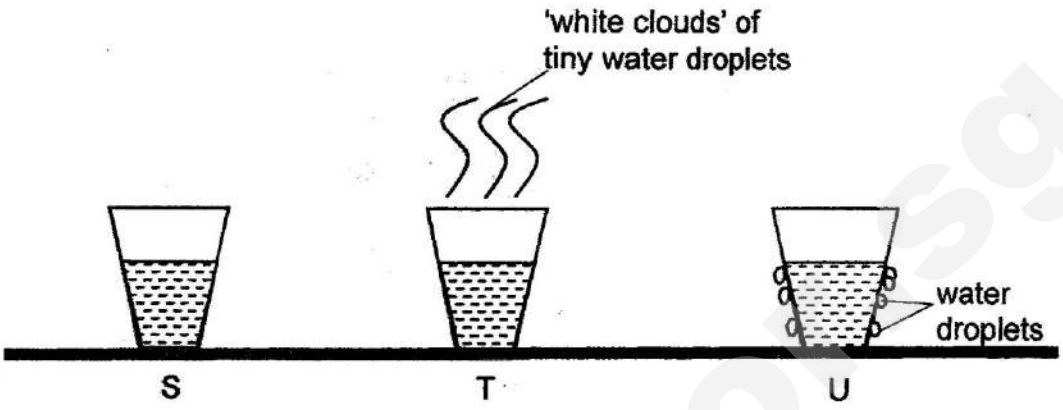
26. Carrie poured 100 ml of water at different temperature into three identical cups, S, T and U. She left the three cups of water on the table at room temperature.

The diagram below shows what she observed after 5 minutes.




Arrange the cups according to the temperature of the water in the cups, starting from the highest temperature to the lowest temperature.

(1) U, S, T
(2) S, U, T
(3) S, T, U
(4) T, S, U

27. Which of the following is/are way(s) we can conserve water?

A Take shorter showers.
B Collect rain water to wash the corridors.
C Use a hose to wash the car instead of a pail.

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



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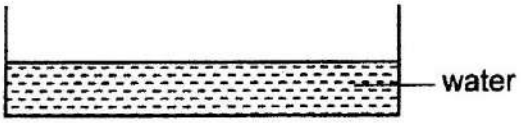
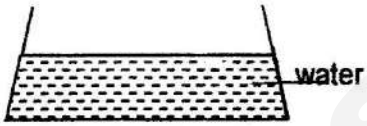
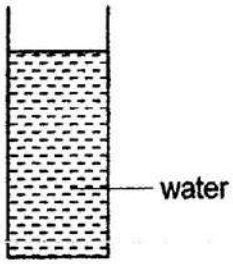
28. Muthu poured the same amount of water into four containers made from the same material. Which container will have the most amount of water left after three hours?



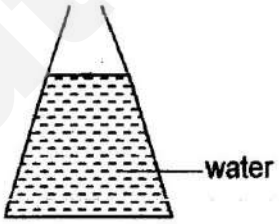

(1)




(2)




(3)




(4)

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**NAN HUA PRIMARY SCHOOL**
**SEMESTRAL ASSESSMENT 2 – 2018**
**PRIMARY 4**

**SCIENCE**

**BOOKLET B**

**12 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** |

**Name:** _____ ( ) **Class: P 4** _____

**Date: 1 November 2018** **Parent's Signature:**_____

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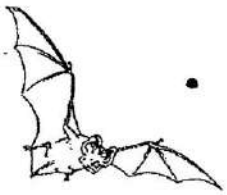
**Section B: (44 marks)**
Write your answers to questions 29 to 40 in the space provided.
The number of marks allocated is shown in brackets [ ] at the end of each question or part of the question.

29 (a) Draw lines to match the following animals to the correct groups. [2]

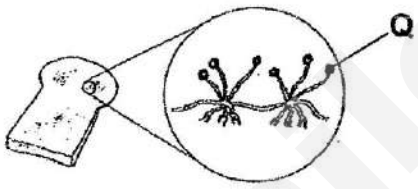
**Animals**



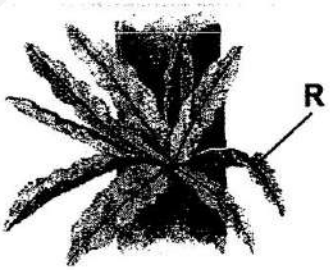
**Groups**

- bird
- fish
- mammal

(b) The diagram below shows two living things, Q and R.




Magnified view of Q under microscope




Put a tick (✓) in the correct box to show the group each living thing belongs to. [2]

| Living Thing / Group | Q | R |
|---|---|---|
| Fungi | | |
| Bacteria | | |
| Plant | | |

| Score | / 4 |
|---|---|



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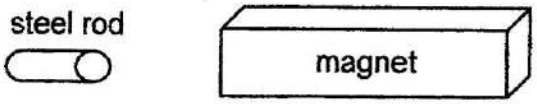
30.




(a) Susan places a magnet near a steel rod. The steel rod moves towards the magnet.

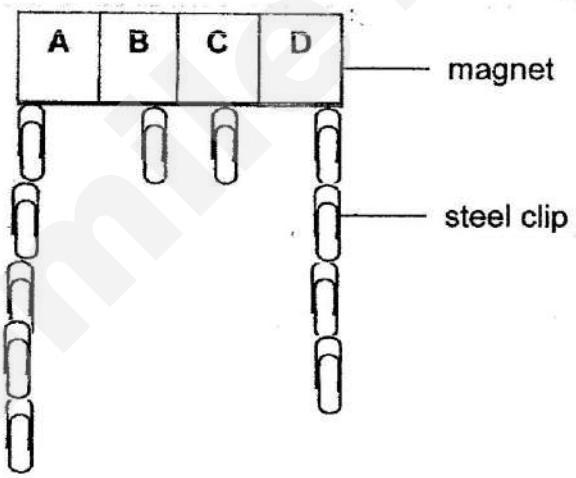
The magnet exerts a _____ on the steel rod. [1]

(b) Choose the correct word from the box to answer the question below. [1]

| strong | non-magnetic | magnetic |
|---|---|---|

Susan's observation shows that steel is a _____ material.

(c) Susan placed the magnet above a tray containing some steel clips. The diagram below shows her observation.




Why did Parts A and D attract more steel clips than Parts B and C? [1]

_____

_____



Score 3

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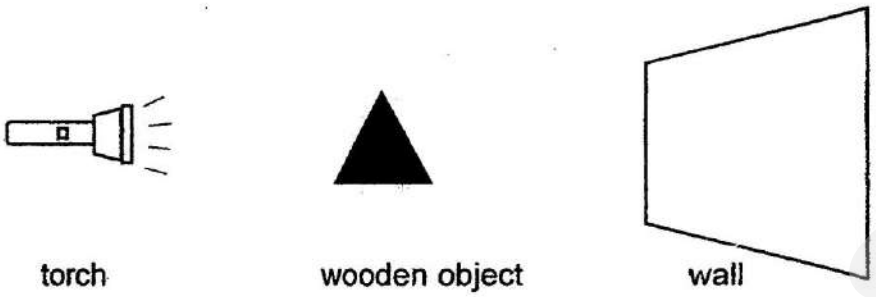
31. Alice shines a light on a wooden object and a shadow is formed on the smooth wall.



torch wooden object wall

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

(b) Draw the shadow of the wooden object that is formed on the wall in the box below. [1]

(c) Andy is doing his homework in his room.

ceiling light

Explain why Andy is able to see his worksheet on the table. [1]

_____

_____



Score / 3

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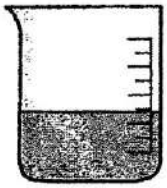
32. The diagram below shows a beaker of water.



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

| | | |
|---|---|---|
| solid | gas | increases |
| decreases | remain unchanged | |

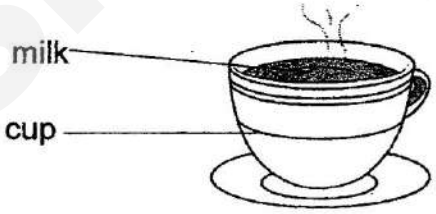
(a) When heat is supplied to the water, its temperature _____. [1]

(b) The beaker of water is put into a freezer. After some time, the water will change its state to become _____. [1]

Circle the correct answer in the brackets below.

(c) When the temperature of the water in the beaker decreases, the water has (**gained** / **lost**) heat. [1]

33. The picture below shows a cup of milk.




Circle the correct states for the following things.

(a) cup : solid / liquid / gas [1]

(b) milk : solid / liquid / gas [1]

| Score | / 5 |
|---|---|



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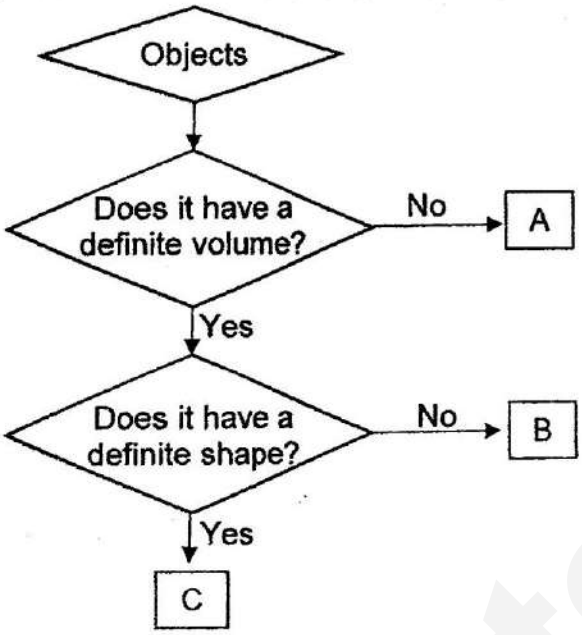
(c) Study the flowchart below.




What states of water would A and C represent?
Circle the correct answers. [2]

A : water / ice / water vapour

C : water / ice / water vapour

| Score | / 2 |
|---|---|



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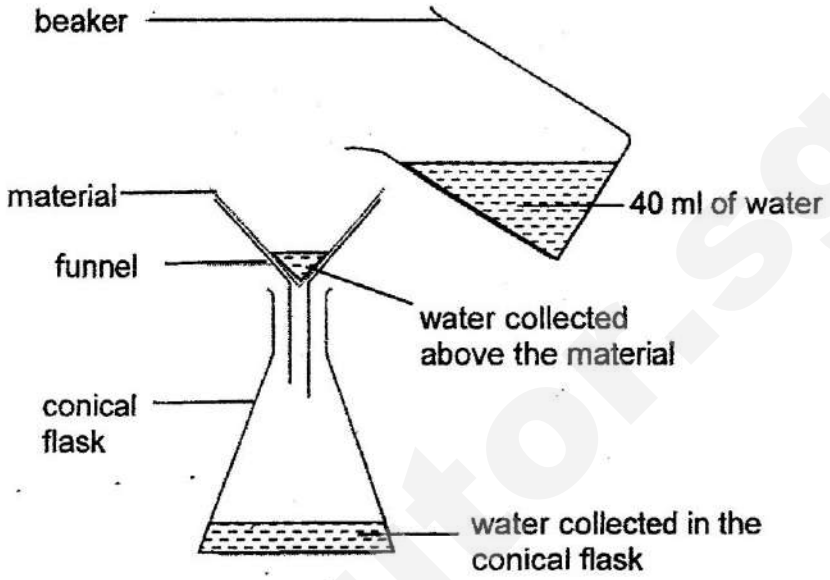
34. Winnie had 3 different pieces of materials, P, Q and R, of similar size and thickness. She poured 40 ml of water onto each material as shown in the diagram below.




After 5 minutes, she recorded the amount of water collected in the conical flask and the amount of water collected above the material as shown in the table below.

| Material | Amount of water collected in the conical flask (ml) | Amount of water collected above the material (ml) |
|---|---|---|
| P | 40 | 0 |
| Q | 6 | 0 |
| R | 0 | 40 |

Based on the information above, answer the following questions:

(a) Which material, P, Q or R, is most suitable to be made into a bath towel? Give a reason for your answer. [1]

_____

_____

| Score | / 1 |
|---|---|



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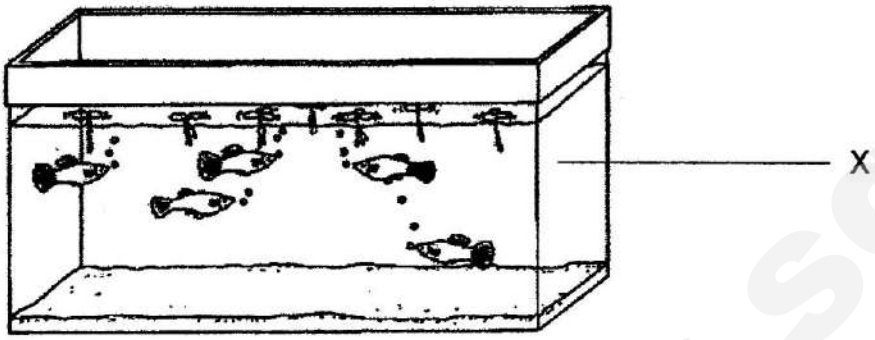
(b) The diagram below shows Part X of a fish tank that is made from one of the materials, P, Q or R.




Based on the information in the table, which material, P, Q or R, is most likely used to make part X? Give a reason for your answer. [1]

_____

_____

(c) Besides the property mentioned in (b), state two other properties that the material used to make Part X of the aquarium must have. [2]

_____

_____

| Score | /3 |
|---|---|



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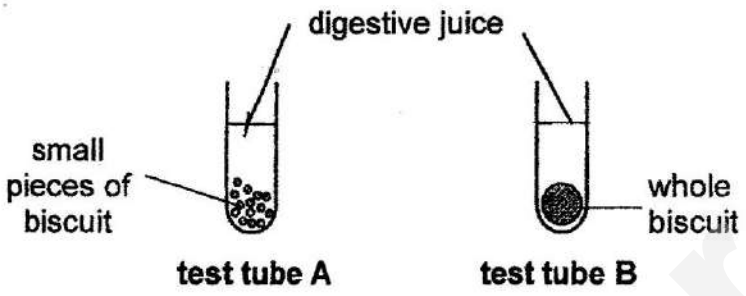
35. Jordan wanted to find out if the surface area of food affects the rate of digestion. He cut one biscuit into many small pieces and placed them in test tube A. He then placed a whole biscuit in test tube B and added some digestive juice to each test tube as shown in the diagram below.




(a) State a variable that must be kept constant in order for Jordan to conduct a fair test. [1]

_____

(b) If Jordan had conducted a fair test, in which test tube, A or B, would the biscuit be broken down more quickly? Explain your answer. [1]

_____

_____

(c) Explain how chewing helps in the digestion of food after it enters the body. [2]

_____

_____

_____

| Score | / 4 |
|---|---|



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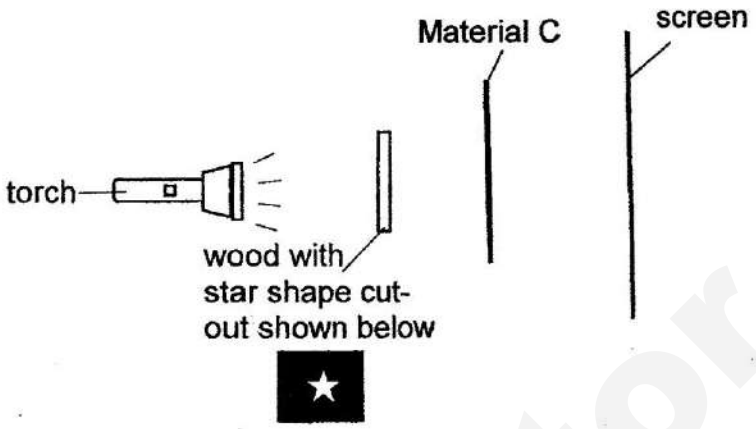
36. Jenny wanted to find out the amount of light which can pass through three different materials C, D and E.

She set up her experiment as shown in the diagram below using Material C and then repeated the experiment with Material D and E.




She also measured the brightness of any star-shaped image formed on the screen with a light sensor and recorded her results as shown below.

| **Material** | C | D | E |
|---|---|---|---|
| Amount of light detected by the light sensor | 40 units | 0 units | 35 units |

Based on the results above, answer the following questions.

(a) Which one of the materials, C, D or E, allows the most light to pass through? [1]

_____

(b) Jenny wanted to wrap a birthday present for her mother. She did not want her mother to know what the present is until her birthday.

Which one of the materials, C, D or E, should she use to wrap the birthday present? Give a reason for your choice. [2]

_____

_____

(c) How can Jenny make the shadow of the wood on the screen bigger without moving the screen? [1]

_____

| Score | / 4 |
|---|---|



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37. Ronnie wanted to find out which material can keep soup warm for a longer period of time.

He used two bowls of the same size, Bowl X and Bowl Y. Bowl X is made of plastic and Bowl Y is made of steel.

He poured the same amount of hot water into each bowl and left it on the table. Then he measured the temperature of the water in each bowl over 30 minutes.

Bowl X

Bowl Y

(a) Write **X** or **Y** in the table below to show the results for each bowl correctly. [1]

| Bowl | Temperature (°C) at | | |
|---|---|---|---|
| | 0 min | 15 min | 30 min |
| | 80 | 59 | 40 |
| | 80 | 63 | 56 |

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

_____

_____

(c) After 60 minutes, he measured the temperature of the water in both bowls again and found that temperature of water in both bowls is 28°C. Explain why the water in both bowls remained at 28°C. [1]

_____

_____

| Score | / 4 |
|---|---|



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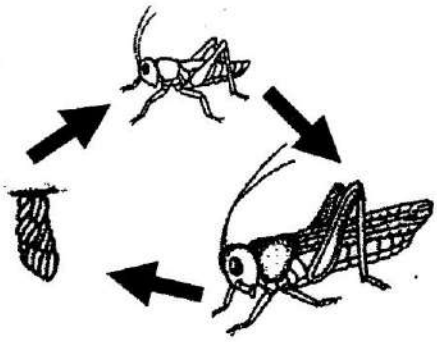
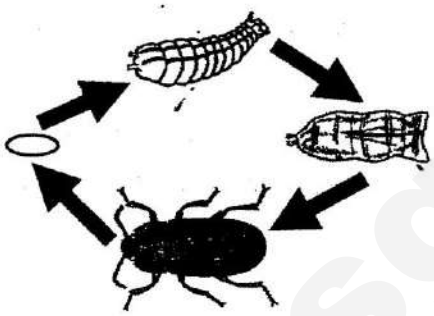
38. The diagram below shows the life cycle of Animal S and Animal T.



Life cycle of Animal S



Life cycle of Animal T

(a) Based on the diagram above, state **two** differences between the life cycles of Animal S and Animal T. (Do not name the stages present) [2]

_____

_____

_____

_____

(b) Name an insect that goes through a similar life cycle as Animal S and Animal T respectively. [2]

Animal S : _____

Animal T : _____

| Score | / 4 |
|---|---|



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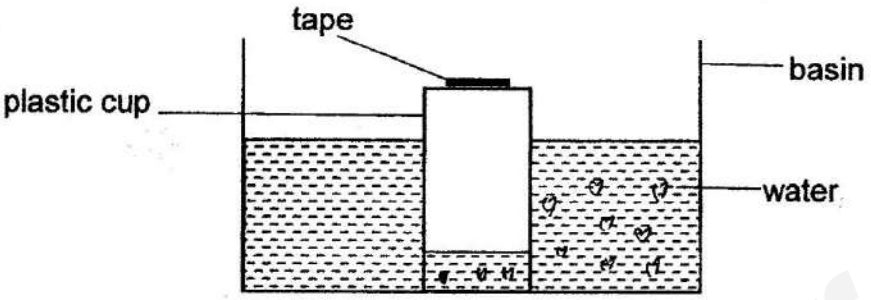
39. Ling Ling made a hole at the base of a plastic cup and then she used a piece of tape to cover the hole. When she pushed the inverted cup into the basin of water, only a small amount of water entered the cup as shown in the diagram below.




(a) Explain why only a small amount of water can enter the cup. [1]

_____

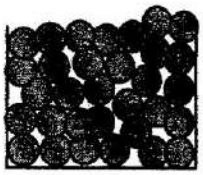
_____

(b) What will happen to the water level in the cup if she removes the tape from the cup? Explain your answer. [2]

_____

_____

(c) A container was completely filled with marbles as shown in the diagram below.



Some water was poured into the container to fill up the spaces between the marbles.

What property of water allows the water to fill up the air spaces between the marbles? [1]

_____

_____

| Score | / 4 |
|---|---|



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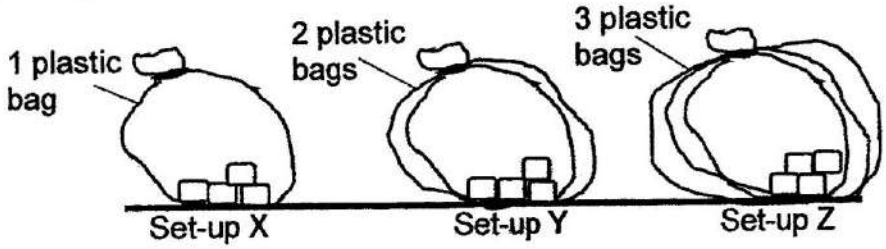
40. Adam prepared three set-ups, X, Y and Z, using ice cubes of identical sizes. The ice cubes in X, Y and Z were wrapped with different number of plastic bags as shown below.




Adam recorded the time taken for all the ice cubes to turn into water below.

| Set-up | Time taken for ice cubes to turn into water completely (min) |
|---|---|
| X | 30 |
| Y | 45 |
| Z | 60 |

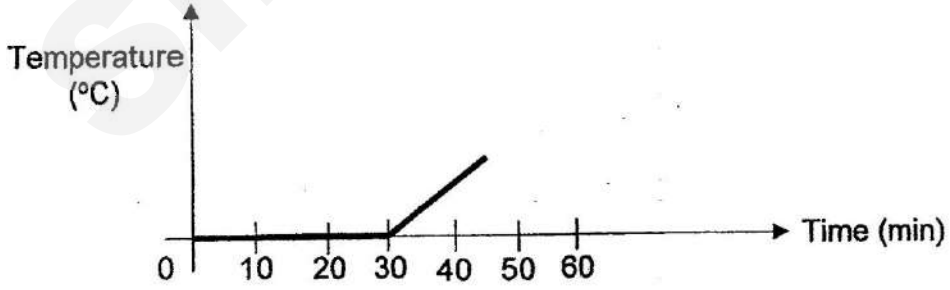
(a) Identify the independent variable (variable changed) and dependent variable (variable measured) in the experiment. [2]

Independent variable (variable changed) :

_____

_____

(b) Adam drew the graph below to show the change in temperature of the ice cubes in Set-up X.




Why did the temperature of the ice cubes remain at 0°C during the first 30 minutes? [1]

_____

_____

~ End of paper ~

Score 3



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# ANSWER KEY

**YEAR : 2018**
**LEVEL : PRIMARY 4**
**SCHOOL : NAN HUA PRIMARY SCHOOL**
**SUBJECT : SCIENCE**
**TERM : SA2**

**BOOKLET A**

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

**BOOKLET B**

**Q29a)**

**b)**

| Group/Living thing | Q | R |
|---|---|---|
| Fungi | ✓ | |
| Bacteria | | |
| Plant | | ✓ |

**Q30a) The magnet exerts a magnetic force on the steel rod**

**b) Susan's observation shows that steel is a magnetic material.**

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**c)Parts A and D attract more steel clips than parts B and C because magnets are strongest at its poles.**

**Q31)a) A shadow is formed when light is blocked by an object.**

**b)**

**c)Andy is able to see his worksheet as the worksheet reflects light from the ceiling light into his eyes.**

**Q32**

**a) When heat is supplied to the water , its temperature increases.**

**b) The beaker of water is put into a freezer. After some time, the water will change its state to become solid**

**c) When the temperature of the water in the beaker decreases, the water has lost heat.**

**Q33)a) cup: solid**

**b)milk:liquid**

**c)A:water vapour**

**B: ice**

**Q34)a) Material Q. Because material Q absorbed the most amount of water**

**b) Material R. Material R is waterproof so the water will not leak out of the tank.**

**c) The aquarium must be transparent and strong**

**Q35)a) The amount of digestive juice**

**b)Test tube A. The smaller piece of the biscuit have a greater surface area in contact with the digestive juices, so the digestion of biscuit take place quicker.**

**c)During chewing , food is broken into smaller pieces and more surface area of the food comes into contact with the digestive juices. As a result , food is broken down into simpler substances faster.**



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Q36)a) Material C

b)D.D is opaque and does not let any light pass through so Jenny 's mother will not be able to see the present

c) Move the torch nearer to the wood

Q37)a)

| Bowl | Temperature (°C) *at* | | |
|---|---|---|---|
| | 0 min | 15 min | 30 min |
| Steel | 80 | 59 | 40 |
| Plastic | 80 | 63 | 56 |

b)Bowl Y is made of steel, a better conducter of heat than plastic, so the water will lose heat faster to the surrounding in the steel bowl and have a lower temperature

c) 28 °C is the room temperature.

Q38)a) The young of S resembles the adult but the young of T does not resemble the adult.

b) Animal S:cockroach

Animal T: butterfly

Q39)a)Air occupies space inside the cup and cannot escape. So only a small amount of water can enter as air can be compressed.

b)It will rise. There will be spaces for air to escape and water to take over the space previously occupied by the air.

c) Water does not have a definite shape

Q40)a)

Independent variable: Amount of plastic bags wrapped around the ice cubes.

Dependent variable:Time taken for ice cube to turn into water completely

b)The ice was melting

THE END



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# NANYANG PRIMARY SCHOOL

**PRIMARY 4 SCIENCE**

**SEMESTRAL ASSESSMENT TWO**
**2018**

**BOOKLET A**

**Date : 29th October 2018**
**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 17 printed pages including this cover page.**



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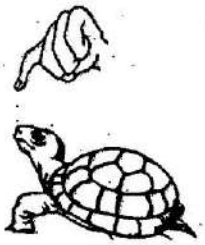
**Section A (28 x 2 marks = 56 marks)**
For each question from 1 to 28, four options are given. One of them is the correct answer. Indicate your choice and **shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.**

1. A tortoise hides itself in its shell when touched.



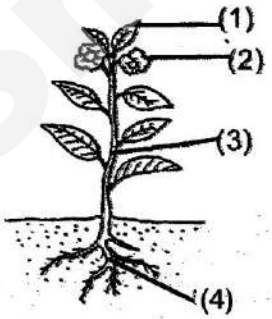
This shows that the tortoise is a living thing because it can _____.

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

2. Which one of the following statements is true for ALL insects?

(1) They have tails.
(2) They have a pair of wings.
(3) They have three body parts.
(4) They have a soft outer covering.

3. The diagram shows a plant.
Which part, (1), (2), (3) or (4), is the root?



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

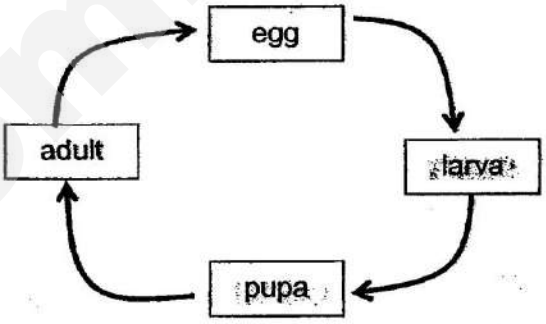
(1)
stomach → large intestine → small intestine

(2)
large intestine → stomach → small intestine

(3)
stomach → small intestine → large intestine.

(4)
small intestine → large intestine → stomach

5. 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) butterfly
(3) cockroach
(4) grasshopper



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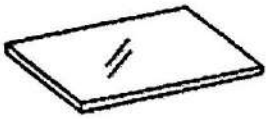
6. Which one of the following objects can be attracted by a magnet?

(1) Iron ball
(2) Plastic ball
(3) Rubber ball
(4) Wooden ball

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

(1) A sheet of glass



(2) A metal spoon

(3) A towel

(4) A wooden ruler

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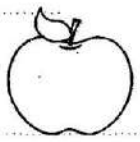
8. Which one of the following is a source of light?

(1) 

an apple

(2)

the moon

(3)

a lit candle

(4)

a leaf

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

(1) A metal ring
(2) A lighted bulb
(3) A woollen cap
(4) A cotton sock

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

(1) air
(2) oil
(3) stone
(4) water



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11. Ganesh classified some things as shown in the table below.

| Living things | Non-living things |
|---|---|
| rabbit | pen |
| bicycle | shirt |
| apple tree | water bottle |

His teacher identified that the bicycle has been wrongly classified.

Which of the following statements about living things correctly explained why Ganesh was wrong?

A All living things can grow.
B All living things can reproduce.
C All living things need air, food and water to survive.
D All living things can move from one place to another.

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

12. Which of the following statements about plants are correct?

A All plants have roots.
B All plants have stems.
C All plants have leaves.
D All plants reproduce by seeds.

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

13. Study the table below.
A tick (✓) shows that the animal has the characteristic.

| | Animals | | |
|---|---|---|---|
| Characteristic | P | Q | R |
| Has scales | | | ✓ |
| Has feathers | | ✓ | |
| Has moist skin | ✓ | | |
| Reproduce by laying eggs | ✓ | ✓ | ✓ |

Which of the following correctly represent animals P, Q and R?

| | Animal P | Animal Q | Animal R |
|---|---|---|---|
| (1) | owl | goldfish | salamander |
| (2) | toad | owl | goldfish |
| (3) | goldfish | crocodile | toad |
| (4) | salamander | toad | croco-dile |



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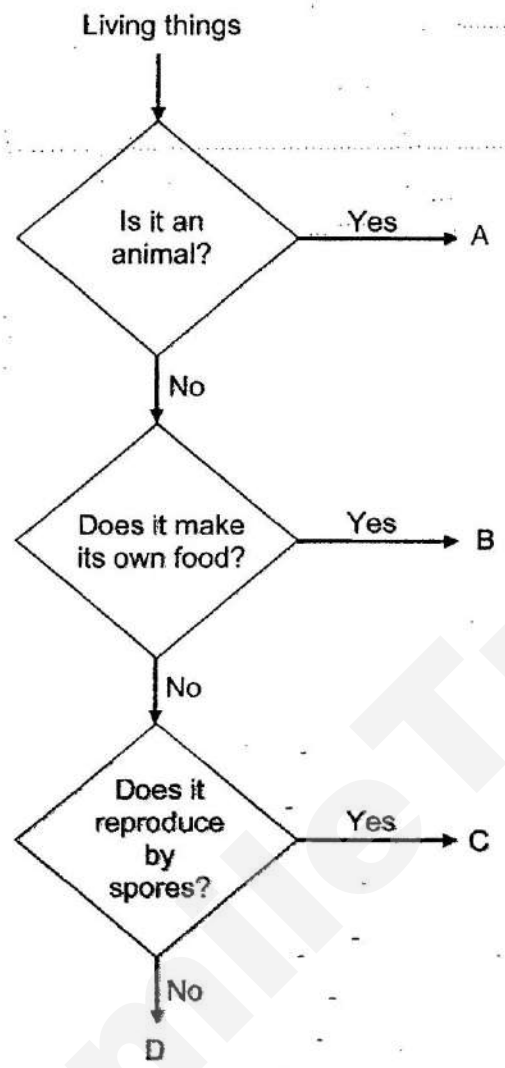
14. Study the flowchart below.




Based on the flowchart above, which one of the following correctly represents the mushroom and bird's nest fern?

| | mushroom | bird's nest fern |
|---|---|---|
| (1) | A | B |
| (2) | B | D |
| (3) | C | A |
| (4) | C | B |



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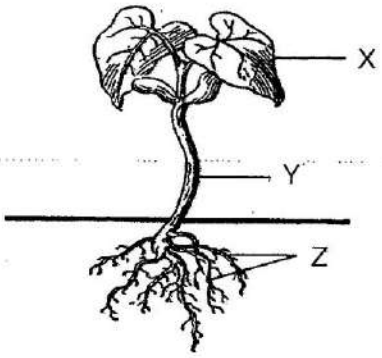
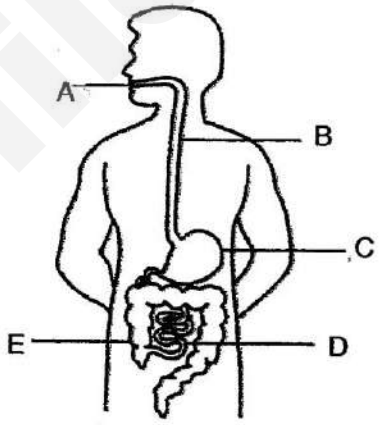
15. The diagram below shows a plant.




Which of the following represents the functions of parts X, Y and Z?

| | X | Y | Z |
|---|---|---|---|
| (1) | produces flowers | holds the plant upright | makes food for the plant |
| (2) | holds the plant upright | produces flowers | absorbs water and mineral salts |
| (3) | makes food for the plant | holds the plant upright | absorbs water and mineral salts |
| (4) | makes food for the plant | absorbs water and mineral salts | produces flowers |

16. The diagram below shows the human digestive system.




At which parts do digestion take place?

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



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17. Wei Jie made the following statements about the human organ system.

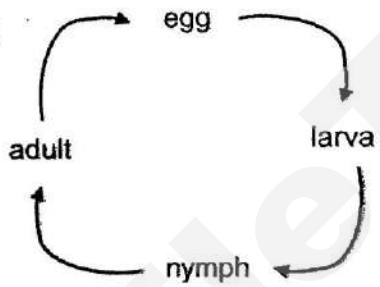
A The digestive system breaks down food into simpler substances.
B The skeletal system and the muscular system enable movement.
C The circulatory system carries digested food in the blood to all parts of the body.

Which of the statements above are correct?

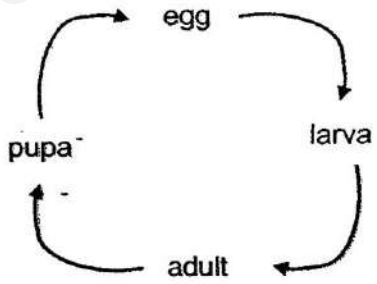
(1) A and B only
(2) A and C only
(3) B and C only
(4) A, B and C

18. The beetle has four stages in its life cycle. Which one of the following life cycle diagrams correctly shows the life cycle of a beetle?

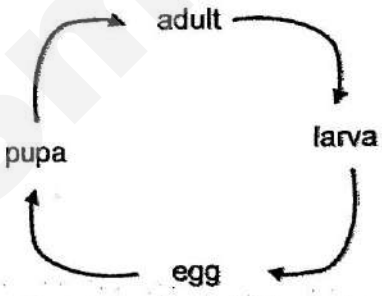
(1)



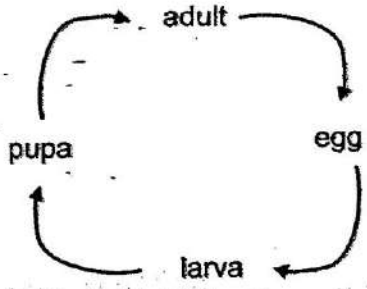

(2)




(3)




(4)



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19. Lucas observed animals X and Y over a period of time and recorded his observations in the table below.

| Observations | Animal X | Animal Y |
|---|---|---|
| It has four stages in its life cycle. | Yes | No |
| The young resembles the adult. | No | No |
| The eggs are laid in water. | Yes | Yes |
| The young moults several times. | Yes | No |

Which one of the following correctly represents animals X and Y?

| | Animal X | Animal Y |
|---|---|---|
| (1) | butterfly | chicken |
| (2) | mosquito | frog |
| (3) | cockroach | butterfly |
| (4) | beetle | grasshopper |



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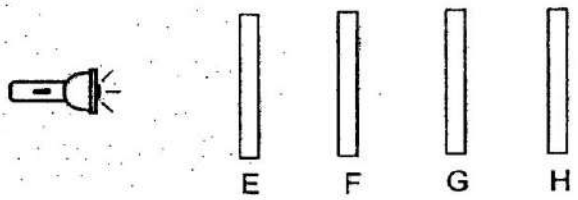
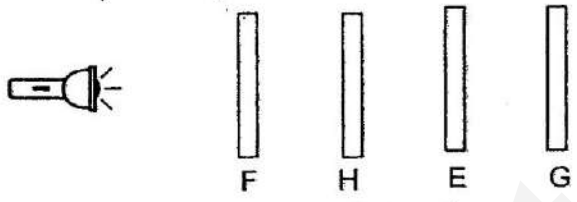
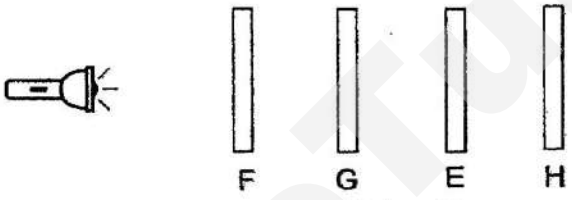
20. Elkan arranged four sheets, E, F, G and H, in a straight line as shown in set-ups 1, 2 and 3 below. The four sheets are of the same thickness and size, but they are made of different materials.




Set-up 1




Set-up 2




Set-up 3

He shone light of the same brightness at each set-up and recorded his observations in the table below.

| Set-up | Observation |
|---|---|
| 1 | A bright patch of light was only seen on sheet E. |
| 2 | A bright patch of light was only seen on sheet H. |
| 3 | A dim patch of light was only seen on sheet E. |

Based on Elkan's observations in the table above, which one of the following best represents the materials that were most likely used to make sheets E, F, G and H?

| | Sheet E | Sheet F | Sheet G | Sheet H |
|---|---|---|---|---|
| (1) | aluminium | clear plastic | cardboard | tracing paper |
| (2) | clear plastic | cardboard | frosted glass | clear glass |
| (3) | cardboard | clear plastic | frosted glass | aluminium |
| (4) | tracing paper | frosted glass | cardboard | clear glass |



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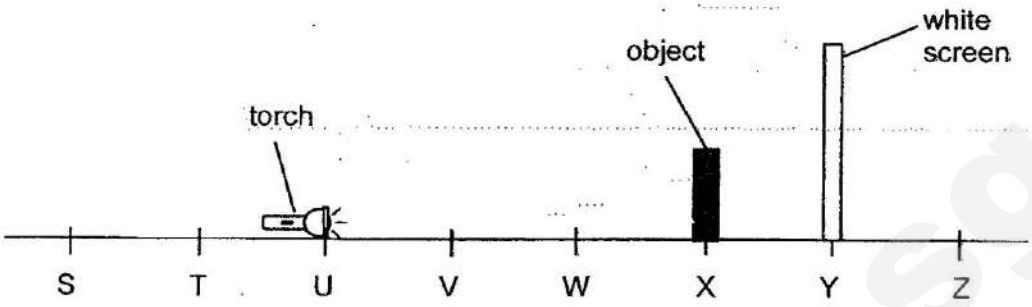
21. Meredith set up a torch, object and screen at positions U, X and Y respectively, as shown in the diagram below.




She recorded the height of the shadow formed on the white screen when the torch was switched on.

Which of the following positions could she use so that the shadow formed on the screen would be larger?

| | position of torch | position of object | position of white screen |
|---|---|---|---|
| A | V | Y | Z |
| B | T | V | W |
| C | S | V | X |
| D | W | X | Y |

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



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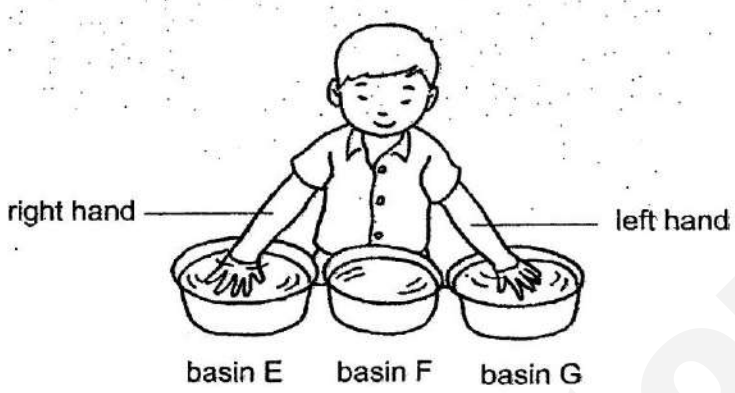
22. Wei Shen placed his right hand into the water in basin E and his left hand into the water in basin G at the same time.

After 30 seconds, he placed both his hand into the water in basin F, His right hand felt cool but left hand felt warm.




Which one of the following shows the possible temperatures of the water in the three basins, E, F and G?

| | Temperature of water (°C) | | |
|---|---|---|---|
| | **Basin E** | **Basin F** | **Basin G** |
| (1) | 12 | 24 | 45 |
| (2) | 24 | 12 | 45 |
| (3) | 45 | 24 | 12 |
| (4) | 12 | 45 | 24 |



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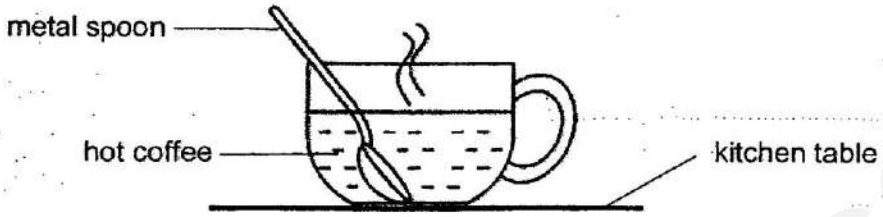
23. In his kitchen, at room temperature, Eugene placed a metal spoon into his cup of hot coffee as shownin the diagram below.

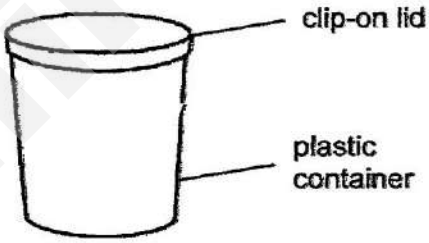



Which of the following correctly represents the flow of heat?

| | Heat flowed from | Heat flowed to |
|---|---|---|
| A | hot coffee | metal spoon |
| B | surrounding air | hot coffee |
| C | hot coffee | surrounding air |
| D | metal spoon | hot coffee |

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

24. Mei Lin has a 600 $cm^3$ plastic container with a clip-on lid as shown in the diagram below.




Which of the following matter can be totally placed into the plastic container and still allow Mei Lin to clip the lid on?

