Anglo-Chinese School (Junior)

SEMESTRAL ASSESSMENT 2 (2017)

PRIMARY 4

SCIENCE

BOOKLET A

Thursday **2 November 2017** **1 hr 30 min**

Name: _____ ( ) Class: 4.( )

INSTRUCTIONS TO PUPILS

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

2 Follow all instructions carefully.

3 There are 25 questions in this booklet.

4 Answer ALL questions.

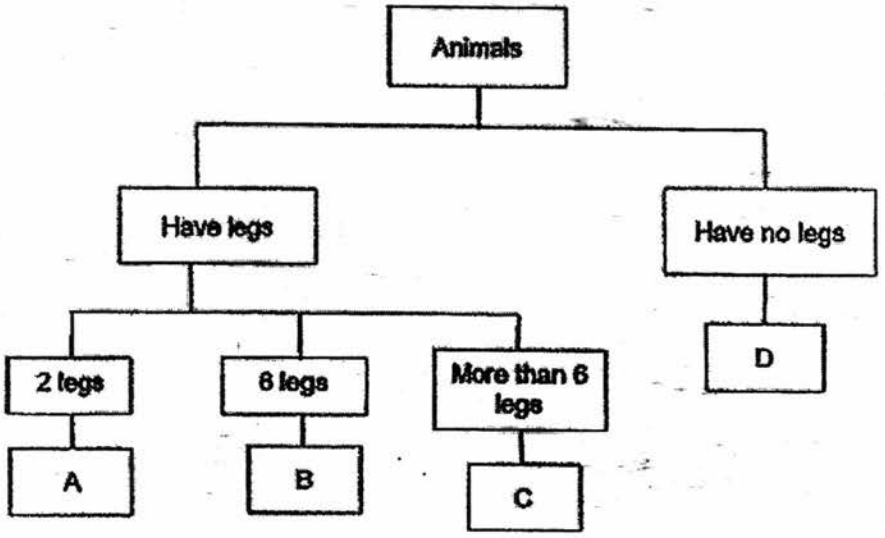
5 Shade your answers in the Optical Answer Sheet (OAS) provided.

This question paper consists of 16 printed pages (inclusive of cover page).

Booklet A (50 marks)

For each question from 1 to 25, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade your answer on the Optical Answer Sheet. (25 x 2 marks)

1. Study the classification below.



Which letter A, B, C or D, best represents the animal shown below?

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

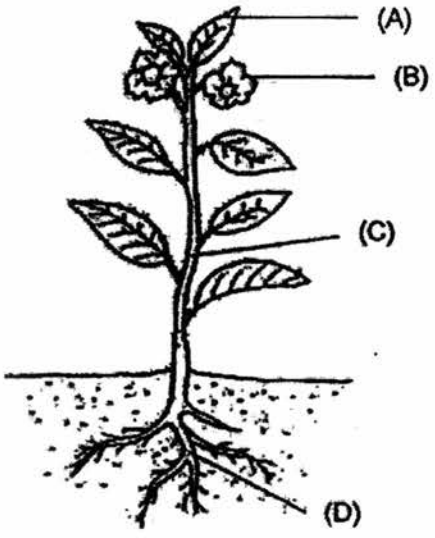
2. In which part of the digestive system is digested food absorbed into the blood?

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

3. Which one of the following properties is true for both air and a pencil?

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

4. The diagram shows a plant.



Which part A, B, C or D is the stem of the plant?

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

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

(1)

an orange

(2)

the moon

(3)

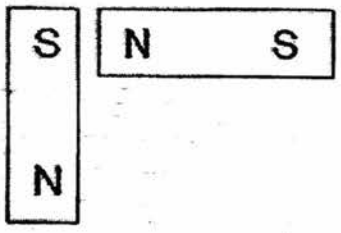
a candle flame

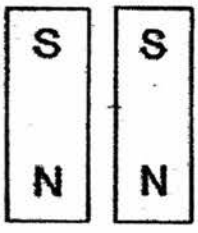
(4)

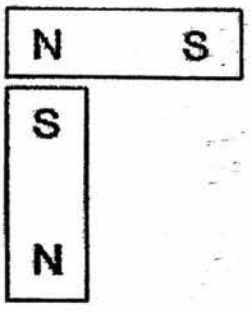
a leaf

6. In which one of the following will the two magnets push each other away?

(1) 

(2) 

(3) 

(4) 

7. Jonathan observed 3 things, A, B and C over a month. He recorded his observations in the table below. A tick (✓) means that the following observation was made.

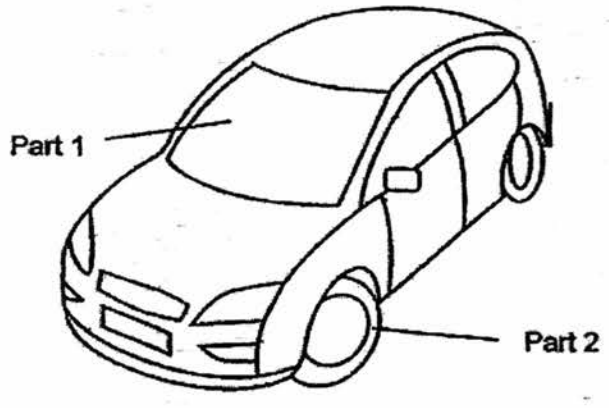
Observations	A	B	C
Grows towards sunlight	x	✓	x
Responds to changes around it	✓	✓	x
Needs air, food and water to survive	✓	✓	x

Which of the following best describes the 3 things?

	A	B	C
(1)	Lamp	Cat	Grass
(2)	Button	Grass	Bacteria
(3)	Rose Plant	Bacteria	Button
(4)	Cat	Rose Plant	Lamp

8. Susan wanted to find out what materials are used to create the parts of a car. She conducted several tests on materials M, N and O and recorded her findings in the table below.

	Material M	Material N	Material O
Is it flexible?	Yes	No	Yes
Is it waterproof?	Yes	Yes	No
Does it allow light to pass through?	No	Yes	No

