



CATHOLIC HIGH SCHOOL
PRIMARY 5
SEMESTRAL EXAMINATION 1
2012

SCIENCE

Name: _____ ()

Class : Primary 5 _____

Date : 15 May 2012

30 Questions
60 Marks

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

Instructions to Candidates

Do not open this booklet until you are told to do so.
Follow all instructions carefully.
Answer all questions.

Section A : Multiple Choice Questions (60 marks)

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

1. Evonne put some plant and animal cells in a container filled with liquid P. Then she placed an equal number of plant and animal cells in a similar container filled with liquid Q. She recorded her results as shown in the table below.

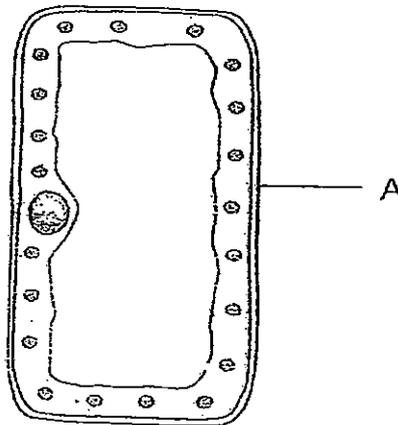
	Plant cell	Animal cell
Liquid P	Keeps its shape	Breaks into smaller pieces
Liquid Q	Keeps its shape	Shrivels up

Based on Evonne's observations, which of the following statements are correct?

- A The cell wall keeps the shape of the plant.
- B The animal cell shrivels up because it lacks the cell membrane.
- C The animal cell breaks into smaller pieces because it lacks the cell wall.
- D The cytoplasm of both animal and plant cells allows the liquid to move in and out of the cell.

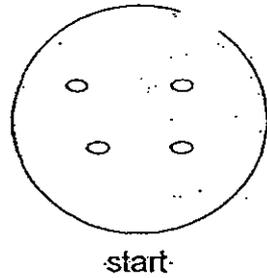
- (1) A and B only
- (2) A and C only
- (3) B and D only
- (4) C and D only

2. Which one of the following statements is true about structure A shown below?



- (1) It enables the cell to keep its shape.
- (2) It prevents substances from leaving the cell.
- (3) It prevents substances from entering the cell.
- (4) It helps trap light energy from the sun and pass it to the cell.

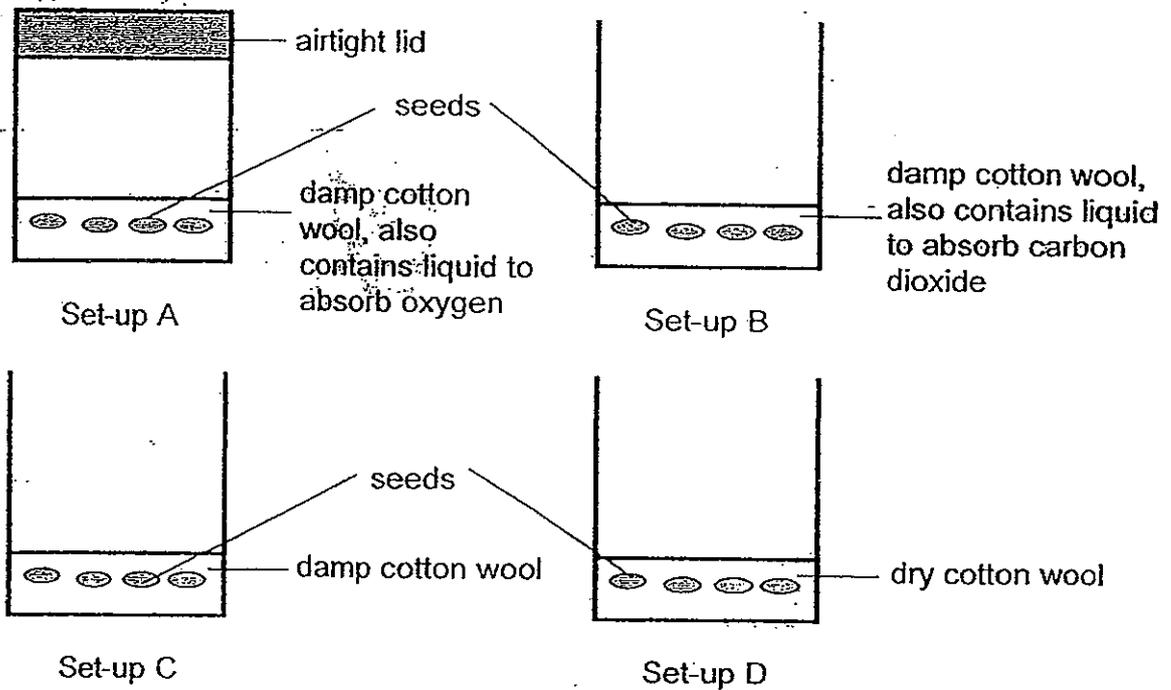
3. Kenny placed some single celled organisms in a cup of water and left it in the open for 2 weeks. He observed and drew the top view of the organisms at the start and the end of the experiment as shown in the diagram below.



Kenny observed that the number and size of the organisms increased after 2 weeks. Which of the following processes could have caused the changes?

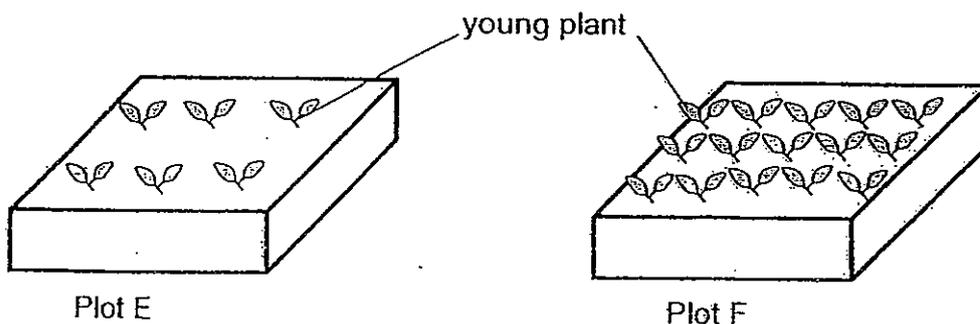
- A germination
 - B growth
 - C reproduction
 - D photosynthesis
-
- (1) A and B only
 - (2) B and C only
 - (3) C and D only
 - (4) A, B and C only

4. Jenny placed the same type of seeds in four identical beakers, as shown in set-ups A, B, C and D below. Set-ups B, C and D are not covered. The set-ups were placed at room temperature.



In which of the set-ups would germination most likely take place?

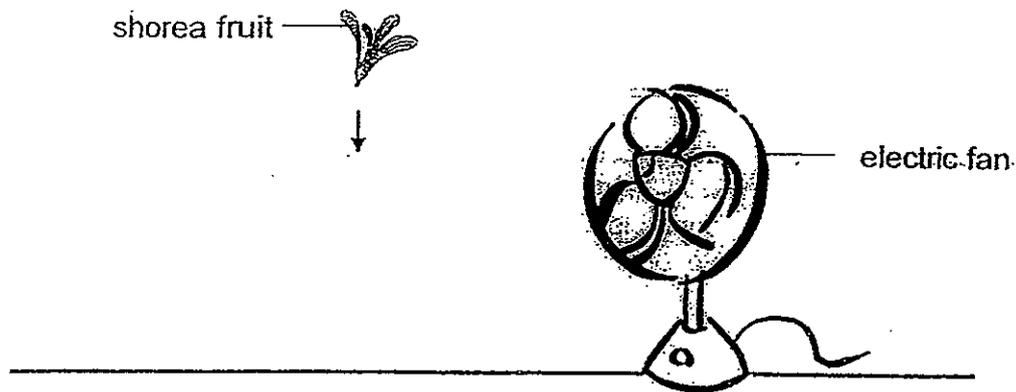
- (1) C only
 - (2) B and C only
 - (3) C and D only
 - (4) A, B and C only
5. Jack planted seeds from the same plant in two plots of soil, Plot E and Plot F, in his garden as shown below. Each plot has the same amount and type of soil. He watered each plot with the same amount of water daily.



Which of the following is most likely the aim of Jack's experiment?

- (1) To find out if the seedlings will absorb nutrients from the soil.
- (2) To find out if overcrowding affects the growth of the seedlings.
- (3) To find out if the amount and type of soil affects the growth of the seedlings.
- (4) To find out if temperature of the surroundings affects the growth of the seedlings.

6. Joshua set up an experiment to find out if the length of the wing-like structure of the shorea fruit affects the duration it remains in the air. He released the shorea in front of an electric fan and recorded how long it took for the fruit to reach the ground. He repeated the experiment with shorea fruits of different lengths of wing-like structure.

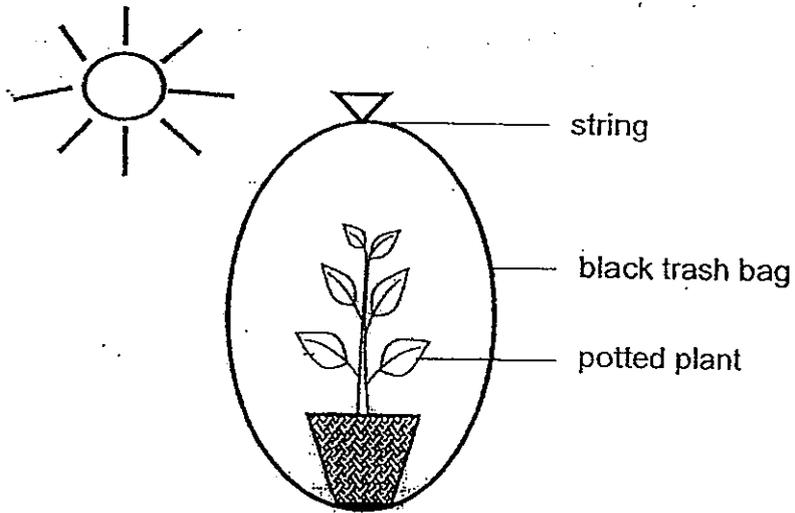


Which of the following factors must Joshua keep the same in order to ensure that it is a fair test?

- A The speed of the electric fan
- B The height from which he released the shorea
- C The time taken for the shorea to reach the ground
- D The distance between the electric fan and the shorea

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

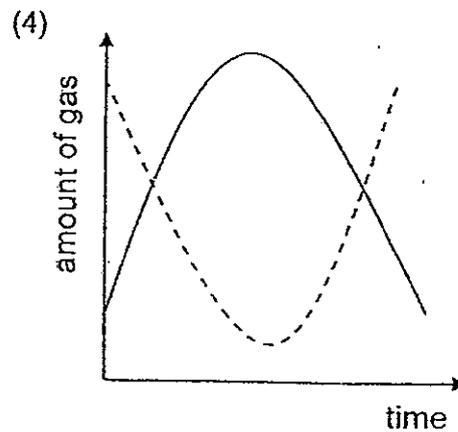
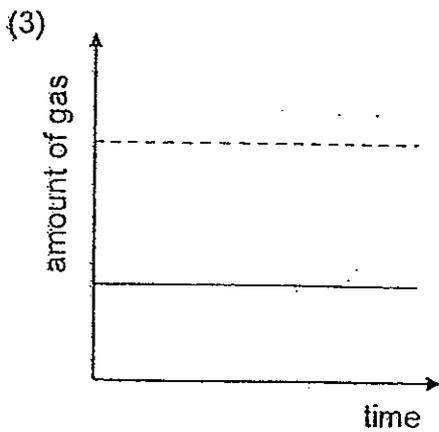
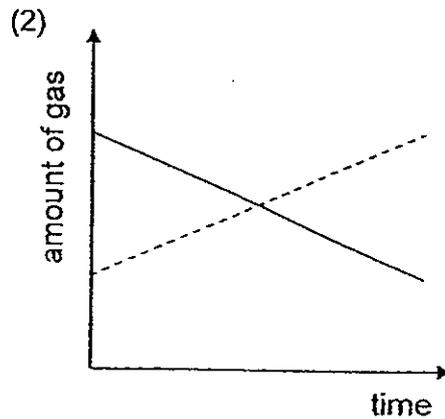
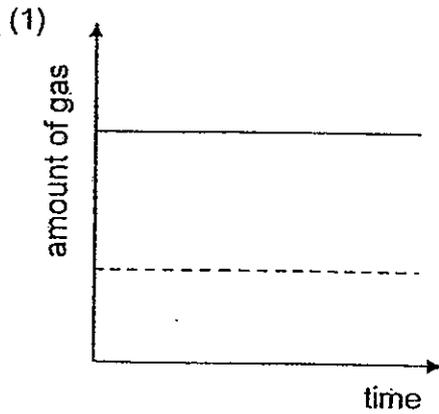
7. Alex watered a potted plant and placed it into a black trash bag. He tied the bag with a string and placed it under the Sun for a few hours in the afternoon.



