PAYA LEBAR METHODIST GIRLS' SCHOOL (PRIMARY)

SEMESTRAL ASSESSMENT 2, 2019

PRIMARY FOUR

SCIENCE

BOOKLET A

NAME : _____( )

CLASS : P4 _____

DATE : 4 November 2019

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

INSTRUCTIONS TO PUPILS

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

ANSWER ALL QUESTIONS.

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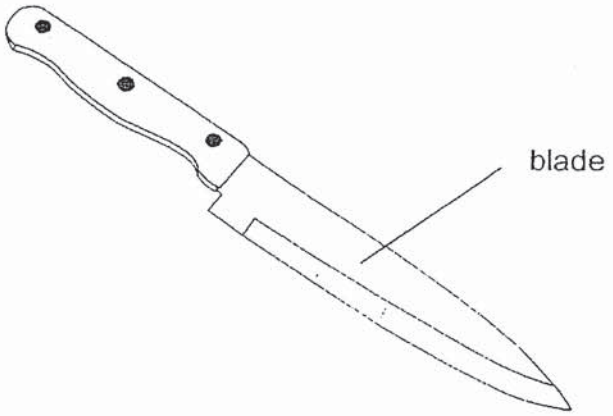
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Section A: Multiple Choice Questions (56 marks)

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

1. The diagram shows a kitchen knife.



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

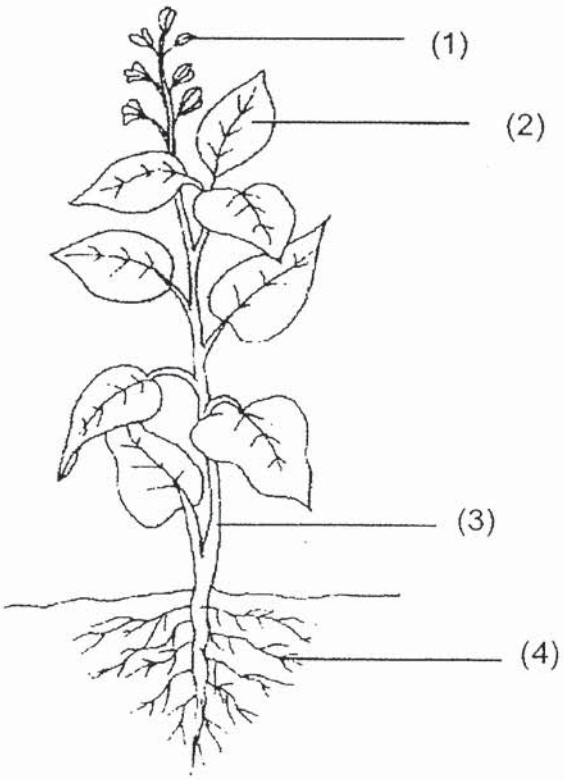
(1) can reflect light

(2) does not break easily

(3) can bend without breaking

(4) does not allow light to pass through

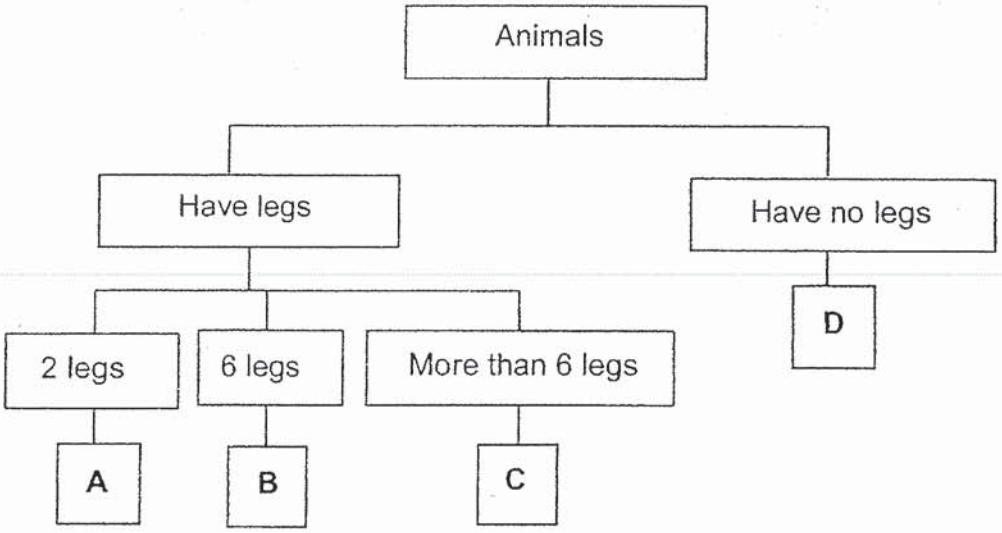
2. Which part, (1), (2), (3) or (4), keeps the plant upright?



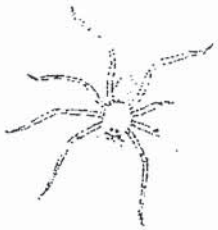
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3. Study the chart below.

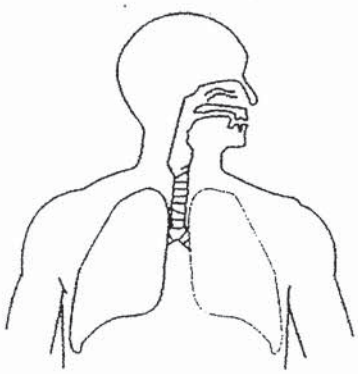


Where would you put this animal in the chart above?



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

4. Which organ system is shown in the diagram?



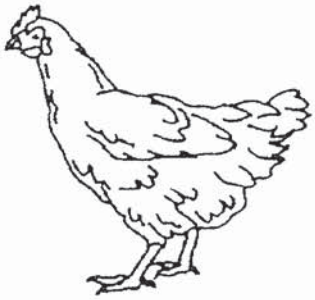
(1) skeletal system
(2) muscular system
(3) circulatory system
(4) respiratory system

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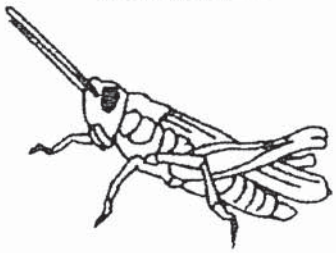
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5. Which animal has a 4-stage life cycle?

(1) chicken



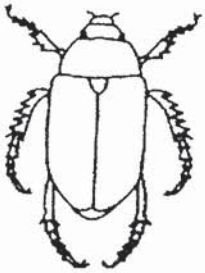
(2) grasshopper



(3) cockroach



(4) mealworm beetle



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

(1) Iron ball
(2) Plastic ball
(3) Rubber ball
(4) Wooden ball

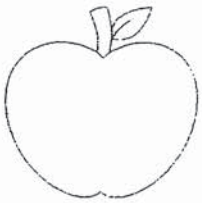
7. Which one of the following properties is true for both air and a ruler?

(1) They can be seen.
(2) They take up space.
(3) They have fixed shapes
(4) They have fixed volumes.

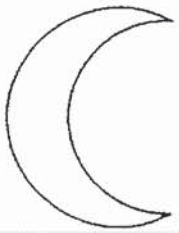
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8. Which one of the following is a source of light?

(1) 

an apple

(2) 

a moon

(3) 

a candle flame

(4) 

a leaf

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

(1) The Sun

(2) A candle flame

(3) A woollen jacket

(4) A lighted bulb

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

Airtight box	A	B	C	D
Temperature of water (°C)	77	32	43	56

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

(1) A

(2) B

(3) C

(4) D

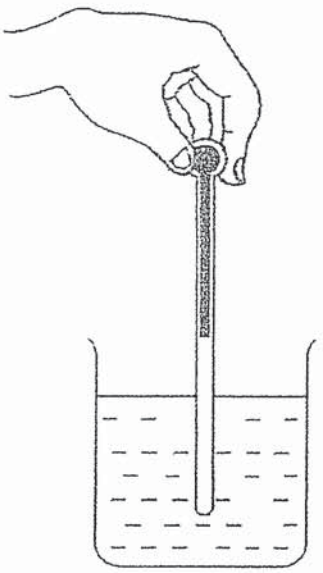
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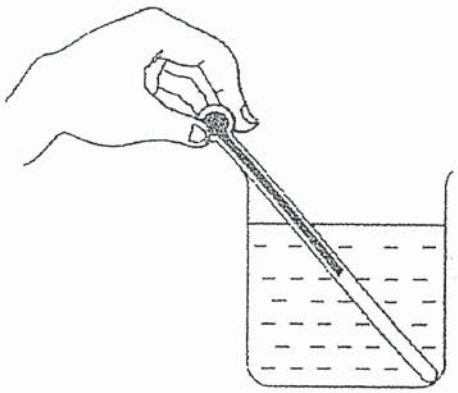
11. Janessa wants to measure the temperature of water in a beaker.