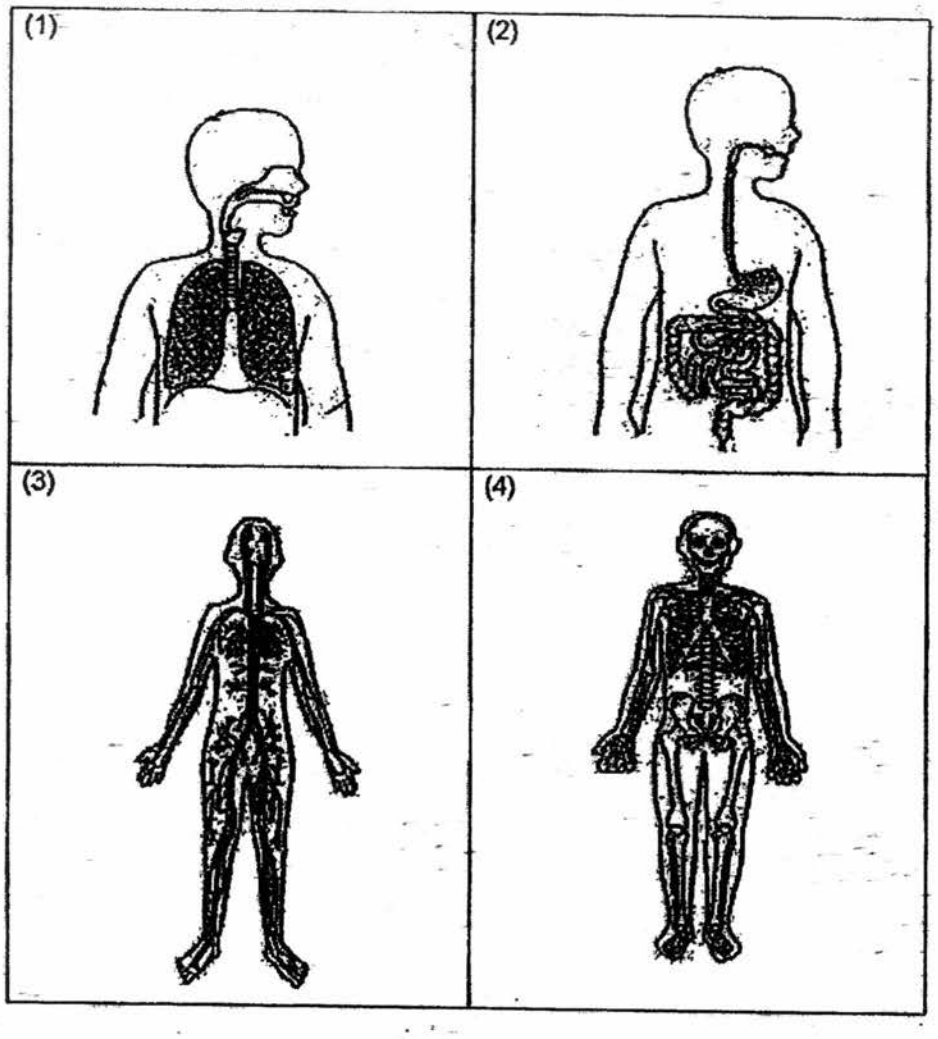


Car

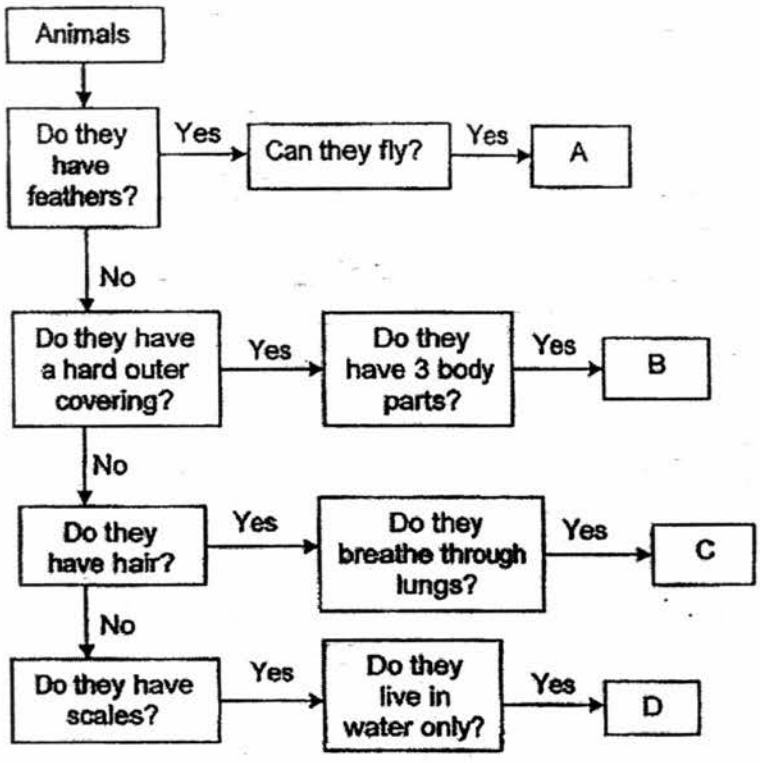
What materials are parts 1 and 2 made of?

	Part 1	Part 2
(1)	Material N	Material O
(2)	Material M	Material O
(3)	Material O	Material M
(4)	Material N	Material M

9. The diagrams below show some human body systems. Which of the systems below helps to break down food into simple substances?



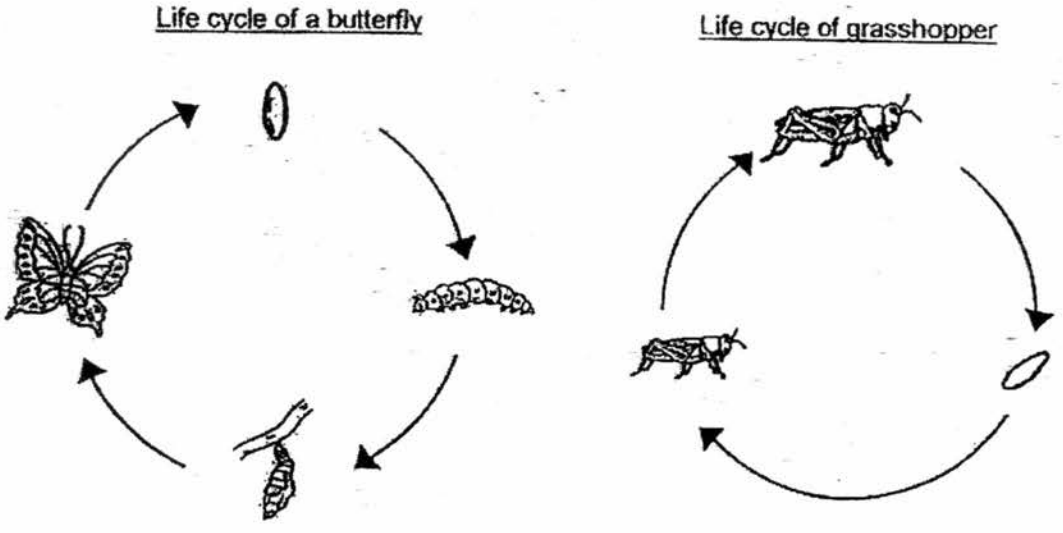
10. Study the flowchart below.



The letters A, B, C and D are used to represent different groups of animals in the flowchart. Which of the following correctly represents A, B, C and D?

	A	B	C	D
(1)	Bird	Mammal	Fish	Insect
(2)	Mammal	Insect	Amphibian	Fish
(3)	Insect	Fish	Bird	Amphibian
(4)	Bird	Insect	Mammal	Fish

11. The diagram below shows the life cycle of a butterfly and a grasshopper.



What is the similarity between the two life cycles?

(1) Both start with the egg stage.

(2) Both animals at the adult stage can fly.

(3) Both spend part of their life cycle in water.

(4) Both have the same number of stages in their life cycle.

12. Asher placed 4 identical balsam plants in identical vases. The table below shows the amount of water given to each plant every day and their location.

Vase	Volume of water (ml)	Location
W	150	Classroom
X	150	Store room
Y	150	Field
Z	150	Cupboard

After a month, Asher noticed that only the balsam plant in vase Y continues to grow well. Asher was trying to find out if _____.

(1) water is needed for the plant's growth

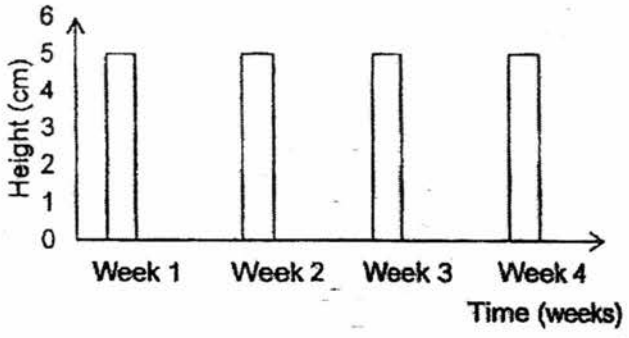
(2) the type of vase affects the plant's growth

(3) the amount of water given to plants affect their growth

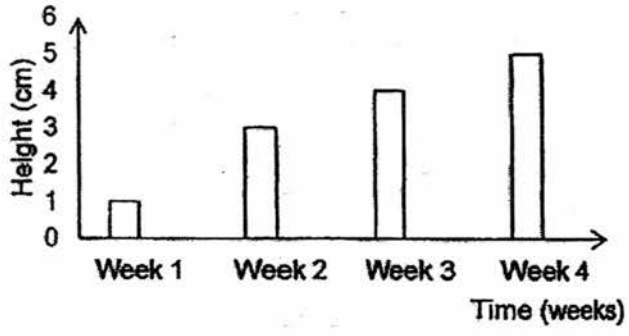
(4) the amount of light received by the plants affect their growth

13. As a seed grows into an adult plant, its height changes. Which of the graphs below shows the growth of a seed into an adult plant over a period of 4 weeks?

