NAN HUA PRIMARY SCHOOL

END-OF-YEAR EXAMINATION 2023

PRIMARY FOUR

SCIENCE
(BOOKLET A)

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

**INSTRUCTIONS TO CANDIDATES**

1. Write your name, index number and class in the spaces provided below.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Use a 2B pencil to shade your answers on the Optical Answer Sheet (OAS).

**Marks Obtained**

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

**Name:** _____ (  )

**Form Class: P4** _____ **Teaching group: 4S** ____

**Date: 24 October 2023** **Parent's Signature:** _____

This booklet consists of 20 printed pages.

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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 Which of the following is a living thing?



(1)



(2)

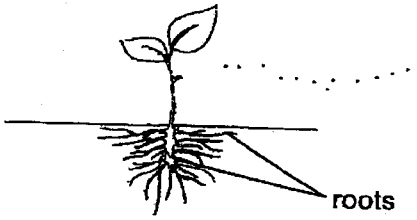


(3)



(4)

2 The diagram below shows a plant.




The roots help the plant to _____.

(1) make food
(2) grow upright
(3) absorb water
(4) absorb sunlight



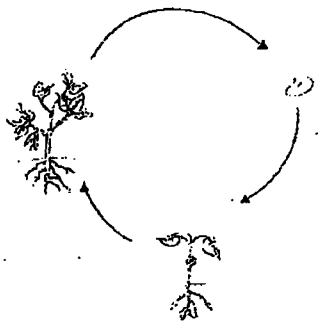
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3 Which organ system is shown in the diagram below?



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

4 The diagram shows the life cycle of a plant.



Q

What is the stage marked Q?

(1) seed
(2) nymph
(3) adult plant
(4) young plant

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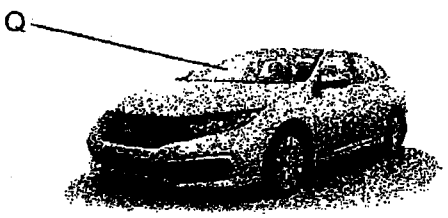


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5 Which animal has a larval stage in its life cycle?

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

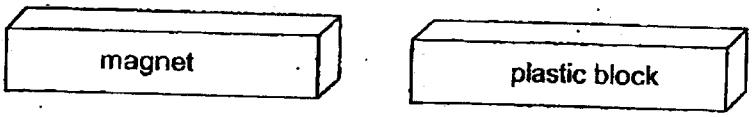
6 The diagram shows a car.




Glass is used to make part Q because glass _____.

(1) is strong
(2) is flexible
(3) sinks in water
(4) allows most light to pass through

7 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.



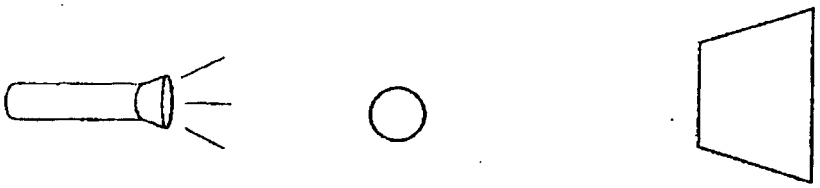
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8 Matter is anything that has mass and occupies space.

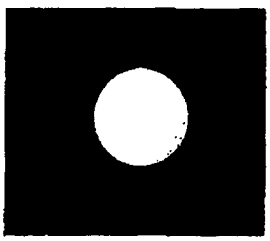
Which of the following is a matter?

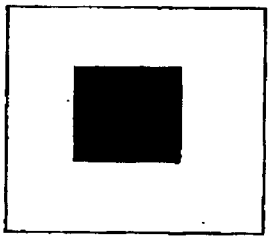
(1) air
(2) heat
(3) music
(4) shadow

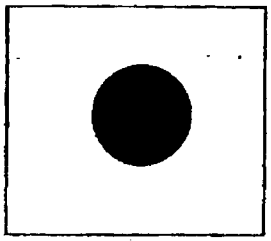
9 The set-up below shows light shining on a wooden ball.

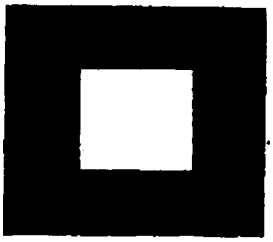



Which one of the following would likely be seen on the screen?

(1) 

(2) 

(3) 

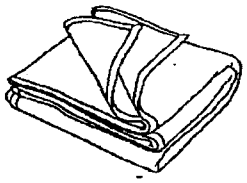
(4) 

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

(1) 

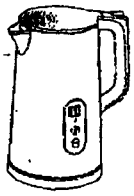
a blanket

(2) 

a lighted bulb

(3) 

a candle flame

(4) 

a kettle containing boiling water (switched on)

11 Larry observed the growth of an animal and recorded his observations in the table below.

| Date | Observation |
|---|---|
| 5 June | An egg was laid. |
| 8 June | The egg hatched into a larva. |
| 15 June | The larva became a pupa. |
| 19 June | The pupa became an adult. |

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

(1) The larva looks like the adult.

(2) The adult gives birth to its young alive.

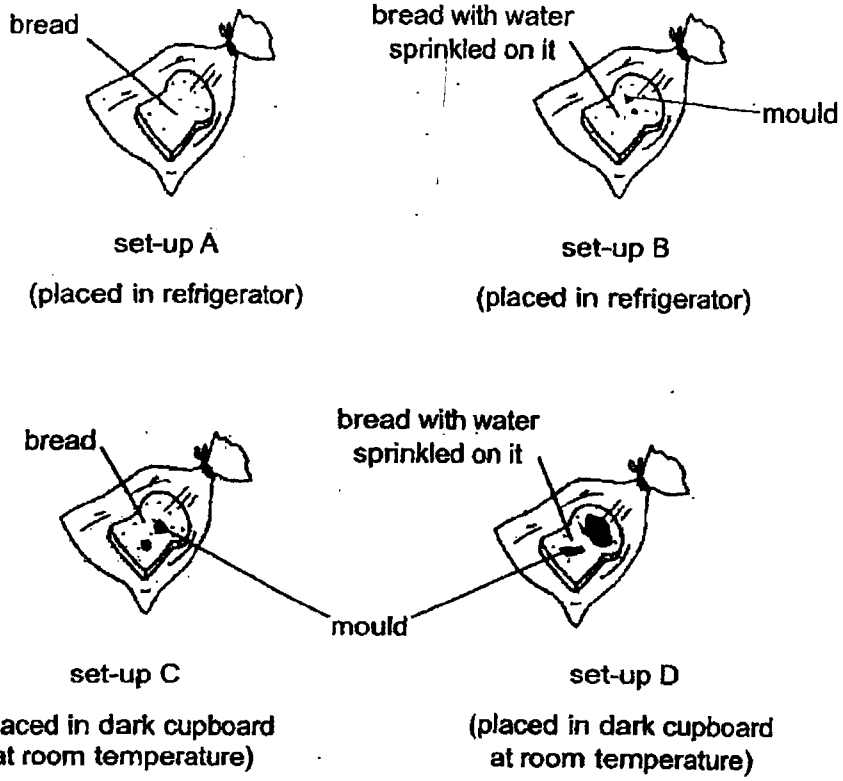
(3) The animal spends most of its life as a pupa.