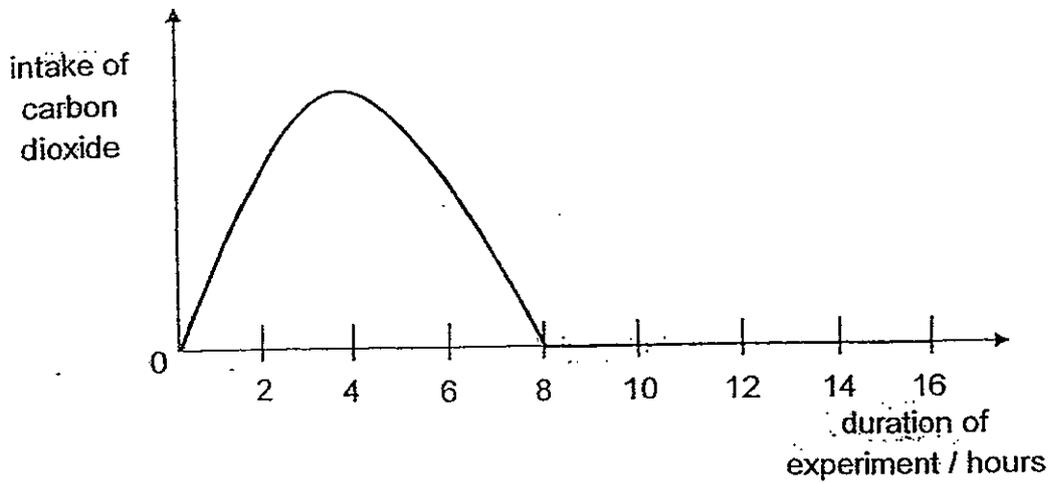
Which of the following graphs shows the changes in the amount of oxygen and carbon dioxide in the bag during that period of time?

Legend:

- carbon dioxide
- - - oxygen



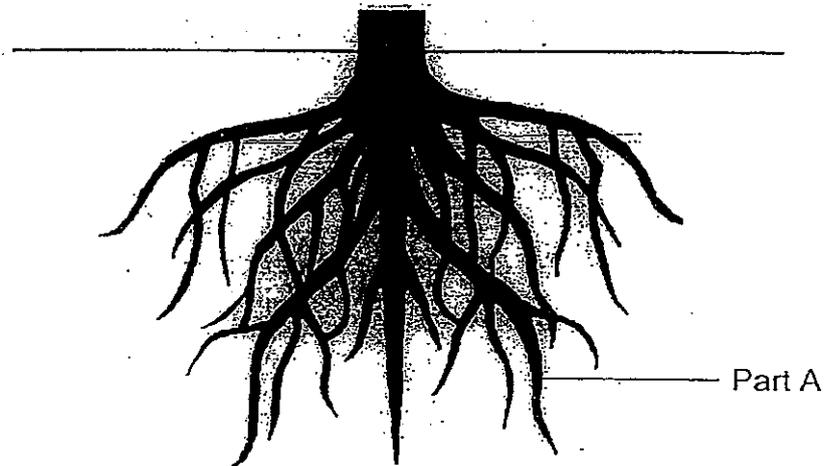
8. Jane conducted an experiment whereby she exposed a balsam plant to different light intensities over a span of 16 hours. The following graph shows the amount of carbon dioxide taken in by the plant.



How long did respiration and photosynthesis take place respectively during the experiment?

	duration of respiration / hours	duration of photosynthesis / hours
(1)	16	8
(2)	10	6
(3)	10	8
(4)	16	6

9. The diagram below shows part of a green plant.

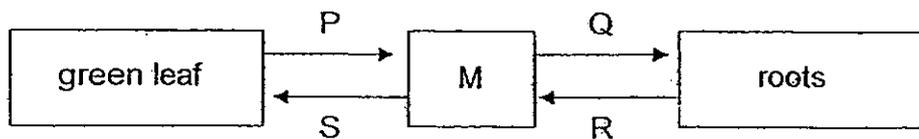


Why is Part A important to the plant?

- A It anchors the plant firmly to the ground.
- B It takes in water and mineral salts for the plant.
- C It transports nutrients and water throughout the plant.
- D It produces the food used by the plant and stores for later use.

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

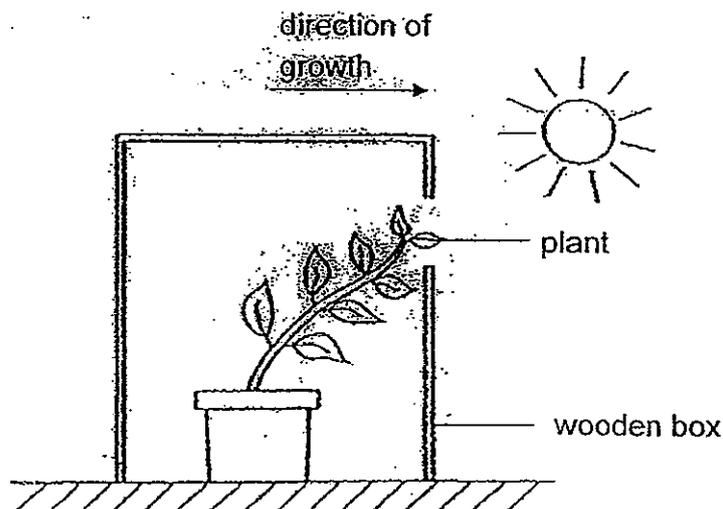
10. Refer to the flow chart below. M is part of a plant. Arrows P, Q, R and S represent the food-carrying and water-carrying tubes.



Which of the following best represents the substances that are transported by the arrows P, Q, R and S respectively?

	P	Q	R	S
(1)	water	water	food	food
(2)	water	food	water	food
(3)	food	water	food	water
(4)	food	food	water	water

11. Daniel conducted an experiment to show that plants display characteristics of living things. He set up a potted plant inside a wooden box with a small opening. He watered the plant daily. The diagram below shows the potted plant one week later.

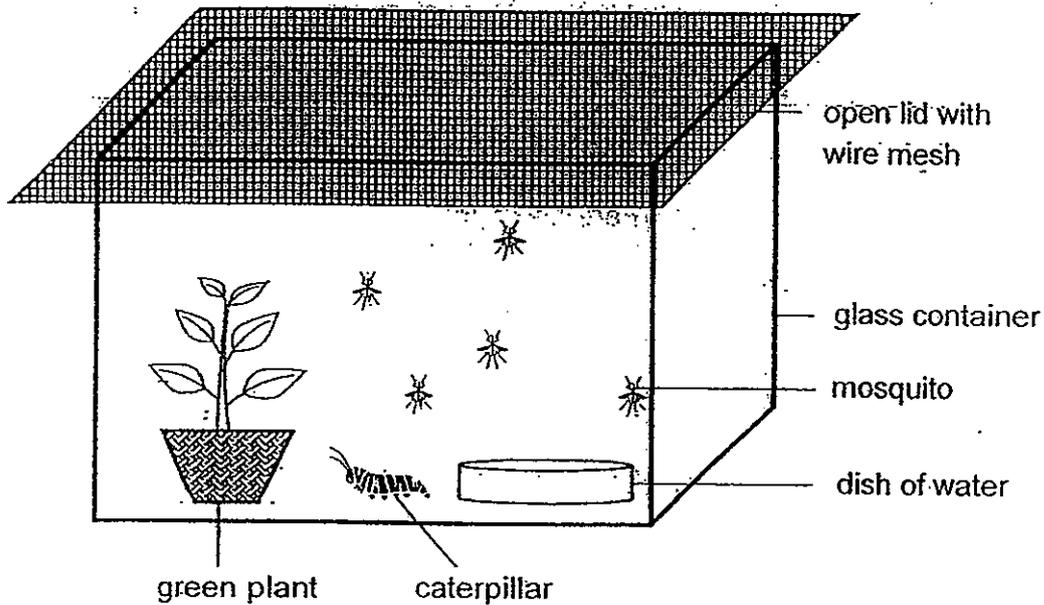


Which characteristics of living things were shown in Daniel's experiment?

- A Plants can reproduce.
- B Plants can respond to changes.
- C Plants can move freely on their own.
- D Plants need air, water and sunlight to grow.

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

12. Jonathan placed a caterpillar into a glass container with some insects and a pot of green plant as shown in the diagram below.



After six hours, what is most likely to happen to the number of insects and number of green leaves?

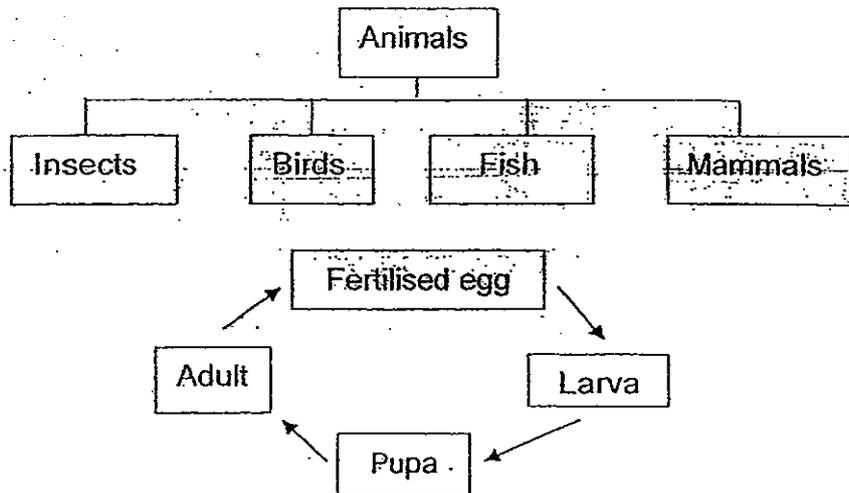
	number of insects	number of green leaves
(1)	decreases	decreases
(2)	increase	no change
(3)	no change	decreases
(4)	decrease	no change

13. Which of the following shows the similarities between the plant and the human circulatory system?

- A Both systems transport water.
- B Both systems have tubes to transport materials.
- C Both systems transport oxygen and carbon dioxide.
- D Both systems take in oxygen and remove carbon dioxide.

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

14. The table below shows the classification of animals.



Which group of animals may have a similar life cycle as shown above?

- (1) Fish
- (2) Birds
- (3) Insects
- (4) Mammals

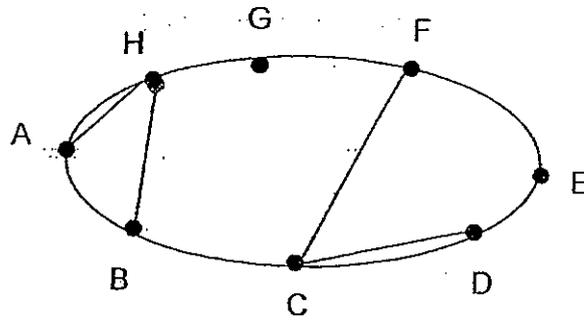
15. Jane observed two animals and recorded her observations in the table below.