A Pour in 550$cm^3$ of milk
B Pump in 700$cm^3$ of oxygen
C Put in 6 wooden balls each with a volume of 100$cm^3$

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



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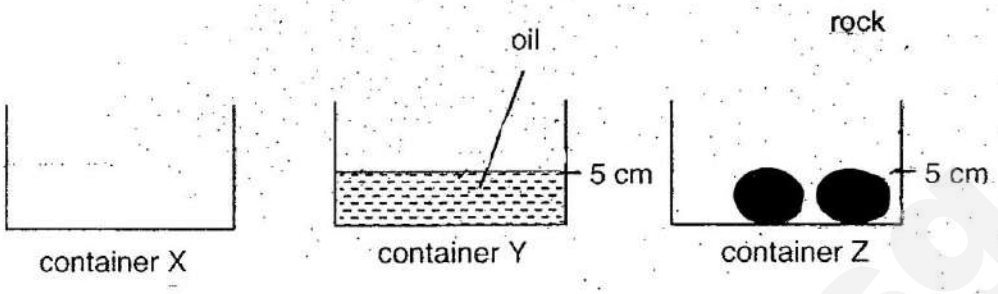
25. Colin set up three identical containers, X, Y and Z, as shown below.




He then used containers X, Y and Z to collect water from the same tap.

Which one of the following correctly shows the time taken for the containers to be filled to the brim with water?

| | **Time taken for the containers to be filled to the brim with water** |
|---|---|
| | shortest ⟶ longest |
| (1) | X, Y, Z |
| (2) | Y, Z, X |
| (3) | Z, X, Y |
| (4) | Z, Y, X |

26. Li Ting put her belongings in her handbag, closed it tight and went out. When it rained, she observed that all her belongings in her handbag were soaked with water.

Which of the following materials was her handbag most likely made of?

(1) Steel
(2) Cotton
(3) Plastic
(4) Rubber



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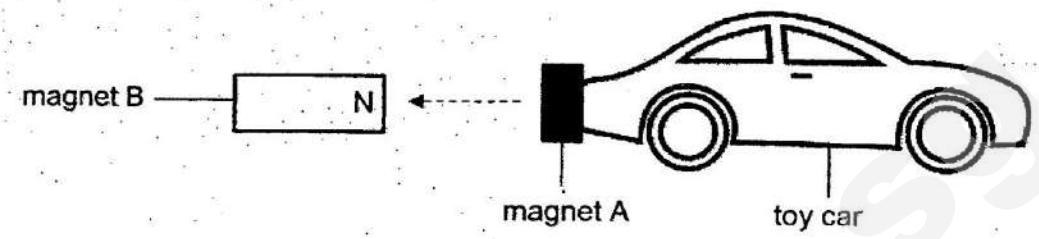
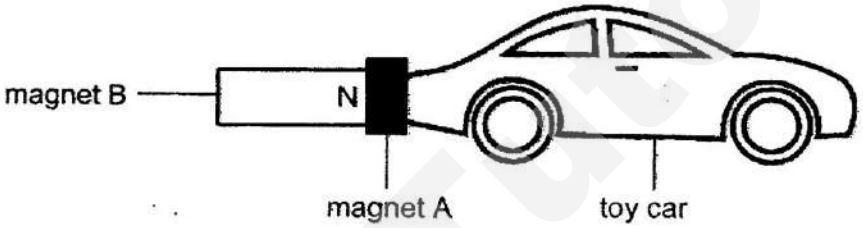
27. Marcus glued magnet A behind his toy car and held magnet B near it. He observed that the toy car moved backwards and was attracted to magnet B as shown below.




Before




After

Which one of the following should Marcus do in order to make his toy car move forward?

(1) Replace magnet B with a steel bar.
(2) Flip magnet B and hold it near magnet A.
(3) Move magnet B further away from magnet A.
(4) Stroke magnet B with an iron nail many times.



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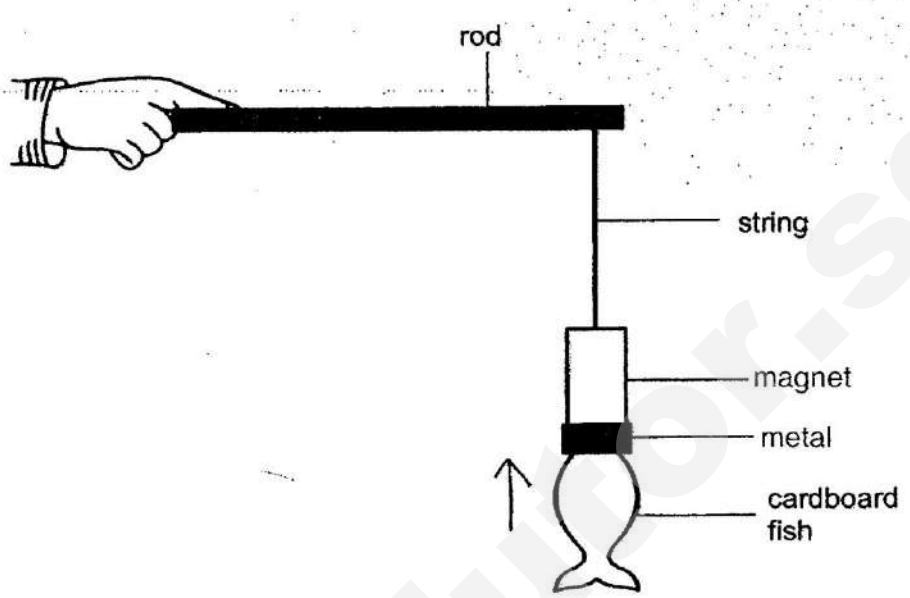
28. Farah attached a piece of metal to a cardboard fish. She then held a rod with a magnet attached to it above the cardboard fish. She made the following observation as shown below.




Which one of the following materials is most likely used to make the metal attached to the cardboard fish?

(1) Iron
(2) Gold
(3) Copper
(4) Aluminium



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# NANYANG PRIMARY SCHOOL

## PRIMARY 4 SCIENCE

## SEMESTRAL ASSESSMENT TWO
## 2018

**BOOKLET B**

**Date : 29th October 2018**
**Duration : 1 h 45 min**

**Name : _____ (  )**

**Class: Primary 4 (  )**

**Marks Scored:**

| | | |
|---|---|---|
| **Booklet A:** | | **56** |
| **Booklet B :** | | **44** |
| **Total :** | | **100** |

**Any query on marks awarded should be raised by 5th Nov 2018. 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 16 printed pages including this cover page.**



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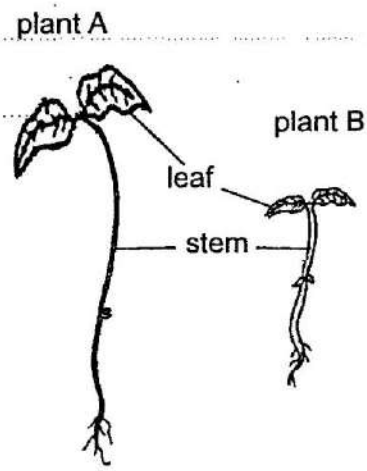
**Section B (44 marks)**
Write your answers to questions 29 to 41 in the spaces provided.

29. The diagram below shows two plants.

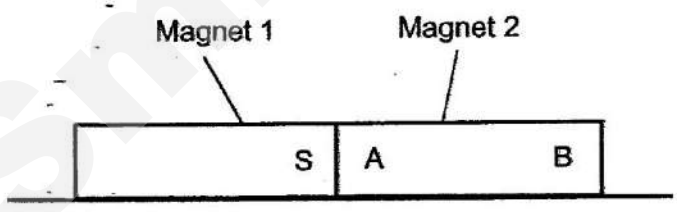



(a) What is one difference between the leaves of plant A and the stem of plant B?

The leaves of plant A is _____ than the leaves of plant B. [1]

(b) The _____ help both plants to keep themselves upright. [1]

30. Two magnets are placed together as shown below.




The south pole of magnet 1 is labelled S.

Identify the poles labelled A and B on magnet 2. [2]

A : _____

B : _____



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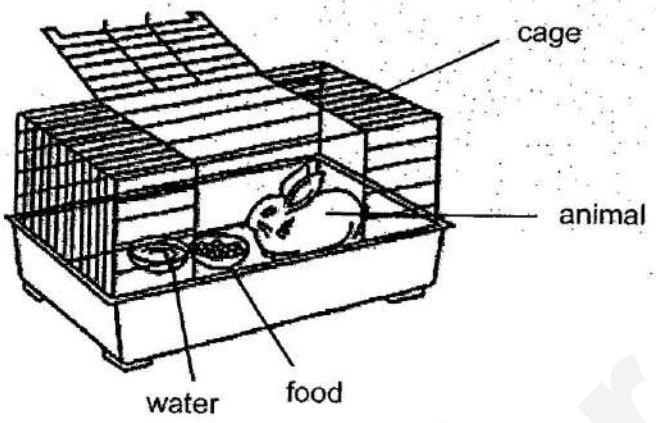
31. Study the diagram below.



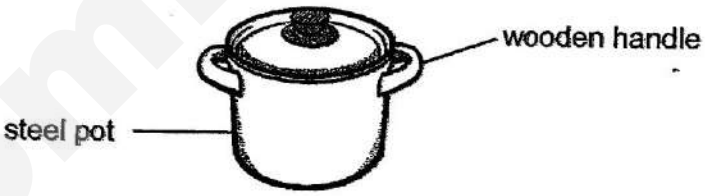

(a) After a few days, will the amount of food in the bowl increase, decrease or remain the same? [1]

_____

(b) Based on the diagram above, name one thing the animal needs to remain alive. [1]

_____

32. The diagram below shows a cooking pot.




(a) The handle is made of wood because it is a _____ conductor of heat. [1]

(b) The pot is made of steel because it is a _____ conductor of heat. [1]



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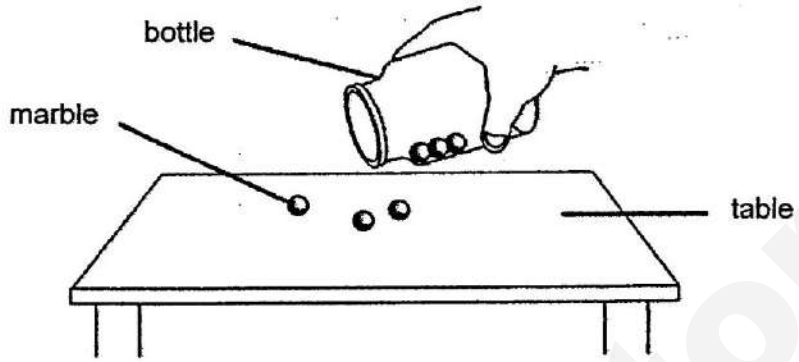
33. Choose the correct words from the box to fill in the blanks below.

| solid | liquid | gas |
|---|---|---|

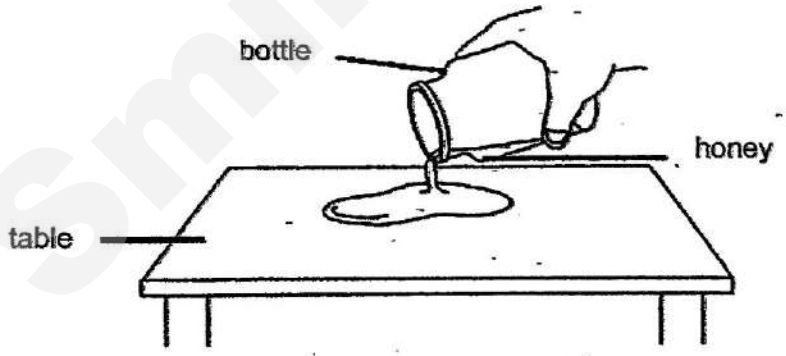
Ali pours some marbles from a bottle onto a table as shown below.




(a) The shape and volume of the marbles remain the same.

This shows that a marble is a _____ . [1]

Ali then pours honey from a bottle onto a table as shown below.




(b) The volume of honey remains the same but its shape changes.

This shows that honey is a _____ . [1]



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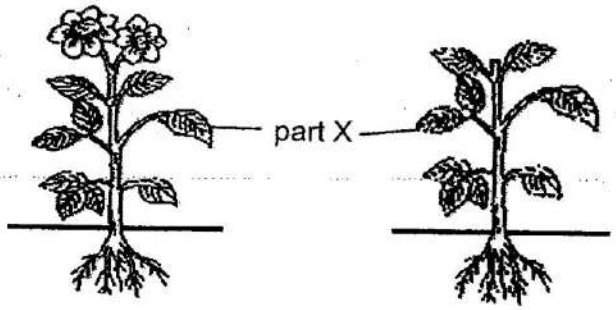
34. Study the diagrams below carefully.




plant A  plant B

(a) Based on the diagrams above, state one similarity between plant A and B. [1]

_____

_____

(b) State one function of part X. [1]

_____

_____

Study the list of plants below. Classify all the plants in the table below and give a suitable heading for the table. [2]

| sunflower plant | mango tree | bird's nest fern | moss |
|---|---|---|---|

| | |
|---|---|
| (c)(i) | |
| (c)(ii) | |



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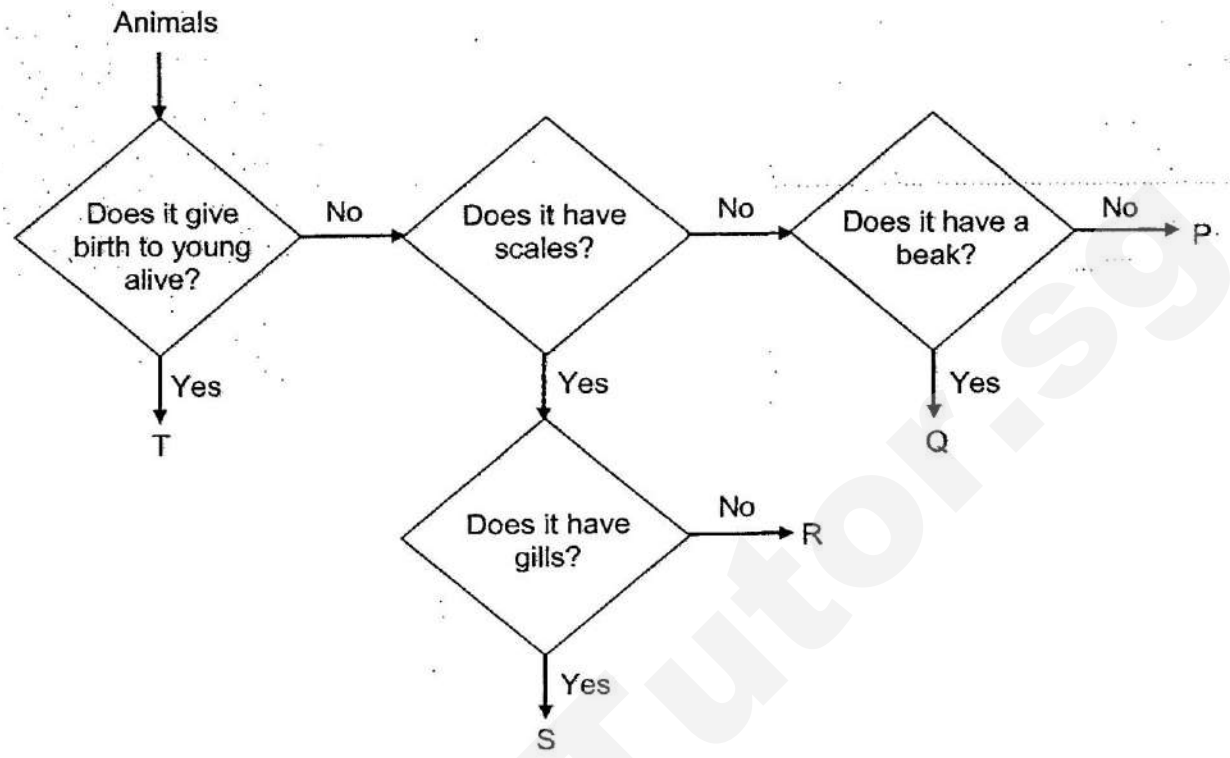
35. Study the flowchart below carefully.




(a) Based on the flowchart above, state **all** the characteristics of animal S. [1]

(b) Based on the flowchart above, state one difference between animal P and animal Q. [1]

(c) Based on the flowchart above, which animal group does animal R most likely belong to? [1]

(d) Based on the flowchart above, state an example of animal T. [1]



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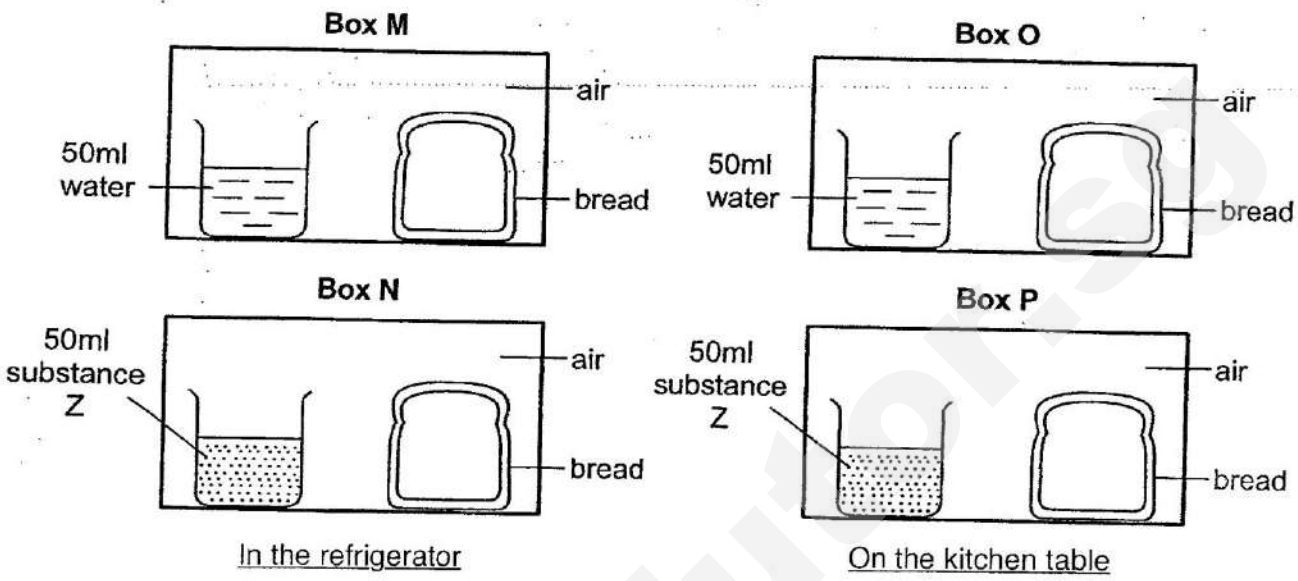
36. Mitchell conducted an experiment using identical slices of bread as shown below. He placed boxes M and N in the refrigerator and boxes O and P on the kitchen table. Substance Z absorbs water from the surrounding.




(a) In which box, M, N, O or P, would appear on the bread first? Explain your answer. [2]

(b) Which group of living things does mould belong to? [1]

(c) State how mould obtains food for growth. [1]



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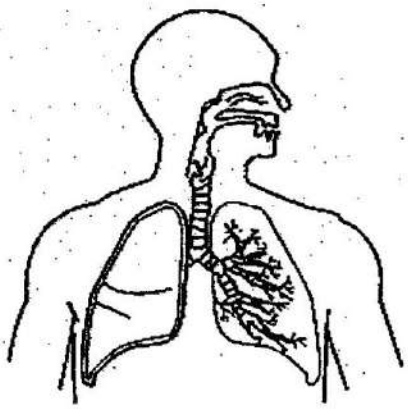
37. The diagram below shows a human organ system.



(a)(i) Identify the human organ system shown above. [1]

_____

(a)(ii) State the function of the the human organ system identified in (a)(i) [1]

_____

_____

Jamie ate a piece of biscuit. The piece of biscuit was digested in her digestive system.

(b)(i) State **all** the organs in the digestive system that carry out digestion. [1]

_____

(b)(ii) Digestion is completed in the small intestine. State **another** function of the small intestine. [1]

_____

_____



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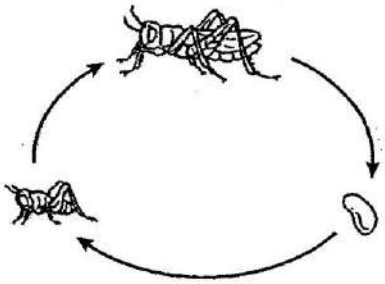
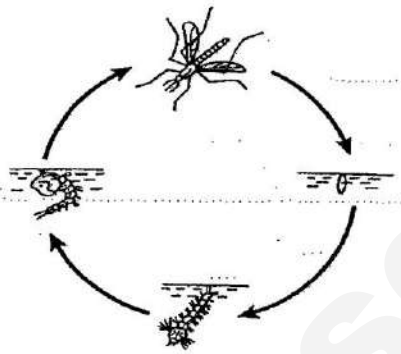
38. The diagrams below show the life cycles of a grasshopper and a mosquito.



grasshopper



mosquito

(a)(i) Based on the above life cycles, state one similarity between the two life cycles. [1]

_____

_____

(a)(ii) Based on the above life cycles, state one difference between the two life cycles. [1]

_____

_____

It was observed that the adult of mosquito Z spreads a deadly disease to human beings. Scientists carried out an experiment and kept mosquitoes Z at different temperatures. They recorded the time for them to complete their life cycles in the table below.

| Temperature (°C) | Time take to complete the life cycle (days) |
|---|---|
| 23 | 17 |
| 25 | 13 |
| 27 | 9 |

(b) State the relationship between the temperature of mosquito Z's surroundings and the time taken for it to complete its life cycle. [1]

_____

_____



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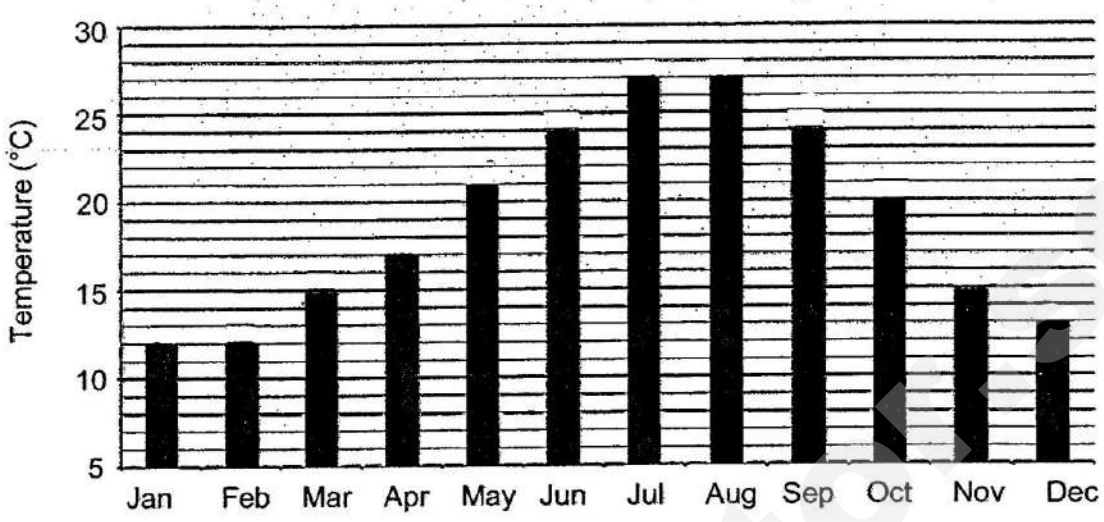
Mosquitoes Z are found in country Z. The table below shows the average monthly temperatures in country Z.




Average monthly temperature in country Z

(c) During which month(s) of the year would there be the least number of mosquitoes Z? [1]

_____

It was observed that in July and August, there was the highest number of people suffering from the deadly disease spread by mosquito Z.

(d) Based on the results of the scientists' experiment, explain the above observation. [1]

_____

_____

_____



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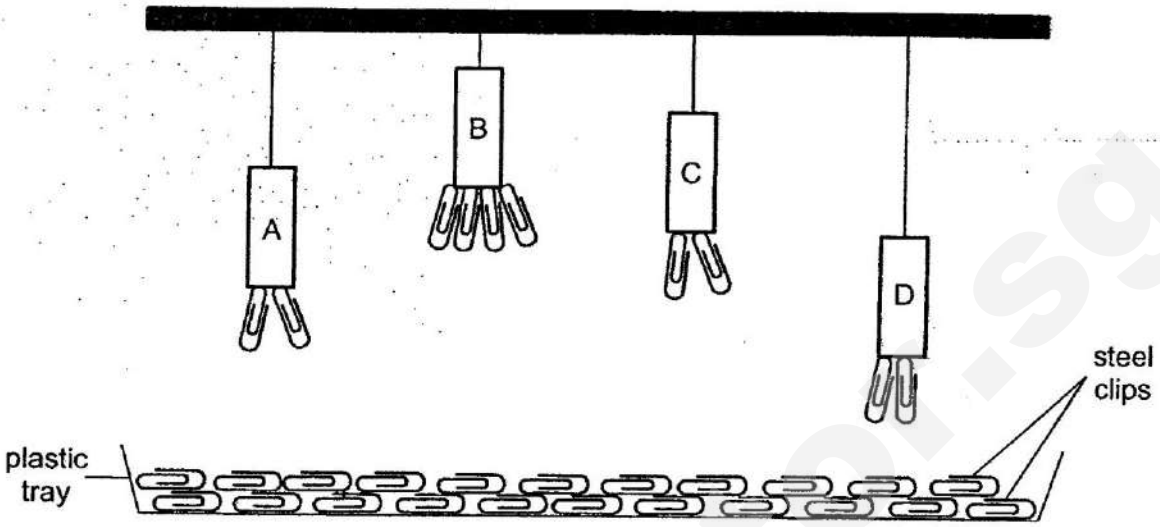
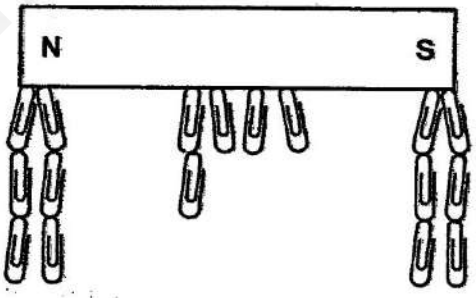
39. Tiffany hung four magnets, A, B, C and D, above a plastic tray of identical steel clips. The diagram below shows her observation.




(a) Based on her observation, arrange the magnets in the order of their magnetic strength, beginning with the strongest magnet. [1]

| Strongest → | | | Weakest |
|---|---|---|---|
| | | | |

Tiffany then placed magnet E into the plastic tray of steel clips and made the following observation.




(b) Give a reason why there were most steel clips attracted to the poles of the magnet. [1]

_____

_____



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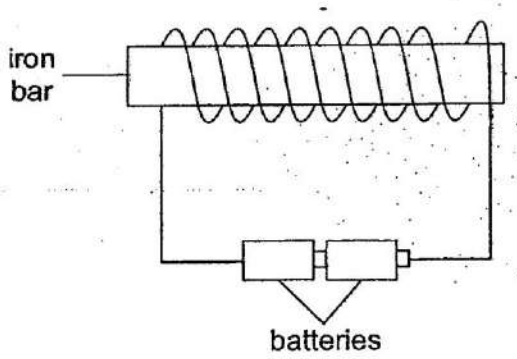
Tiffany then set up another experiment with an iron bar as shown below.




She then hung the iron bar above the same plastic tray of identical steel clips. She repeated the experiment with different number of coils of wire around the iron bar and recorded her results as shown in the table below.

| Number of coils of wire around the iron bar | Number of steel clips attracted by the iron bar |
|---|---|
| 10 | 3 |
| 15 | 6 |
| 20 | 12 |
| 25 | 18 |

(c)(i) Based on the results above, state the relationship between the number of coils of wire around the iron bar and the number of steel clips atracted by the iron bar [1]

(c)(ii) Besides increasing the number of coils of wire around the iron bar, suggest another way for the electromagnet to attract more than 18 steel clips [1]



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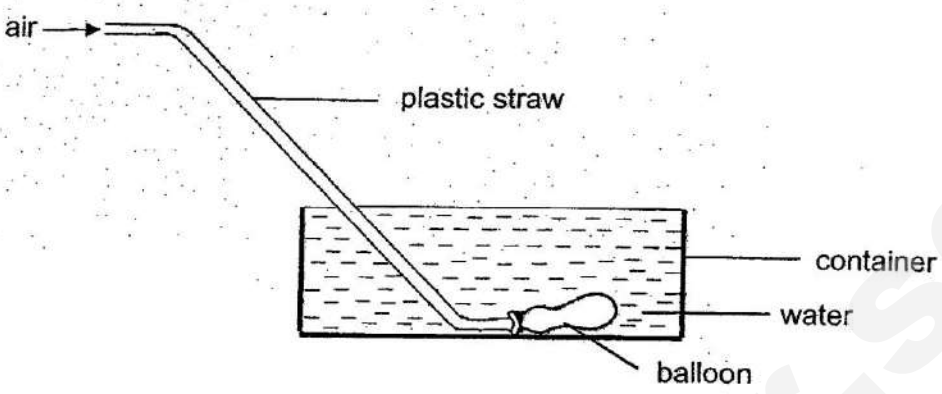
40. Timothy set up an experiment as shown in the diagram below. He filled the container to the brim with water. Then, he blew air through the plastic straw.




(a)(i) What would happen to the water in the container when the balloon is inflated? [1]

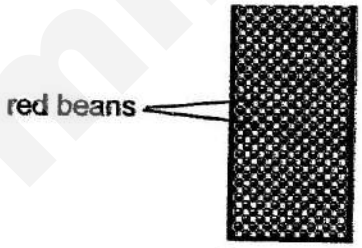
_____

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

_____

_____

In another experiment, Timothy filled container X, which has a volume of 250cm$^3$, to the brim with red beans as shown in the diagram below.




Container X

Timothy's teacher told him that the volume of red beans in container X was actually less than 250 cm$^3$.

(b) Explain why the volume of the red beans was less than 250cm$^3$. [1]

_____

_____



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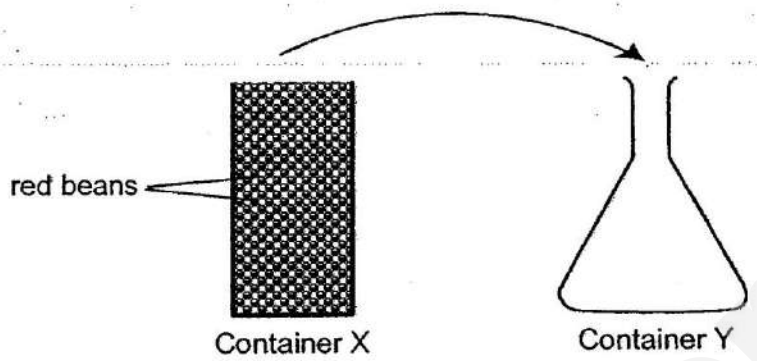
(Continue from Question 40)

C. Timothy then poured the red beans from container X into container Y as shown in the diagram below.




Timothy observed that the red beans took the shape of container Y. He concluded that red beans are in the liquid state.

Using the properties of matter, explain why Timothy's conclusion is wrong. [1]

_____

_____



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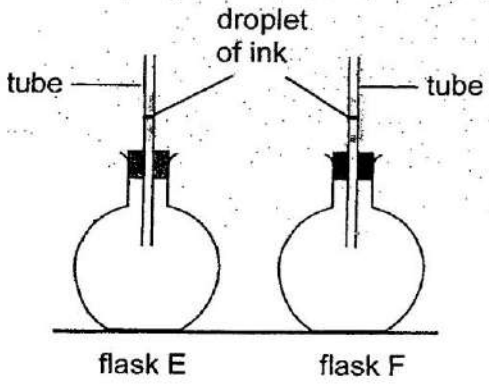
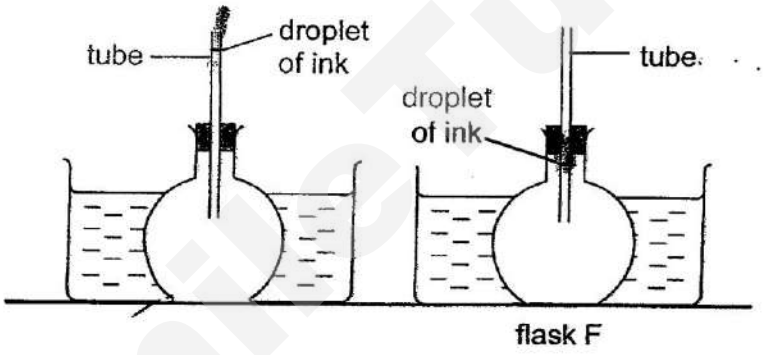
41. Enya set up the following experiment at room temperature. The droplet of ink in the tube in each set-up is at the same position at the start of the experiment.




Enya then placed each flask into a basin of water at different temperatures, one at 10°C and the other at 50°C. **After** 5 minutes, the droplet of ink in the two flasks moved to different positions as shown in the diagram below.




(a) Which flask had been placed into the basin of water at 50°C? Explain your answer. [2]



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(Continue from Question 41)

In another experiment, Enya had a pair of metal ball and metal ring. The metal ball was not able to pass through the metal ring as shown in diagram 1 below.

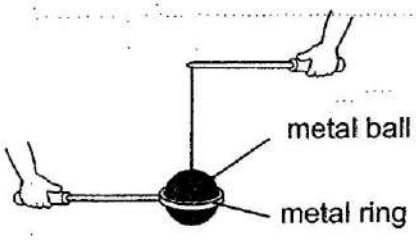


Diagram 1

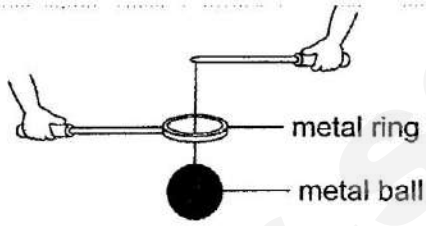


Diagram 2

(b)(i) What can Enya do to the objects so that the metal ball is able to pass through the metal ring as shown in diagram 2 above? [1]

(b)(ii) Explain your answer in(b)(i). [2]



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# ANSWER KEY

YEAR : 2018
LEVEL : PRIMARY 4
SCHOOL : NANYANG PRIMARY SCHOOL
SUBJECT : SCIENCE
TERM : SA 2

## BOOKLET A

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

## BOOKLET B

Q29a) bigger

Q29b) stems

Q30) A: North

B: South

Q31a) decrease

Q31b) food

Q32a) poor

Q32b) good

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**Q33a) solid**

**Q33b) liquid**

**Q34a) Both plants have leaves.**

**Q34b) Part X makes food for the plant.**

**Q34ci) Flowering > Non-flowering**

**Q34cii) Sunflower plant, mango tree > Bird's nest fern, Moss**

**Q35a) Animal S does not give birth to young alive, has scales and has gills.**

**Q35b) Animal Q has a beak but animal P does not have a beak.**

**Q35c) Reptile**

**Q35d) Dog**

**Q36a) Box O. There is water and warmth in the box.**

**Q36b) Fungi**

**Q36c) Mould obtains food from other living things, dead or alive.**

**Q37ai) Respiratory system**

**Q37aii) Takes air into the body and removes air from the body.**

**Q37bi) Mouth, stomach, small intestine**

**Q37bii) Digested food is absorbed into the blood.**

**Q38ai) Both life cycles have the egg stage.**



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**Q38aii) The grasshopper has 3 stages in its life cycle but the mosquito has 4 stages in its life cycle.**

**Q38b) As the temperature of the mosquito Z's surrounding increases, the time taken for it to complete the life cycle decreases.**

**Q38c) January and February**

**Q38d) July and August are the months with the highest temperature hence, mosquito Z will take the shortest time to reach the adult stage.**

**Q39a) B > C > A > D**

**Q39b) The magnet is strongest at its poles.**

**Q39ci) As the number of coils of wire around the iron bar increases, the number of steel clips attracted by the iron bar increases.**

**Q39cii) Use more batteries**

**Q40ai) The water will flow out of the container.**

**Q40aii) The air in the balloon occupies space.**

**Q40b) There are air spaces between the red beans.**

**Q40c) Red beans have definite shape.**

**Q41a) Flask E. The air in flask E gained heat and expanded, and pushed the droplet of ink up the tube.**

**Q41bi) Heat the metal ring**

**Q41bii) The meal ring will gain heat and expand so that it is now bigger than the metal ball.**



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# RAFFLES GIRLS' PRIMARY SCHOOL

## SEMESTRAL ASSESSMENT (2) 2018

| | |
|---|---|
| Section A | /50 |
| Section B | /40 |
| Your score **out of 90 marks** | |
| Parent's signature | |

**Name :** _____ **Index No.:** ___ **Class: P4** ___ **Date:** _____

**25 October 2018** **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. When threatened, the hedgehog curls itself up into a ball, making it difficult for predators to eat it.

This shows that the hedgehog is a living thing because it _____.

(1) grows
(2) reproduces
(3) needs air, food and water
(4) responds to changes in its surroundings



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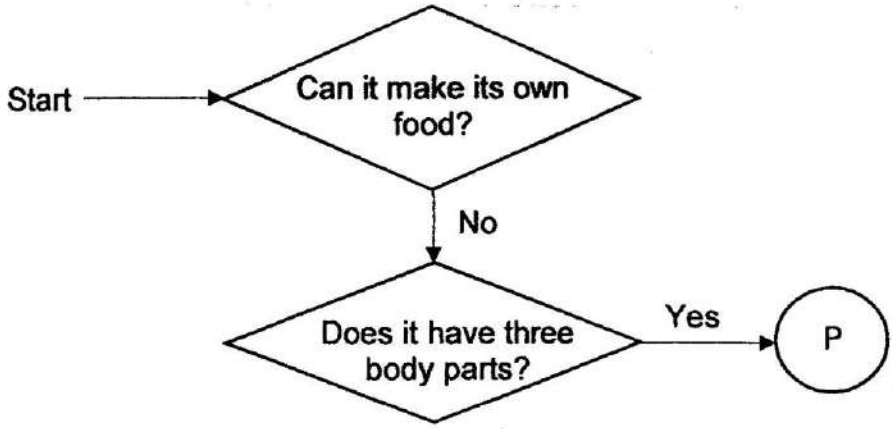
2. Study the diagram below carefully.




What could P be?

(1) bird
(2) insect
(3) mammal
(4) amphibian

3. Joanne made the following observations on the life cycle of an animal.

- ✓ There are four stages in the life cycle.
- ✓ Some stages of the life cycle occur in water.

Which animal was Joanne observing?

(1) frog
(2) beetle
(3) mosquito
(4) cockroach



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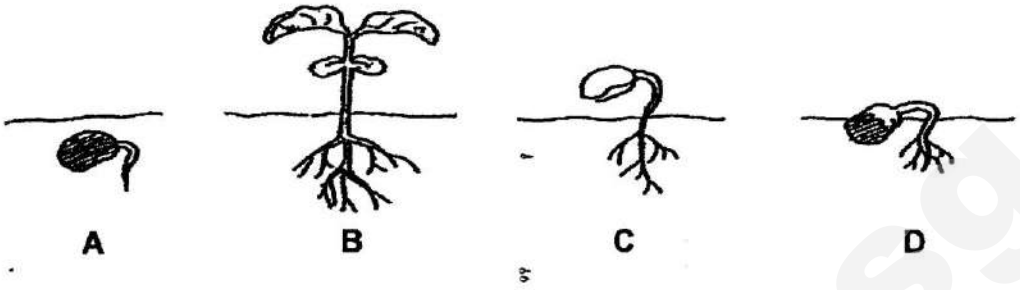
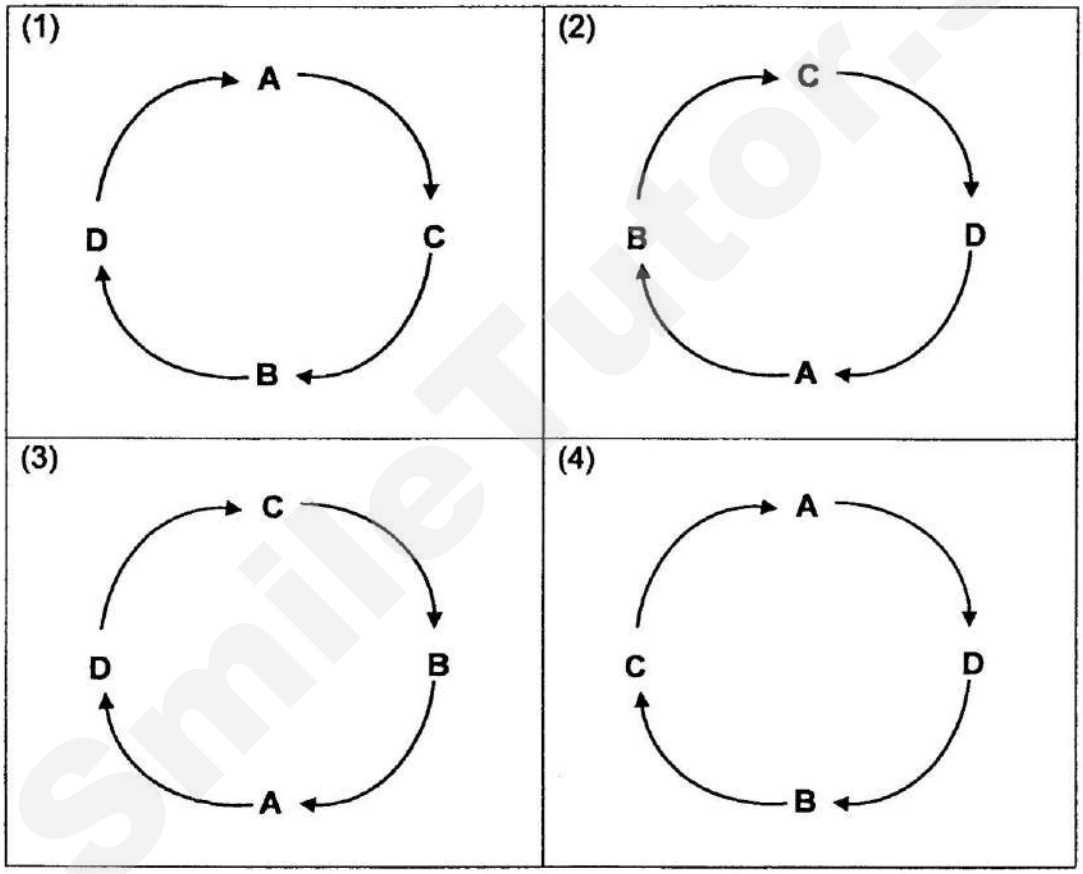
4. The diagram below shows four stages of the growth of a young plant in the incorrect order. Arrange the stages in the correct order.