(4) The animal spends more time as a larva than an egg.



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12 Joe placed four slices of bread in identical plastic bags and placed them in two different locations. At the end of five days, mould was observed on the bread in set-ups B, C and D as shown below.




set-up A
(placed in refrigerator)

set-up B
(placed in refrigerator)

set-up C
(placed in dark cupboard at room temperature)

set-up D
(placed in dark cupboard at room temperature)

Based on the results of the experiment, which of the following statements is true?

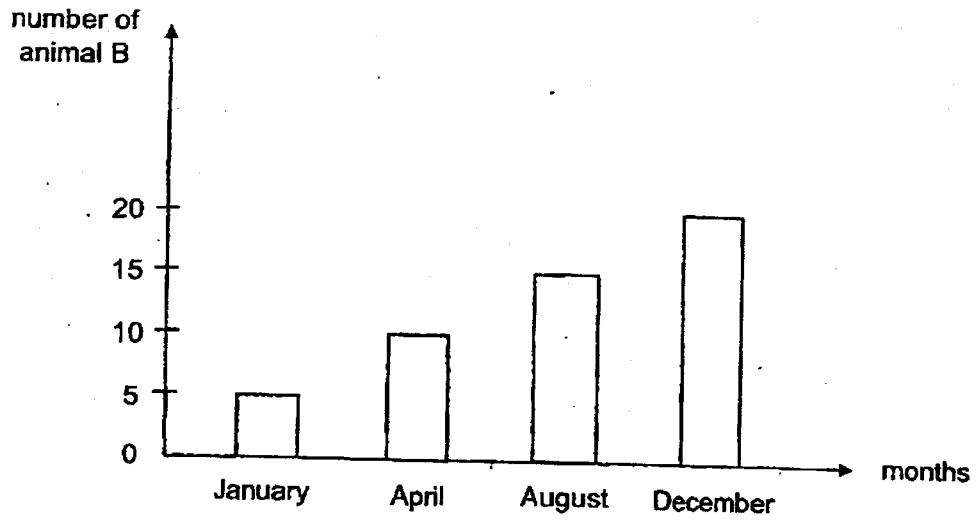
(1) Mould cannot grow in a dark environment.
(2) Mould grows the best when there is warmth and moisture.
(3) Mould grows better when there is less moisture on the bread.
(4) The temperature of the surroundings does not affect the growth of mould.

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13 The graph below shows the number of animal B kept in a tank over 12 months. Five animal B were put into the tank in January. No animal B was added into the tank after that.




Based on the graph above, what can you conclude about animal B?

X Animal B reproduced during the 12 months.

Y There is enough food and water for animal B.

Z The height of animal B increases every 4 months.

(1) X only

(2) Z only

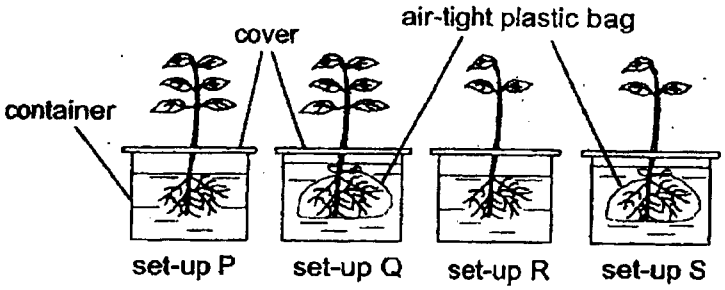
(3) X and Y only

(4) X, Y and Z



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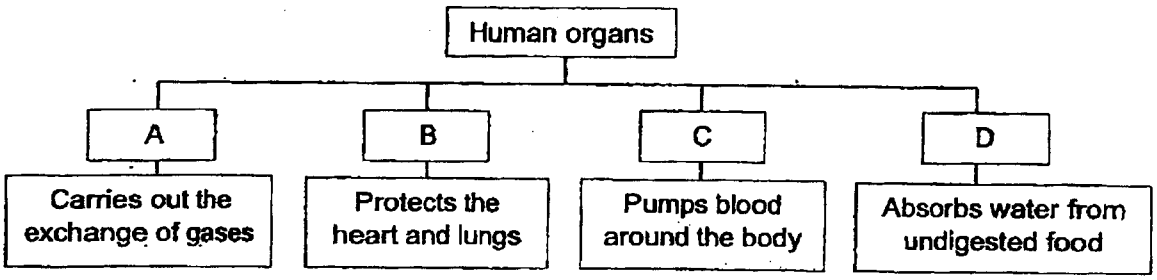
14 Mary prepared the following set-ups to find out if plants take in water through their roots. The roots of the plants in set-up Q and S were tied in air-tight plastic bags at the start of the experiment before putting into the container of water. Each set-up had the same amount of water.




Which of the two set-ups above should she choose to conduct a fair test?

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

15 Study the classification chart below.




What are A, B, C and D?

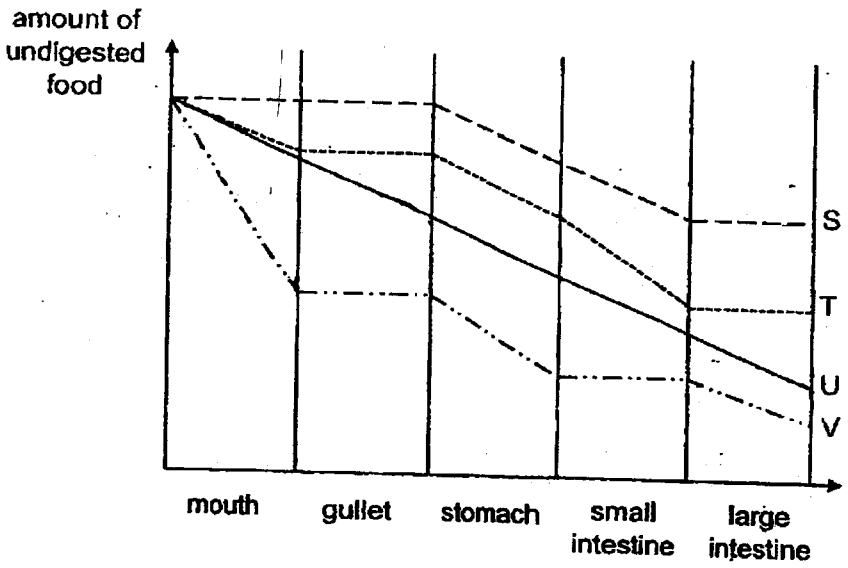
| | A | B | C | D |
|---|---|---|---|---|
| (1) | nose | muscles | heart | small intestine |
| (2) | mouth | rib cage | blood vessels | large intestine |
| (3) | lungs | skull | blood | gullet |
| (4) | lungs | rib cage | heart | large intestine |



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16 Andy ate some food during his dinner.



