NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 2 – 2019
PRIMARY 4

SCIENCE

BOOKLET A

28 Multiple Choice Questions (56 marks)

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

INSTRUCTIONS TO CANDIDATES

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

Marks Obtained

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

Name: _____ ( ) Class: P 4 _____

Date: 25 October 2019 Parent's Signature: _____

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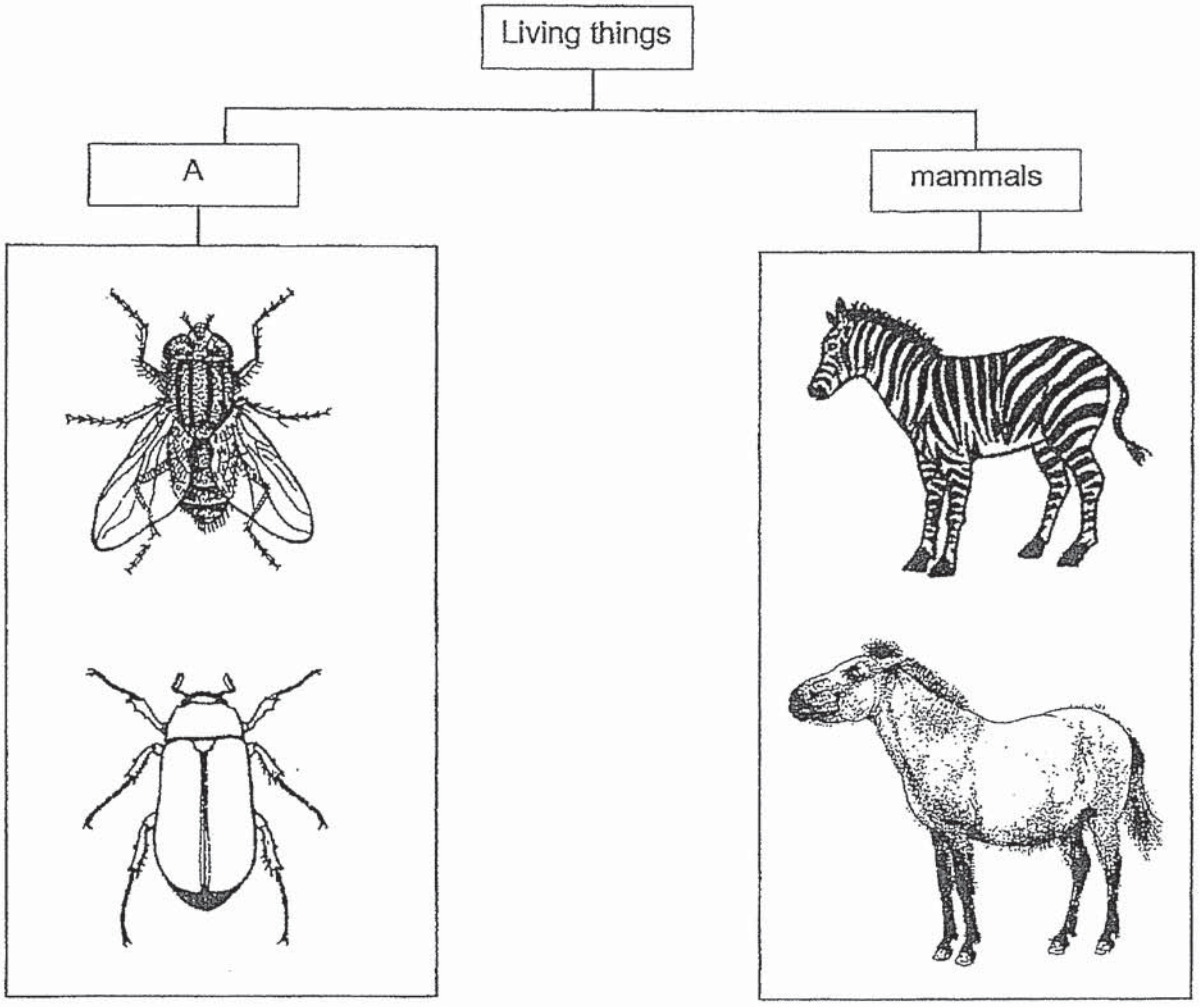
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**Section A: (28 x 2 marks = 56 marks)**

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

1 The table below shows how some living things can be grouped.




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

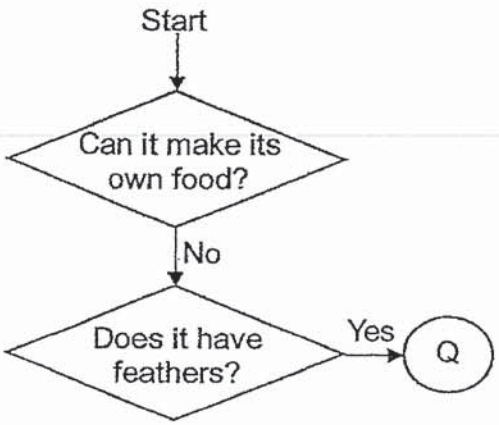
(1) birds
(2) insects
(3) reptiles
(4) amphibians



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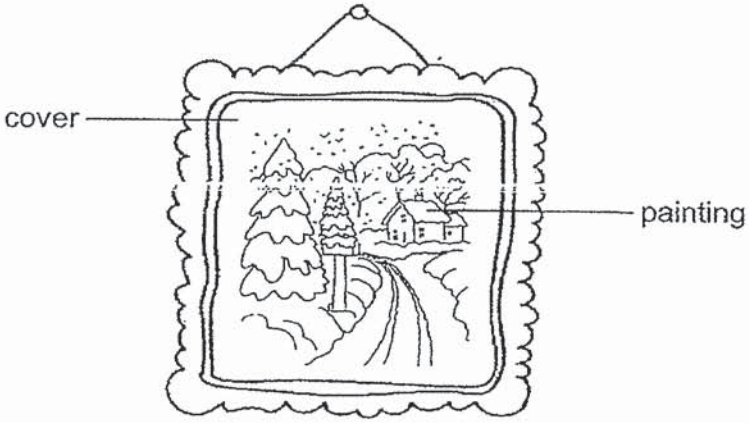
2 Study the diagram below.




What could Q be?

(1) bird
(2) plant
(3) insect
(4) mammal

3 The diagram shows a painting hanging on a wall.




The cover of the painting is made of glass because glass is _____.

(1) light
(2) strong
(3) flexible
(4) transparent



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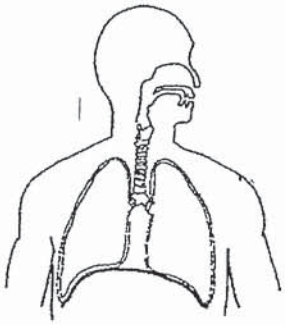
4 The arrows (⟶) in the diagram show the direction of movement of a substance in plants.

leaves ⟶ stem ⟶ roots

What is this substance?