Observation	Animal X	Animal Y
It has six legs.		✓
Eggs are laid in water.	✓	
There are four stages in its life cycle.		

What can Animal X and Y be?

	Animal X	Animal Y
(1)	Toad	Spider
(2)	Guppy	Dragonfly
(3)	Chicken	Housefly
(4)	Frog	Grasshopper

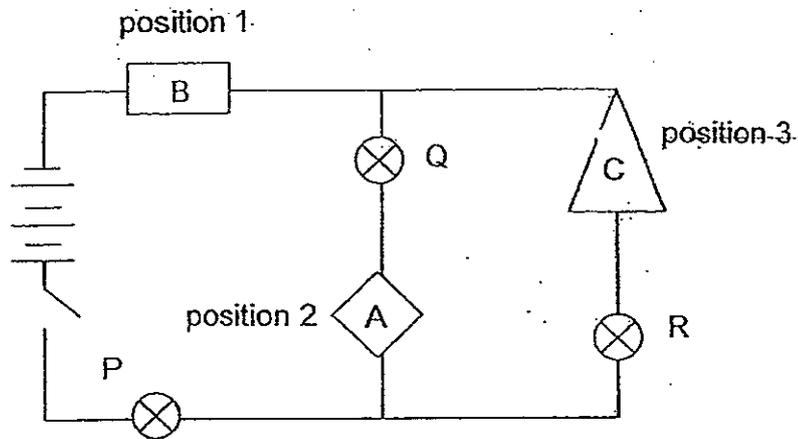
16. Mr. Ahmad set up a circuit tester and connected the following points on the circuit board as shown in the diagram below.



Which two points must be connected in order for the bulb to light up?

- A A and D only
 - B E and H only
 - C A and C only
 - D F and D only
-
- (1) D only
 - (2) A and C only
 - (3) A and D only
 - (4) A, B and C only

17. Study the circuit diagram as shown below.



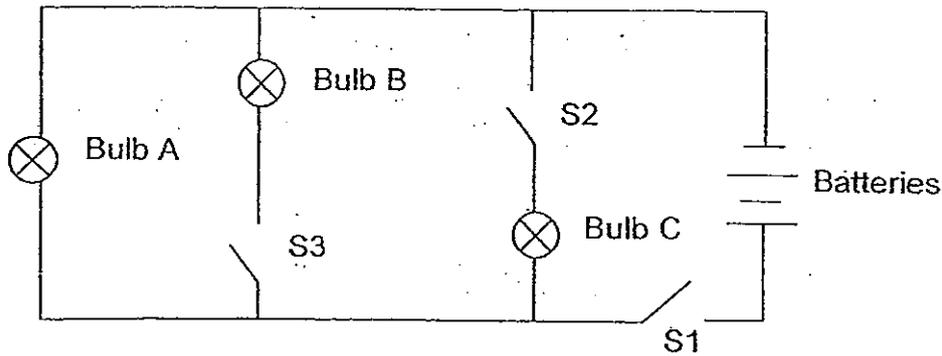
Three different materials, A, B and C, were placed at positions 1, 2 and 3. All the bulbs were identical and functioning properly prior to the experiment.

When the switch was closed, it was observed that bulbs P and R lit up but not bulb Q. The positions of materials A, B and C were then rearranged.

Which of the following is a possible observation?

	Position			Bulb		
	1	2	3	P	Q	R
(1)	A	B	C	lit	unlit	unlit
(2)	A	C	B	lit	unlit	lit
(3)	C	B	A	lit	lit	unlit
(4)	B	C	A	unlit	unlit	unlit

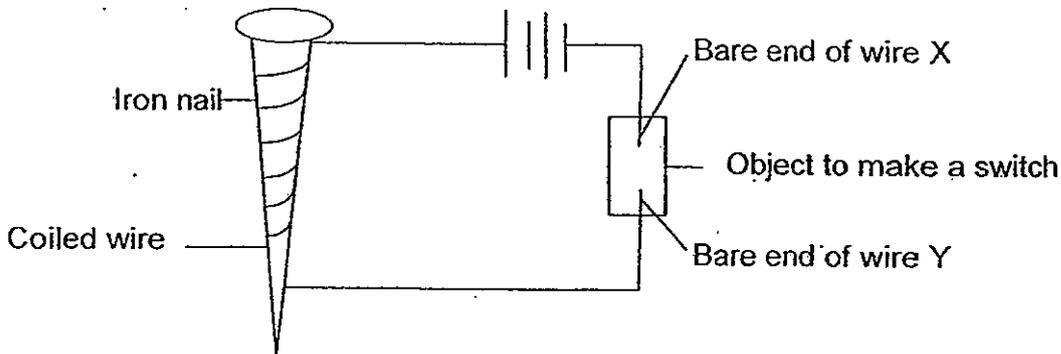
18. Study the diagram of an electric circuit below.



In which order must you close the switches so that Bulb A lights up first, followed by Bulb B and then Bulb C?

	First	Second	Third
(1)	S1	S2	S3
(2)	S3	S2	S1
(3)	S2	S3	S1
(4)	S1	S3	S2

19. Lionel wanted to make an electromagnet using an iron nail. He set up the circuit as shown below.



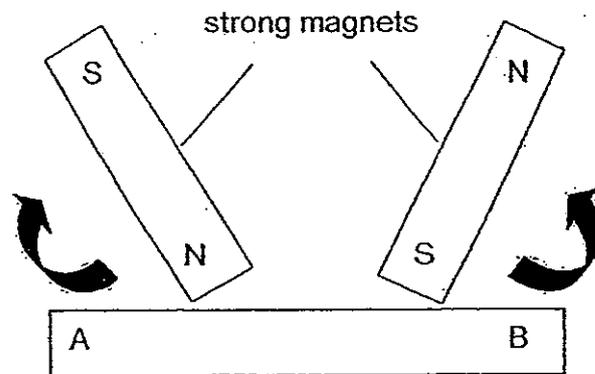
He needed an object to make a switch for the circuit. He wanted to place this object such that it touched the bare ends of wire X and wire Y as shown in the diagram. When he wanted electricity to flow through, he would make both the bare ends of wire X and wire Y touch this object. When he wanted to open the circuit, he would lift the bare end of wire Y such that it would not touch the object.

Which of the following could he use?

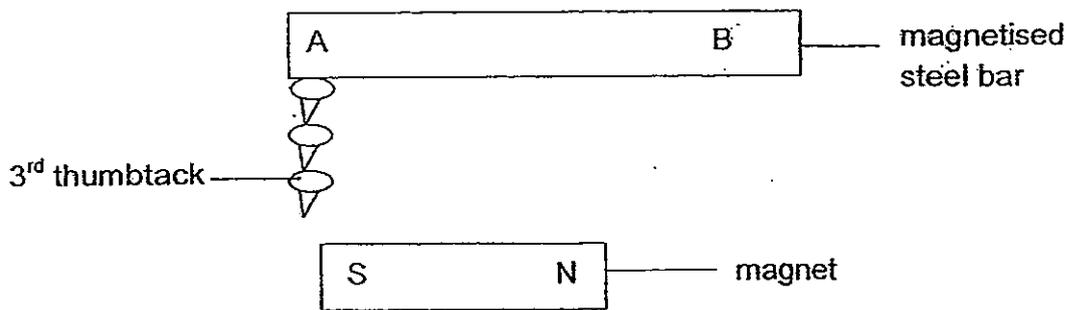
- A Copper rod
- B Piece of cloth
- C Aluminium foil
- D Iron paper clip
- E Piece of paper

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

20. Peter magnetised a steel bar, AB, with two strong magnets as shown.



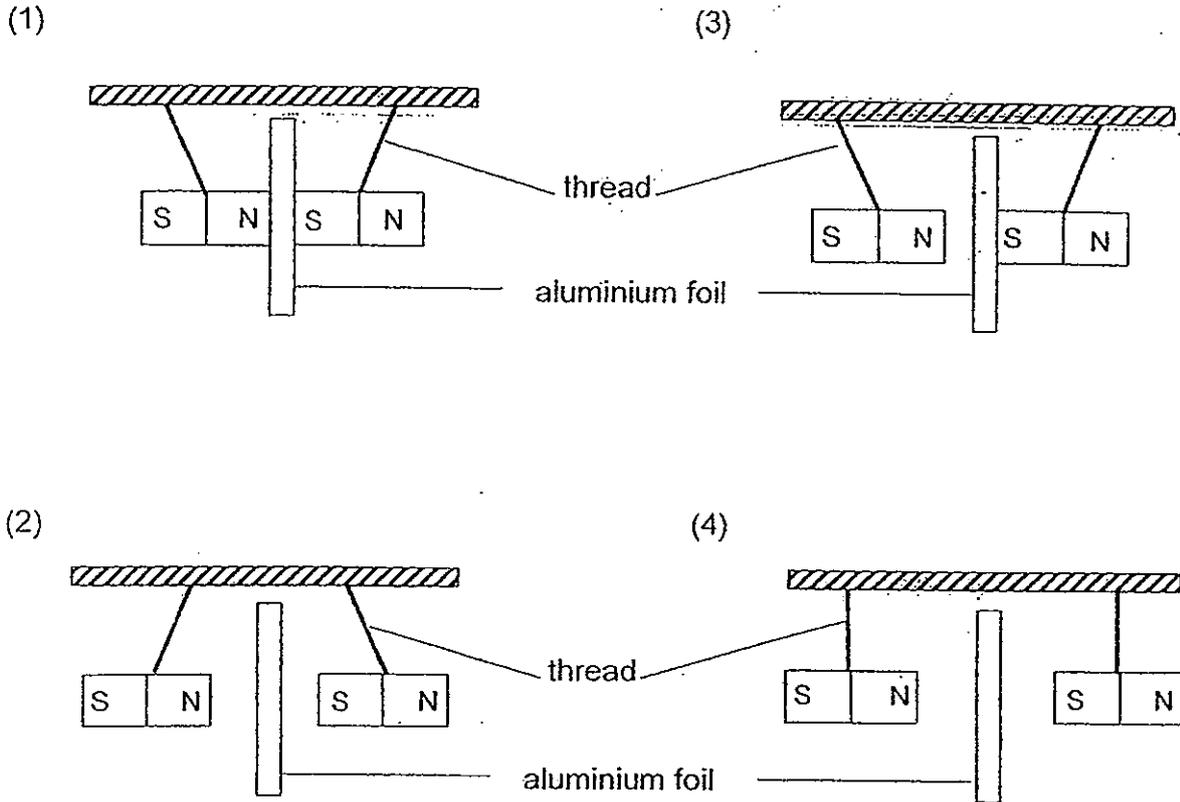
Three thumbtacks were attracted to the magnetised steel bar. Peter brought one end of a strong bar magnet close to the tip of the 3rd thumbtack as shown below.



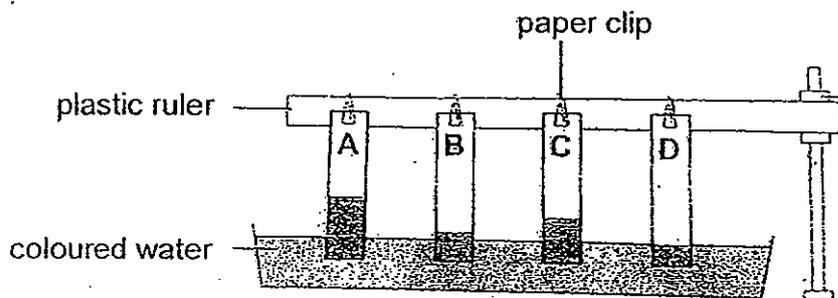
Which one of the following was possibly observed by Peter?

