29

MARIS STELLA HIGH SCHOOL (PRIMARY)

SEMESTRAL ASSESSMENT 2

SCIENCE

27 OCTOBER 2016

BOOKLET A

NAME: _____ ( )

CLASS: Primary 4 ( )

30 questions

60 marks

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

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

FOLLOW ALL INSTRUCTIONS CAREFULLY.

For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet (OAS). (60 marks)

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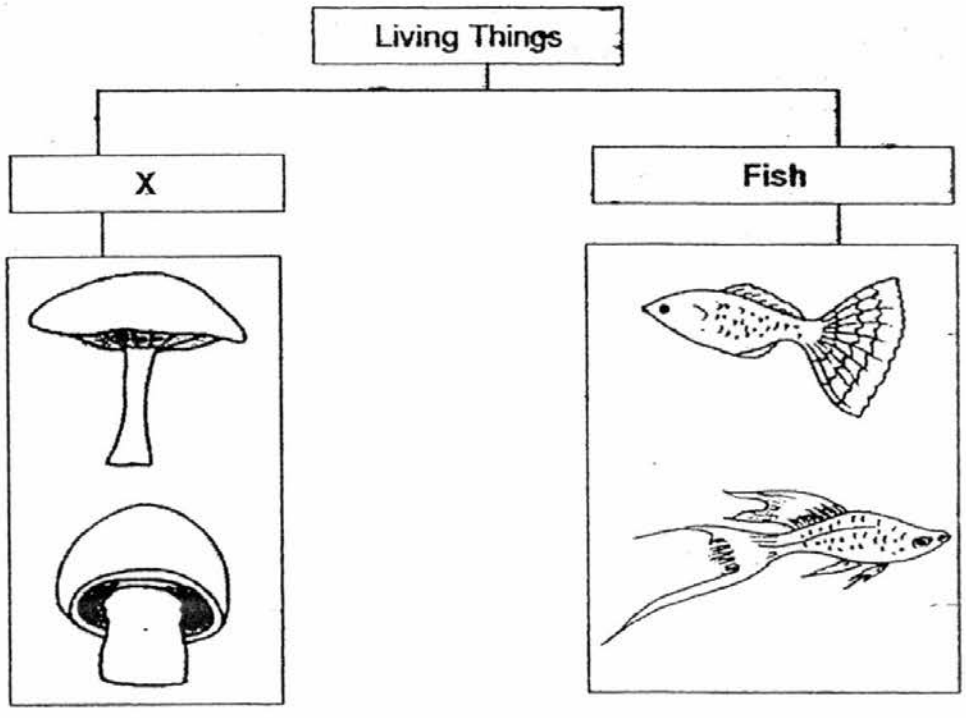
1 The table below shows how some living things can be grouped.



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

(1) Fungi
(2) Insects
(3) Bacteria
(4) Mammals

2 Matter is anything that has mass and occupies space.

Which of the following is **not** a matter?

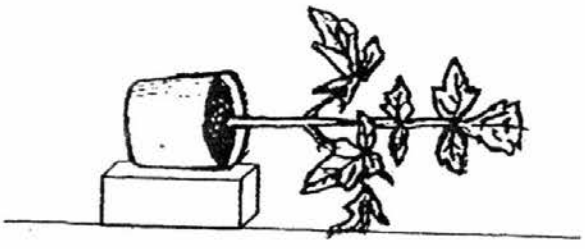
(1) Soil
(2) Water
(3) Oxygen
(4) Lightning

(Go on to the next page)

3 Which of the following properties about air and pencil is true?

(1) Both can be seen.
(2) Both take up space.
(3) Both have fixed shape.
(4) Both have fixed volume.

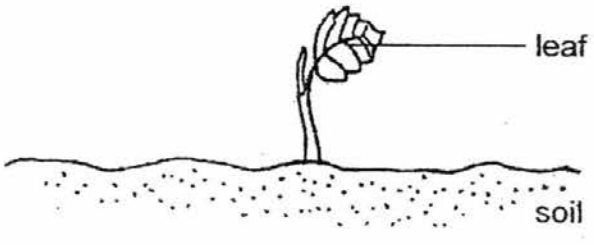
4 Ali left a pot of plant in an open space in the garden as shown below.



What will happen to the plant after a few days?

(1) The plant will begin to grow upwards.
(2) The plant will begin to grow downwards.
(3) The plant will continue to grow horizontally.
(4) The plant will stop growing and will eventually die.

5 The diagram below shows a young plant.

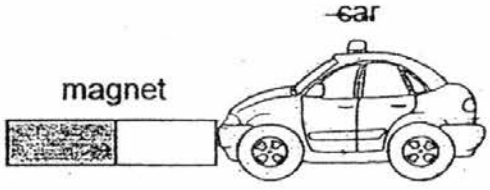


The leaf helps the plant to _____.

(1) make food
(2) grow upright
(3) takes in water
(4) take in nutrients

(Go on to the next page)

6 When a toy is placed near a magnet, it becomes attracted to the magnet as shown in the figure below.



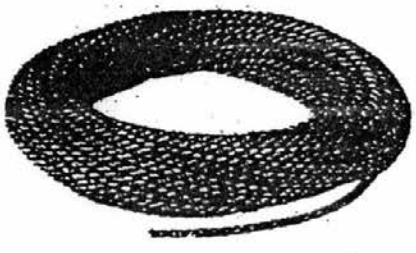
The toy is made of _____.

(1) iron
(2) plastic
(3) rubber
(4) copper

7 Which one of the following statements is true for ALL insects?

(1) They have tails.
(2) They have wings.
(3) They live on land.
(4) They have six legs.

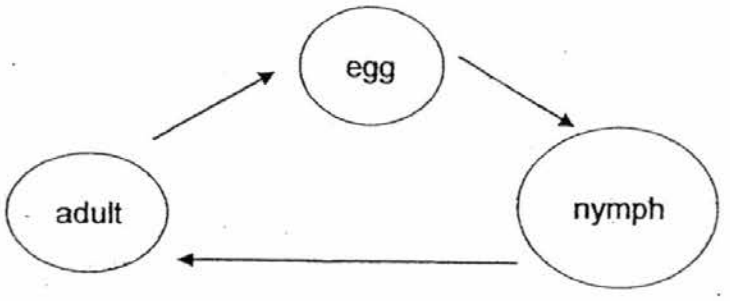
8 Hui Lin is able to roll up 10 metres of rope shown below because the material used is _____.



(1) hard
(2) strong
(3) flexible
(4) waterproof

(Go on to the next page)

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



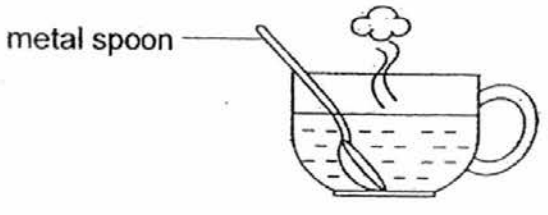
Which animal is likely to have the life cycle as shown above?

(1) beetle
(2) butterfly
(3) chicken
(4) cockroach

10 Which one of the following substances has a fixed shape?

(1) air
(2) oil
(3) water
(4) stone

11 Rex places a metal spoon in a cup of hot tea.



The spoon becomes hotter after a while. Which one of the following explains this?

