



新加坡福建会馆属下五校小六统一考试

道南 • 爱同 • 崇福 • 南侨 • 光华

SINGAPORE HOKKIEN HUAY KUAN  
5-SCHOOL COMBINED PRIMARY 6 PRELIMINARY EXAMINATIONS  
TAO NAN • AI TONG • CHONGFU • NAN CHIAU • KONG HWA

2013

科学 SCIENCE

BOOKLET A

Date : 27 August 2013

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

INSTRUCTIONS TO CANDIDATES

- √ Write your school's name, name, register number and class.
- √ Do not open this booklet until you are told to do so.
- √ Follow all instructions carefully.
- √ Answer all questions.
- √ Shade your answers in the Optical Answer Sheet (OAS) provided.

This booklet consists of 24 printed pages.

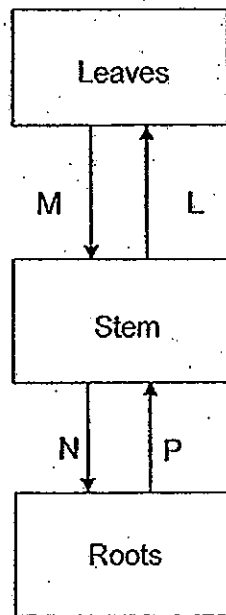
School : \_\_\_\_\_  
Name : \_\_\_\_\_ ( )  
Class : \_\_\_\_\_

TOTAL	60
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**Section A (30 x 2 marks)**

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.

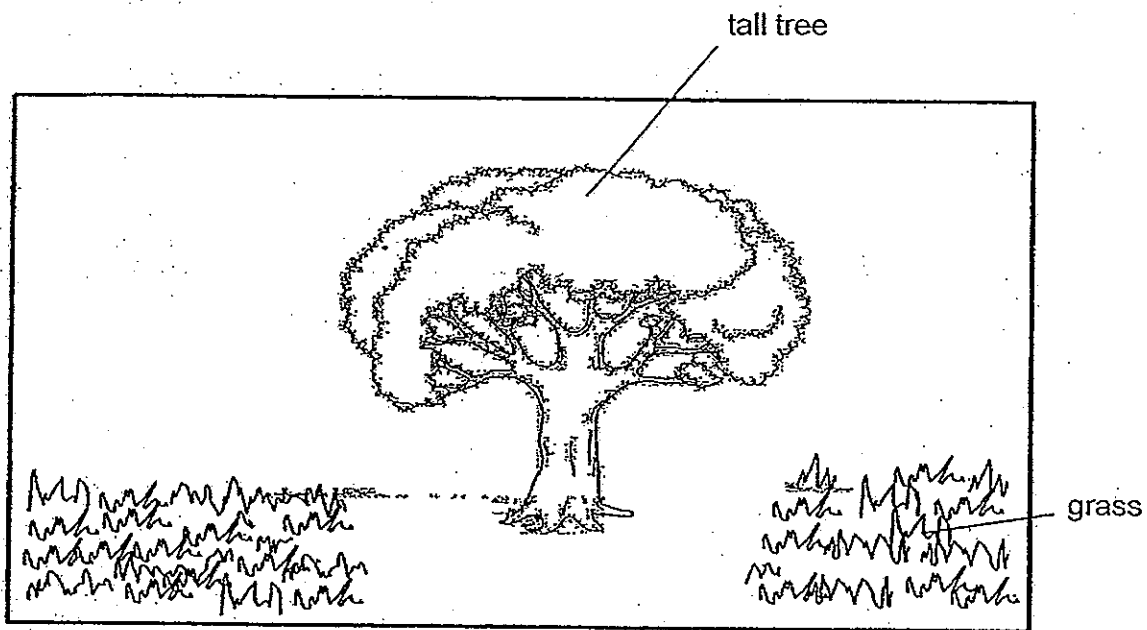
1. Anne drew the diagram below to show how sugar and water are transported to and from different parts of a plant, represented by arrows L, M, N and P.



Which of the following are transported by the arrows?

	<b>M</b>	<b>N</b>	<b>P</b>
(1)	Water	Water	Sugar
(2)	Water	Sugar	Water
(3)	Sugar	Water	Sugar
(4)	Sugar	Sugar	Water

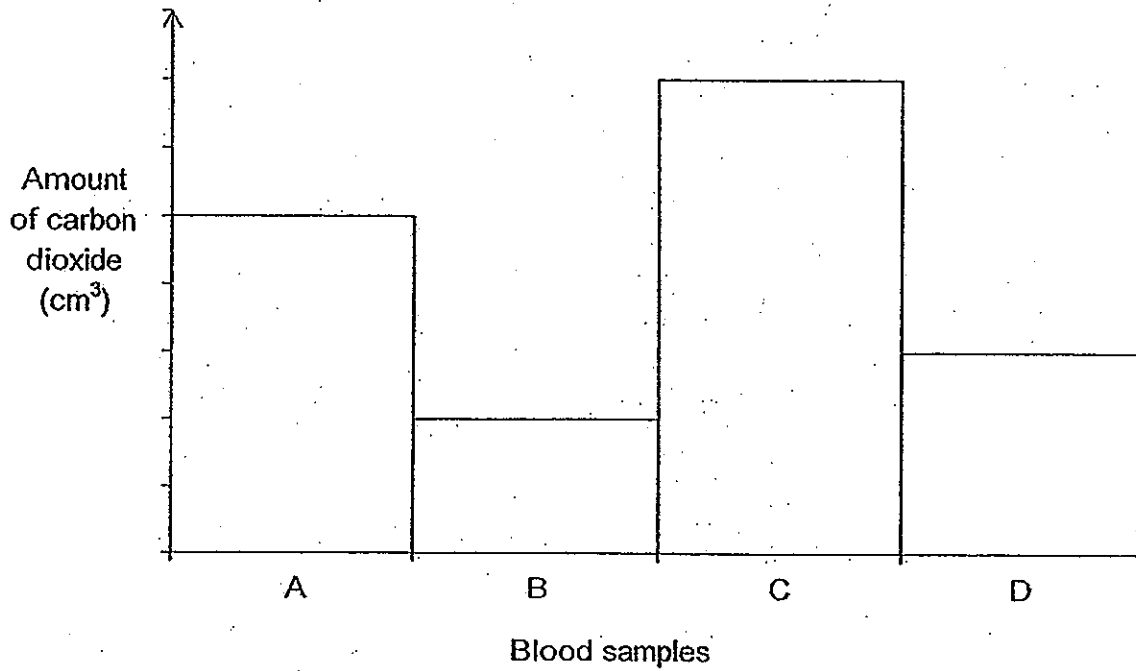
2. Billy observed grass growing everywhere on a patch of field except under a tree as shown in the picture below.



Which of the following explains the absence of grass under the tree?

- (1) The grass cannot grow well in the soil at this field.
- (2) The leaves of the tree block rainwater from reaching the grass.
- (3) The short roots of the grass cannot absorb enough mineral salts.
- (4) The tree blocks sunlight from reaching the ground directly under it.

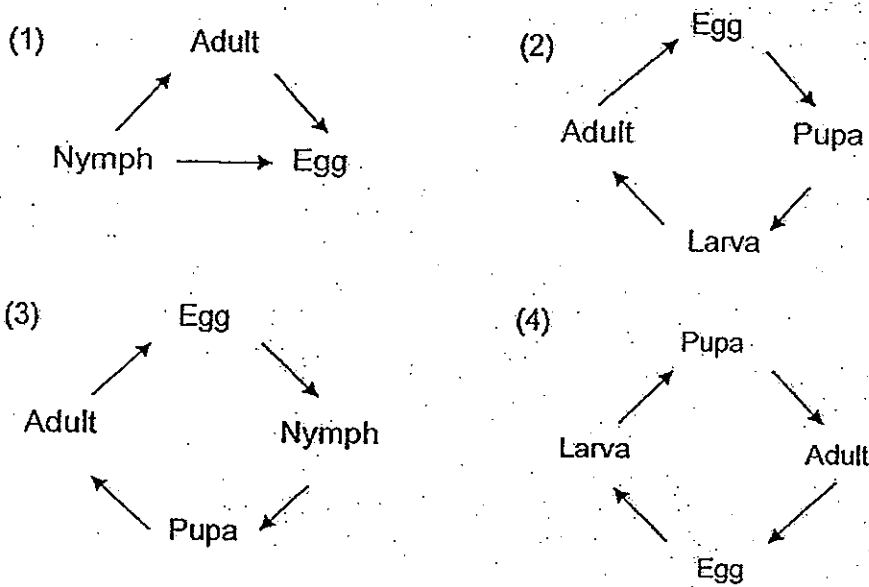
3. Four blood samples, A, B, C and D, were taken from different blood vessels in different parts of the human body. The graph below shows the amount of carbon dioxide found in each of the blood samples.



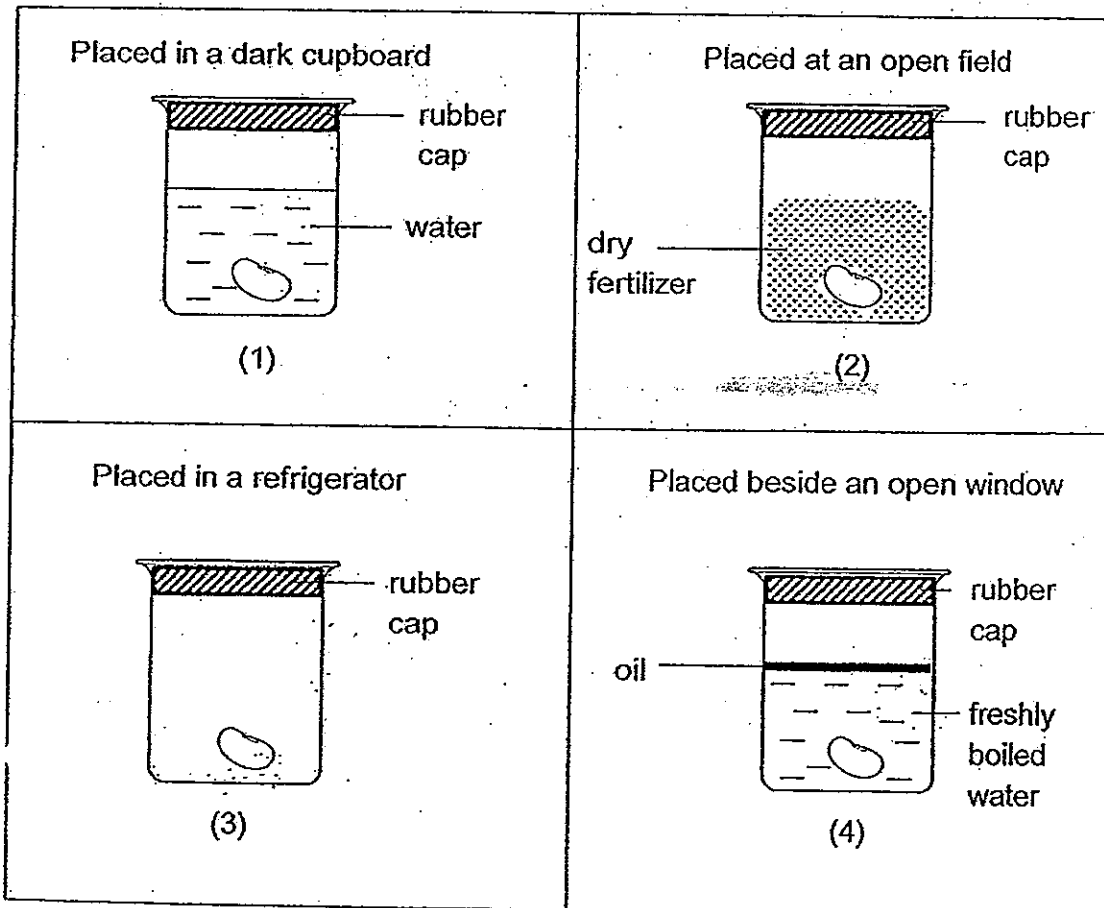
Which blood sample was most likely taken from the blood vessel carrying blood from the lungs to the heart?