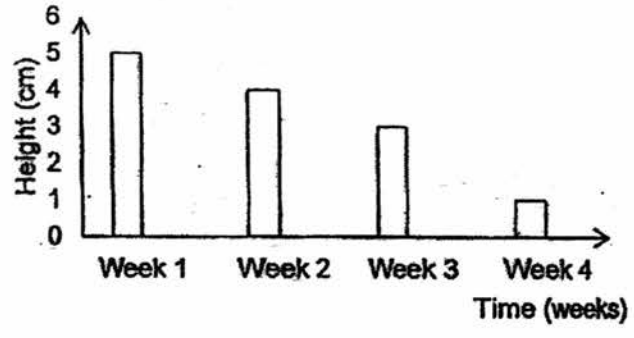
(1)



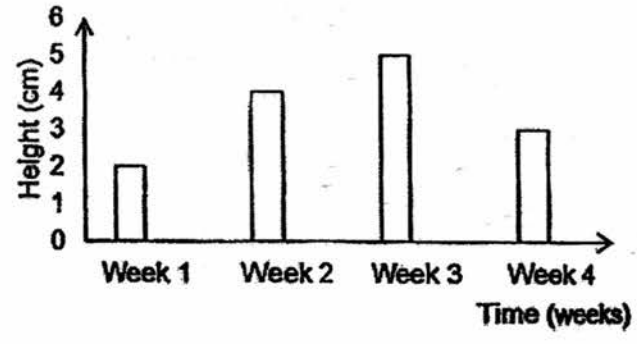
(2)



(3)



(4)



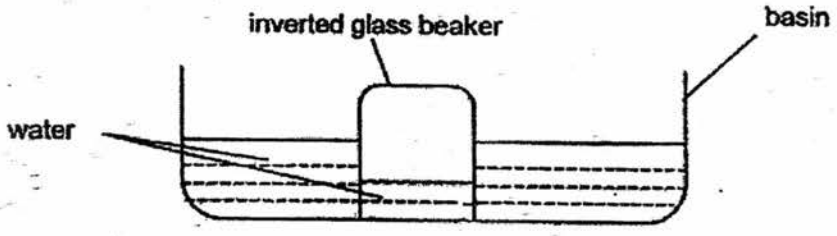
14. The table below shows the properties of substances J, K and L. A tick (✓) means the substance has the property.

	Properties		
	Does it have a definite shape?	Does it have a definite volume?	Can it be compressed?
J	x	x	✓
K	x	✓	x
L	✓	✓	x

Which one of the following examples best represents substances J, K and L?

	J	K	L
	Oil	Marble	Oxygen
(2)	Oxygen	Oil	Marble
	Marble	Oxygen	Oil
	Oxygen	Marble	Oil

15. Rina took an empty glass beaker, inverted it and pushed it into a basin of water as shown below. She observed a small amount of water enter the glass.



What does this show about the property of air?

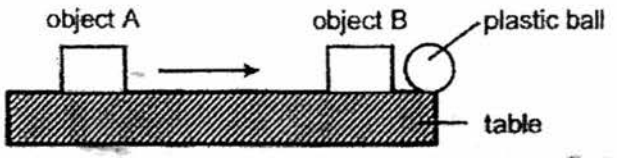
(1) Air has mass.

(2) Air can be compressed.

(3) Air has a definite shape.

(4) Air has a definite volume.

16. Alex set up an experiment as shown below. He moved object A towards object B and recorded his observation. He replaced object B with object C and repeated his experiment and recorded his observations in the table below. Object A did not come into contact with other objects during the experiment.

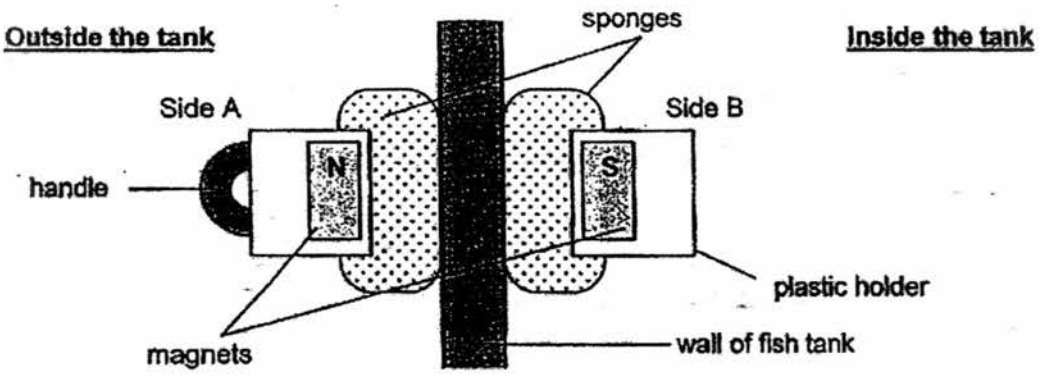


Object	Observations
B	Ball pushed off the table by object B
C	Ball remained in place

What can objects A, B and C be?

	A	B	C
(1)	Plastic cube	Magnet	Magnet
(2)	Steel cube	Plastic cube	Magnet
(3)	Magnet	Magnet	Plastic cube
(4)	Iron cube	Steel cube	Plastic cube

17. Max bought a device to clean his fish tank. It is used to clean both sides of the fish tank as shown in the diagram below.

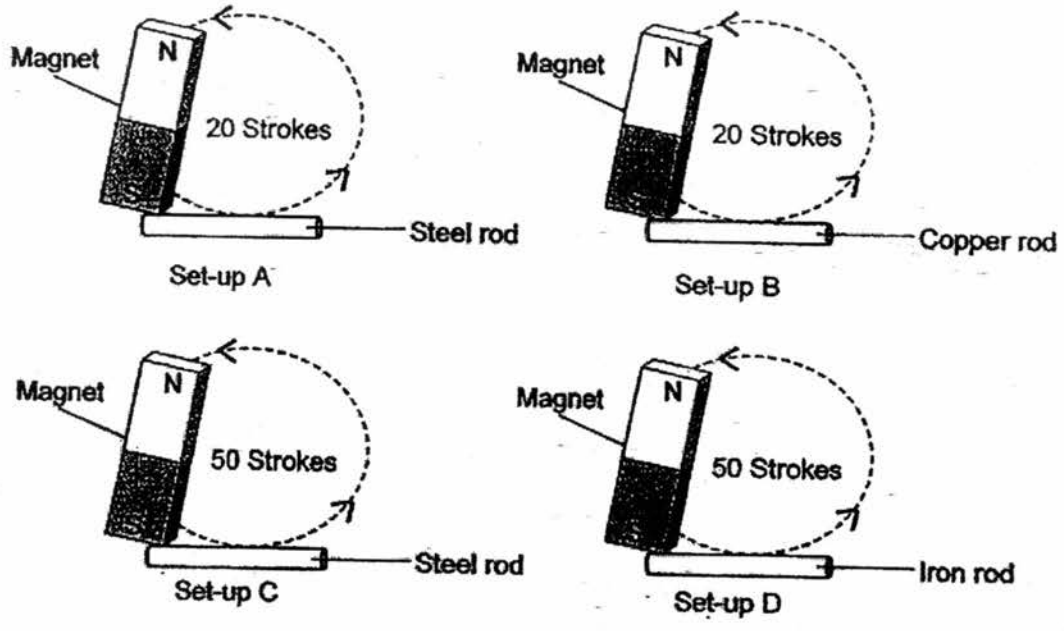


When side A is moved across the fish tank, side B also moves in the same direction as side A. Max noticed that there were magnets on both sides of the device.

Which of the following reasons explains what material the wall of the fish tank must be made of for the device to work?

	Material	Explanation
(1)	Iron	Iron is a magnetic material.
(2)	Steel	To allow side A and B to be attracted.
(3)	Glass	Glass allows magnetism to pass through it.
(4)	Plastic	Plastic does not allow magnetism to pass through it

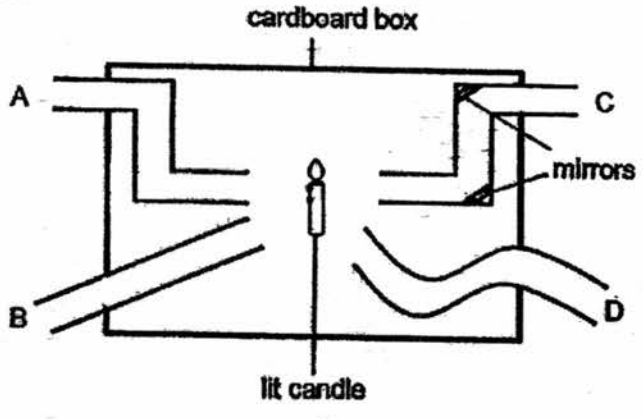
18. Gabriel conducted an experiment as shown below using four set-ups, A, B, C and D. He used the same type of magnet and rods of the same mass and size for each set up.



Gabriel wants to test whether the magnetic strength of a rod is affected by the number of times it is stroked with a magnet. Which 2 set-ups should Gabriel use to conduct a fair experiment?

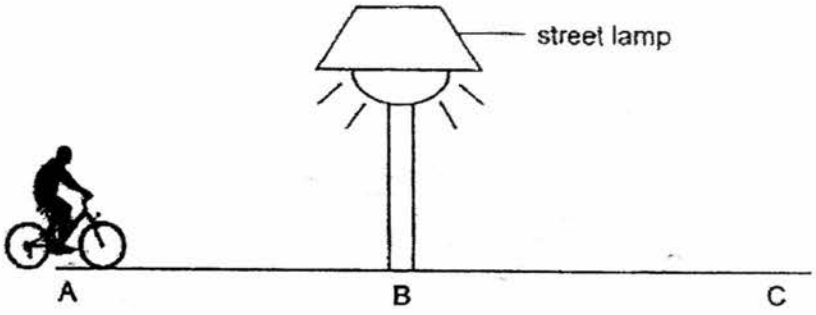
(1) A and B
(2) A and C
(3) B and C
(4) C and D

19. A lit candle was placed in the middle of a cardboard box as shown below. Four tubes, A, B, C and D were placed in the box. Which tube(s) can be used to view the candle?