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

(Go on to the next page)

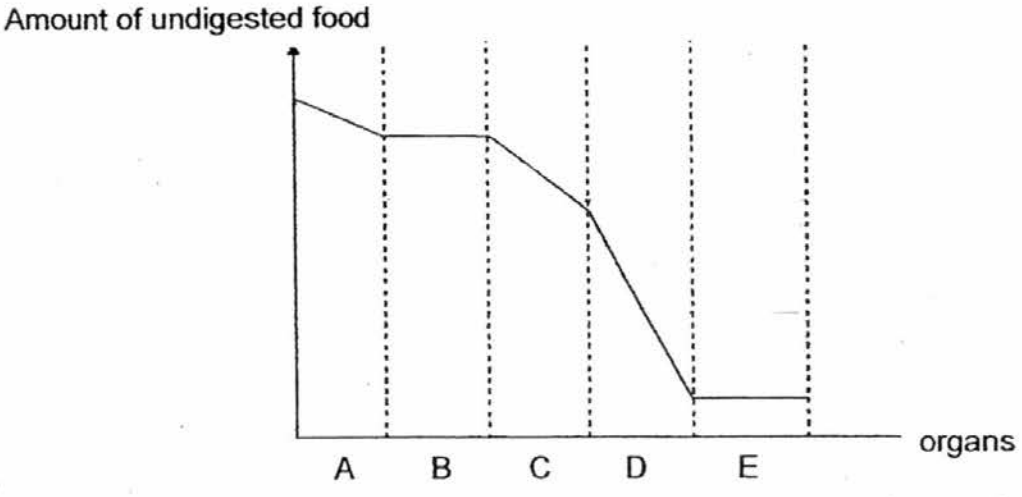
12 Lexter did a study on animals X and Y. He recorded his observations in the table below.

Animal X	Animal Y
Gives birth to its young alive	Lays eggs
Has no wings	Has wings

Which one of the following is most likely true about both animals X and Y?

	Animal X	Animal Y
(1)	Amphibian	Insect
(2)	Bird	Mammal
(3)	Mammal	Bird
(4)	Insect	Amphibian

13 The graph below shows the amount of undigested food as it passes through the different organs in the human digestive system.

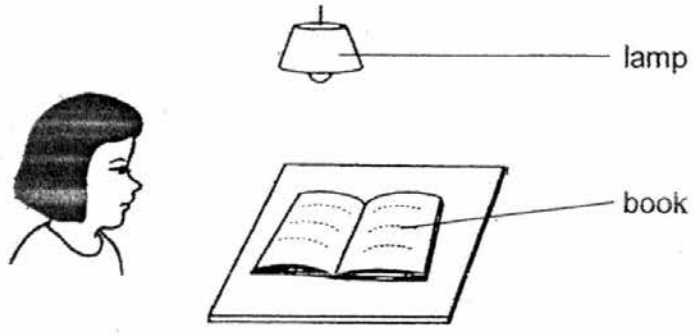


Which of the following sets of organs best represents A, C and D?

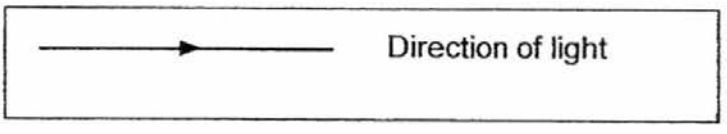
	A	C	D
(1)	small intestine	stomach	mouth
(2)	mouth	stomach	small intestine
(3)	gullet	mouth	stomach
(4)	mouth	gullet	small intestine

(Go on to the next page)

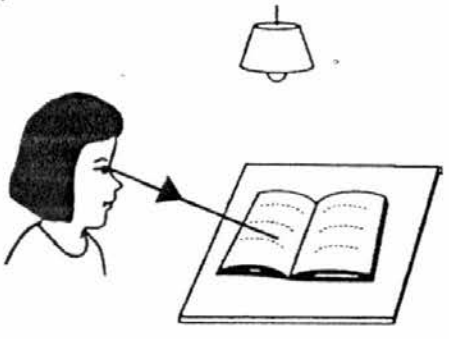
14 Look at the picture below.



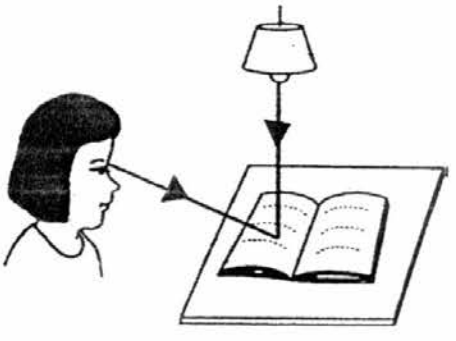
Which one of the following shows how Sue can see the book on the table?



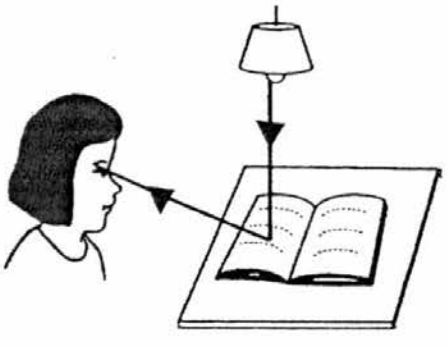
(1)



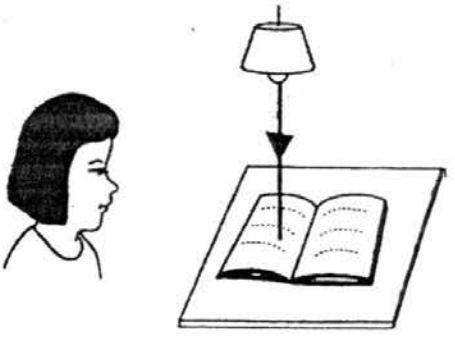
(2)



(3)



(4)



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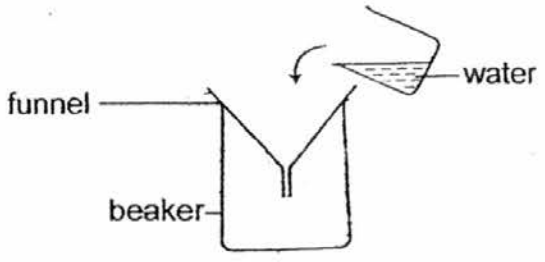
15 Ben poured water into an empty beaker as shown below. However, he observed that water did not flow easily into the beaker.



Which of the following statement(s) is/are able to explain his observation?

A Water cannot be compressed.
B The air in the beaker cannot escape.
C The air in the beaker takes up space
D Water has a definite shape and definite volume.

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

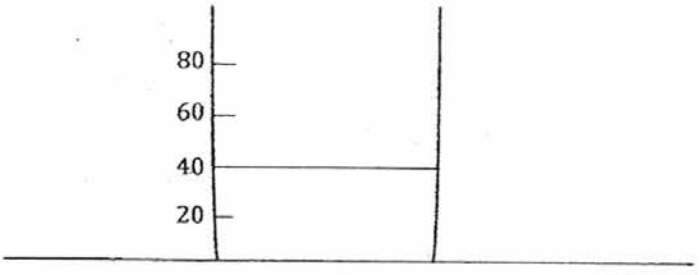
16 The diagram below shows a plastic bottle spray filled with some water.

Which of the following correctly represents the state of matter of the empty space, plastic bottle and water?