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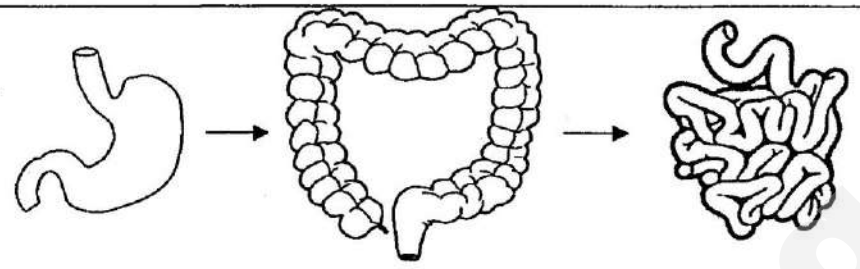
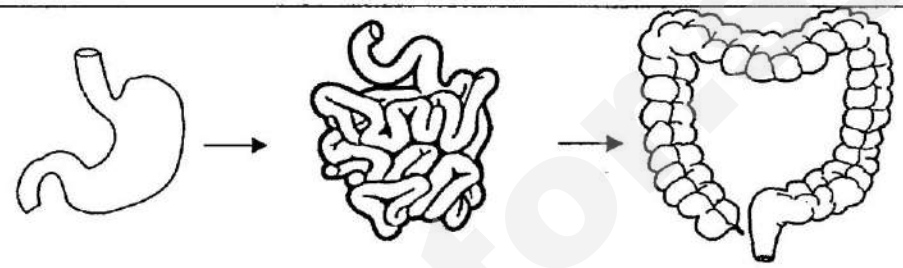
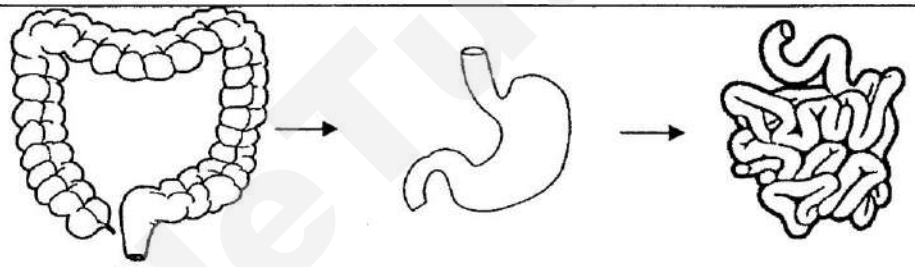
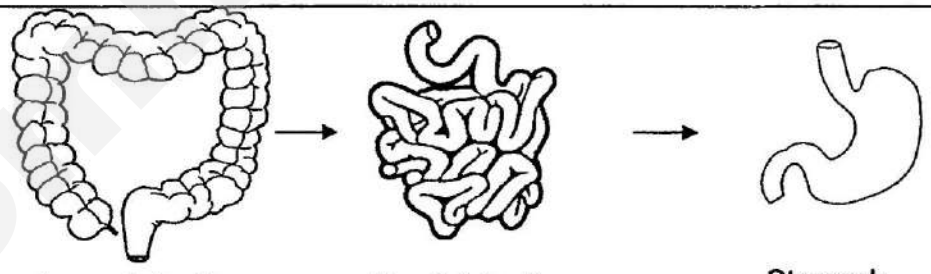
5. Which one of the following shows the correct sequence when food moves through some parts of the digestive system?

| | |
|---|---|
| (1) |  Stomach → Large intestine → Small intestine |
| (2) |  Stomach → Small intestine → Large intestine |
| (3) |  Large intestine → Stomach → Small intestine |
| (4) |  Large intestine → Small intestine → Stomach |

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6. Which of the following objects is made of waterproof material?

| | |
|---|---|
| (1) Cotton T-shirt | (2) Newspaper |
| (3) Swimming suit | (4) Rubber boots |

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

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

(1) oil
(2) air
(3) sand
(4) shadow

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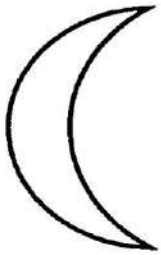
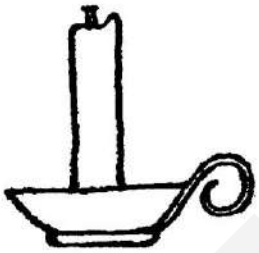
8. Which one of the following is a source of light?

| | |
|---|---|
| (1) eyes | (2) the moon  |
| (3) candle  | (4) fire |

9. Siti cooked a pot of chicken soup in the pot shown below.

She was able to remove the lid of pot using the wooden handle. This is because wood is a _____.

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



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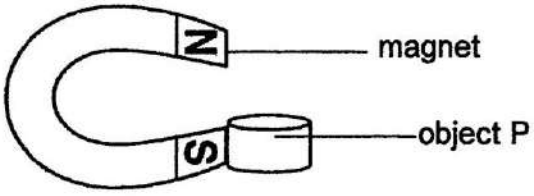
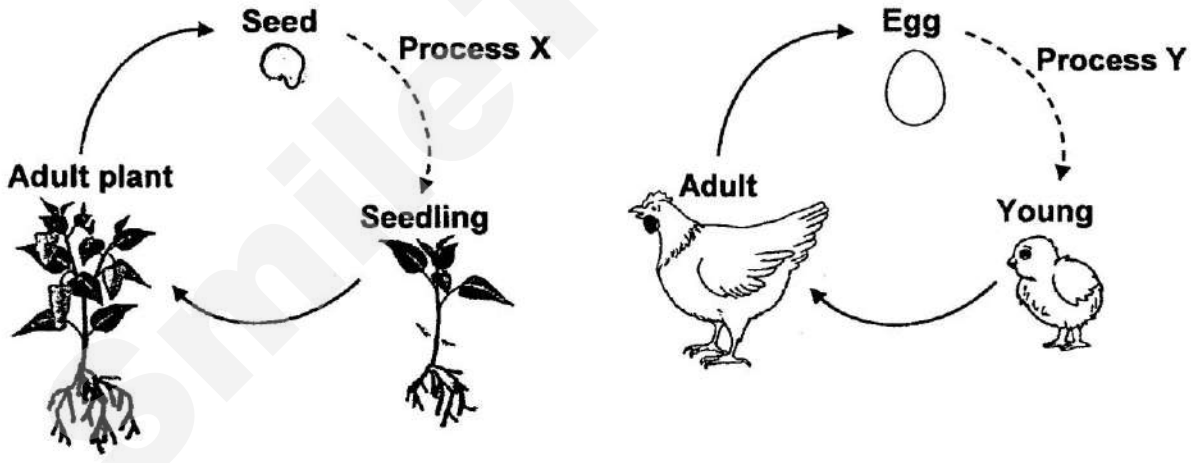
10. An object P was attracted to a magnet, as shown in the figure below.




Object P is made of _____.

(1) iron
(2) wood
(3) plastic
(4) rubber

11. The diagrams below show the life cycles of a chilli plant and a chicken.




Which one of the following statements best describes the conditions that are required during process X and process Y?

(1) Warmth must be present in both processes.
(2) Sunlight must be present in both processes.
(3) Both processes only takes place in the night.
(4) Both processes require the presence of the adults.



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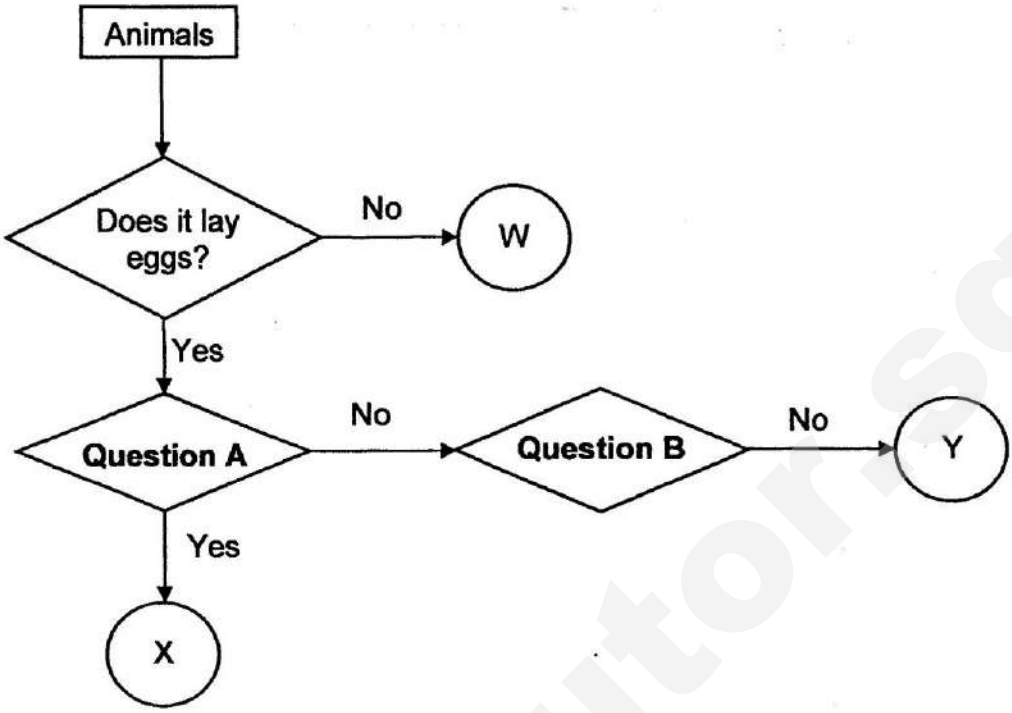
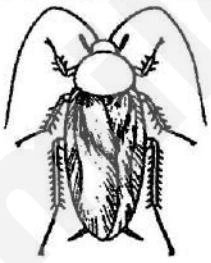
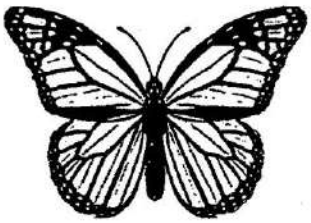
12. Study the flowchart below.




Amelia identifies Animals X and Y as shown in the table below.

| Animal X | Animal Y |
|---|---|
|  |  |

What are questions A and B likely to be?

| | Question A | Question B |
|---|---|---|
| (1) | Does it have a three-stage life cycle? | Does the young resemble its adult? |
| (2) | Does the young resemble its adult? | Does the young live on land? |
| (3) | Does it have a four-stage life cycle? | Does it have a three-stage life cycle? |
| (4) | Does the young live on land? | Does it have a four-stage life cycle? |



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13. James wanted to conduct an experiment to find out if different amounts of digestive juices would affect the rate of digestion of noodles.

He prepared the following set-ups for the experiment.

| Set-up | Volume of digestive juices (ml) | Type of noodles | Mass of cooked noodles (g) | Duration of experiment (minutes) |
|---|---|---|---|---|
| A | 5 | rice | 20 | 20 |
| B | 5 | rice | 40 | 20 |
| C | 10 | rice | 20 | 20 |
| D | 10 | wheat | 40 | 15 |

Which of these set-ups should James use to ensure a fair test has been conducted?

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

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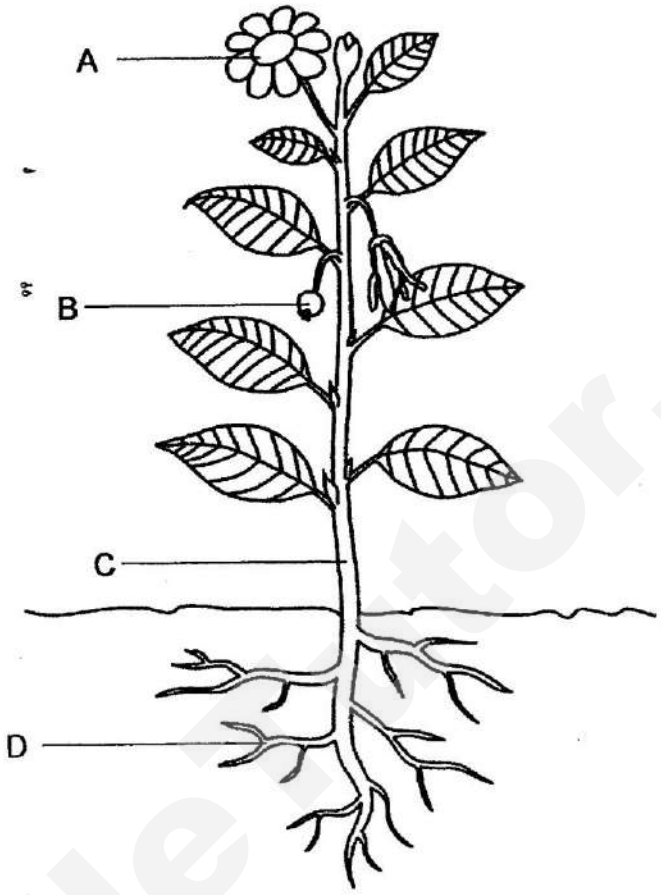
14. The diagram shows a plant.

Parts A, B, C and D show the different parts of the plant.




Which of the following matches the correct part of the plant to its function?

| | Part | Name of part | Function |
|---|---|---|---|
| (1) | A | Flower | To make food |
| (2) | B | Fruit | To absorb sunlight |
| (3) | C | Stem | To transport water from the roots to the other parts of the plant |
| (4) | D | Roots | To transport food from the roots to the other parts of the plant |



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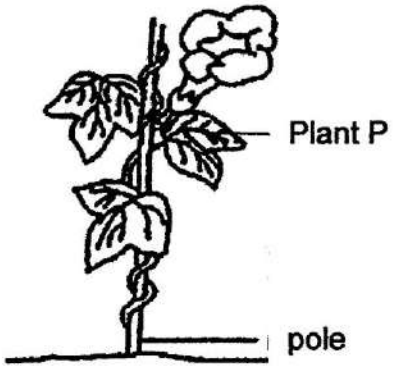
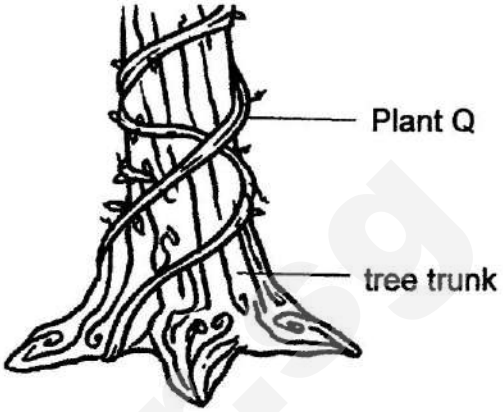
15. Plant P grew around a pole while Plant Q grew around a tree trunk.




Which of the following is correct?

(1) Both plants are non-flowering plants.

(2) Plant P has a strong stem but Plant Q has a weak stem.

(3) Both plants need a support to grow towards the sunlight.

(4) Plant P can make its own food as it has flowers but not plant Q.

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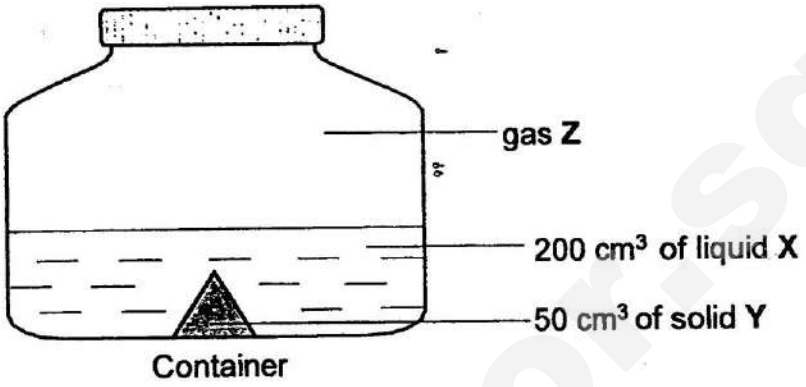
16. The diagram below shows a tightly sealed 1000 $cm^3$ container.

The container was initially filled with 200 $cm^3$ of liquid **X** and 50 $cm^3$ of solid **Y**. The rest of the container was filled with gas **Z**.




50 $cm^3$ of liquid **X** was removed.

Which of the following statements about the volume of matter in the container are true?

A The volume of gas **Z** was 750 $cm^3$ at first.

B The final volume of gas **Z** was 650 $cm^3$ in the end.

C The final volume of gas **Z** was 800 $cm^3$ in the end.

D The final volume of liquid **X** was 100 $cm^3$ in the end.

(1) A and C

(2) A and D

(3) B and C

(4) B and D



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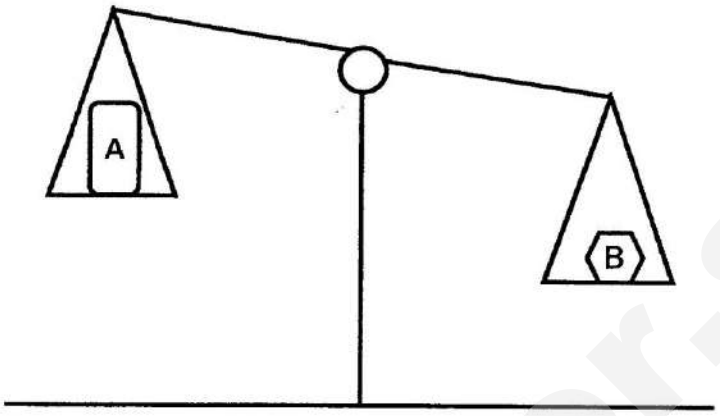
17. Objects A and B were placed on a balance as shown below.




Objects A and B were then placed in identical containers containing the same amount of water.

Based on the observations above, which of the following statement is true?

| | Volume | Mass |
|---|---|---|
| (1) | Object A has a larger volume than object B. | Object A has a larger mass than object B. |
| (2) | Object A has a larger volume than object B. | Object A has the same mass as object B. |
| (3) | Object A has a larger volume than object B. | Object A has a smaller mass than object B. |
| (4) | Object A has a smaller volume than object B. | Object A has a greater mass than object B. |



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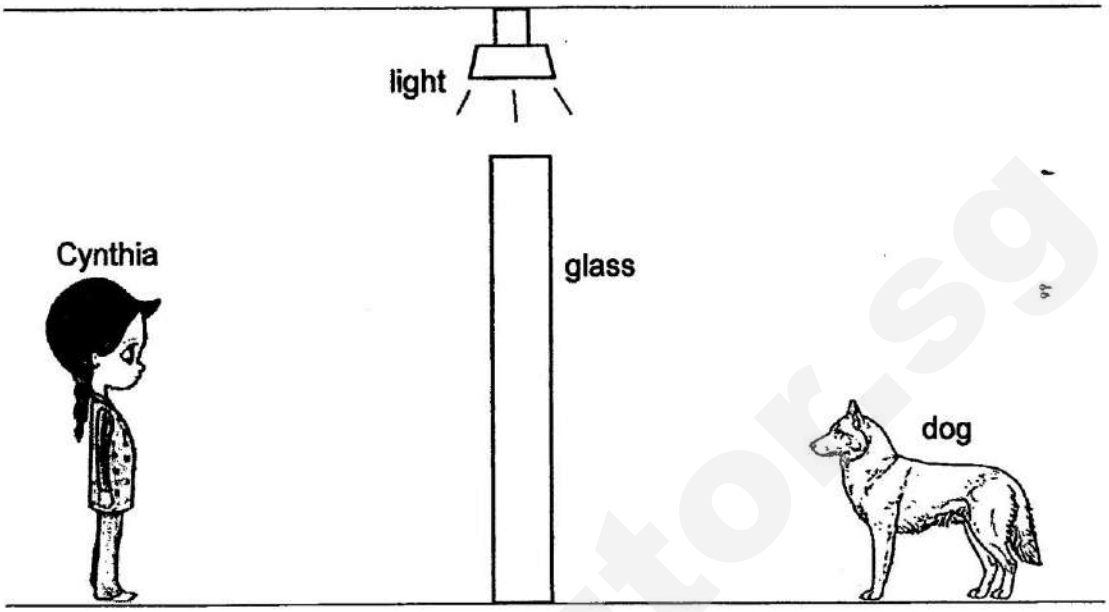
18. Cynthia could see her pet dog when she stood behind the glass as shown in the diagram below.




Which one of the following explains why Cynthia could see her pet dog?

(1) The glass reflected light from the dog into Cynthia's eyes.

(2) The glass reflected light from the lamp into Cynthia's eyes.

(3) The pet dog reflected light from the lamp through the glass into Cynthia's eyes.

(4) The pet dog gave off light and the light entered Cynthia's eyes through the glass.

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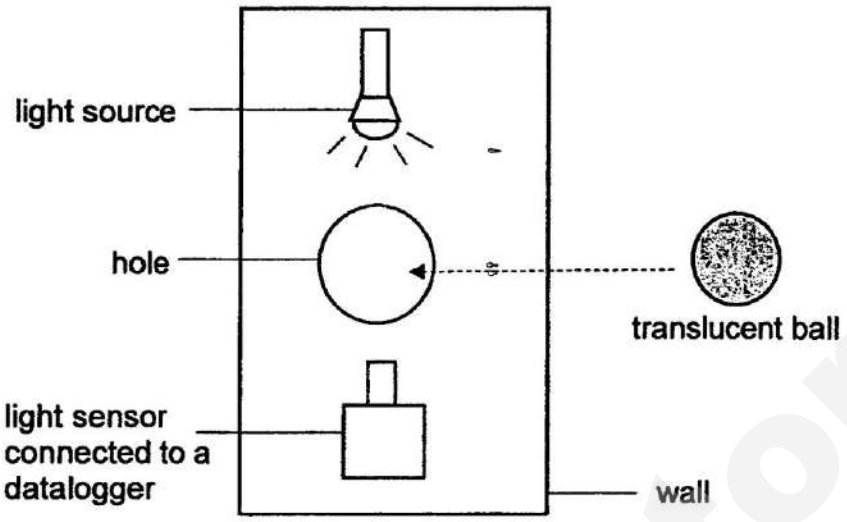
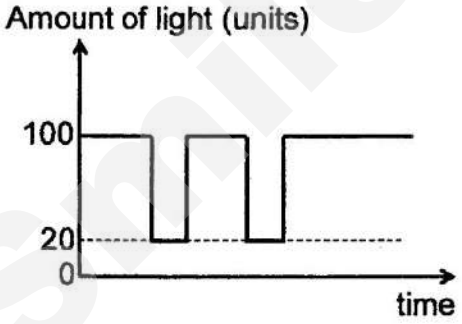
19. Azahar set up a light source and a light sensor to count the number of balls going through a hole as shown.



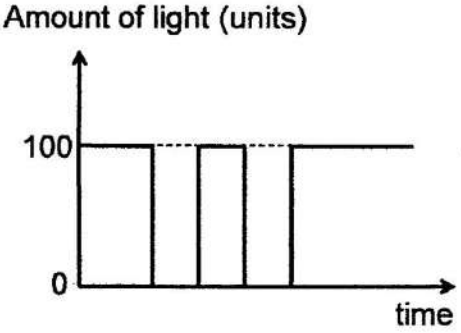

He threw a few identical balls one at a time and recorded the results.

Which one of the following graphs shows the amount of light recorded by the light sensor as he threw the ball?

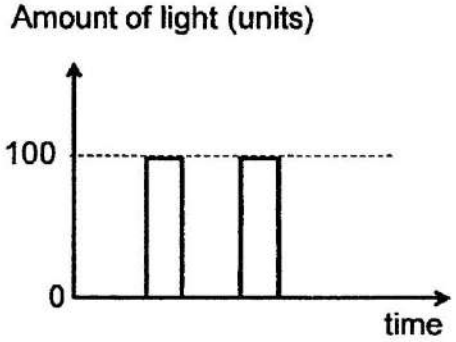
(1)



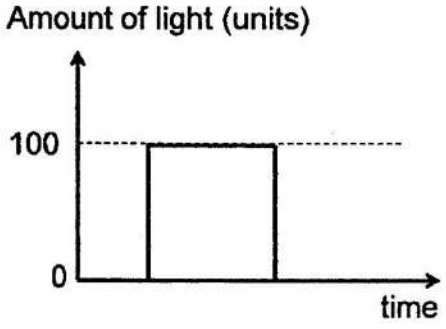

(2)




(3)




(4)



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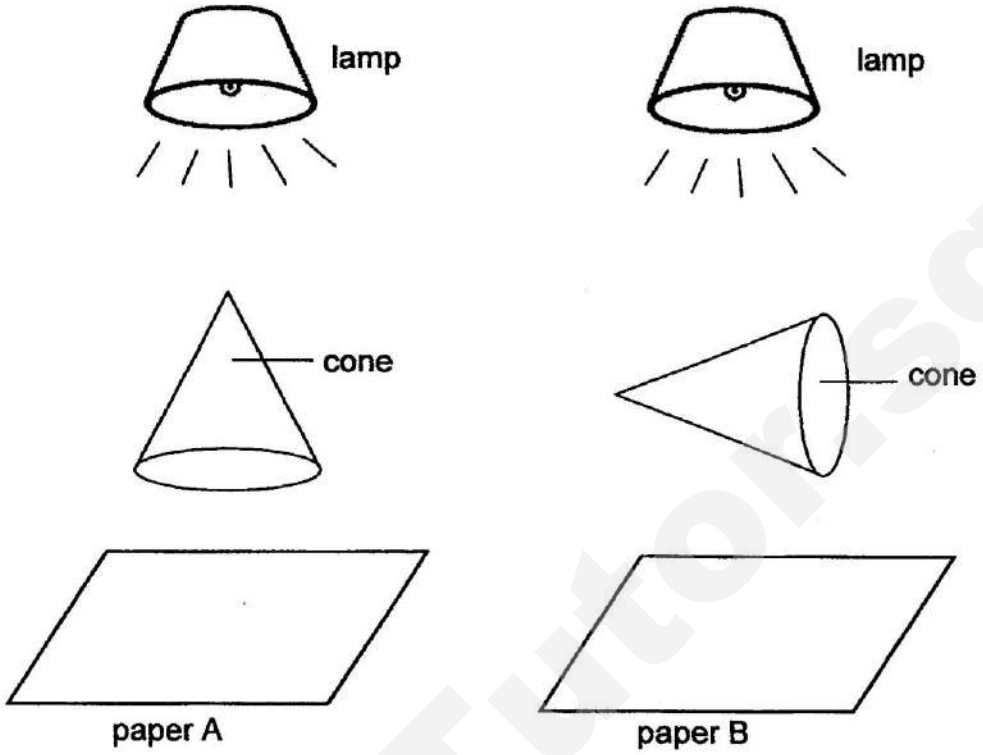
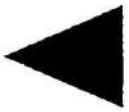
20. Matilda studied the shadows formed by two identical cones. The cones were placed at different positions under identical light sources in a dark room.




Which one of the following shadows would be observed on each piece of the paper?

| | Paper A | Paper B |
|---|---|---|
| (1) | | |
| (2) | |  |
| (3) | | |
| (4) | | |



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21. Samantha placed a metal spoon in a cup of ice cream.

The spoon became colder after a while.

Which one of the following explains this?

(1) The cup lost heat to the ice cream.
(2) The ice cream lost heat to the spoon.
(3) The spoon lost heat to the ice cream.
(4) The spoon gained heat from the ice cream.

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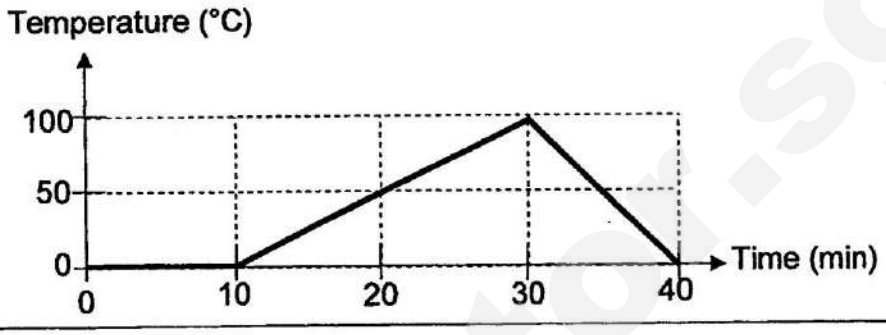
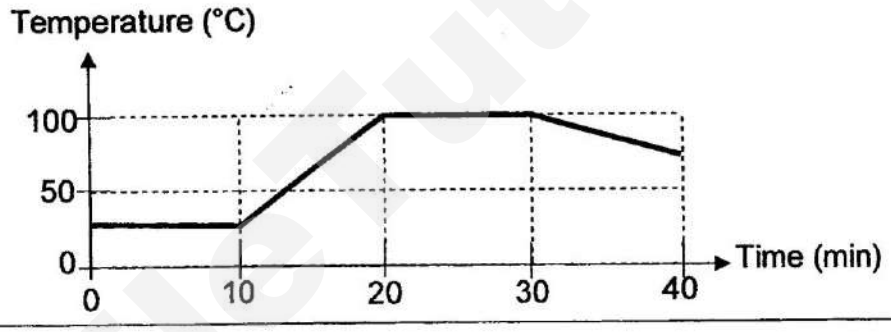
22. Kate placed some water in a beaker at room temperature over a bunsen burner. After 10 minutes, the water started to boil. She left the water boiling in the beaker for 10 minutes. She removed the beaker immediately and left it in the freezer for another 20 minutes. At the end of the experiment, she noticed that the water is still in liquid state.

Which one of the following graphs correctly shows the results of Kate's experiment?

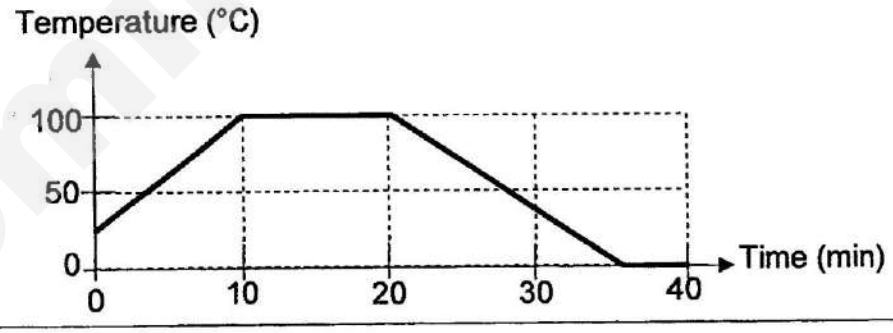
(1)



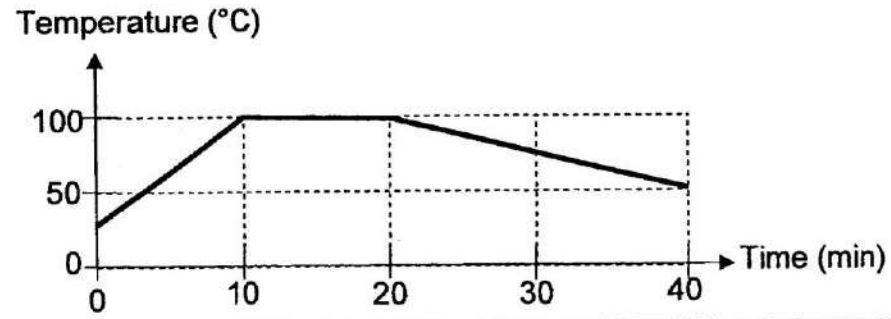

(2)




(3)




(4)



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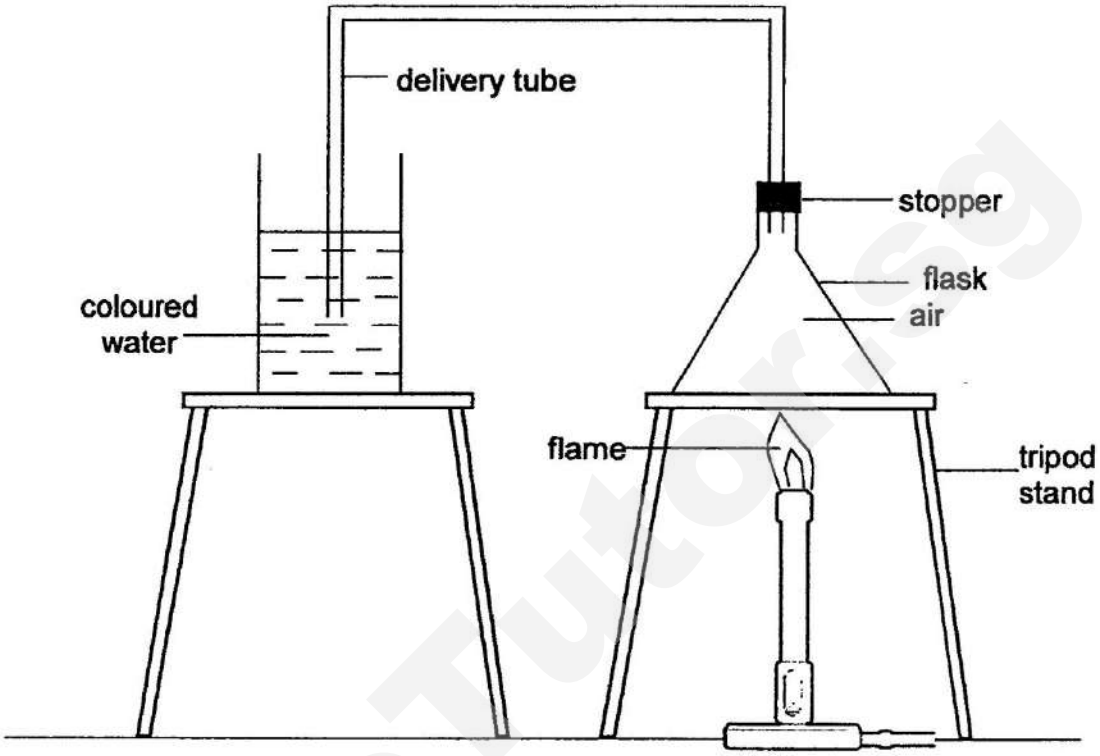
23. Daniel prepared a set-up to investigate the effect of heat on the volume of air in the flask as seen below.




Which one of the following correctly describes the observation of the experiment and the explanation for the observation?

| | Observation | Explanation |
|---|---|---|
| (1) | Coloured water was drawn into the delivery tube. | Heat causes a decrease in the volume of air. |
| (2) | Coloured water was drawn into the delivery tube. | Heat causes an increase in the volume of air. |
| (3) | Formation of bubbles observed in the coloured water. | Heat causes a decrease in the volume of air. |
| (4) | Formation of bubbles observed in the coloured water. | Heat causes an increase in the volume of air. |



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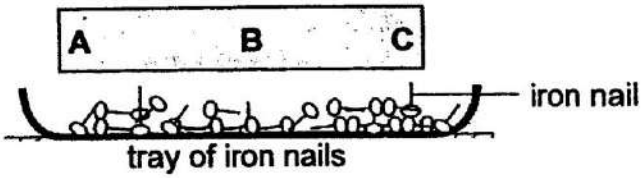
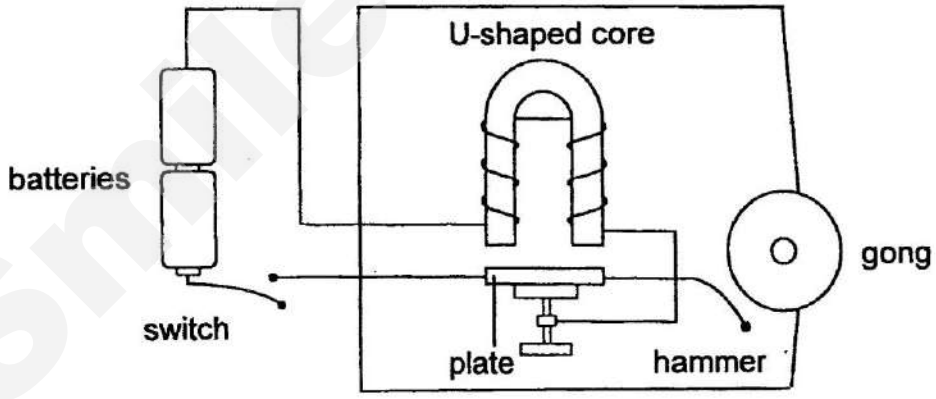
24. Annika labelled the different parts of a bar magnet, A, B and C as shown in the diagram below. She brought the bar magnet close to a tray of iron nails as shown in the diagram below




Which of the following would most likely show the number of iron nails that would be attracted to parts **A, B** and **C** of the magnet?

| | A | B | C |
|---|---|---|---|
| (1) | 2 | 6 | 2 |
| (2) | 3 | 1 | 8 |
| (3) | 6 | 1 | 5 |
| (4) | 8 | 6 | 3 |

25. The diagram below shows the door bell system. When the switch is closed, the U-shaped core will be magnetized and become an electromagnet, attracting the plate with the hammer, hitting the gong.




What of the following materials should be used to make the U-shaped core and plate?

| | U-shaped core | Plate |
|---|---|---|
| (1) | Aluminium | Iron |
| (2) | Iron | Steel |
| (3) | Steel | Copper |
| (4) | Copper | Iron |



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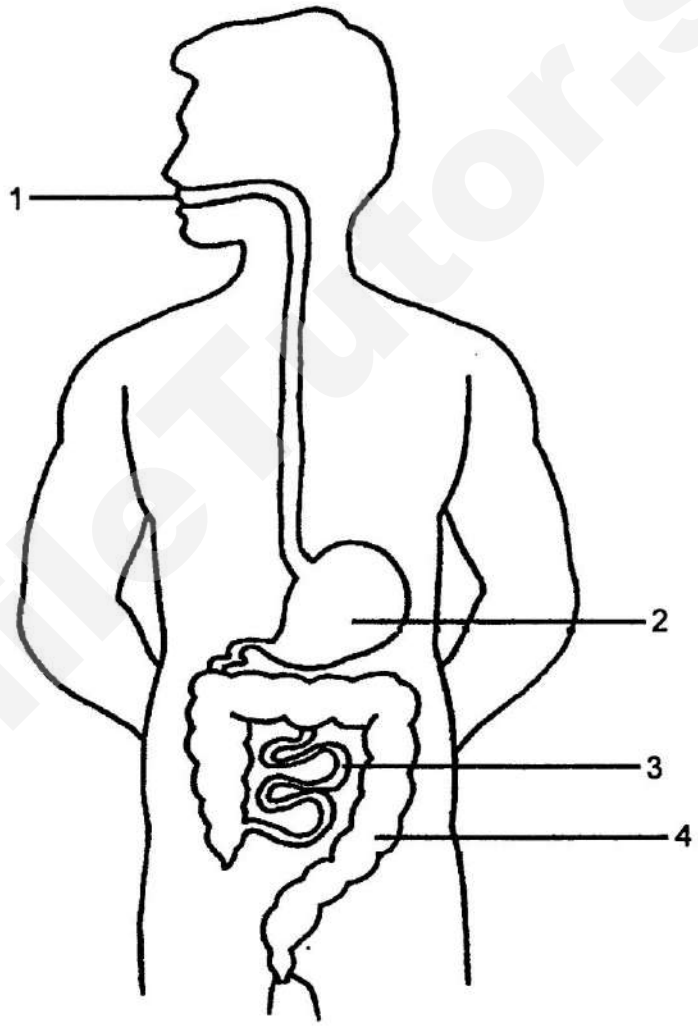
Name : _____ Index No: ____ Class: P4_____

40

**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. The diagram below shows the human digestive system.




Based on the diagram above, identify the part where

(a) digestion is completed: _____ [1]

(b) water is removed from the undigested food: _____ [1]

Score 2



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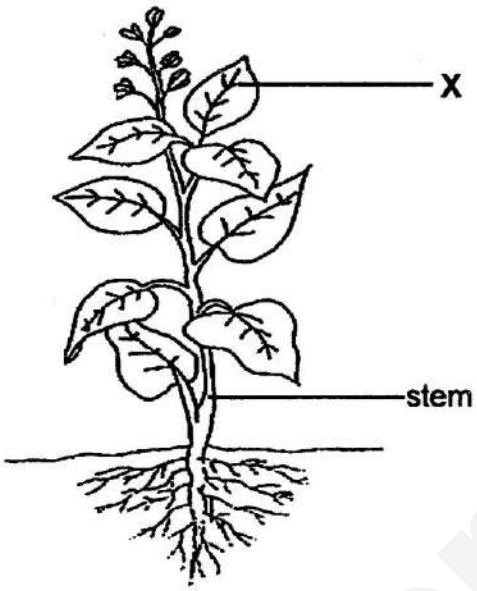
27. The diagram shows plant **Y**.