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

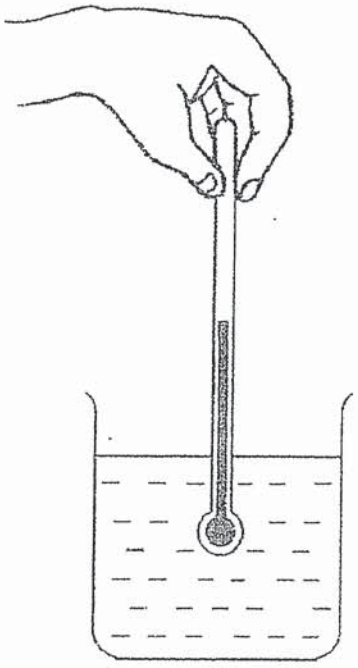
(1)



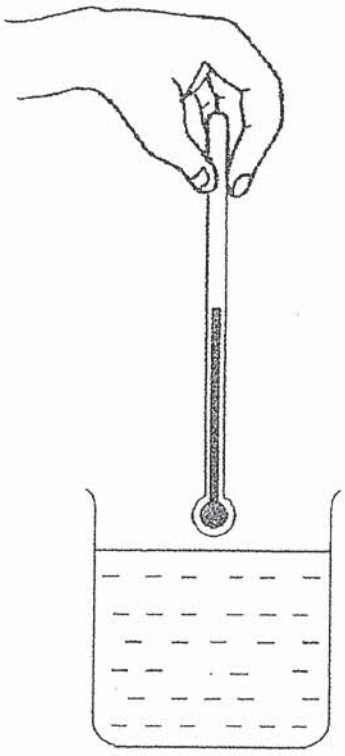
(2)



(3)



(4)

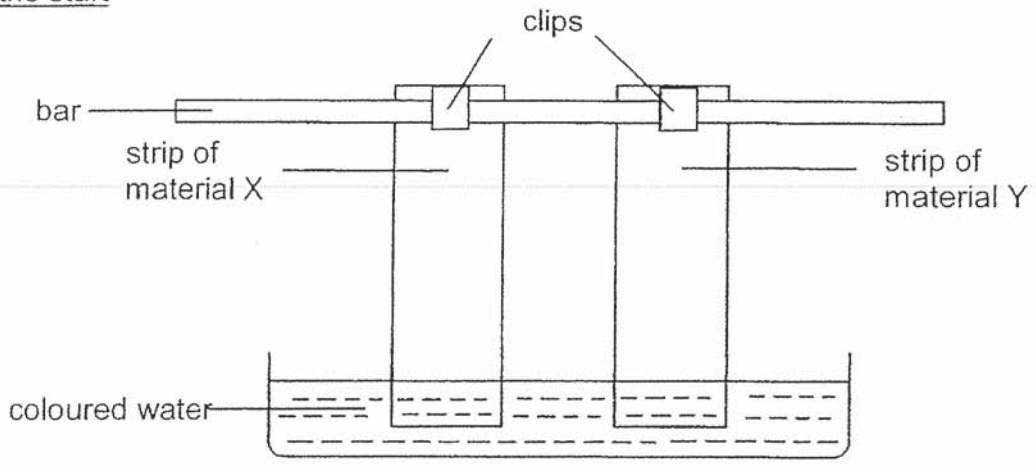


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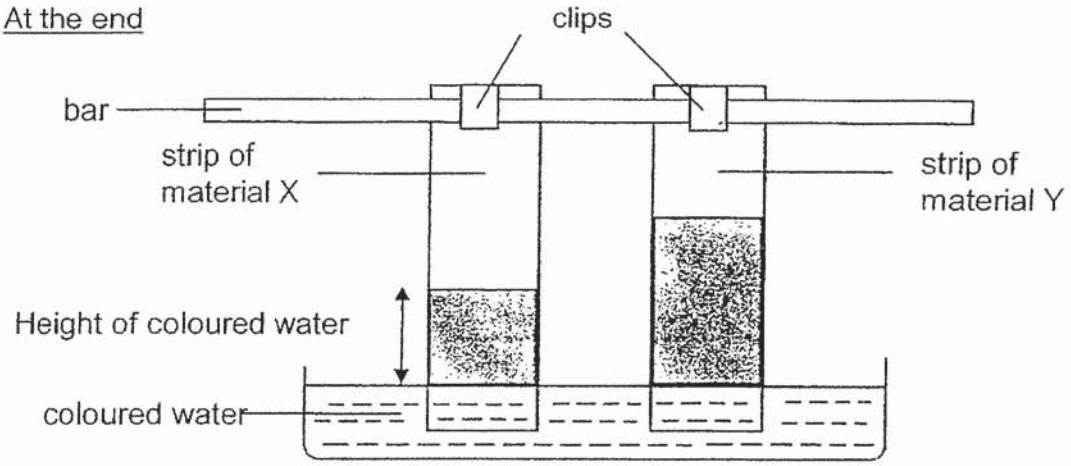
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12. Paul wanted to find out which material, X or Y, is the most suitable for making a towel. He placed the two strips of materials into a basin of coloured water as shown below.

At the start



At the end



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

A type of materials

B size of strips of materials

C thickness of strips of materials

D amount of time the strips are soaked

(1) A only

(2) B and C only

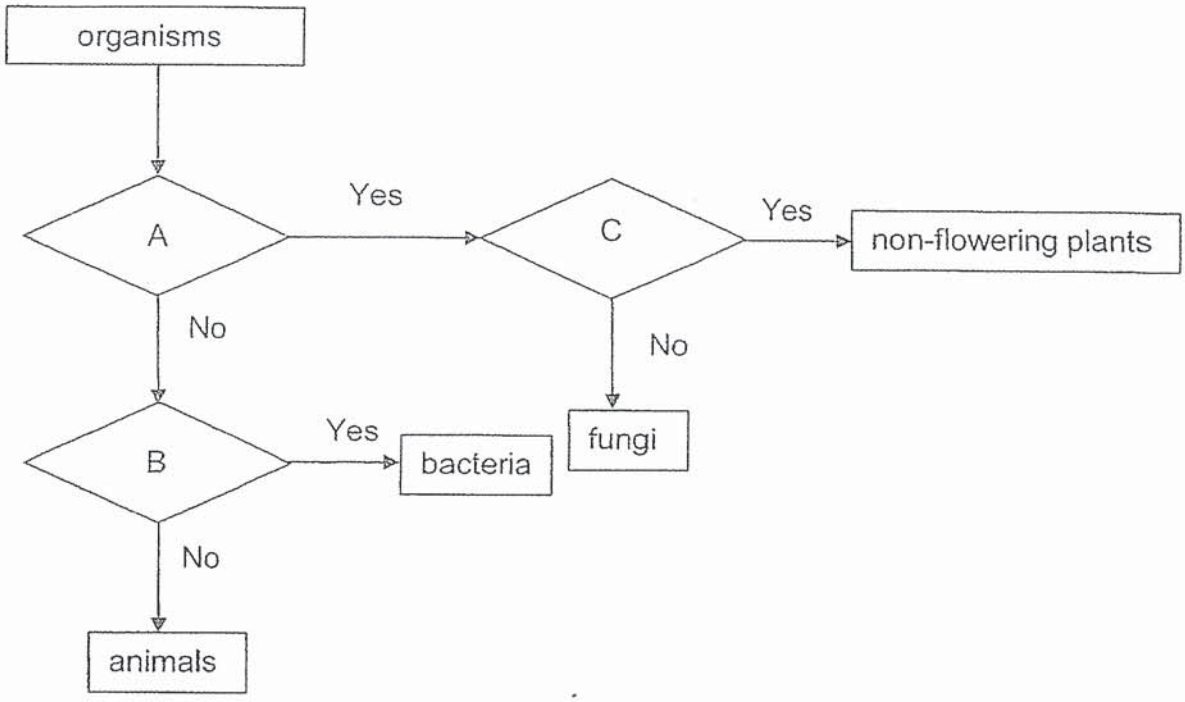
(3) C and D only

(4) B, C and D only

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13. Study the flowchart below.



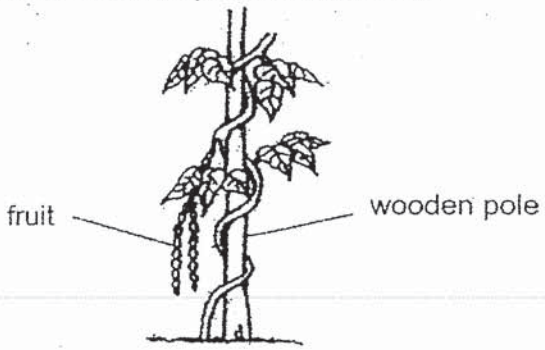
Which of the following shows the questions represented by A, B and C?

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

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



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

A The plant has no roots.

B The plant has a weak stem.

C The plant is a flowering plant.

D The plant is a non-flowering plant.

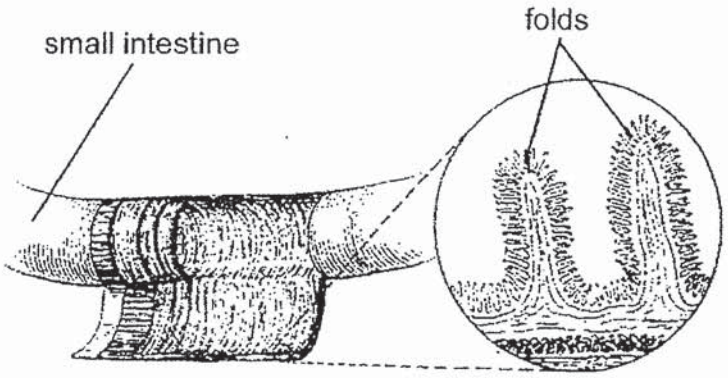
(1) A and C only

(2) A and D only

(3) B and C only

(4) B and D only

15. The diagram below shows the surface of the small intestine. There are many folds in the walls of the small intestine.



What is the purpose of having so many folds?

(1) To allow food to be digested into smaller pieces.

(2) To allow waste to be passed out through the anus.

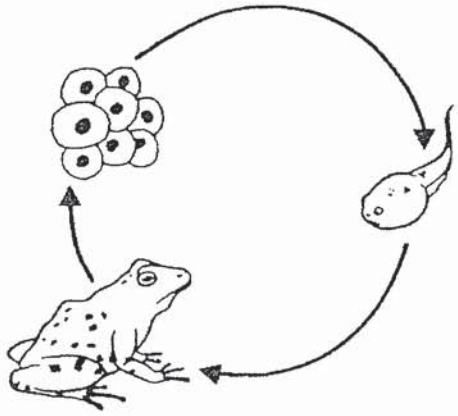
(3) To increase surface area for faster absorption of digested food.

(4) To increase surface area for faster absorption of digestive juices.