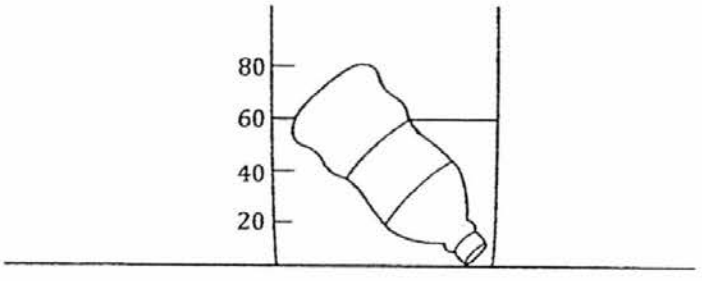
	Empty space	Plastic bottle	Water
(1)	Liquid	Liquid	Gas
(2)	Gas	Solid	Liquid
(3)	Liquid	Solid	Gas
(4)	Gas	Liquid	Liquid

(Go on to the next page)

17 40 ml of water was poured into a beaker as shown below.



Then, a bottle completely filled with water was submerged into the beaker of water as shown below.



What is the most likely volume of water in the bottle?

(1) Exactly 40 cm^3

(2) Excatly 60 cm^3

(3) Between 10 cm^3 to 20 cm^3

(4) Between 20 cm^3 to 30 cm^3

18 Study the human body system below.

Which one of the following statements is **not** correct about the above human system?

(1) It supports the body.

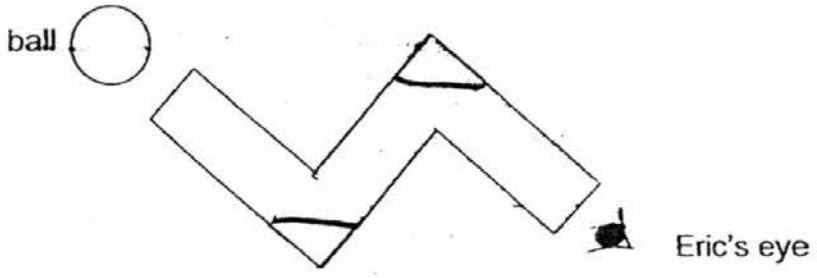
(2) It gives the body its shape.

(3) It takes in air into the body.

(4) It protects the heart and lungs.

(Go on to the next page)

19 The diagram below shows a bent tube.



What is the least number of mirrors that has to be placed inside the bent tube so as to enable Eric to see the ball?

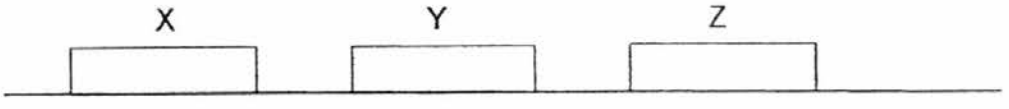
(1) 1

(2) 2

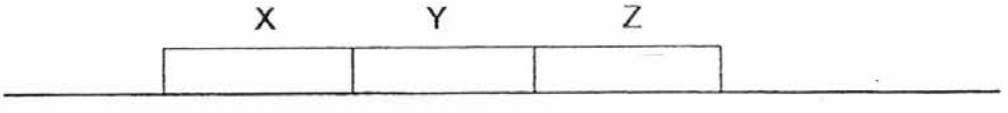
(3) 3

(4) 4

20 Items X, Y and Z were placed on a smooth surface as shown below.



The below was immediately observed after the items were placed on the surface.



Which of the following statements are possibly true about the items?

A All three items are magnets.
B Item Y is a magnet while X and Z are non-magnetic.
C Item X is magnet, Y is non-magnetic and Z is magnetic.
D Item X is non-magnetic, Y is magnetic and Z is a magnet.

(1) A and B only

(2) A and C only

(3) C and D only

(4) A and D only

(Go on to the next page)

21 Matthew wants to find out if the type of batteries used affects the magnetism of an electromagnet.

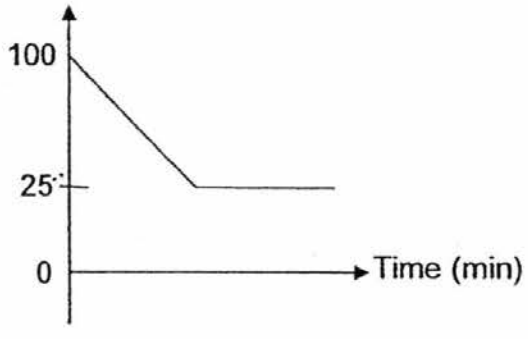
Set-up	Number of coils	Number of batteries	Brand of batteries
A	20	2	Sonny
B	20	4	Engiz
C	40	2	Sonny
D	20	2	Engiz

Which two set-ups should Matthew use for his experiment?

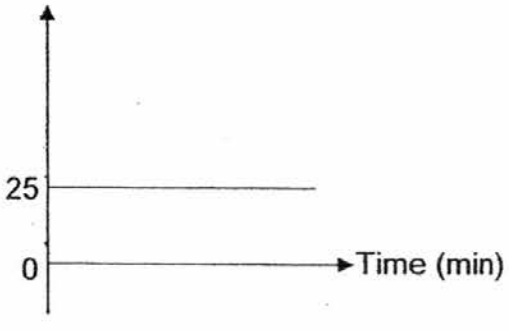
(1) A and B
(2) A and C
(3) B and D
(4) A and D

22 Which of the following graphs correctly shows the temperature of a basin of tap water when left over time on a table?

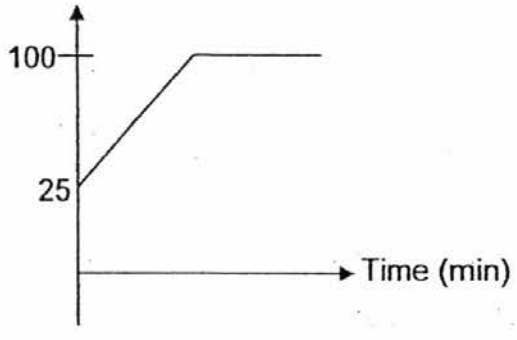
(1)



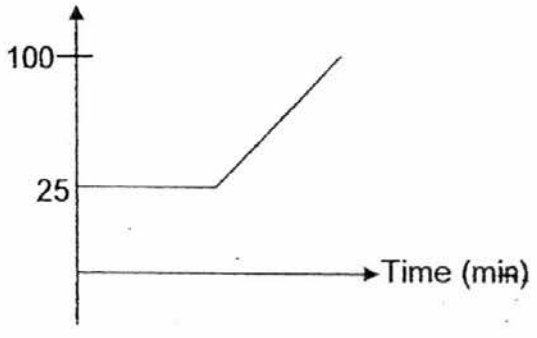
(2)



(3)



(4)



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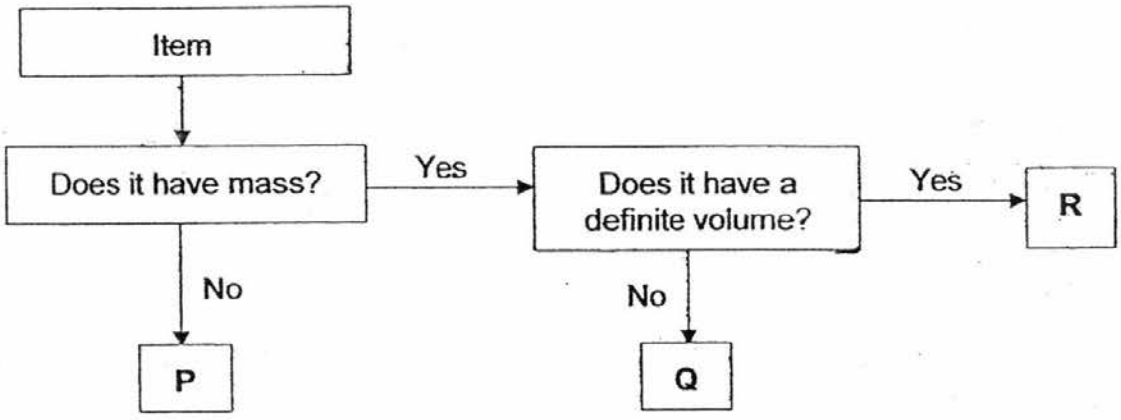
23 Study the flowchart below.