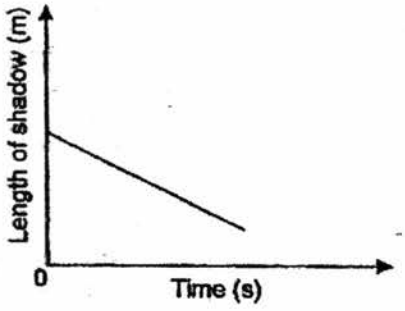
(1) C only
(2) B and C only
(3) A, B and C only
(4) A, B, and D only

20. Joe cycled down a road at night past a lighted street lamp from point A to C.

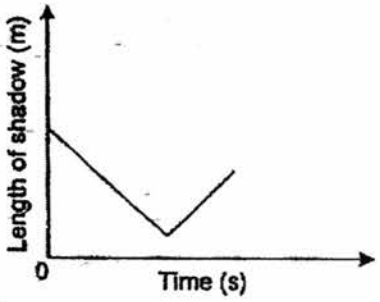


Which one of the following graphs shows correctly the changes in the length of Joe's shadow as he cycles from point A to point C over a period of time?

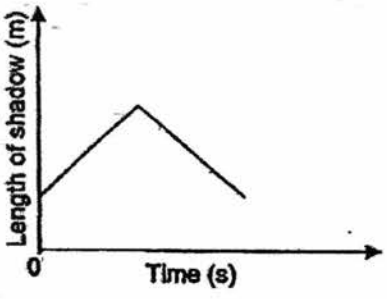
(1)



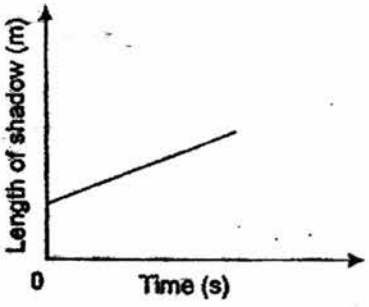
(2)



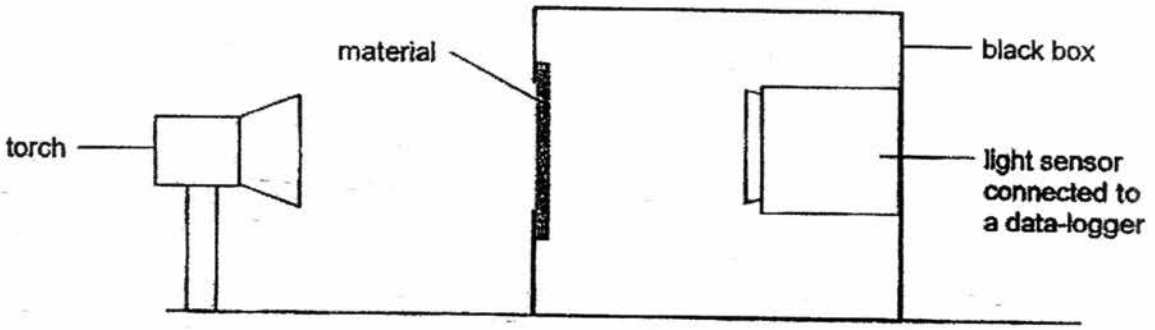
(3)



(4)



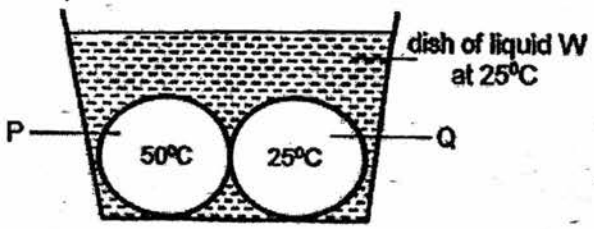
21. Alvin sets up an experiment using a torch, a black box, a light sensor and a set of materials. The light sensor is working on a scale of 0 to 10. The data-logger will show a reading of '0' if no light is detected and '10' for the most light detected.



Which of the following is most likely the readings recorded by the data-logger if the materials Alvin tested were a cardboard, clear plastic and a piece of frosted glass?

	Cardboard	Clear plastic	Frosted glass
(1)	10	10	0
(2)	5	0	10
(3)	0	10	5
(4)	0	5	10

22. Alan used two similar metal objects, P and Q, made of the same material and heated the objects to a temperature of 50°C and 25°C respectively. He then placed them together into a dish containing liquid W at 25°C as shown below.



Which one of the following shows the heat flow immediately after P and Q were placed into the water?

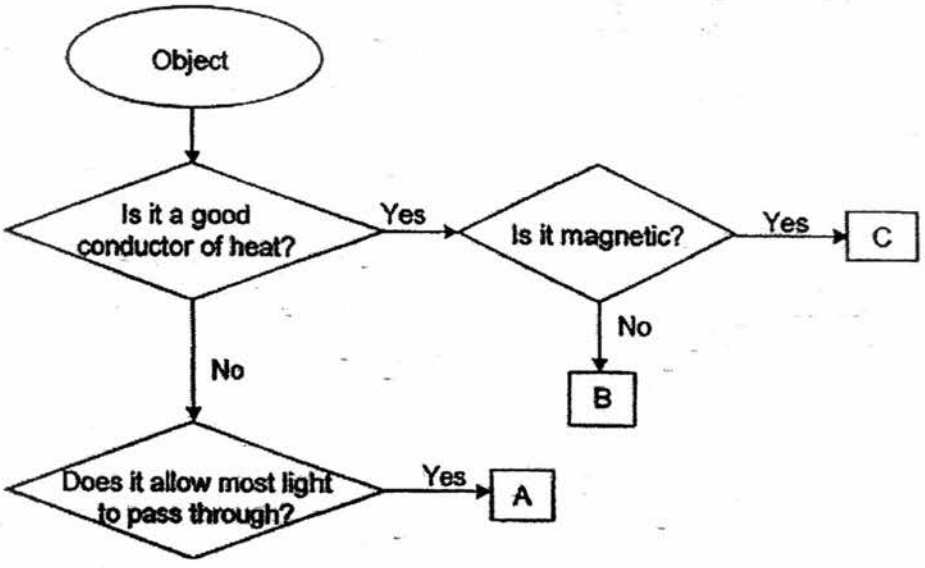
(1) P loses heat to Q only

(2) P gains heat from W only

(3) P loses heat to Q and W

(4) Q loses heat to P and W loses heat to P

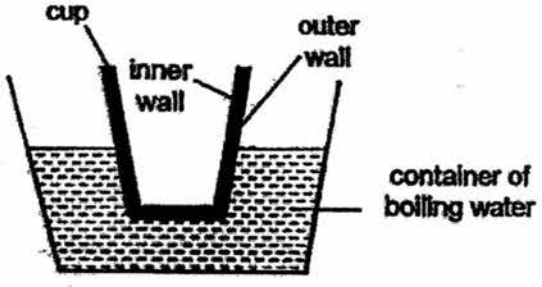
23. Study the flow chart below.



Based on the information above, which one of the following best represents objects A, B and C?

	Object A	Object B	Object C
	clear plastic cup	steel cup	aluminum cup
	aluminum cup	clear plastic cup	steel cup
	steel cup	aluminum cup	clear plastic cup
(4)	clear plastic cup	aluminum cup	steel cup

24. Paul took a cup made of glass out of the freezer and placed it into a container of boiling water as shown below.



He observed that the outer wall of the cup cracked. Which of the following best explains his observations?

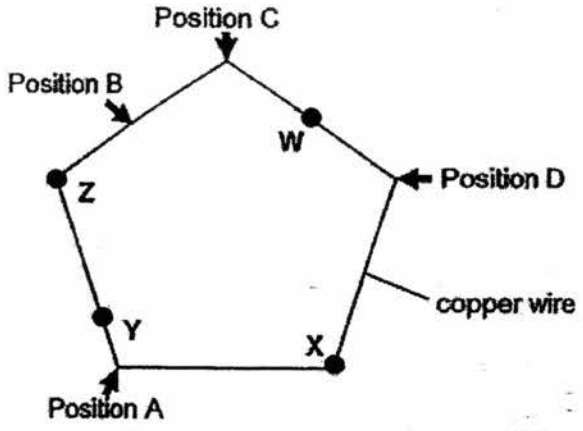
(1) The cup expanded more than it contracted.