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

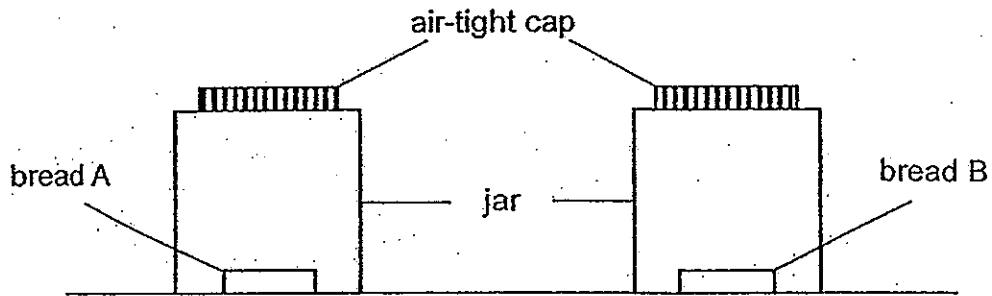
4. Which of the following shows the life cycle of a butterfly?



5. Fred placed a dry red bean seed into each of the four beakers as shown below. Which of the seeds will germinate?



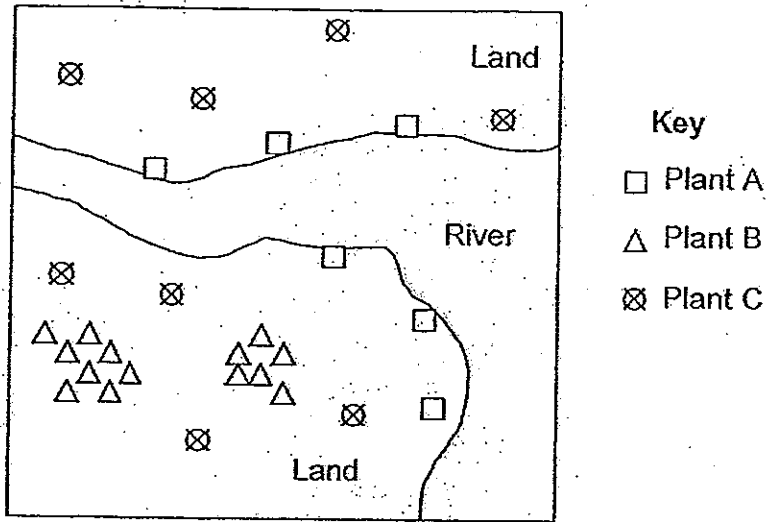
6. Wendy wanted to find out if the amount of moisture affects the amount of mould growing on bread. She left two similar pieces of bread, bread A and bread B, in two identical jars as shown below.



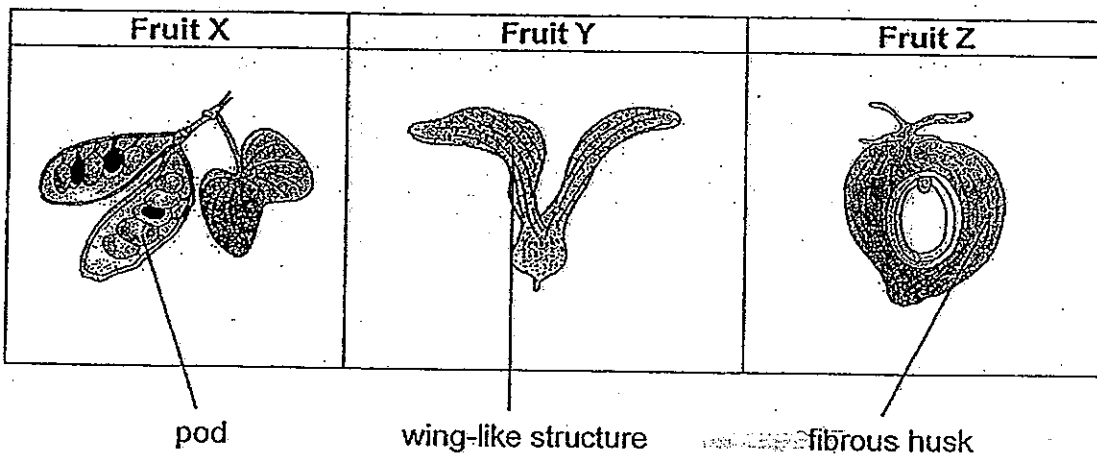
A few drops of water were added to bread B only. Then both jars were capped. After a few days, Wendy removed bread A and bread B from the jars and placed them side by side. Which of the following would be the most likely observation made?

<p>bread A      bread B</p> <p>(1)</p>	<p>mould</p> <p>bread A      bread B</p> <p>(2)</p>
<p>mould</p> <p>bread A      bread B</p> <p>(3)</p>	<p>mould</p> <p>bread A      bread B</p> <p>(4)</p>

7. A researcher mapped the location of Plant A, Plant B and Plant C in an area as shown below.

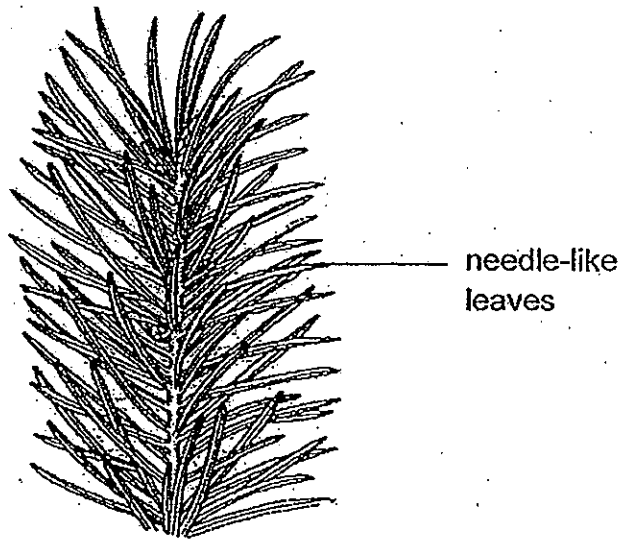


The researcher found the following fruits in the same area. Which of the following matches the fruits to the parent plants?



	Fruit X	Fruit Y	Fruit Z
(1)	Plant A	Plant B	Plant C
(2)	Plant A	Plant C	Plant B
(3)	Plant B	Plant C	Plant A
(4)	Plant C	Plant B	Plant A

8. Emily studies the leaves of Plant X as shown below.



Plant X

How do the needle-like leaves help plant X survive in its habitat?

- (1) They help to increase the rate of photosynthesis.
- (2) They help to reduce heat loss to the surroundings.
- (3) They help to reduce water loss to the surroundings.
- (4) They help to hold the plant upright to obtain sunlight.

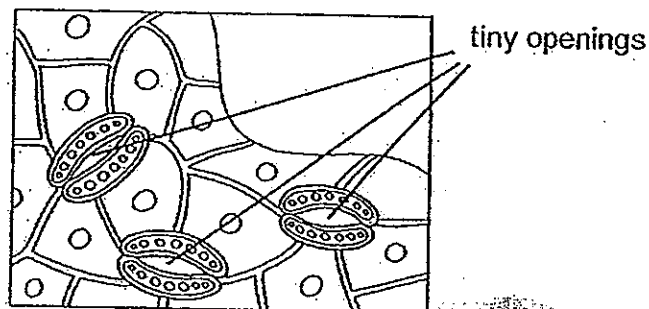


9. Four boys competed in a 100-metre race. The table below shows their breathing rates before and immediately after the race.

Name	Breathing rate (number of breaths per minute)	
	Before the race	Immediately after the race
Malcolm	18	23
Nelson	20	27
Oliver	21	26
Patrick	19	24

Based on the table, which of the following is definitely true?

- (1) Malcolm is the fittest boy because his breathing rate after the race is lowest.
  - (2) The older boys' breathing rates increased more than that of the younger boys'
  - (3) The increase in the number of breaths per minute is the same for Oliver and Patrick.
  - (4) Nelson is the fastest runner because his breathing rate after the race is highest.
10. The diagram below shows the underside of a leaf.

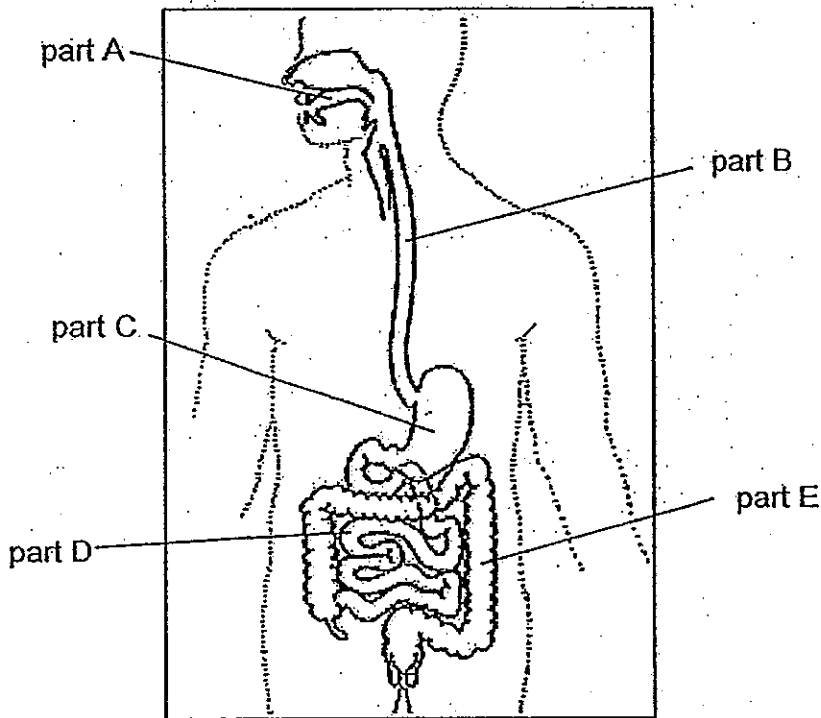


Which of the following are the functions of the tiny openings?

- A Take in sunlight to make food
- B Allow the plant to remove excess water as water vapour
- C Allow the plant to exchange gases with its surroundings
- D Transport food made in the leaves to the rest of the plant

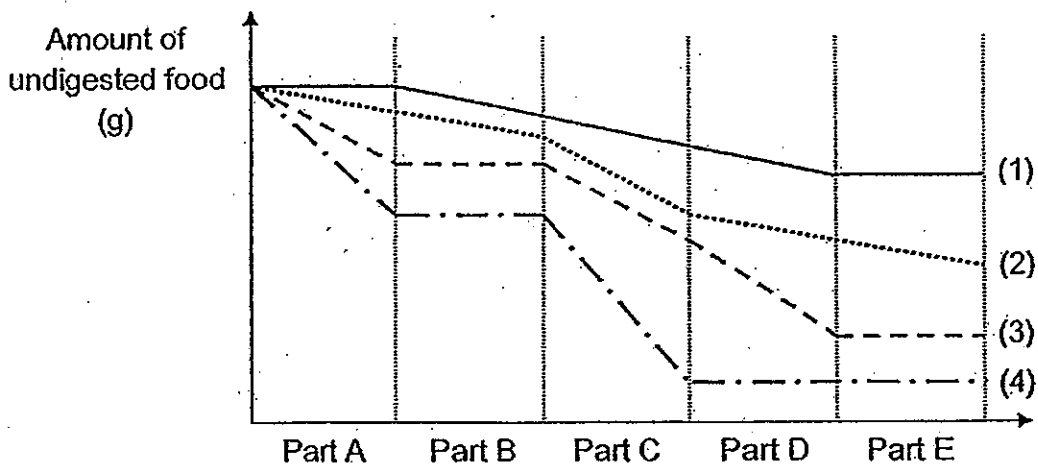
- (1) B and C only
- (2) C and D only
- (3) A, B and D only
- (4) A, C and D only

11. A scientist wanted to investigate how digestion takes place in the body. He took samples of food as it passed through five parts, A, B, C, D and E, of the digestive system as shown below.

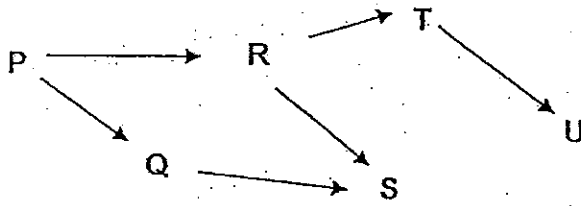


He plotted the amount of undigested food at the five parts on a graph below.

Which line best represents the relative amount of undigested food in the various parts of the human digestive system?