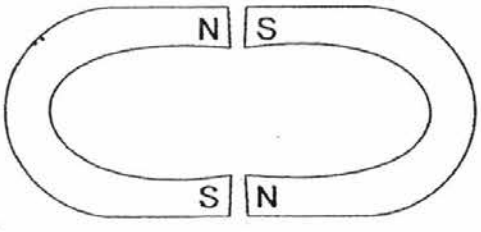
Which one of the following is most likely items P, Q and R?

	Item P	Item Q	Item R
(1)	Air	Shadow	Water
(2)	Sound	Water	Rocks
(3)	Water	Shadow	Air
(4)	Shadow	Air	Water

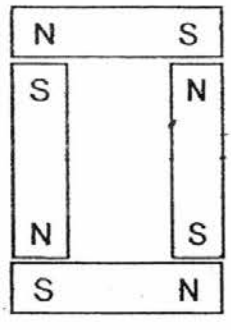
24 Study the arrangements of the magnets below.

Which arrangement is **not** possible?

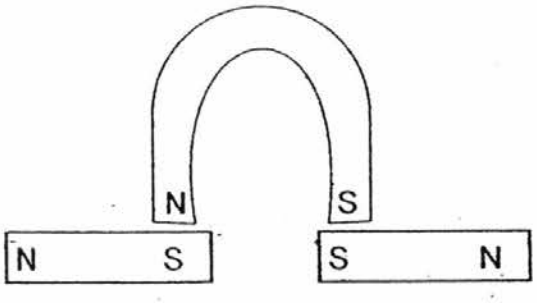
(1)



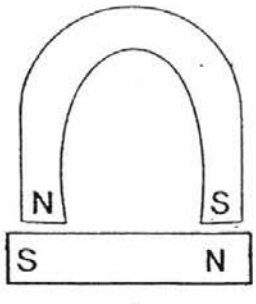
(2)



(3)



(4)



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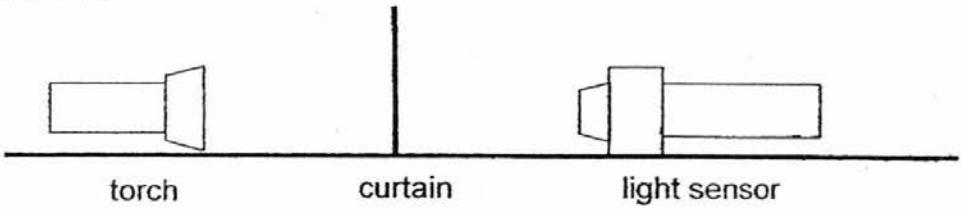
25 Mrs Lee used a light sensor to measure the amount of light passing through different types of curtains.



Curtain	Amount of light (units)
A	0
B	330
C	1000
D	3300

Which type of curtain should Mrs Lim choose for her bedroom if she wants the room to be as dark as possible?

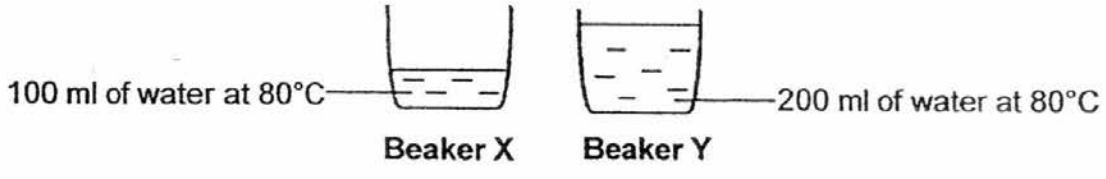
(1) A

(2) B

(3) C

(4) D

26 The diagrams below show two identical beakers, X and Y. The two beakers contain different amounts of water.



Three students made the following statements.

Ann: The water in Y has more heat energy ~~that~~ than X.

Ben: The water in both beakers has the same temperature.

Claire: The water in both beakers has the same amount of heat energy.

Whose comment(s) is/are correct?

(1) Ann only

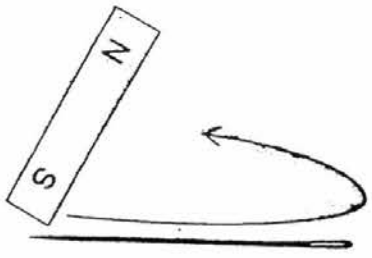
(2) Claire only

(3) Ann and Ben only

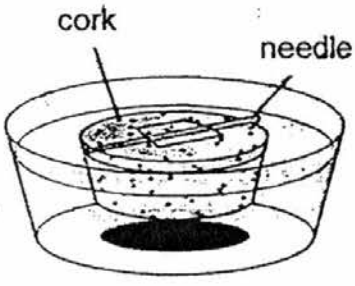
(4) Ann and Claire only

(Go on to the next page)

27 Sue magnetised a needle in the following manner.

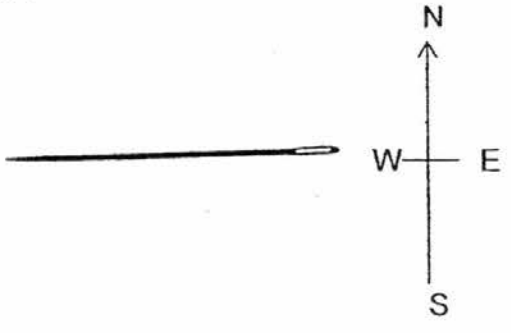


Then, the needle was placed on a piece of cork and allowed to float freely on water till it comes to a complete stop.

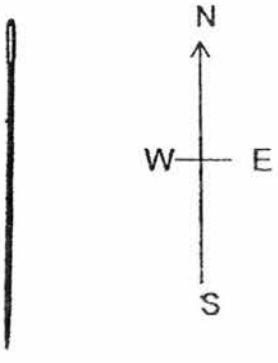


Which of the following shows the correct direction of the needle when it comes to a complete stop?

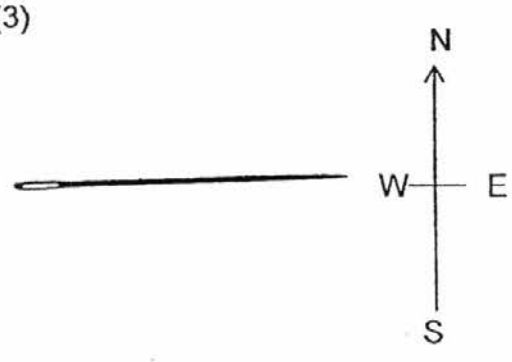
(1)



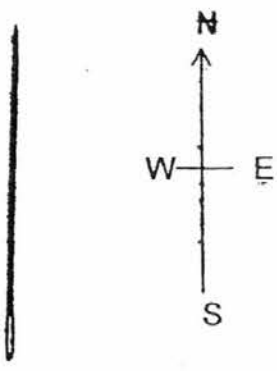
(2)



(3)



(4)



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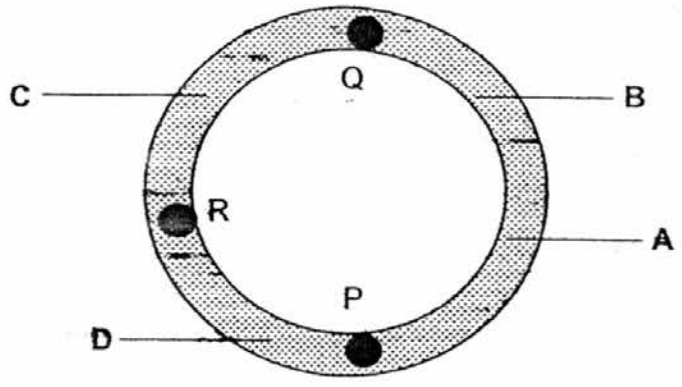
28 The diagram below shows a metal ring with three pieces of wax attached at points P, Q and R.