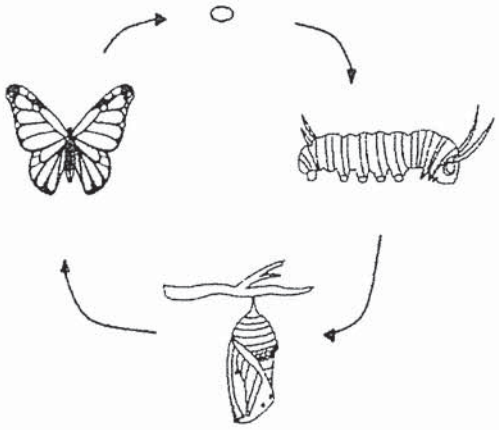
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16. The diagrams below show the life cycles of organisms A and B.



life cycle of organism A



life cycle of organism B

Based on the diagrams above, which of the following statement(s) is/are correct?

A Both the young of organisms A and B moult.

B Both the young of the organisms A and B resemble their adults.

C Both the young of organism A and B developed from fertilised eggs.

D Organism A has 3 stages in its life cycle but organism B has 4 stages in its life cycle.

(1) B only

(2) A and C only

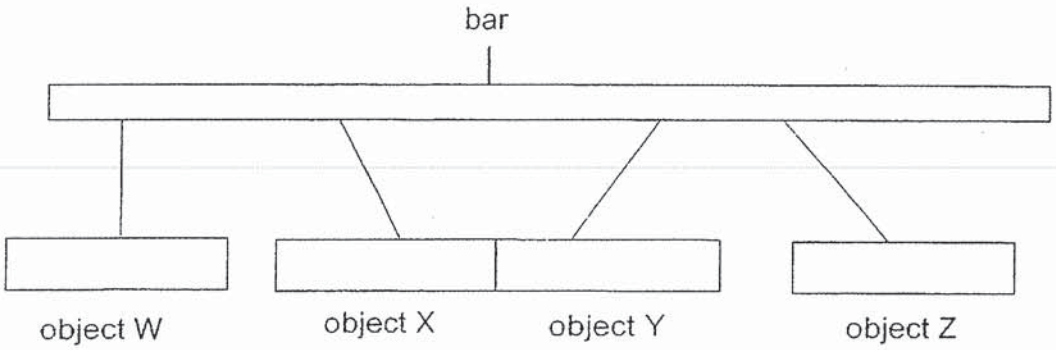
(3) C and D only

(4) A, B and C only

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17. The diagram below shows the interactions of 4 objects, W, X, Y and Z, which were placed at equal distance from one another. The objects are hanging freely on a bar.



Based on the above observation, which of the following objects W, X, Y and Z are magnets?

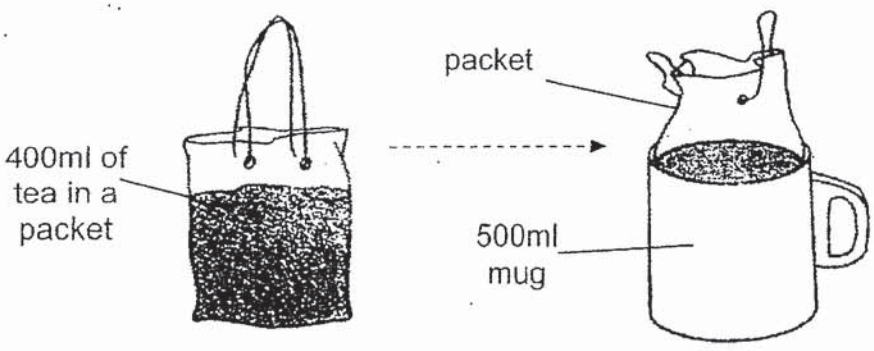
(1) Object X and object Y only

(2) Object Y and object Z only

(3) Object W and object X only

(4) Object W and object Z only

18. James placed a 400ml packet of tea into a mug without spilling the tea as shown.



Which one of the following about the bag of tea is correct?

(1) Both the shape and the volume of the tea changed.

(2) The volume of the tea changed but the shape did not.

(3) The shape of the tea changed but the volume did not.

(4) Both the shape and the volume of the tea did not change.

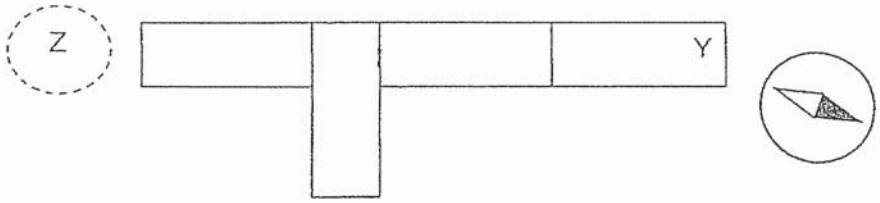
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19. A compass has a small magnet that can rotate freely as shown.

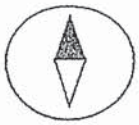


Brian arranged four bar magnets such that they were attracted to one another. A compass was then placed near end Y and the direction of the compass needle is as shown below.

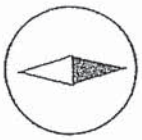


Brian then placed another identical compass at Point Z. What is the direction of the compass needle when the compass was placed at Point Z?

(1)



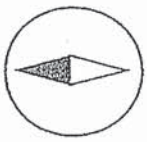
(2)



(3)



(4)



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20. Janice prepared 4 experimental set-ups, P, Q, R and S, each with an electromagnet by coiling a wire around an iron nail to attract some steel paper clips. She used identical batteries, iron nail, wire and paper clips in each of the 4 set-ups. The table provides information on each set-up.

Set-up	Number of coils around the iron rod	Number of batteries used
P	3	1
Q	3	2
R	6	3
S	11	3

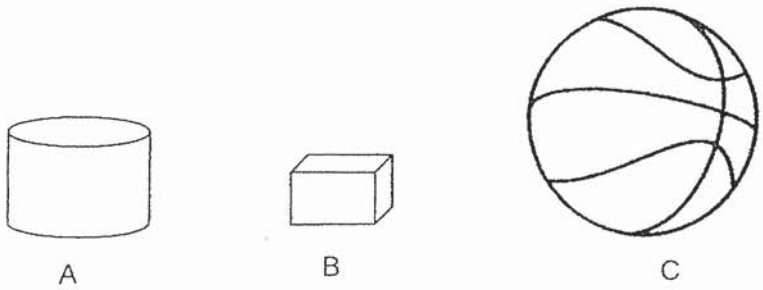
Which one of the following aims of experiment has been matched correctly with the set-ups used for the experiment?

	Set-ups used	**Aim of experiment**
(1)	P and R	To find out if the number of coils around the iron rod affects the number of paper clips attracted
(2)	Q and S	To find out if the number of coils around the iron rod affects the number of paper clips attracted
(3)	R and S	To find out if the number of batteries used affects the number of paper clips attracted
(4)	P and Q	To find out if the number of batteries used affects the number of paper clips attracted

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21. The diagram below shows 3 objects, A, B and C.



Four children observed the objects and made the following comments.

Aisha	Object B has the smallest mass.
Brenda	Object C has the largest volume.
Jessica	Object B occupies the least space.
Timothy	Object A has a smaller mass than object C

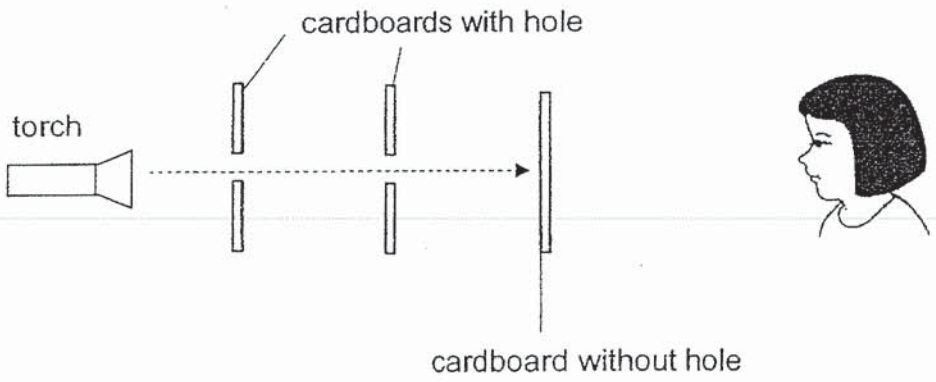
Who made the correct observation?

(1) Brenda only
(2) Aisha and Brenda only
(3) Brenda and Jessica only
(4) Aisha, Brenda, Jessica and Timothy

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22. Joleen set up an experiment as shown below.



Joleen realised that she could not see the light from behind the cardboard without hole as shown above.
What can she conclude from the experiment?

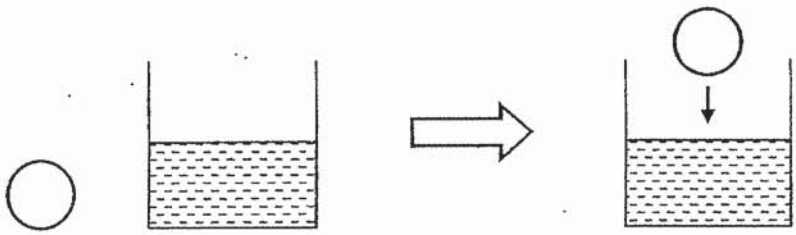
(1) Light can be reflected.

(2) Light can pass through an object.

(3) Light is not needed for us to see an object

(4) Light can be blocked by an object that does not allow light to pass through.

23. Felicia put a solid iron ball into a beaker of water.



What will she observe after the iron ball is put into the beaker of water?

A The volume of water increases.

B The water level in the beaker rises.

C The volume of the iron ball increases.