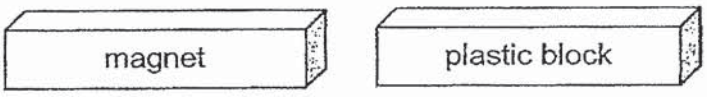
(1) air
(2) soil
(3) food
(4) water

5 Which organ system is shown in the diagram below?



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

6 The diagram shows a magnet brought near a plastic block.




What will happen to the plastic block?

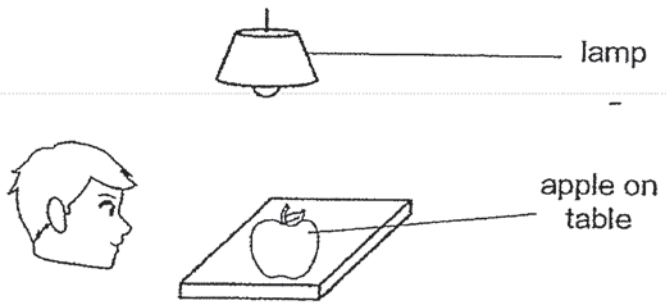
(1) It will move up.
(2) It will not move.
(3) It will move to the left.
(4) It will move to the right.



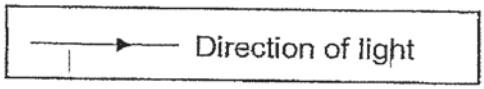
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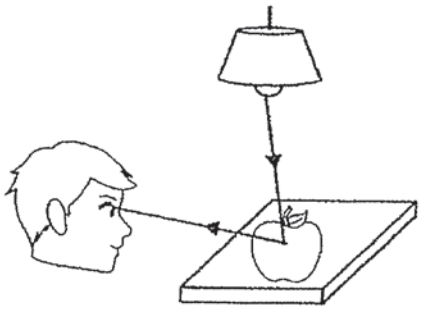
7 Look at the picture below.



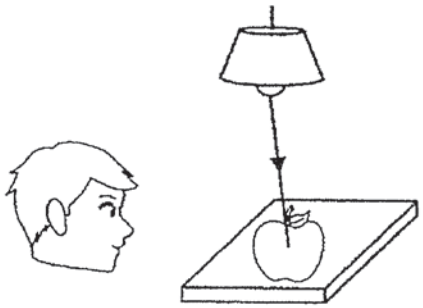

Which one of the following explains why the boy can see the apple on the table?



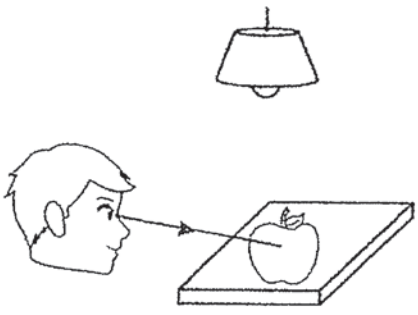

(1)



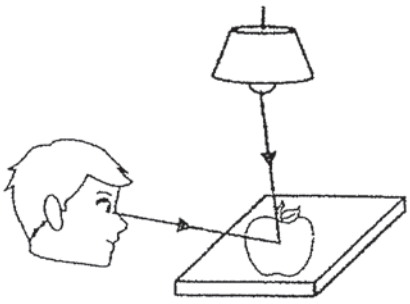
(2)



(3)



(4)





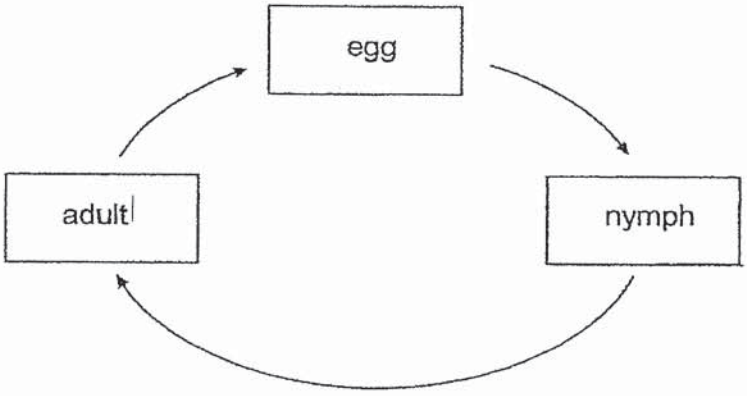
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8 Which one of the following is **NOT** a source of heat?

(1) The Sun
(2) A lighted lamp
(3) A woollen sock
(4) A candle flame

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




Which animal is likely to have the life cycle as shown above?

(1) frog
(2) chicken
(3) butterfly
(4) grasshopper

10 Matter is anything that has mass and occupies space.

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

(1) air
(2) milk
(3) sand
(4) shadow



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11 Ping Ping had a bowl containing a mixture of two items. She successfully separated one item using a bar magnet, leaving the other item in the bowl.



Bowl A
(Mixture of copper wire and erasers)



Bowl B
(Mixture of steel paper clips and iron nails)



Bowl C
(Mixture of marbles and iron nails)



Bowl D
(Mixture of marbles and erasers)

Which one of the above bowls, shows the mixture Ping Ping had before she separated the items?

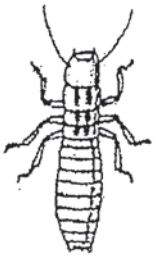
(1) Bowl A
(2) Bowl B
(3) Bowl C
(4) Bowl D



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12 The table below shows some animals which are classified into different groups X, Y and Z.

| Group X | Group Y | Group Z |
|---|---|---|
|  |  |  |
|  |  |  |
|  |  |  |

Based on the table above, how are these animals grouped?

They are grouped according to _____.

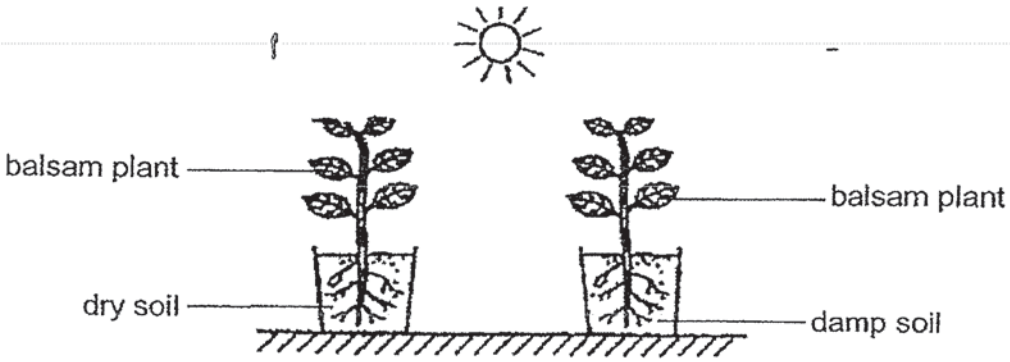
(1) how they move
(2) the place they live in
(3) their outer body coverings
(4) the number of legs they have



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13 Jasmine set up the experiment as shown below to find out what a plant needs for its growth.