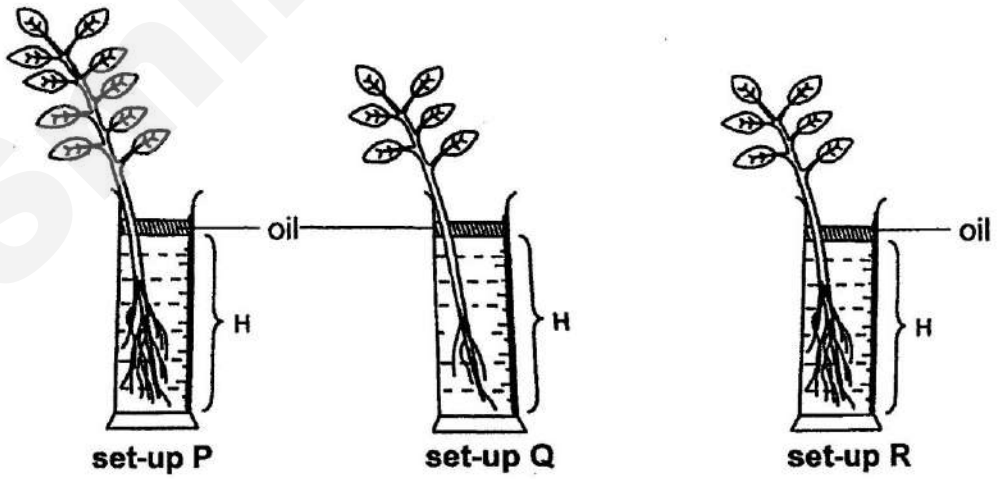



(a) Name plant part **X**. [1]

**X** : _____

(b) The substance that the stem of the plant transports from plant part X to other parts of the plant is _____ . [1]

(c) Xiuli left three set-ups of plant **Y** near a window in her kitchen as shown. She then recorded the water level, H after 2 days.




**set-up P** **set-up Q** **set-up R**

**Continue on next page.**

| Score | / 2 |
|---|---|



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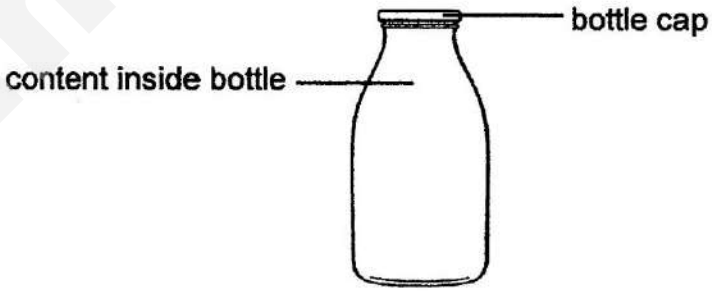
**Continue from previous page.**

(i) Xiuli wanted to find out if the amount of roots of a plant affects the amount of water taken in. Which set-ups should Xiuli use to carry out a fair test to investigate her aim? Explain your answer clearly. [1]

(ii) Which of the three set-ups will have the lowest water level H recorded after 2 days? Explain your answer clearly. [2]

28. The picture below shows an empty bottle.




Circle the correct state for the following things. [2]

(a) Bottle cap: solid / liquid / gas

(b) Content inside bottle: solid / liquid / Gas

| Score | |
|---|---|
| | 5 |



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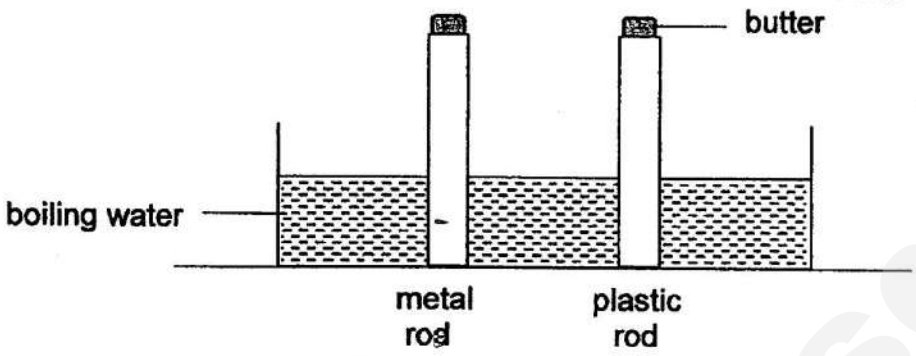
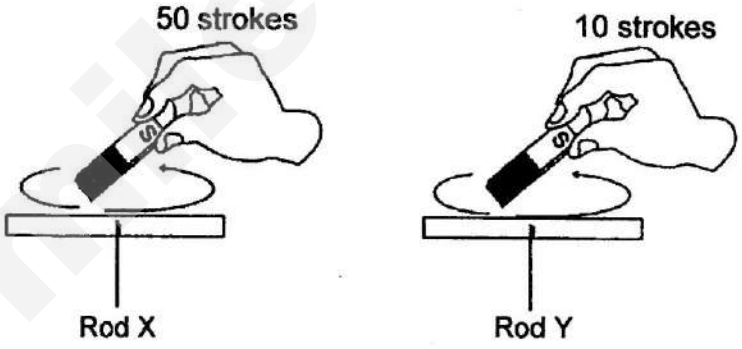
29. Meixuan placed a metal rod and a plastic rod into a tank of boiling water as shown below. Equal amounts of butter were put on both rods of the same height.




What would Meixuan observe and why?

Meixuan observed that the butter on the plastic rod melted more _____ than the butter on the metal rod, as plastic is a _____ conductor of heat than metal. [2]

30. Diane stroked two similar iron rods X and Y with the same magnet as shown in the figure below.




Both rods became temporary magnets and were used to attract similar paper clips.

(a) Tick (✓) the correct answer in the table below. [1]

Rod X attracted

| | |
|---|---|
| less paper clips than | |
| the same number of paper clips as | |
| more paper clips than | |

Rod Y.

**Continue on next page.**

| Score | / 3 |
|---|---|



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**Continue from previous page.**

(b) Choose the correct word from the box to answer the question below. [1]

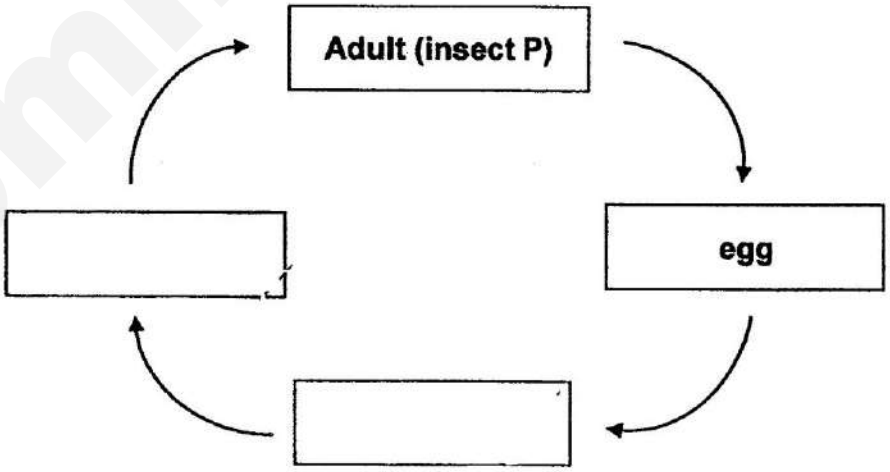
| strong | magnetic | flexible |
|---|---|---|

Diane's observations show that paper clips are _____ objects.

31. Insect P lays eggs on dead animals upon their death.

**Insect P**

(a) Complete the life cycle of insect P as shown below. [2]




**Continue on next page.**

| Score | / 3 |
|---|---|



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The table below shows the surrounding temperature and the number of days taken for an egg of insect P to turn into an adult.

| Surrounding temperature ($^0$C) | Number of days taken for an egg of insect P to turn into an adult |
|---|---|
| 20 | 27 |
| 25 | 23 |
| 30 | 15 |
| 35 | 12 |
| 40 | 12 |

(b) What is the relationship between the surrounding temperature and the number of days taken for an egg of insect P to turn into an adult? [2]

| | |
|---|---|
| **Surrounding temperature from 20$^0$C to 35$^0$C** | |
| **Surrounding temperature from 35$^0$C to 40$^0$C** | |

| Score | 2 |
|---|---|



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32. Eleana measured 5 ml of four different substances and added these substances into four different test tubes. Each of the test-tube contains a piece of food. The experiment took place at room temperature.

She recorded the time taken for the piece of food to be broken down into simpler substances. The results of her investigation is shown in the table below.

| Substance | A | B | C | D |
|---|---|---|---|---|
| Time taken for the piece of food to be broken down into simpler substances (minutes) | 8 | 3 | 6 | more than 10 |

(a) Which substance, A, B, C or D, was most effective in breaking down the piece of food into simpler substances? Explain your answer. [1]

_____

_____

(b) Eleana observed that the piece of food was still intact in the set-up with substance D at the end of the 10 minutes. Based on her observation, what can Eleana conclude about the set-up with substance D at the end of the 10 minutes? [1]

_____

_____

(c) State the organ system that is involved in transporting the simpler substances to the other parts of the body. [1]

_____

| Score | 3 |
|---|---|



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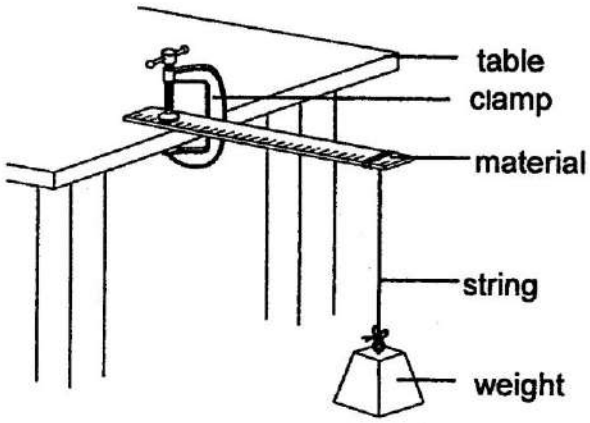
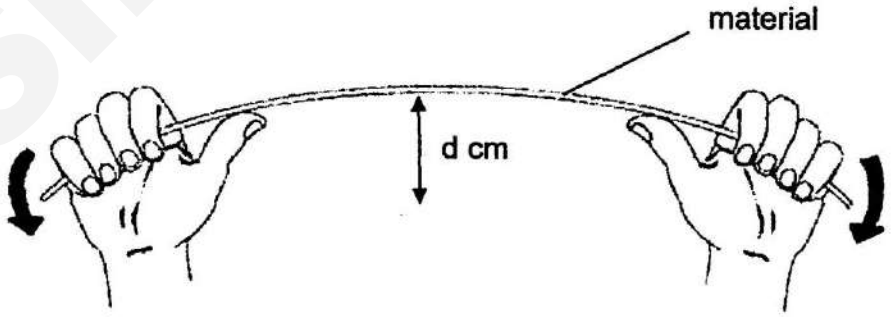
33. Marie carried out an experiment using four different strips of materials, P, Q, R and S, of the same length and thickness. She hung weights on the end of each material. She kept increasing the mass of the weights till the strip of material started to break.




The table below shows the mass of the weights each material could hold before it started to break.

| Materials | Total mass of weights before it started to break (kg) |
|---|---|
| P | 3.5 |
| Q | 8.5 |
| R | 13.0 |
| S | 17.5 |

Marie conducted the second experiment as shown below. She then measured the maximum distance, d cm, each strip of material could bend.




| Materials | d (cm) |
|---|---|
| P | 0 |
| Q | 5 |
| R | 13 |
| S | 0 |



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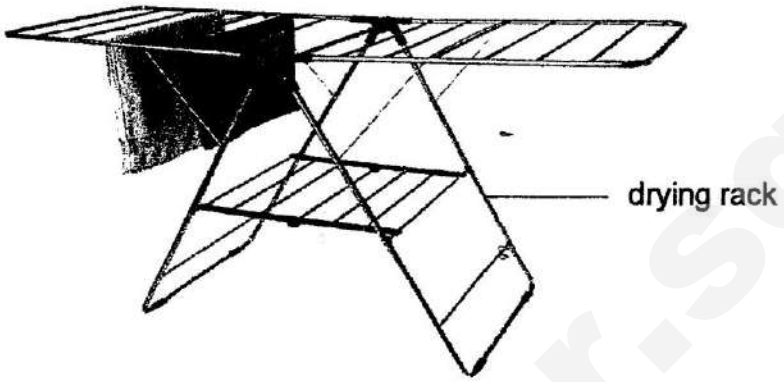
**Continue from previous page.**

(a) Marie wanted to choose one of the above materials P, Q, R or S to make a drying rack to dry wet clothes as shown below.




Based on the results obtained from the two experiments, which material, P, Q, R or S, is most suitable for making the drying rack? Explain your answer clearly. [2]

(b) State another property of the material that is needed to be considered for making the drying rack. [1]

(c) Based on the results obtained from the two experiments, which one of the materials, P, Q, R or S, is most suitable for making a fabric bag? Explain your answer. [1]

| Score | / 4 |
|---|---|



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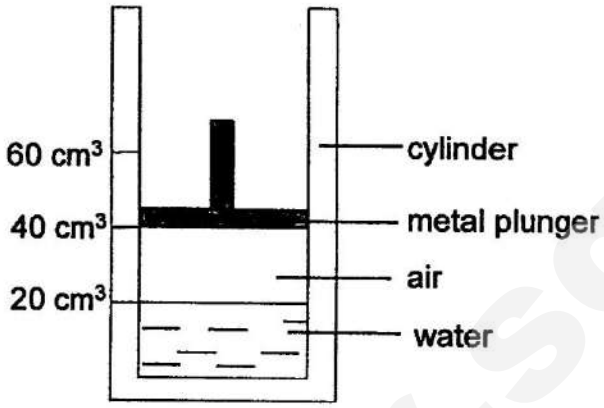
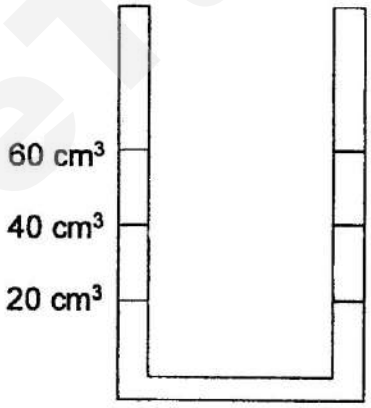
34. The diagram shows a set-up with a cylinder and a metal plunger. Aisha filled the cylinder with 20 $cm^3$ of water leaving 20 $cm^3$ of air.




Aisha pushed the metal plunger downwards as far as she could without any air or water escaping.

(a) Draw how the set-up would look like after she pushed the metal plunger downwards. [1]




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

_____

_____

_____

_____

| Score | / 3 |
|---|---|

**Continue on next page.**



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**Continue from previous page.**

(c) Aisha removed the metal plunger and left it in a tub of hot water for 15 minutes. Give a reason why the metal plunger could no longer fit into the cylinder. [1]

_____

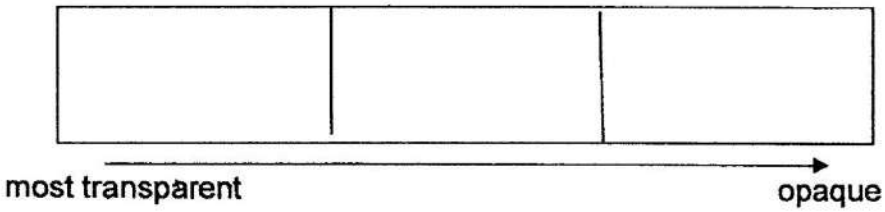
_____

35. Peter wanted to investigate the degree of transparency of materials, A, B and C. He prepared the set-up and placed each material in between the light source and the light sensor as shown below.

The amount of light detected by the light sensor are shown in the table below.

| Materials | Amount of light detected by the light sensor (unit) |
|---|---|
| A | 243 |
| B | 770 |
| C | 0 |

(a) Based on the readings above, arrange the materials, A, B and C, in order of their degree of transparency, starting with the most transparent material. [1]




**Continue on next page.**



| Score | / 2 |
|---|---|

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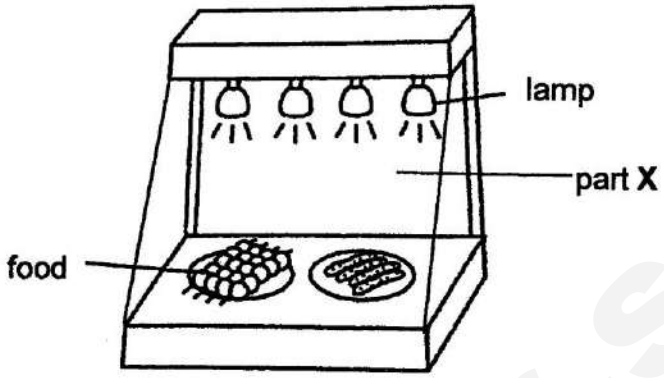
Peter's mother owns a food stall in the canteen. She placed the cooked food in an enclosed food warmer cabinet as shown below such that the pupils could see and select the food when they ordered it.

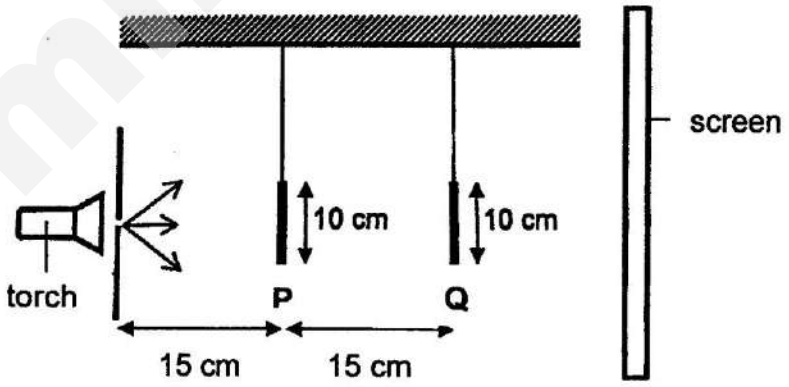



(b) Based on Peter's results, which material, A, B or C, is most suitable for making part **X** of the food warmer cabinet such that the pupils could see and select the food when they place their order? Explain your answer. [1]

_____

_____

(c) Peter conducted an experiment to find out the size of shadows of different objects formed on the screen. Two opaque objects, **P** and **Q**, were placed at different distance from the torch as seen below.




**Continue on next page.**

| Score | / 1 |
|---|---|



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**Continue from previous page.**

Object **P** Object **Q**

(i) Draw the shadow of objects, **P** and **Q**, that would be formed on the screen in the box below. [1]

(ii) Without moving the location of objects, **P** and **Q**, suggest one way that Peter could cast a bigger shadow of objects, **P** and **Q**, on the screen. [1]

_____

_____

| Score | / 2 |
|---|---|



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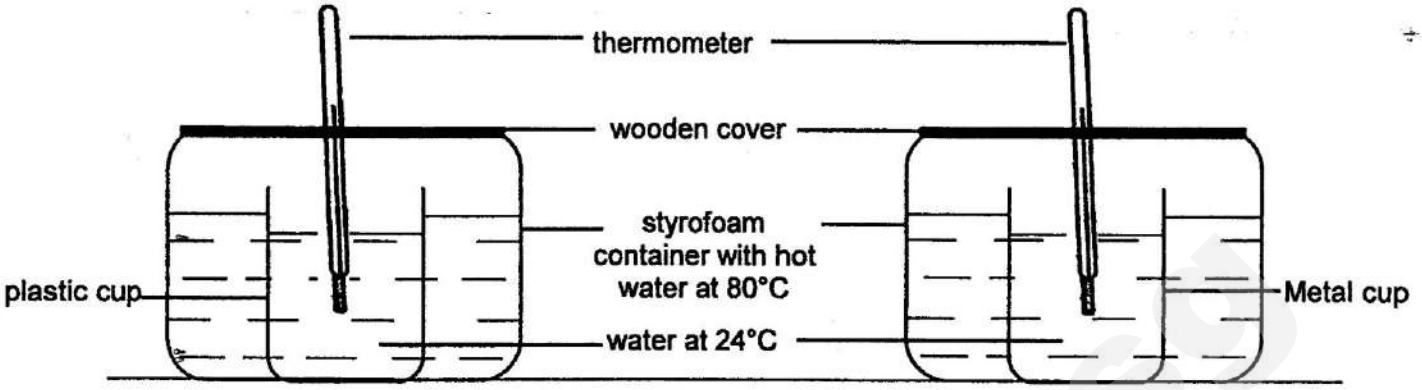
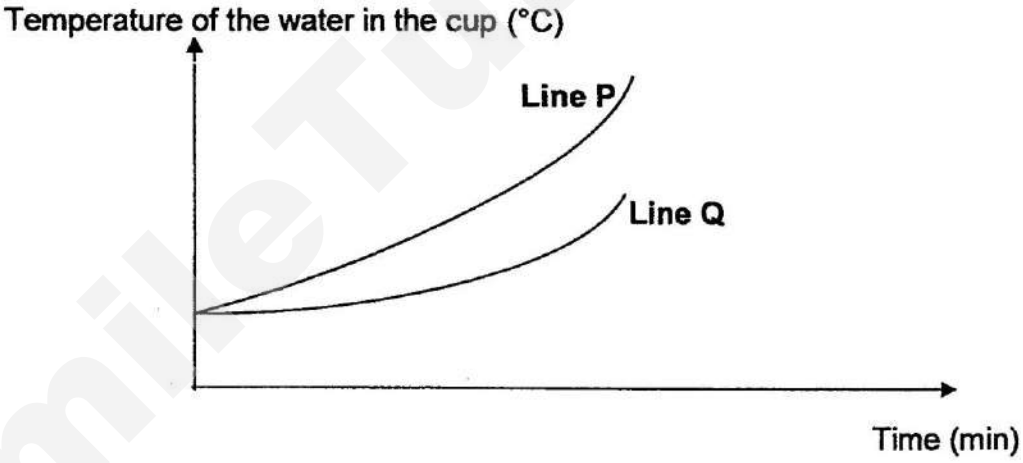
36. Sylvia set up the following experiment as shown below. The cups and beakers have the same volume of water in both set-ups.




Sylvia took the temperatures of the water in both cups using a thermometer at every minute interval for 10 minutes and recorded two sets of data. The results are represented in the line graphs below.




(a) State the lines that best represent the temperature of the water in the cups over time in the graph above. [1]

Temperature of the water in plastic cup : Line _____

Temperature of the water in the metal cup : Line _____

| Score | / 1 |
|---|---|

**Continue on next page.**



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**Continue from previous page.**

(b) Explain the result of the line graph that represented the temperature of the water in the metal cup. [2]

(c) Sylvia had forgotten to remove the thermometers in each cup. She observed that the water in the cups reached the same temperature after 16 hours. Give a reason for her observation. [1]

| Score | / 3 |
|---|---|



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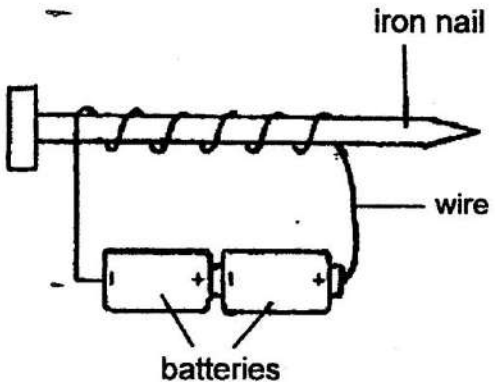
37. Paul made an electromagnet using two batteries, an iron nail and a piece of wire as used below.




He tested the magnetic strength of the electromagnet by placing it near a tray of pins. He then recorded his observations in the table below.

(a) Complete the table below. [1]

| **Number of turns of the coils around the iron nail** | 5 | 10 | 15 | 20 |
|---|---|---|---|---|
| **Number of pins attracted by the iron nail** | 1 | 3 | (a) _____ | 7 |

(b) He then repeated the experiment using a copper nail.

Complete the table below by ticking (√) the correct boxes accordingly to ensure a fair experiment. [1]

| Variables | Kept the same | To be changed |
|---|---|---|
| **Number of batteries used** | | |
| **Number of turns of the coils** | | |
| **Length of wire** | | |
| **Type of nail used** | | |

(c) Predict the number of pins that the copper nail would be able to attract when Paul made 25 turns of coils around it. Give a reason for your prediction. [2]

_____

_____

| Score | / 4 |
|---|---|

**- End of Paper -**



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# ANSWER KEY

**YEAR : 2018**
**LEVEL : PRIMARY 4**
**SCHOOL : RAFFLES GIRLS PRIMARY**
**SUBJECT : SCIENCE**
**TERM : SA 2**

## SECTION A

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

## SECTION B

**Q26) a: 3 b: 4**

**Q27a) leaves**

**Q27b) food**

**Q27c) i: Set-up Q and R should be used to carry out a fair test because the amount of water, number of leaves and presence of oil are kept constant in both set-ups to ensure a fair test.**

**ii: P. It makes more food than Q and R, has more roots than Q to absorb more water.**



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**Q28a) solid**

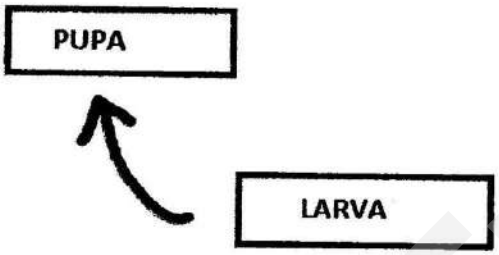
**Q28b) Gas**

**Q29) slowly, poorer**

**Q30a) more paper clips than**

**Q30b) magnetic**

**Q31a)**




**Q31b)**

| | |
|---|---|
| **Surrounding temperature from 20°c to 35°c** | **The cooler the temperature is, the more number of days it takes for insect P to turn into an adult.** |
| **Surrounding temperature from 35°c to 40°c** | **The number of days taken for the egg to turn into the adult remained the same when the surrounding temperature increased from 35°c to 40°c.** |

**Q32a) B. It took the least amount of time for the food to be broken down into simpler substances.**



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**Q32b) It took the longest amount of time for the food to be broken down into simpler substances.**

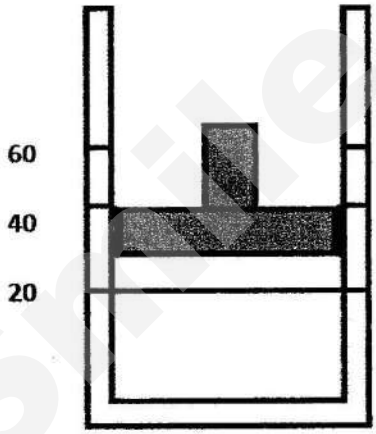
**Q32c) Circulatory system.**

**Q33a) S. It is the strongest material as it could withstand the most number of weights before it started to break. It is also not flexible, meaning that it can hold its shape. This makes it the most suitable material to make the drying rack as the rack will be carrying items that have weight and the rack needs to have a firm shape.**

**Q33b) It must be waterproof.**

**Q33c) R. Material R could bend the most easily and could hold 13kg of weights.**

**Q34a)**




**Q34b) Air has no definite volume and can be compressed. However, water has a definite volume and cannot be compressed.**

**Q34c) The metal plunger gained heat from the hot water and expanded.**

**Q35a) B > A > C**



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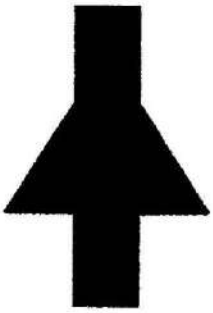
**Q35b) B. It allows the most light to pass through, reflecting less light into the pupils' eyes which enable them to be able to see the food clearer.**

**Q35c) i:**



**ii: Move the torch closer to P and Q.**

**Q36a) Line Q, Line P**

**Q36b) The metal cup is a better conductor of heat compared to plastic, thus it conducted heat more quickly from the hot water in the Styrofoam container to the water in the metal cup.**

**Q36c) The cup's water was at room temperature.**

**Q37a) 5**

**Q37b)**

| | | |
|---|---|---|
| Number of batteries used | ✔ | |
| Number of turns of the coils | ✔ | |
| Length of wire | ✔ | |
| Type of nail used | | ✔ |

**Q37c) 0. Copper is a non-magnetic material which cannot be magnetised.**

**END**



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# Rosyth School
## Second Semestral Examination for 2018
## SCIENCE
## Primary 4

Total Marks: ____/56

Name: _____

Class: Pr 4 _____ Register No. _____ Duration: 1 h 45 min

Date: 26th October 2018 Parent's Signature: _____

---

# 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 the correct ovals on the Optical Answer Sheet (OAS) provided using a 2B pencil.

* This booklet consists of 22 printed pages (including cover page).

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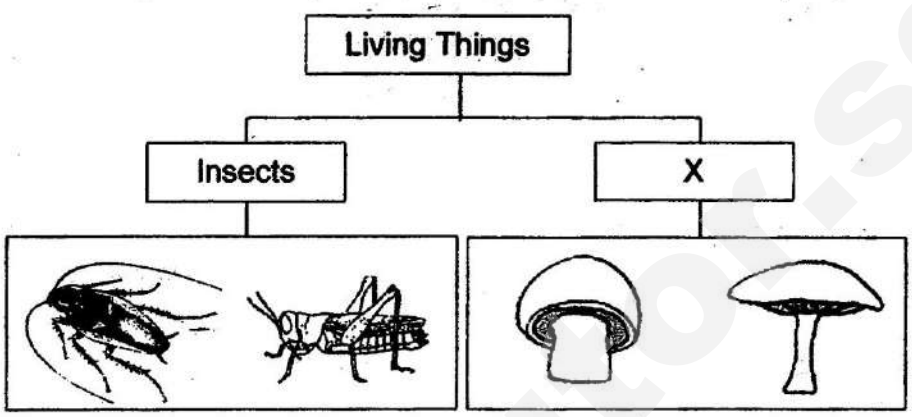
## Part I (56 marks)

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.**

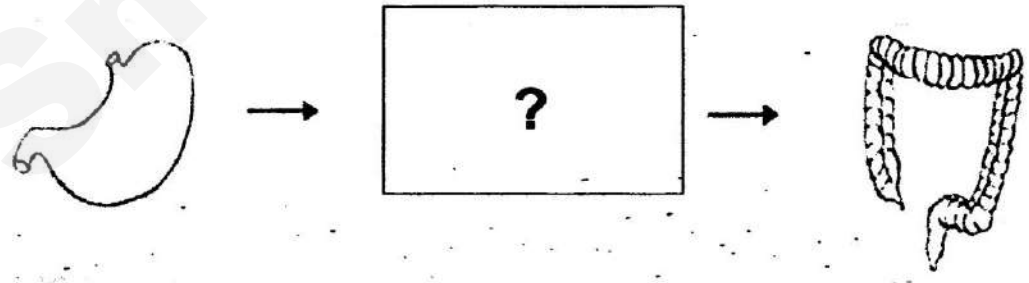
1. The table below shows how some living things can be grouped.




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

(1) fish
(2) fungi
(3) bacteria
(4) mammals

2. The diagram below shows the order of some organs in a human digestive system.




What is the missing part in the box above?

(1) anus
(2) gullet
(3) mouth
(4) small intestine



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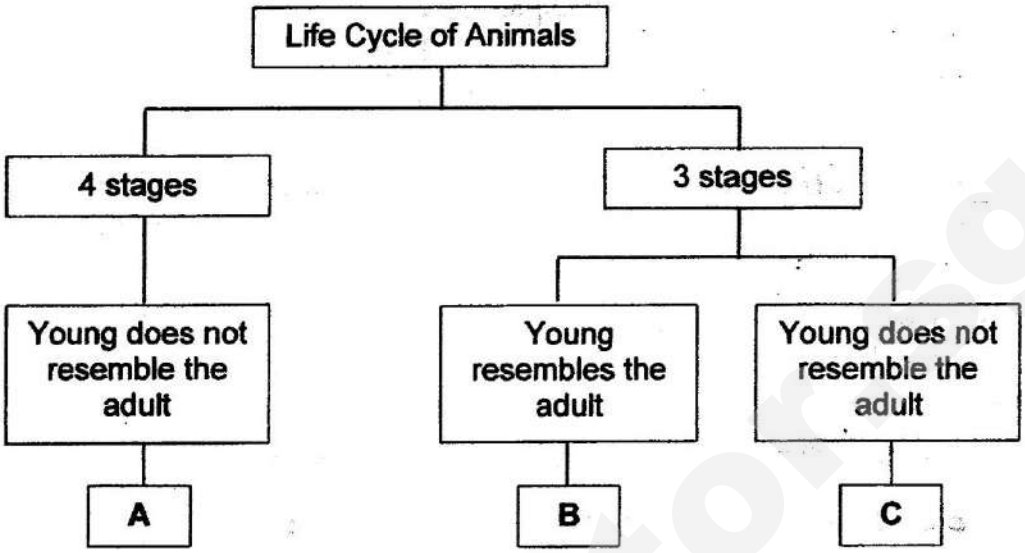
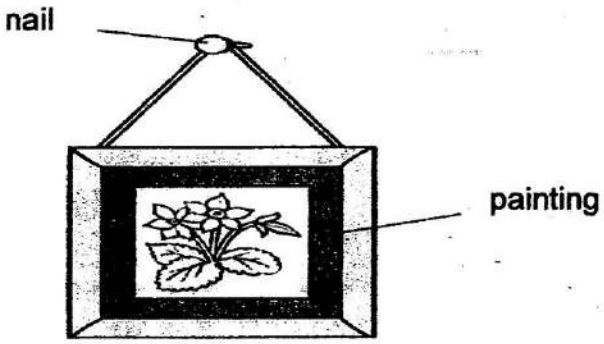
3. Study the classification chart below.




Which one of the following represents A, B and C?

| | A | B | C |
|---|---|---|---|
| (1) | chicken | butterfly | frog |
| (2) | butterfly | chicken | frog |
| (3) | butterfly | frog | chicken |
| (4) | frog | chicken | butterfly |

4. The diagram shows a painting hanging on a wall.




Iron is used to make the nail because iron is _____.

(1) shiny
(2) strong
(3) flexible
(4) waterproof



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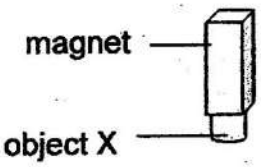
5. An object X was attracted to a magnet, as shown in the figure below.




Object X is made of _____.

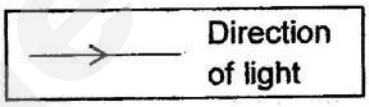
(1) iron
(2) wood
(3) rubber
(4) plastic

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

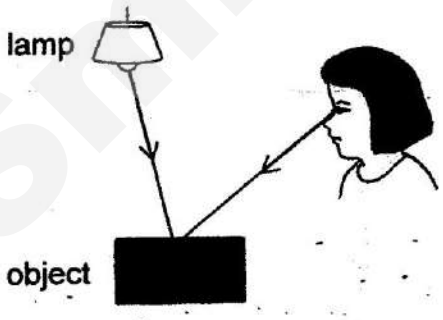
Which one of the following is **NOT** matter?

(1) air
(2) light
(3) sand
(4) water

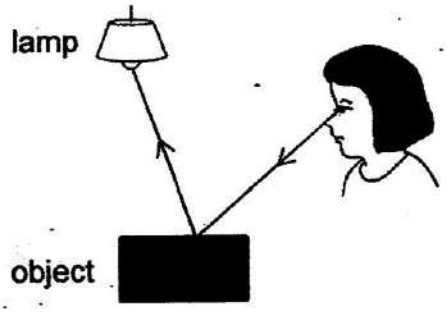
7. Which of the following shows how a person can see the object under the light?



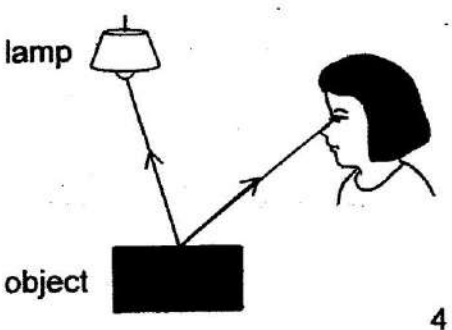

(1)




(2)




(3)

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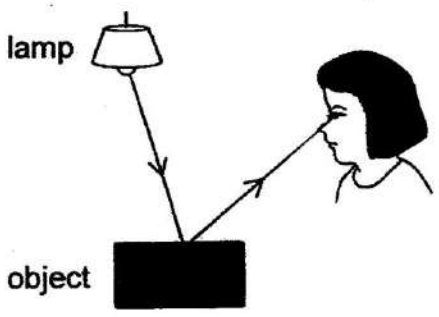




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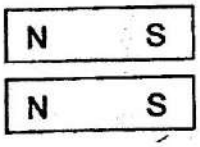
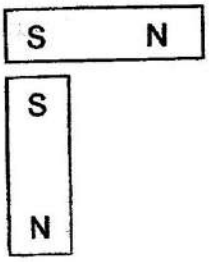
8. In which one of the following will the two magnets move towards each other?

(1)

(2)




(3)




(4)

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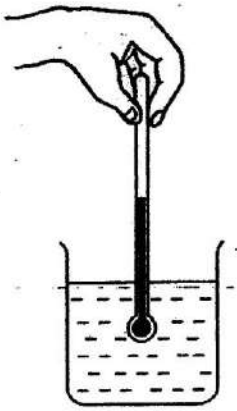
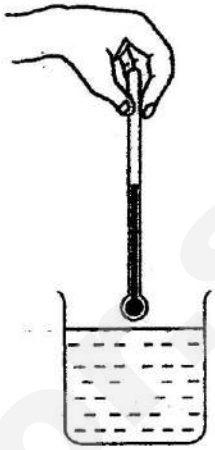
9. Liyana wants to measure the temperature of hot water in a beaker.

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

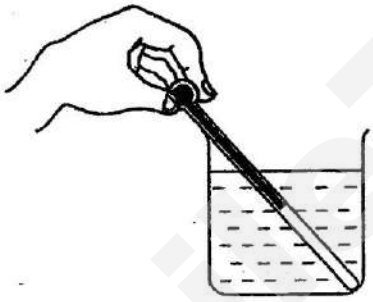
(1)



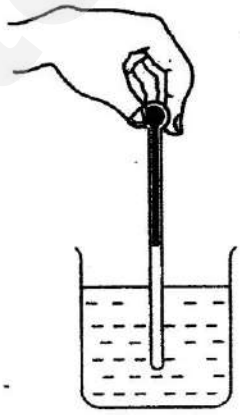
(2)



(3)



(4)



10. Akmal boiled some water in the pot shown below.

He is able to hold the pot of boiling water using the plastic handles.

This is because plastic is a _____.

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



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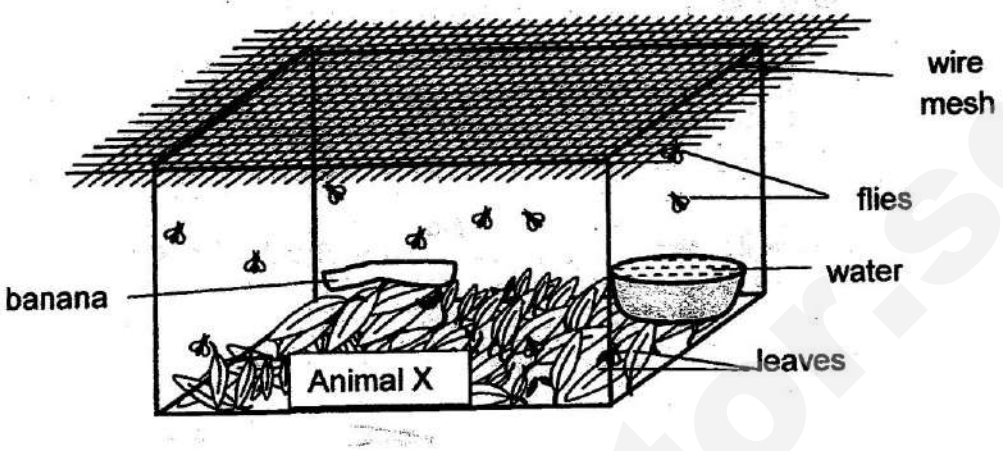
11. Grace put Animal X, in a tank with some water, leaves and some flies. She covered the tank with some wire mesh to prevent the flies from flying away. She placed a banana for the flies to feed on.




She recorded the amount of leaves and the number of flies left in the tank for the next 6 hours as shown in the table below.

| | Amount of leaves (in grams) | Number of flies |
|---|---|---|
| **Start** | 80 | 12 |
| After 2 hours | 65 | 9 |
| After 4 hours | 40 | 7 |
| After 6 hours | 26 | 4 |

What can you conclude about the eating habit of Animal X?

(1) It eats flies only.
(2) It eats leaves only.
(3) It eats both flies and leaves.
(4) It does not eat both flies and leaves.



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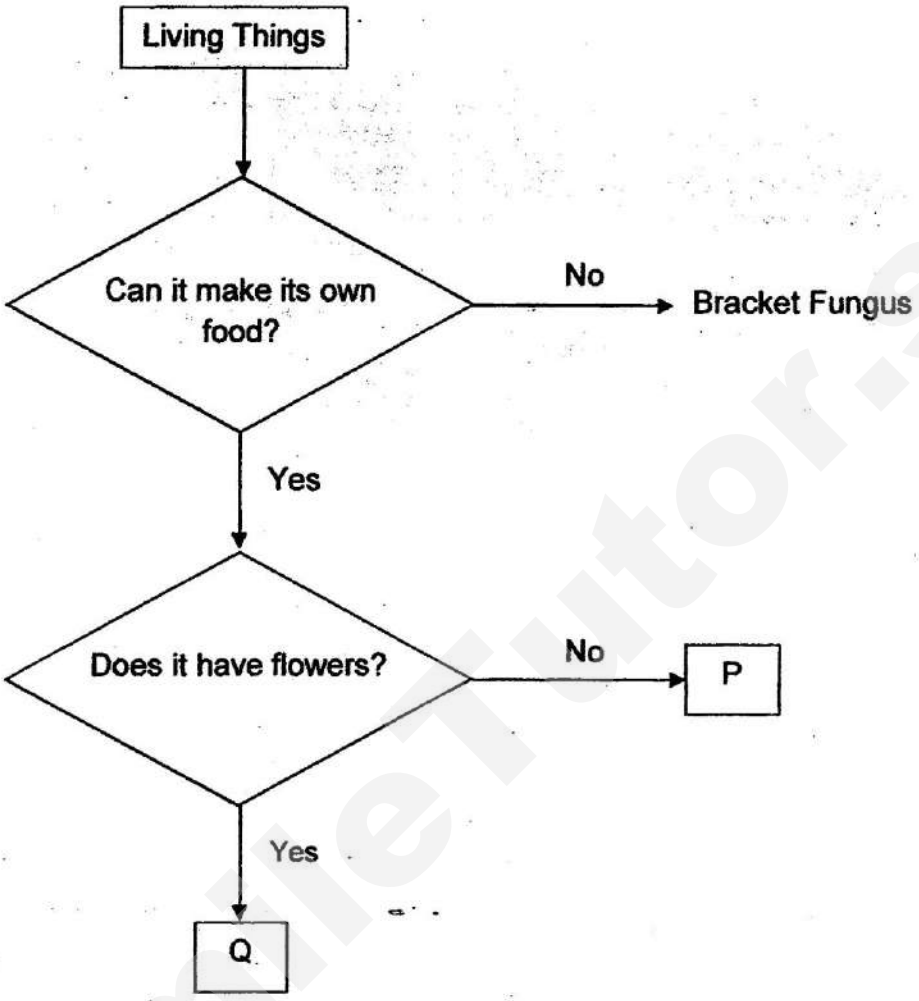
12. Study the flowchart below.