(1) B only

(2) A and B only

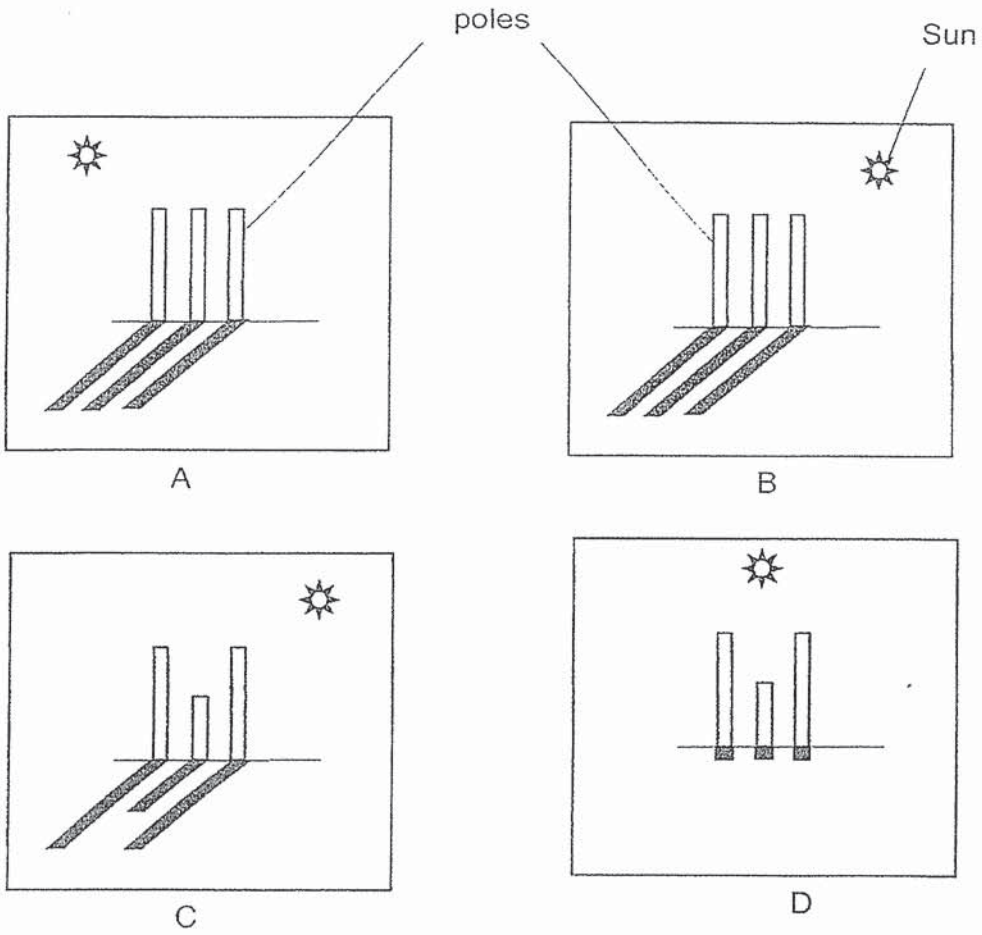
(3) B and C only

(4) A, B and C only

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24. The shadows of poles during different times of the day are shown in the diagrams below.



Which of the diagram(s) shows the shadows formed correctly?

(1) A only

(2) B only

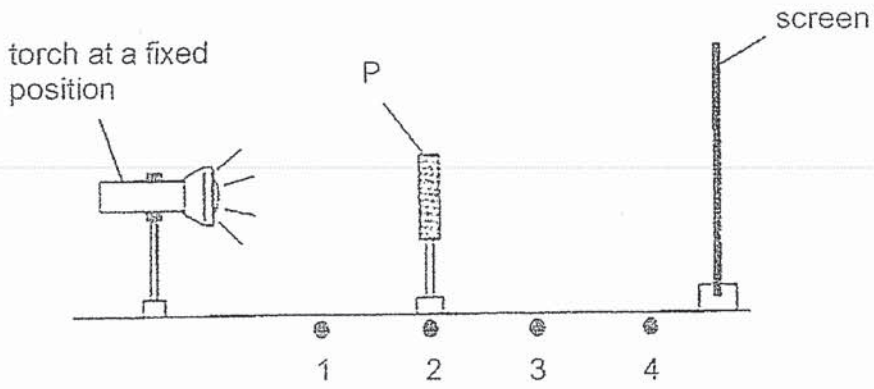
(3) B, C and D only

(4) A, C and D only

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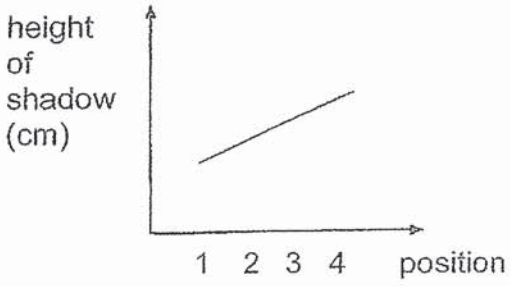
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25. Alicia set up the following experiment by placing a rectangular object, P, which does not allow light to pass through, at different positions, 1, 2, 3 and 4. She measured and recorded the height of the shadow of object P cast on the screen.

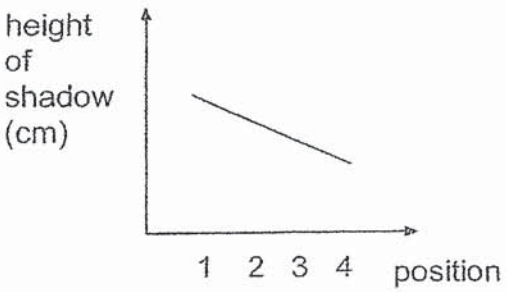


Which graph correctly shows how the height of the shadow of the object P changes with the positions 1, 2, 3 and 4?

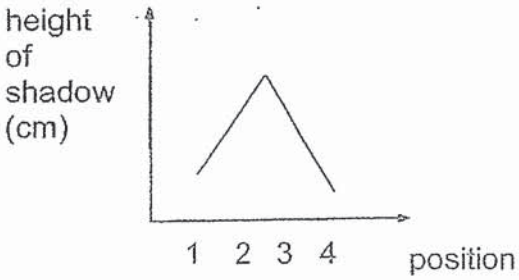
(1)



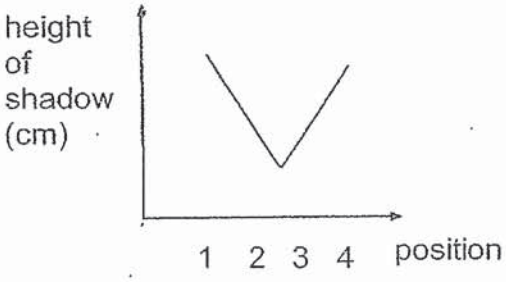
(2)



(3)



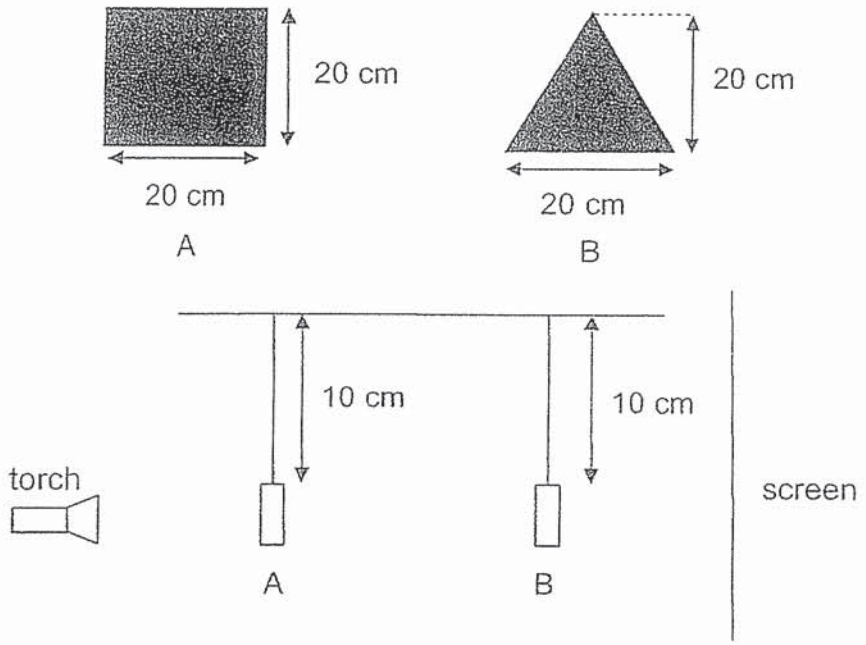
(4)



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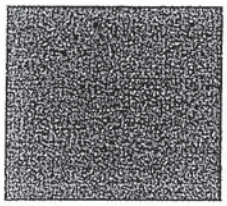
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26. The set-up below shows light shining on two shapes, A and B, cut out from a piece of cardboard. They are placed at different distances from the torch as shown below.



Which one of the following shows the shadow cast on the screen?

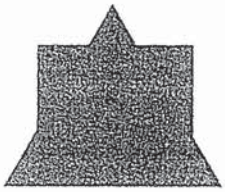
(1)



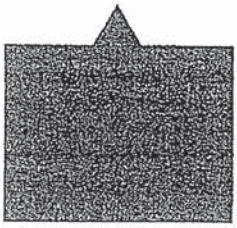
(2)



(3)



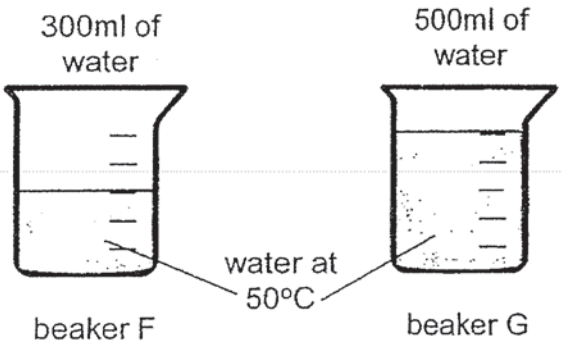
(4)



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27. Two beakers, F and G, contain different amount of water. The water in both beakers have the same temperature at the start of the day. The beakers were left in a room for 16 hours as shown in the diagram below.