- (1) The 3rd thumbtack did not move.
- (2) The 3rd thumbtack fell to the ground.
- (3) The 3rd thumbtack moved towards the magnet.
- (4) The 3rd thumbtack moved away from the magnet.

21. Two bar magnets suspended by threads are separated by a thin piece of aluminium foil. Which of the following diagrams correctly shows what will happen when the magnets are brought closer together?



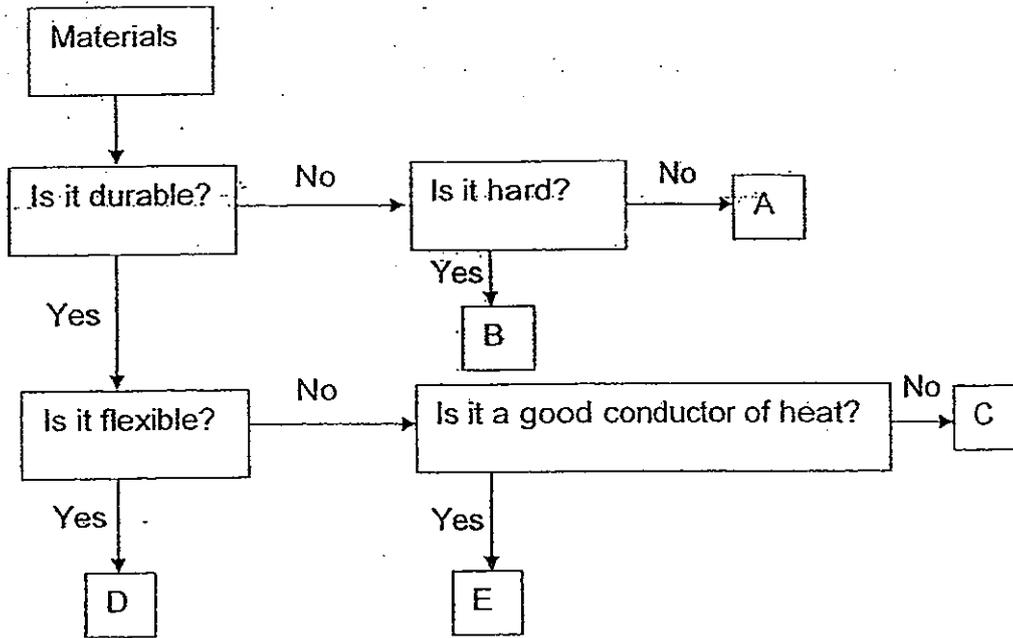
22. A company that makes diapers carried out an experiment to find out which material absorbs water the best. The results are shown in the diagram below.



Which of the materials is most suitable to be used to make diapers?

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

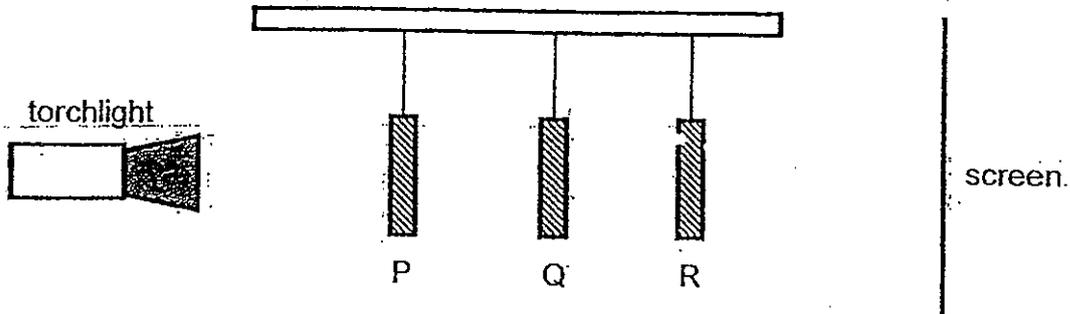
23. The flow chart shown below shows the properties of some materials.



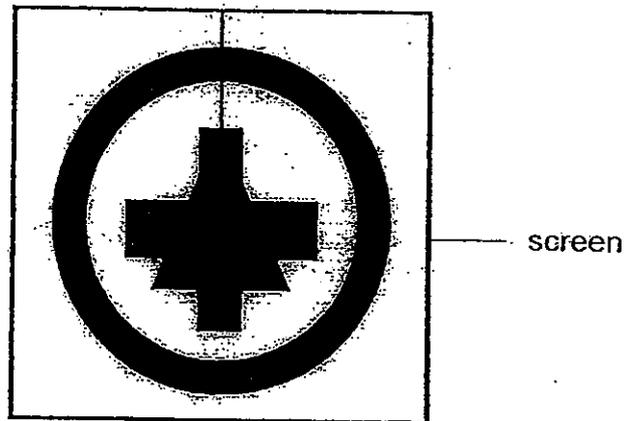
Which materials, A, B, C, D and E, have properties suitable to be made into a porcelain vase, a newspaper and the base of an aluminium pot?

	Porcelain vase	Newspaper	Base of aluminium pot
(1)	C	B	E
(2)	C	A	E
(3)	D	B	C
(4)	D	A	C

24. Ben set up an experiment as shown in the diagram below. He used a torchlight and shone it on three shapes P, Q and R which are made of cardboard. All shapes have the same height. The shapes are placed at different distances away from the torchlight.



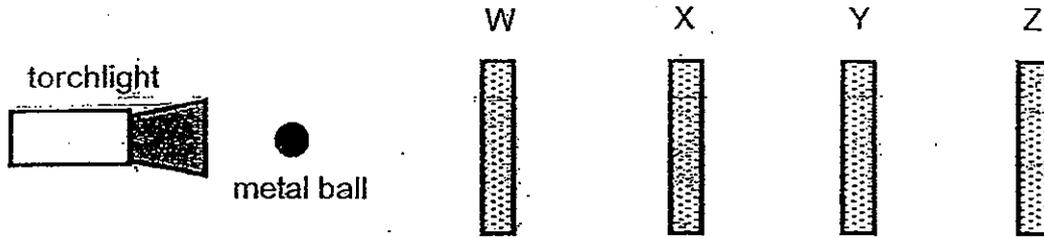
The next diagram (not drawn to scale) shows what Ben saw on the screen.



Which one of the following correctly represents shapes P, Q and R respectively?

	P	Q	R
(1)	ring	cross	triangle
(2)	triangle	ring	cross
(3)	triangle	cross	ring
(4)	cross	triangle	ring

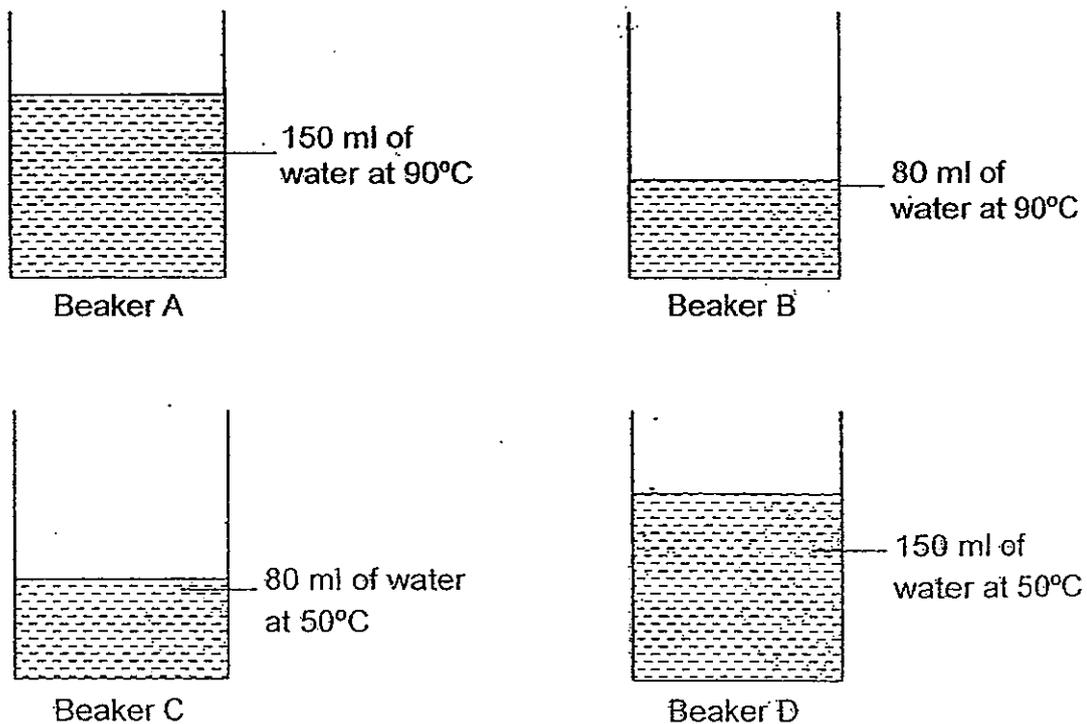
25. Mingfa conducted an experiment to investigate if light could pass through four sheets, W, X, Y and Z which are made of different materials. When the torch was switched on, the shadow of the metal ball was cast on sheet Y.



Which one of the following best describes the property of sheets W, X, Y and Z?

Does it allow light to pass through?			
W	X	Y	Z
(1) yes	yes	cannot tell	no
(2) cannot tell	yes	no	yes
(3) yes	yes	no	cannot tell
(4) yes	yes	no	yes

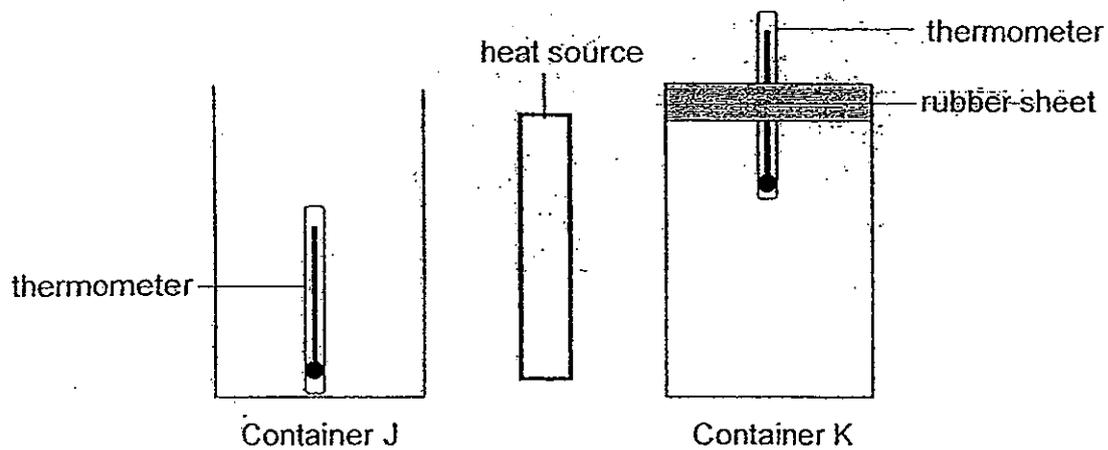
26. Bryan filled four identical beakers with different amounts of water of different temperatures as shown in the diagrams below.



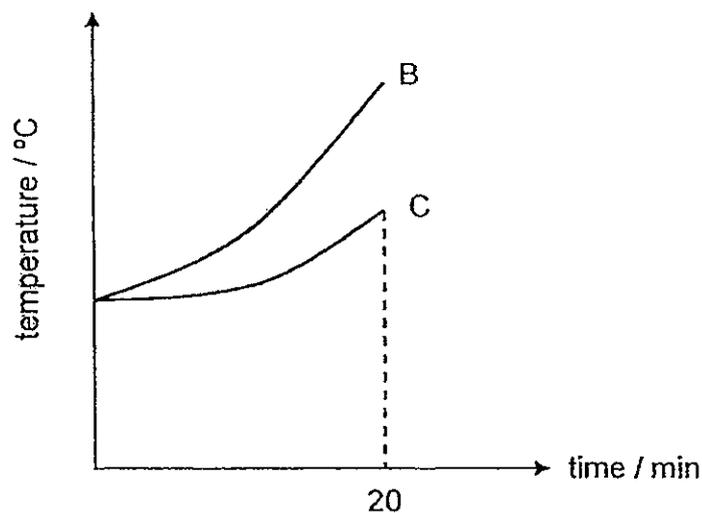
Which beaker contains the most amount of heat?