(2) The outer wall of the cup was gaining heat but the inner wall of the cup was losing heat.

(3) The inner wall of the cup contracted faster than the outer wall of the cup.

(4) The outer wall of the cup expanded faster than the inner wall of the cup.

25. Muthu placed the same amount of wax at 4 points, W, X, Y, and Z, on a piece of copper wire that was bent into the shape of a pentagon with sides of equal length. When the copper wire was strongly heated at a certain position, the wax began to melt in the order of W, Z, Y, X.



At which position, A, B, C or D, was the wire most likely heated?

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

End of Booklet A

SEMESTRAL ASSESSMENT 2 (2017)

PRIMARY 4

SCIENCE

BOOKLET B

Thursday **2 November 2017** **1 hr 30 min**

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

INSTRUCTIONS TO PUPILS

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

2 Follow all instructions carefully.

3 There are 13 questions in this booklet.

4 Answer ALL questions.

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

Booklet	Possible Marks	Marks Obtained
A	50	
B	40	
PBA	10	
Total	100	

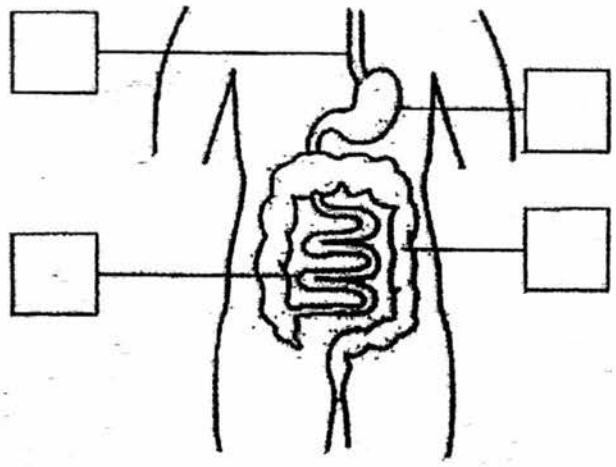
This question paper consists of 14 printed pages (inclusive of cover page).

Booklet B (40 marks)

For questions 26 to 38, write your answers in this booklet.
The number of marks available is shown in brackets [ ] at the end of each question or part question.

26. The diagram shows parts of the human digestive system.

(a) Tick (✓) the correct box to show where the stomach is. [1]



Fill in the blanks using the following words.

large intestine	gullet	small intestine	mouth

(b) Partially digested food from the stomach is next passed on to the [1]

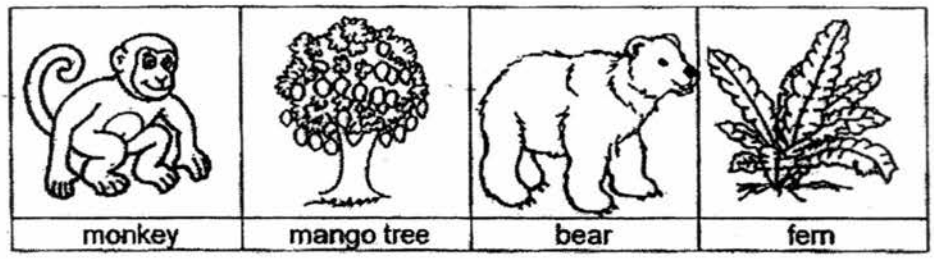
_____

(c) _____ is where water is absorbed from the undigested food. [1]

(Go on to the next page)

SCORE	/ 3

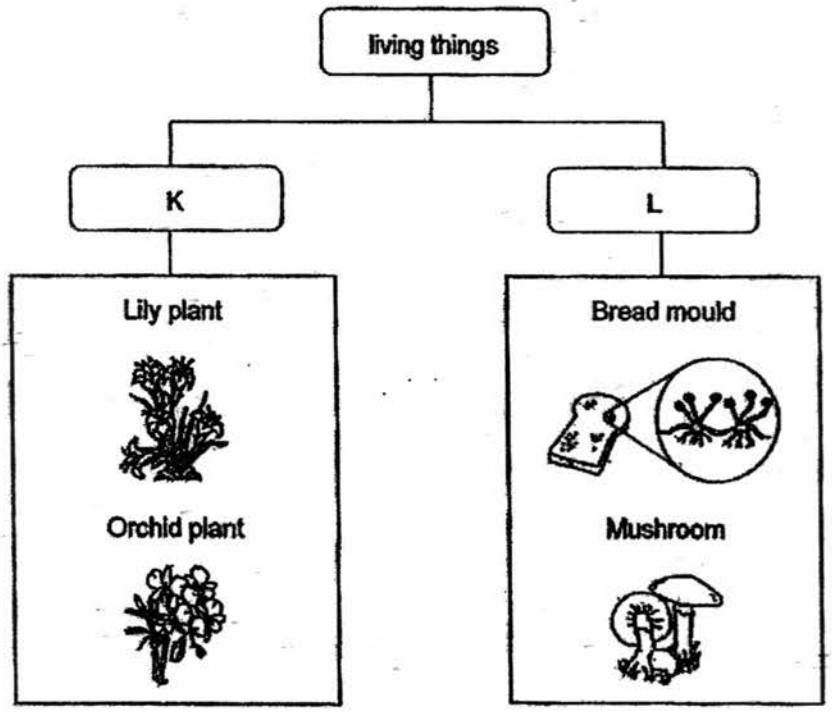
27 (a) Classify the following living things into animals and plants. [2]



monkey	mango tree	bear	fern

animals	plants

(b) Study the classification chart below.



Choose the correct words from the box to give suitable headings for K and L. [2]

flowering plants	non-flowering plants	fungi	bacteria

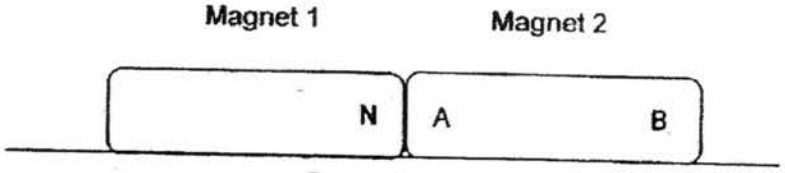
K: _____

L: _____

(Go on to the next page)

SCORE	/ 4

28. Two magnets are placed together as shown below.

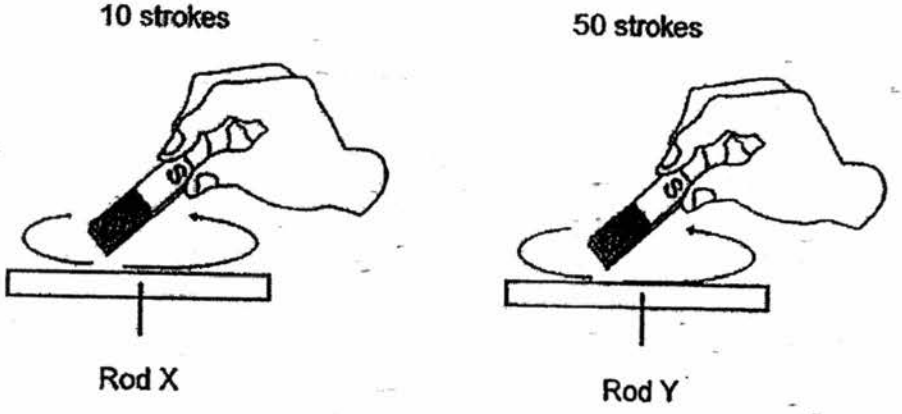


(a) The north pole of magnet 1 is labelled N.
Name the poles labelled A and B on magnet 2. [2]

A : _____

B : _____

(b) Jane stroked two identical iron rods X and Y with the same magnet as shown in the figure below.



Both rods became magnets and were used to attract identical pins.