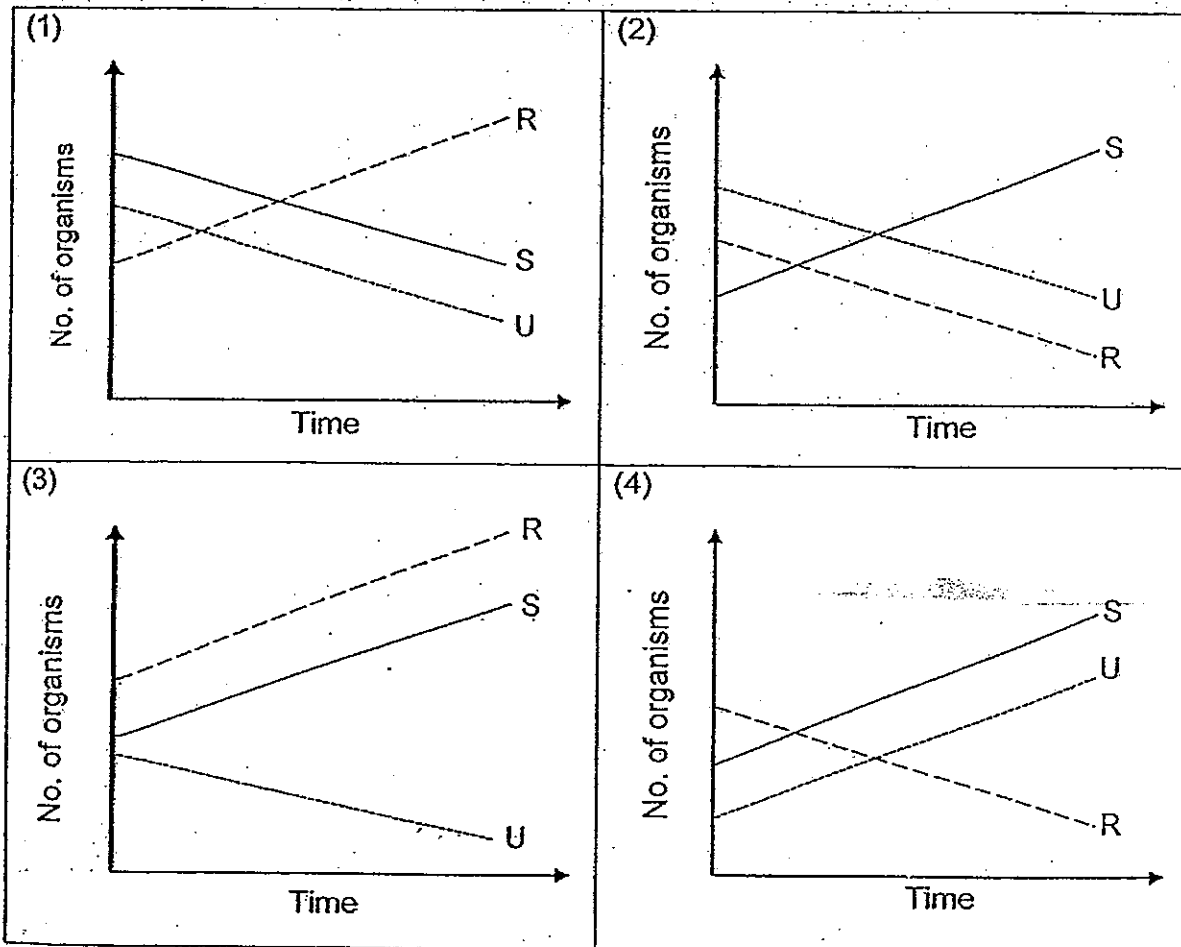


12. Study the food web below.

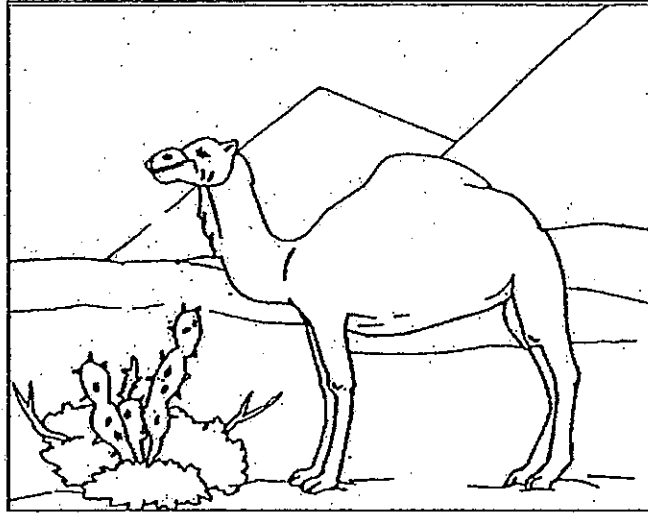


When animal T migrated out of the habitat, the number of animal Q remains the same.

Which of the following graphs shows how the populations of R, S and U are most likely to be affected?



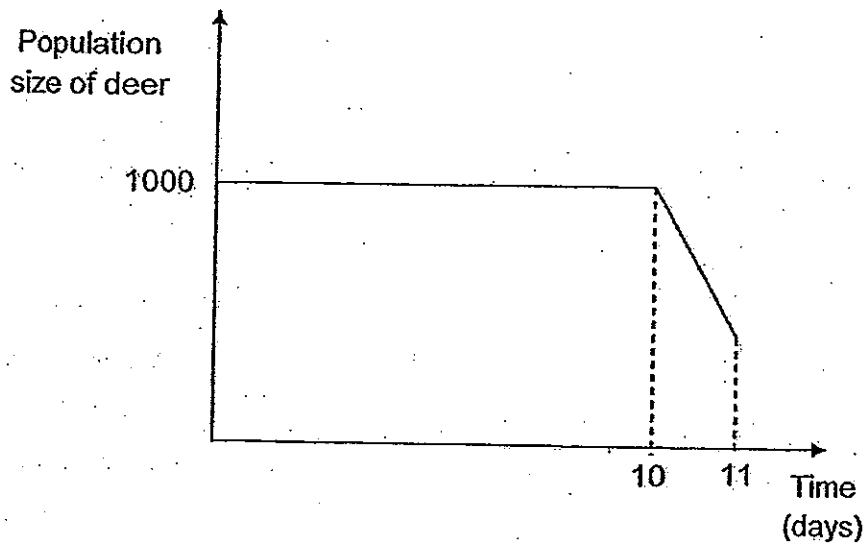
13. As camels live in areas with low rainfall, there is a lack of food so they feed on dried leaves, thorny twigs and cacti.



Which of the following is a structural adaptation that helps the camel feed on its food?

- (1) Hard hooves to move on desert vegetation.
- (2) A hump to store fat so that it need not feed so often
- (3) Bending its neck down to feed on desert plants.
- (4) Thick, leathery lips which prevent its mouth from being pierced or cut easily.

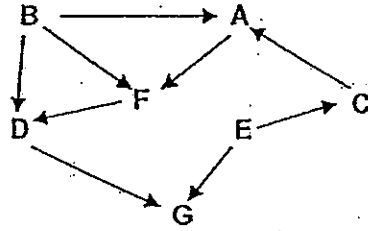
14. A scientist was studying a healthy population of deer in a forest over time. He noticed a sudden change in the population size of deer after the 10<sup>th</sup> day.



Which of the following explains the change in the population size of deer after the 10<sup>th</sup> day?

- (1) A tiger entered the forest and started to hunt the deer.
- (2) A forest fire started by farmers clearing the forest spread out of control.
- (3) A disease started to spread among the forest plants from Day 10 onwards.
- (4) A species which competes with the deer for food was introduced on Day 10.

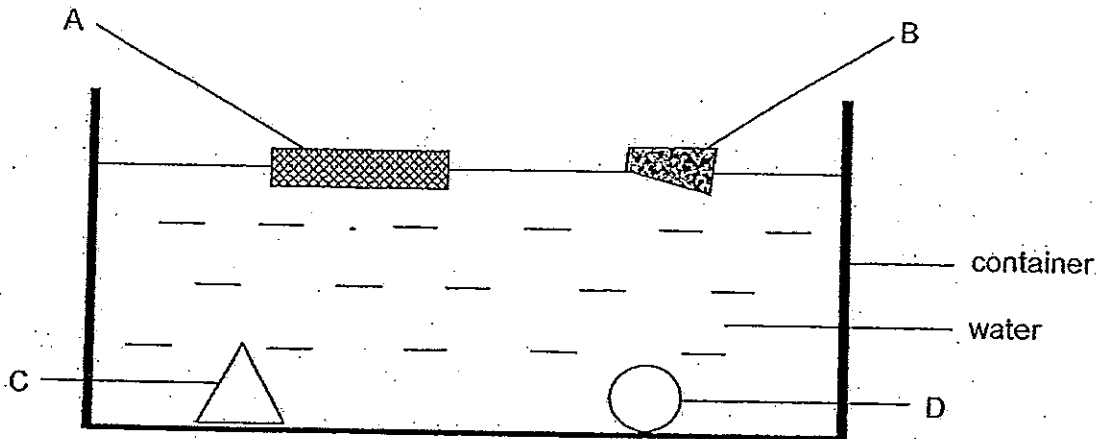
15. The food web below shows the relationship between 7 organisms, A, B, C, D, E, F and G, in a habitat.



Based on the food web, which of the following shows the correct classification of the organisms?

	Producer(s)	Predator(s)	Prey
(1)	B only	A, C, D and G only	A and E only
(2)	B and E only	A, D, F and G only	A, C, D and F only
(3)	B and E only	C, D, F and G only	C, D, F and G only
(4)	B, E and F only	A, C, D and G only	A, C, F and G only

16. The diagram below shows four objects, A, B, C and D, in a container of water. They are made of different materials.



Based on the above diagram, which of the following classification tables correctly represents how the objects, A, B, C and D, are classified?

Objects	
Does not allow any light to pass through	Allows most light to pass through
B	A, C, D

Table W

Objects	
Float on water	Sink in water
A, B	C, D

Table X

Objects	
With pointed edges	No pointed edges
A, B, C	D

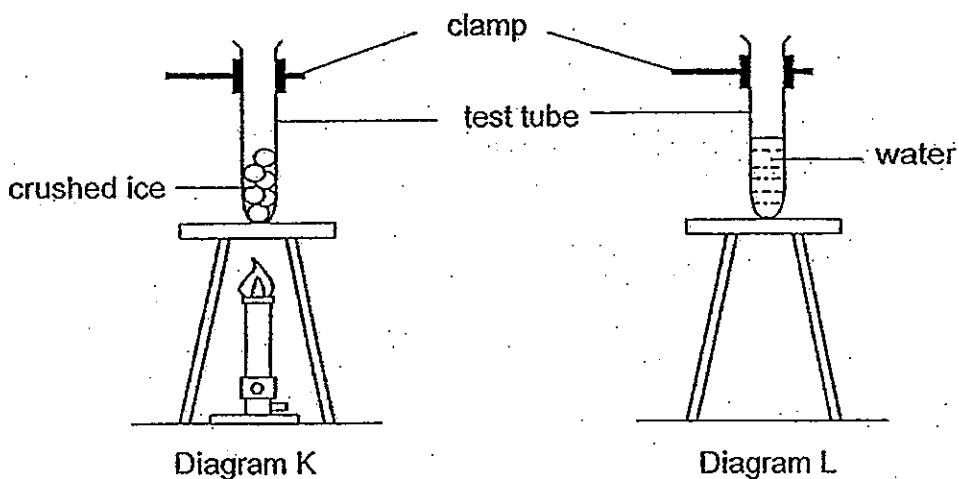
Table Y

Objects	
Hard	Soft
C, D	A, B

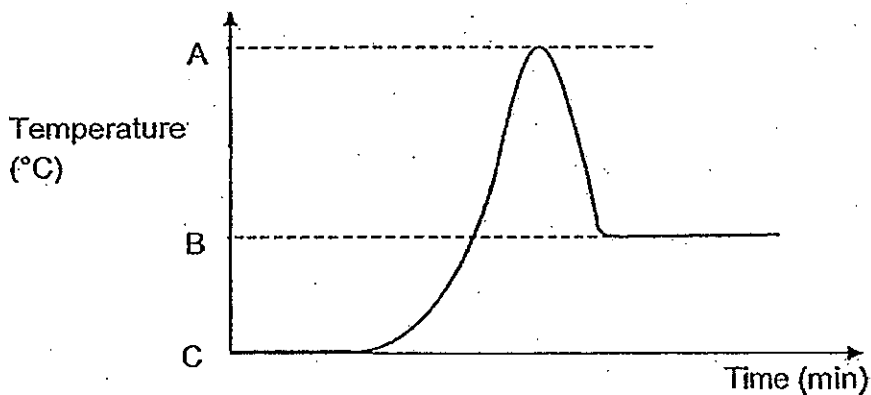
Table Z

- (1) Table W and Table X only
- (2) Table X and Table Y only
- (3) Table W, Table X and Table Y only
- (4) Table W, Table Y and Table Z only

17. Diagram K shows some crushed ice being heated in a test tube. After all the ice had melted, the water was heated to 60°C. Then the flame was removed and the water was allowed to cool as shown in diagram L.