She is trying to find out if plants need _____ to survive.

(1) air
(2) food
(3) water
(4) sunlight

14 Which properties of materials would you choose for making a bath towel?

A light
B flexible
C waterproof
D transparent

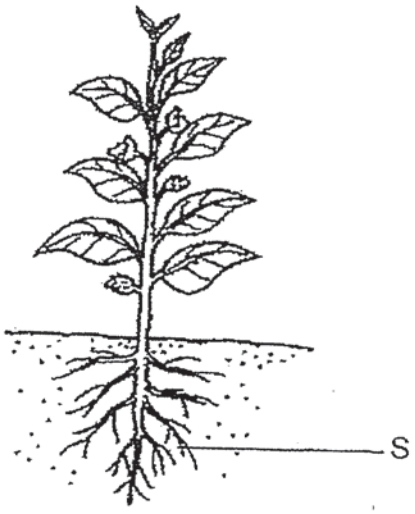
(1) A and B only
(2) B and D only
(3) A and C only
(4) A, B, C and D



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15 The diagram below shows a balsam plant.




Which of the following statements about part S are correct?

A It makes food.
B It takes in water.
C It holds the plant firmly to the ground.
D It supports the plant to stand upright.

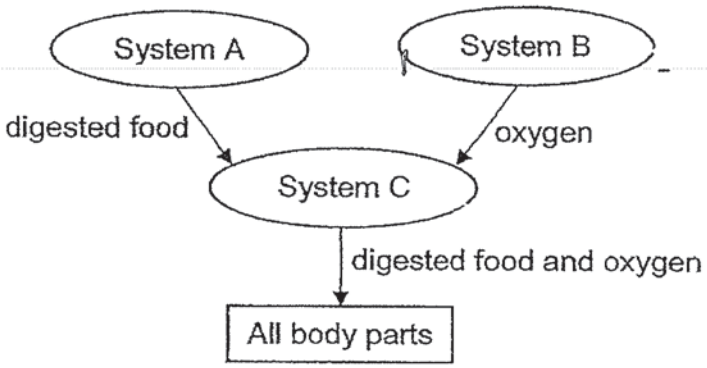
(1) A and B
(2) A and C
(3) B and C
(4) B, C and D



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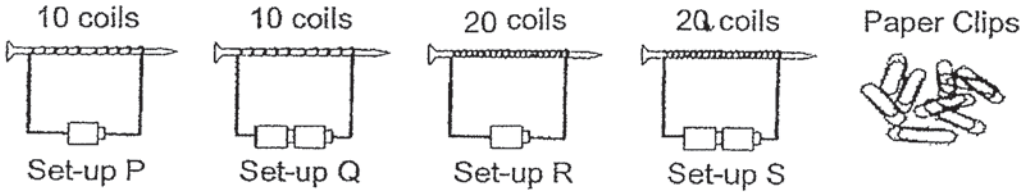
16 The diagram below shows how three body systems, A, B and C work together. The arrows show the movement of some substances in the body.




Which one of the following correctly classifies body systems, A, B and C?

| | System A | System B | System C |
|---|---|---|---|
| (1) | digestive | respiratory | circulatory |
| (2) | digestive | circulatory | respiratory |
| (3) | muscular | circulatory | digestive |
| (4) | circulatory | digestive | muscular |

17 Timothy wants to find out if the number of coils of wire around an iron nail will affect the strength of an electromagnet. He is given four set-ups and some paper clips.



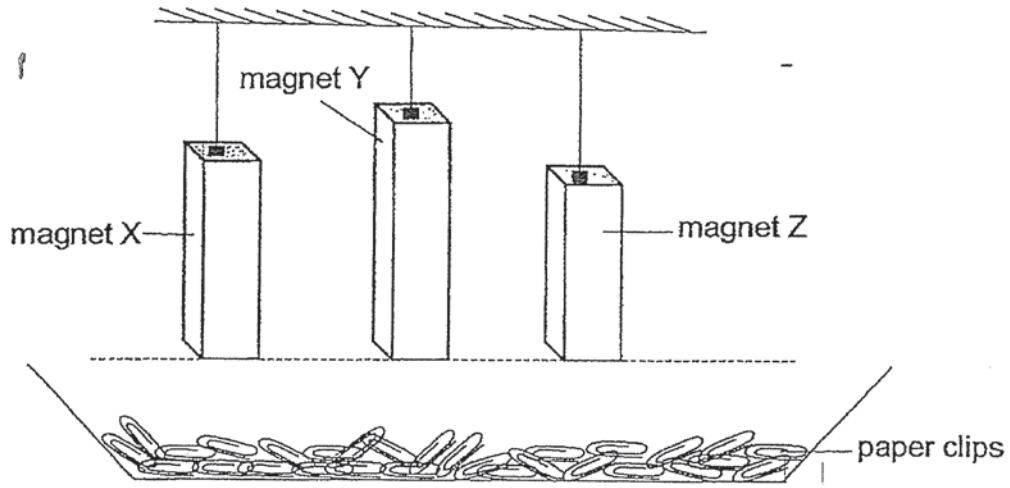

Which two set-ups should Timothy use for his investigation?

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

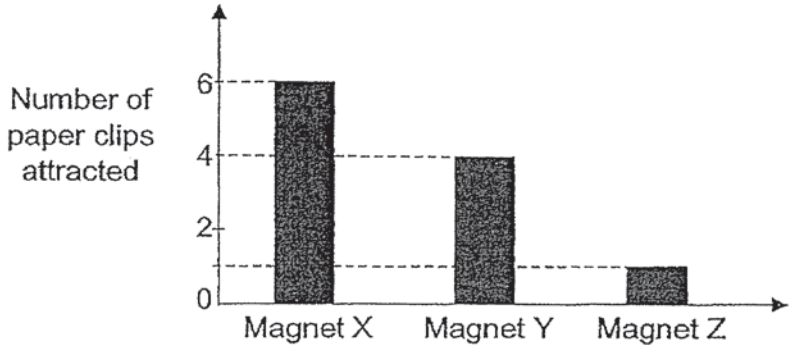


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18 Three bar magnets, X, Y and Z of different sizes, were hung from the ceiling as shown below.




The number of paper clips attracted by each magnet was shown in the bar graph below.




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

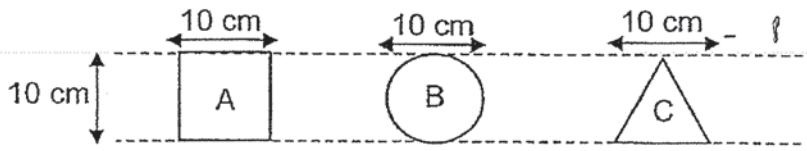
(1) Magnet X is the strongest.
(2) The pole is the strongest part of each magnet.
(3) The smaller the magnet, the weaker its magnetic strength.
(4) Magnet Y is stronger than magnet X but weaker than magnet Z.