Three girls, each made a statement regarding the beakers of water in the experiment.

Danelle	Both beakers have the same amount of heat as both the temperature are the same
Elizabeth	Beaker F has less amount of heat than beaker G as beaker F has less amount of water.
Germaine	The temperature of water in both beaker F and G will be the same at the end of the experiment.

Who has/have made the correct statement regarding the experiment?

(1) Danielle only

(2) Elizabeth only

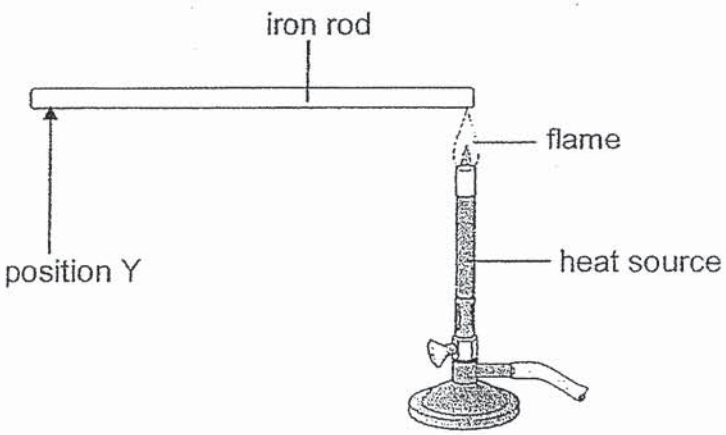
(3) Danielle and Germaine only

(4) Elizabeth and Germaine only

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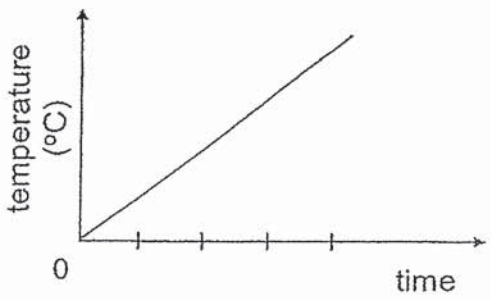
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28. Mariah heated an iron rod as shown below.

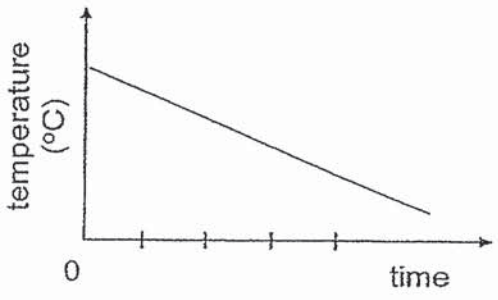


Which one of the following graphs shows how the temperature changes at position Y of the rod as it is being heated for 4 minutes?

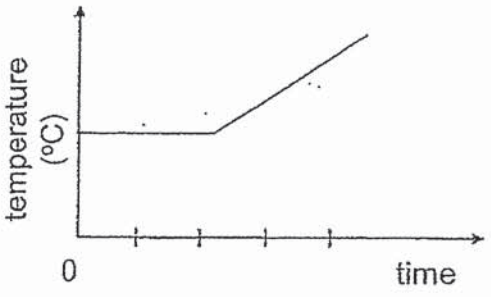
(1)



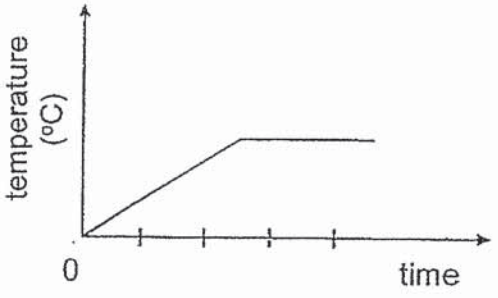
(2)



(3)



(4)



END OF SECTION A

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PAYA LEBAR METHODIST GIRLS' SCHOOL (PRIMARY)

SEMESTRAL ASSESSMENT 2, 2019

PRIMARY FOUR

SCIENCE

BOOKLET B

NAME : _____( )

CLASS : P4 _____

DATE : 4 November 2019

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

BOOKLET A	/ 56
BOOKLET B	/ 44
TOTAL	/100

Parent's Signature: _____

INSTRUCTIONS TO PUPILS

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

ANSWER ALL QUESTIONS.

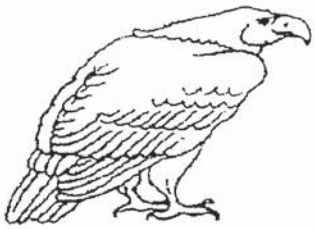
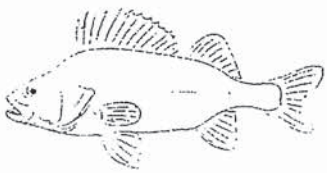
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SECTION B: 44 Marks

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

29. Draw lines to match the following animals to the correct groups. [3]

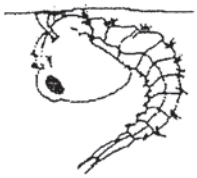
Animal	Group
	• fish
	• bird
	• insect
	• mammal

3

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30. **A, B, C** and **D** are the various stages in the life cycle of a mosquito.



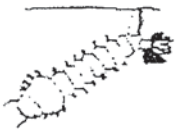
A



B

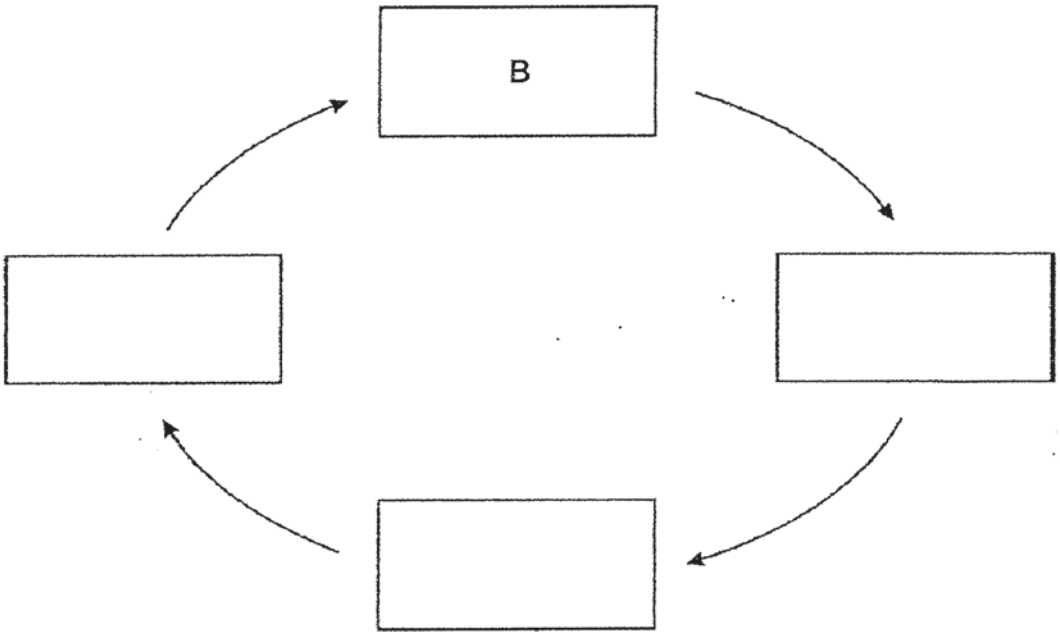


C



D

(a) Arrange **A**, **B**, **C** and **D** in the correct order of the life cycle starting from B. [2]



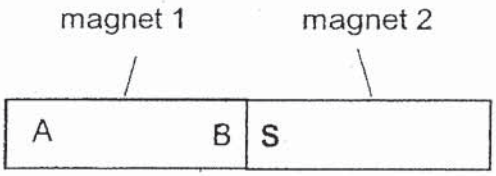
(b) Name stage **B**. [1]

3

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31. Two magnets are placed together as shown below.



The south-seeking pole of magnet 2 is labelled S.
Name the poles labelled A and B on magnet 1. [2]

A : _____

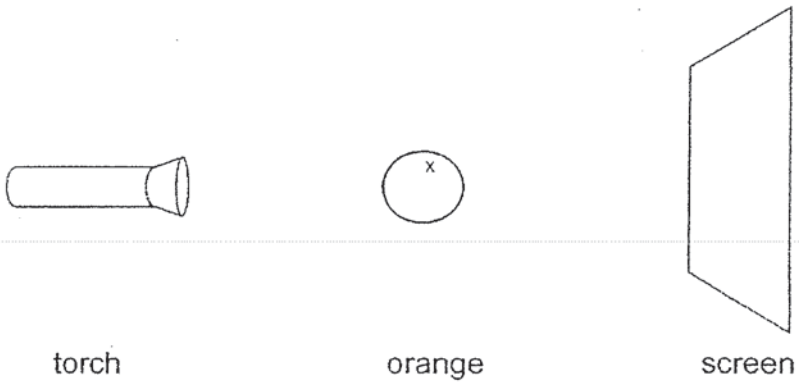
B : _____

2

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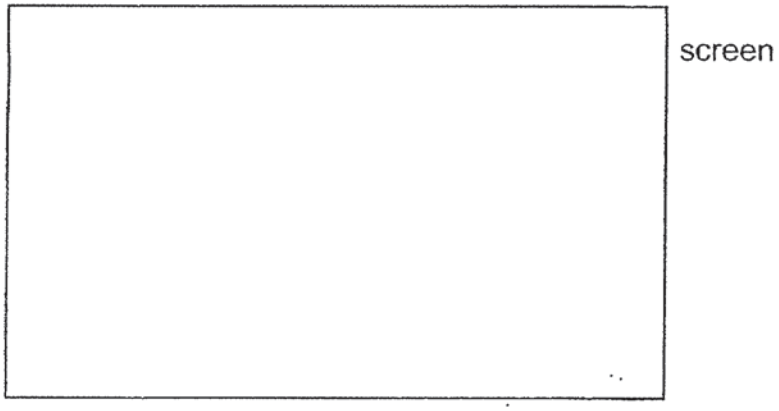
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32. Jessica shines a torch on an orange and a shadow is formed on a screen.