Circle the correct answer below. [1]

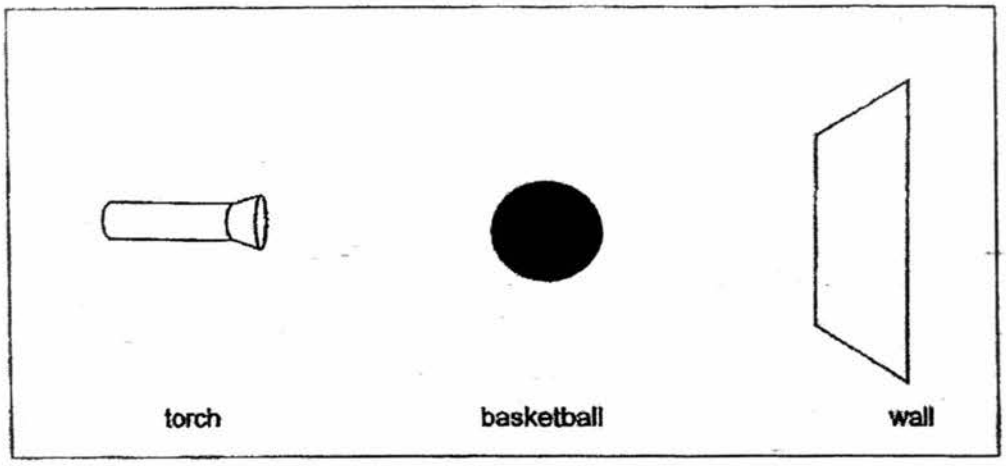
Rod X attracted _____

(fewer pins than / the same number of pins as / more pins than)

(Go on to the next page)

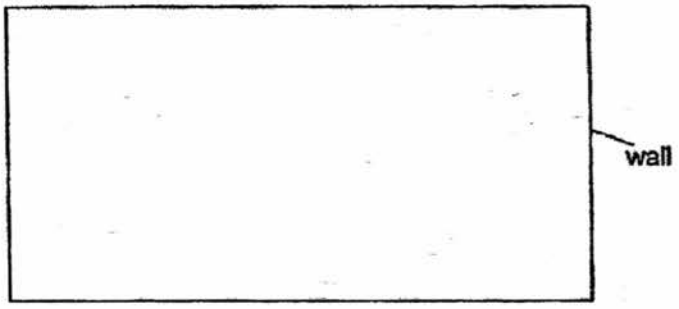
SCORE	/ 3

29. Tom shines a torch on a basketball and a shadow is formed on a wall.

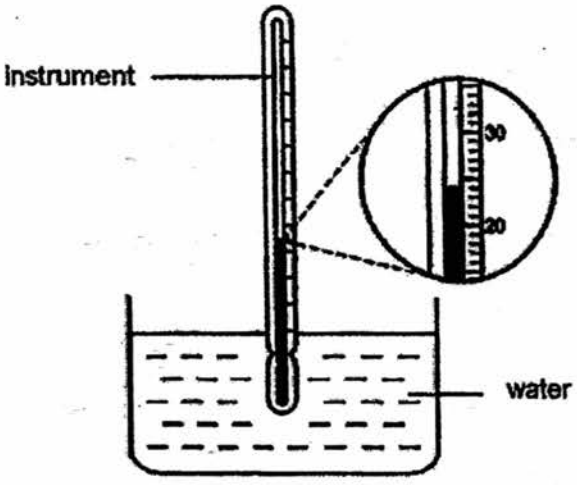


(a) A shadow is formed when light is _____ by an object. [1]

(b) Draw the shadow of the basketball that is formed on the wall. [1]



Tom used an instrument to measure the temperature of water in a glass.



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

_____

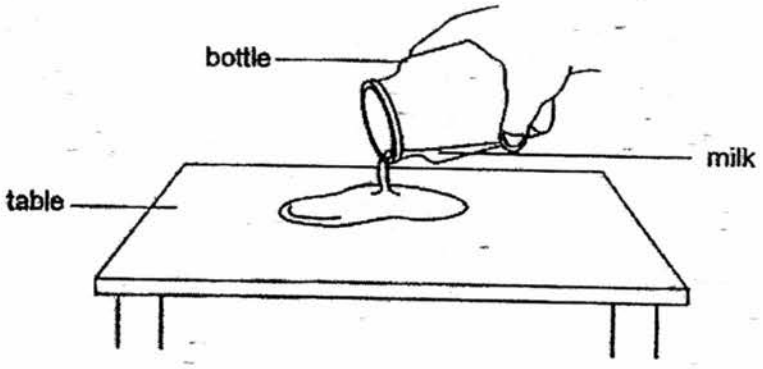
(Go on to the next page)

SCORE	
	3

30. Choose the correct words from the box to fill in the blanks below.

solid	liquid	gas

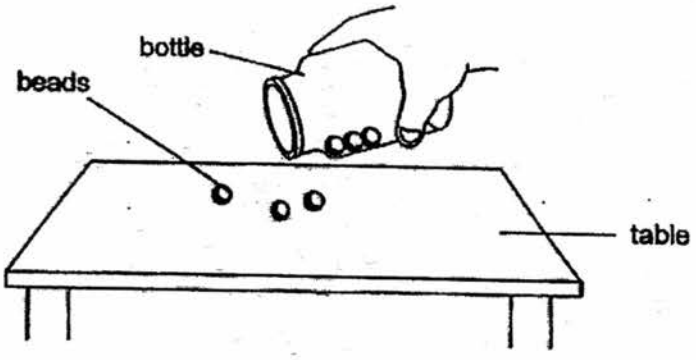
(a) Ali pours milk from a bottle onto a table as shown below.



The volume of milk remains the same but its shape changes.

This shows that milk is a _____. [1]

(b) Ali pours some beads from a bottle onto a table as shown below.



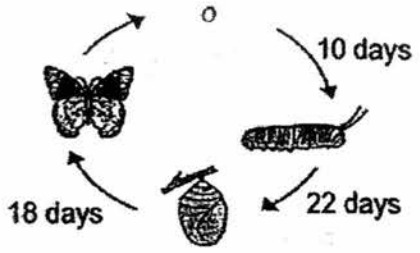
The shape and volume of the beads remain the same.

This shows that a bead is a _____. [1]

(Go on to the next page)

SCORE	/ 2

31. The picture below shows the life cycle of a butterfly. The number of days shows the time taken for the animal to grow to the next stage.

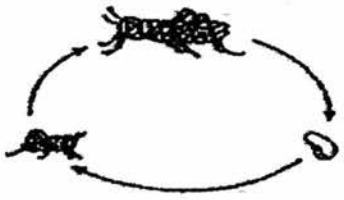


(a) Name the stage of the life cycle of the butterfly where it is considered most harmful to farmers. Explain why. [1]

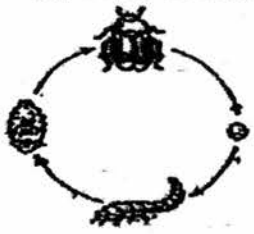
_____

_____

Study the life cycle of a grasshopper and a mealworm beetle as shown below.



Life cycle of grasshopper



Life cycle of a mealworm beetle

(b) State one similarity between the 2 life cycles above. [1]

_____

_____

Study the life cycle of the mosquito below.

(c) State one difference between the life cycle of the mosquito and the life cycle of a grasshopper. [1]

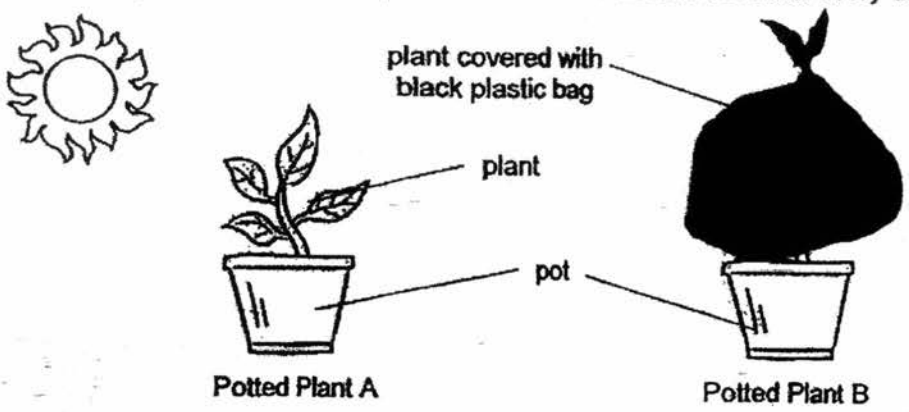
_____

_____

(Go on to the next page)

SCORE	/ 3

32. Rozie wanted to find out if light is needed for plants to grow. So, she placed two identical tomato plants in pots in her school field and covered Plant B with a black plastic bag. She watered each plant with the same amount of water every day.