The temperature of the melting ice and heated water over a period of time was plotted in a graph shown below.

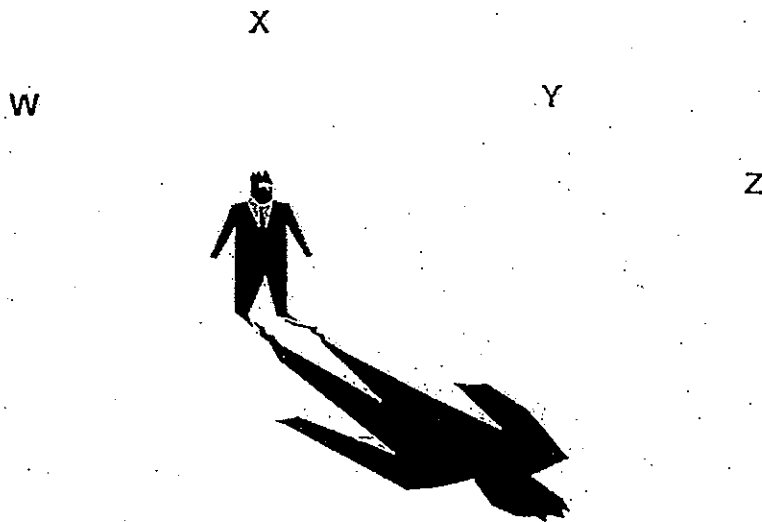


Which of the following represents A, B and C?

	A	B	C
(1)	Room temperature	Melting point of ice	Water at 60°C
(2)	Boiling point of water	Room temperature	Freezing point of water
(3)	Water at 60°C	Room temperature	Melting point of ice
(4)	Water at 60°C	Melting point of ice	Room temperature

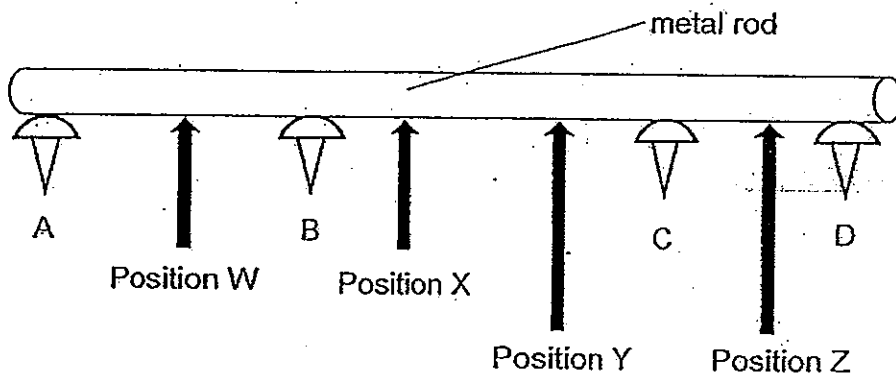


18. A man standing on a flat ground noticed his shadow cast in front of him. At which position, W, X, Y or Z, is the Sun most likely to be found at?



- (1) W
- (2) X
- (3) Y
- (4) Z

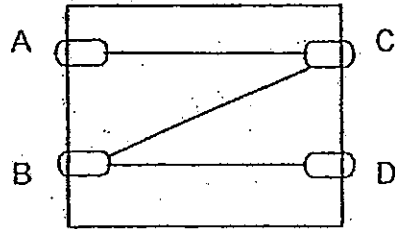
19. Four thumbtacks, A, B, C and D, were attached to a metal rod with some wax. When the metal rod was heated at a certain position with a candle flame, the thumbtacks started to drop in the order of B, C, A and D.



At which position is the flame most likely to be?

- (1) Position W
- (2) Position X
- (3) Position Y
- (4) Position Z

20. The diagram below shows a circuit card. Four paper clips are used to secure wires onto the card.



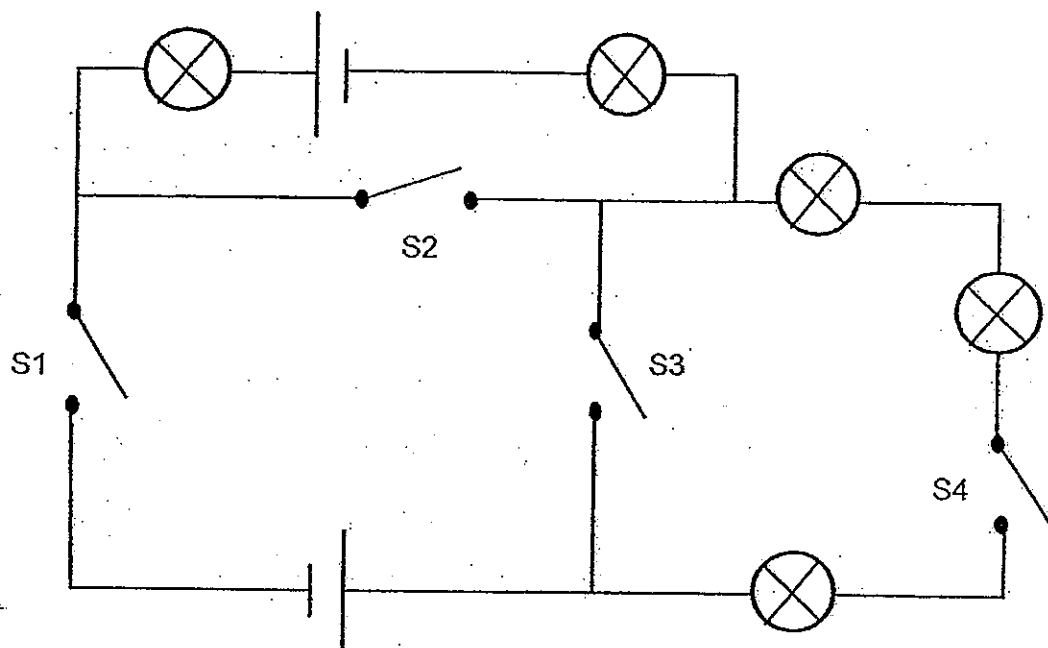
A circuit tester is connected to two of the paper clips at a time. The results are recorded below.

Paper clips tested	Bulb of circuit tester
A and B	Does not light up
A and C	Lights up
B and C	Does not light up
B and D	Does not light up
C and D	Does not light up

Which of the paper clips is/are definitely made of plastic?

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

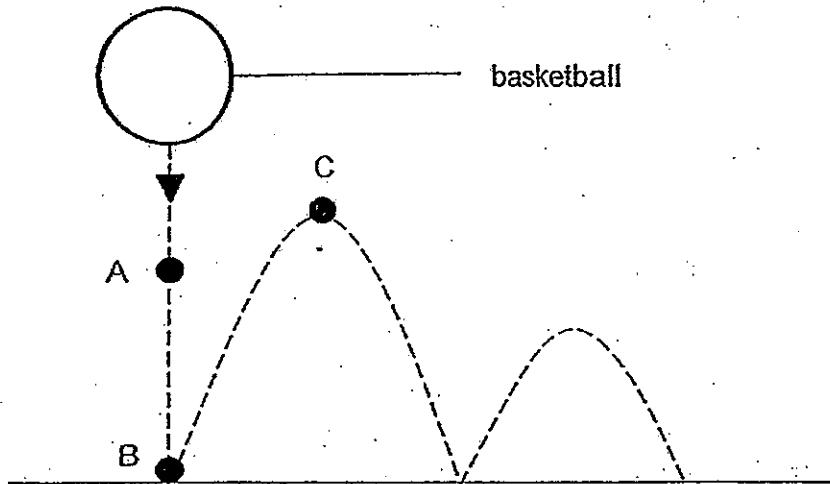
21. The diagram below shows 5 bulbs connected together in a circuit.



Which of the switches, S1, S2, S3 and S4, must be closed for all the bulbs to light up?

- (1) S1 and S4 only
- (2) S2 and S4 only
- (3) S3 and S4 only
- (4) S2 and S3 only

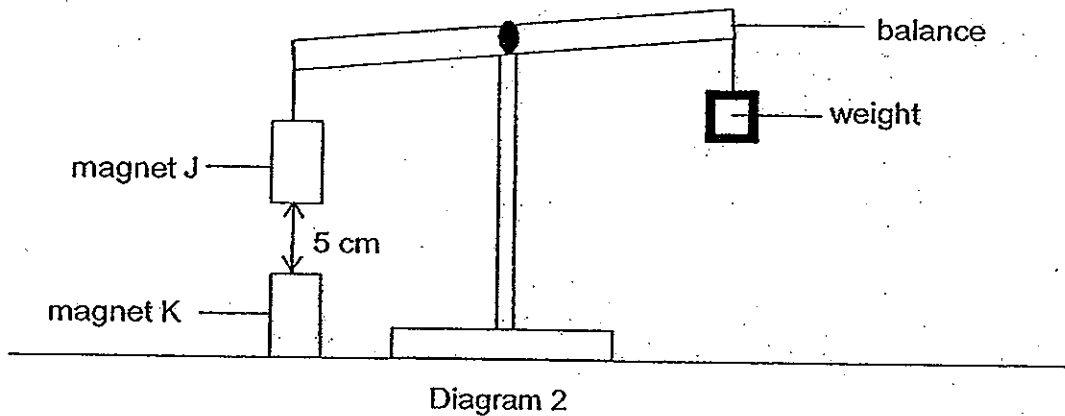
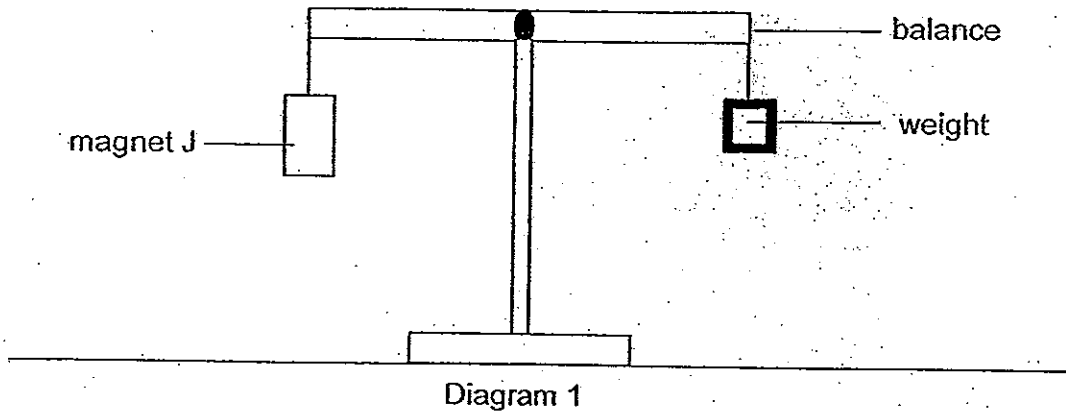
22. Adrian dropped a basketball from a certain height. The ball bounced to a lower height each time it hits the ground as shown in the diagram below.



Which of the following describes the change in kinetic energy and gravitational potential energy from point A to point B and from point B to point C?

Point A to Point B		Point B to Point C	
Kinetic energy	Gravitational potential energy	Kinetic energy	Gravitational potential energy
(1) decreases	increases	decreases	increases
(2) increases	decreases	increases	decreases
(3) decreases	decreases	increases	increases
(4) increases	decreases	decreases	increases

23. Amy set up an experiment using a balance and three magnets, J, K and L. All three magnets have the same mass and size.



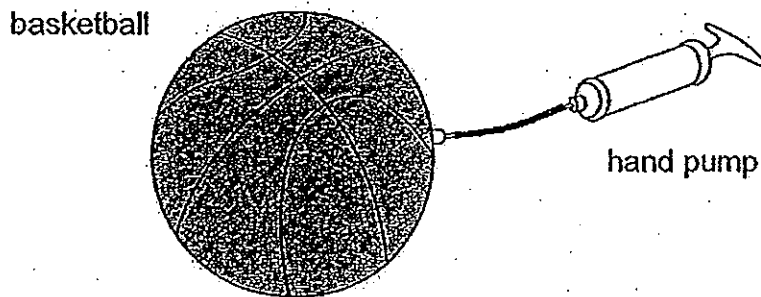
When magnet K is placed below magnet J as shown in Diagram 2, the distance between the two magnets is 5 cm. When magnet K is then replaced by magnet L, the distance between magnet J and magnet L is 2 cm.

Which of the following statements is/are true?