Which of the following statement best describes P and Q?

| | P | Q |
|---|---|---|
| (1) | P is not a plant. | Q is a plant. |
| (2) | P bears fruit. | Q does not bear fruit. |
| (3) | P does not need sunlight. | Q needs sunlight. |
| (4) | P is a non-flowering plant. | Q is a flowering plant. |



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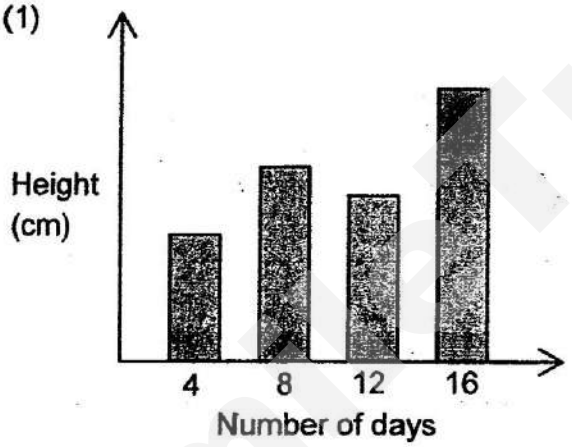
13. Which one of the statements below best describes the human body?

(1) It is made up of one organ system that carries out a single function.
(2) It is made up of one organ system that carries out different functions.
(3) It is made up of many organ systems that carry out different functions.
(4) It is made up of many organ systems that carry out the same function.

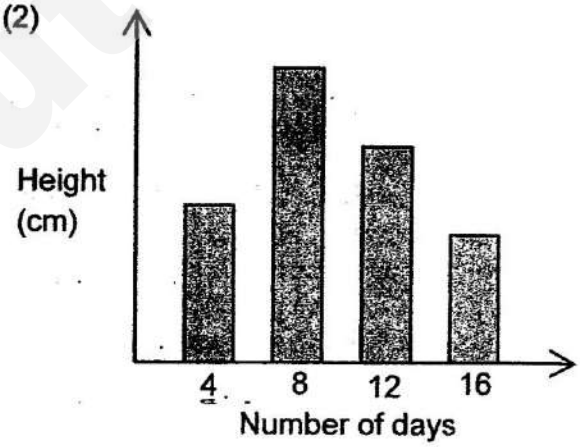
14. Bala grew some green beans in a cup and placed it near the window. He watered the seedlings daily. He then measured the height of the seedlings every four days.

Which one of the following graphs best represents the height of the seedlings over 16 days?

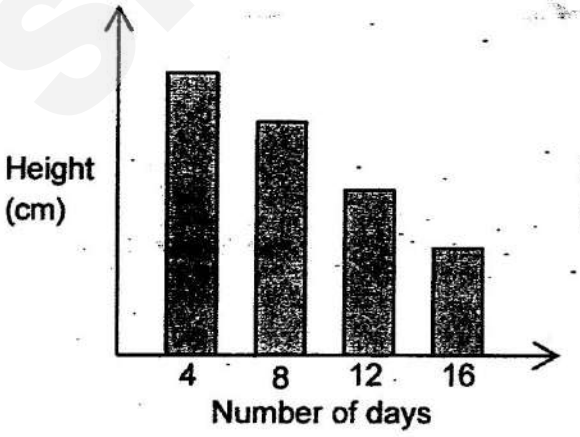
(1)



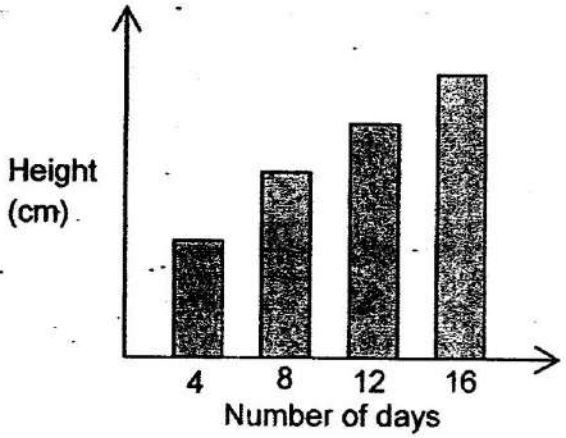

(2)




(3)




(4)



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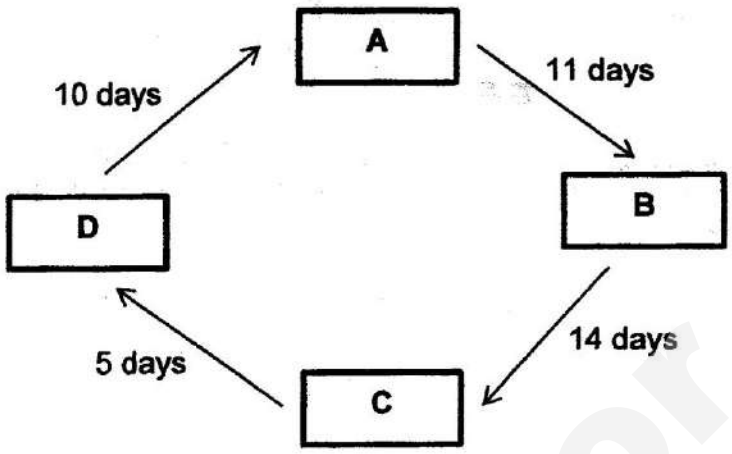
15. The diagram below represents the stages, A, B, C and D, of the life cycle of a special type of butterfly.




B represents the stage where the butterfly is able to reproduce.

At which stage would there be a lot of eating and shedding of skin to grow bigger?

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



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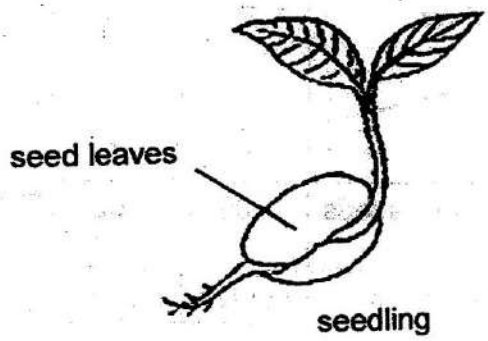
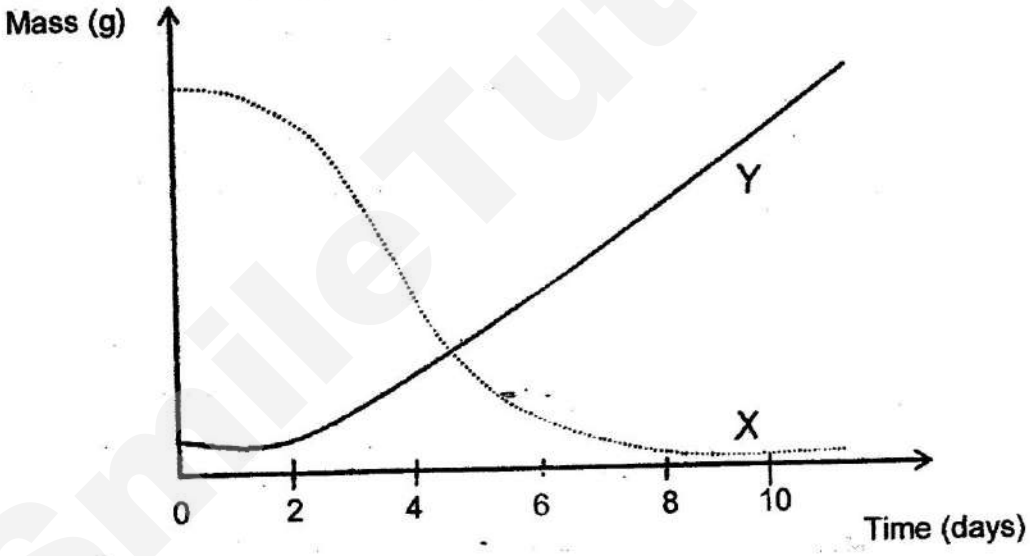
16. Alexander set up an experiment on the germination of a seedling.




He measured the mass of the seed leaves and seedling and the results are shown in the graph below. One showed the change in the mass of the seed leaves while the other showed the change in the mass of the seedling.




Which of the following statements describe the correct explanation for line X or Y?

| | Line | Reason |
|---|---|---|
| (1) | X | The seedling makes its own food. |
| (2) | X | The seedling obtains its food from the seed leaves. |
| (3) | Y | The seed leaves makes its own food. |
| (4) | Y | The seed leaves obtains its food from the seedling. |



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17. Johan prepared four set-ups P, Q, R and S, as shown in the table below.

| Set-up / Variables | P | Q | R | S |
|---|---|---|---|---|
| Number of green bean seeds | 5 | 5 | 10 | 5 |
| Amount of water added to the seeds everyday ($cm^3$) | 100 | 100 | 100 | 0 |
| Location where the set-up is placed | garden | freezer | garden | garden |

Johan selected the following set-ups for each of the following experiment.

Which one of the following set-ups and aims of the experiment is matched correctly?

| | Set-up | Aim of Experiment |
|---|---|---|
| (1) | P and Q | To find out if light is needed for germination |
| (2) | Q and R | To find out if the number of seeds affects germination |
| (3) | P and S | To find out if water is needed for germination |
| (4) | R and S | To find out if water is needed for germination |



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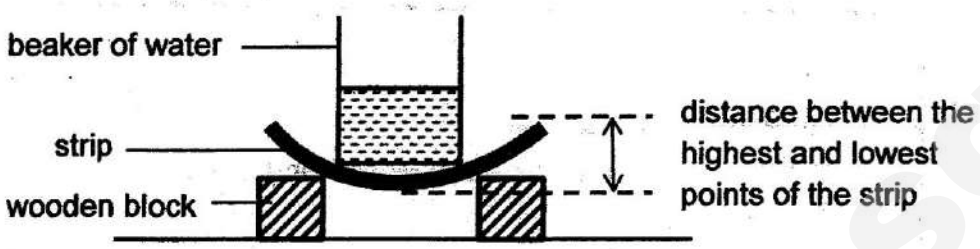
18. Farah set up an experiment as shown below to investigate a property of three strips, K, L and M, which were made of different materials.




She placed the beaker on each strip. She then added different amounts of water into the beaker until the distance between the highest and lowest points of the strip reached 2 cm.

She recorded her results in the table below.

| Amount of Water in Beaker (ml) | | |
|---|---|---|
| K | L | M |
| 80 | 40 | 120 |

Based on the results, arrange the materials based on their flexibility, from the most flexible to the least flexible?

(1) M, K, L
(2) M, L, K
(3) K, L, M
(4) L, K, M



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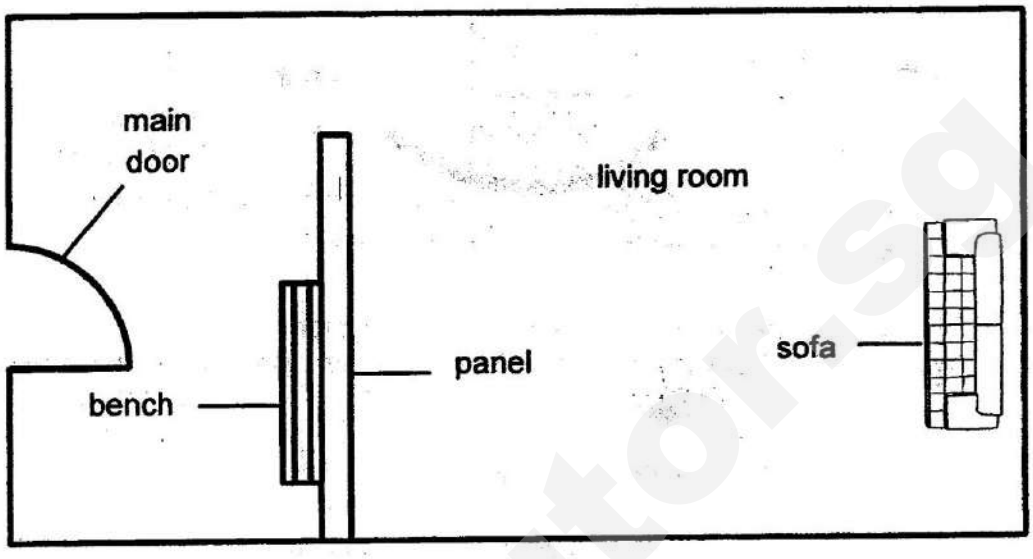
19. Aiman wanted to make a wall panel in his living room. The diagram below is the layout plan for his living room.

layout plan




He told his contractor the following conditions:

A: the sofa must not be seen clearly from the main door through the panel
B: a person can lean on the panel while sitting on the bench

Based on the information given above, which of the following properties should the panel have?

| | Properties of Materials to make the Wall Panel | | | | |
|---|---|---|---|---|---|
| | **Fragile** | **Strong** | **Most light can pass through** | **No light can pass through** | **Some light can pass through** |
| (1) | √ | | | √ | |
| (2) | | √ | | | √ |
| (3) | | √ | √ | | |
| (4) | √ | | | | √ |



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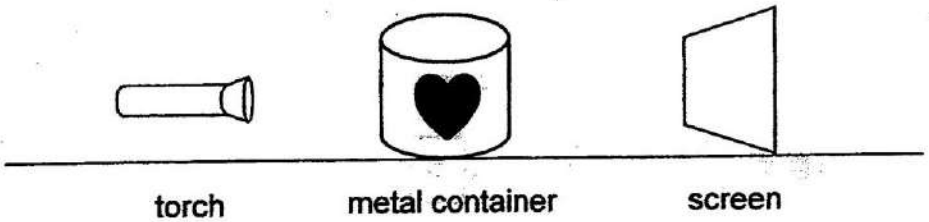
20. Damian placed a metal container between a torch and a screen. There was a heart painted on one side of the container.




He turns the metal container at different angles to face the torch. Which of the following shadows would **not** be cast on the screen?

(1)

(2)

(3)

(4)

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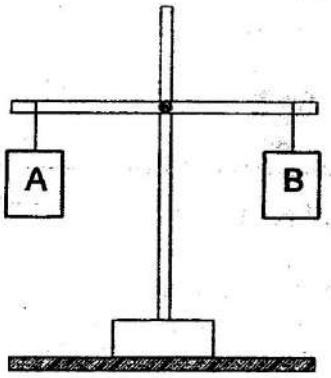
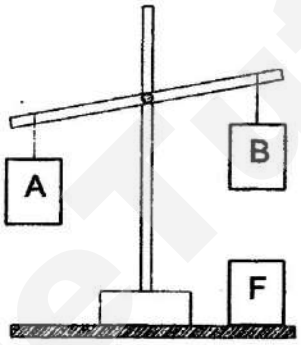
21. The diagram below shows a balance with two objects, A and B hung at both ends. Objects A and B balance each other.




When object F is placed directly below object B, the balance tilted, as shown in the diagram below.




Based on the observations in both diagrams, what could be objects B and F?

| | Object B | Object F |
|---|---|---|
| (1) | magnet | magnet |
| (2) | magnet | steel block |
| (3) | glass block | steel block |
| (4) | glass block | magnet |



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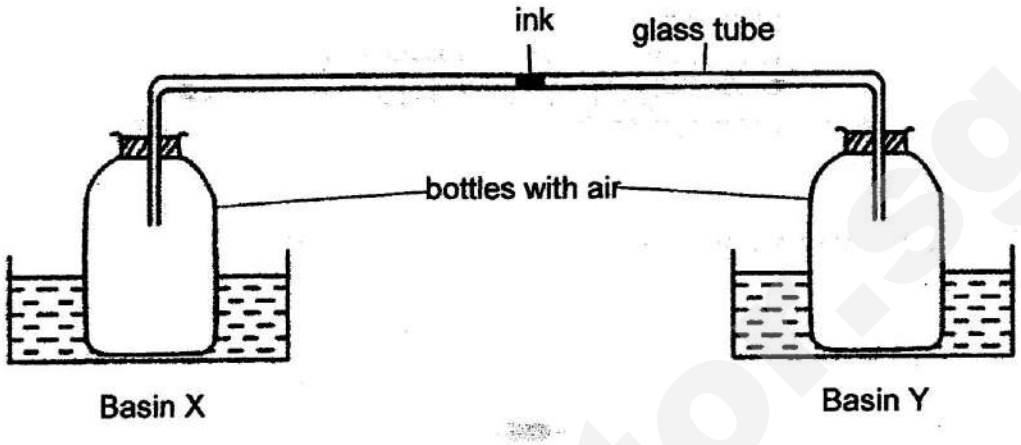
22. Andy connected two identical bottles using a glass tube which contained a drop of ink. He placed one bottle in basin X and the other bottle in basin Y as shown in the diagram below. Basins X and Y contain equal amounts of water at different temperatures.




Which of the following shows the most likely result?

| | Temperature of water (°C) | | Direction of movement of ink |
|---|---|---|---|
| | Basin X | Basin Y | |
| (1) | 20 | 80 | → |
| (2) | 80 | 20 | → |
| (3) | 80 | 40 | ← |
| (4) | 40 | 20 | ← |



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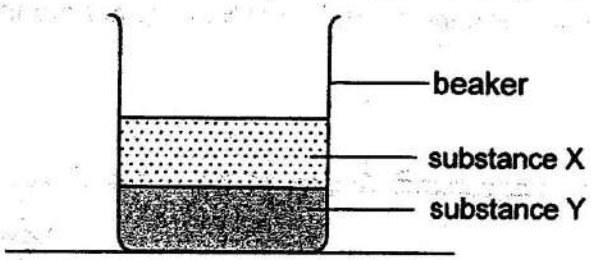
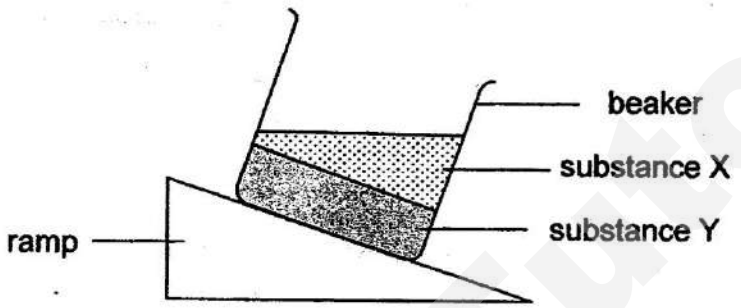
23. The diagram below shows a beaker filled with two substances, X and Y.




The beaker was then put on a ramp, as shown below.




Which states of matter do you think substances X and Y are in?

| | X | Y |
|---|---|---|
| (1) | liquid | solid |
| (2) | solid | liquid |
| (3) | gas | solid |
| (4) | gas | liquid |



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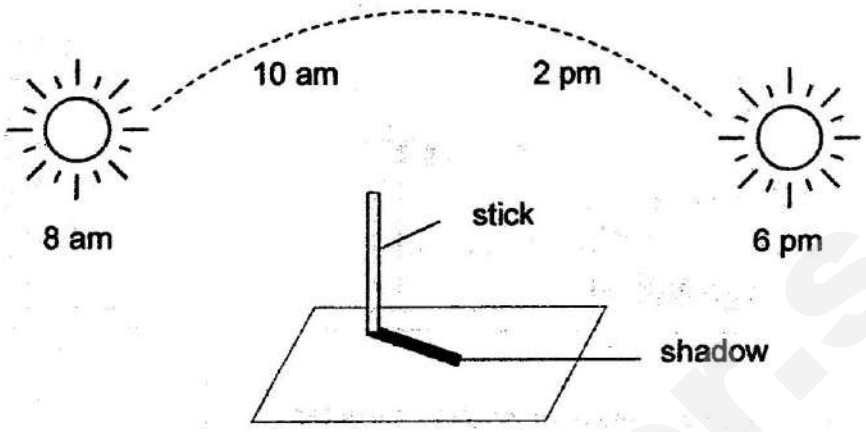
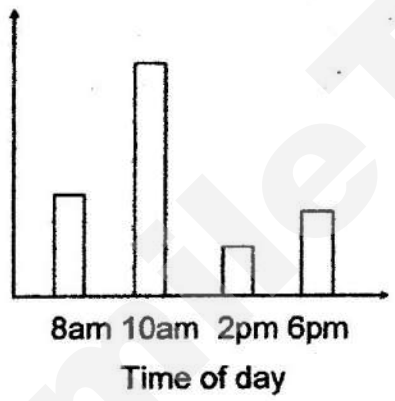
24. Stephanie placed a wooden stick on the ground, as shown below. She measured the length of the shadow at 8am, 10 am, 2pm and 6pm.

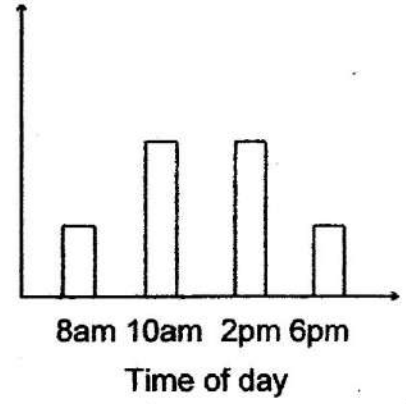



Which of the following graphs best represents the length of the shadow formed by the stick at different times of the day?

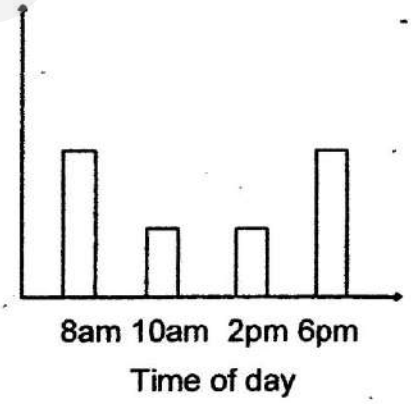
(1)



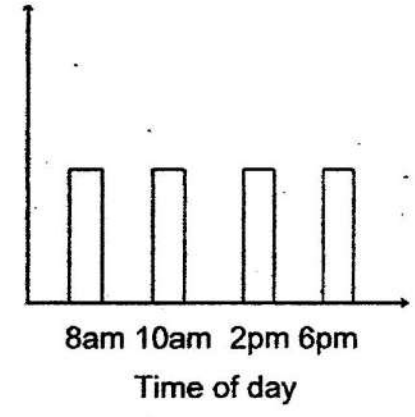

(2)




(3)




(4)



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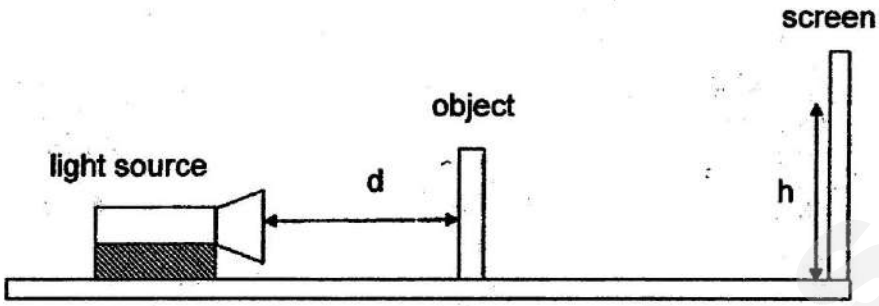
25. Jessica carried out an experiment as shown below to find out how the distance between the light source and an object could affect the height of its shadow on a screen.




She recorded her results as shown in the table below.

| Distance (d) between the light source and the object (cm) | 10 | 20 | 30 | 40 |
|---|---|---|---|---|
| Height (h) of the shadow cast on the screen (cm) | 35 | 21 | 16 | 10 |

Based on Jessica's experiment, the height of the shadow is

_____.

(1) shorter when the light source is nearer the object
(2) unchanged when the light source is nearer the object
(3) taller when the light source is further away from the object
(4) shorter when the light source is further away from the object



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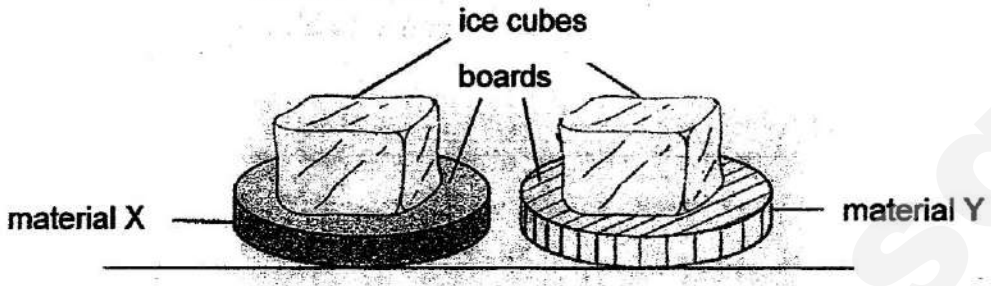
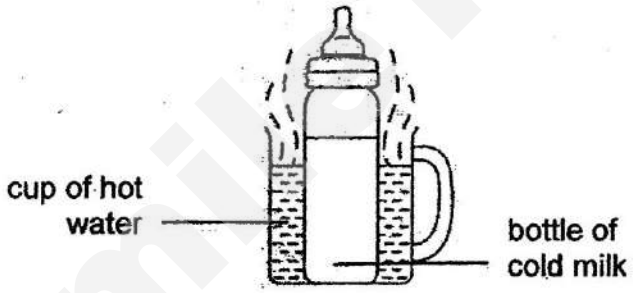
26. Mariah placed an ice cube each on two boards made of different material X and Y as shown below. Mariah wanted to find out which ice cube would take a longer time to melt completely.




Which one of the following was changed for her investigation?

(1) The size of ice cubes.
(2) The number of ice cubes.
(3) The material of the boards.
(4) The location of the set-ups.

27. A bottle of cold milk was placed in a cup of hot water.




Which of the following statements is true?

(1) The cold milk loses heat to the hot water.
(2) The temperature of the cold milk decreases.
(3) The temperature of the hot water decreases.
(4) The hot water gains heat from the surrounding.



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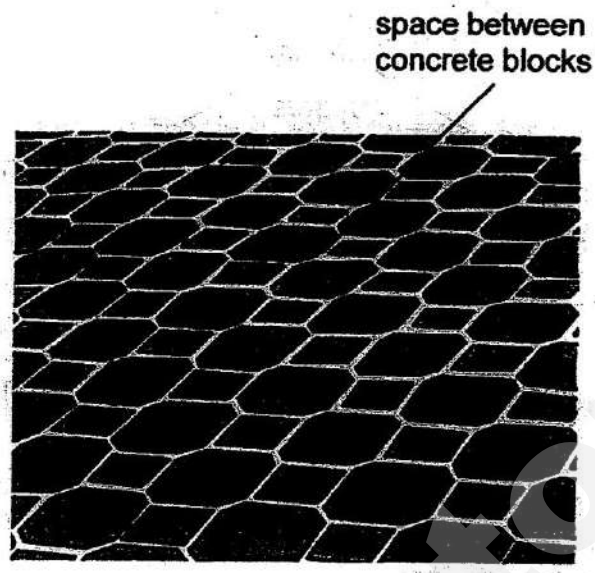
28. Walking pavements that we see on the street are often covered with concrete blocks with spaces as shown in the diagram below.




Which one of the following correctly explains why there are spaces between the concrete blocks?

(1) To allow the blocks to expand on hot days.
(2) To allow the blocks to contract on cold days.
(3) To allow dirt to be removed easily from the pavement.
(4) To allow plants to grow in the spaces between the blocks.

**End of Booklet A**



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# Rosyth School
## Second Semestral Examination for 2018
## SCIENCE
## Primary 4

Name: _____ Total Marks: 100

Class: Pr 4 _____ Register No. _____ Duration: 1 h 45 min

Date: 26th October 2018 Parent's Signature: _____

# Booklet B

**Instructions to Pupils:**

1. For questions 29 to 41, give your answers in the spaces given in this 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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## PART II (44 marks)

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

29. Study the diagram below.

(a) State the needs of the caterpillar to stay alive. [2]

_____

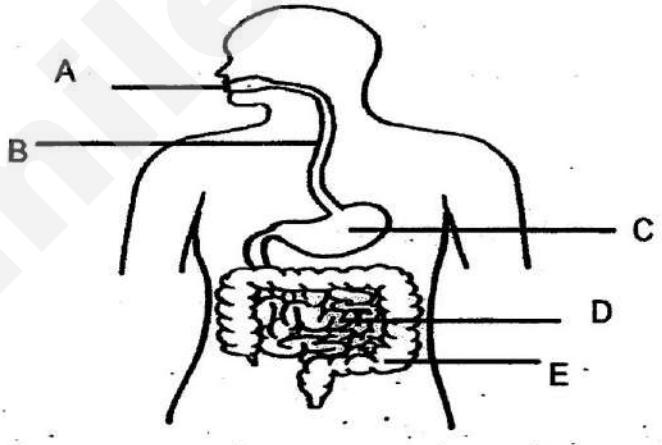
The caterpillar becomes bigger after some time.

(b) What is the characteristic of living things shown by the caterpillar? [1]

_____

_____

30. The diagram below shows the human digestive system.




(a) In which part (A, B, C, D or E) does digestion first takes place? [1]

_____

(b) In which part (A, B, C, D or E) is most digested food absorbed into the bloodstream? [1]

_____



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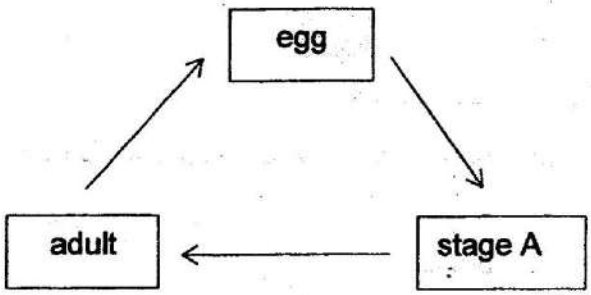
31. The diagram below shows the stages in the life cycle of a cockroach.




(a) Name stage A. [1]

stage A : _____

(b) Circle an animal that has a similar life cycle as the cockroach. [1]

grasshopper / butterfly / mealworm beetle

32. The diagram below shows a magnifying glass.

(a) Part X is made of glass because it allows _____ to pass through so that the person can see the magnified object. [1]

(b) Part Y is made of _____ because Y has to be strong. [1]



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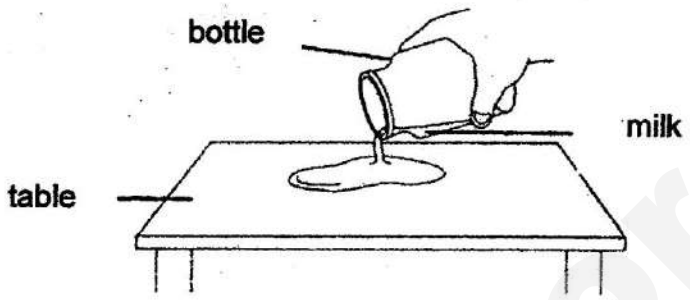
33. Choose the correct words from the box to fill in the blanks below.

| solid | liquid | gas |
|---|---|---|

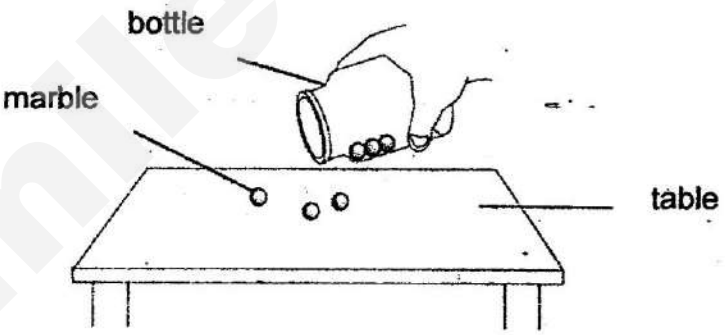
(a) Alex pours milk from a bottle onto a table as shown below. [1]




The volume of the milk remains the same but its shape changes.

This shows that milk is a _____ .

(b) Alex pours some marbles from a bottle onto a table as shown below. [1]




The shape and volume of the marbles remain the same.

This shows that a marble is a _____ .

(c) The air in the bottle is a _____ . [1]

(d) Circle one of the followings that can be compressed. [1]

milk / marble / air



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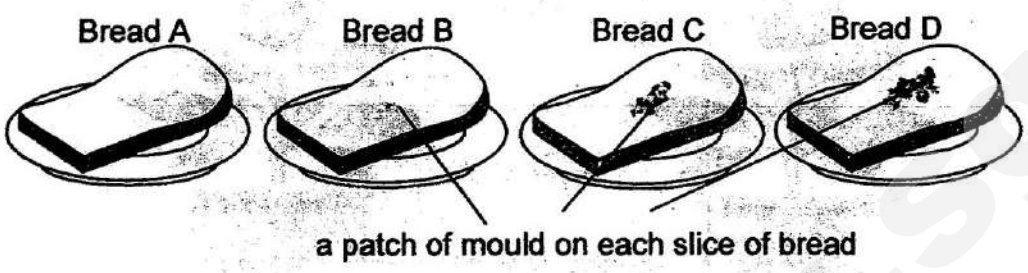
34 Cheryl took four slices of bread from the same loaf. She added different amount of water on the four slices of bread, A, B, C and D. She kept all the four slices of bread in a dark room. The results are as shown in the pictures and table below.




| Bread | Amount of Water (Number of Droplets) | Size of Each Patch of Mould (cm) |
|---|---|---|
| A | 0 | 0 |
| B | 5 | 1 |
| C | 10 | 3 |
| D | 15 | 6 |

(a) Based on the set-ups above, identify the condition that has affected the reproduction of the mould. [1]

_____

(b) State the relationship between the amount of water and the size of each patch of mould. [1]

_____

_____

(c) Based on the above experiment, tick (✓) the correct variables accordingly in the table below. [2]

| Variables | Changed | Kept the same | Measured |
|---|---|---|---|
| Location | | | |
| Type of Bread | | | |
| Amount of Water | | | |
| Size of Each Patch of Mould | | | |



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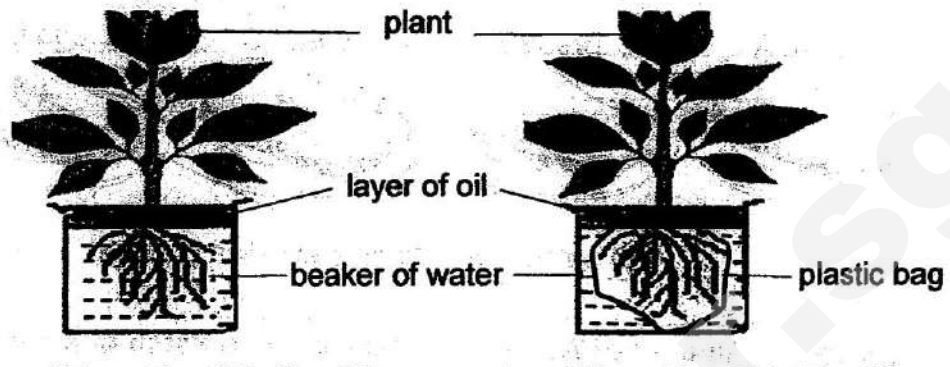
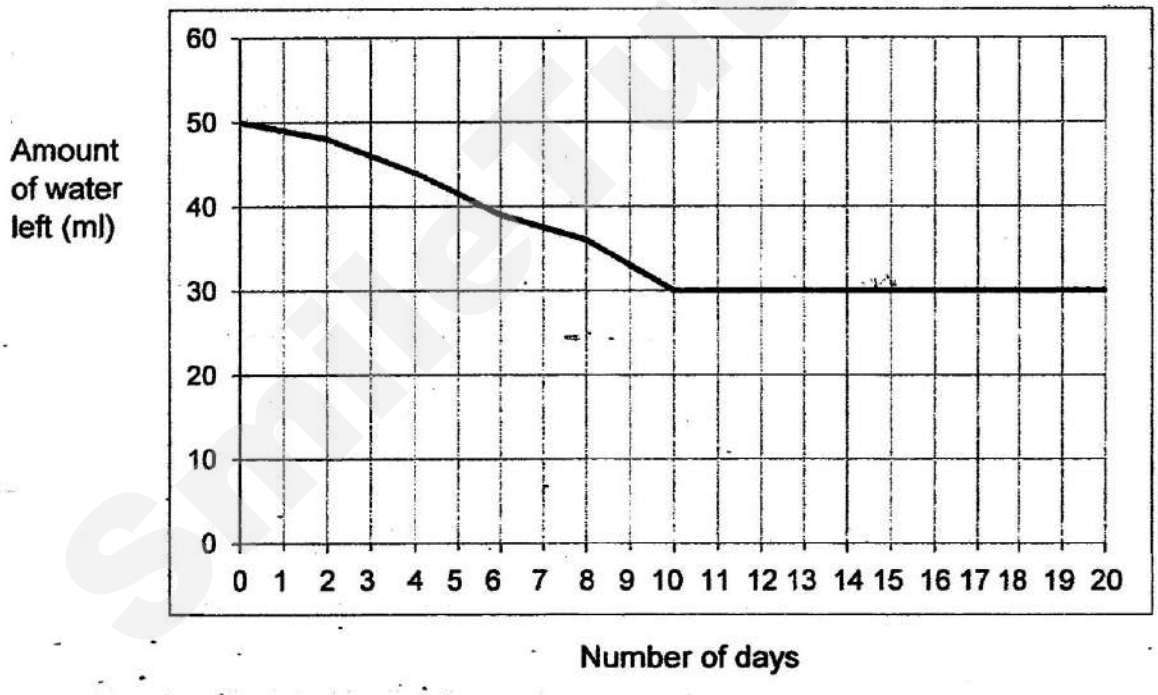
35. Ali placed a plant in set-up X. He put a layer of oil over the water. He then measured the amount of water left in the beaker at the end of each day.
After measuring the amount of water left on Day 10, Ali covered the roots of the plant completely using a plastic bag as shown below.




set-up X from Day 0 to Day 10 set-up X from Day 11 to Day 20

The graph below shows the result of his experiment.




(a) Based on the graph above, describe the changes in the amount of water left in the beaker from Day 1 to Day 20. [2]

Question 35 is continued on page 7



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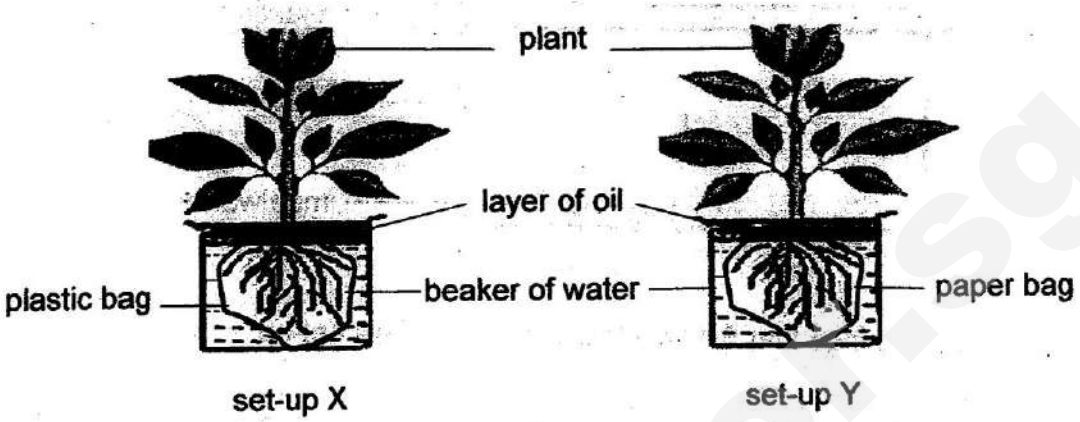
Ali then carried out another experiment after Day 20. He covered up the roots of another similar plant using a paper bag in set-up Y. He compared set-ups X and Y for some time as shown below.




(b) In which set up, X or Y, will the plant survive longer? Give a reason for your choice. [2]

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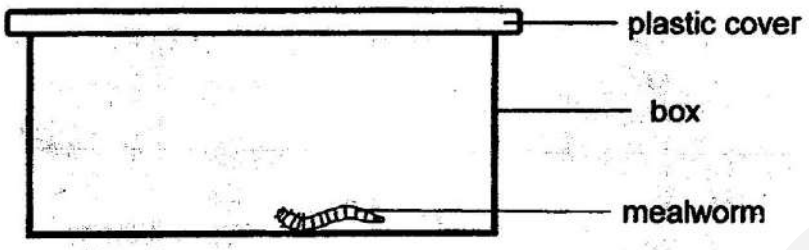
36. Bill wanted to study the growth of a mealworm. He placed a mealworm in a box covered with a plastic cover as shown below.




(a) State two things that Bill should do to improve his set-up. [2]

(i) _____

_____

(ii) _____

_____

His friend told him that he should release the mealworm once it has grown into an adult.

(b) Why was it important to release the mealworm beetle? [1]

_____

_____



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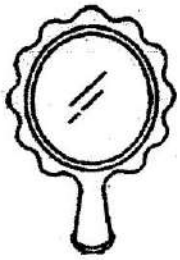
37. Look at the pictures below.