(a) State two other variables which need to be kept constant so that the experiment would be fair. [1]

_____

_____

(b) What results would Rozie need to compare for her to conclude that light is needed for plants to grow well? [1]

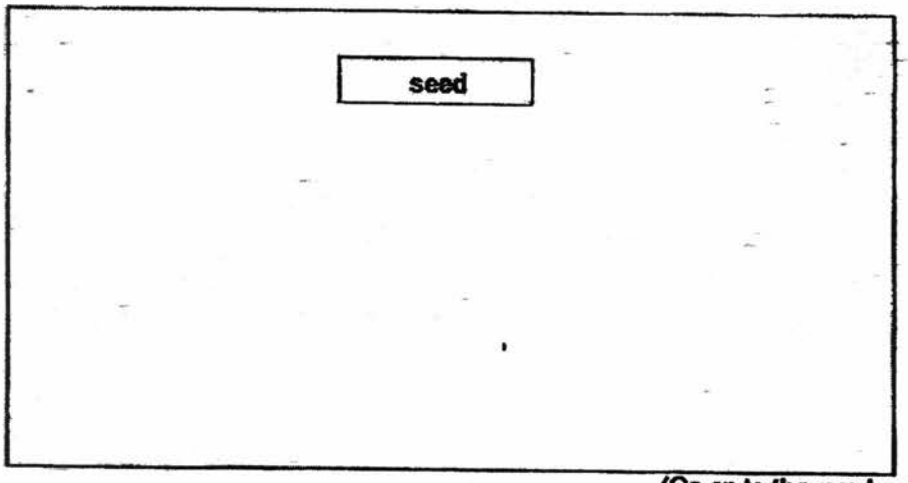
_____

_____

(c) At which stage of the life cycle of the tomato plant will flowers develop? [1]

_____

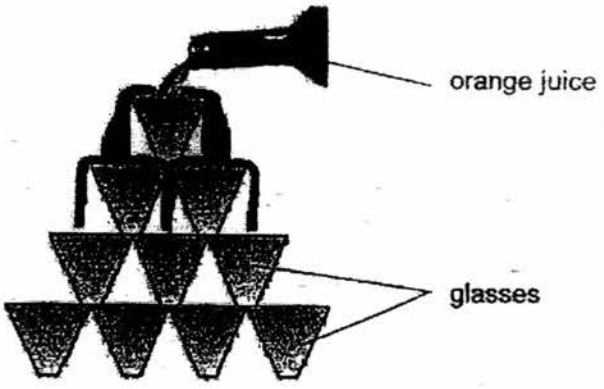
(d) Draw the life cycle of the tomato plant below starting from the seed stage. [1]



(Go on to the next page)

SCORE	/ 4

33. Anne carried out an experiment at home. She arranged some glasses in the form of a triangle stacked on top of each other as shown below. She poured orange juice into the top glass and let it flow down to the glasses at the bottom. Once all the glasses were filled to the brim, she stopped pouring.



Anne conducted the experiment again. This time she placed three ice cubes into each glass before pouring out the orange juice. As a result, Anne had to pour lesser amount of orange juice into each glass to reach its brim.

(a) State 2 properties of liquid based on Anne's

_____

_____

(b) Using the property of matter, explain how placing ice cubes into each glass resulted in lesser amount of orange juice poured.

_____

_____

(Go on to the next page)

SCORE	/ 3

34. John has three magnets, A, B and C, of the same size and mass of 100g. He set up an experiment on a table using a balance and magnets A and B as shown in diagram 1. He repeated his experiment with magnets B and C as shown in diagram 2.

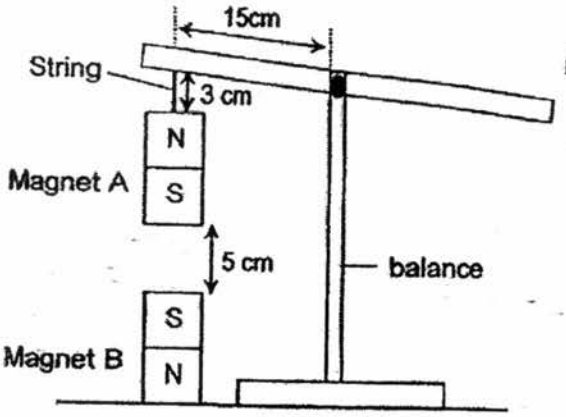


Diagram 1

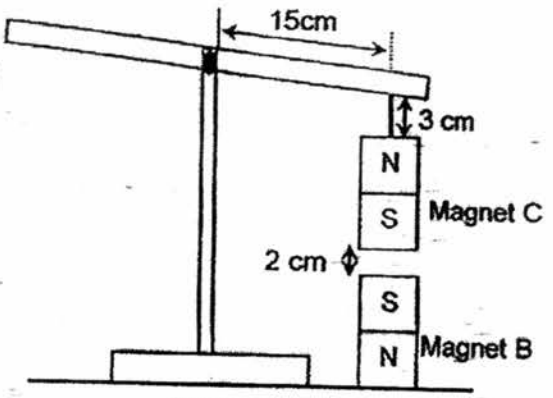


Diagram 2

John observed that the distance between Magnet A and Magnet B was 5 cm and the distance between Magnet C and Magnet B was 2 cm.

(a) Give a reason why the distance between Magnet C and Magnet B was less than the distance between Magnet A and Magnet B. [1]

_____

_____

(b) If Magnet A was flipped over, predict the new distance between Magnet A and Magnet B. Explain your prediction. [1]

_____

_____

(c) If John replaced Magnet C with an iron bar, what would he observe about the distance between the iron bar and Magnet B? Give a reason for your answer. [1]

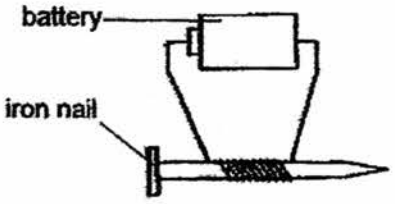
_____

_____

(Go on to the next page)

SCORE	/ 3

35. Samuel set up an experiment as shown in the diagram below. He recorded the number of iron pins attracted to the electromagnet as he increased the number of batteries in the electromagnet. He kept the distance between the electromagnet and the iron pins the same. He recorded his observations in the table below.



Electromagnet

Iron pins

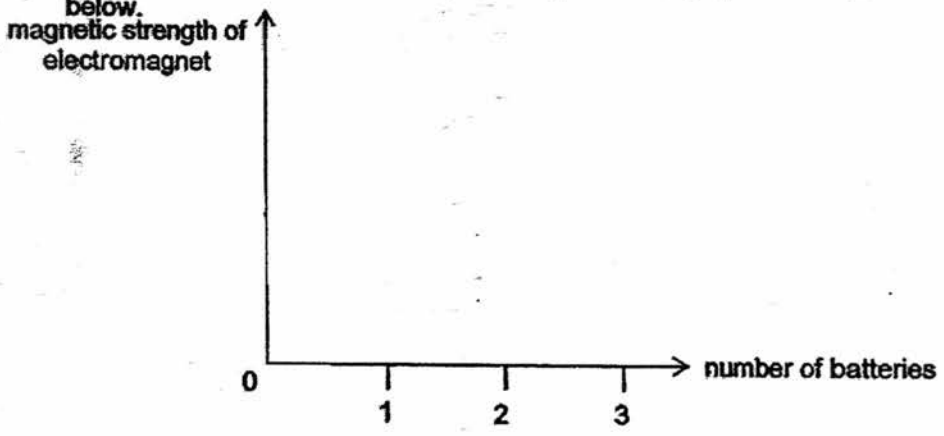
Number of batteries	0	1	2	3
Number of iron pins attracted	X	2	4	6

(a) What is the value of X? Give a reason for your answer. [1]

_____

_____

(b) Using the results of Samuel's experiment, plot a line graph in the space below. [1]



(c) Samuel changed 1 more variable and carried out the experiment again. He recorded his observations in the table below.

Number of batteries	0	1	2	3
Number of pins attracted	X	5	7	9

What variable could Samuel have changed to get the new results if he used the same iron nail? [1]

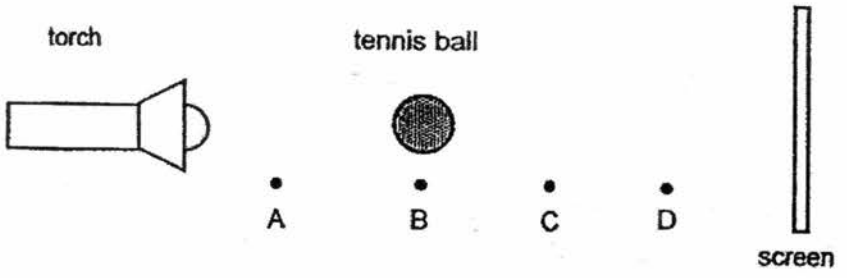
_____

_____

(Go on to the next page)

SCORE	
	3

36. Gareth conducted an experiment by placing a tennis ball of height 2 cm between a torch and a screen as shown in the diagram below.