- A There is a force of repulsion between magnet J and magnet K.
- B Magnet L can attract more steel paper clips than magnet K from the same distance.
- C When magnet K is turned around such that the opposite end faces upward, the balance will tilt downward at the weight.

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

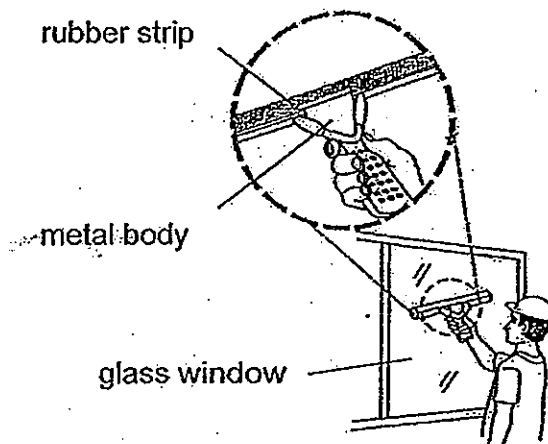
24. A hand pump was used to pump more air into an inflated basketball.



Which of the following explains why the size of the basketball remained the same?

- (1) Air occupies space.
- (2) Solids have a definite shape.
- (3) Gases have no definite volume.
- (4) The mass of the basketball remains the same.

25. Irfan noticed a worker using a tool to clean a glass window. He observed that the rubber strip of the tool did not make any scratches on the window.



Which of the following conclusion can Irfan most likely make?

- (1) Glass is harder than rubber.
- (2) Glass is stronger than rubber.
- (3) The glass window is smoother than the rubber strip.
- (4) There is no friction between the glass window and the rubber strip.

26. Three pupils each made a statement about the benefit of using paper bags compared to the disadvantage of using plastic bags in terms of their impact on the environment as shown below:

Thomas: Paper bags can be reused while plastic bags cannot be reused.

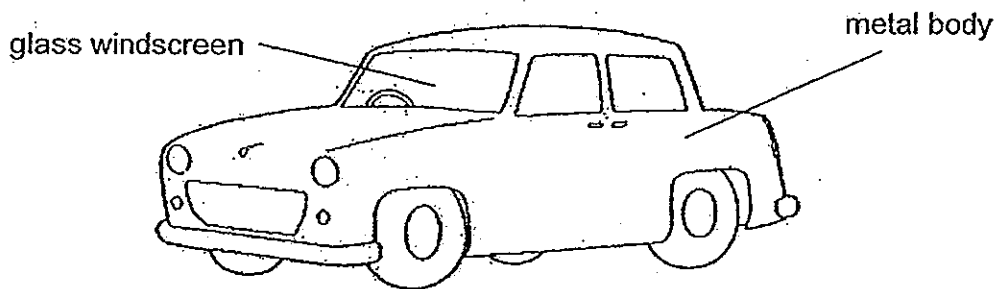
Aisha: Paper bags are biodegradable while most plastic bags are not biodegradable.

Xing Rui: Paper bags are man-made while plastic bags are made from natural resources.

Which of the following pupil/s has/have made a correct statement?

- (1) Aisha only
- (2) Thomas only
- (3) Aisha and Xing Rui only
- (4) Thomas and Xing Rui only

27. The picture below shows a car which was parked in the open on a sunny day.



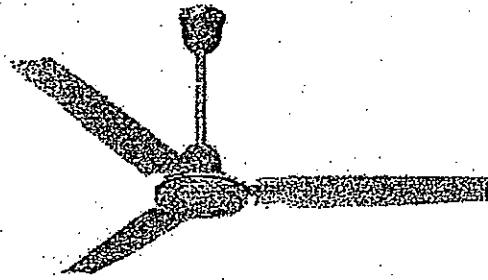
The temperature of the air inside the car and outside the car was measured at 11.00 a.m. and 3.00 p.m.

Time	Temperature of air inside the car (°C)	Temperature of air outside the car (°C)
11.00 a.m.	40	31
3.00 p.m.	60	33

Which of the following explains the above observations?

- (1) More heat was trapped in the car due to the greenhouse effect.
- (2) The metal body conducted more heat than the glass windscreen.
- (3) There was more carbon dioxide inside the car than outside the car.
- (4) There was an increase in the amount of greenhouse gases in the car.

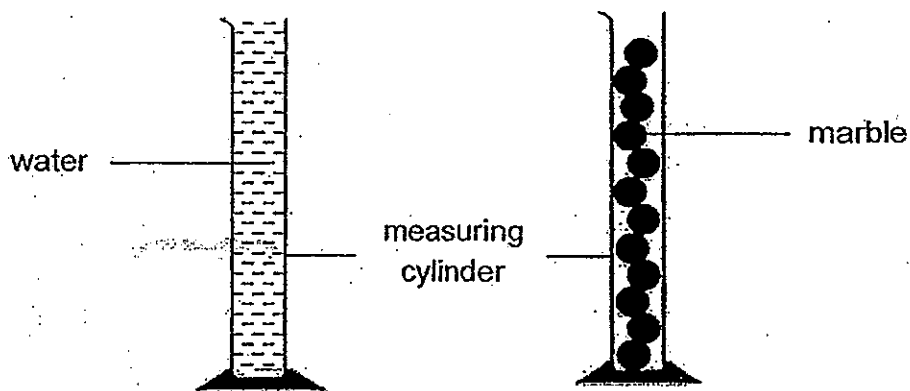
28. The diagram below shows a ceiling fan.



Which of the following correctly shows the energy conversion when the fan is in operation?

- (1) Electrical energy  $\longrightarrow$  kinetic energy + sound energy
- (2) Electrical energy  $\longrightarrow$  kinetic energy  $\longrightarrow$  sound energy
- (3) Chemical potential energy  $\longrightarrow$  kinetic energy + sound energy
- (4) Chemical potential energy  $\longrightarrow$  kinetic energy  $\longrightarrow$  sound energy

29. Mani filled a  $250 \text{ cm}^3$  measuring cylinder with water. He filled another  $250 \text{ cm}^3$  measuring cylinder with only small marbles as shown below. Next, he transferred both the water and the marbles into a  $1000 \text{ cm}^3$  measuring cylinder.



What was the most likely volume occupied by the water and the marbles in the  $1000 \text{ cm}^3$  cylinder?

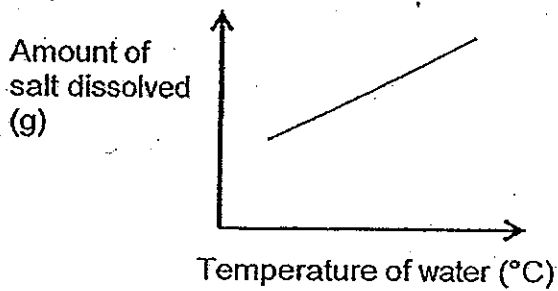
- (1)  $250 \text{ cm}^3$
- (2)  $450 \text{ cm}^3$
- (3)  $500 \text{ cm}^3$
- (4)  $1000 \text{ cm}^3$



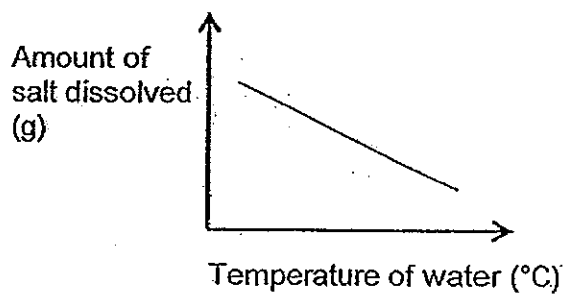
30. Matthew wanted to find out how a change in the temperature of water would affect the amount of salt dissolved in water over a fixed period of time. He recorded his findings in a table shown below.

Temperature of water ( $^{\circ}\text{C}$ )	Amount of salt dissolved (g)
80	480
20	120
60	360
40	240

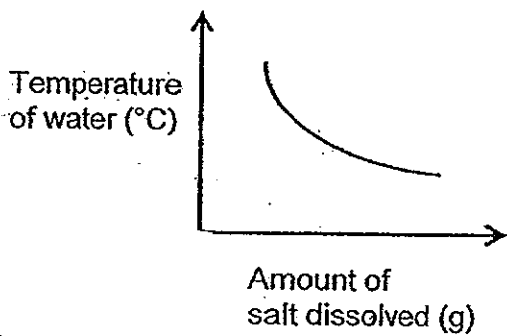
Which of the following graphs shows the correct results?



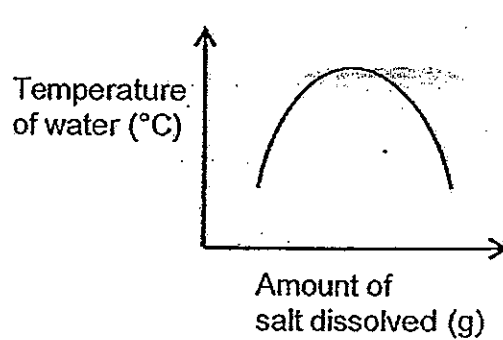
(1)



(2)



(3)



(4)

End of Booklet A



新加坡福建会馆属下五校小六统一考试

道南 • 爱同 • 崇福 • 南侨 • 光华

SINGAPORE HOKKIEN HUAY KUAN  
5-SCHOOL COMBINED PRIMARY 6 PRELIMINARY EXAMINATIONS  
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2013

科学 SCIENCE

BOOKLET B

Date : 27 August 2013

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

INSTRUCTIONS TO CANDIDATES

- √ Write your school's name, name, register number and class.
- √ Do not open this booklet until you are told to do so.
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This booklet consists of 19 printed pages.

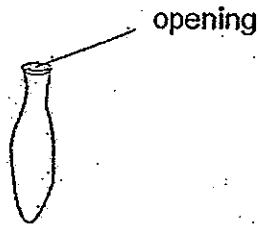
School : \_\_\_\_\_  
Name : \_\_\_\_\_ ( )  
Class : \_\_\_\_\_

TOTAL	40
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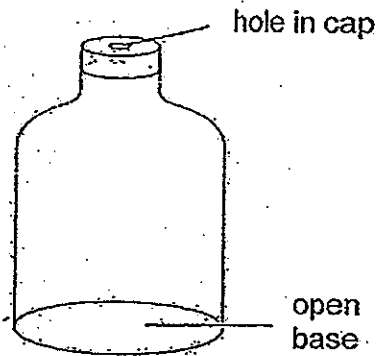
**Section B (40 marks)**

Write your answers to the questions, from 31 to 44, in the spaces provided.

31. Simon made a model of the human respiratory system with four main parts, A, B, C and D.



A: balloon



B: plastic bottle



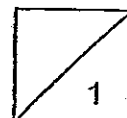
C: rubber sheet



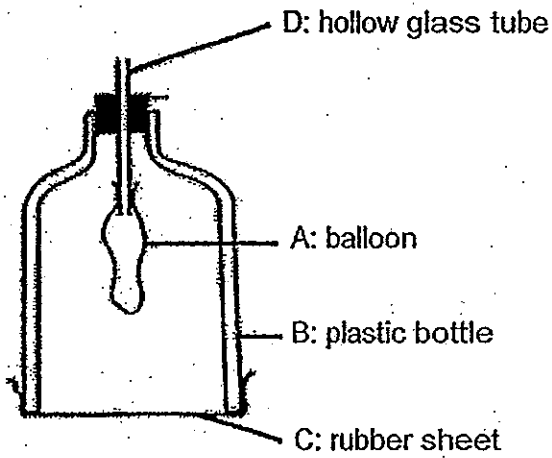
D: hollow glass tube

(a) Match the parts, A, B, C and D, to the parts of the respiratory system in the table below. Part C, has been matched to the diaphragm for you. [1]

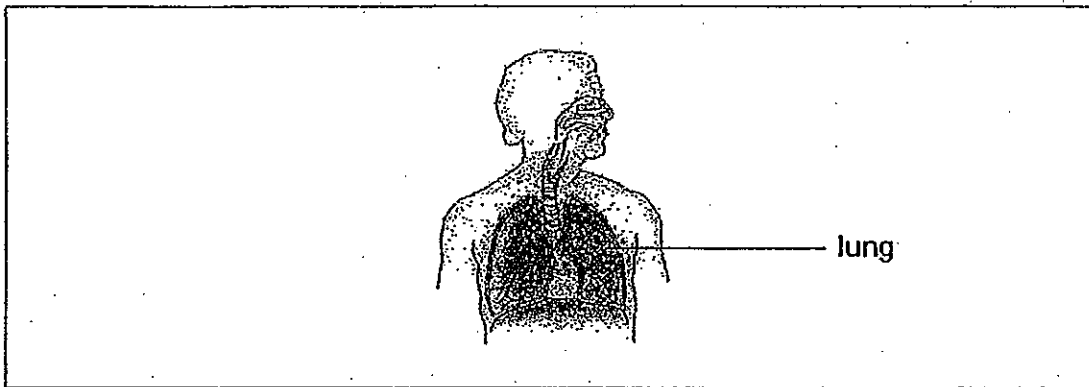
Parts of the respiratory system	Parts
lung	
diaphragm	C
wind pipe	
rib cage	



- (b) Simon completed constructing the lung model with the parts, A, B, C and D, as shown below.