(a) Tick (✓) the sources of light. [2]

☐ mirror

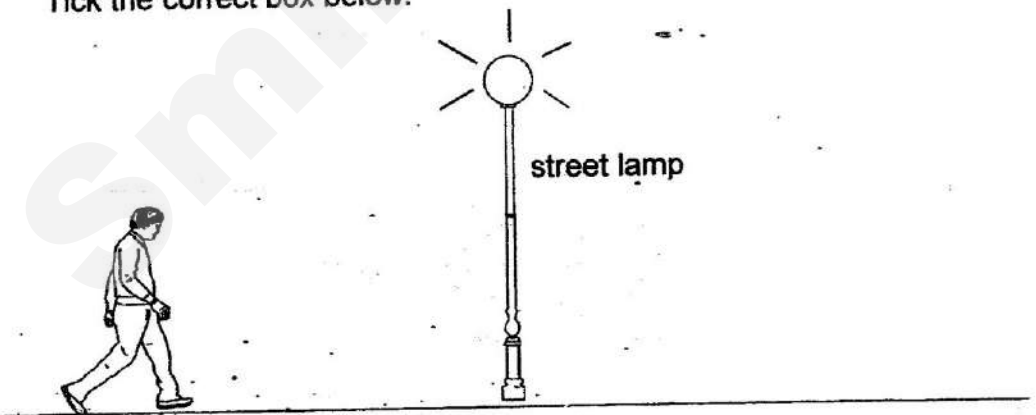


☐ fire

☐ eyes

☐ lamp

(b) Mr Ong walked towards a street lamp at night.
At which position should Mr Ong stand for his shadow to be the shortest?
Tick the correct box below. [1]




(c) Explain how Mr Ong's shadow was formed. [1]

_____

_____



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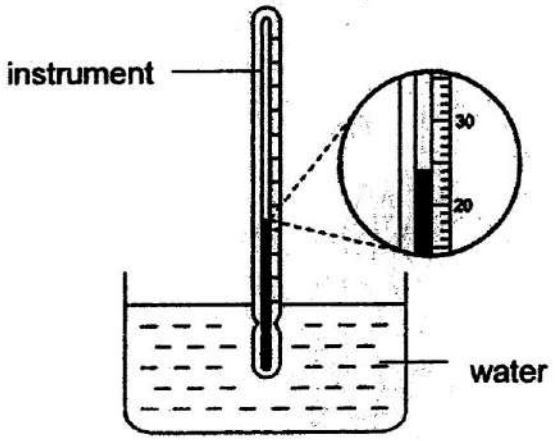
38. Janice used an instrument to measure the temperature of water in a tank.



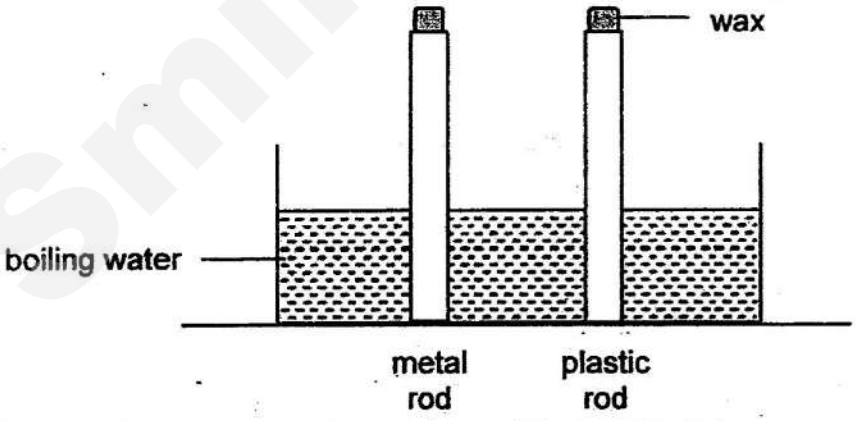

(a) What is the name of the instrument? [1]

_____

(b) What is the temperature of the water in the tank?

_____ °C

Janice heated the tank of water. She then placed a metal rod and a plastic rod into the tank as shown below. Equal amount of wax were placed on both rods.




(c) Which rod would cause the wax to melt faster? Explain your answer. [2]

_____

_____

_____



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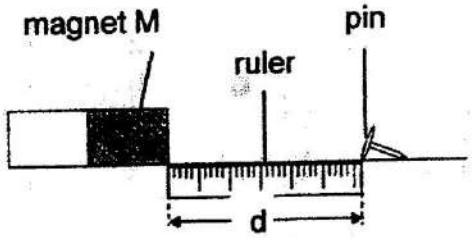
39. Jacky set up an experiment as shown below. A pin was slowly pushed along the ruler towards magnet M. Jacky recorded the distance, d, at the point where the pin was attracted to the magnet. He repeated these steps with magnets N and O.




Jacky recorded his observations in the table below.

| Magnet | d (cm) |
|---|---|
| M | 4 |
| N | 9 |
| O | 5 |

(a) Based on the results in the table, arrange the bar magnets (M, N and O) according to their strength from the weakest to the strongest. [1]

(b) What is a possible material that the pin can be made of? [1]

_____

Jacky then hammered the bar magnet M 40 times repeatedly. He then conducted the same experiment by pushing the pin slowly along the ruler towards the bar magnet M.

(c) Will the distance, d, be shorter, longer or the same as 4cm? [1]

_____

(d) Explain why. [1]

_____

_____



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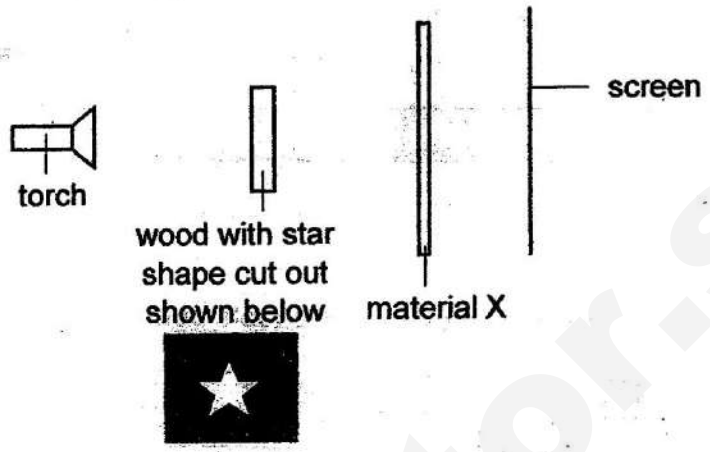
40. Rosalind wanted to find out the amount of light which can pass through two different materials X and Y.

She set up her experiment as shown in the diagram below using material X and then repeated the experiment with material Y.




She also observed the brightness of the light patch seen on the screen.

| Materials used | Image on white screen |
|---|---|
| No material placed | Bright light patch seen |
| X | No light patch seen |
| Y | Dim light patch seen |

(a) What would Rosalind do to make the image bigger? Tick the correct box(es) below. [1]

| | |
|---|---|
| Move the torch further from the wood | |
| Move the wood nearer to the torch | |
| Move the wood to the screen | |

 Question 40 is continued on page 13

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Rosalind changed the torch to increase the brightness of the light.

(b) What would happen to the image formed using material Y? [1]

_____

_____

(c) Rosalind wanted to wrap a bottle with a material so that the liquid inside cannot be seen.

Which of the material, X or Y, should she use? Give a reason for your choice. [2]

_____

_____

_____

_____

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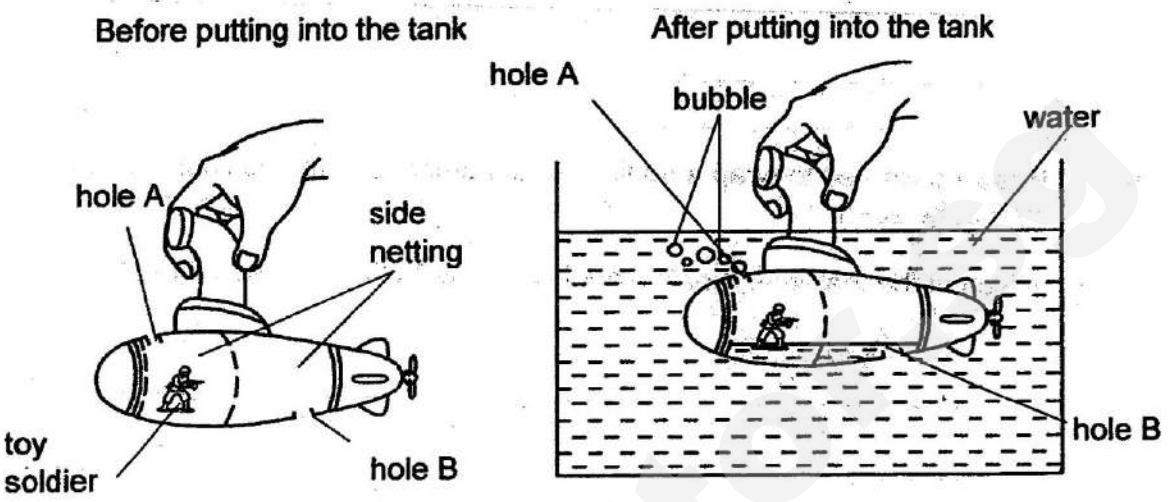
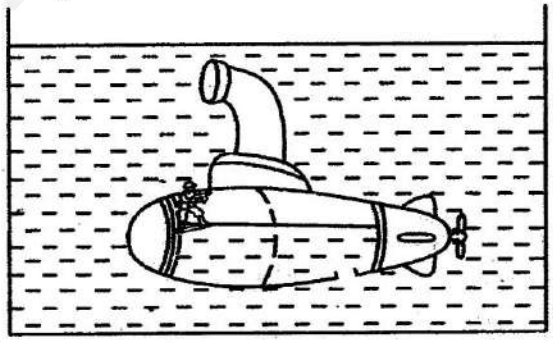
41. Ayden put a toy soldier in his submarine with clear sides. There were two holes A and B on the submarine. When he pushed the submarine into a tank of water, the toy soldier floated upwards and bubbles were seen coming out from hole A.




(a) Explain why bubbles could be seen coming out from hole A when the submarine was pushed into the water. [2]

When the submarine was pushed deeper into the water, the toy soldier rose and blocked hole A completely. Ayden observed that the water level in the submarine stopped rising.



(b) Give an explanation for Ayden's observation [2]

**End of paper**



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# ANSWER KEY

**YEAR : 2018**
**LEVEL : PRIMARY 4**
**SCHOOL : ROSYTH SCHOOL**
**SUBJECT : SCIENCE**
**TERM : SA2**

## BOOKLET A

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

## BOOKLET B

**Q29a) It needs air, food and water to stay alive.**

**Q29b) Living things grow.**

**Q30a) A Q30b) D**

**Q31a) nymph Q31b) grasshopper**

**Q32a) light Q32b) metal**

**Q33a) liquid Q33b) solid Q33c) gas Q33d) air**

**Q34a) Amount of water**

**Q34b) As the amount of water increased the size of each patch of mould increased.**

**Q34c) Location: Kept the same**

**Type of Bread: Kept the same**

**Amount of Water: Changed**

**Size of each patch of mould: Measured**

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**Q35a) From Day 1 to Day 10, the amount of water left decreased as the roots of the plant were absorbing water and mineral salts for the plant. However, from day 10 to day 20, the amount of water left remained the same because the plastic bag was preventing the roots of the plant from absorbing water and mineral salts for the plant.**

**Q35b) Set-up Y will survive onger as Set-up Y's plant's roots are covered with a paper bag which is not waterproof. Hence, set-up Y's plant's roots will be able to absorb water and mineral salts for the plant so set-up Y's plant will survive longer.**

**Q36ai) He should make holes in the plastic cover.**

**Q36aii) He should provide the mealworm with food and water.**

**Q36b) To allow the beetle to find food and reproduce.**

**Q37a) fire, lamp** **Q37b) Position B**

**Q37c) Light from the street lamp is blocked by Mr Ong. Hence, his shadow was formed.**

**Q38a) Thermometer** **Q38b) 24**

**Q38c) The metal rod would cause the wax to melt faster because metal is a good conductor of heat. This means that the metal rod will gain heat from the boiilng water faster than the plastic rod, hence the metal rod's wax will melt faster than the plastic rod's wax.**

**Q39a) M, O, N** **Q39b) Iron** **Q39c) shorter**

**Q39d) The more you hammer a magnet the weaker it gets. So, if a magnet is hammered 40 times, it will be much weaker than its original state, hence, distance d will be shorter.**

**Q40a) Move the wood nearer to the torch.**

**Q40b) The dim light will become a brighter light.**

**Q40c) There was no image of the star formed on the screen.**

**Q41a) The bubbles came out from hole A as the water was entering through hole B, pushing out air through hole A and occupying the space previously occupied by air.**

**Q41b) As hole A was blocked, air in the submarine is not able to escape so the water is not able to take over the space taken by the air in the submarine.**



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SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)

SECOND SEMESTRAL ASSESSMENT 2018

NAME: _____ (  )  DATE: 23 October 2018

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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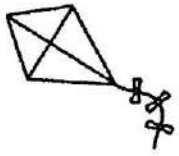
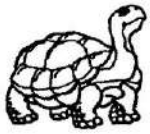
**Part I (56 marks)**

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 is a living thing?

1) 

3)

2) 

4)

2. Which one of the following is not a source of heat?

1) The Sun
2) A lighted bulb
3) A candle flame
4) A woollen sweater

3. Which one of the following properties is true for both air and a pen?

1) They have definite volumes.
2) They can be seen.
3) They take up space.
4) They have definite shapes.

4. Which one of the animals shown below is not an insect?

1)

3)

2)

4)



(Go on to the next page)

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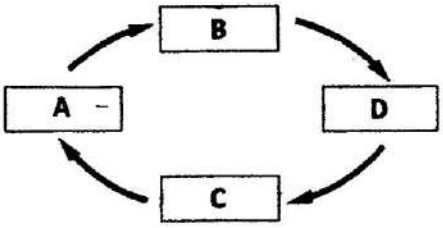
5. A, B, C and D are the various stages in the life cycle of a mosquito.

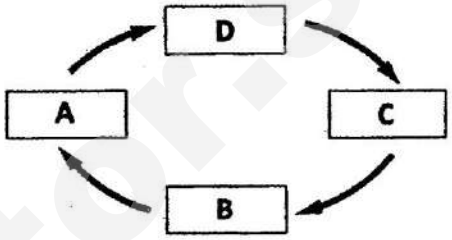
A B C D

Which of the following correctly shows the life cycle of a mosquito?

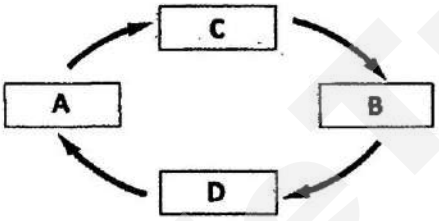
1)



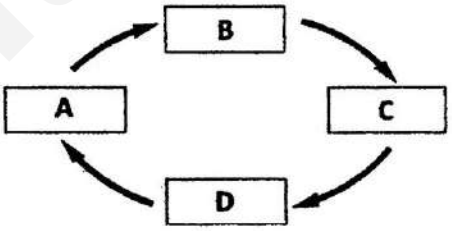

3)



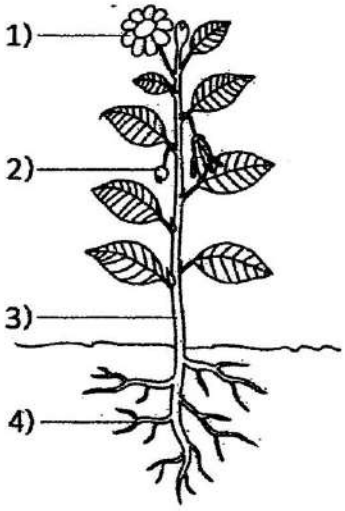

2)




4)




6. The diagram shows a plant.
Which part, 1, 2, 3 or 4 is the stem?



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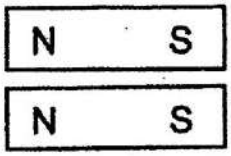
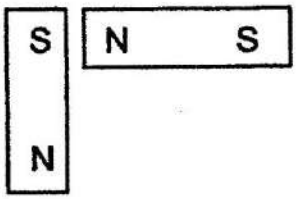
7. In which one of the following will the two magnets push each other away?

1)

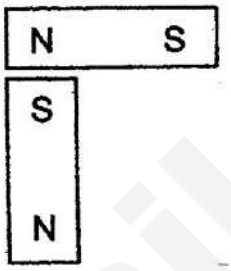



2)




3)

4)

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

1)
A campfire

3)
The moon

2)
An apple

4)
A twig

9. The diagram shows a clock hanging on a wall on a nail.

Iron is used to make nails because iron _____.

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



(Go on to the next page)

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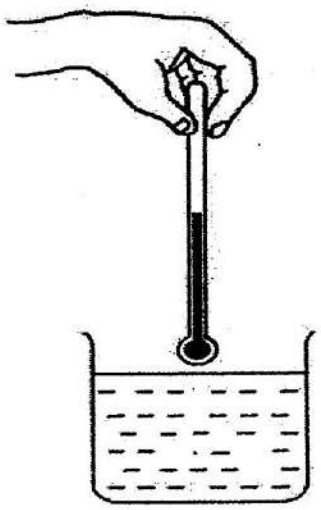
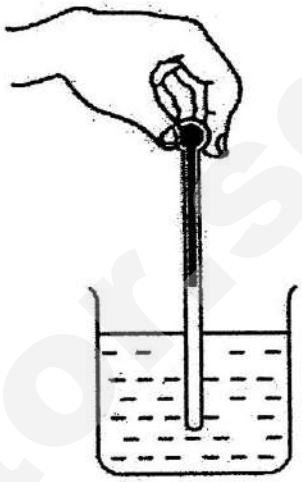
10. Alvin wants to measure the temperature of hot water in a beaker.

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

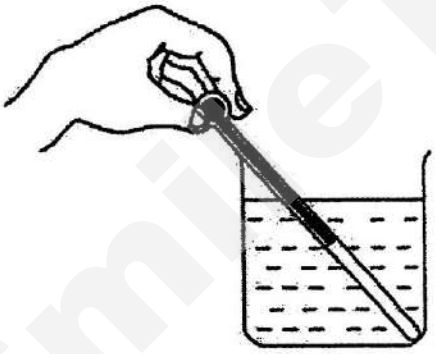
1)



3)



2)



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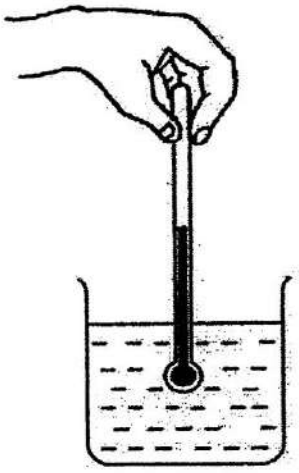

11. Which of the following systems work together so that the whole body can receive oxygen?

1) Circulatory and digestive system
2) Digestive and muscular system
3) Circulatory and respiratory system
4) Respiratory and muscular system



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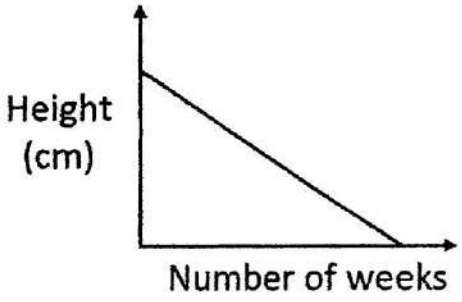
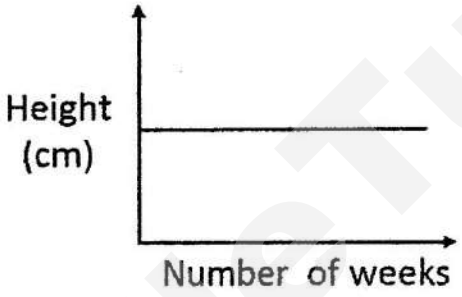
12. Which one of the following graphs shows the change in height as the seedling grows into an adult plant?

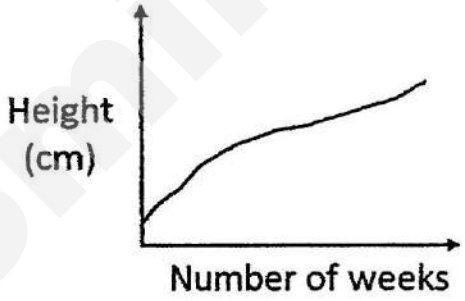
1)




2)




3)

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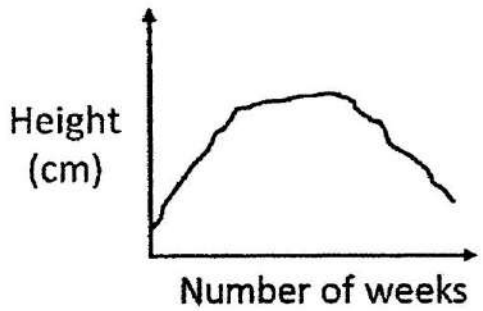




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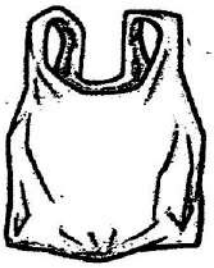
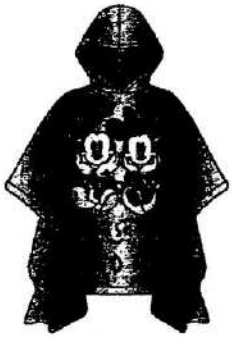
13. What is/are the common property/properties of the objects shown below?



Grocery bag



Raincoat

Hair tie

A: They are light.
B: They are hard.
C: They are flexible.

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

14. Wen Juan placed a light sensor in a completely dark room. She shone torch E at the light sensor and recorded the results in the table below. She then repeated the experiment with three torches, F, G and H.

| Torch | Intensity of light in room when the torch was switched off (Lux) | Intensity of light in room when torch was switched on (Lux) |
|---|---|---|
| E | 0 | 60 |
| F | 0 | 45 |
| G | 0 | 20 |
| H | 0 | 45 |

Which one of the following statements correctly explains Wen Juan's observations?

A: Torch E is bigger than Torch H.
B: Torch E is brighter than Torch G.
C: Torch F and Torch H are equally bright.

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



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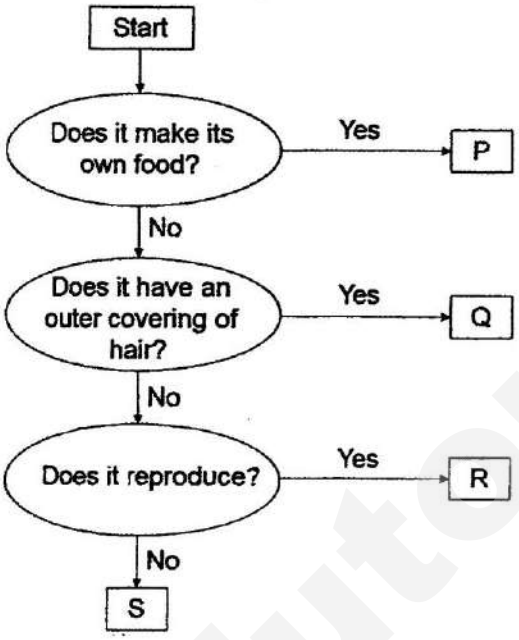
15. Study the flow chart below.




What conclusions can be made from the information given?

A: P is a plant.
B: Q is a mammal.
C: R may be a fungi.
D: S is not a living thing.

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



(Go on to the next page)

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16. Linda had four magnets, D, E, F and G. To compare the strength of the magnets, she brought each of the magnets near a pile of pins.

The table below shows the number of pins attracted by the magnets, D, E, F and G, from various distances.

| Magnet | Distance between magnet and pins (cm) | Number of pins attracted |
|---|---|---|
| D | 4 | 11 |
| E | 3 | 11 |
| F | 5 | 10 |
| G | 3 | 12 |

Which one of the following statements is definitely correct?

1) Magnet D is as strong as magnet E.
2) Magnet F is the strongest magnet.
3) Magnet G is stronger than Magnet E.
4) Magnet D is weaker than Magnet G.

17. Four similar spoons were used to hold an object each as shown in the diagram below.

Substance A Substance B Substance C Substance D

Which one of the following substances is most likely not a solid?

1) Substance A
2) Substance B
3) Substance C
4) Substance D



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18. Muthu conducted an experiment. He placed two identical homemade biscuits on the table. He sprinkled some water on one of the biscuits.

biscuit sprinkled with water

biscuit with no water sprinkled

Three days later, Muthu noticed that the piece of biscuit that was sprinkled with water had mould on it. The piece of biscuit with no water sprinkled on it did not have any mould.

What can Muthu conclude from the experiment?

1) Mould can make their own food.
2) Mould grow better in damp places.
3) Mould needs sunlight, water and air to survive.
4) Living things can reproduce faster than non-living things.

19. Which of the following objects **most likely use magnets** to work?

A: Compass
B: Refrigerator
C: Electric Iron
D: Electric kettle
E: Scrap iron crane

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



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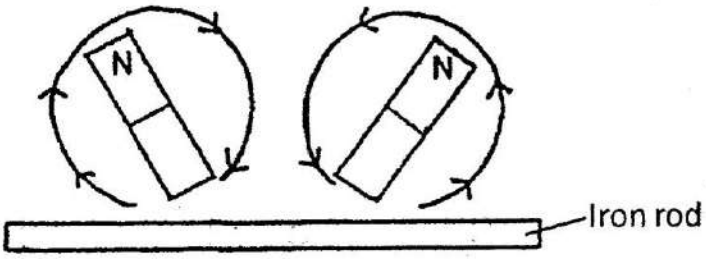
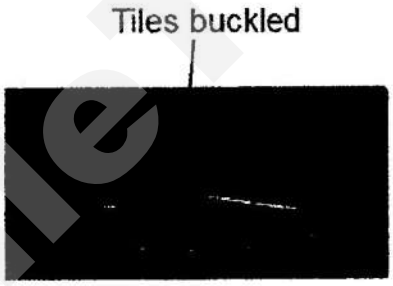
20 What will happen to the iron rod if it is stroked thirty times by each of the two magnets?




The iron rod will _____.

1) not become a magnet
2) become a magnet with two different poles
3) become a magnet with two north-seeking poles
4) become a magnet with two south-seeking poles

21. When Ginny reached home on a hot day, she realised that the tiles on her floor in her home had buckled.




The tiles buckled because the _____.

1) tiles contracted too much
2) gaps between the tiles were too big
3) rates of expansion between the tiles were different
4) tiles were of different shapes



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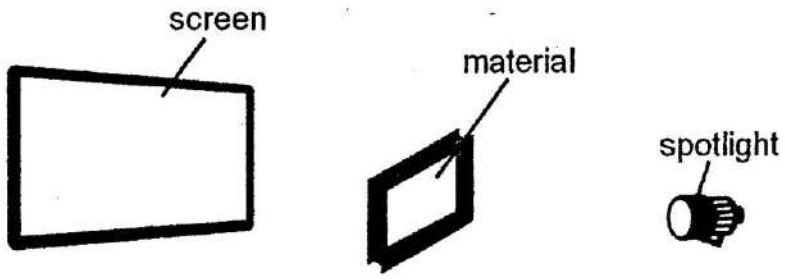
22. Issac wanted to find out which materials allowed light to pass through using the following set-up as shown below.




Which of the following variables should he keep the same in order to conduct a fair test?

A: Type of material
B: Thickness of material
C: Distance between the material and the screen

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

23. Dynamic Rope Company produces ropes for all purposes.

A climber made a list of the type of rope she needs:

- It can be coiled up easily.
- It will not weigh her down.
- It will not break if she falls.

The table below shows 4 types of ropes that the company produces and their properties.

| Property \ Rope | Apex | Beta | Delta | Kappa |
|---|---|---|---|---|
| Flexibility | High | Low | Medium | Low |
| Weight | Low | Medium | Low | Low |
| Strength | High | High | Low | High |

Which rope should the climber purchase?

1) Apex
2) Beta
3) Delta
4) Kappa



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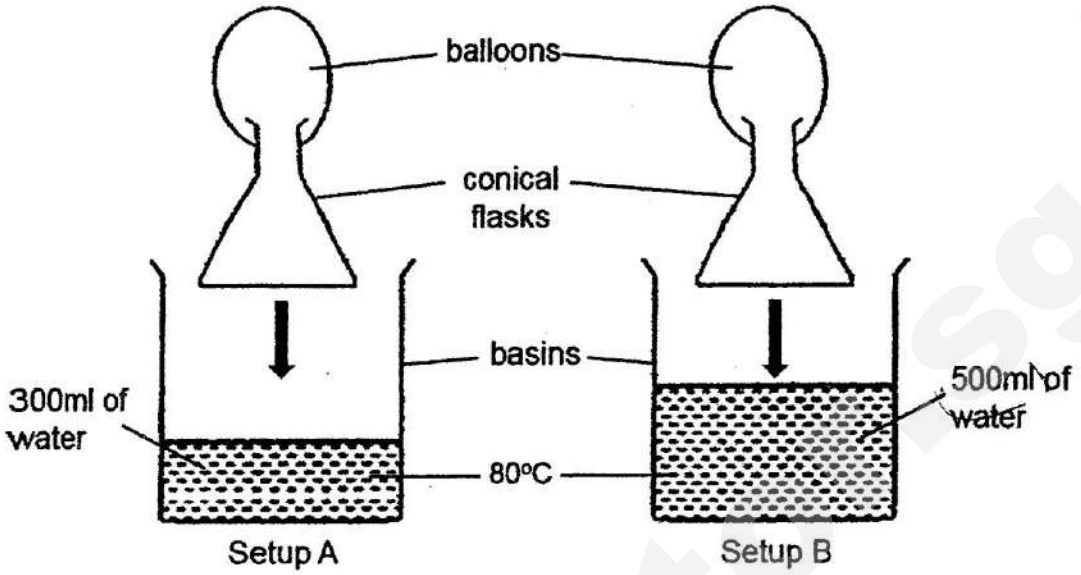
24. Ronaldo set up an experiment using similar balloons, basins and conical flasks as shown below.




After five minutes, the balloon in setup B was more inflated than the balloon in setup A.

Which one of the following conclusions could Ronaldo make from his experiment?

1) Colder water was used in setup A than in setup B.
2) Water in setup B contained more heat than the water in setup A.
3) The conical flask in setup A lost more heat than the one in setup B.
4) The conical flask in setup B conducted heat faster than the one in setup A.



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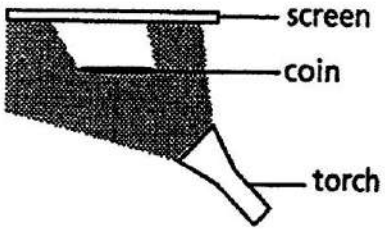
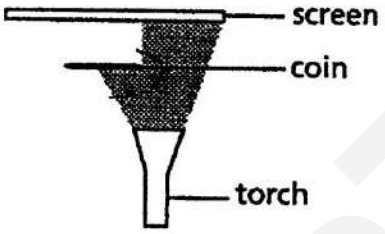
25. Which of the following torch positions would create an oval shadow of the 20-cent coin on the screen?

20-cent coin

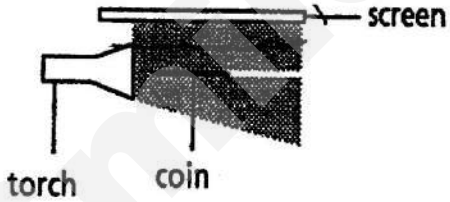
1)



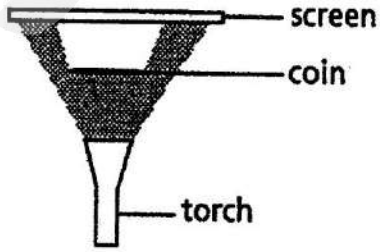

2)




3)




4)

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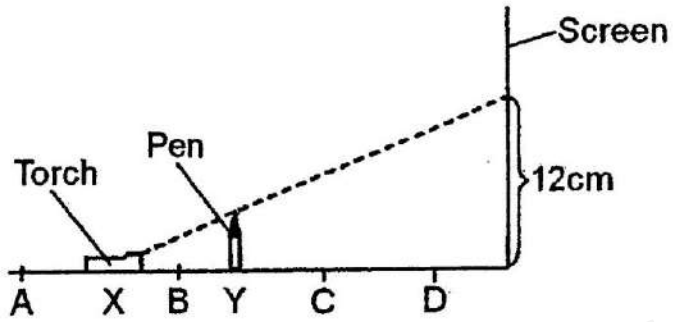
26. Jasmy wanted to find out if the position of the torch and the pen would affect the length of the shadow cast on the screen. She marked 6 points on the table in front of the screen and placed a torch at X and a pen at Y, as shown in the diagram below.




When she switched on the torch, she observed a 12cm long shadow of the pen cast on the screen. Jasmy then placed the torch and the pen at different positions and recorded her observations in the table as shown below.

Which of the following could she have observed?

| | Position of torch | Position of pen | Length of the shadow cast (cm) |
|---|---|---|---|
| 1) | A | Y | 15 |
| 2) | B | Y | 10 |
| 3) | X | B | 10 |
| 4) | X | C | 8 |



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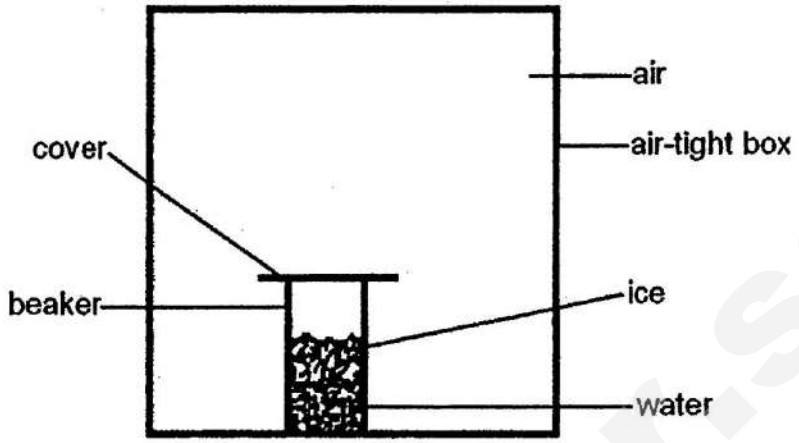
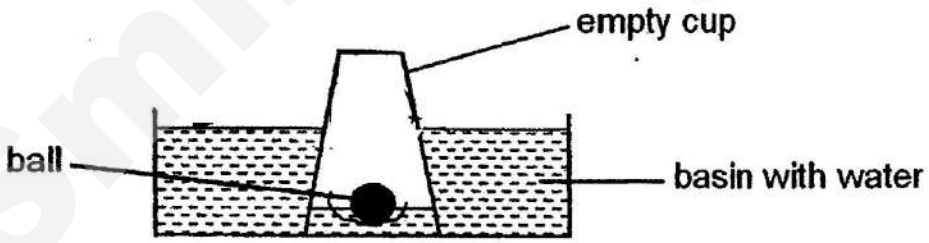
27. Iris put a beaker of water with ice cubes in an air-tight box as shown in the diagram below.




Which one of the following statements is correct about the air in the box?

1) The air will gain heat and expand.
2) The air will lose heat and become cooler.
3) The air will gain heat and become warmer.
4) Coldness is transferred from the ice to the air.

28. Gina lowered an empty cup and a small ball into a basin of water until the cup touched the bottom of the basin. She observed that the water level inside the cup was not the same as the water level in the basin. The ball still floated on the water as shown in diagram below.




What could be the main reason for the difference in the water level inside and outside the cup?

1) The air trapped in the cup occupied space.
2) The ball pushed the water out from the cup.
3) The air trapped in the cup dissolved in the water.
4) The ball in the cup occupied space.

**~ End of Booklet A ~**



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SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)

SECOND SEMESTRAL ASSESSMENT 2018

NAME: _____( )

DATE: 23 October 2018

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** |

14 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.**

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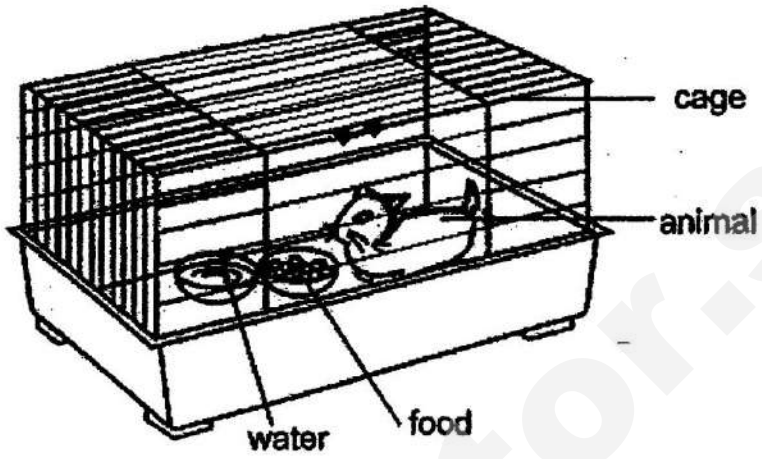
**Part II (44 marks)**

Answer all the following questions.

29. Study the diagram below.




a) **Circle** what happened to the **amount of food in the bowl** after **a few days.** [1]

| | | |
|---|---|---|
| **increase** | **decrease** | **remain the same** |

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

_____



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

frog

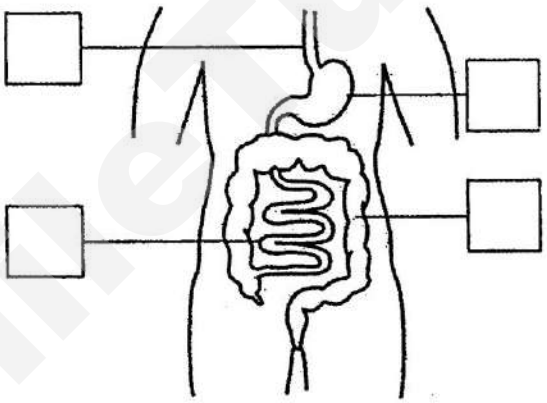
grasshopper

beetle

duck

| Three stages | Four stages |
|---|---|
| | |

31. The diagram shows part of the human digestive system.



a) Tick one box to show where the stomach is. [1]

b) Fill in the blank below using the following helping words. [1]

| small intestine | large intestine | gullet | mouth |
|---|---|---|---|

Food from the stomach is next passed on to the _____

c) Name any 2 parts of the system where digestive juices are produced. [1]

_____



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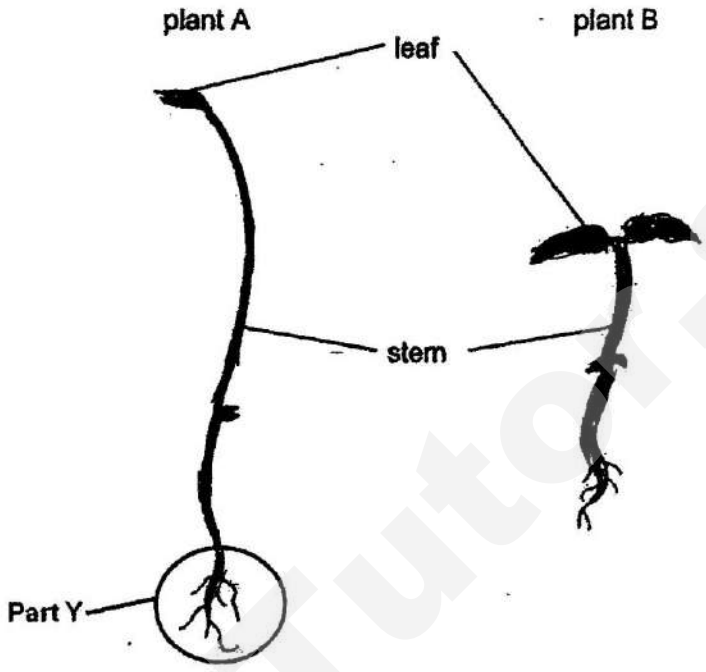
32. The diagram below shows two plants.




a) What is one difference between the stem of plant A and the stem of plant B?

The stem of plant A is _____ than the stem of the plant B. [1]

b) The leaves help both plants make _____ in the light. [1]

c) When part 'Y' is removed, the plant died. Explain. [1]

_____

_____



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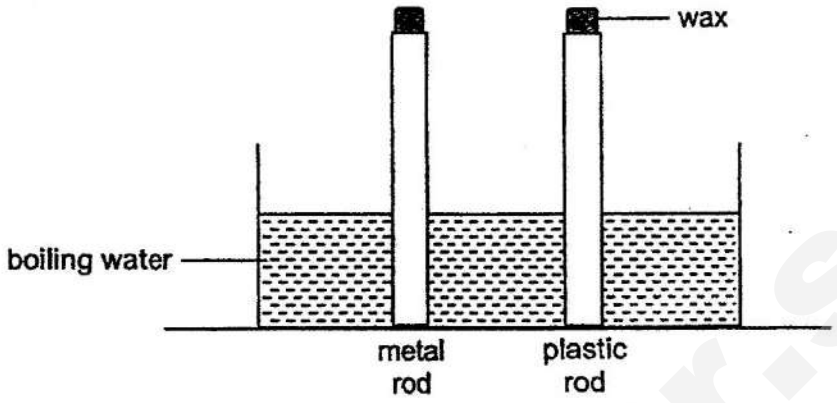
33. Yan Hui placed a metal rod and a plastic rod into a tank of boiling water as shown below. Equal amounts of wax were put on both rods.




a) What would she observe and why? [2]

The wax on the metal rod melted _____ than the wax on the plastic rod as metal is a _____ conductor of heat.

b) Yan Hui wants her ice cream to remain frozen for as long as possible. Should she use a metal or plastic container to keep her ice cream in?
Explain your answer. [2]

_____

_____



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4

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34. Ahmad left a plate of mee rebus in a warm place at the kitchen. Ahmad noticed that the plate of mee rebus looked the same but gave off a bad sour smell the next day. It had turned bad.

a) Which group of living things caused the mee rebus to turn bad? [1]

_____

b) What would happen if Ahmad had put the plate of mee rebus in the refrigerator instead? Explain your answer. [2]

_____

_____

_____



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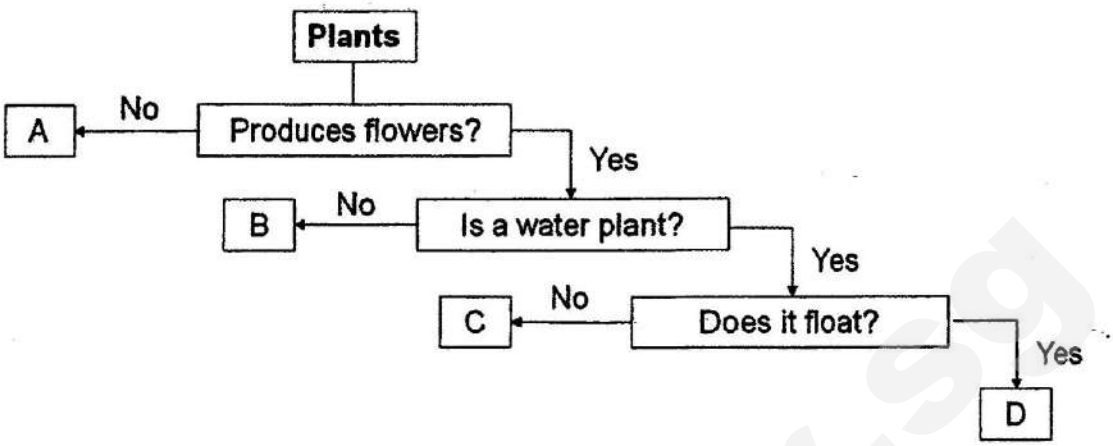
35. The flow chart below shows the characteristics of Plants A, B, C and D.