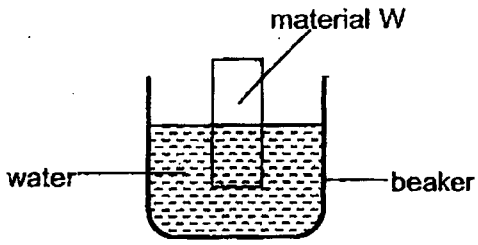

Which line in the graph above, S, T, U or V, correctly represents the amount of undigested food as it passes through his digestive system?

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



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17 Ronny wanted to find out which material, W, X or Y, is the most suitable material to make a cup. He dipped material W into a beaker containing 200ml of water for 5 minutes before removing it as shown in the diagram below.




He then measured the amount of water left in the beaker and recorded it in the table below. Ronny repeated the experiment with materials, X and Y.

| Material | Amount of water left in the beaker (ml) |
|---|---|
| W | 134 |
| X | 189 |
| Y | 0 |

Based on the results above, which material(s) should Ronny choose to make the cup?

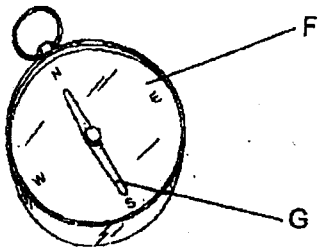
(1) X only
(2) Y only
(3) W and X
(4) None of the materials



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**18** The diagram below shows a compass.



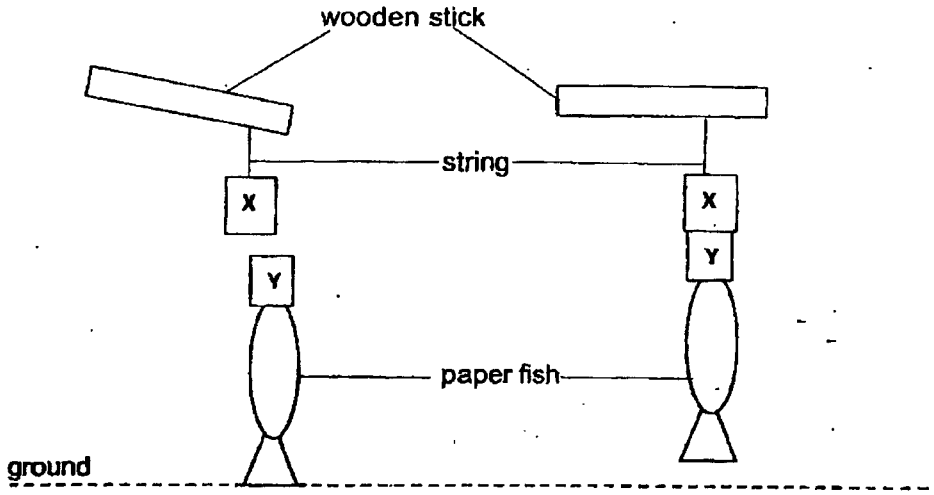

Which of the following shows the correct materials used to make parts F and G of the compass?

| | F | G |
|---|---|---|
| (1) | glass | metal |
| (2) | glass | rubber |
| (3) | plastic | plastic |
| (4) | plastic | wood |



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**19** The diagram below shows a game. The game is to make use of object X to pick up object Y, which is attached to a paper fish.




start of game end of game

Which of the following could represent what objects X and Y are?

| | Object X | Object Y |
|---|---|---|
| A | magnet | magnet |
| B | magnet | magnetic material |
| C | magnetic material | magnetic material |

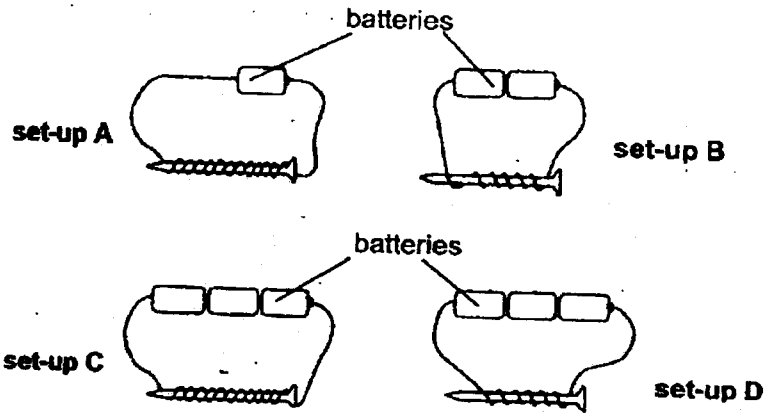
(1) A only
(2) C only
(3) A and B only
(4) A, B and C

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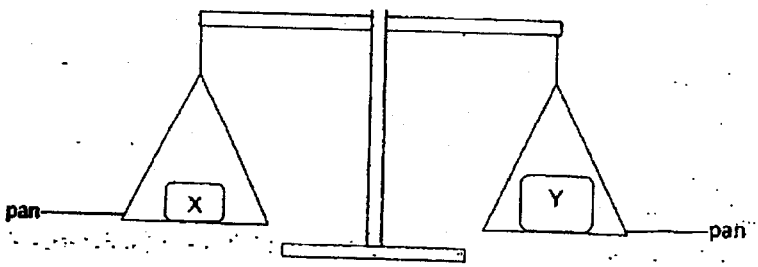
20 Elijah performed an experiment to find out how the number of turns of wire round an iron nail would affect the strength of the electromagnet.




Which two of the above set-ups did he use to perform a fair test?