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

27. Cheryl placed a heat source at the same distance away from two identical containers J and K. Container J has an open lid whereas Container K is covered tightly with a piece of rubber sheet, as shown in the diagram below.



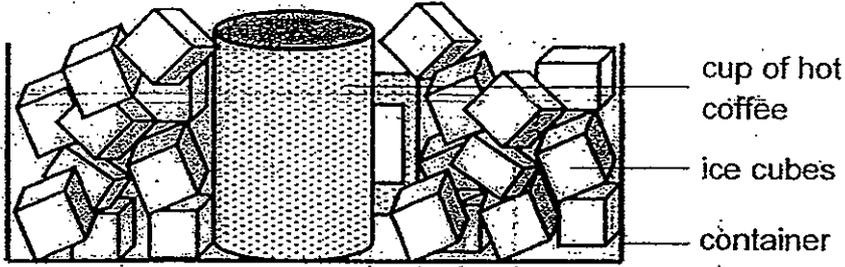
Cheryl recorded the temperature of air in both containers for over 20 minutes as shown in graphs B and C.



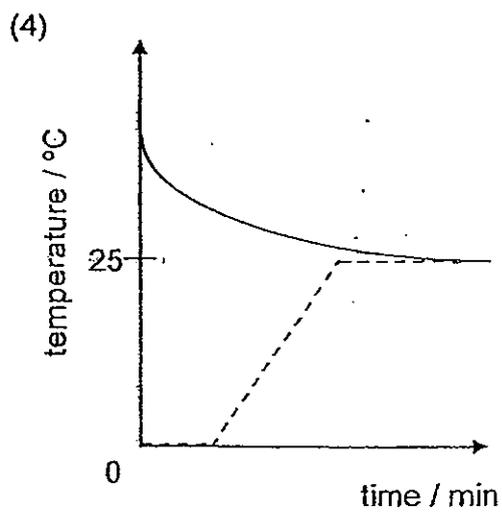
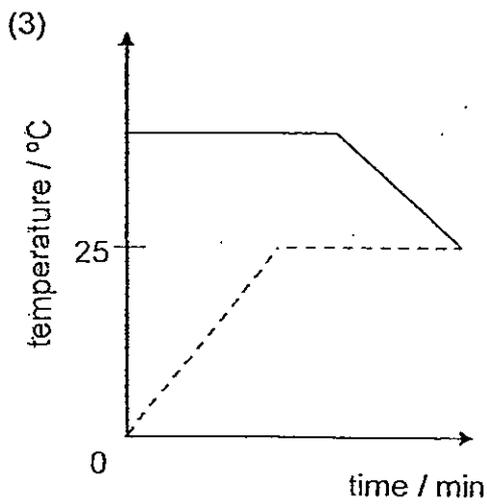
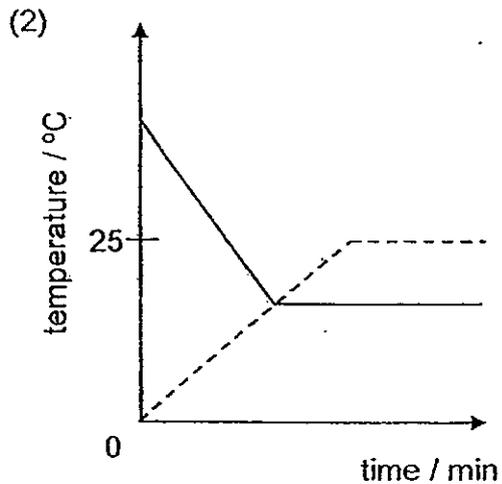
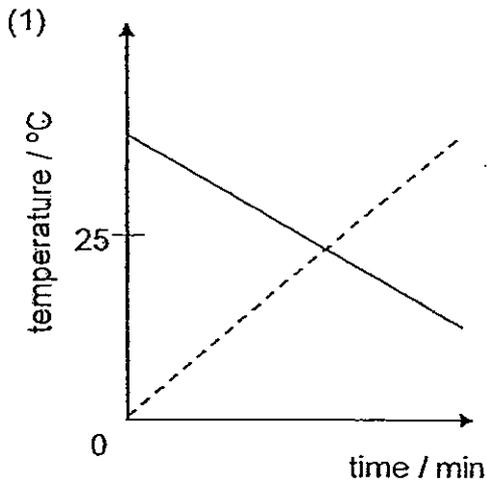
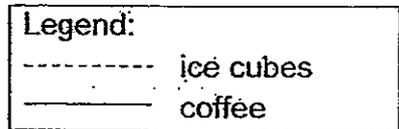
Which one of the following represents correctly the graph and the explanation of results for Container J?

	graph	explanation of results
(1)	C	has more heat
(2)	B	has more heat
(3)	C	has less heat
(4)	B	has less heat

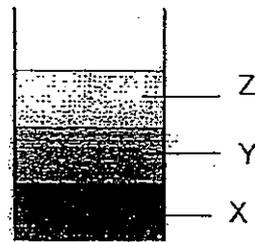
28. Melvin placed a cup of hot coffee in a container filled with ice cubes. He recorded the temperature of the coffee and ice cubes over the next two hours.



Which graph best shows the changes in temperature of the hot coffee and ice cubes?



29. Three liquids X, Y and Z were mixed together. After a while, the liquids separated into three layers, as shown in the diagram below.

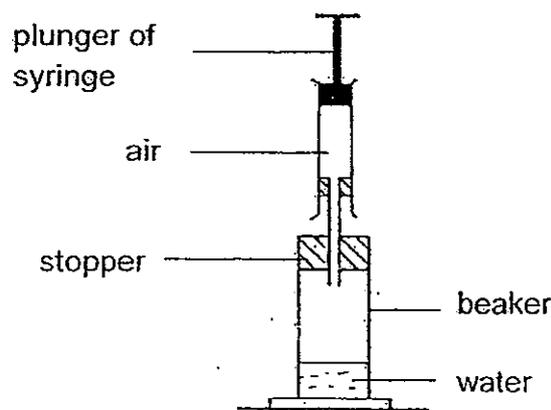


The experiment shows that _____

- A X is the heaviest liquid.
- B Z is the heaviest liquid.
- C Y is lighter than X but heavier than Z.
- D When liquids are mixed, they separate out randomly.

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

30. Amelia filled a 300 cm³ beaker with 100 cm³ of water. She then attached a 100 cm³ syringe full of air to the beaker as shown in the diagram.



Amelia pushed the plunger of the syringe such that all the air in the syringe was pumped into the beaker. What would the maximum volume of air in the beaker be?

- (1) 150 cm³
- (2) 200 cm³
- (3) 250 cm³
- (4) 300 cm³



CATHOLIC HIGH SCHOOL
PRIMARY 5
SEMESTRAL EXAMINATION 1
2012

SCIENCE

Name: _____ ()

Class : Primary 5 _____

Date : 15 May 2012

BOOKLET B

14 Questions
40 Marks

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

Instructions to Candidates

Follow all instructions carefully.
Answer all questions.

Parent's Signature: _____

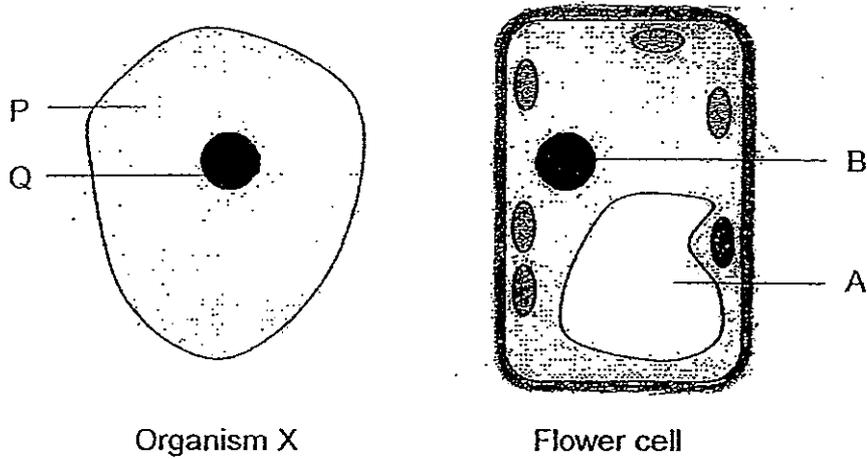
Date: _____

Score	
Section A	60
Section B	40
Total	100

Section B : Open-Ended Questions (40 marks)

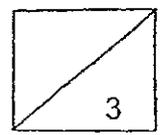
Read the following questions carefully and write your answers in the space provided. The maximum marks that can be awarded are shown at the end of each question or part-question.

31. A scientist wanted to create flowers that can glow in the dark. Thus he obtained the glowing genes from organism X and injected it into one part of a flower cell.

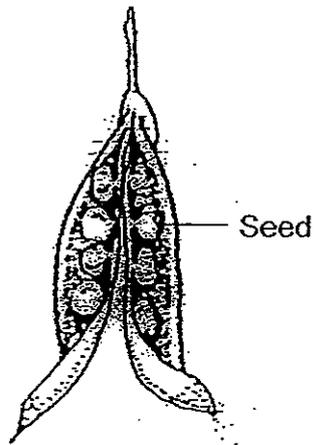


- a) Identify the part of the cell where the gene is [1]
(i) obtained from organism X: _____
(ii) injected into the flower cell: _____
- b) State two functions of the part identified in (a)(i). [2]
(i) _____

(ii) _____



32. The diagram below shows two fruits, Y and Z (not drawn to scale). Fruit Z has soft hair.



Fruit Y

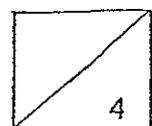


Fruit Z

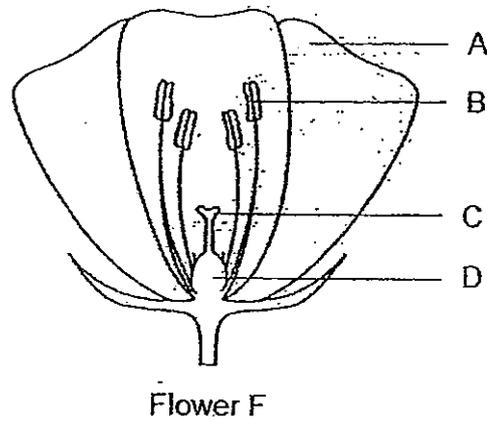
- a) In the table below, name the most likely method of dispersal for each fruit and a characteristic that aids them in their dispersal. [2]

Fruit	Method of dispersal	Characteristic that aid in dispersal
Y		
Z		

- b) Why do plants disperse their seeds? [2]



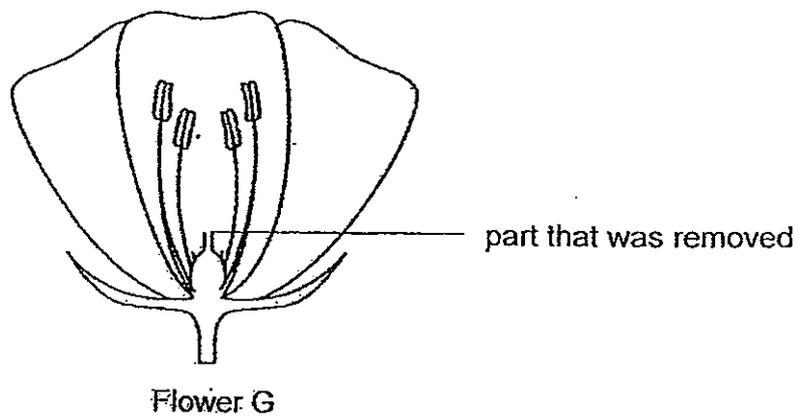
33. Jason conducted an experiment to find out if the parts of a flower were necessary to form a fruit. He removed two parts of the flower F. He transferred some pollen grains from another similar flower G to the remaining parts of flower F. After some time, flower F developed into a fruit.