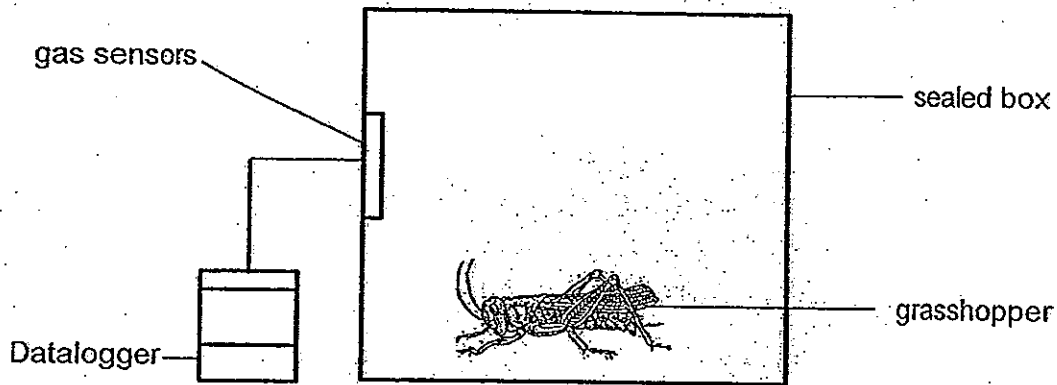
Simon's teacher showed him the following picture of a human respiratory system and suggested that Simon improve on his current model.



Suggest two ways in which Simon could improve his lung model. Provide a reason for each of the ways. [2]

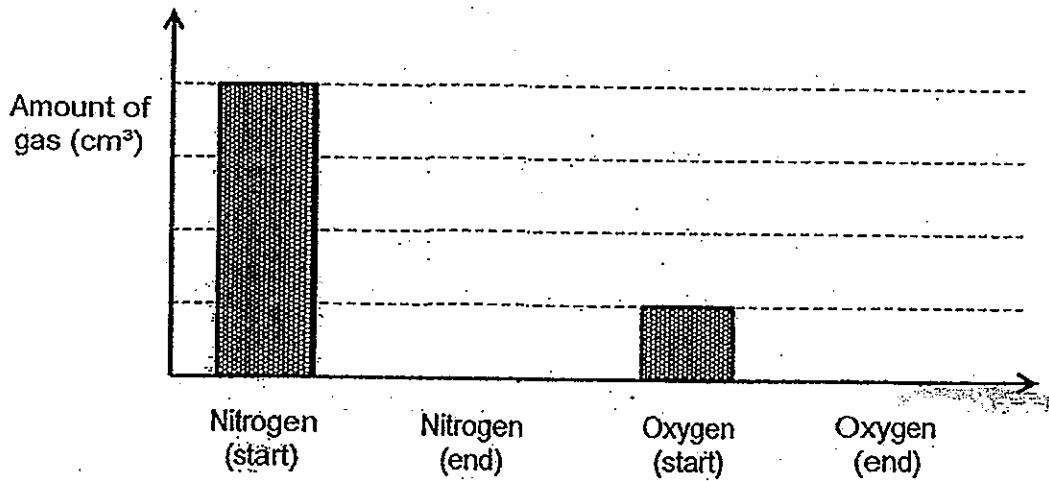
	Ways to improve the lung model	Reason
1		
2		

32. Daniel carried out an experiment. He placed a live grasshopper into a sealed box as shown below.



He then used a datalogger and gas sensors to record the amount of nitrogen and oxygen in the box over a period of 12 hours.

- (a) The graph below shows the amount of nitrogen and oxygen in the box at the start of the experiment. Complete the graph by showing the amount of nitrogen and oxygen at the end of the experiment after 12 hours. [2]



- (b) Explain the change in the amount of oxygen at the end of the experiment. [1]

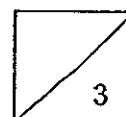
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33. Seeds W are dispersed by animals.



Seeds W

(a) Based on the picture above, describe the adaptation these seeds have that help them in their dispersal by animals. [1]

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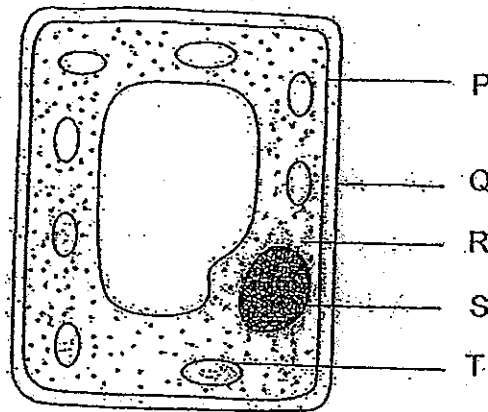
(b) Label on the diagram, the adaptation in (a) [1]

(c) Explain how the adaptation mentioned in (a) helps in the fruit dispersal. [1]

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34. The diagram below shows a plant cell.



(a) Which part/s, P, Q, R, S and/or T, is/are not found in an animal cell? [1]

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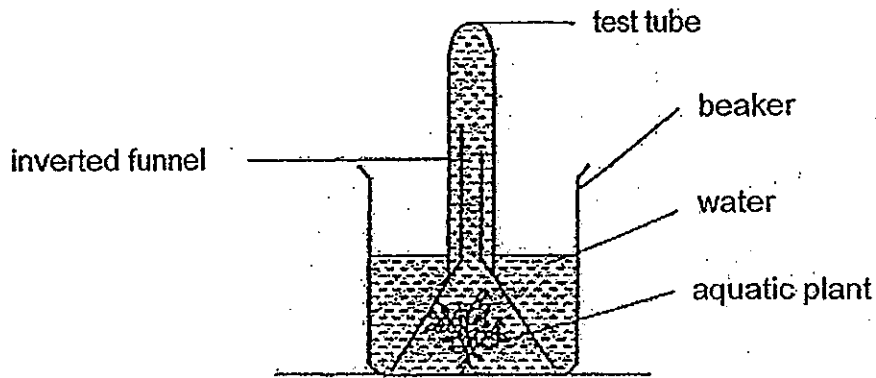
(b) The plant cell was soaked in a liquid containing substance X. The cell does not allow substance X to enter. When part Q was removed, substance X still could not enter the cell. Give a reason for this observation. [1]

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35. Alan wanted to find out if different leaf sizes produce different amounts of oxygen during photosynthesis. He set up the experiment below using an aquatic plant with small leaves.



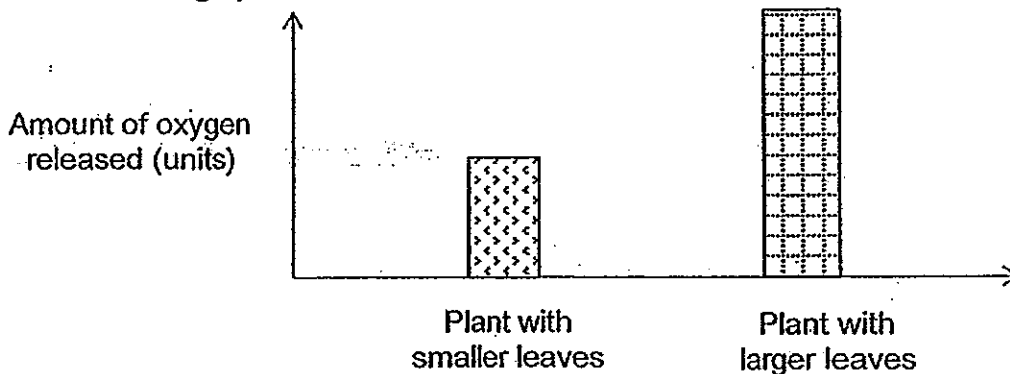
He did not have a gas sensor to measure the amount of oxygen released by the leaves.

- (a) Suggest how he could measure the amount of oxygen released by the plant without additional apparatus. [1]

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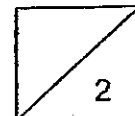
- (b) Alan conducted the experiment with another aquatic plant that had the same number of leaves which were larger. He presented his results in the graph shown below.



Based on the graph, what is the relationship between the amount of oxygen released and the size of the leaves [1]

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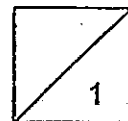


(c) Give a reason for your answer in (b).

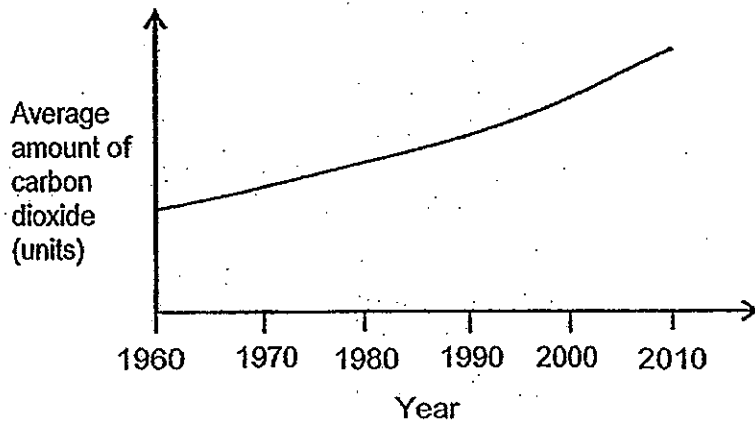
[1]

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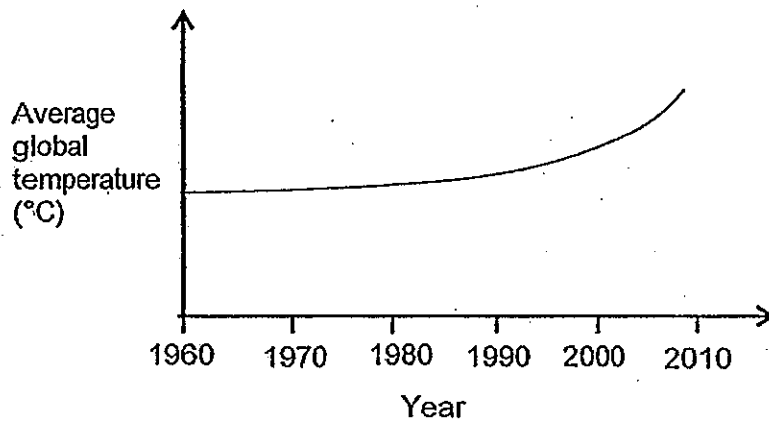
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36. The graph below shows the average amount of carbon dioxide in the atmosphere from 1960 – 2010.



The graph below shows the average global temperature readings from 1960 – 2010.



- (a) What is the relationship between the amount of carbon dioxide in the atmosphere and the average global temperature? [1]

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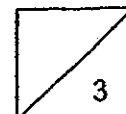
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- (b) Explain how reforestation (massive planting of trees) could reduce the average global temperature over time [2]

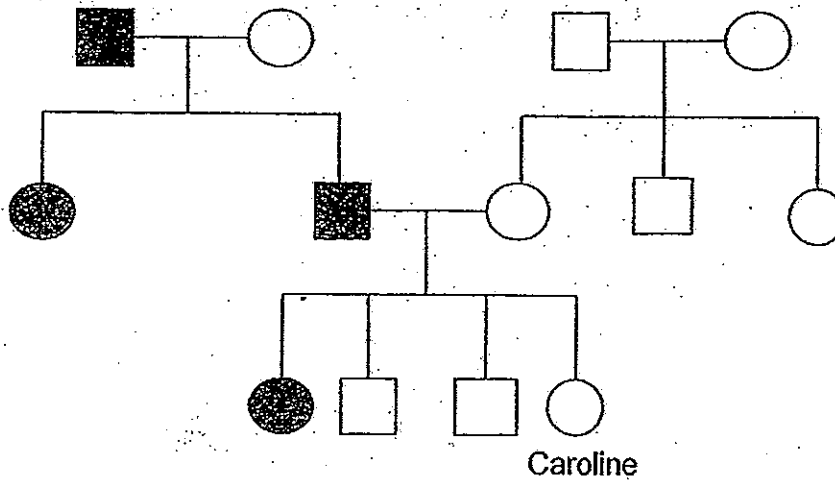
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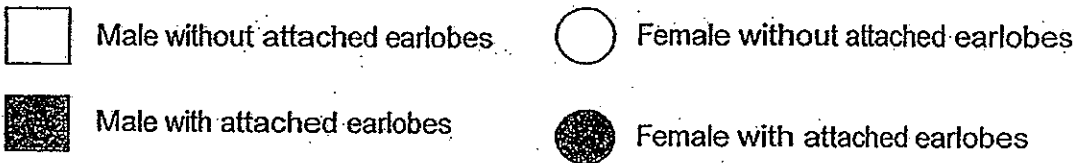
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37. The diagram below shows Caroline's family tree.