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

21 Study the diagram below.



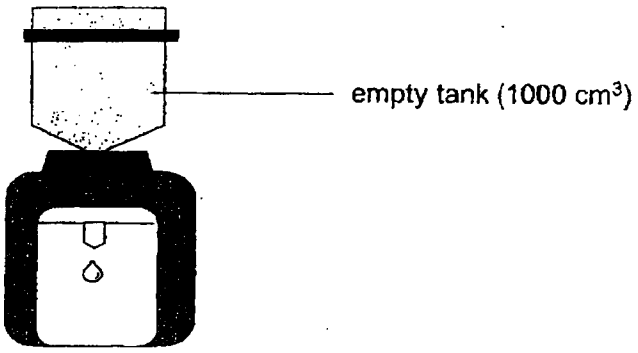

The pans are balanced because object X and object Y have the same _____.

(1) mass
(2) length
(3) shape
(4) volume



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22 The diagram below shows a water dispenser with an empty tank with a volume of 1000 $cm^3$.




Which of the following can be filled into the empty tank?

A 1000 $cm^3$ of air

B 900 $cm^3$ of air and 100 $cm^3$ of water

C 1000 $cm^3$ of air and 100 $cm^3$ of water

D 1000 $cm^3$ of water and 100 $cm^3$ of air

(1) A only

(2) B and D only

(3) A, B and C only

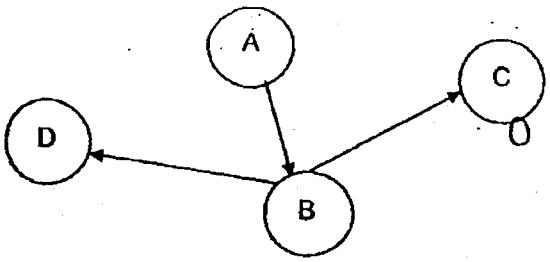
(4) A, B, C and D

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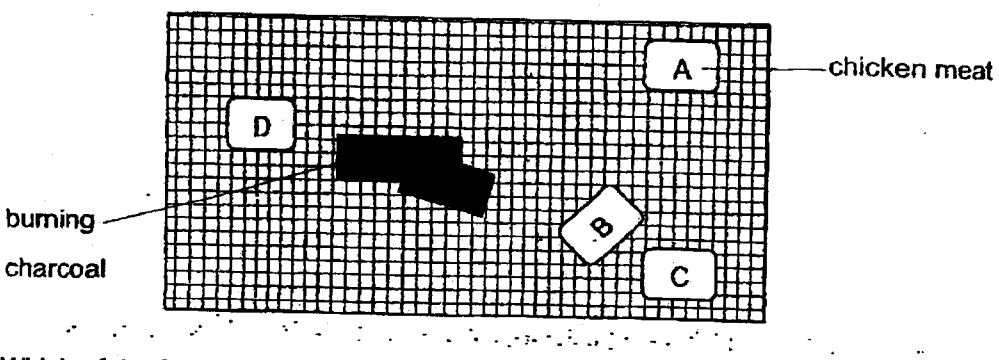
23 Study the diagram below. A, B, C and D each represents either an object, a light source and the eyes of two observers.




The arrows indicate the path of light reflected by an object from the light source into the eyes of two observers. Which of the following correctly represents the object that reflects light?

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

24 The diagram below shows four pieces of chicken meat, A,B, C and D being cooked on a barbecue pit with burning charcoal.



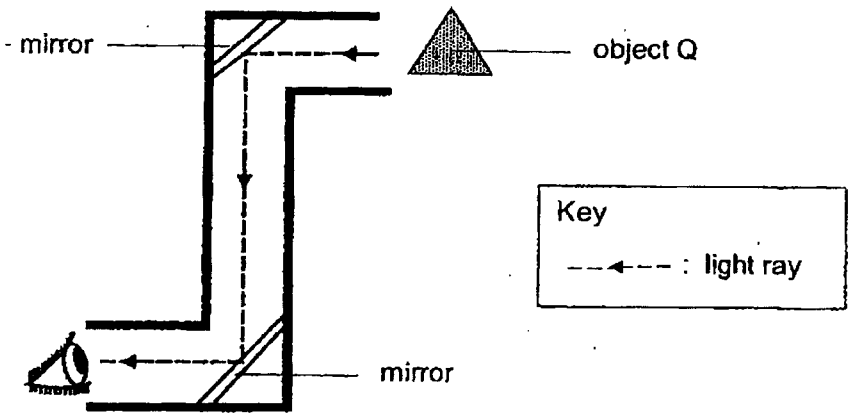

Which of the following shows the correct order in which the meat will be cooked from the fastest to the slowest?

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



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**25** Carrie made a periscope using mirrors.




Which property/properties of light enable Carrie to see object Q?

A Light travels in a straight line.

B Light can be reflected by a mirror.

C A shadow is formed when light is blocked.

(1) A only

(2) A and B only

(3) B and C only

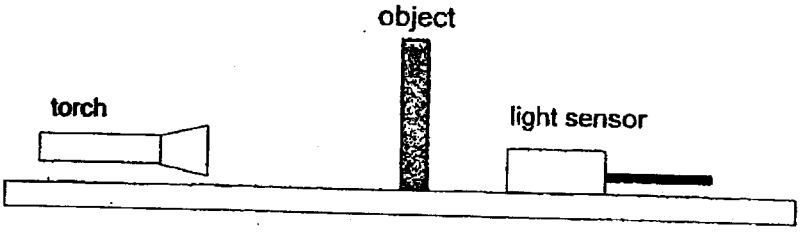
(4) A, B and C



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**26** Tom investigated the amount of light passing through an object in a dark room and recorded the results in the table below.




| **Number of attempts** | 1st | 2nd | 3rd |
|---|---|---|---|
| **Amount of light detected** | 800 units | 800 units | 300 units |

The amount of light detected on his third attempt was different from the other attempts. What could be the possible reason(s)?

A The torch was switched off.

B The battery in the torch has weakened.

C The light sensor was moved further away from the object.