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

(b) Draw the shadow of the orange that is formed on the screen. [1]



(c) Without changing the distance between the orange and the screen, what will happen to the size of the shadow if the torch is moved nearer to the orange? [1]

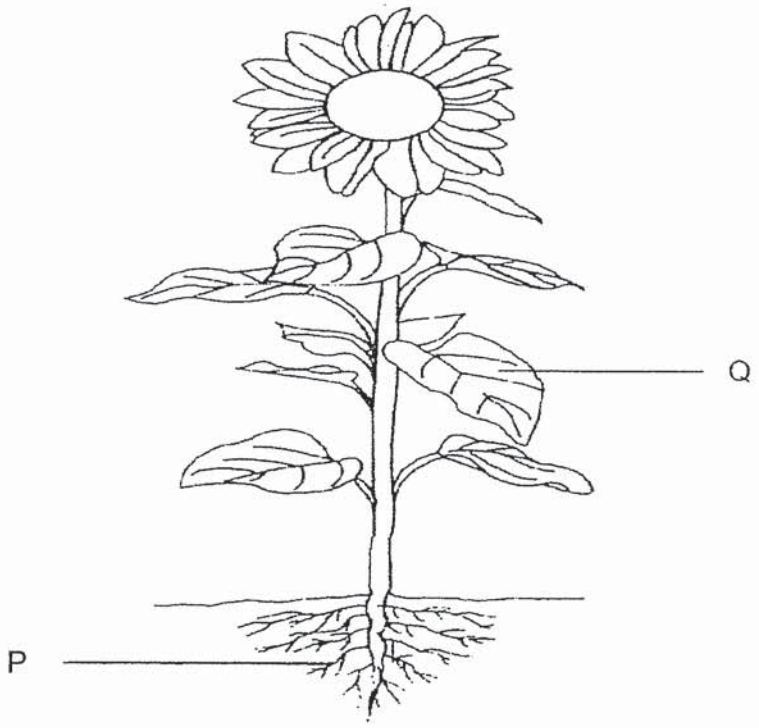
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33. The diagram below shows a plant.



(a) Name parts P and Q. [2]

Part P: _____

Part Q: _____

(b) State two functions of Part P. [2]

(i) _____

_____

(ii) _____

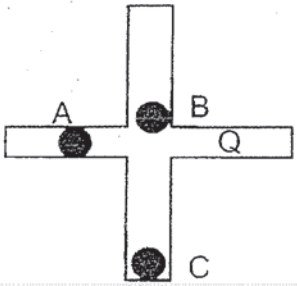
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34. A, B and C are pieces of wax on a cross-shaped metal as shown below.

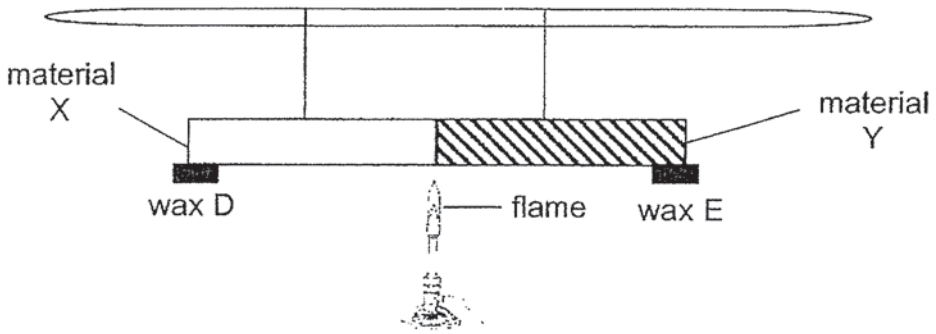


(a) Arrange the pieces of wax, A, B and C, according to the order which they dropped when a heat source is placed at point Q. [1]

_____ , _____ , _____

(first)

A special rod is made of two materials, X and Y as shown in the diagram below. Two pieces of wax of the same size, D and E, are attached to the ends of the special rod, at equal distance from the flame.



The time taken for each of the wax to melt after it was heated at the center was recorded in the table below.

Wax	Time taken for the wax to melt (min)
D	2.5
E	5

(b) What can we conclude about material X? Explain your answer. [2]

_____

_____

(c) Without adding additional apparatus, suggest a way to make wax E to drop faster. [1]

_____

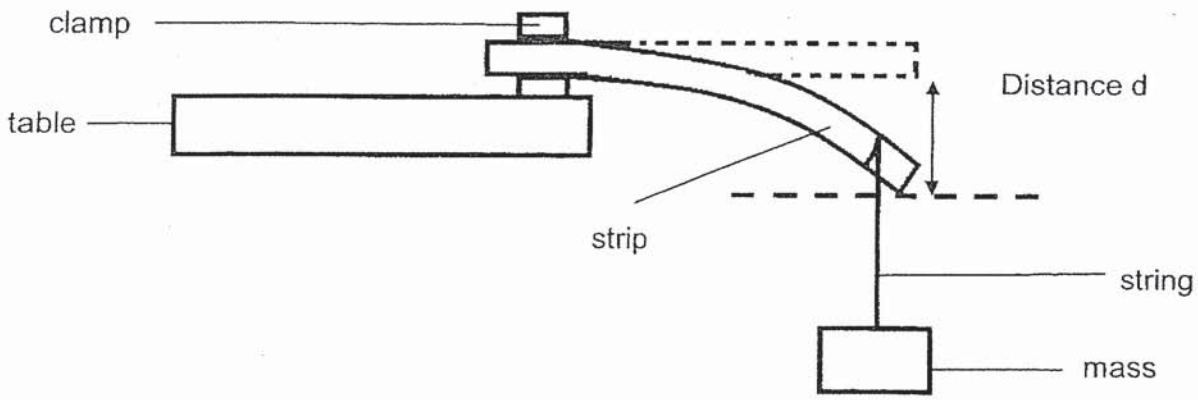
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35. Bala used the set-up below to study a certain property of material.

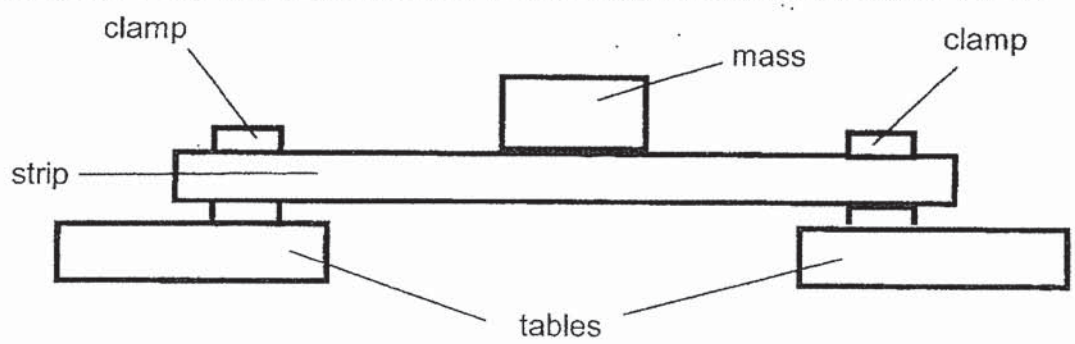


He used strips made of different materials, X, Y and Z. Each strip is of the same length. Each strip of material is of the same mass. He then recorded his results in the table below.

Material	Distance, d (cm)
X	10
Y	0
Z	20

(a) State the property of material that Bala is testing. [1]

Next, Bala set-up the following experiment to test another property of material using the same strips of material. He recorded his results in the table below.



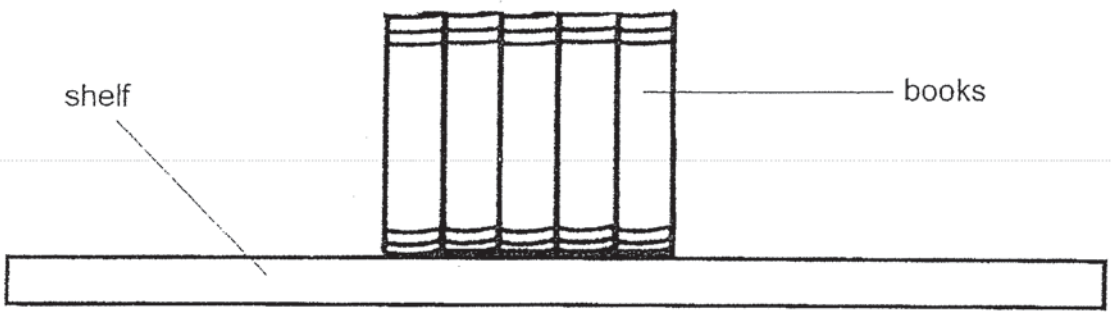
Material	Mass it can hold before breaking (kg)
X	20
Y	80
Z	40

(b) State the property of material that Bala is testing. [1]

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Bala wanted to make a bookshelf to support 50kg of books.