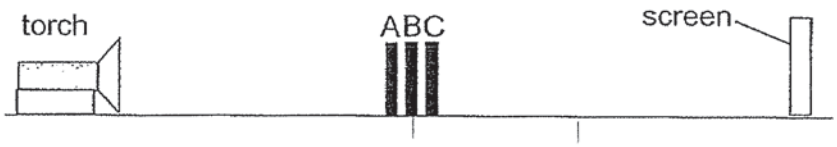
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19 A, B and C are three cut-outs made of different materials. A is a square which does not allow light to pass through, B is a circle which allows most light to pass through and C is a triangle which allows some light to pass through.

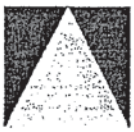


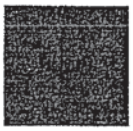

The 3 shapes are aligned side by side between a torch and a screen as shown below.




Which one of the following shadows will be seen on the screen?

(1) 

(2) 

(3) 

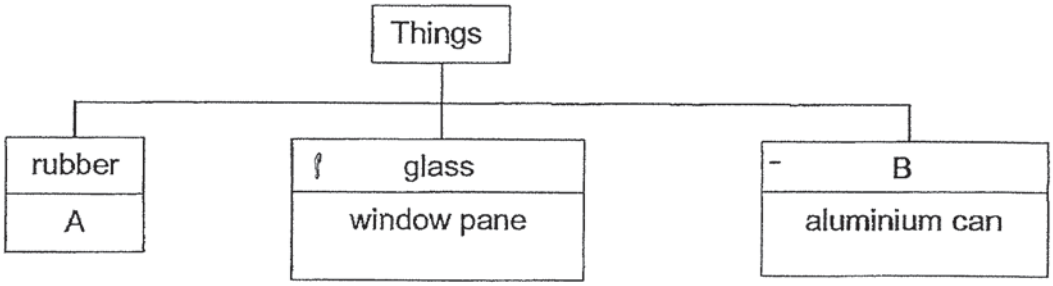
(4) 



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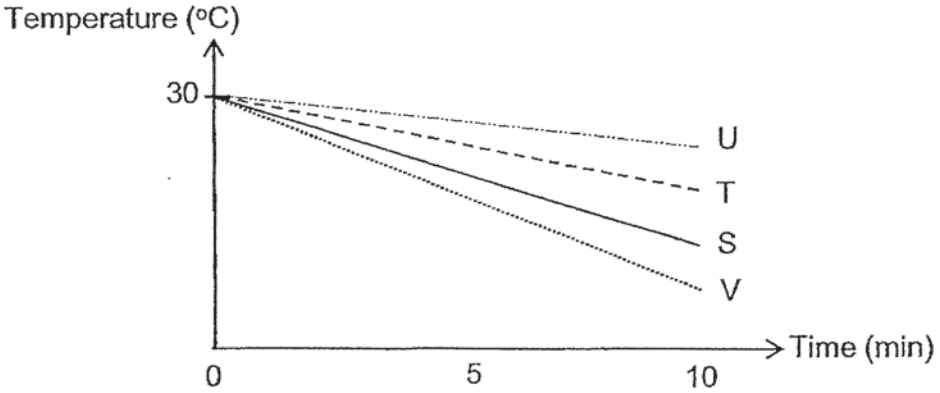
20 Study the classification chart below carefully.




Which of the following best represent A and B respectively?

| | A | B |
|---|---|---|
| (1) | bath towel | fabric |
| (2) | cloth bag | plastic |
| (3) | eraser | metal |
| (4) | saucepan | ceramic |

21 John poured equal volumes of water at 30 °C into four similar beakers made of different materials, S, T, U and V. He placed all four beakers in a refrigerator for 10 minutes. The temperatures of the water during cooling were shown in the graph below.




Arrange the materials according to their heat conductivity, starting from the best conductor of heat to the poorest conductor of heat.

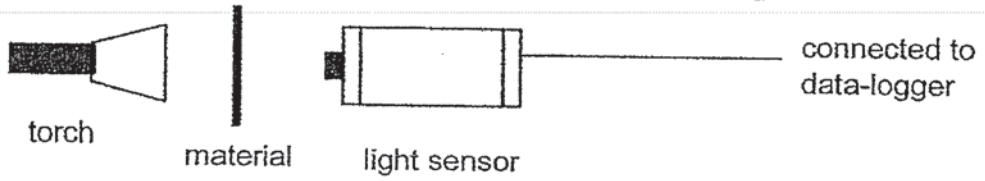
(1) U, T, S, V
(2) U, V, T, S
(3) V, S, T, U
(4) V, U, S, T



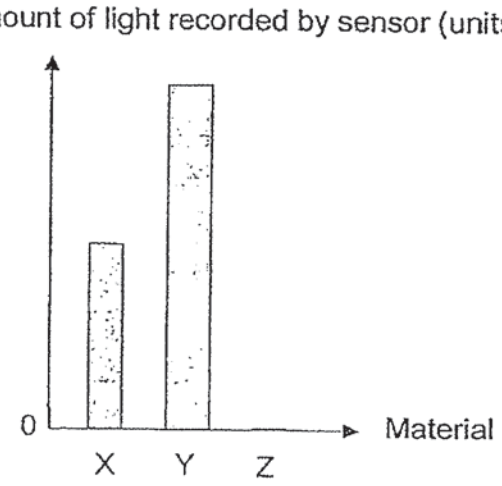
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22 A student carried out an experiment to find out the amount of light that could pass through each material, X, Y and Z. The experimental set-up was as shown below.




A bar graph showing the results was plotted after the experiment.



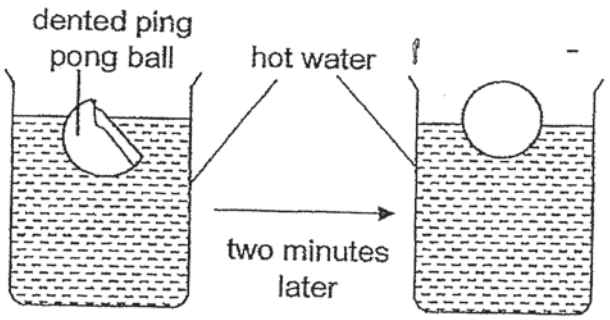

From the above results, which of the following correctly best matches material X, Y and Z to their uses?

| | Material X | Material Y | Material Z |
|---|---|---|---|
| (1) | toilet door | lens for sunglasses | fish tank |
| (2) | lens for sunglasses | fish tank | toilet door |
| (3) | fish tank | lens for sunglasses | toilet door |
| (4) | fish tank | toilet door | lens for sunglasses |



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23 A dented ping pong ball was placed in a beaker of hot water. Two minutes later, it returned to its original shape.