The tennis ball is moved to several positions, A, B, C and D, between the torch and screen. At each position, the height of the shadow formed on the screen is measured and recorded in the table below.

Position of tennis ball	Height of shadow (cm)
A	12
B	9
C	7
D	5

(a) Based on the result of the experiment, what is the relationship between the distance of the tennis ball to the torch and the height of the shadow formed? [1]

_____

_____

(b) The tennis ball is moved to different positions. Predict the new height of the shadow that will be formed on the screen. Write your answers in the table below. [1]

Position of tennis ball	Height of shadow (cm)
Between A and B	
Between D and Screen	

(c) If Gareth used a clear glass ball for the experiment, what will he observe about the shadow on the screen? Give a reason for your answer. [1]

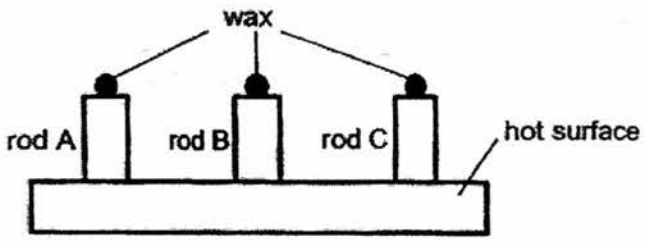
_____

_____

(Go on to the next page)

SCORE	/ 3

37. Brandon used three rods, A, B and C, of the same length but made of different materials and placed them on a hot surface as shown below. He placed the same amount of wax at the top end of each rod.



Brandon recorded the time taken for the wax to melt completely in the table below.

Rod	Time taken for wax to melt completely (minutes)
A	10
B	5
C	3

(a) Based on the results of Brandon's experiment, what is the aim of his experiment? [1]

_____

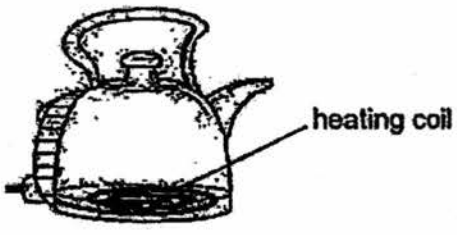
_____

(b) If Brandon increased the thickness of rod B and repeated the experiment, would the time taken for the wax to melt completely be longer or shorter? Explain your answer. [1]

_____

_____

(c) The picture below shows an electric kettle.



Which of the rods is most suitable to make the heating coil in the electric kettle? Explain your answer. [1]

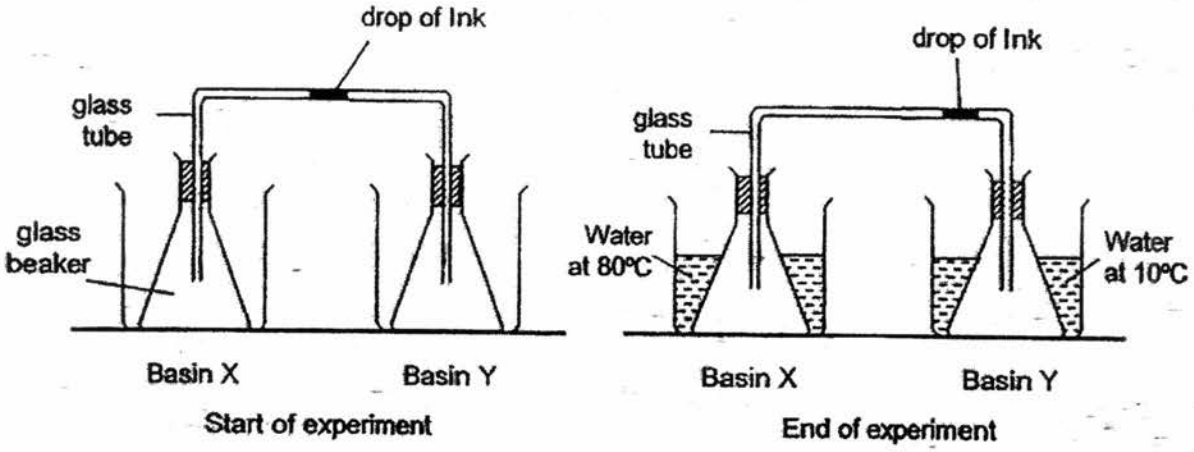
_____

_____

(Go on to the next page)

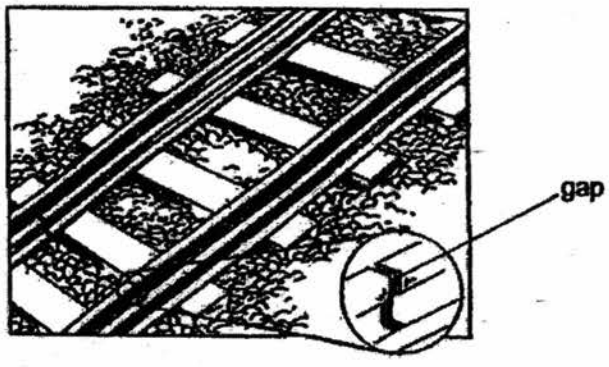
SCORE	
	3

38. Patrick set up an experiment using two identical glass beakers and two stoppers. He connected the two beakers with a glass tube which had a drop of ink in the middle at the start of the experiment. He then placed the beakers into identical basins X and Y. Patrick then poured hot water at 80°C into basin X and cold water at 10°C into basin Y. At the end of the experiment, the drop of ink moved to the right as shown below.



(a) Explain why the drop of ink moved to the right at the end of the experiment [2]

(b) The diagram below shows a train track that is made of metal.



What can be observed about the gap on a hot day? Explain why. [1]

End of Paper

SCORE	
	3

EXAM PAPER 2017 (P4)

SCHOOL : ACS

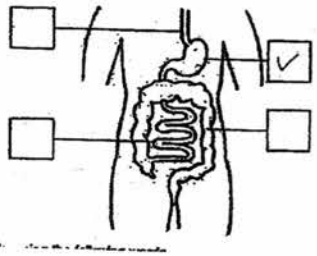
SUBJECT : SCIENCE

TERM : SA2

ORDER CALL :

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

26)a)



26)b)small intestine

c)Large intestine

27)a)

animals	Plants
monkey	mango tree
bear	fern

b)K : flowering plants

L : fungi

28)a)A: South

B: North

b)fewer pins than

29)a)blocked

b) 

c)Thermometer

30)a)liquid

b)solid

31)a)Larva it will eat the farmers plant.

b)They both have an egg stage.

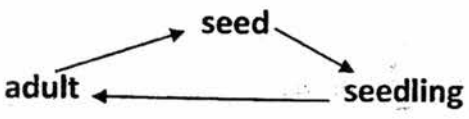
c)The life cycle of mosquito has 4 stages but the grasshopper has 3 stages in its life cycle.

32)a)The type of soil and the same type of plant.

b)Plant A grew better than Plant B.

c)Adult.

d)



33)a)Liquid occupy space and has a definite shape.

b)The ice cube takes up space in the glass there will be less space for the orange juice to fill up the glasses.

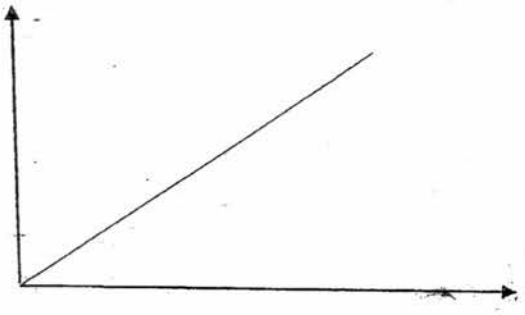
34)a)Magnet C and B were weaker than magnet A and B.

b)The unlike poles of magnet A and B are fusing each other and attracted.

c)The distance would be closer. The iron bar is a magnetic material and will be attracted to magnet B.

35)a)0. There were no batteries so it could power the electromagnet.

b)



c)Increased the number of coins around the iron nail.

36)a)The further away the torch is from the ball, the shorter the height of the shadow is.

b)10cm / 3 cm

c)Glass is a transparent object thus allows most light to pass through.

37)a)To find if different materials for the rod will affect the time taken for the wax to melt.

b)As more heat would be needed.

c)Rod C. It heats up the fastest so it will heat up the water in the kettle faster.

38)a)The heat from the water in Basin X caused the air to expand and the air in Basin Y contracted therefore the air in Basin X pushed the ink to the right.

b)It will be shorter the metal track gain heat and expanded.