(c) Based on Bala's results from part (a) and (b), which material, X, Y or Z, is the most suitable to be made into a bookshelf which can support 50kg of books? Explain your answer. [1]

_____

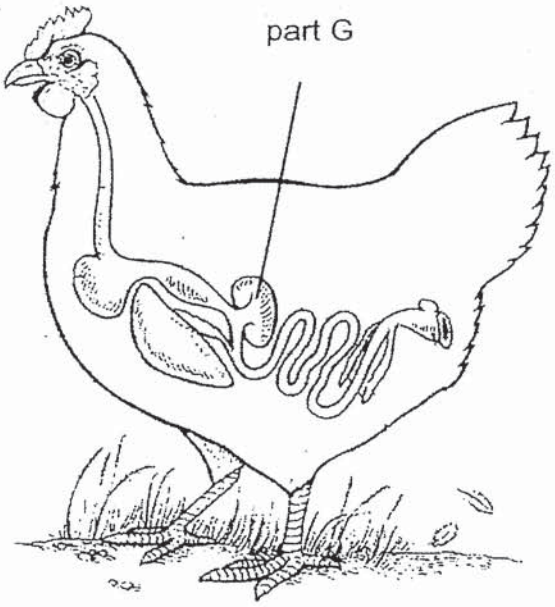
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36. The diagram below shows the digestive system of a chicken.



(a) What is digestion? [1]

_____

_____

(b) The bird swallowed stones, which were stored in part G. In part G, the food was grinded into smaller pieces by the stones. Which part of the human digestive system was the stone's function similar to? [1]

_____

(c) Explain how the function of the answer in part (b) helps in digestion. [1]

_____

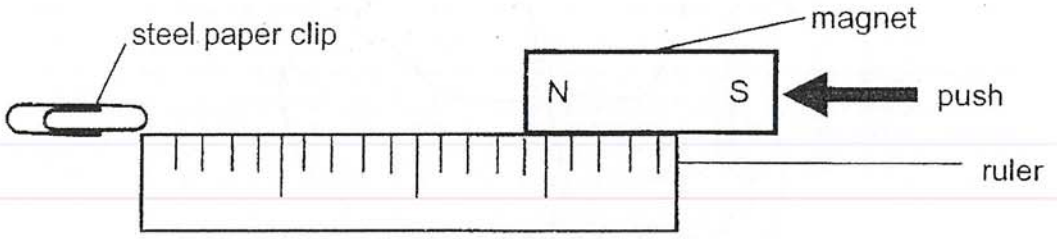
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37. Joanne wanted to find out how the length of a magnet affects its magnetic strength. She used 4 bar magnets of different lengths, A, B, C and D, and conducted the experiment below.



Joanne placed each magnet on the desk against the ruler and pushed it slowly towards the steel clip. She recorded the distance between the steel paper clip and the magnet on the ruler once the steel paper clip is attracted to the magnet. She recorded her results in the table below.

Magnet	Length of magnet (cm)	Distance between steel paper clip and magnet (cm) when it attracted steel paper clip
A	1.5	2.2
B	1	2.5
C	2.5	1.5
D	3	2

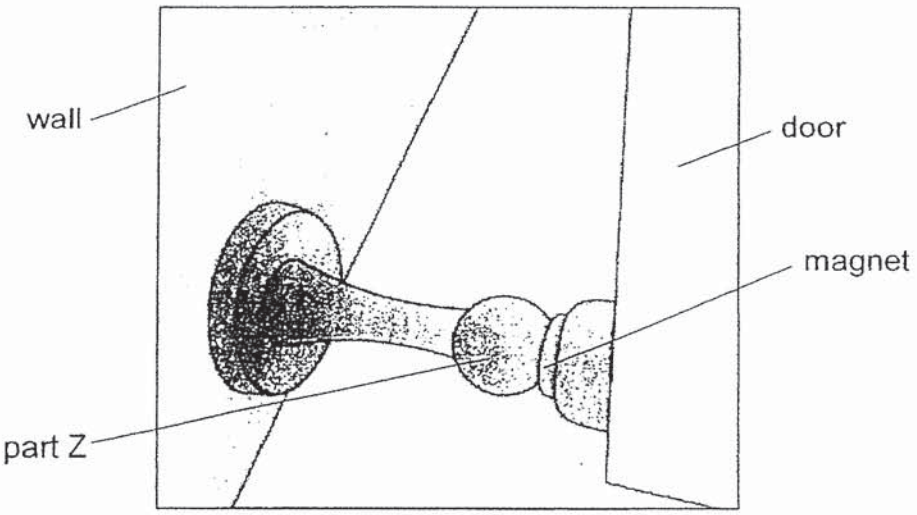
(a) What can Joanne conclude from the results on how the length of the magnet affects its magnetic strength? [1]

(b) What would Joanne observe if she changed the steel paper clip to an aluminum pin and repeated the experiment above? Explain your answer. [1]

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A door stopper uses a magnet to keep the door from closing.



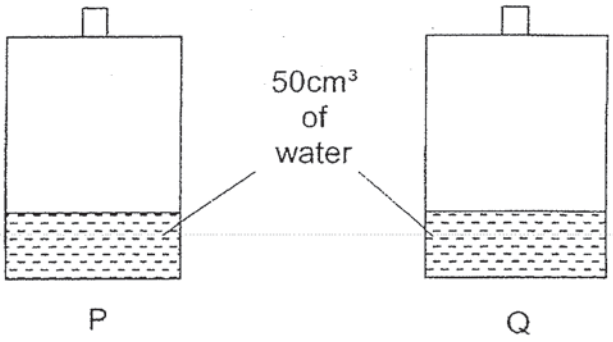
(c) Which magnet, A, B, C or D, will be the most suitable to make part Z of the door stopper? Explain your answer. [2]

4

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38. Adam conducted an investigation to demonstrate the property of matter with two similar containers of capacity 200 cm^3, P and Q. Each container has 50 cm^3 of water inside as shown below.



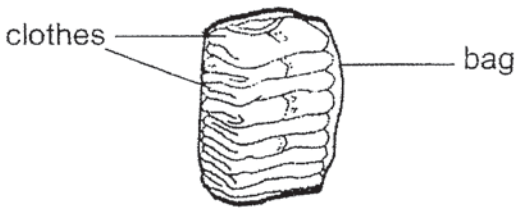
He then pumped in another 300 cm^3 of air into container Q.

(a) What is the volume of air in container Q at the end of the experiment? Explain your answer. [1]

(b) Kate said that the mass of container Q will remain the same as the mass of container P after the experiment. Do you agree with her? Explain your answer. [1]

(c) Using the characteristics of matter, state a similarity between air and water. [1]

Kate packed 1 kg of clothes for a holiday into a resealable bag. When she measured the bag of clothes, it was observed that it was more than 1 kg.



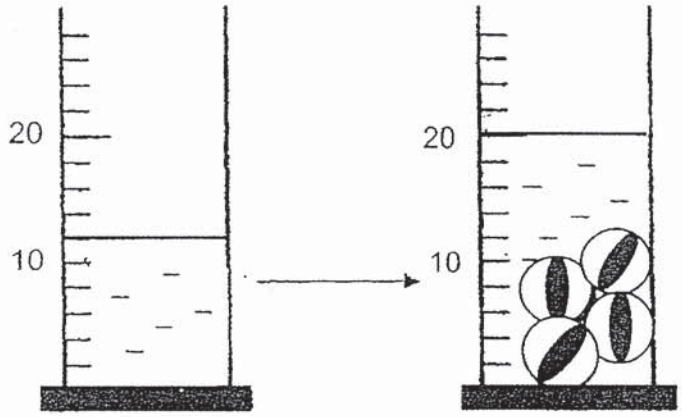
(d) Without removing the clothes or changing the bag, what could Kate do to make the bag lighter? [1]

4

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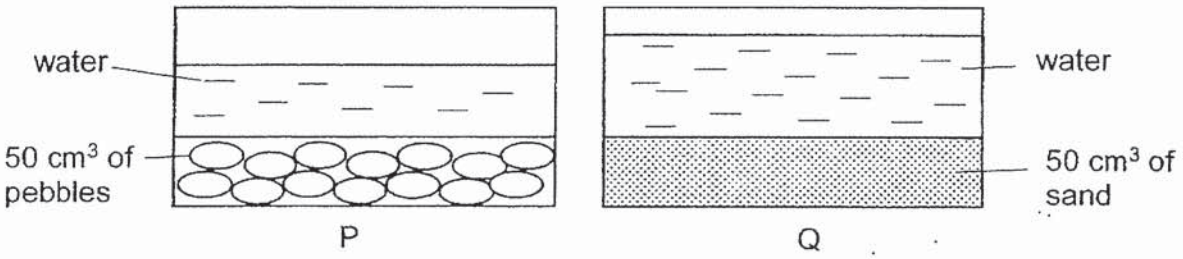
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39. Sharifah poured some water into a measuring cylinder and dropped some marbles into the cylinder as shown below.



(a) The volume of each marble is _____ cm^3 [1]

Sharifah conducted an experiment by filling up 2 tanks, P and Q, with sand and pebbles to the same level. She poured in an equal amount of water of 100 cm^3 into each of the tanks as shown below.



(b) As Sharifah was pouring the water into both tanks, she observed air bubbles coming out from the sand and pebbles. Explain her observation [1]

_____

_____

(c) Why is there a difference in the water levels between tanks P and Q? [1]

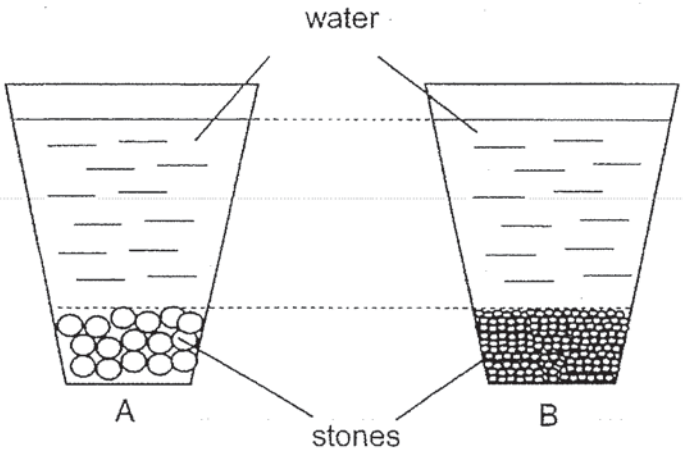
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_____

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Two cups of water, A and B, which have stones of the same mass but different sizes in them, are shown in the diagram below.