The metal ring was then heated at one of the points. The time taken for each piece of wax to melt completely is shown in the table below.

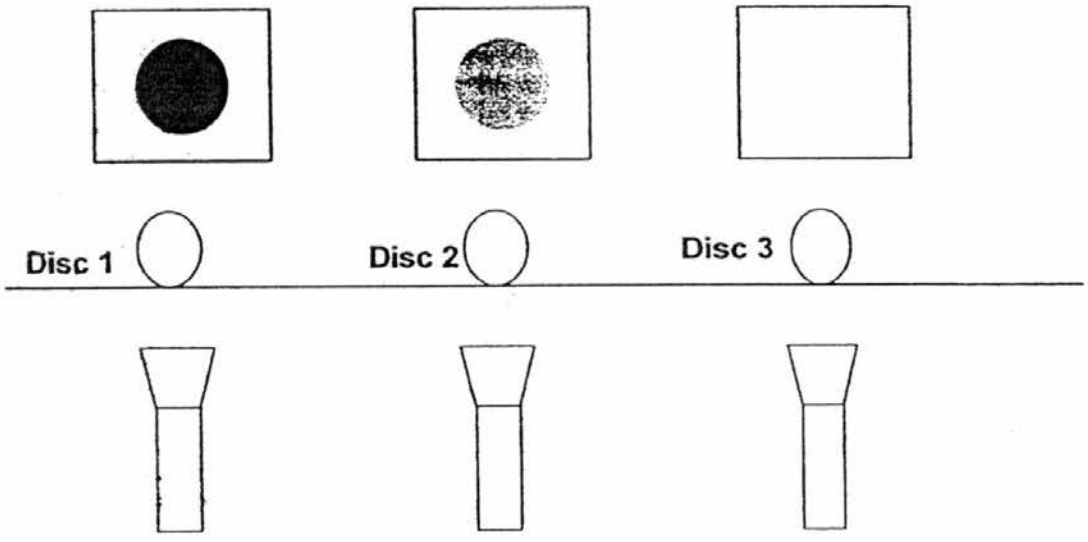
Wax	Time taken for the drop of wax to melt completely (min)
P	2
Q	5
R	3

Based on the results, at which point, A, B, C or D, was heat most likely applied?

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

(Go on to the next page)

29 Three similar light sources with similar light intensity were shone at three different discs. The results can be seen on the screen as shown below.



Which materials are the three discs most likely made of?

	Disc 1	Disc 2	Disc 3
(1)	Wood	Clear plastic	Metal
(2)	Clear plastic	Frosted glass	Tracing paper
(3)	Metal	Frosted glass	Clear glass
(4)	Clear glass	Tracing paper	Metal

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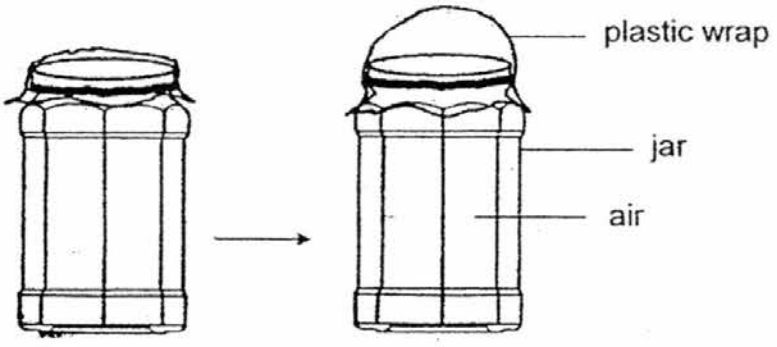
30 Mrs Chew covered a jar tightly with a piece of plastic wrap so that air could not enter it. The pictures below show the jar before and after she heated it.



room temperature **after being heated**

What happened to the mass and volume of the air in the jar after it was heated?

	Mass of jar	**Volume of air in the jar**
(1)	increased	increased
(2)	remained the same	increased
(3)	increased	remained the same
(4)	remained the same	remained the same

End of Booklet A

MARIS STELLA HIGH SCHOOL (PRIMARY)

SEMESTRAL ASSESSMENT 2

SCIENCE

27 OCTOBER 2016

BOOKLET B

NAME: _____ ( )

CLASS: Primary 4 ( )

14 questions

40 marks

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

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

BOOKLET A:	_____ / 60
BOOKLET B:	_____ / 40
TOTAL:	_____ / 100

PARENT'S SIGNATURE: _____

For questions 31 to 44, write your answers in this booklet. The number of marks available is shown in brackets [ ] at the end of each question or part question. (40 marks)

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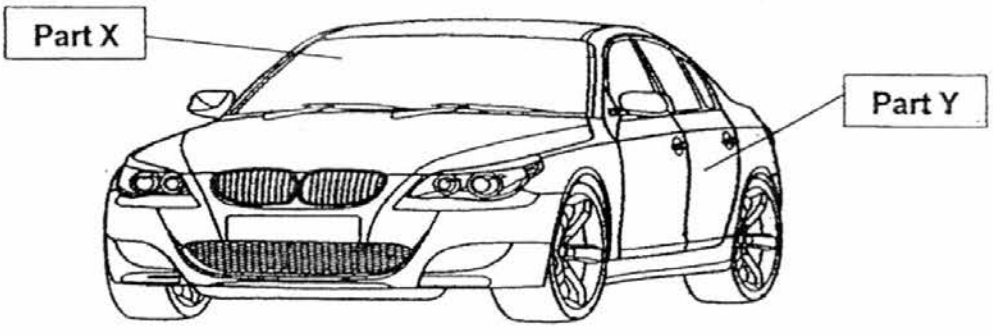
31 The diagram below shows a car.

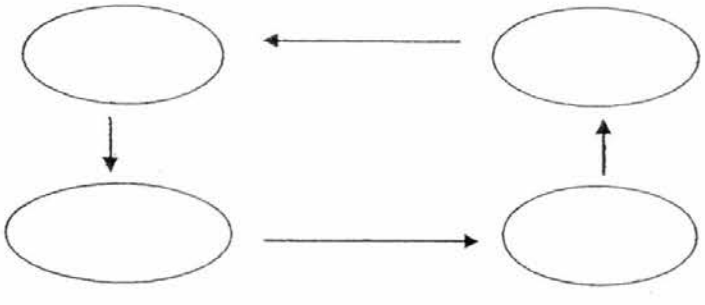


(a) Part X is made of glass because it allows _____ to pass through so that the driver can see the road. [1]

(b) Part Y is made of _____ because Y has to be strong. [1]

32 The stages in the life cycle of a mosquito are shown below.

(a) Arrange the stages of the life cycle in the correct order and fill them in the diagram below. [1]



(b) Name another insect that has a similar life cycle as the mosquito? [1]

	4

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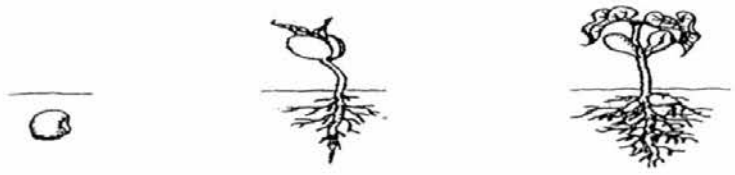
33 The diagram below shows the stages in the life cycle of a plant.