(1) A only

(2) B only

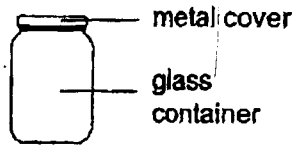
(3) A and C only

(4) B and C only

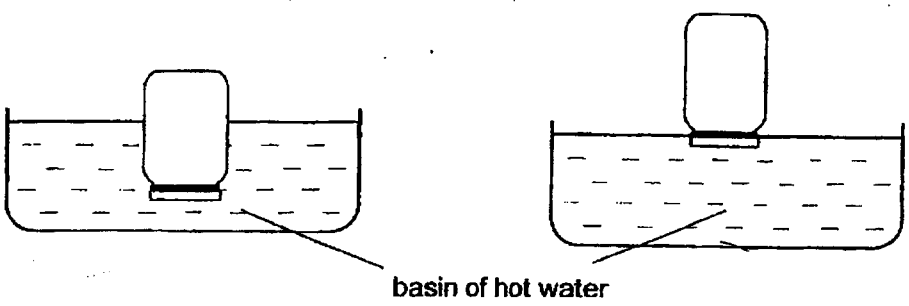


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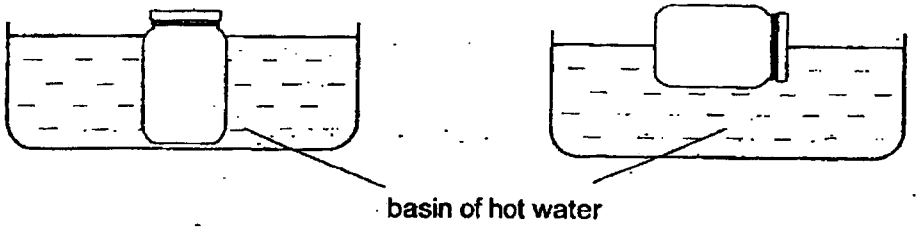
27 Jialing wanted to remove a metal cover fitted to the glass container, but she was not able to do so.




Which of the following arrangements would allow her to easily remove the metal cover using only a basin of hot water?




(1) (2)



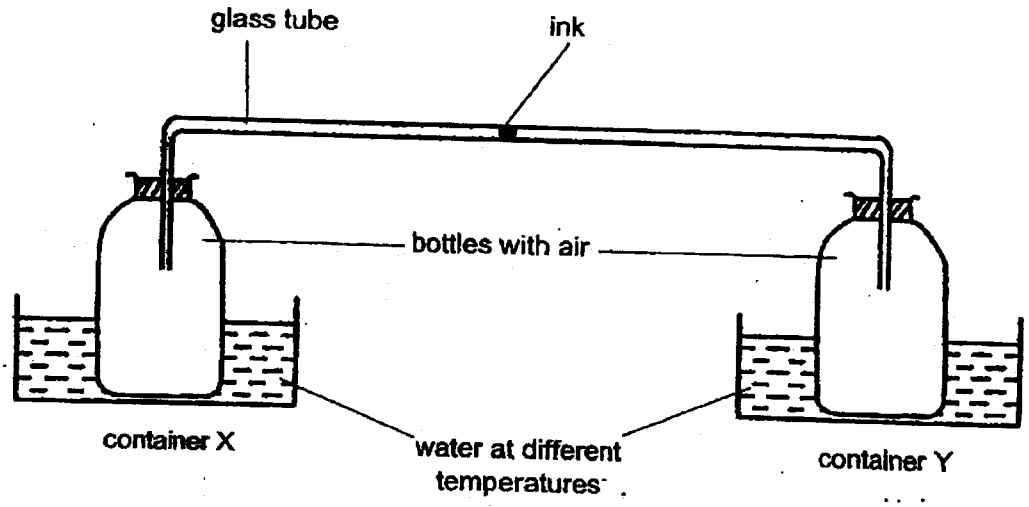

(3) (4)



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28 Timmy set up an experiment shown below. He connected two identical bottles using a glass tube which contained a drop of ink. Then, he placed one bottle in container X and the other bottle in container Y. Both containers, X and Y, contained equal amount of water at different temperatures.




Which of the following would show the correct observation with different temperatures of water in containers X and Y respectively?

| | Temperature of water (°C) | | Direction of movement of ink |
|---|---|---|---|
| | Container X | Container Y | |
| (1) | 30 | 30 | → |
| (2) | 30 | 80 | → |
| (3) | 80 | 30 | ← |
| (4) | 80 | 30 | → |

(Go on to booklet B)



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NAN HUA PRIMARY SCHOOL
END-OF-YEAR EXAMINATION 2023
PRIMARY FOUR

SCIENCE
(BOOKLET B)

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

**INSTRUCTIONS TO CANDIDATES**

1. Write your name, index number and class in the spaces provided below.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Use a dark blue or black ballpoint pen to write your answers in the space provided for each question.
6. Do not use correction fluid/tape or highlighters.

**Marks Obtained**

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

**Name:** _____ (  )

**Form Class: P4** _____ **Teaching Group: 4S** _____

**Date: 24 October 2023** **Parent's Signature:** _____

This booklet consists of 16 printed pages.

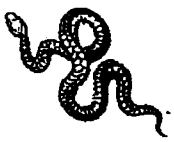
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For questions 29 to 41, write your answers in the spaces provided.

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

(44 marks)

**29 (a)** Draw lines to match the following animals to the correct groups. [2]

| Animal | Groups |
|---|---|
|  | mammal |
| | reptile |
|  | amphibian |
| | fish |

**(b)** Look at the diagram below.



animal Z

Animal Z is a bird because it _____. [2]

- ☐ can fly
- ☐ has a beak
- ☐ has two legs
- ☐ has feathers

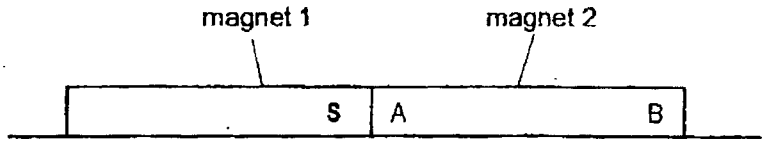
Tick ( ✓ ) 2 boxes above.

Score 4



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**30** Two magnets are placed together as shown below.



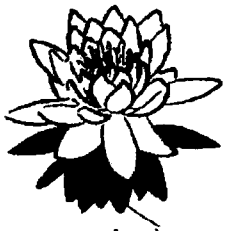

The south pole of magnet 1 is labelled **S**.

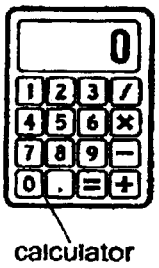
Name the poles labelled A and B on magnet 2.

A: _____ [1]

B: _____ [1]

**31** Study the diagrams below.




Circle the correct answer.

(a) A shadow ( occupies / does not occupy ) space

so it ( is / is not ) a matter. [1]

(b) A calculator ( has / does not have ) mass

so it ( is / is not ) a matter. [1]

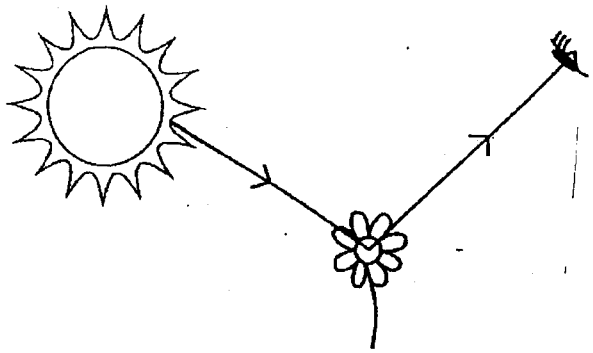
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**32** The diagram shows how Mary sees a flower.