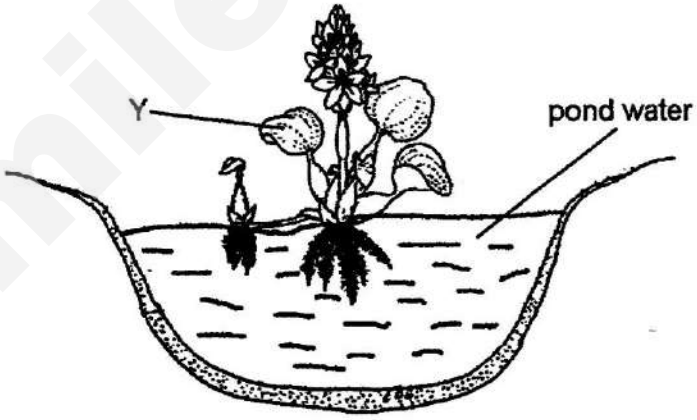

Felicia observed a living thing, X, and recorded her observations in her notebook.

- X grows in water.
- X does not produce flowers.

a) Which plant, A, B, C or D is X most likely to be? [1]

_____

Felicia found another plant, Y, growing in the school garden as shown below.




b) Which plant, A, B, C or D can Plant Y be grouped with? [1]

_____

c) Based on the flow chart above, explain your answer in (b). [1]

_____

_____



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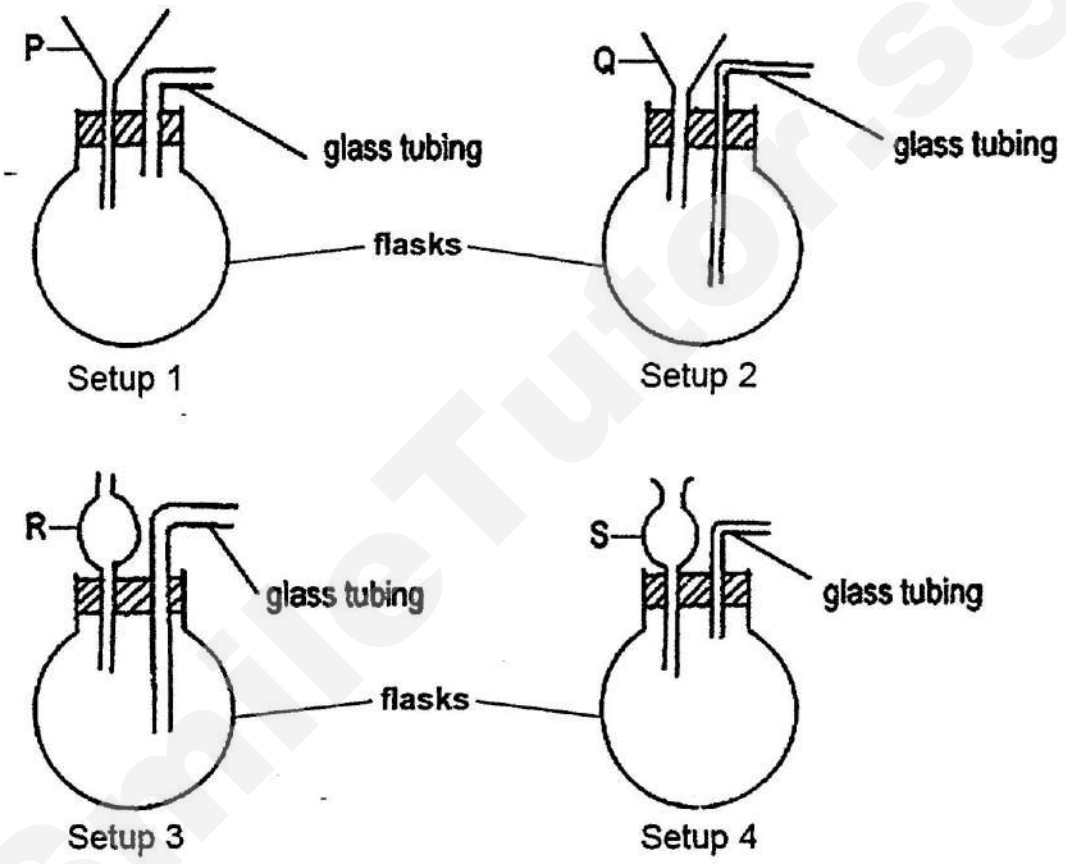
36a. Mary was given four funnels, labelled P, Q, R and S. She was asked to find out which one of these funnels would allow water to flow through it most quickly. She poured some water into each funnel using the following set-ups and started the stop watch to find out how long the water took to flow into each flask.




Mary's teacher told her to use the glass tubing of the same size for all setups so that it would be a fair test. Why is this so? [1]

_____

_____



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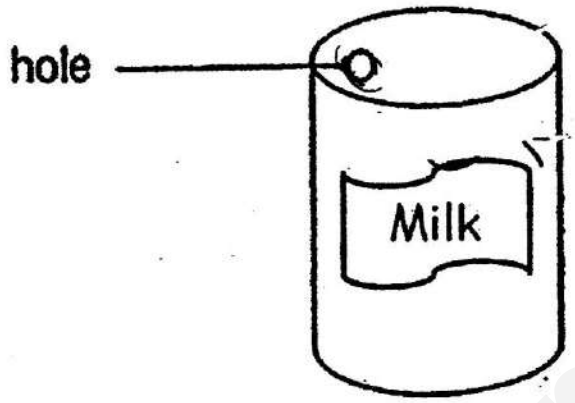
36b. Jason made a hole on the top of a milk can so that he can pour out the milk.




Jason tried pouring the milk out but found that it flowed out very slowly.

(i) Without enlarging the hole or opening the can, what could Jason do so that the milk could flow out faster? [1]

_____

(ii) Explain how the suggestion in (a) would allow the milk to flow out more easily? [2]

_____

_____

_____



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3

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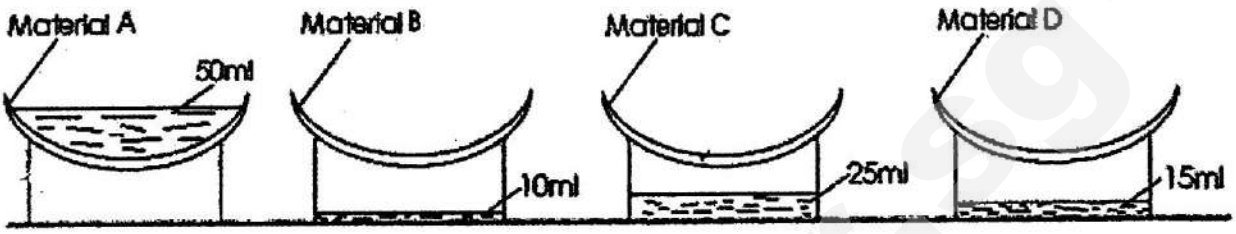
37. Mrs Lee wanted to find out which one of the 4 materials, A, B, C or D is able to absorb the most amount of water. She placed the 4 materials over 4 water troughs respectively and poured 50ml of water onto each of the materials. The diagrams below show the amount of water that was able to pass through the materials after 30 minutes.




a) Arrange the materials according to how well they absorb water.
Write down A, B, C and D in the boxes below. [2]

**Most absorbent** → **Least absorbent**

| | | | |
|---|---|---|---|
| | | | |

b) Based on your answer in (a), which material, A, B, C or D, is most suitable to make part J and K? Give a reason for your answer. [2]

| Part | Material used | Reason |
|---|---|---|
| J | | |
| K | | |



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4

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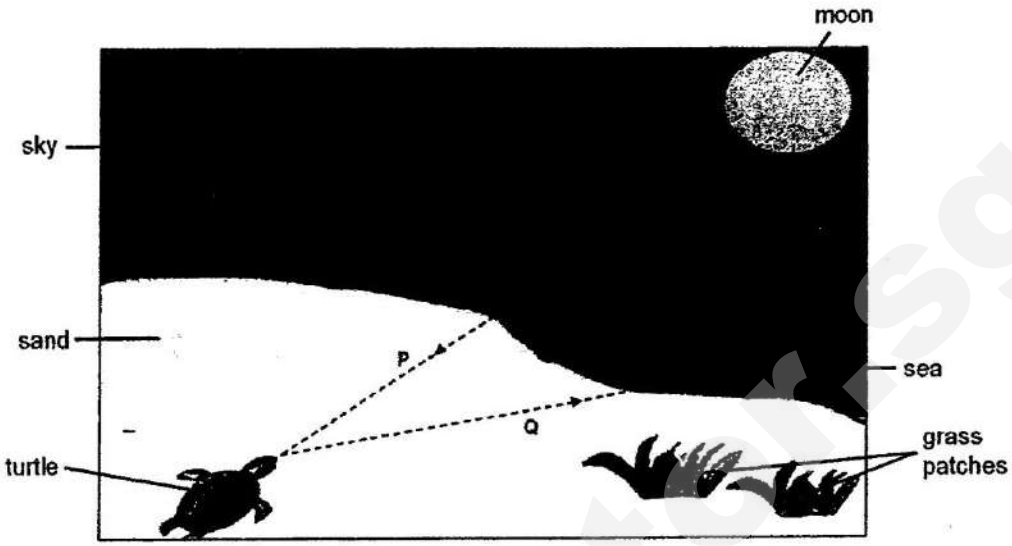
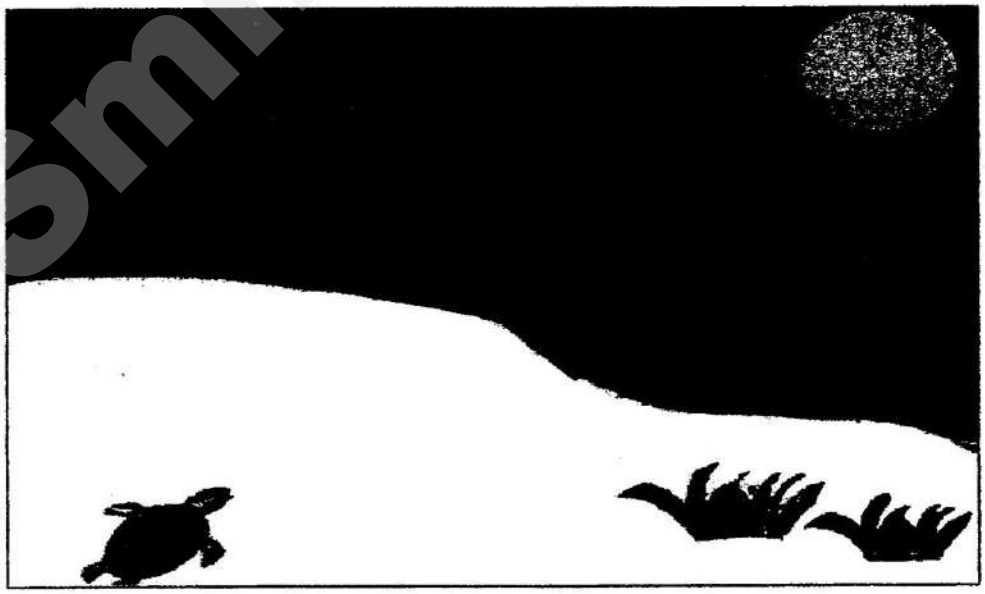
38. On a beach one night, Rahim observed a turtle moving on the sand.




a) Which set of arrows, P or Q, correctly shows how the turtle could see the moon? [1]

b) Draw another set of arrows to show how the turtle can see the grass in the moonlight in the diagram below. [1]





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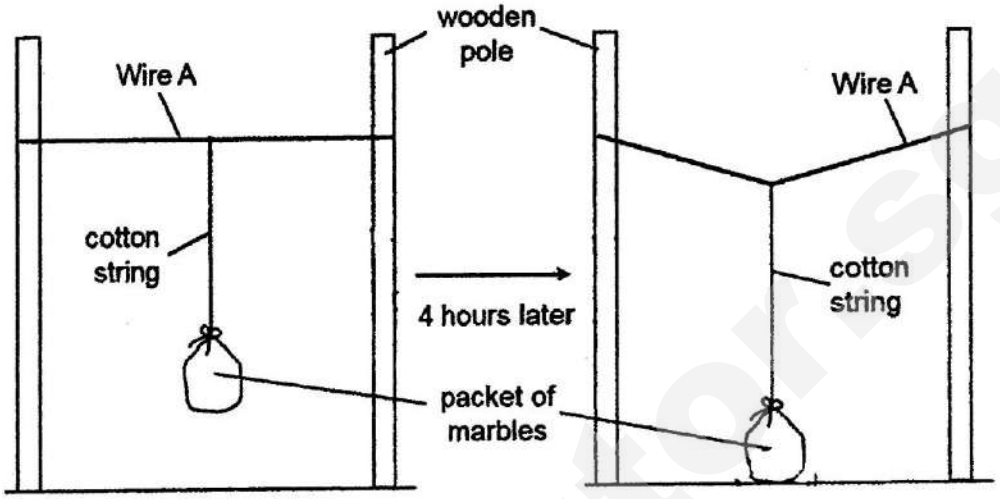
39. Jay tied a packet of marbles on Wire A on a hot day and observed it every hour. After four hours, he observed that the packet of marbles touched the ground as shown in the diagram below.




a) The next day, he repeated the experiment by replacing Wire A with Wire B under the same conditions. However, the packet of marbles did not touch the ground. What was Jay trying to find out? [1]

_____

_____

b) Tick **two** variables that do **not** affect the results of the experiment. [2]

| Variables | Will not affect results |
|---|---|
| Length of wire | |
| Mass of marbles | |
| Thickness of wire | |
| Colour of marbles | |
| Colour of the wooden poles | |

c) Which wire , A or B, should Jay used to make an outdoor clothes line? [1]

_____



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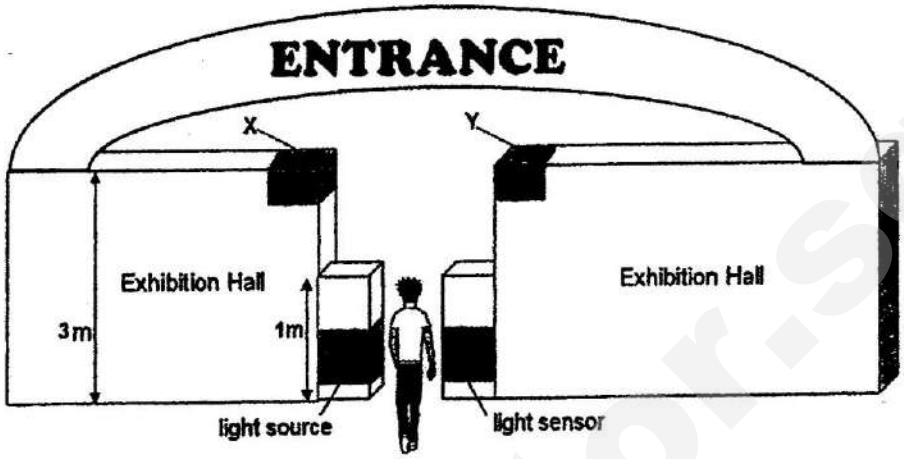
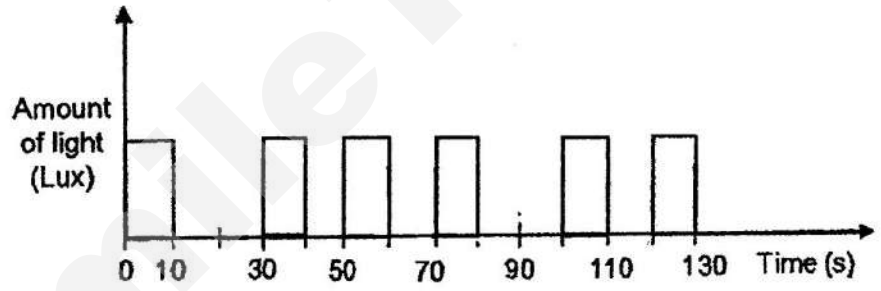
40. The diagram below shows a light sensor which is used to count the number of people entering an exhibition hall.




The space between the light source and sensor only allows one person to enter the exhibition hall each time.

When the person enters the exhibition hall, the light is blocked. The readings of the sensor are recorded in the graph below.




a) How many people have gone into the exhibition hall in the first 80 seconds? [1]

_____

b) If the sensor and light source are moved to Part X and Part Y, the sensor cannot accurately record the number of people entering the exhibition hall. Why? [2]

_____

_____

c) Which property of light allows this light sensor to work? [1]

_____



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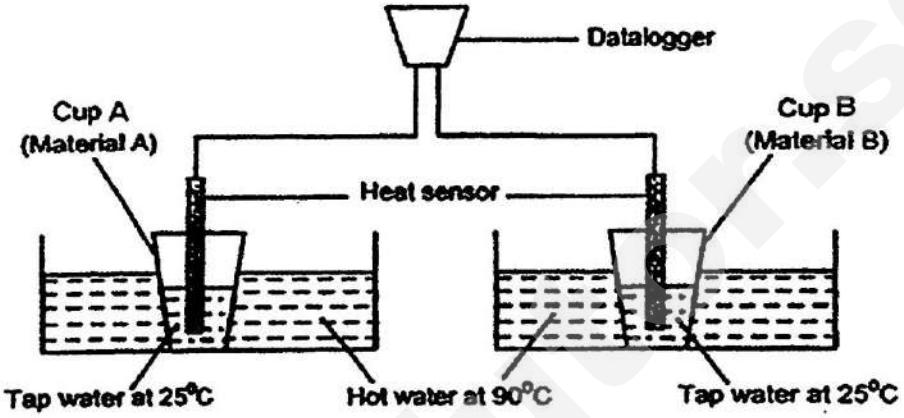
41. Mrs Fong carried out an experiment using two cups, A and B, made of different materials, A and B, respectively. She filled both cups with the same amount of water at a temperature of 25°C and placed them each into a basin of hot water at 90°C as shown in the diagram below.




Mrs Fong then used a datalogger to measure and recorded the temperature of water inside cups A and B for ten minutes. The results are shown below.

| Cup | Temperature of water inside the cup | | |
|---|---|---|---|
| | 0 min | 5 min | 10 min |
| A | 25°C | 40°C | 50°C |
| B | 25°C | 35°C | 75°C |

a) Which material, A or B, is a better conductor of heat? Explain your answer using the results. [1]

_____

_____



(Go on to the next page)

1

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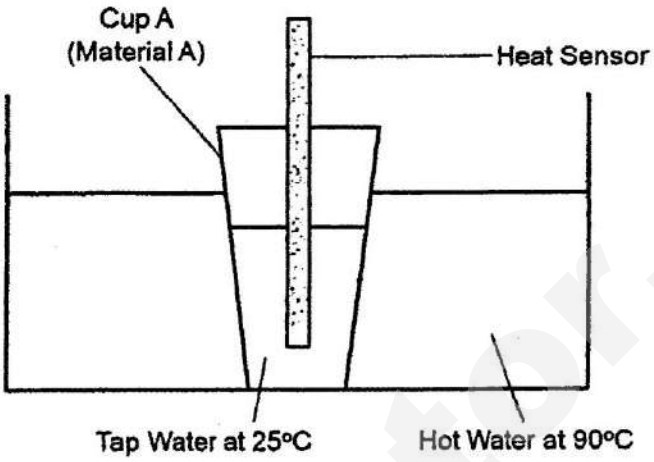
b) In the diagram below, **draw an arrow** to show how heat is transferred between the water in the basin and the water in the cup. [1]




c) When will the heat transfer between the hot water in the basin and the water in the cup stop? [1]

_____

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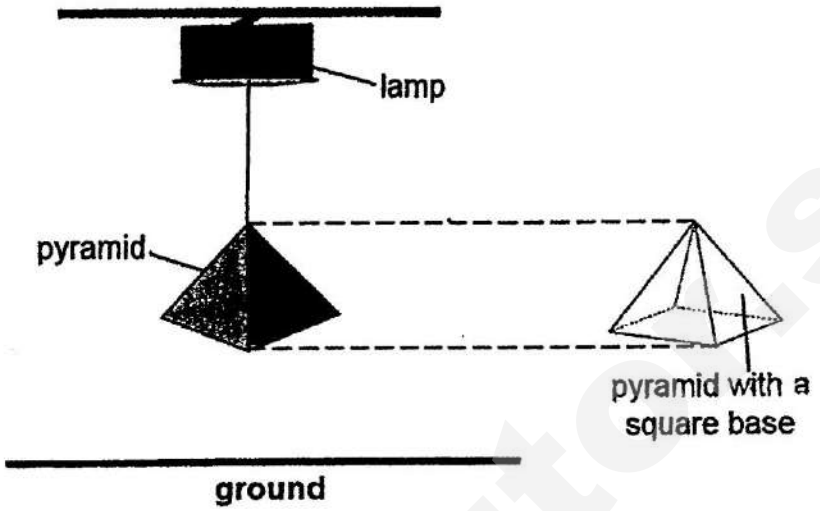
42. In the diagram below, Lynn hangs a wooden pyramid with a square base directly below a lamp which is fixed on the ceiling.




a) Draw how the shadow would look like on the ground in the box below. [1]

b) To make a bigger shadow on the ground, what can Lynn do to the string? Circle your answer. [1]

| Cut the string | Lengthen it | Shorten it |
|---|---|---|

c) When the pyramid is turned upside down, its distance from the ground remains the same as in (a). Will its shadow be bigger, smaller or the same as in (a)? [1]

**~ End of Booklet B ~**



(Go on to the next page)

3

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# ANSWER KEY

**YEAR : 2018**

**LEVEL : PRIMARY 4**

**SCHOOL : SINGAPORE CHINESE GIRLS' SCHOOL**

**SUBJECT : SCIENCE**

## BOOKLET A

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

## BOOKLET B

**Q29a) Decrease**

**Q29b) Food**

**Q30) Three stages: Frog, Grasshopper, Duck**

**Four stages: beetle**

**Q31a) First right box**

**Q31b) Small intestine**



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**Q31c) Mouth & stomach/small intestine**

**Q32a) taller**

**Q32b) food**

**Q32c) The plant has no roots to take in.**

**Q33a) faster, better**

**Q33b) Plastic is a poorer conductor of heat than metal. Thus, ice cream gains heat from the surroundings slower.**

**Q34a) Decomposers**

**Q34b) Mee Rebus will not turn sour and decomposers need warmth to grow but the fridge is too cold.**

**Q35a) A**

**Q35b) D**

**Q35c) Y produces flowers, is a water plant and can float on water.**

**Q36a) The width of the glass tubing can affect the amount of air in the flask that escape through the funnel.**

**Q36b) Make an extra hole.**

**Q36c) The extra hole will allow air to enter the can and push the milk out.**



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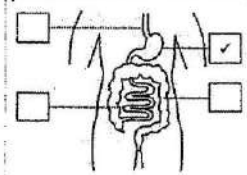
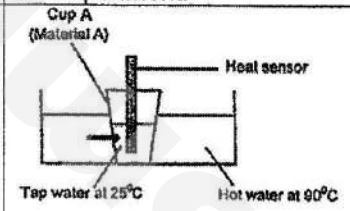
SECOND SEMESTAL EXAMINATION 2018
PRIMARY 4 SCIENCE

NAME: _____ CLASS: _ _____

| S/N | Suggested Answers |
|---|---|
| 29 | a) Decrease b) Air / Water / Food |
| 30 | <table><tr><th>Three stages</th><th>Four stages</th></tr><tr><td>Frog<br>Duck<br>Grasshopper</td><td>Beetle</td></tr></table> |
| 31 | a)  b) small intestine<br>c) mouth, stomach and small intestine<br>(any 2 for 31c) |
| 32 | a) taller / thinner / longer b) food |
| 32c | The **plant** has **no roots to take in / absorb water**. |
| 33a | **faster / sooner / quicker / in shorter time,**<br>**.....better** conductor of heat<br>*The correct comparison word must be used. 'Best' or 'fastest' will imply that are 3 or more rods to compare.* |
| 33b | **Plastic** is a **poorer conductor** of **heat** than metal.<br>Thus **ice cream gains heat** from the surroundings **slower / heat is conducted from the surrounding to the ice cream more slowly .** |
| 34a | Bacteria / Decomposers / Fungi |
| 34b | Mee Rebus will not turn sour OR Bacteria/ Fungi/ Decomposers will not **grow**.<br>AND Bacteria/ Fungi/ Decomposers need warmth to grow but the fridge is too cold. |
| 35 | a) A b) D |
| 35c | Y **produces flowers,** is a **water plant** and **can float** on water. |
| 36a | The **width** of the glass tubing can **affect** the **amount** of **air in the flask** that **escape / the speed the water flows through the funnel.**<br>*Statements which state what a fair test should be, without referencing to the question, will not be awarded marks esp. 'A fair test should be one where only one variable is changed'. In a more correct understanding of fair test, other variables can be changed as long as they do not cause changes to results as in Qn 39.* |
| 36b | Make an extra hole. |
| 36c | The extra hole will allow air to enter the can and push the milk out/ |

3
BNP.

SECOND SEMESTAL EXAMINATION 2018
PRIMARY 4 SCIENCE

| S/N | Suggested Answers |
|---|---|
| | occupy the space of the milk so that the milk can come out. |
| 37a | B D C A |
| 37b | J – B . It is able to absorb the most water. (must show comparison with 'most)<br>K – A. It is waterproof/ cannot absorb any water. |
| 38a | P |
| 38b | |
| 39a | To find out if Wire A or Wire B expands more upon heating. |
| 39b | Tick only:<br>• Colour of marbles<br>• Colour of wooden poles<br>39c) Wire B |
| 40a | 3<br>Count the dips – that is when light is blocked. |
| 40b | Many people are too short to block the light of the sensor.<br>OR The sensors are too high for its lights to be blocked by people.<br>*A comparison between the height of sensor and people must be indicated and the concept on light being blocked must be stated as reason why sensor won't work.* |
| 40c | Light travels in a straight line. |
| 41a | B. B is a better conductor of heat because tap water/ water in the cup gained heat faster to reach a higher temperature at the end of the experiment. |
| 41b |  <br>Any arrow from the water in the basin to the tap water. |
| 41c | When both tap water and hot water in basin reach the same temperature. |
| 42 | a) square b) Shorten it c) Bigger |

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TAO NAN SCHOOL 道南学校

SINCERITY & PERSEVERANCE

# 2018 PRIMARY 4 SEMESTRAL ASSESSMENT 2

Name : _____

Class : Primary 4

Parent's signature: _____

Date: 22 October 2018

Time: 8.00 a.m. - 9.30 a.m.

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

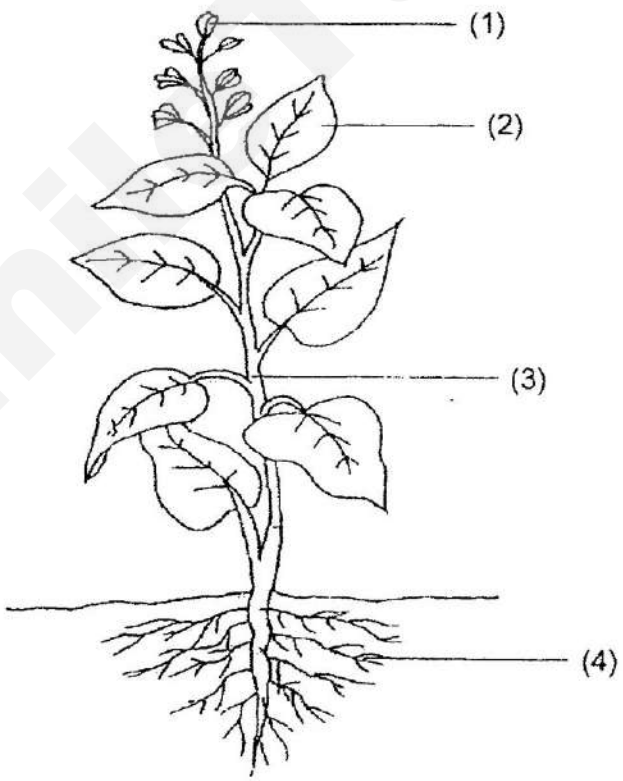
   (1) air

   (2) rock

   (3) milk

   (4) water

2. Which part, (1), (2), (3) or (4), helps to hold the plant upright?



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

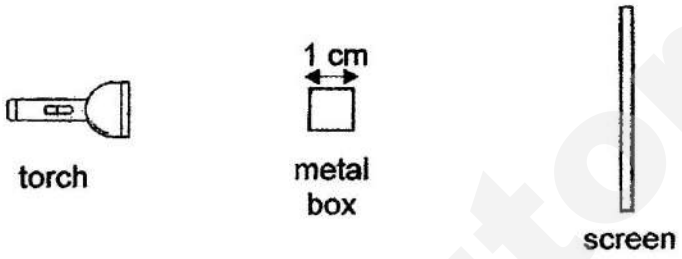
(1) mouth

(2) stomach

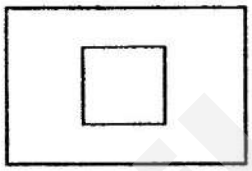
(3) small intestine

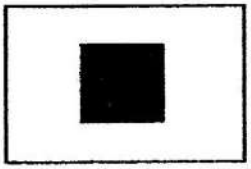
(4) large intestine

4. The set-up below shows a torch shining on a metal box.

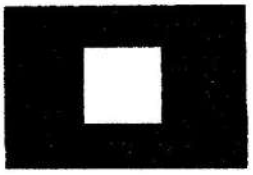



Which one of the following would likely be seen on the screen?

(1) 

(2) 

(3)

(4) 

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

(1) the sun

(2) a lit lamp

(3) a candle flame

(4) a woollen jacket



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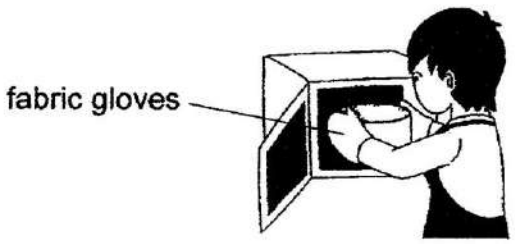
6. Ali is taking a pot of baked potato out from the oven as shown below.




He is able to hold the pot using his fabric gloves. This is because fabric is a

_____.

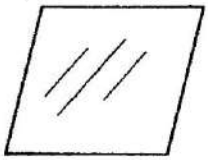
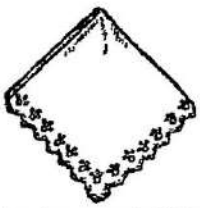
(1) waterproof material

(2) non-magnetic material

(3) poor conductor of heat

(4) good conductor of heat

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

| | |
|---|---|
| (1) a metal ruler | (2) a wooden ice cream stick |
| (3) a piece of glass  | (4) a handkerchief  |



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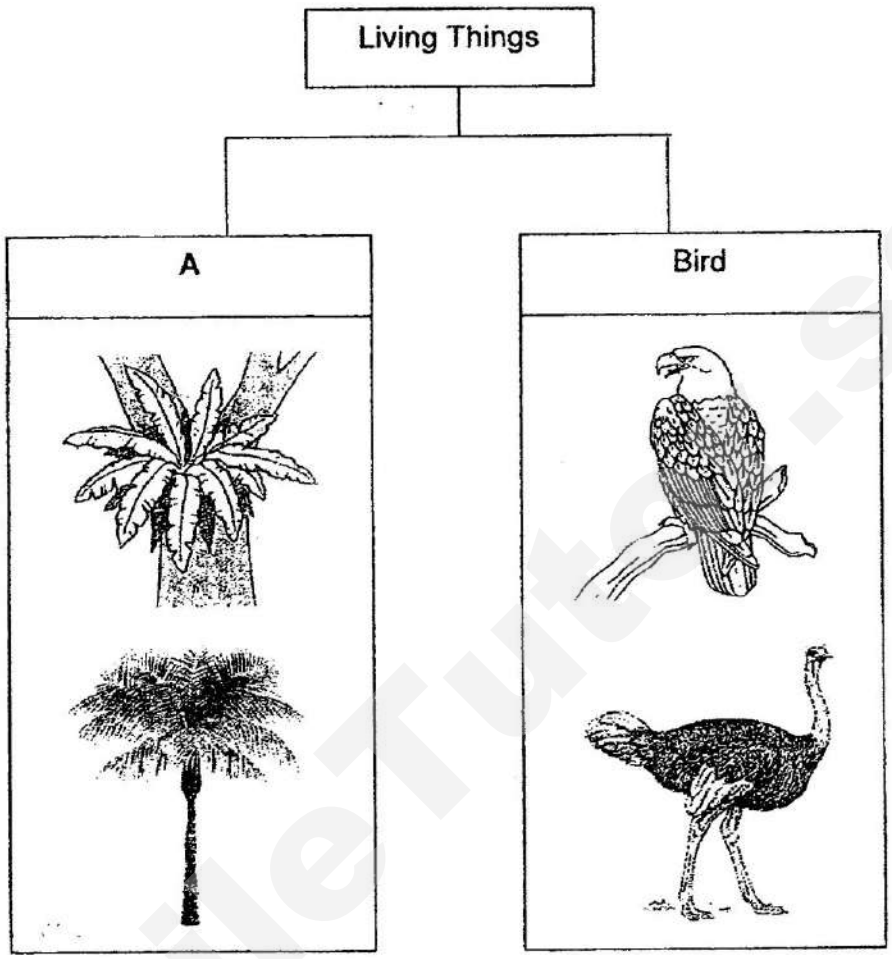
8. The table below shows how some living things can be grouped.




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

(1) bird

(2) plant

(3) fungi

(4) insect



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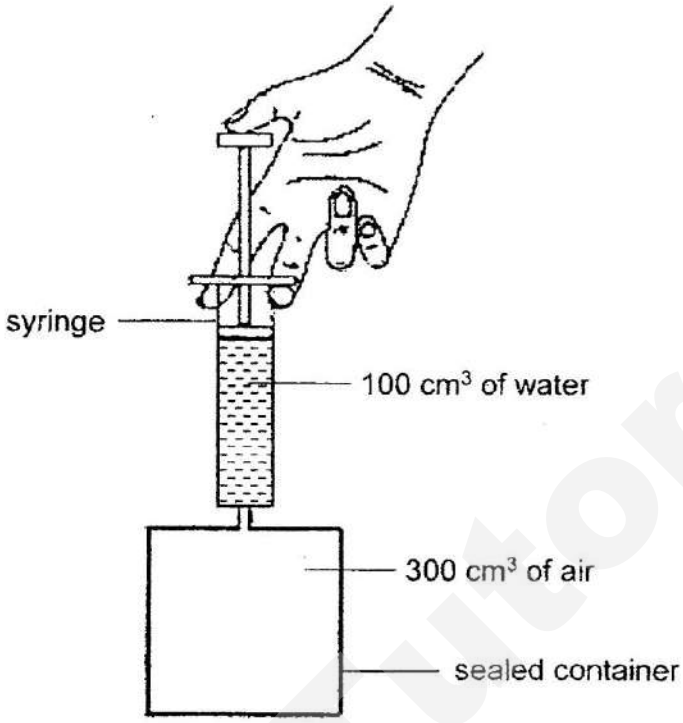
9. A sealed container was filled with 300 $cm^3$ of air and a syringe was filled with 100 $cm^3$ of water.




All the water in the syringe was pumped into the sealed container.

What would be the final volume of air in the container after all the water was pumped in?

(1) 100 $cm^3$

(2) 200 $cm^3$

(3) 300 $cm^3$

(4) 400 $cm^3$



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10. Diagram 1 shows a toy with a rolled paper tube. When air was blown into it, the paper tube straightened as shown in Diagram 2.

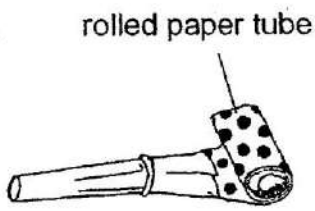



Diagram 1

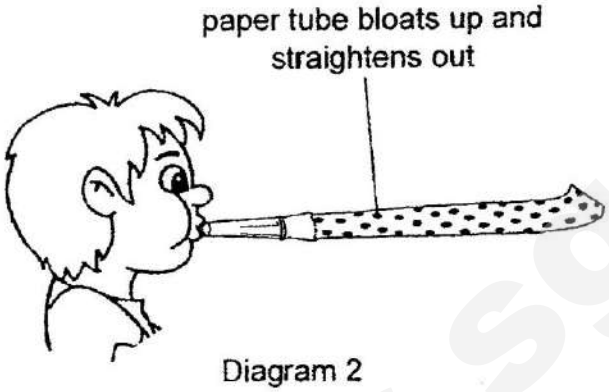



Diagram 2

Which of the following best explains why the paper tube bloats up and straightens out?

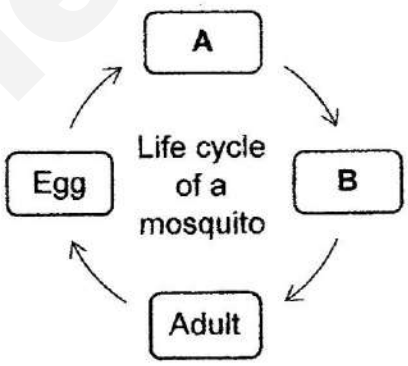
(1) Air has mass.

(2) Air occupies space.

(3) Air has a fixed shape.

(4) Air does not have a fixed volume.

11. The diagram below shows the life cycle of a mosquito.




Which of the following correctly describes the characteristic of the mosquito at stages **A** and **B**?

| | **Stage A** | **Stage B** |
|---|---|---|
| (1) | feeds | does not feed |
| (2) | can reproduce | cannot reproduce |
| (3) | does not have wings | has wings |
| (4) | does not look like adult | looks like adult |



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12. The characteristics of Animals X, Y and Z are shown in the table below. A tick "✓" shows that the animal has that characteristic.

| Characteristics | Animals | | |
|---|---|---|---|
| | X | Y | Z |
| Has a 3-stage life cycle. | ✓ | ✓ | |
| Lays eggs. | | ✓ | ✓ |
| The young looks like the adult. | ✓ | | |

What can animals X, Y and Z be?

| | X | Y | Z |
|---|---|---|---|
| (1) | beetle | human | frog |
| (2) | frog | beetle | human |
| (3) | human | beetle | frog |
| (4) | human | frog | beetle |

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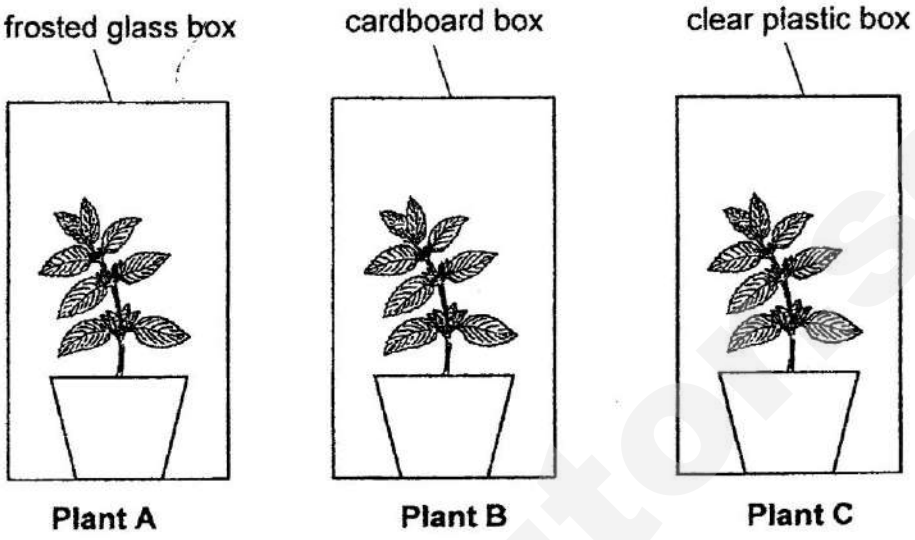
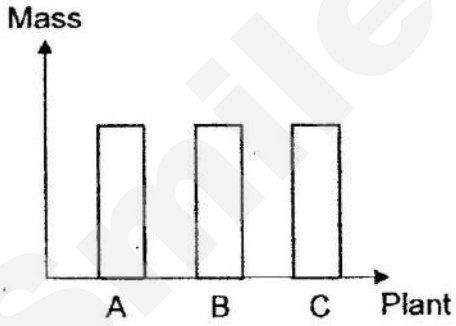
13. Three similar plants A, B and C of equal mass were given different conditions as shown below. The plants were placed near a window and watered with the same amount of water daily.

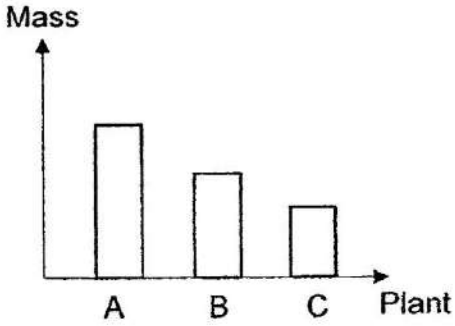



After four months, the mass of the plants were measured. Which graph shows the correct mass of the plants?