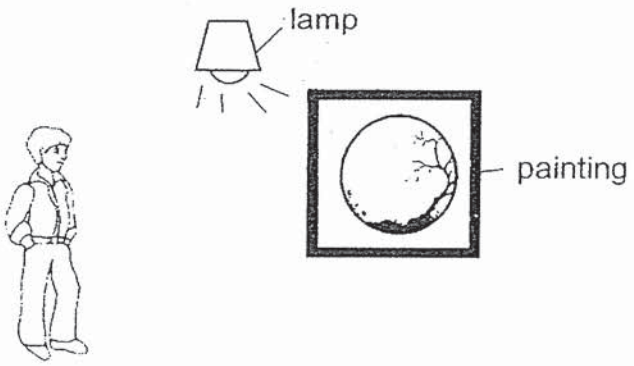
(d) With both the stones and the water at the same level, John said that cup B has more water in it. Do you agree? Explain your answer. [1]

4

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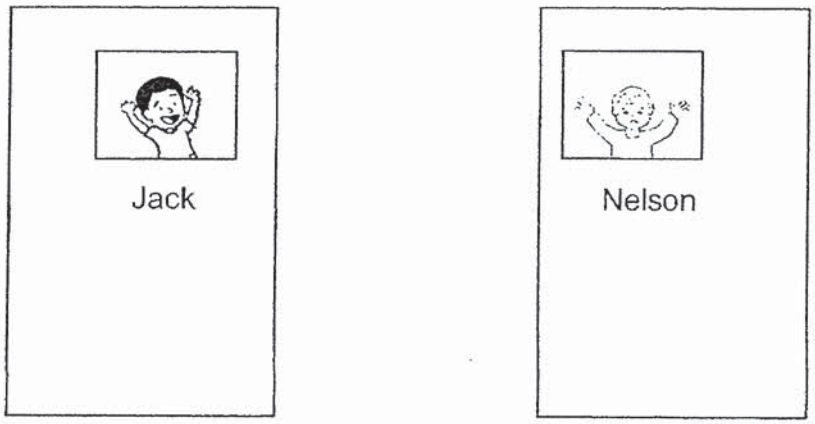
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40. The diagram below shows a boy looking at a painting on the wall.



(a) Explain how the boy was able to see the painting on the wall. [1]

Jack and Nelson are neighbours living directly opposite each other. One pitch dark night, only one of them switched on the lights in his house.



(b) It was observed that Nelson could see Jack from his window but Jack was unable to see Nelson from his window. Explain the observation. [1]

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An experiment was conducted to find out how different materials would affect the amount of light passing through them. The results were recorded as shown in the table below.

Material	Amount of light passing through (units)
A	5
B	90
C	20

Carine wanted her room to be as dark as possible when she sleeps at night.

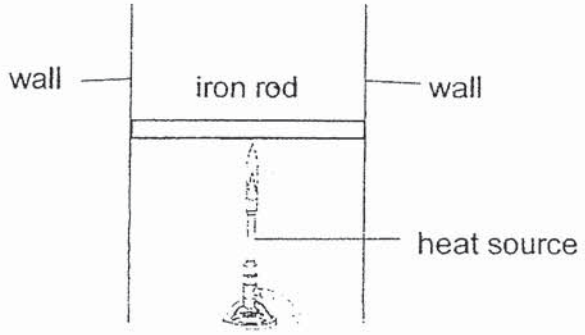
(c) Which material, A, B or C, would be the most suitable to make a curtain? Explain your answer. [1]

3

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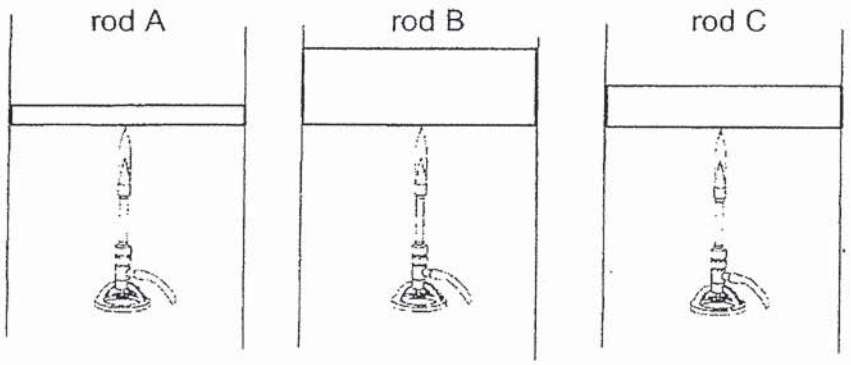
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41. Percy conducted an experiment by heating an iron rod that is placed between 2 walls for 20 minutes as shown below.



(a) It was observed that the iron rod started to bend 20 minutes later. Explain his observation. [1]

In another experiment, Percy used three rods of different materials, A, B and C, and placed them between 2 walls, for 20 minutes. He wanted to find out how different rods will affect the time taken for each rod to expand. He set up the experiment as shown below.

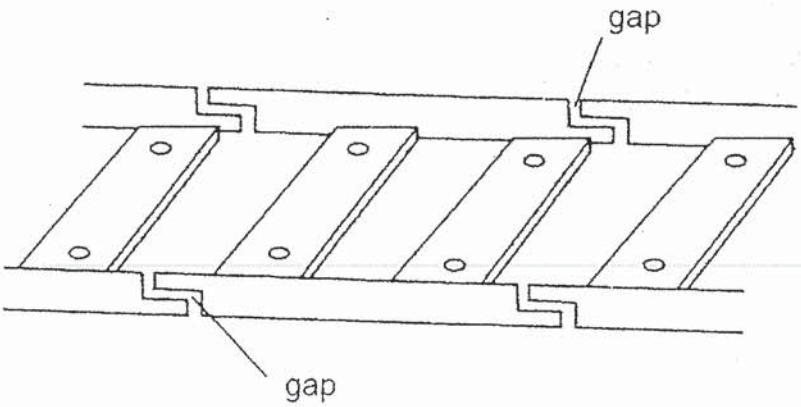


(b) Based on the above set-up, Jessica said that the experiment is not a fair one. Do you agree with Jessica? Explain your answer. [1]

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(c) Railway lines have gaps along their metal tracks as shown below.



What would happen to the metal tracks on a very hot day if there were no gaps? Explain your answer. [2]

4

END OF SECTION B

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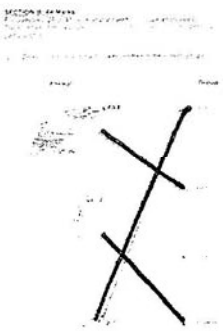
ANSWER KEY

YEAR : 2019
LEVEL : PRIMARY 4
SCHOOL : PAYER LEBAR METHODIST GIRL'S SCHOOL
SUBJECT : SCIENCE
TERM : SA2

SECTION A

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

BOOKLET B



(29)

(30a) B→D→A→C

(30b) The egg stage.

(31) A: South-seeking pole

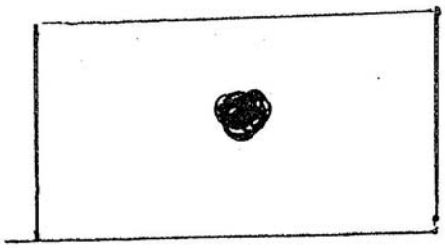
B: North-seeking pole

(32a) A shadow is formed when light is blocked by an object.

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(32b)



(32c) The shadow formed will be larger.

(33a) Part P: Roots

Part Q: Leaves

(33b) (i) It takes in mineral salts and water for the plant.

(ii) It anchors the plant firmly to the ground.

(34a) B,A,C

(34b) We can conclude that Material X is a better conductor of heat compared to Material Y as Wax D took a lesser amount of time to melt.

(34c) Move Wax E nearer to the flame.

(35a) Flexibility.

(35b) Strength.

(35c) Material Y. It is not flexible and it is the strongest. C, it can withstand the weight of 50kg as the material can hold up to 80kg before breaking.

(36a) Digestion is to break down food into simple substances so tat this simple ances can be used by the body.

(36b) Teeth

(36c) The teeth break down the food into smaller pieces. C to increase the surface area of food in contact with the digestive juices, making them digest faster.

(37a) The length of the magnet does not affect the magnetic strength.

(37b) She would observe that the magnet will not attract the aluminium pin as it is a non-magnetic object.

(37c) This prevents the door from slamming due to a strong wall.

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(38a) 150cm, Air has no definite volume.

(38b) No, as there is more air in container Q than in P and since air is a matter it has mass.

(38c) They have no definite shape.

(38d) She can suck the air out.

(39a) 2cm

(39b) There was air bubbles because there was air spaces in between the sand and pebbles therefore the air is trying to get out so the water could take up the spaces.

(39c) There was a difference as the air spaces in between each pebble was bigger so the water could take up the space.

(39d)No, there are smaller air spaces between the stones in cup B. Less water is needed to take up these air spaces.

(40a) The light from the lamp reflected on the painting and then into his eyes.

(40b) Light from Jack's home is reflectedfrom Jack into Nelson's eyes.

(40c) Material A, as it had the least amount of light passing through meaning that is the material that blocks out the most amount of light and since carine wants her room to be as dark as possible Material A will be the best choice.

(41a) The iron rod bended as it gained heat from the heat source and expanded. However, there was no space as it was in between 2 walls so it bended.

(41b) Yes, as to have a fair test, she needs the rods to have the same thicknes fair test can only have one variable change.

(41c) It will gain heat from the sun and expand and since there was no space for it to expand it will break.

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