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

| reflected | source | absorbed | stars |
|---|---|---|---|

(a) The Sun is the light _____. [1]

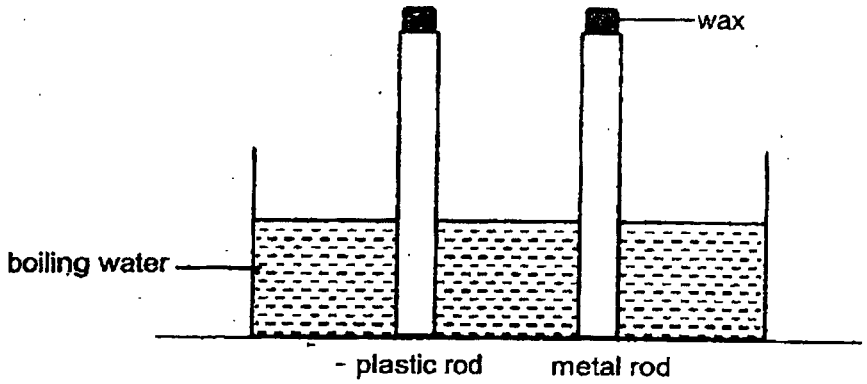
(b) Light is _____ by the flower into Mary's eyes. [1]

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33 Jack 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.




What would he observe and why?

The wax on the metal rod melted _____ than the wax on the plastic rod, as plastic is a _____ conductor of heat than metal. [2]

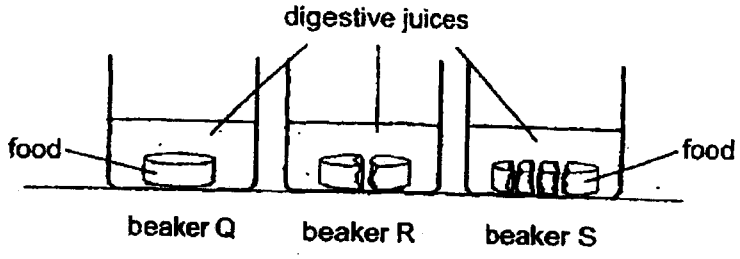
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**34** Peter placed three identical masses of food into three beakers, Q, R and S, as shown below. The masses of food in beaker R and S were cut before being placed in. Equal amounts of digestive juices were then added to the beakers.




One hour later, Peter measured the mass of the undigested food pieces in each beaker.

**(a)** In the blanks below, write Q, R or S, to represent the beaker with the greatest and smallest mass of undigested food. [1]

(i) Greatest mass of undigested food: Beaker _____

(ii) Smallest mass of undigested food: Beaker _____

**(b)** Explain why the beaker you have selected in part **(a)(ii)** has the smallest mass of undigested food left. [2]

_____

_____

_____

**(c)** Peter's teacher advised him to repeat the experiment for at least two more times. Why did she ask him to do that? [1]

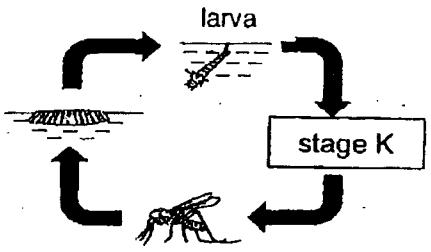
_____

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**35** Study the life cycle of a mosquito shown below.




**(a)** State a difference between the larval stage and stage K in the life cycle of a mosquito. [1]

Water is often collected in the plate placed under a flowerpot as shown in the diagram below.




**(b)** Based on the life cycle of a mosquito, explain how removing the water collected in the plate can help to reduce the number of mosquitoes. [1]

**(c)** What is the advantage of a mosquito laying many eggs at one time? [1]

**(d)** At which stage is the mosquito harmful to humans? Explain why. [1]

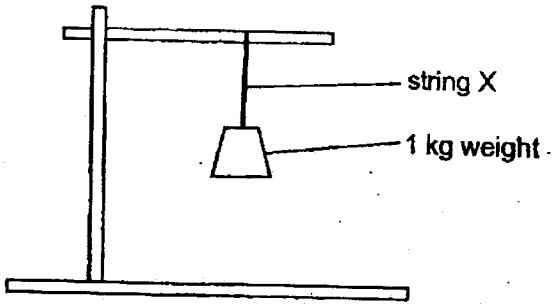
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36 Olivia wanted to test the strength of three different strings, X, Y and Z. The strings are made of the same material but are of different thickness. She prepared the set-up as shown below.




She added 1 kg weights one at a time on string X until it breaks. She then recorded the number of 1 kg weights needed to break string X in the table below. She repeated the experiment with strings Y and Z.

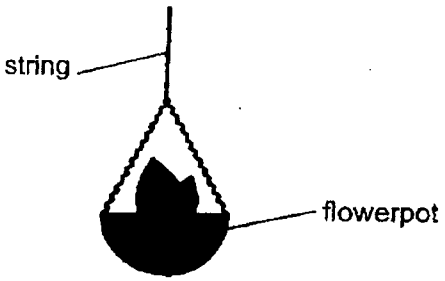
| String | Thickness of string (mm) | Number of 1 kg weights needed to break the string |
|---|---|---|
| X | 1 | 2 |
| Y | 2 | 4 |
| Z | 3 | 7 |

(a) What is the relationship between the thickness of the string and the number of 1 kg weights needed to break the string? [1]



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Olivia wanted to make a hanging flowerpot as shown in the picture below.




**(b)** Which string, X, Y or Z, provides the best support for Olivia's flowerpot? Explain your answer. [2]

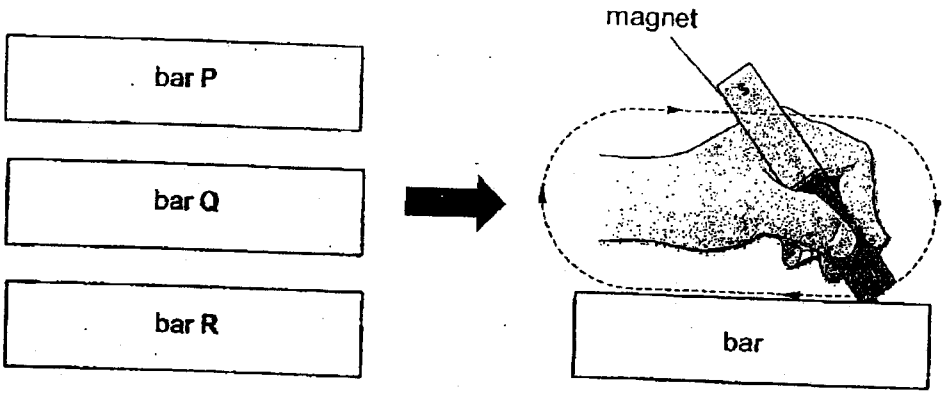
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| | 3 |



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37 Peter used a magnet to magnetise three different bars, P, Q and R, made of different materials.