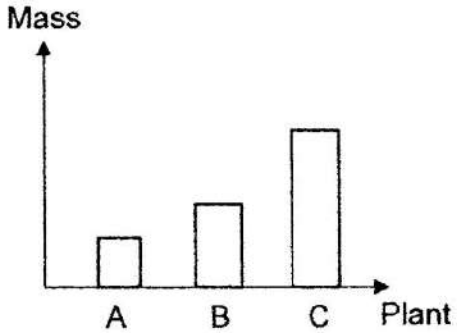
(1)



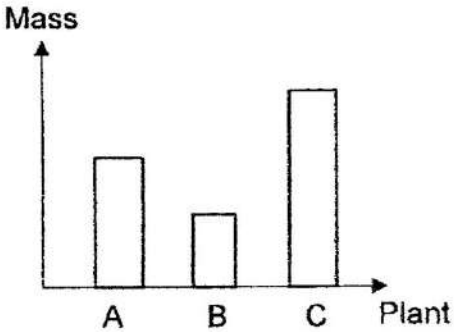

(2)




(3)




(4)



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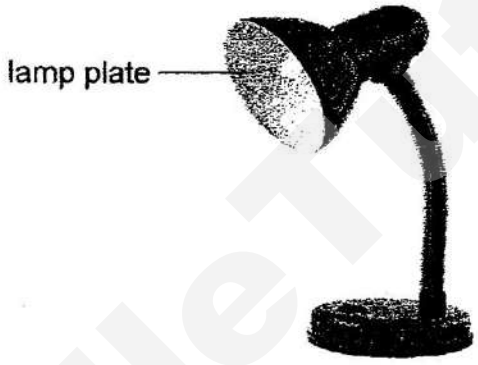
14. Sarah tested the amount of light reflected by 4 different materials, A, B, C and D, using a light sensor and recorded the results in the table below.

| Material | Amount of light detected by the light sensor (units) |
|---|---|
| A | 320 |
| B | 120 |
| C | 270 |
| D | 80 |

Sarah wanted to make a lamp plate as shown in the diagram below.




Which material, A, B, C or D, is most suitable for the lamp plate?

(1) A

(2) B

(3) C

(4) D



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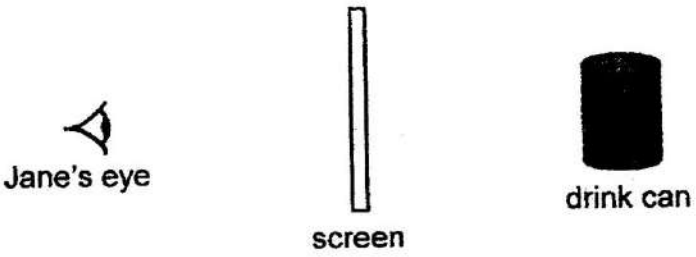
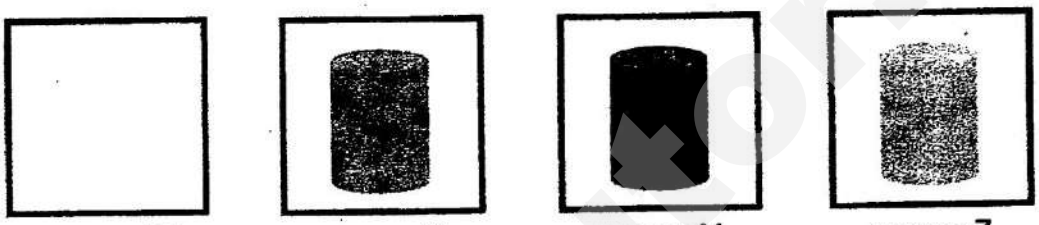
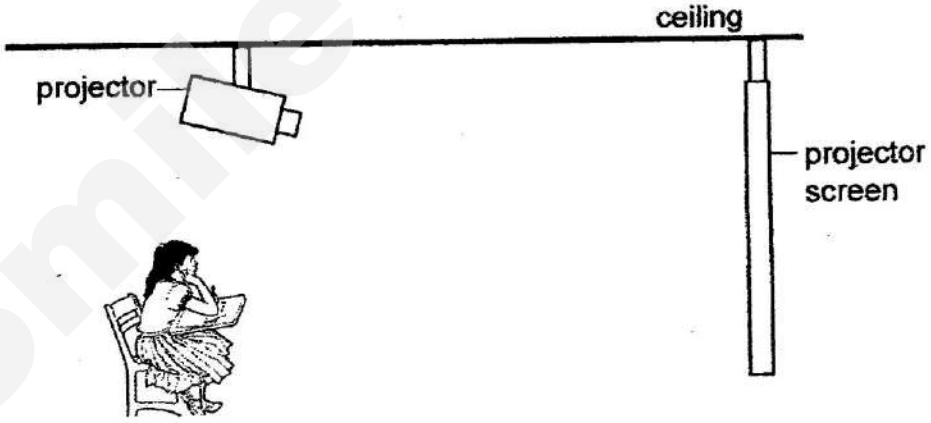
15. Jane looked at a drink can as shown in the diagram below.




She drew what she saw through four different types of screens, W, X, Y and Z, which are as shown in the diagrams below.




Which screen should Jane use for a projector screen in a classroom?




(1) screen W

(2) screen X

(3) screen Y

(4) screen Z



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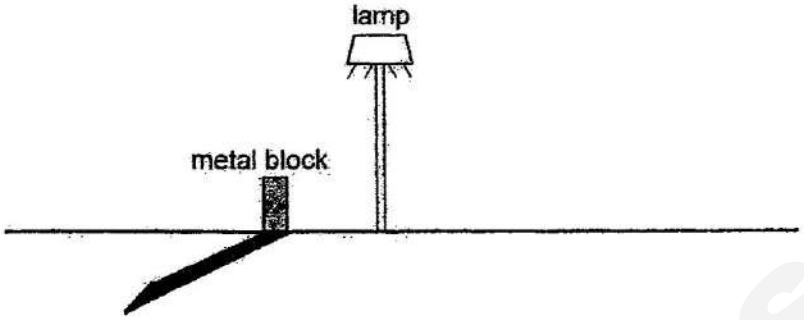
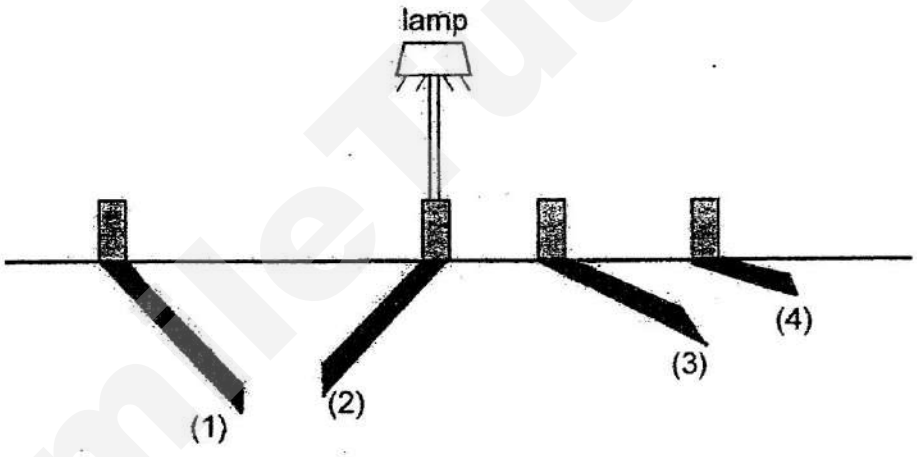
16. Ali conducted an experiment in a dark room to find out how the length of the shadow changed when the metal block changed position.




When the lamp was switched on, Ali observed that the length of the shadow as shown above.

He then changed the positions of the metal block. Which one of the following correctly showed the length of the shadow?



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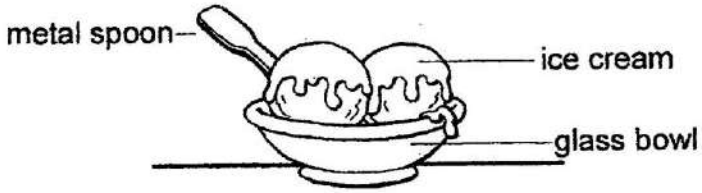
17. Mingxin left a bowl of ice cream on a table in the kitchen that was at room temperature.




Which one of the following would Mingxin observe after 5 minutes?

(1) The temperature of the glass bowl increased.

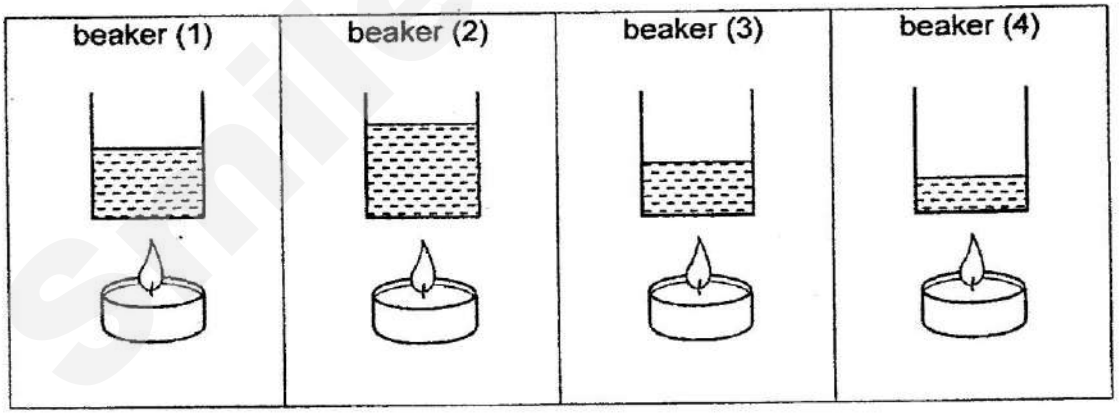
(2) The temperature of the ice cream decreased.

(3) The temperature of the metal spoon decreased.

(4) The temperature of the surrounding air increased.

18. Four similar beakers, (1), (2), (3) and (4), contain different amount of water. Each of them is placed at the same height above a flame as shown below.

Which beaker would take the longest time to reach 100°C?



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19. 4 dishes are made of different materials, P, Q, R and S. Siti heated a piece of wax for 5 minutes on each of the dishes as shown in the diagram below.

She then separated the solid wax from the liquid wax and measured the mass of the solid wax left. Her results were recorded in the table below.

| Material | Mass of wax at the start of the experiment (grams) | Mass of solid wax left after 5 minutes (grams) |
|---|---|---|
| P | 20 | 18 |
| Q | 20 | 10 |
| R | 20 | 15 |
| S | 20 | 12 |

Based on the results of her experiment, which one of the following statements is correct?

(1) Material P is the best conductor of heat.

(2) Material Q is the poorest conductor of heat.

(3) Material R is a better conductor of heat than material S.

(4) Material R is a poorer conductor of heat than material Q.



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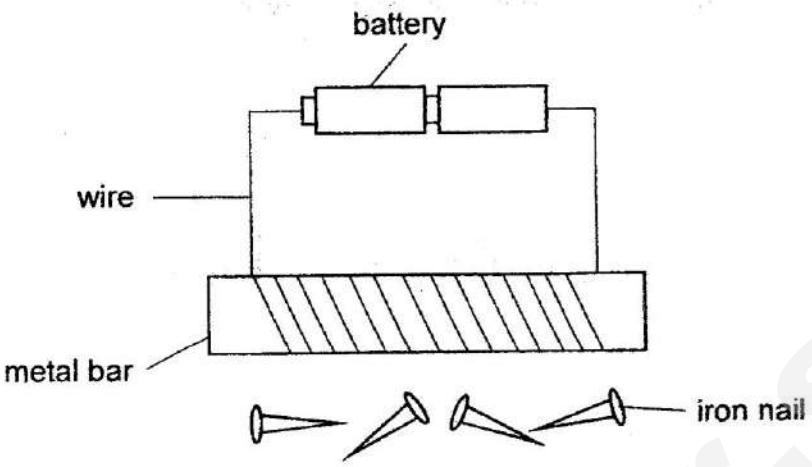
20. Joe wanted to set up an electromagnet as shown below.




However, the metal bar did not attract any iron nails. Why?

(1) The metal bar is made of iron.

(2) The nails are made of magnetic material.

(3) The metal bar is made of non-magnetic material.

(4) There are too many coils of wire around the metal bar.



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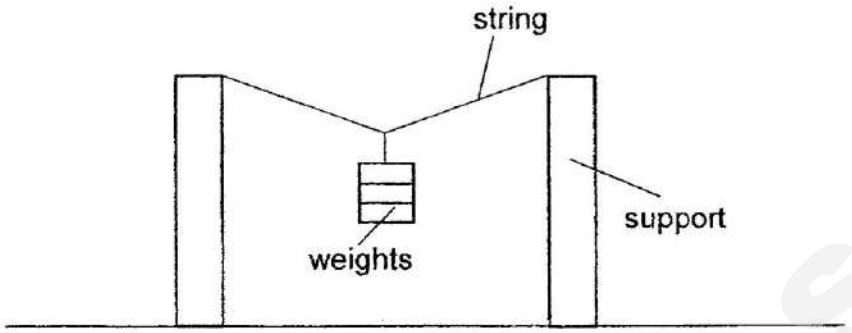
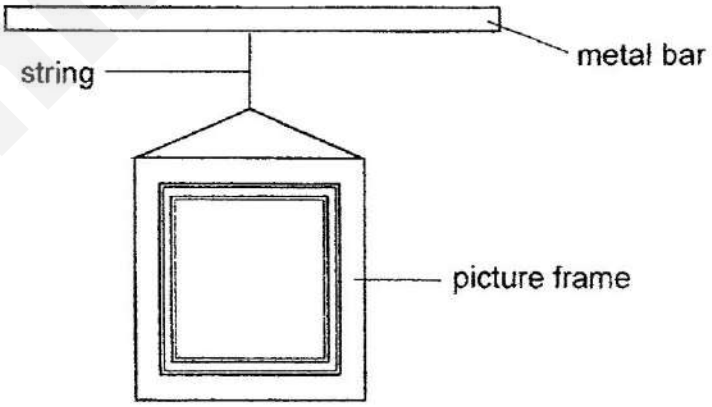
21. A string was attached to two supports as shown below. Identical weights of 1 kg each were added until it broke. Four strings, A, B, C and D were tested. The strings were of the same thickness and length.




The results of the experiment were shown in the table below.

| String | Number of weights hung just before the string broke |
|---|---|
| A | 20 |
| B | 15 |
| C | 5 |
| D | 10 |

Which string can hold a hanging picture frame of 15 kg without the string breaking as shown below?




(1) A

(2) B

(3) C

(4) D



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22. Diagram 1 shows a balance with two objects, X and Y, hung at both ends with the same distance from the centre.

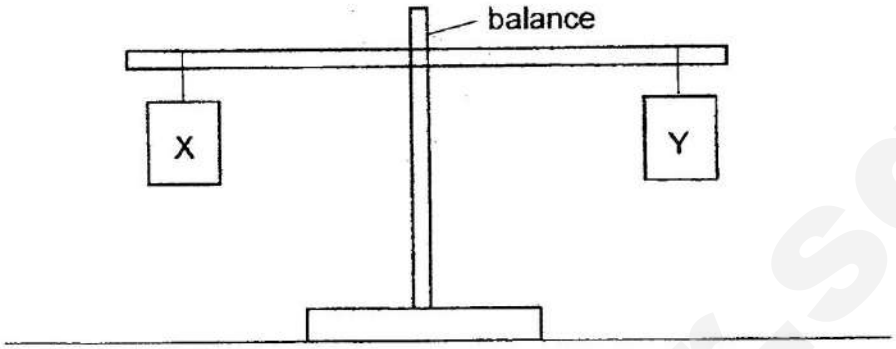


Diagram 1

Diagram 2 shows what happens to the balance when a magnet is placed under object Y.

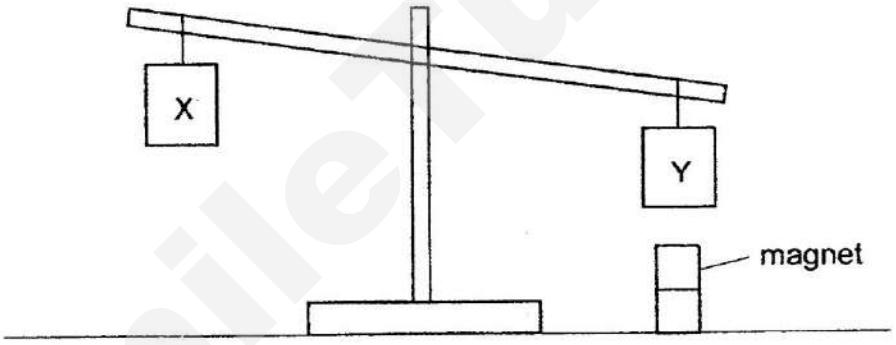


Diagram 2

Which one of the following statements is correct?

(1) X is lighter than Y.

(2) Mass of Y increased.

(3) Y has a greater mass than X.

(4) Y is made of magnetic material.

End of Booklet A



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TAO NAN SCHOOL 道南学校

SINCERITY & PERSEVERANCE

# 2018 PRIMARY 4 SEMESTRAL ASSESSMENT 2

Name : _____

Class : Primary 4

Parent's Signature : _____

Date: 22 October 2018

Time: 8.00 a.m. – 9.30 a.m.

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 |

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**Booklet B (36 marks)**

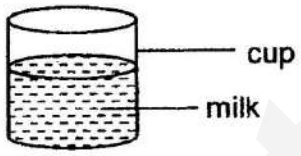
For questions 23 to 34, write your answers clearly in this booklet.

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

(36 marks)

---

23. The picture below shows a cup of milk.

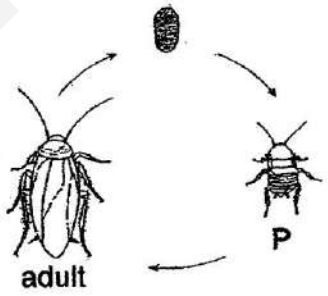



Complete the sentences to state if the parts are solid, liquid or gas.

(a) The cup is a _____ [1]

(b) Milk is a _____ [1]

24. The diagram below shows the stages in the life cycle of a cockroach.




(a) Name stage P. [1]

_____

(b) State another animal that has a similar life cycle as a cockroach. [1]

_____

| Score | 4 |
|---|---|



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25. Look at the diagram below.

Tick (√) the characteristics in the table below that help to identify that it is an insect.

It is an insect because it _____. [2]

| | |
|---|---|
| can fly | |
| has wings | |
| has 3 pairs of legs | |
| has three body parts | |

26. Amy placed a magnet near a steel rod as shown in the diagram below.

The steel rod moves towards the magnet.

(a) The magnet exerts a _____ force on the steel rod. [1]

Choose the correct word from the box below to complete the sentence in (b).

| | | |
|---|---|---|
| strong | waterproof | magnetic |

(b) Amy's observation shows that steel is a _____ material. [1]

| Score | / 4 |
|---|---|



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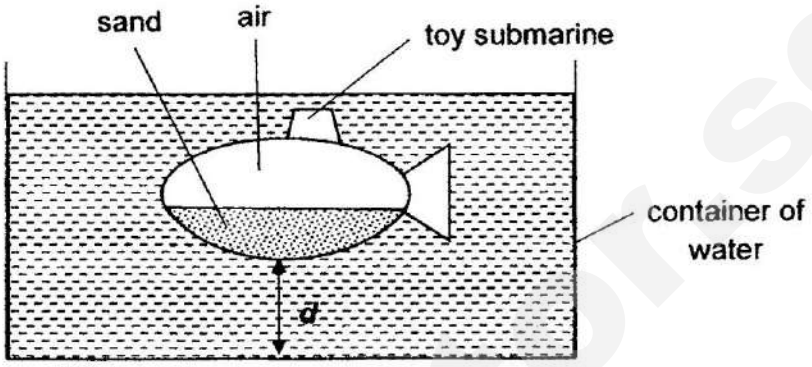
27. Victor poured sand into a toy submarine and dropped it into a container of water as shown in the diagram below. He measured the distance, *d*, from the bottom of the container to the base of the toy submarine. He repeated the experiment by pouring different amounts of sand into the toy submarine.




The result of his experiment is shown in the table below.

a) Complete the table below. [1]

| Mass of sand in the toy submarine (g) | Distance *d* (cm) |
|---|---|
| 10 | 25 |
| 20 | |
| 30 | 15 |
| 40 | 10 |

b) What is the relationship between the mass of the sand and distance *d*? [1]

As the

_____

_____

| Score | 2 |
|---|---|



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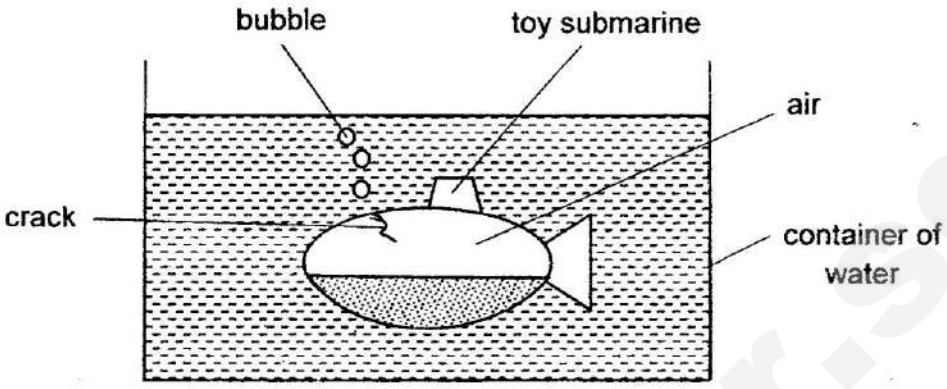
Victor dropped the toy submarine on the floor and it cracked.




When he placed the toy submarine back into the water, he observed bubbles came out from the crack. After a while, the toy submarine sank deeper.

c) Explain why these happened. [2]

_____

_____

| Score | 2 |
|---|---|



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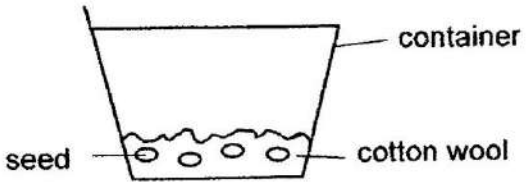
28. Azman placed four seeds into five identical containers A, B, C, D and E. He provided different conditions for each of the containers of seeds as shown in the table below. The five set-ups contained the same amount of cotton wool.




| Container | Conditions | |
|---|---|---|
| | Where is it placed? | Is it watered? |
| A | Near window | Watered daily |
| B | Near window | Not watered |
| C | In a refrigerator | Watered daily |
| D | In a refrigerator | Not watered |
| E | In a cupboard | Watered daily |

a) In which container(s) would the seeds germinate? [1]

_____

b) Azman wants to find out if seeds need water to germinate.

i) Which two containers can Azman use? [1]

_____

ii) State another variable that must be kept constant to ensure a fair test. [1]

_____

Score 3



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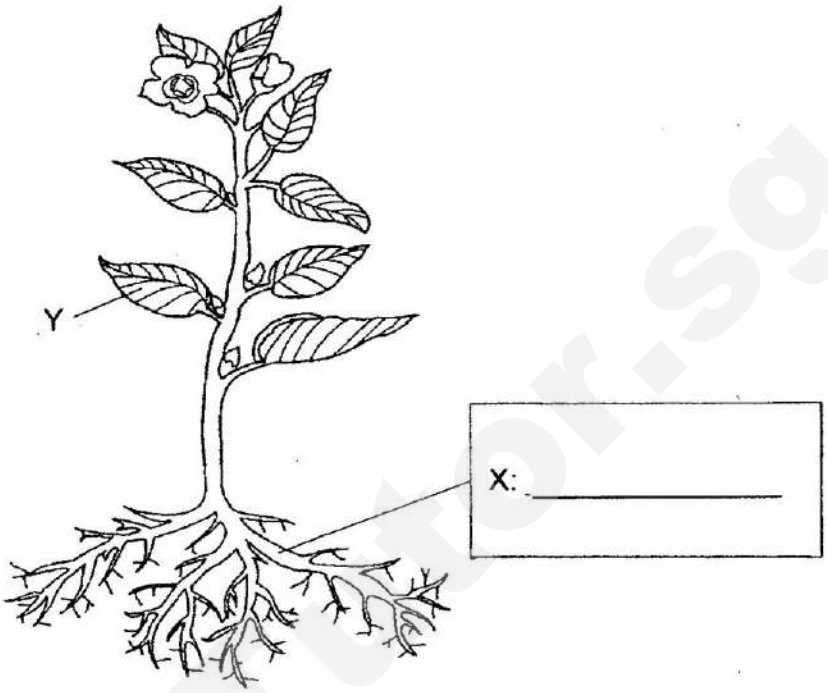
29. Study the picture of a plant below.




a) Label Part X. [1]

b) Describe the function of Y. [1]

_____

_____

c) Part X absorbs water and mineral salts from the ground. Give another function of Part X. [1]

_____

_____

| Score | / 3 |
|---|---|



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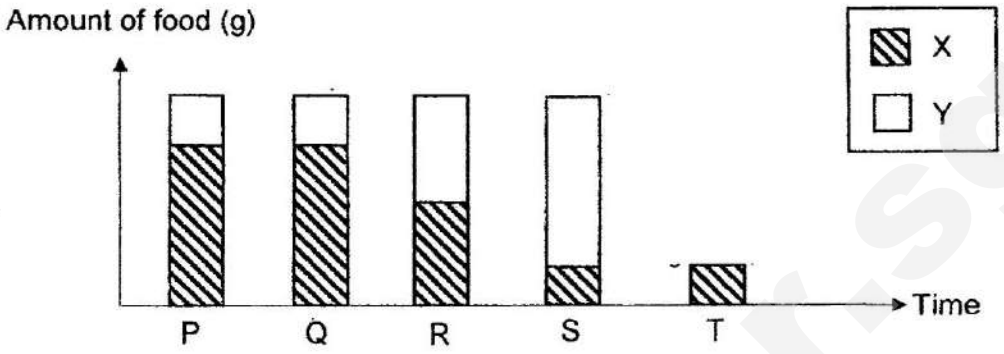
30. The graph below shows the amount of food at the different parts of a human digestive system.

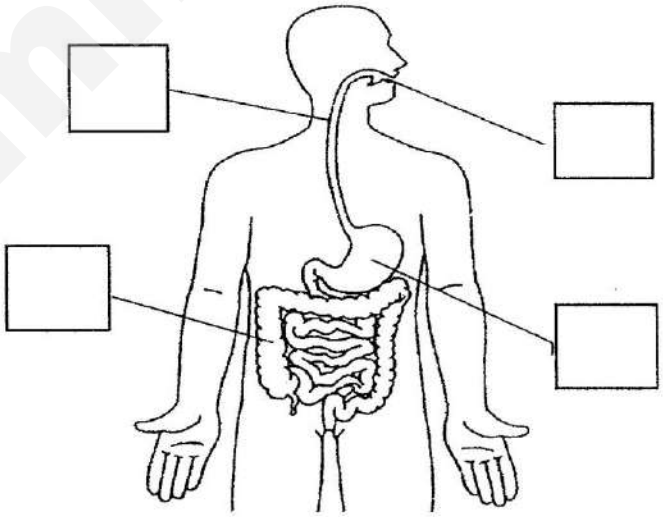



a) Which part, X or Y, in the graph represents the amount of food that is undigested? Give a reason for your answer. [1]

_____

_____

b) Fill in P, Q, R, S and/or T in the boxes of the diagram below to match the parts in a human digestive system shown in the above graph. You do not need to use all the letters provided. [2]



| Score | / 3 |
|---|---|



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Mel made a statement below:

"There are two parts in the human digestive system that carries out digestion."

c) Explain why Mel's statement is incorrect. [1]

_____

_____

| Score | / 1 |
|---|---|



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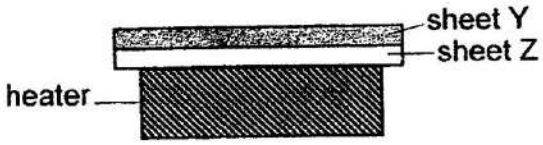
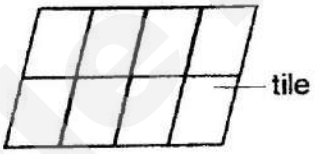
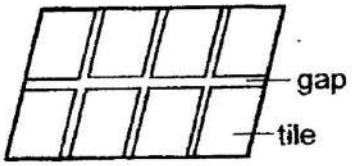
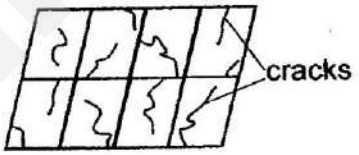
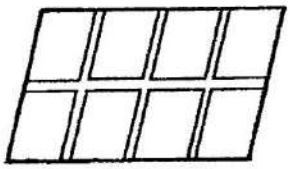
31. Nurul had two similar sheets, Y and Z, made of the same material. She placed the sheets on a heater as shown below.




At the start, sheets Y and Z were of the same length. After 20 minutes, sheet Z became longer than sheet Y.

(a) Explain why sheet Z became longer than sheet Y. [1]

Study the scenarios below. Write down your explanation why the tiles at location P cracked but not the tiles at location Q.

| Location | P | Q |
|---|---|---|
| Before 10 hours of high heat |   |   |
| After 10 hours of high heat |   |  |

(b) Explain why tiles at Q did not crack unlike tiles at P [2]

| Score | 3 |
|---|---|



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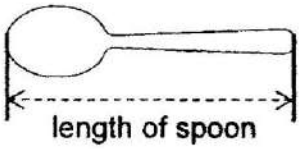
The length of a metal spoon was measured before placing into the refrigerator for 12 hours as shown in the diagram below.




(c) Do you think the length of the spoon will be shorter, longer or the same after 12 hours in the refrigerator? Explain why. [1]

_____

_____

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| Score | / 1 |
|---|---|



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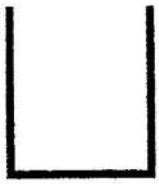
32. Tom has a glass cup with thick walls as shown below.



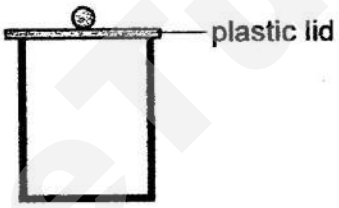
glass cup

(a) Tom pours some hot tea into the glass cup. He touches the outer side of the cup with his hand and it feels warmer with time. Explain why. [1]

_____

_____

Tom places a plastic lid over the glass cup as shown in the diagram below.




glass cup

(b) Explain how the plastic lid helps to keep the tea warm for a longer period of time. [1]

_____

_____

| Score | / 2 |
|---|---|



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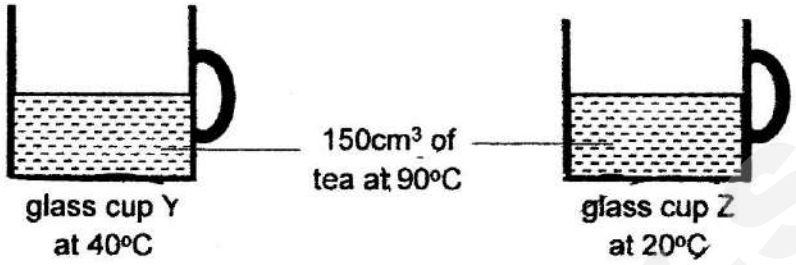
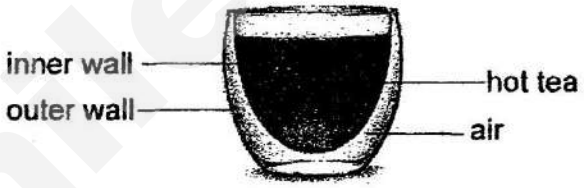
The diagram below shows two similar glass cups at different temperatures after 150 $cm^3$ of tea at 90°C was poured into them at the same time.




(c) Which cup of tea will remain warm longer? Explain why. [1]

Air is a poor conductor of heat. Tom poured hot tea into a double- walled glass cup with air between the walls.




(d) Tom is able to hold the cup containing hot tea without burning his hand. Explain why he is able to do so. [1]

| Score | / 2 |
|---|---|



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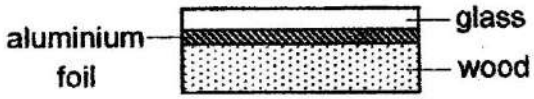
33. Shaun wants to make a mirror. He needs to place three materials as shown in the diagram below.




Shaun's mirror

Shaun has conducted an experiment to find out the amount of light that can pass through the type of glasses, A, B and C. The table below shows his results.

| Glass | Amount of light that can pass through the glass (units) |
|---|---|
| A | 1250 |
| B | 2500 |
| C | 1000 |

(a) Based on the results, which glass, A, B or C, is most suitable for making the glass layer of the mirror as shown above? Explain your choice [1]

_____

_____

| Score | / 1 |
|---|---|



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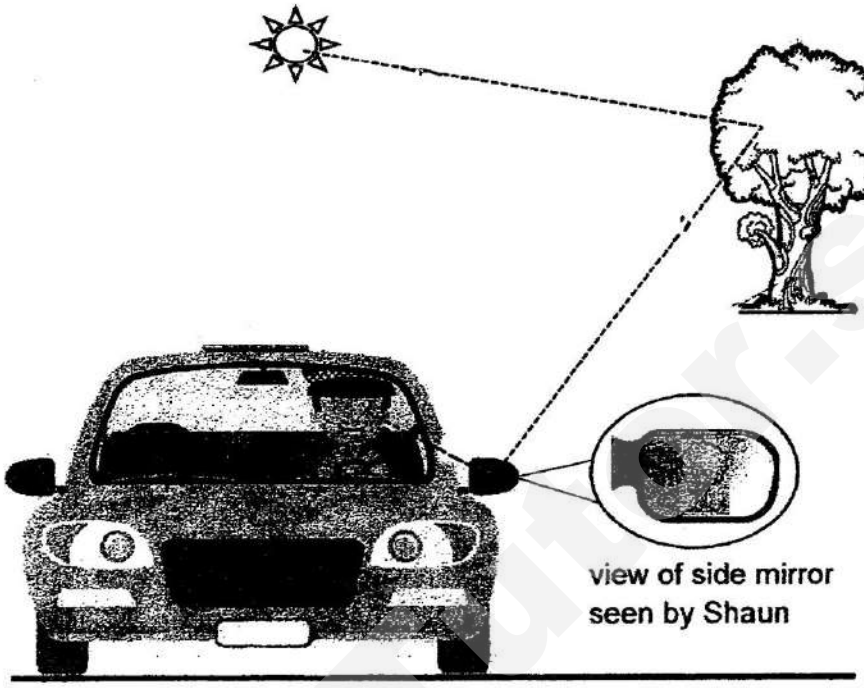
As Shaun drives his car on the road, he is able to see the tree behind using the side mirrors of the car.




(b) Draw the arrow(s) (⟶) on the **three dotted lines** in the diagram above to show the path of light. [1]

(c) Using the diagram shown above, complete the explanation below on how Shaun can see the tree in his side mirror. (You may use more than one word for each blank.) [1]

_____ from the Sun is _____ from the tree to the side mirror then into _____

(d) Give one property of light needed for Shaun to see the tree using his side mirrors. [1]

_____

_____

| Score | / 3 |
|---|---|



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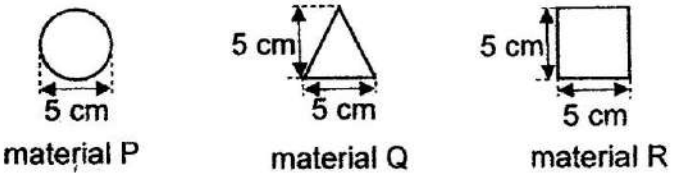
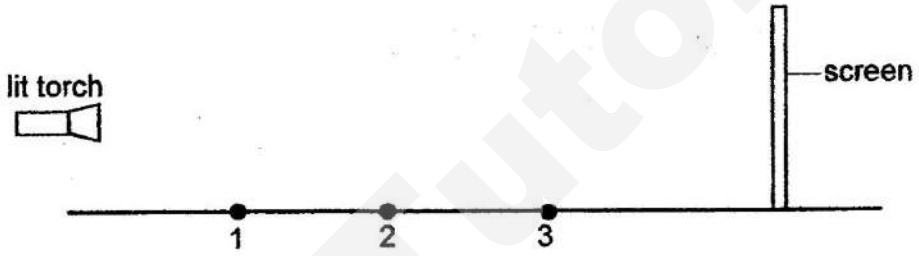
34. Minghan conducted an experiment using three different materials cut into different shapes, P, Q and R. One of the materials allows some light to pass through while the other two do not allow light to pass through.

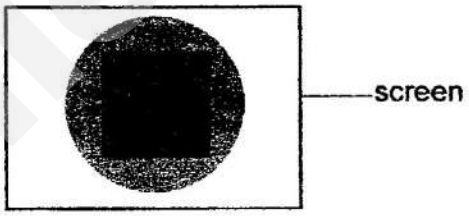



material P material Q material R

P, Q and R were placed at positions, 1, 2 and 3, in a line, away from the torch. The experiment was conducted in a dark room.




The diagram below shows what was seen on the screen.




(a) Based on the result above, fill in the blanks with 1, 2 and 3 to show where materials P, Q and R, had been placed. [1]

| Material | Position |
|---|---|
| P | |
| Q | |
| R | |

| Score | / 1 |
|---|---|



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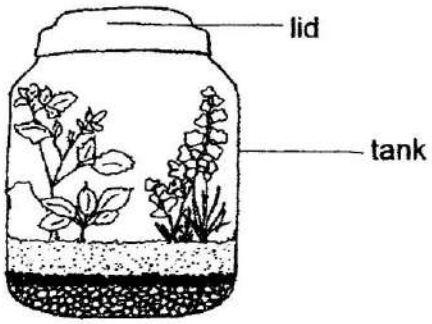
The diagram below shows a tank with a lid and some plants in it.




(b) Material P is more suitable than material Q and R to make the tank and its lid so that the plants can grow. Explain why. [1]

_____

_____

**End of Paper**

| Score | / 1 |
|---|---|



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**ANSWER KEY**

**YEAR : 2018**
**LEVEL : PRIMARY 4**
**SCHOOL : TAO NAN SCHOOL**
**SUBJECT : SCIENCE**
**TERM : SA2**

**BOOKLET A**

| Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 |
|---|---|---|---|---|---|---|---|---|---|
| 2 | 3 | 3 | 2 | 4 | 3 | 4 | 2 | 2 | 2 |
| Q11 | Q12 | Q13 | Q14 | Q15 | Q16 | Q17 | Q18 | Q19 | Q20 |
| 1 | 4 | 4 | 1 | 1 | 3 | 3 | 2 | 4 | 3 |
| Q21 | Q22 | | | | | | | | |
| 1 | 4 | | | | | | | | |

**BOOKLET B**

**Q23a) The cup is a solid.**
**b) Milk is a liquid.**

**Q24)a) Nymph**
**b) Chicken**

**Q25)**

| | |
|---|---|
| has 3 pairs of legs | ✓ |
| has three body parts | ✓ |

**Q26)a) The magnet exerts a magnetic force on the steel rod.**
**b) Amy's observation shows that steel is a magnetic material.**

**Q27a)**

| Mass of sand in the toy submarine (g) | Distance d (cm) |
|---|---|
| 10 | 25 |
| 20 | 20 |
| 30 | 15 |
| 40 | 10 |

**b) As the mass of the sand increases , distance (d) decreases.**
**c) The crack allowed air to escape and the water from the container could occupy the space in the toy submarine that was previously occupied by air. Water in the toy submarine has mass , so the toy submarine sank deeper after a while.**

**Q28a) Container A and E**
**b)i) Azman can use the containers A and B.**
**ii) The presence of oxygen.**

**Q29)a) X: Roots**
**b) Part Y helps the plat trap sunlight to make food for the plant.**
**c) Part X helps to anchor the plant firmly to the ground.**



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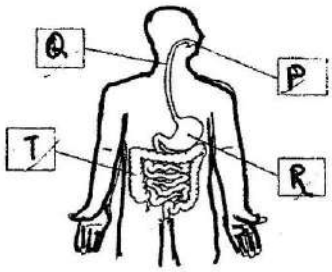
**Q30a) Part X. In T , there was only undigested food as it was the large intestine.**
**b)**

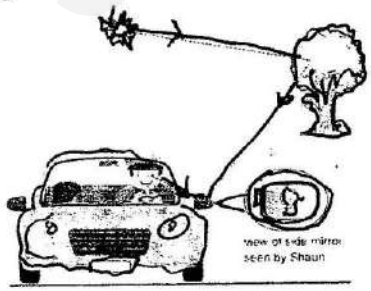



**c) The mouth , stomach and small intestine all carry out digestion , so there are three parts in the human digestive system that carries out digestion.**

**Q31a) Sheet Z gained more heat than Sheet Y as it was closer to the heater , so it expanded more than Sheet Y and became longer than Sheet Y.**
**b) The tiles at Q had gaps between each tile for expansion when the tiles gained heat and expand on a hot day. However at P , there is no gaps for the tiles to expand so the tiles at P cracked.**
**c) The length of the spoon will become shorter. The spoon will lose heat to the surrounding air in the refrigerator and contract , causing the spoon length to be shorter.**

**Q32a) The glass cup gained heat from the hot tea. The heat is then lost to Tom's hand .Hence , Tom's hand will feel warmer with time.**
**b) It slows down hot tea from losing heat to the surrounding , as plastic is a poor conductor of heat.**
**c) Glass cup Y . Cup Y has a warmer temperature than glass cup Z , so the hot tea will not lose heat to the cup quickly.**
**d) The cup has double walls and would not gain heat from the hot tea quickly as the air between the inner and outer wall is a poor conductor of heat .**

**Q33a) Glass B , it is the most transparent thus more light will be reflected for a clearer image.**
**b)**




**c) <u>Light</u> from the sun is <u>reflected</u> from the tree to the side mirror then into <u>Shaun's eyes.</u>**
**d) Light travels in a straight line.**



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Q34)

| Material | Position |
|---|---|
| P | 1 |
| Q | 3 |
| R | 2 |

b) Material P was made of a translucent material , so the leaves of the plant could receive sunlight to make for the plant.

**THE END**

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