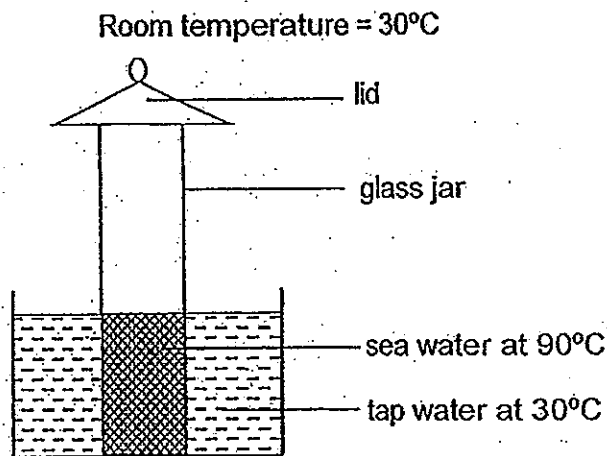
Key



For each of the following statement, put a tick (✓) in the correct box, based on the family tree provided. [2]

Statements	True	False	Not possible to tell
(a) Both of Caroline's grandfathers have attached earlobes.			
(b) Caroline's child would have no attached earlobes.			
(c) Caroline's sister inherited the attached earlobes trait from her father.			
(d) Caroline has one uncle.			

38. James poured some hot sea water into a glass jar. He placed the jar into a basin containing tap water at  $30^{\circ}\text{C}$  and covered it with a dry lid as shown in the set-up below.



- (a) Which liquid, sea water or tap water, would show a decrease in temperature after 15 minutes? Explain your answer. [2]

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- (b) James removed the lid and collected 10ml of water which was found under the lid. Next, James repeated the experiment by replacing the tap water with ice water at  $2^{\circ}\text{C}$ . With this change, would the amount of water found under the lid be more than 10ml or less than 10ml? Give a reason for your answer. [2]

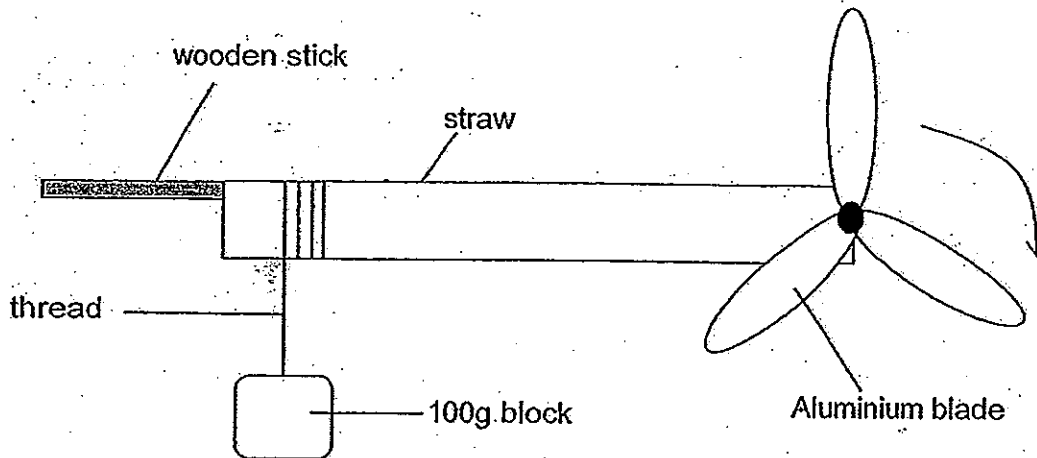
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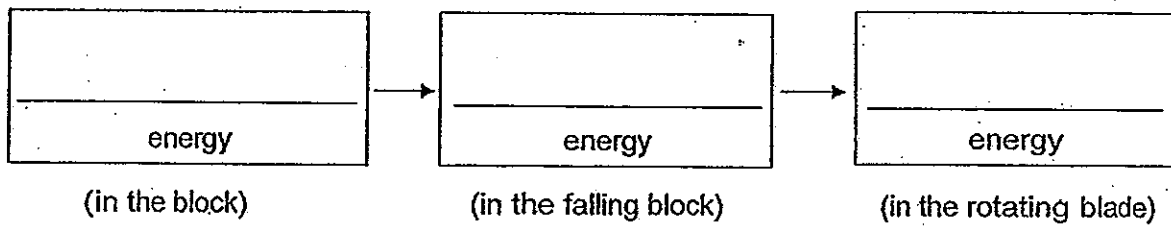
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39. Kay Wen constructed a home-made fan using a wooden stick inserted into a straw. A thread with a 100g block attached to it was wound around one end of the straw as shown below. The fan spun freely when the 100g block was released. Kay Wen counted the number of turns made by the blade of the fan in 10 seconds.



- (a) Write in the boxes provided, the energy change and energy transfer involved when the block was released. [1]



Kay Wen repeated the activity with blocks of different masses, blades of different materials and a different number of blades. She recorded her results in the table below.

Set-up	Mass of block (g)	Material of blade	Number of blades	Number of turns made in 10 seconds
A	100	Aluminium	3	10
B	200	Aluminium	3	15
C	300	Aluminium	5	27
D	100	Copper	4	8
E	200	Copper	4	18
F	300	Copper	5	24

(b) What is the relationship between the mass of the block and the number of turns made in 10 seconds? [1]

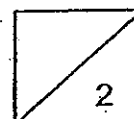
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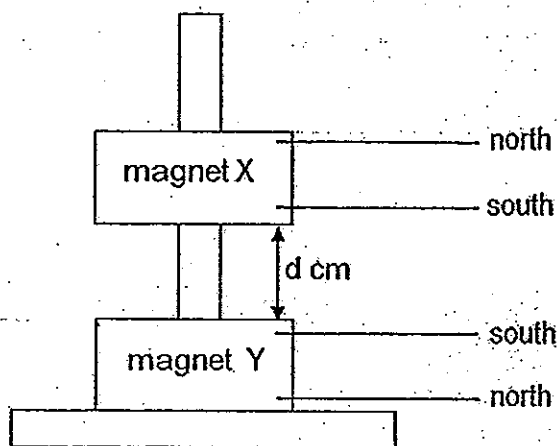
(c) Which two set-ups should Kay Wen choose to find out if blades of different materials affect the number of turns made in 10 seconds? [1]

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40. The set-up below consists of two ring magnets, X and Y.

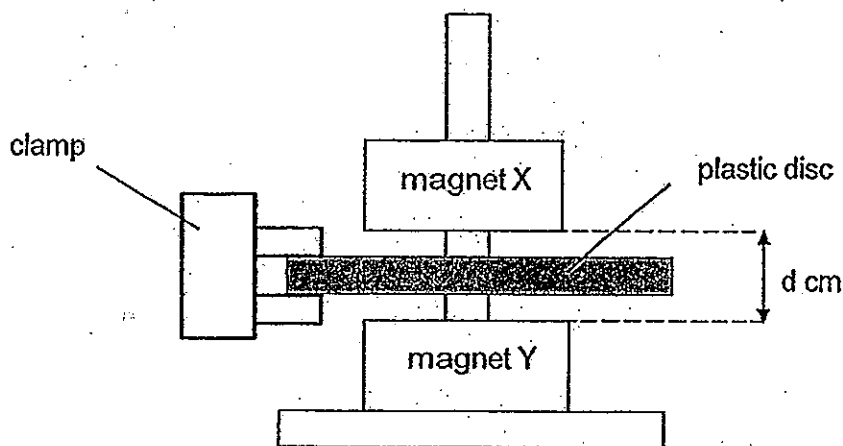


(a) Explain why ring magnet X is floating above ring magnet Y. [1]

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(b) A plastic disc is held in place between ring magnet X and ring magnet Y. The distance,  $d$ , remained the same.

(i) Based on your observation, name one property of the plastic disc. [1]

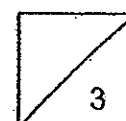
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(ii) Explain why the distance,  $d$ , remained the same. [1]

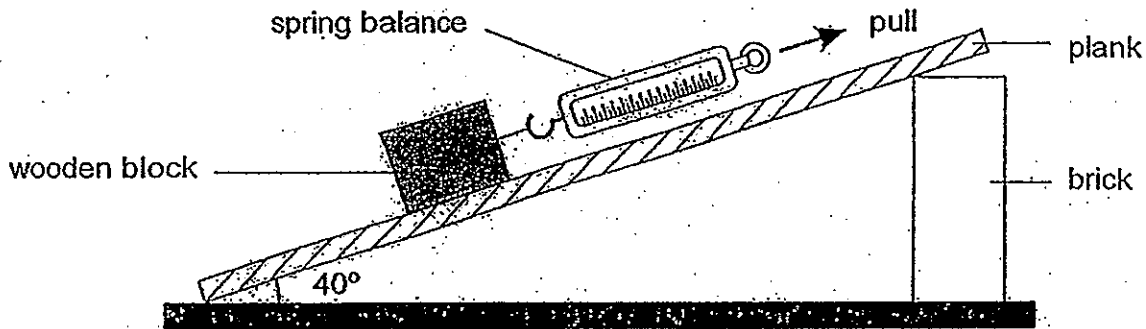
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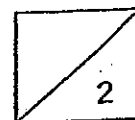


41. Selvam placed a plank on a brick and measured the angle of inclination. He then used a spring balance to pull a 1-kg wooden block along the plank as shown below. He measured the force needed to pull the block up the plank and recorded the readings.



- (a) Using some powder, describe how he could repeat his experiment if he wanted to find out if adding powder would make the surface of the plank smoother. The steps, 2 and 4, had been written for you. [2]

Step	Experimental Procedure
1	
2	Place the same 1-kg wooden block on the plank
3	
4	Measure and record the amount of force needed to move the wooden block





42. Joel conducted an experiment to find out how different materials, A, B and C, affect the amount of light reflected at different distances between the material and the light source ( $d$  cm). The set-up is shown in Diagram 1.

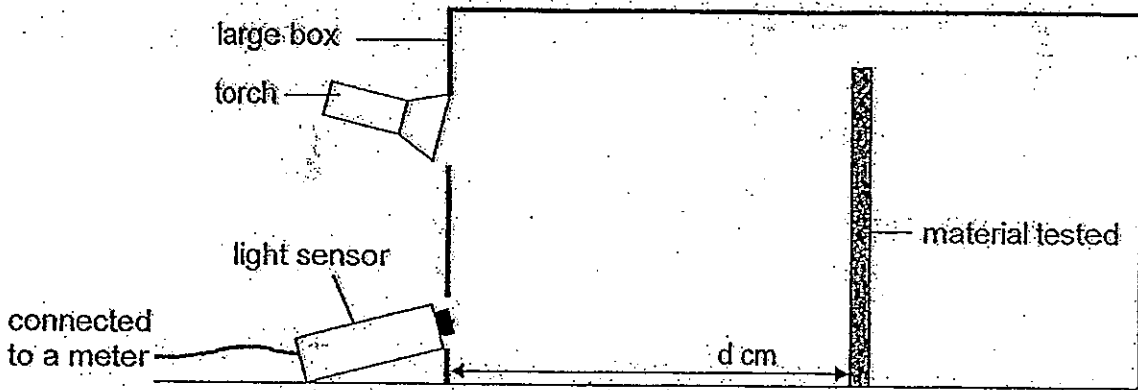
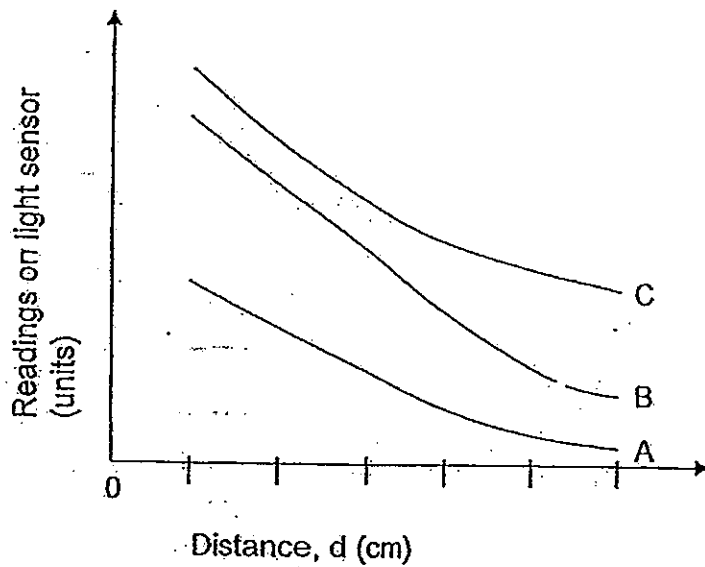


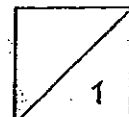
Diagram 1

First, he placed material A at different distances away from the light source and each time, he used a light sensor to measure the amount of light that was reflected.