(a) All three bars P, Q and R became magnets. State two different materials that the bars could be made of. [1]

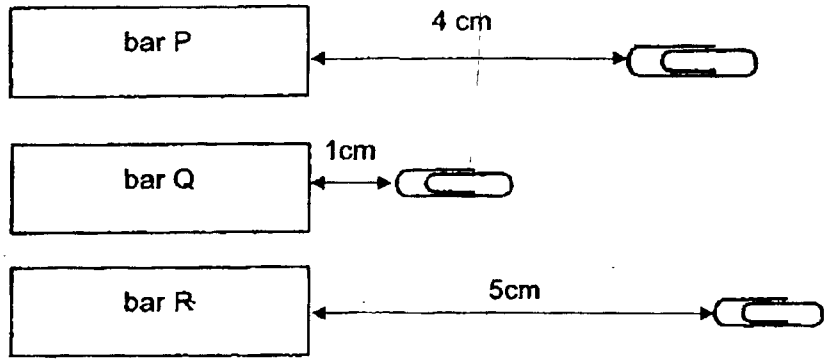
(b) Describe the method used by Peter to magnetise the bars. [2]



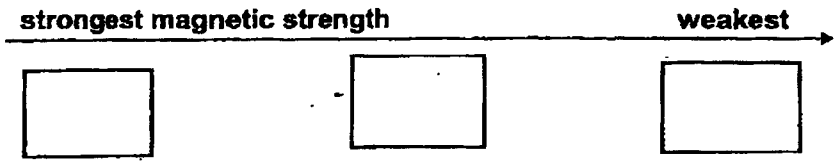
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Peter then set up an experiment to find out the magnetic strength of the magnetised bars, P, Q and R. He placed them on the same starting line and slowly pushed a paper clip towards each of the bar until it was attracted to the bar.

The distance when the paper clip was attracted is shown in the diagram below.




**(c)** Based on the results, arrange the magnetised bars, P, Q and R, in order from the strongest magnetic strength to the weakest. [1]




**(d)** Suggest a variable of the bar that Peter must keep the same to ensure a fair test. [1]

_____

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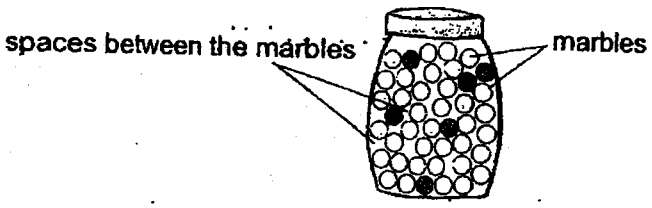
38 The table below shows some properties of substances X, Y and Z.

| Substance | Has a definite shape | Has a definite mass | Has a definite volume |
|---|---|---|---|
| X | Yes | Yes | Yes |
| Y | No | Yes | Yes |
| Z | No | No | No |

(a) Fill in the boxes below with the letters, X, Y or Z, that best represent the substances. [2]

| sand | sound |
|---|---|
| | |

(b) A container was filled with marbles. Joan poured some water into the container and observed that the water occupied the spaces between the marbles.



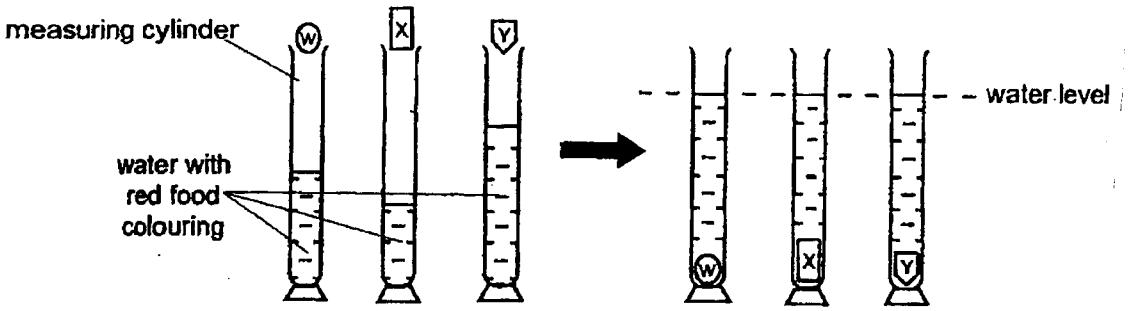

What property of water would explain Joan's observation? [1]

Score 3



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**39** Tom carried out an experiment to compare the volumes of three objects, W, X and Y. He dropped each object into three similar measuring cylinders with different volumes of water with red food colouring. The diagrams below show the results.




At the start At the end

**(a)** What is the purpose of using red food colouring in Tom's experiment? [1]

_____

_____

**(b)** Based on the results, Tom concluded that the three objects have the same volume as the water level at the end is the same for all three measuring cylinders. State a reason why Tom's conclusion is not correct. [1]

_____

_____

**(c)** Using the above set-up, describe how Tom can calculate the volume of each object accurately. [2]

_____

_____

_____

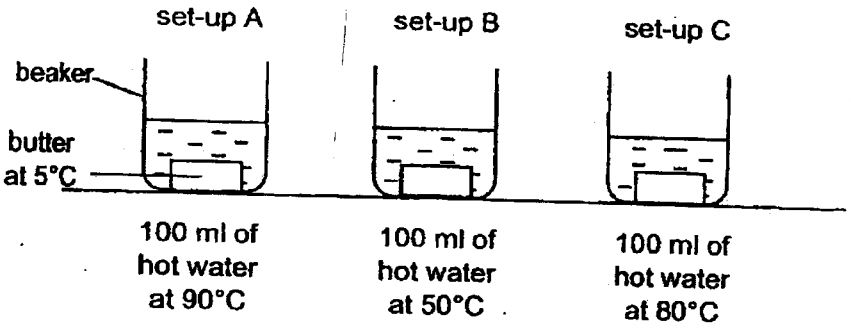
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**40** The diagram below shows three set-ups. The same block of cold butter at 5°C was placed into three similar beakers containing the same amount of hot water at different temperatures.