A B C

Choose the correct words from the box to answer the questions below.

egg	seed	young plant	adult plant

(a) Name stages A and B in the life cycle of the plant. [2]

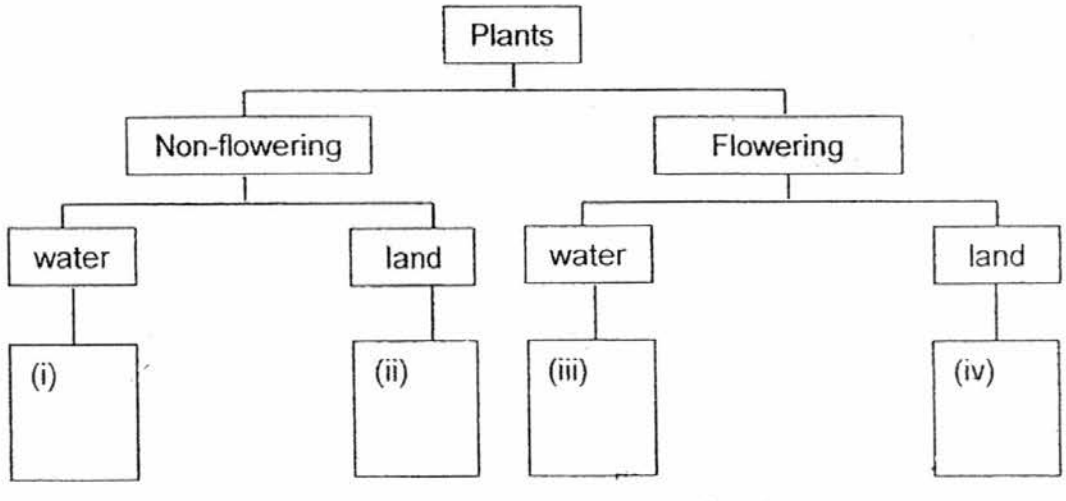
Stage A: _____ Stage B: _____

(b) Name the part of the seed that grows out first. _____ [1]

34. Study the table below.

Characteristics	Plants			
	A	B	C	D
Has flowers		√		√
Grows in water	√			√

Based on the table above, classify plants, A, B, C and D, in the classification chart below. [2]



5

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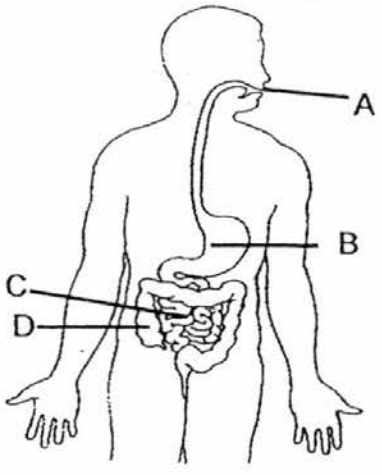
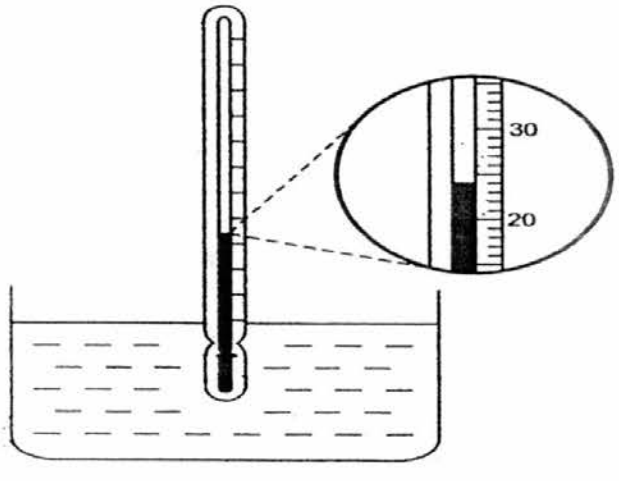
35 The diagram below shows the human digestive system.



Identify the parts (A, B, C or D) to the functions below. [3]

	Function	Part
(i)	Water is absorbed	
(ii)	Digestion first takes place	
(iii)	Digested food is absorbed	

36 Jane used an instrument to measure the temperature of water in a basin.



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

_____

(b) What is the temperature of the water in the glass? _____ °C [1]

	5

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37 Susan places a magnet near an iron rod. The iron rod moves towards the magnet.

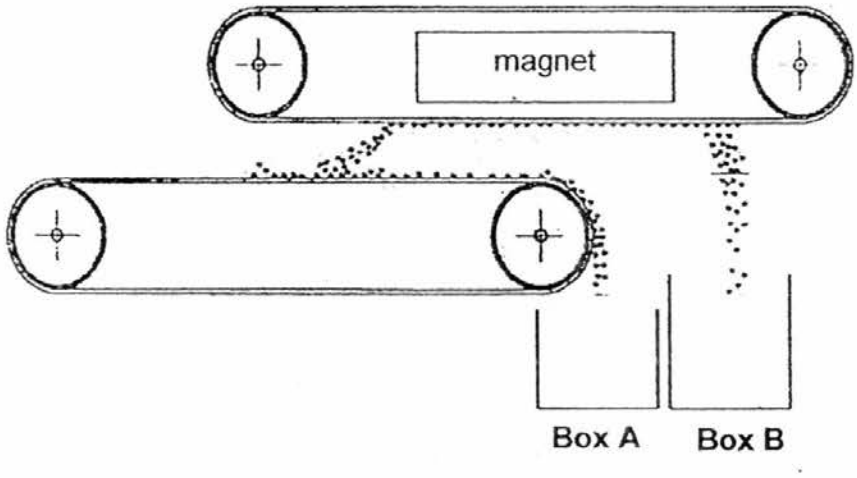
(a) The magnet exerts a _____ on the iron rod. [1]

(b) Choose the correct word from the box to answer the question below. [1]

hard	magnetic	strong

Susan's observation shows that iron is a _____ material.

(c) Susan makes use of a machine with magnet to separate the objects into different boxes as shown below.