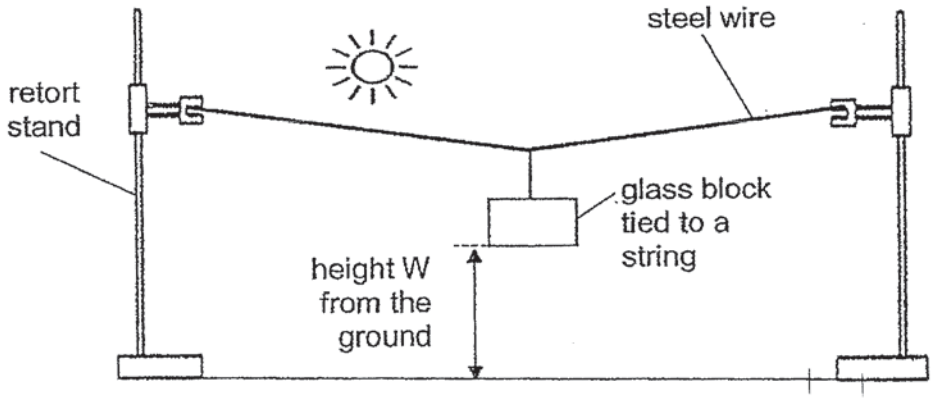

Based on the information above, which one of the following statements is correct?

(1) Hot water entered the dented ping pong ball and inflated the ball.
(2) The dented surface of the ping pong ball gained heat and cracked.
(3) Air in the dented ping pong ball lost heat to the hot water, contracted and inflated the ball.
(4) Air in the dented ping pong ball gained heat from the hot water, expanded and inflated the ball.



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24 Mr Tay set up an outdoor experiment to study how different times of a day would affect height W (distance of glass block above the ground) as shown below.




The changes in height W at 9 am and 6 pm on a sunny day were recorded in the table below.

| **Time of the day** | 9 am | 12 noon | 6 pm |
|---|---|---|---|
| **Weather condition** | Hot | Very hot | Cooling |
| **Height W (cm)** | 20 | ? | 24 |

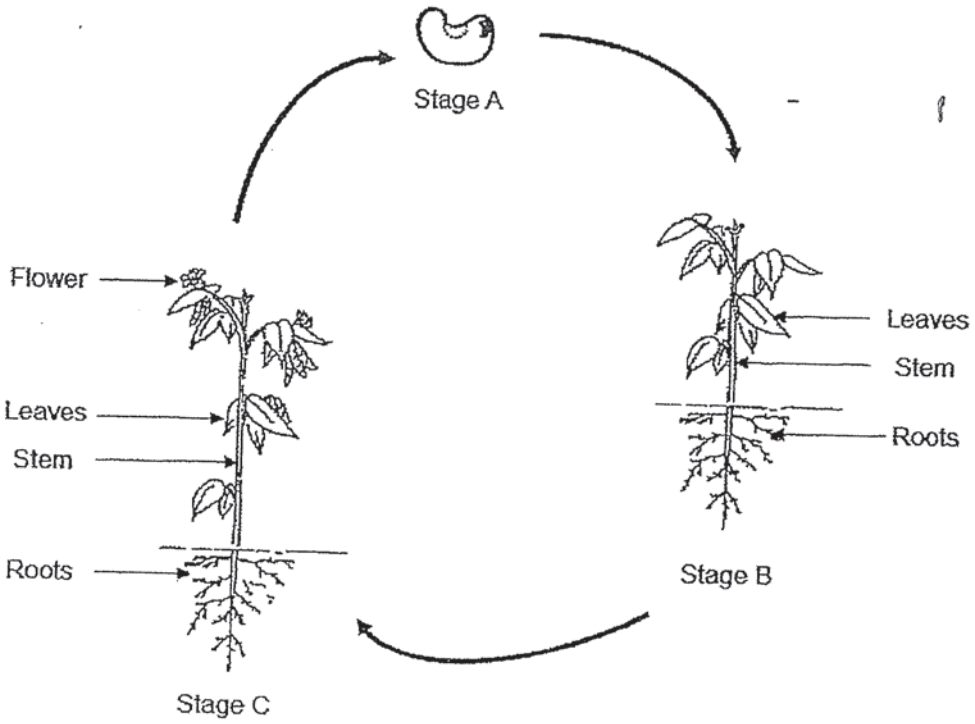
Which one of the following could height W most likely be at 12 noon?

(1) 18 cm
(2) 20 cm
(3) 22 cm
(4) 26 cm



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




Which one of the statements about the life cycle of the flowering plant is correct?

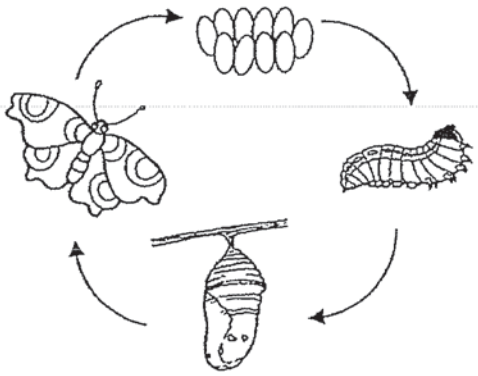
(1) Stage A is the first stage of the life cycle of flowering plant.
(2) At stage A, the roots will start to grow away from the ground.
(3) The seed leaves provide stored food for the plant at stage A.
(4) The flowering plant is able to make its own food only at stage C.



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26 The diagram below shows the life cycle of a butterfly.

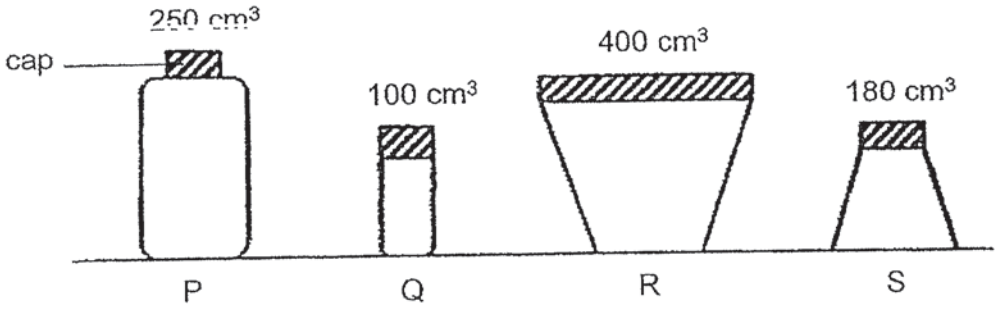


Which of the following insects does not go through the life cycle as shown above?