**(a)** What will be the state of the butter in the three set-ups after 10 minutes? Explain your answer. [2]

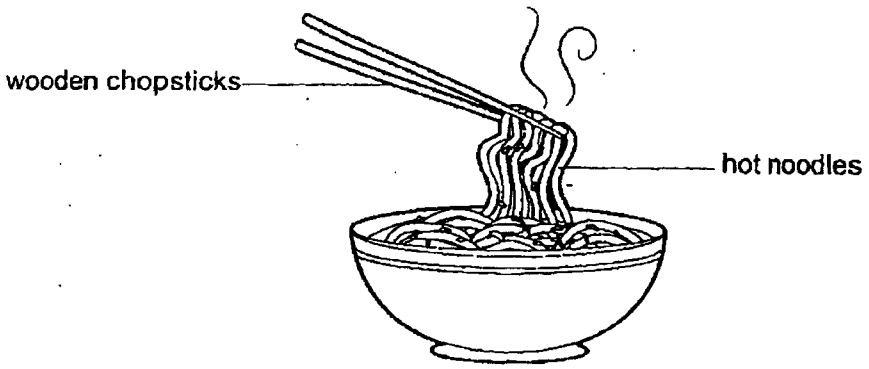
**(b)** In the table below, fill in the bracket to indicate the time needed for the butter to melt completely. [1]

| Set-up | Time taken for the butter to melt completely (minutes) |
|---|---|
| A | 2 |
| B | 6 |
| C | ( ) |



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**(c)** The diagram below shows a bowl of dry hot noodles at 80°C.




**Explain how using a pair of wooden chopsticks instead of metal chopsticks helps to reduce the chance of burning your fingers.** **[2]**

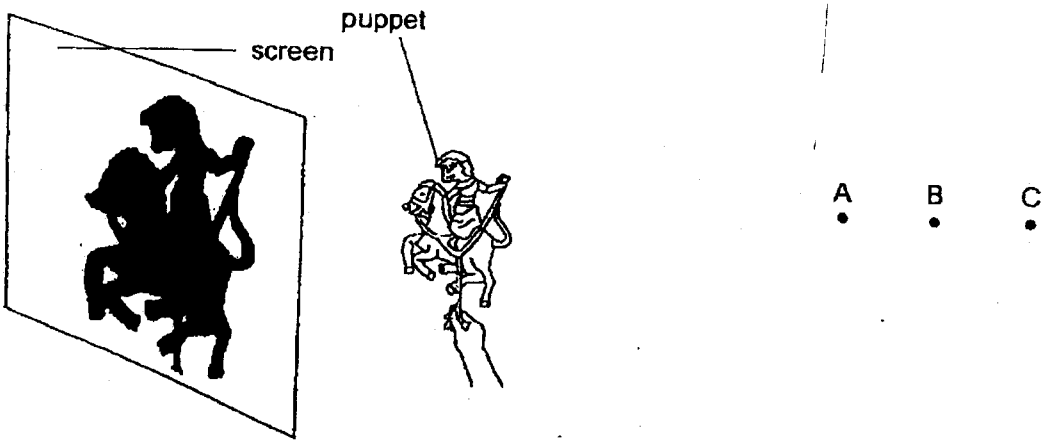
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| Score | |
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41 Sarah created different sizes of shadow on a screen using a hand puppet and a lighted torch. She placed the lighted torch at three different positions, A, B and C.




**(a)** In the diagram, circle the position, A, B or C, of the lighted torch which was placed by Sarah to form the **largest** shadow of the puppet on the screen. [1]

**(b)** Explain your answer in part **(a)** why the largest shadow is formed on the screen at the position you have chosen. [2]

_____

_____

_____

**(c)** What should Sarah do to form a clearer shadow on the screen without moving the position of the torchlight, puppet, and screen? [1]

_____

**End of Paper**

Score 4



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LEVEL : PRIMARY 4
SUBJECT : SCIENCE
TERM : 2023 SA2

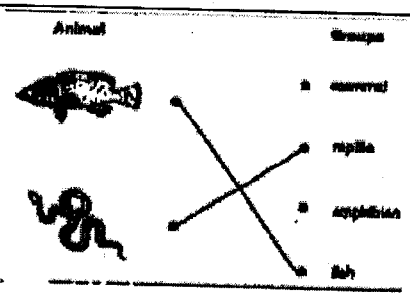
CONTACT :

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## SECTION A

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

## SECTION B

| | |
|---|---|
| Q29) | <br>a) .....<br>b) ✔ (Has a beak)<br>✔ (has feathers) |
| Q30) | A: North<br>B: South |
| Q31) | a) A shadow does not occupy space as it is not matter<br>b) A calculator has mass so it is matter |
| Q32) | a) The sun is the source of light<br>b) Light is reflected by the flower into Mary's eyes |
| Q33) | The wax on the metal rod melted faster than the wax on the plastic rod, as plastic is a poorer conductor of heat than metal |



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| | |
|---|---|
| Q34) | a) (i)Greatest mass of undigested food: Beaker Q (ii) Smallest mass of undigested food: Beaker S<br>b) The food in beaker S has been cut into the smallest pieces so the exposed surface area of the food to the digestive juices is the greatest. Hence digestion of food will be fastest<br>c) It is to ensure the reliability of results |
| Q35) | a) Larva feeds ut the organism at K does not<br>b) There will be less places for mosquitos to lay eggs<br>c) It its to ensure some eggs will be able to hatch even if animals eat some of the eggs<br>d) Adult stage. Adult mosquitos can spread diseases like dengue fever when they bite us |
| Q36) | a) As the thickness of the string increases, the number of 1kg weights needed to break the string increases.<br>b) String Z. The number of 1kg weights needed to break string Z is the greatest. Thus Z is the strongest |
| Q37) | a) Iron, Steel<br>b) Stroke the bar many times in one direction using the same pole of the magnet<br>c) R, P, C |
| Q38) | a) Sand: X Sound: Z<br>b) Water has no definite shape |
| Q39) | a) To see the water level more clearly<br>b) The water level at the start was different<br>c) Take the difference between the volume of the water and the object and the volume of water at the start of the experiment |
| Q40) | a) The butter will change to liquid state due to heat gain from the hot water<br>b) Any number between 2 and 6<br>c) Wood is a poorer conductor of heat and will conduct heat more slowly from hot noodle to fingers |
| Q41) | a) A<br>b) The torch is closest to the puppet, so most light is blocked by puppet<br>c) Use a brighter torch/make the room darker |



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