The table below shows the list of objects that are sent through the machine. Put a tick (√) in the correct boxes to identify if the objects will drop into box A or box B. [2]

	Object	Drop into Box A	Drop into Box B
(i)	Nickle ring		
(ii)	Steel balls		
(iii)	Silver coins		
(iv)	Glass marbles		

	4

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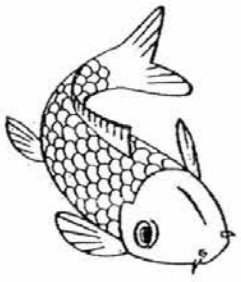
38 The pictures below show an amphibian and a fish.

amphibian



fish

(a) State one similarity in the way the amphibian and fish reproduce. [1]

_____

_____

(b) State two differences between the amphibian and fish in terms of their: [2]

(i) Body covering

_____

_____

(ii) Method of breathing

_____

_____

	3

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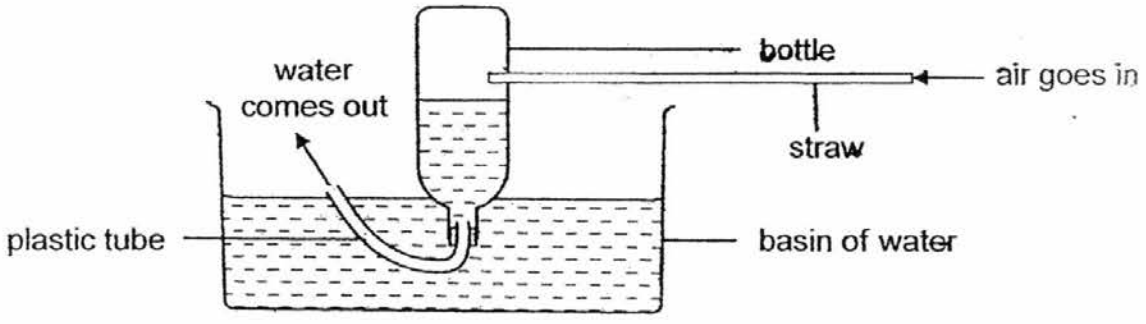
39 Ryan set up an experiment as shown below. He took a deep breath and blew as much air as he could into the bottle through the hole using the straw.



(a) What will happen to the water level in the bottle after he blew air into the bottle? [1]

_____

(b) Explain your answer in (a). [1]

_____

_____

(c) What property of water is shown in this experiment? [1]

_____

	3

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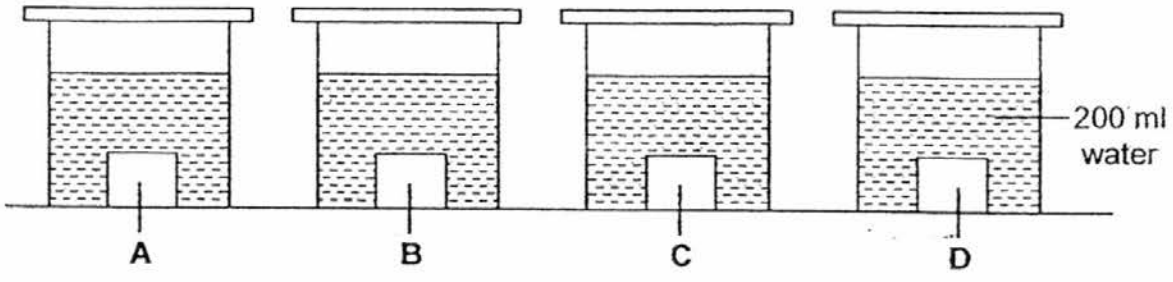
40 Four cubes, A, B, C and D, made of different materials were placed in four identical covered containers. Each container was filled with 200 ml of water as shown below.



After 10 minutes, the cubes were removed and the amount of water left in each container was recorded in the table below.

Material of cube	A	B	C	D
Amount of water left in the container (ml)	140	168	200	185

(a) Based on the result above, which material, A, B, C or D, absorbed the most water? [1]

_____

(b) Which material, A, B, C or D, is best suited to make a water bottle? Why? [1]

_____

_____

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

_____

	3

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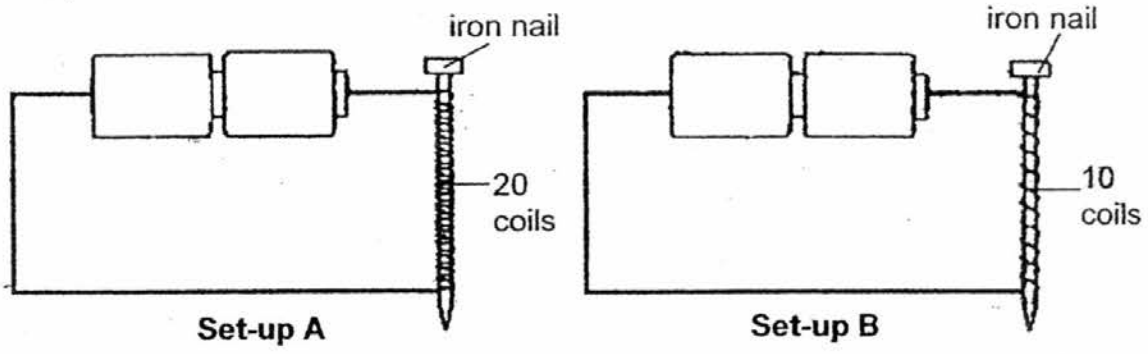
41 John set up the two electromagnets as shown below. The materials used for both set-ups are identical.



He then recorded the number of paper clips attracted by the electromagnets in the table below.

Set up	Number of paper clips attracted
A	25
B	10

(a) State the following variables of John's experiment. [2]

(i) Manipulated variable: _____

_____

(ii) Responding variable: _____

_____

(b) What is the aim of John's experiment? [1]

_____

_____

(c) State the relationship between the number of coils around the iron nail and the number of paperclips attracted. [1]

_____

	4

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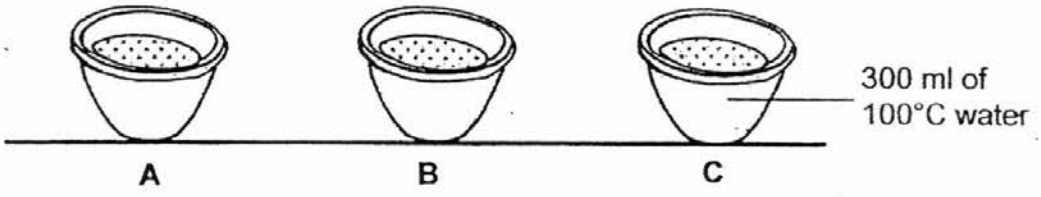
42 Fred filled three cups, A, B and C, of different materials with 300 ml of boiling water. He placed them on the table as shown below.



After 20 minutes, he measured the temperature of water in each cup in the table below.

Cup	Temperature after 20 min (°C)
A	80
B	65
C	55

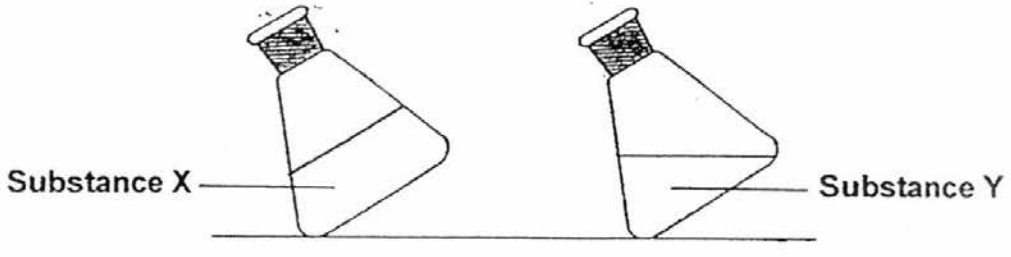
(a) Which cup, A, B or C, should Fred used to serve ice-cream such that the ice-cream will melt the slowest? [1]

_____

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

_____

(c) Fred took two identical flasks filled with 300 ml of two different substances, X and Y. He tilted both flasks as shown below.