A beetle
B cockroach
C grasshopper

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

27 The diagram below shows four containers of different volumes.




Which of the containers can be filled with 150 $cm^3$ of air?

(1) P and S
(2) R and S
(3) P, R and S
(4) P, Q, R and S

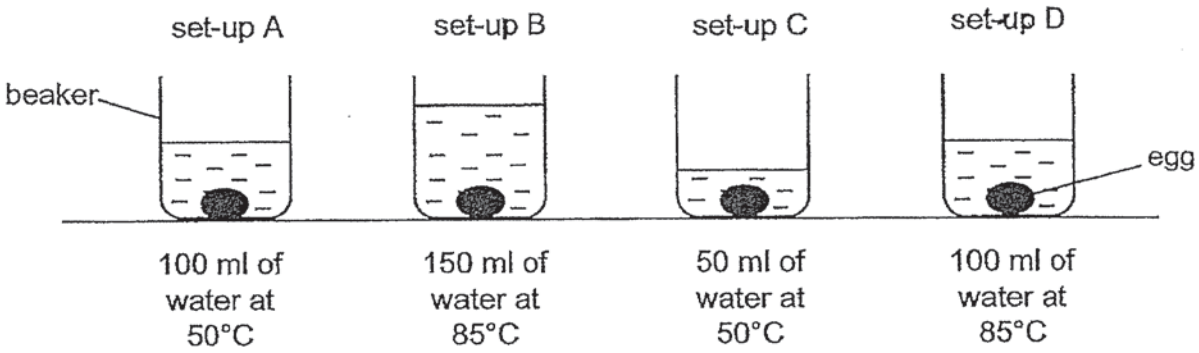


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28 Mindy wanted to find out the best way to cook soft-boiled eggs.

She conducted an experiment using the four set-ups as shown below. Four identical eggs were left in each beaker for five minutes. After five minutes, the eggs were taken out and cracked to see how cooked each of the egg was.




Which one of the following shows the correct arrangement of the set-ups starting with the egg that was most cooked to the egg that was least cooked?

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



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NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 2 – 2019
PRIMARY 4

SCIENCE

BOOKLET B

13 Open-ended questions (44 marks)

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

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers in this booklet.

Marks Obtained

| | | |
|---|---|---|
| Section B | | / 44 |

Name: _____ ( ) Class: P 4 _____

Date: 25 October 2019 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** Classify the following living things into animals and plants.



bear



banana tree



owl

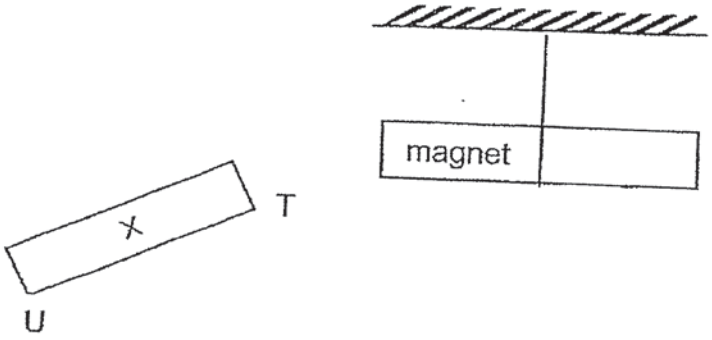


ladder fern

| plants | animals |
|---|---|
| | |

[2]

**30** When end T of object X is brought near a magnet as shown, the magnet moves away.




(a) This shows that object X is a _____. [1]

(b) When end U is brought near to the magnet, it _____ the magnet. [1]

(c) A freely suspended magnet will always come to rest in a _____ direction. [1]



| Score | 5 |
|---|---|

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31 (a) Look at the pictures below. Tick (✓) the sources of light. [2]



☐ burning candle



☐ diamond ring



☐ eyes



☐ lamp

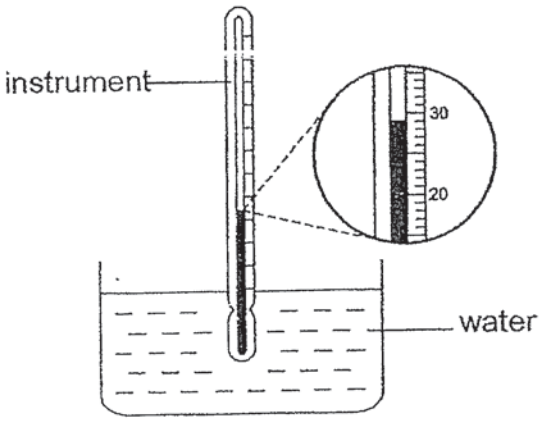
(b) Study the table below.

| natural light source | Man-made light source |
|---|---|
| glow worm<br>Sun | mirror<br>torch |

Which one of the following things is classified wrongly? [1]

_____

32 Jessica used an instrument to measure the temperature of water in a container.




(a) What is the instrument called? [1]

_____

(b) What is the temperature of the water in the diagram above? [1]

_____ °C



| Score | 5 |
|---|---|

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33 The diagram below shows a bowl of hot soup.



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

(a) The bowl is a _____. [1]

(b) The soup is a _____. [1]

34 Study the table below.

| | property of the object | | | | | |
|---|---|---|---|---|---|---|
| | can be bent | | can see through | | can absorb water | |
| object | Yes | No | Yes | No | Yes | No |
| balloon | ✓ | | | ✓ | | ✓ |
| plastic bag | ✓ | | ✓ | | | ✓ |
| iron rod | | ✓ | | ✓ | — | ✓ |
| window pane | | ✓ | ✓ | | | ✓ |

(a) From the table, state the properties of the balloon. [1]

_____

_____

(b) Name a material that is most suitable to make a balloon. [1]

_____

(c) From the table, state the similarity between an iron rod and the window pane. [1]

_____

(d) From the table, state the difference between the plastic bag and the window pane. [1]

_____



| Score | 6 |
|---|---|

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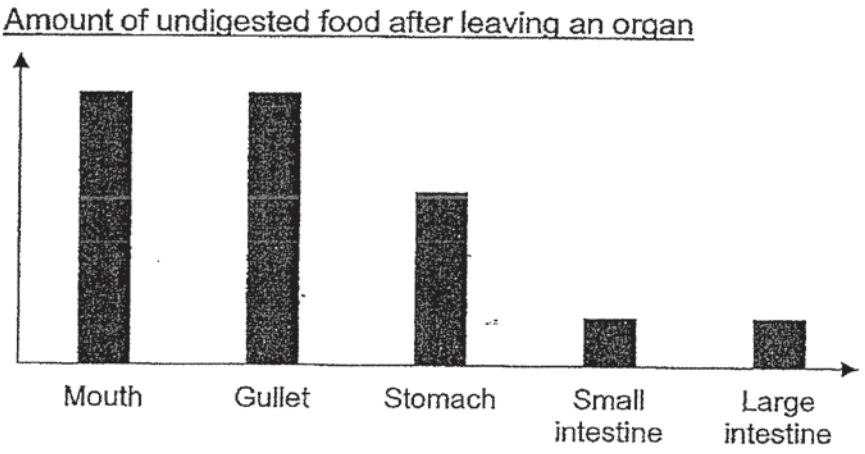
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35 (a) Where does digestion start and end in the human digestive system? [1]

Digestion starts at the _____

Digestion ends at the _____

The graph below shows the amount of undigested food leaving each organ in the digestive system of a person.