- a) Which two parts of the flower F had he removed?

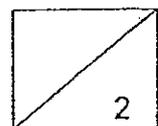
[1]

Jason then removed a part of flower G as shown in the diagram below.

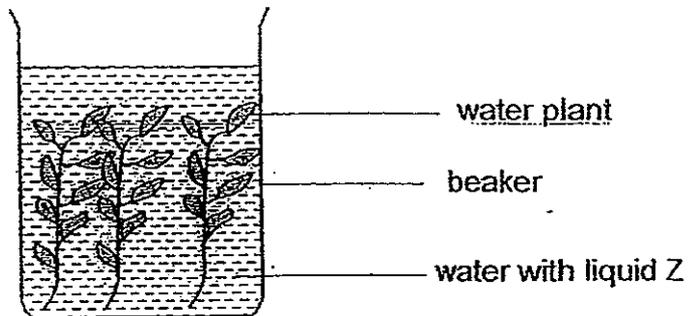


- b) Jason observed that flower G had developed into a fruit after 2 weeks. Explain how this could be possible.

[1]



34. Sam conducted an experiment to find out how water plants affect the percentage of dissolved carbon dioxide in water at different times of the day. He used the set-up below.



He placed the above set-up near a window and added a few drops of liquid Z to the beaker of water. Liquid Z changes colour according to the percentage of dissolved carbon dioxide in the water as shown in the table below.

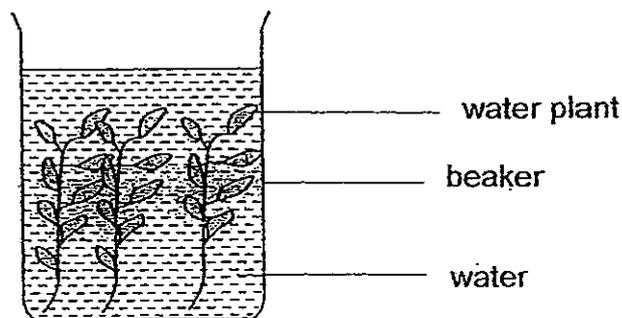
percentage of dissolved carbon dioxide in water	less than 0.03%	normal (0.03%)	more than 0.03%
colour of water with liquid Z	purple	red	yellow

- a) Write down the colour of the water with liquid Z at 12 noon and 11 p.m. [1]

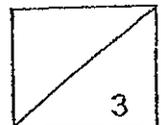
Colour of water at 12 noon: _____

Colour of water at 11 p.m.: _____

b)

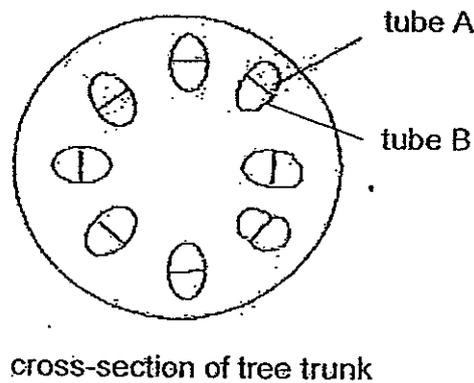
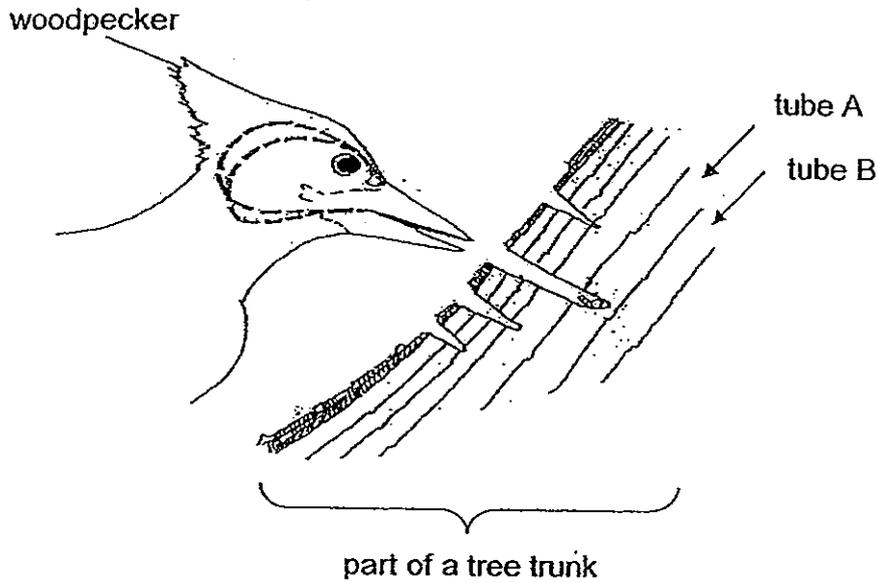


Sam wanted to find out how the number of water plants affects the rate of photosynthesis. His friend Ravi said that he also needs a control for this experiment. What changes to his experiment should he make? [2]

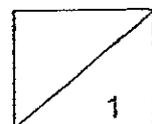


35. During a science lesson, Mrs Chew taught the pupils that the transport system of plants consists of two tubes: water-carrying tubes and food-carrying tubes. She gave the class an example.

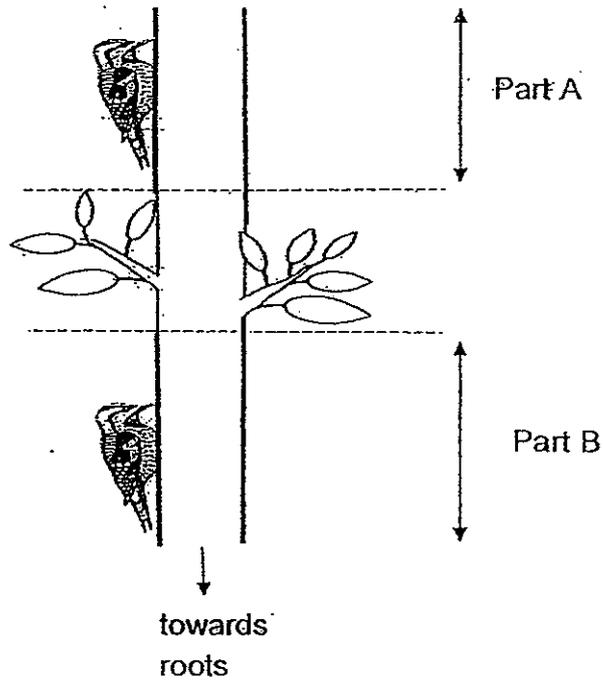
She said, "Woodpeckers are birds which have sharply-pointed beaks. They use their beaks to chisel small holes into barks of trees and feed on tree sap (food made by trees) as shown in the diagrams below."



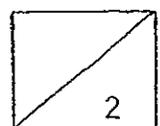
- a) Based on the diagrams above, must the woodpecker chisel up to Tube A only or all the way to Tube B in order to get the tree sap? Give a reason for your answer. [1]



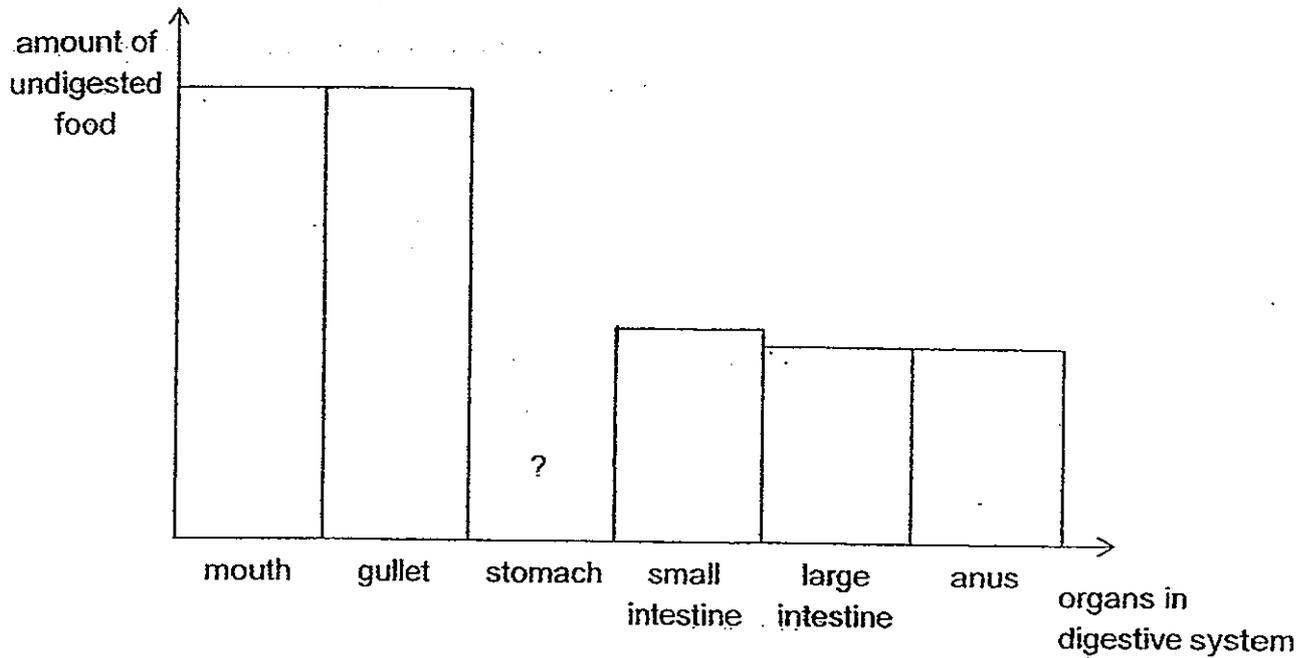
The pupils observed that woodpeckers would usually land at Part A and Part B of the tree where there were no leaves, as shown in the diagram below.



b) Is there tree sap at Part A, Part B or both parts for the birds? Explain your answer. [2]



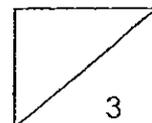
36. The diagram below shows the amount of undigested food as it passes from the mouth to the anus.



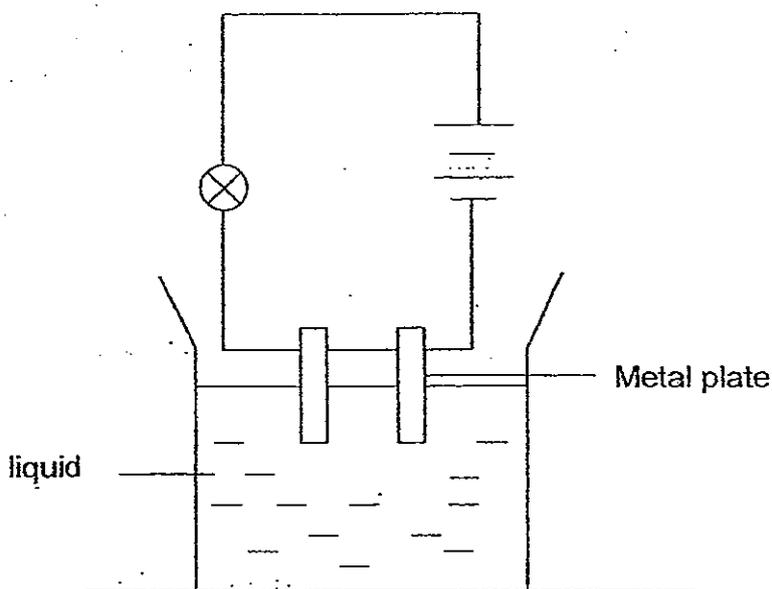
a) Complete the bar graph to show the amount of undigested food at the stomach. [1]

b) Based on the graph, what can you conclude about digestion of food at the gullet, large intestine and anus? [1]

c) The digestion of starch begins in the mouth where starch is broken down into simple sugars. Which part(s) of the digestive system can simple sugars be found after Joseph chews and swallows some rice? [1]



37. Gen set up an experiment to find out which liquids conduct electricity.

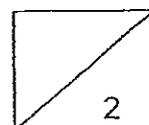


Each time a new liquid was tested, a similar set-up was used. She recorded her observations in the table shown below.