Based on the observations above, what are the likely states of substances X and Y? [1]

X: _____ Y: _____

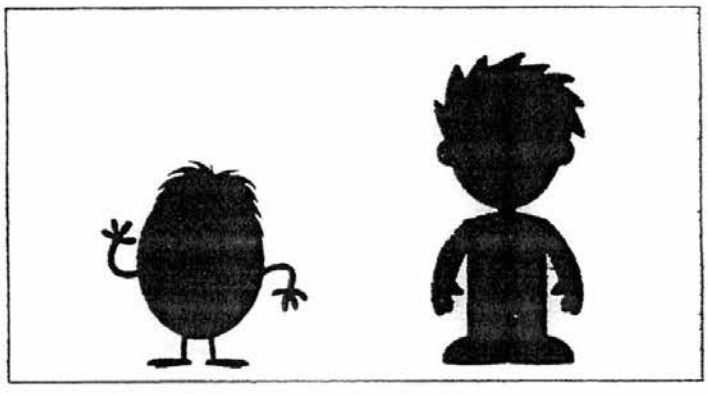
3

(Go on to the next page)

43 Jim positioned 2 puppets between a torch and a big screen.

The 2 puppets, A and B, are of similar height, as shown below.

The shadows cast on the screen are as shown below.



(a) Which puppet, A or B, is placed nearer to the torch? [1]

_____

(b) Without changing the items used, state two other changes that can be made to increase the size of shadows cast on the screen. [2]

(i) _____

(ii) _____

	3

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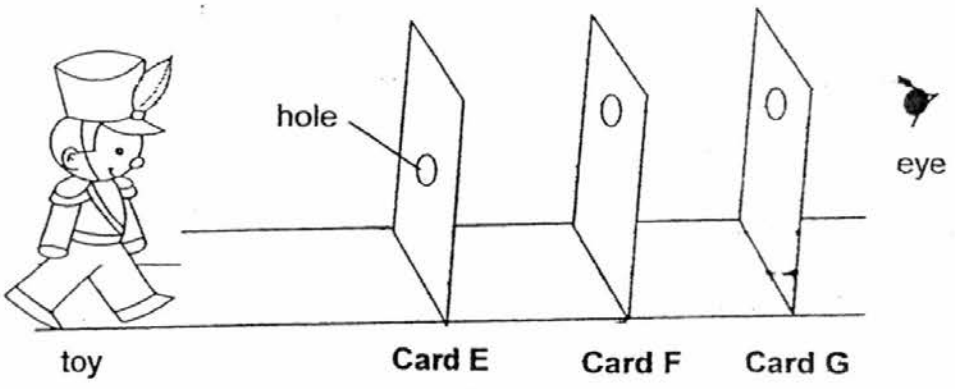
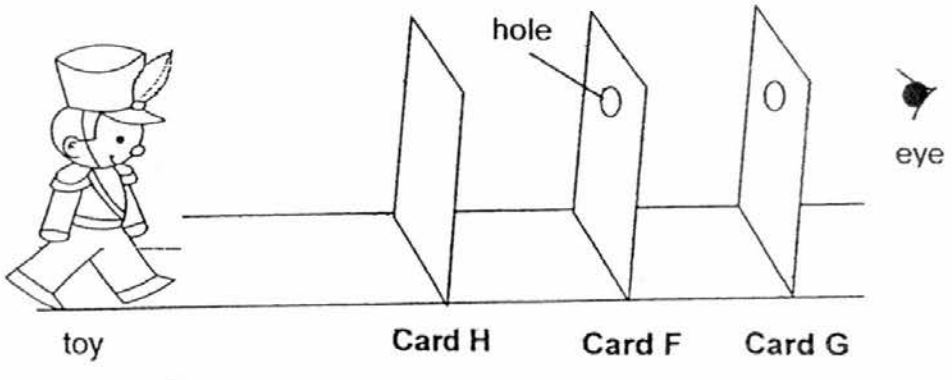
44 June set up an experiment with a toy and three pieces of card, E, F and G, in a lighted room as shown below. There was a hole on each of the card.



(a) June looked through the holes but discovered that she was unable to see the toy. Give a reason why June was unable to see the toy. [1]

(b) State a property of light that is demonstrated in this experiment. [1]

(c) June replaced card E with another piece of card, H, of the same size but with no hole on it as shown below.



Although there was no hole on the card H, June was able to see the toy.
Name the property of card H that allows June to see the toy? [1]

END OF BOOKLET B

3

YEAR : 2016
LEVEL : PRIMARY 4
SCHOOL : MARIS STELLA HIGH
SUBJECT : SCIENCE
TERM : SA2

Booklet A

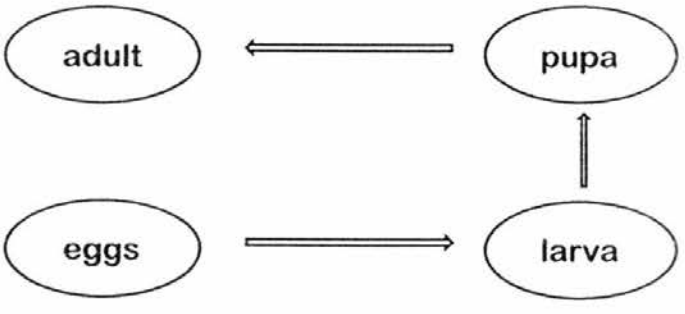
Q1	1	Q6	1	Q11	3	Q16	2	Q21	4	Q26	3
Q2	4	Q7	4	Q12	3	Q17	4	Q22	2	Q27	2
Q3	2	Q8	3	Q13	2	Q18	3	Q23	4	Q28	4
Q4	1	Q9	4	Q14	3	Q19	2	Q24	3	Q29	3
Q5	1	Q10	4	Q15	3	Q20	2	Q25	1	Q30	2

Booklet B

Q31a Part X is made of glass because it allows light to pass through so that the driver can see the road.

Q31b Part Y is made of metal because Y has to be strong.

Q32a



Q32b Butterfly

Q33a Stage A : seed Stage B : young plant

Q33b Roots

Q34 (i) A (ii) C (iii) D (iv) B

Q35

	Function	Part
(i)	Water is absorbed	D
(ii)	Digestion first takes place	A
(iii)	Digested food is absorbed	C

Q36a Thermometer

Q36b 24 °C

Q37a The magnet exerts a pull on the iron rod.

Q37b Susan's observation shows that iron is a magnetic material.

Q37c

	Object	Drop into Box A	Drop into Box B
(i)	Nickle ring		✔
(ii)	Steel balls		✔
(iii)	Silver coins	✔	
(iv)	Glass marbles	✔	

Q38a They both lay eggs.

Q38b (i) The amphibian has moist skin but the fish has scales.

(ii) The amphibian breathes through lungs and skin but the fish breathes through gills.

Q39a The water level would decrease.

Q39b Air takes up space, so when the air goes into the flask, it would push all the water out.

Q39c Water occupies space.

Q40a Material A absorbed the most water.

Q40b Material C. It is waterproof, so when water is inside the water bottle, it will not be absorbed by the material.

Q40c The size of the cube.

Q41a (i) Manipulated variable : The number of coils.

(ii) Responding variable : Number of clips attracted.

Q41b To find if the number of coils around the iron nail effects its magnetism.

Q41c The more amount of coils, the more paper clips it would be attracted.

Q42a Material A.

Q42b A is the poorest conductor of heat and it will lose heat to the ice cream the slowest.

Q42c X : solid Y : liquid

Q43a Puppet A

Q43b (i) Move the screen further away from the puppets.

(ii) Move the torch nearer to the puppets.

Q44a Light reflected from the toy is blocked by card E and did not go into June's eyes.

Q44b Light travels in a straight line.

Q44c Card H was transparent.