(b) Using the graph above, explain if digestive juices are present in the gullet. [1]

_____

_____

(c) Julie suffers from digestion problem. Her doctor advised her to chew her food longer before swallowing. Explain how this will help in digestion. [2]

_____

_____

_____

_____



| Score | 4 |
|---|---|

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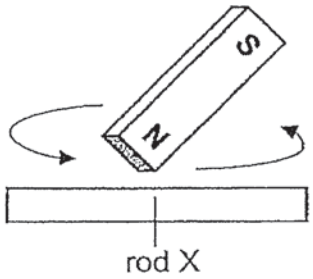
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36 Ming magnetised an iron rod with a magnet using the stroking method. He then brought the magnetised iron rod near a tray of steel pins. He recorded his results as shown below.

| Number of strokes of a magnet on the iron rod | Number of steel pins attracted by the magnetised iron rod |
|---|---|
| 20 | 2 |
| 30 | 4 |
| 40 | 5 |
| 50 | 6 |

(a) What is the relationship between the number of strokes of a magnet on the iron rod and the magnetic strength of the iron rod? [1]

Ming used a strong magnet to stroke on another rod X as shown below.




Ming discovered that Rod X was not magnetised no matter how many times he tried stroking it.

(b) Give a reason why Rod X could not be magnetised. [1]

(c) List two actions that can reduce the magnetic strength of a magnet. [2]

Action 1:

Action 2:

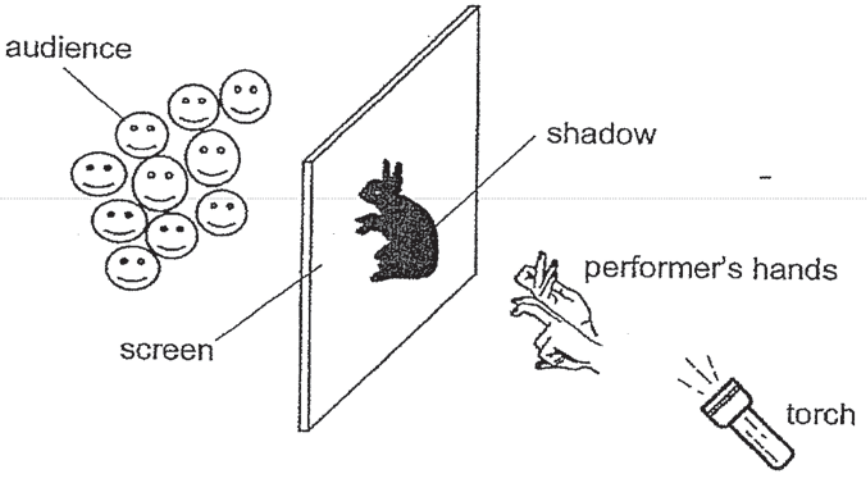
Score



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37 The diagram below shows the use of light in a shadow puppet performance.




(a) How is the shadow formed? [1]

(b) Without moving the screen or the performer's hands, what can be done to create a smaller shadow on the screen? [1]

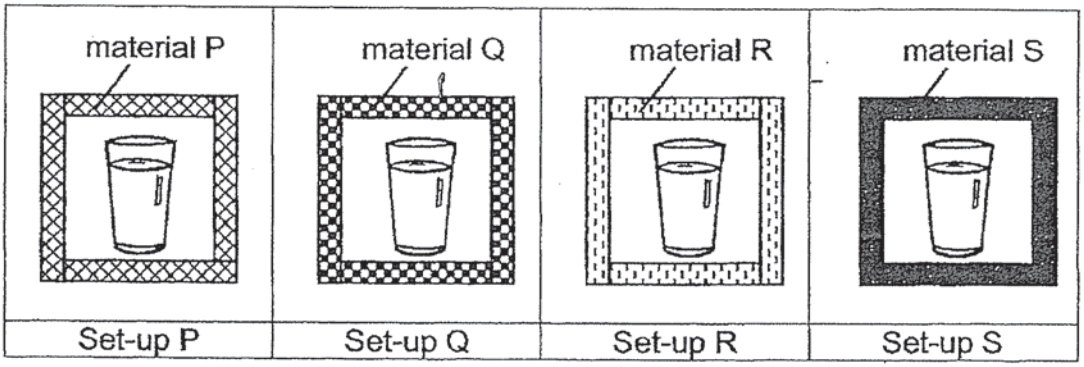
(c) A boy, in the audience, commented that the screen used in the shadow puppet performance does not allow light to pass through. Do you agree with him? Explain why [2]



Score 4

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38 Tom conducted an experiment using four containers made of different materials, P, Q, R and S, as shown below. He placed four identical cups containing cold water at 4 °C in the containers.




After 15 minutes, he recorded the temperature of water in each cup with a thermometer. The results are shown in the table below.

| | Temperature of water (°C) | |
|---|---|---|
| **Material** | **At the start of experiment** | **At the end of experiment** |
| P | 4 | 6 |
| Q | 4 | 20 |
| R | 4 | 10 |
| S | 4 | 15 |

(a) State two important variables that Tom must keep constant in order for the experiment to be a fair one. [2]

(i) _____

(ii) _____

(b) Tom wants to hold a bowl filled with hot soup without scalding his hand. Based on the experiment results, which one of the materials, P, Q, R or S, is most suitable to make the bowl? Explain your answer. [2]

_____

_____

_____

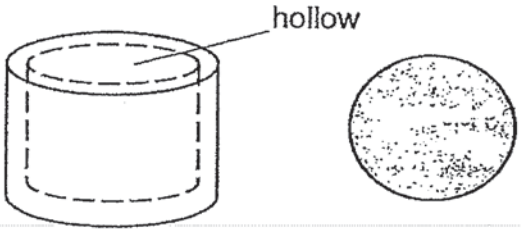


Score 4

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**39** Keith wanted to put a metal ball inside a hollow metal cylinder but was unable to do so as the metal ball was slightly bigger.