Bulb lit up	Bulb did not light up
vinegar	pure cooking oil
seawater	pure water

a) State one variable that must be kept constant so that the experiment is a fair one. [1]

b) Gen inferred that vinegar is a better conductor of electricity than seawater. What could she have observed to make this inference? [1]

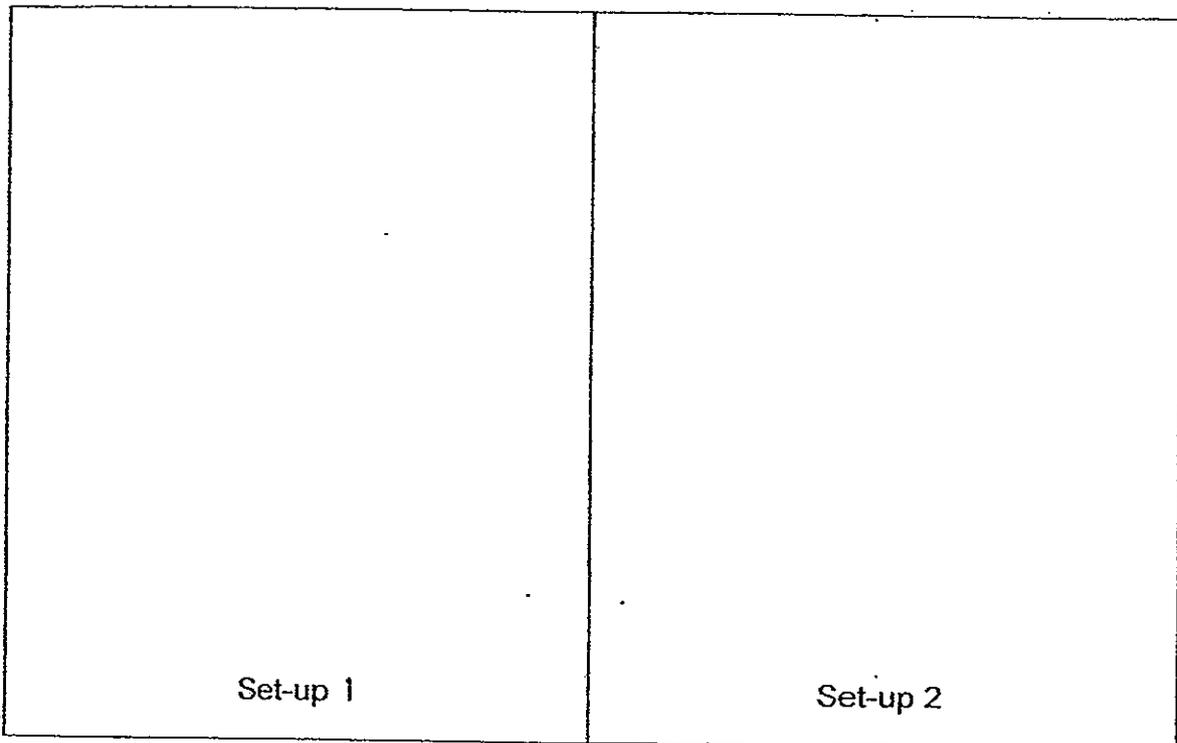


38. Amy conducted an experiment to study how the arrangement of bulbs in a circuit affected their brightness. She had the following apparatus to use for her experiment.

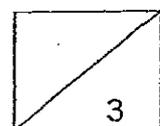
- 6 identical bulbs
- 4 identical batteries
- a few wires
- 2 switches

After setting up her experiment, she discovered that in Set-up 1, when 1 bulb fused, all the bulbs did not light up.

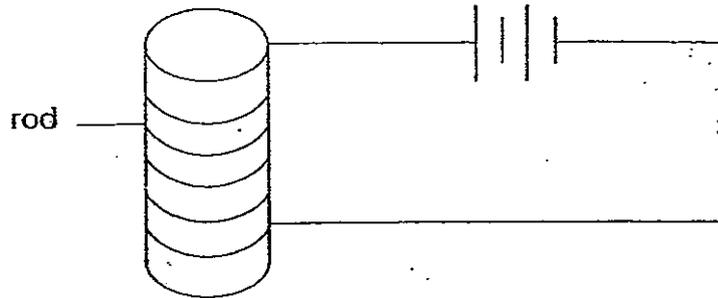
a) In the space provided below, draw a circuit diagram for each of the set-ups that she needed to conduct her experiment. She had to conduct both experiments at the same time. [2]



b) Amy had to record the brightness of the bulbs in each of the circuit(s) for comparison. State the equipment she would need to obtain this reading accurately. [1]



39. Anna conducted an experiment to find out if the type of material used to make the rod affects the number of paper clips attracted to it when placed in a closed circuit. She set up the experiment as shown below.



She recorded the variables that were kept the same and those that were changed in the table below.

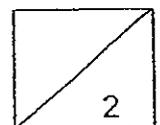
	variable kept the same	variable changed
Thickness of rod		√
Material of rod		√
Number of batteries	√	
Number of turns of wire around the rod	√	

She carried out the experiment with rods made of different materials and the results were recorded in the table below.

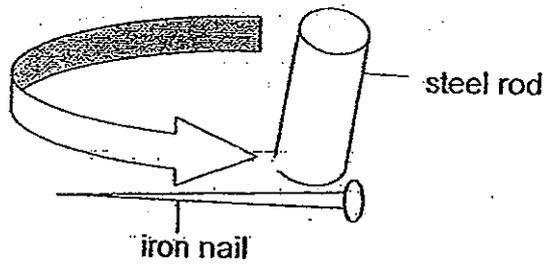
Material of rod	Number of paper clips attracted
W	14
X	0
Y	3
Z	6

- a) Do you think Anna's experiment was a fair one? Give a reason for your answer. [1]

- b) Anna found out that Material X did not attract any paper clips. Based on this observation, what can you conclude about Material X? [1]



40. Paul tried making a temporary magnet by stroking an iron nail with a steel rod in the direction shown below.

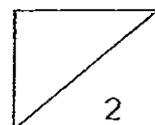


When some steel paper clips were brought near the iron nail, it did not attract any of the steel paper clips.

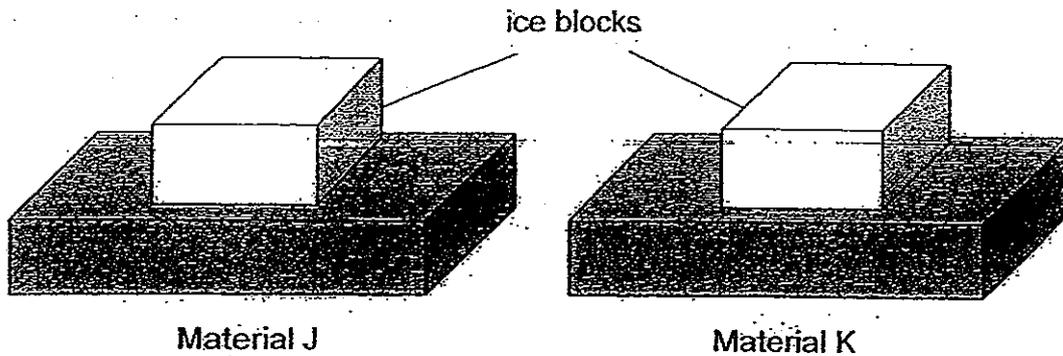
- a) What should Paul do to make the iron nail attract the steel paper clips? [1]

Paul made the necessary change suggested in (a) and succeeded in making the iron nail a temporary magnet.

- b) Using the same stroking method, how can the temporary magnet be made stronger? [1]



41. Joel wanted to find out if Material J or K is a better conductor of heat. He set up the experiment below at the same location.



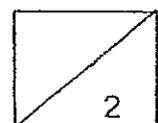
The table below shows the time taken for each ice block resting on the two materials to melt completely.

Ice block resting on material	Time taken to melt / min
J	30
K	10

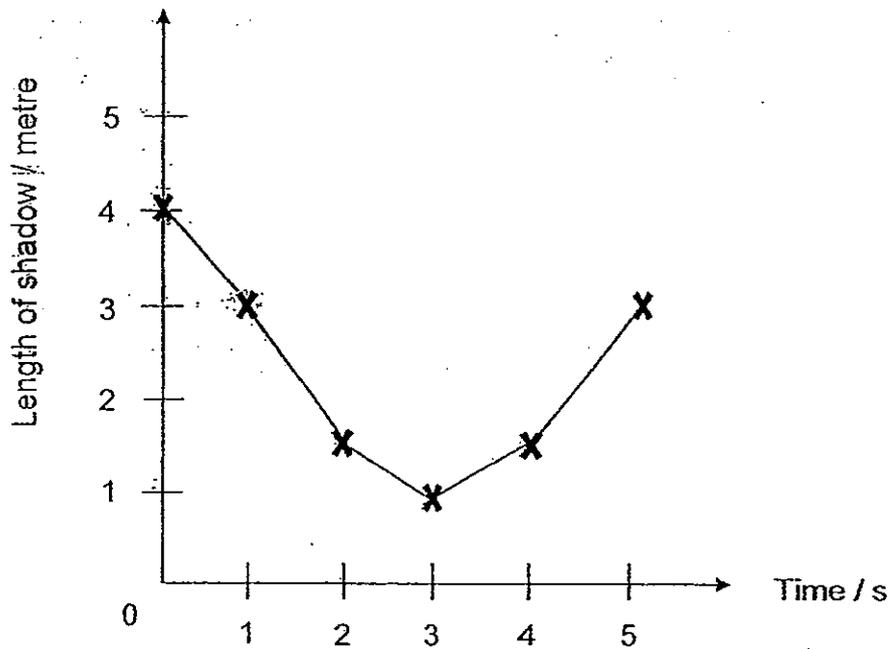
- a) If Joel wants to use one of the materials to make a container to contain cold drinks for his picnic, which material should he choose? Explain. [1]

- b) Put a tick (✓) in the correct boxes to indicate if the temperature of the objects used in Joel's experiment increases, decreases or remains the same within 2 minutes of the experiment? [1]

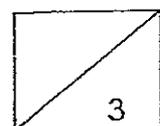
Object	Temperature increases	Temperature decreases	Temperature remains the same
Ice block			
Material K			



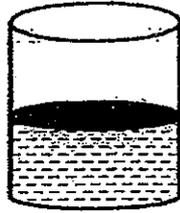
42. The line graph below shows the changes in the length of Michael's shadow as he walked past a street lamp at night.



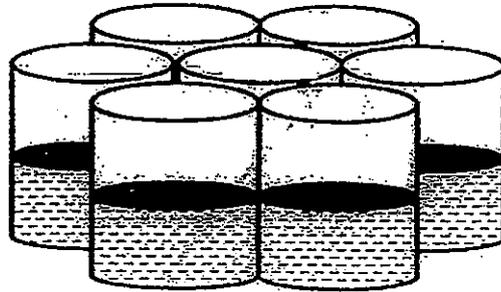
- a) At which second was Michael's shadow the shortest?
-
- b) In the period between 1s and 2s, was Michael walking towards the lamp or away from the lamp? Explain your answer. [2]
-
-



43. John and Henry conducted an experiment to find different ways to cool down two similar beakers containing the same amount of hot water at 70°C. John placed his beaker on a table but Henry surrounded his beaker with similar cans containing hot water at 70 °C as shown in the diagram below.