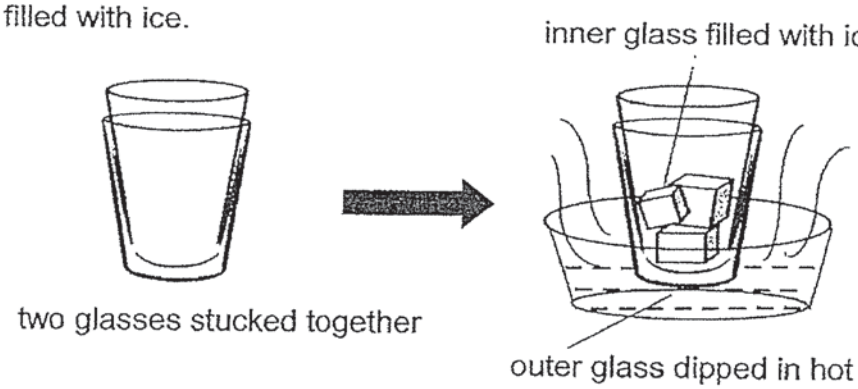



metal cylinder metal ball

(a) Put a tick (✓) in the correct boxes below to show what Keith should do to fit the metal ball into the hollow metal cylinder. [2]

| | Tick |
|---|---|
| i) heat the metal ball | |
| ii) heat the metal cylinder | |
| iii) cool the metal ball by placing it in a basin of cold water | |
| iv) cool the metal cylinder by placing it in a basin of cold water | |

Keith wanted to separate two glasses which are stuck together as shown in the diagrams below. He placed the outer cup dipped in hot water and the inner glass filled with ice.




(b) Explain how the set-up above will help to separate the two glasses. [2]

_____

_____

_____

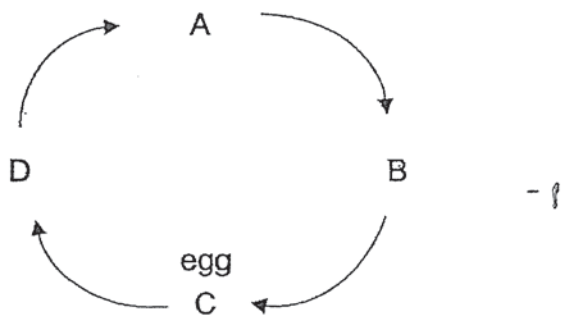


| Score | 4 |
|---|---|

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




(a) Based on the diagram above, which letter represents the pupa stage correctly? [1]

_____

(b) Give one difference in characteristics between stages A and D. [1]

_____

_____

(c) At which stage, A, B, C or D, is it a pest to humans? Give a reason for your answer. [1]

_____

_____

(d) Suggest a way to stop the breeding of mosquitoes at home. [1]

_____

_____



| Score | 4 |
|---|---|

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41 Joseph carried an experiment as shown below. He lowered the clear plastic cup into a basin of red coloured water until it touched the bottom of the basin. He noticed that the plastic cup was not fully filled with red coloured water.

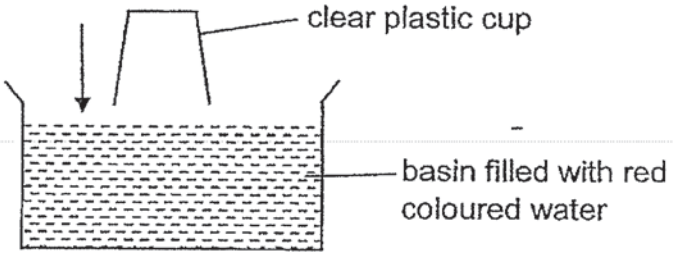



**Diagram 1**

(a) Explain why the cup was not fully filled with red coloured water when immersed into the basin. [1]

Joseph then made a small hole at the bottom of the plastic cup. He then lowered the cup into a basin of red coloured water until it touched the bottom of the basin as shown in diagram 2. Joseph observed the changes that took place.

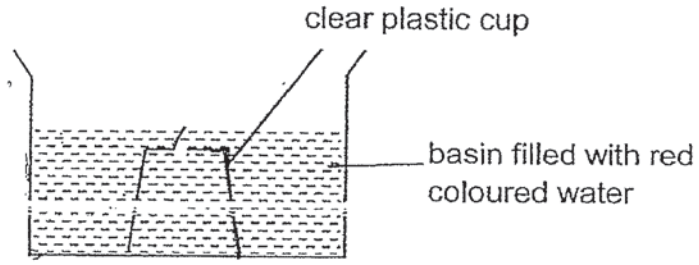



**Diagram 2**

(b) Give two observations that Joseph made. [1]

(c) Explain how this is different from his observations in diagram 1. [2]

End of paper



Score 4

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# ANSWER KEY

YEAR : 2019
LEVEL : PRIMARY 4
SCHOOL : NAN HUA PRIMARY
SUBJECT : SCIENCE
TERM : SA 2

## BOOKLET A

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

## BOOKLET B

Q29) plants: banana tree, ladder fern
animals: bear, owl

Q30a) magnet

Q30b) attracted

Q30c) North-South

Q31a) burning candle, lamp

Q31b) Mirror

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Q32a) Thermometer

Q32b) 29°c

Q33a) solid

Q33b) liquid

Q34a) The balloon can be bent, does not allow any light to pass through and does not absorb water.

Q34b) Rubber

Q34c) Both the iron rod and the window pane cannot be bent.

Q34d) The plastic bag can be bent but the window pane cannot be bent.

Q35a) mouth, small intestine

Q35b) Digestive juices are not present in the gullet as the amount of undigested food leaving the mouth and gullet is the same.

Q35c) With longer chewing time, food is broken into smaller pieces with larger exposed surface area of the food in contact with the digestive juices, causing digestion to be easier.

Q36a) As the number of strokes of a magnet increases, the magnetic strength of the iron rod increases.

Q36b) Rod X was a non-magnetic material and could not be magnetised.

Q36c) Action 1: Hammering the magnet
Action 2: Heat the magnet



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Q37a) Shadow is formed when the light from the torch is partially or completely blocked by the performers.

Q37b) A smaller shadow can be created on the screen by moving the torch further away from the screen.

Q37c) No. If the screen is opaque, the audience would not be able to see the shadow as no light could pass through the screen to the audience's eyes.

Q38a) i: The thickness of the material used
ii: The amount of water in each set-up

Q38b) P. P is the poorest conductor of heat as the temperature of water increased the least amongst the 4 at the end of the experiment. This means that if P was made into a bowl, it will gain heat the slowest from the hot soup and Tom will not scald his hand.

Q39a) ii, iii

Q39b) The inner glass loses heat to the ice and contracts. The outer glass gains heat from the hot water and expands. This will separate the glasses.

Q40a)

Q40b) Stage A does not feed but stage D feeds.

Q40c) Stage B. It bites humans and spread diseases such as dengue.

Q40d) Remove stagnant water present at home.



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**Q41a) Air occupies space in the cup.**

**Q41b) The red water fills the cup completely and air bubbles could be seen leaving the cup.**

**Q41c) In diagram 1, the red coloured water could not fill up the plastic cup. In diagram 2, a hole was made in the cup. Air in the cup escapes through the hole and water entered to occupy space previously occupied by water, causing the cup to be filled with water.**



**END**

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