John's set-up

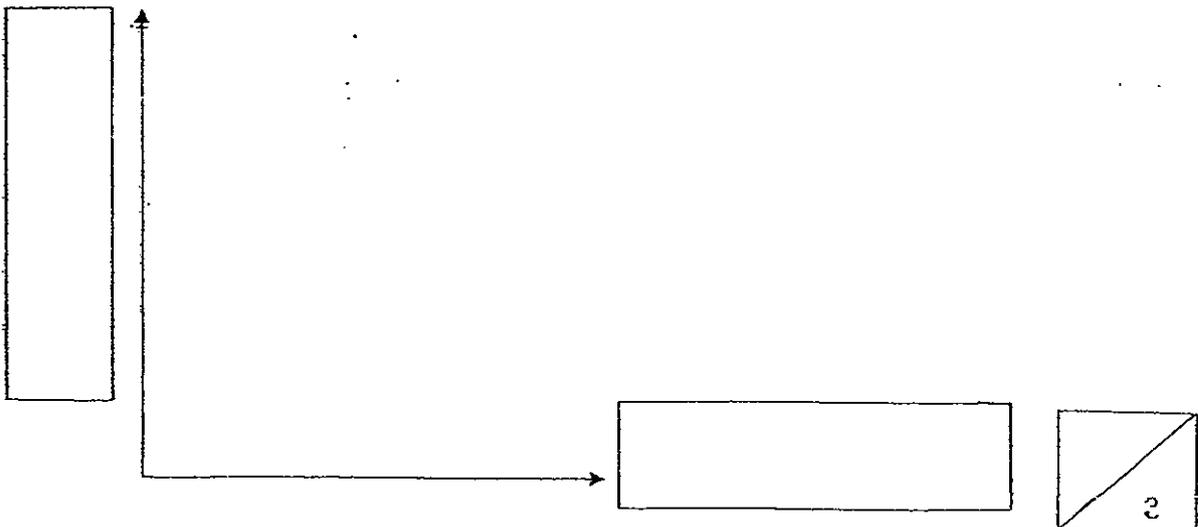


Henry's set-up

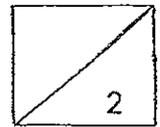
Both boys recorded the temperature of water in their respective beakers every ten minutes in the table below.

Time / min	0	10	20	30	40	50
Temperature of water in John's beaker / °C	70	42	37	30	25	25
Temperature of water in Henry's beaker / °C	70	61	53	43	y	29

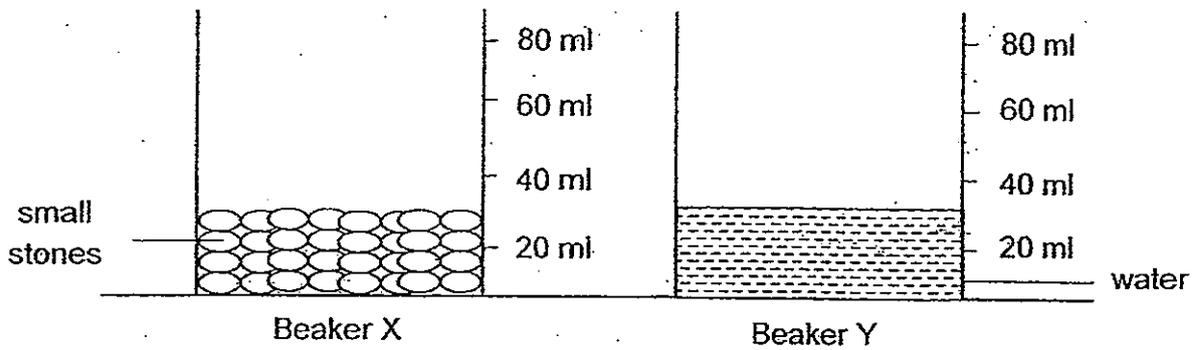
- a) Give a possible value for y: _____ °C [1]
- b) Draw two graphs to represent the temperature changes for John's and Henry's beakers.
- (i) Label the x and y-axis in the boxes [1]
- (ii) Draw and label the graphs. [1]



c) Explain the difference in temperature changes in John's beaker as compared to Henry's set-up. [2]

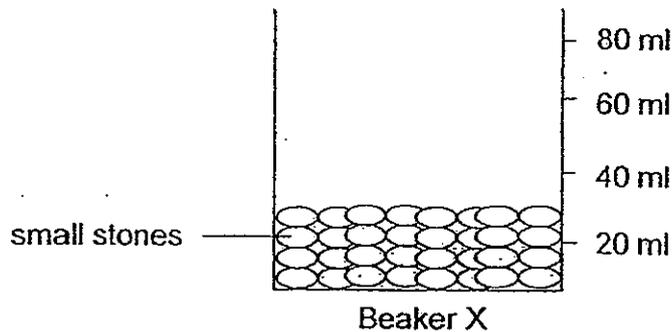


44. The diagrams below show two beakers, X and Y. Beaker X contained small stones and Beaker Y contained 30 ml of water.



The water in Beaker Y was poured into Beaker X.

- a) (i) In the diagram below, draw a line to show the final volume in Beaker X after water from Beaker Y had been poured into it. [1]

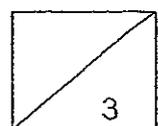


- (ii) Explain your answer in (i). [1]

- b) Explain why the water level increased when the small stones were replaced by the same amount of sand. [1]

∞ End of Paper ∞

∞ Have you checked your answers? ∞





ANSWER SHEET

EXAM PAPER 2012

SCHOOL : CATHOLIC HIGH
SUBJECT : PRIMARY 5 SCIENCE

TERM : SA1

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
2	1	2	2	2	3	2	1	1	4	1	3	1	3	4	1	3

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
4	3	4	1	1	2	1	3	1	3	4	2	2

31)a)i)Q ii)B

b)i)Controls all the activities in the cell.

ii)The nucleus contains the information of the cell which is passed from one generation to another.

32)a)Y: splitting

Z: wind

/ Dry, pod-like

/ small a light, able to float in the air fluff covering, wing-like structure.

b)To prevent over crowding so that the plant does not need to compete with other young plants for light, water, space and nutrients.

33)a)A and B.

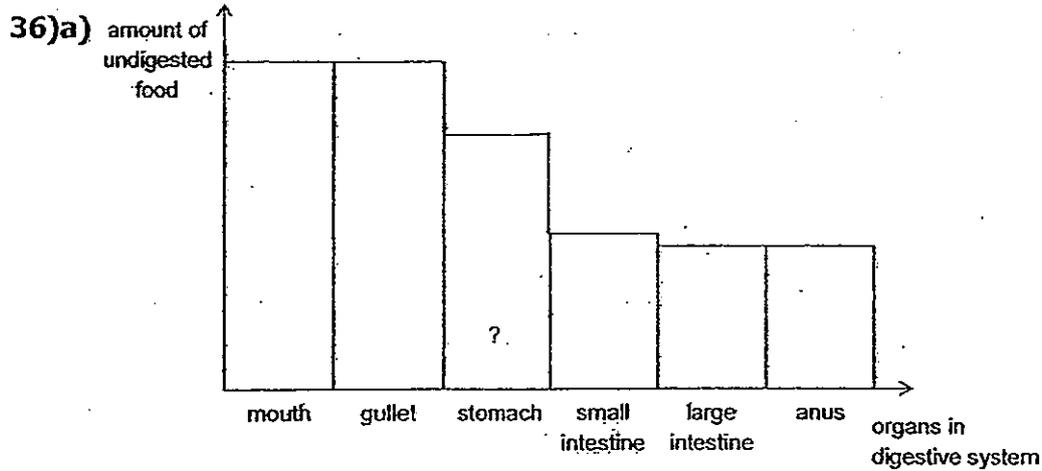
b)The fruits has already been fertilised.

34)a)purple / yellow

b)He should have a similar set-up with only one water plant and another one without water plants.

35)a)It is the food carrying tube which transport the sap. The sap is the food made by the tree.

b)There is tree sap at both parts food made by the leaves in any part of the tree is transported to all parts of the plant parts A and B.

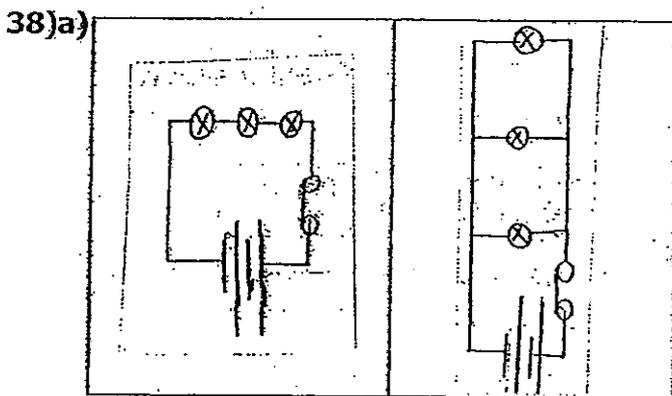


b) No digestion takes place in these places.

c) Gullet, stomach, small intestine.

37)a) The amount of liquid used.

b) The bulb lighted up brighter when vinegar was added.



b) Light sensor.

39)a) No, the thickness of rod is not the same.

b) Material X is a non magnetic material.

40)a) He should stroke the iron nail with a magnet in one direction.

b) He could stroke the iron nail more.

41)a) J. The ice blocks took a longer time to melt when it came in contact with Material J.

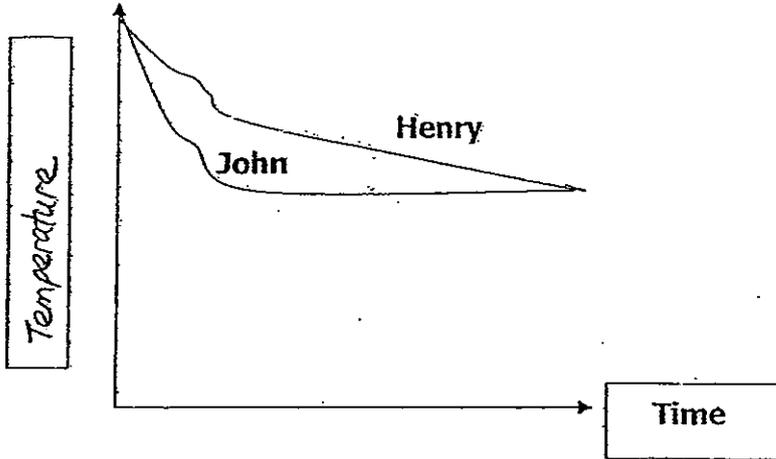
b) Material K: ✓ ✓

42)a)The 3rd second.

b)He was walking towards. When he is walking towards the lamp, his shadow will be come shorter.

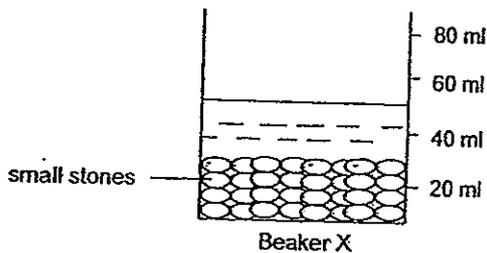
43)a)36°C.

b)



c)The water in John's beaker loses heat faster than the water Henry's beaker to the surrounding air. Therefore, the temperature of water in John's beaker falls faster than the water in Henry's beaker and reaches room temperature first.

44)a)i)



ii)There are air spaces between the stones water filled the empty spaces between the stones, which more previous occupies by the stones.

b)There were smaller air space between the particles of sand than those in the stones. Thus, less water entered to fill the gaps.