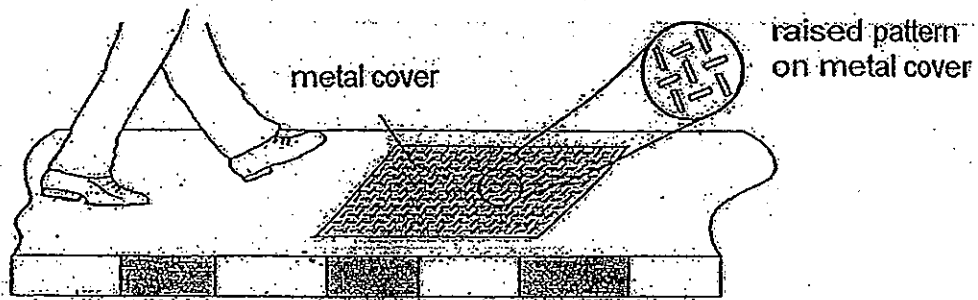
He repeated this activity with material B followed by material C. He recorded the results and plotted the graph below.



- (a) Draw on Diagram 1, a ray of light to show how light from the torch is detected by the light sensor. [1]



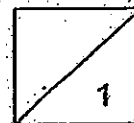
(b) The diagram below shows some raised patterns on the metal cover of a drain.



How does the raised pattern help to prevent people from slipping? [1]

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(b) Explain why Joel should conduct his experiment in an enclosed, dark box to ensure a fair test. [1]

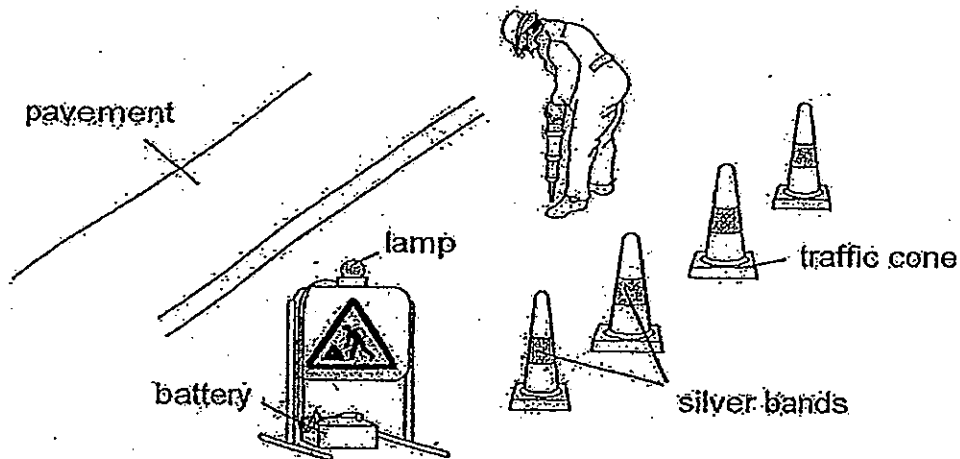
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(c) Put a tick/s in the boxes to indicate the variables that should remain the same to ensure a fair test. [1]

- Material of the box
- Position of the light sensor
- Intensity of the light source

(d) The picture below shows a worker repairing the ground next to a pavement at night.

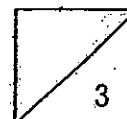


Based on the results of Joel's experiment, which material would be most suitable for making silver bands on traffic cones to warn motorists who travel at night? Explain your answer. [1]

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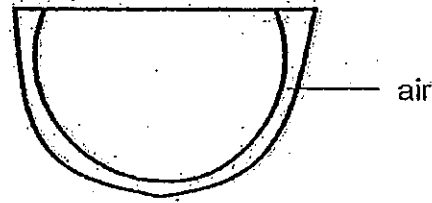
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43. Mrs Tey poured the same amount of hot tea into a single-layer glass cup and a double-layer glass cup as shown below.



single-layer glass cup



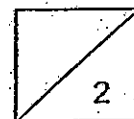
double-layer glass cup

When holding the cup with her hands, Mrs Tey noticed that the double-layer cup felt cooler than the single-layer cup. Explain her observation. [2]

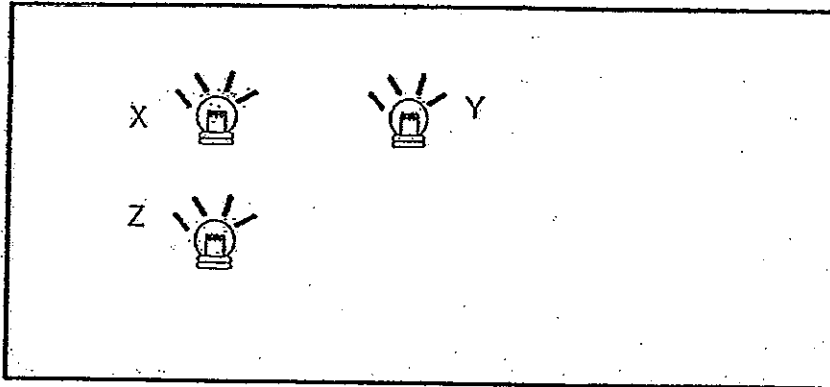
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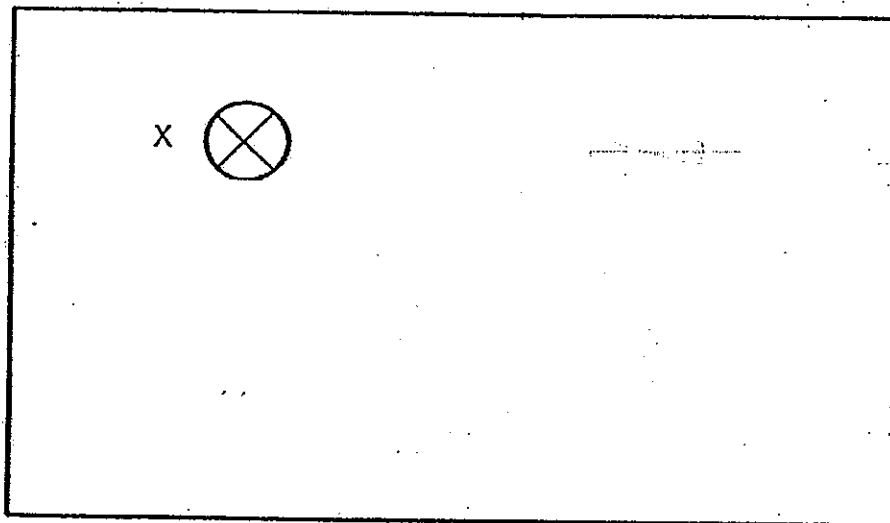
44. Jordan was given a switch, some wires, 2 batteries and 3 similar bulbs; X, Y and Z. He set up a circuit which was hidden in a shoe box, leaving only the bulbs exposed. The diagram below shows the top view of the box and the position of the bulbs.



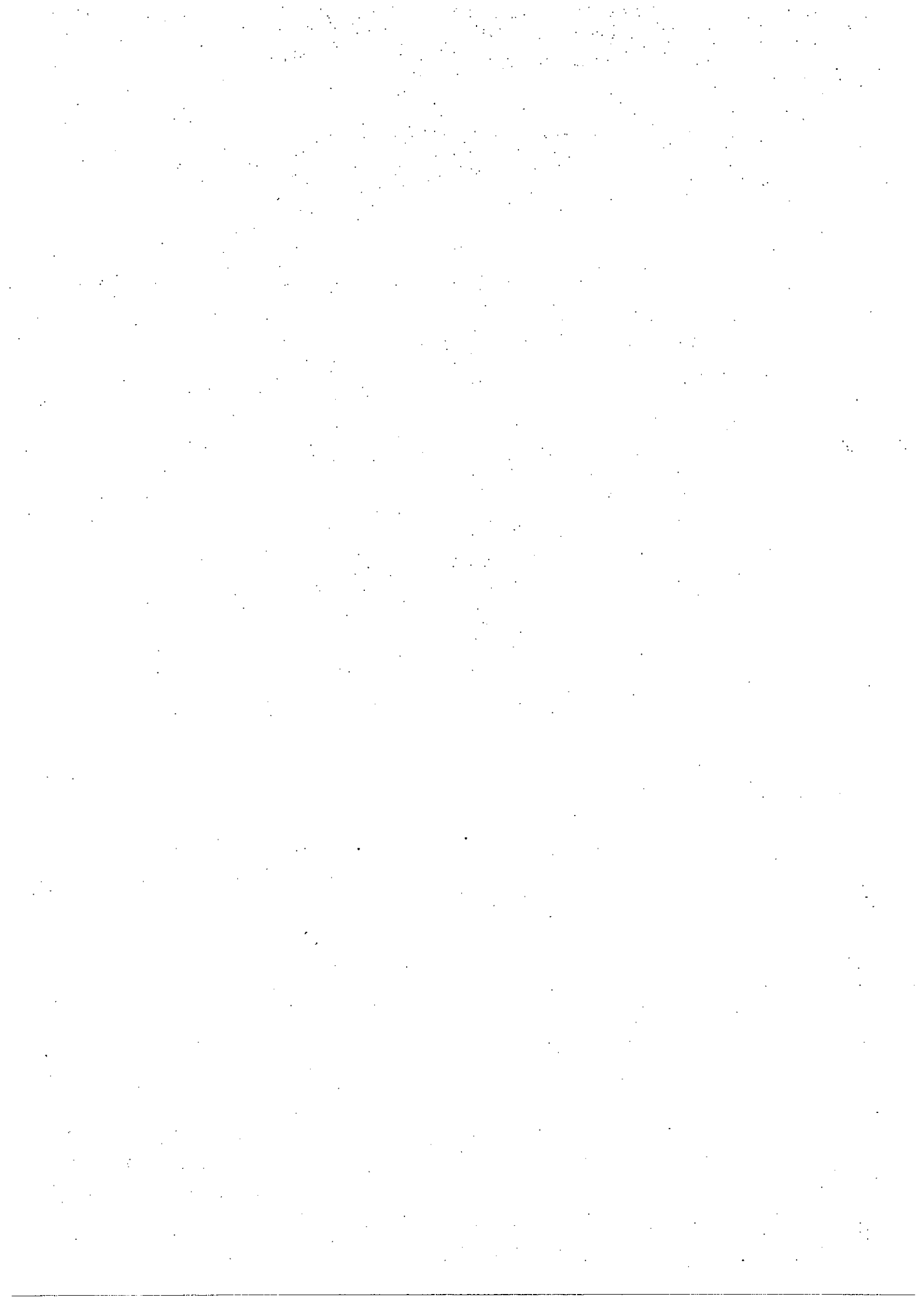
When the switch was closed, all the bulbs lit up. Jordan then removed the bulbs X, Y and Z one at a time while the switch remained closed. He recorded the following observations when only one bulb was removed each time.

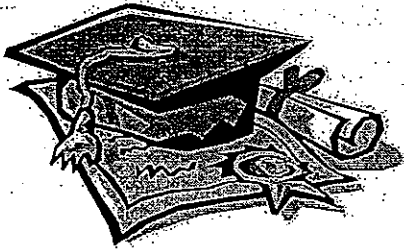
Bulb removed	Observations made on the remaining bulbs
X	Only bulb Y remained lit
Y	Both bulbs X and Z remained lit
Z	Only bulb Y remained lit

In the space provided below, draw the circuit diagram (using symbols) that Jordan had set up. Bulb X has been drawn for you. [2]



End of Booklet B





# ANSWER SHEET

**EXAM PAPER 2013**

**SCHOOL : HOKKIEN**

**SUBJECT : PRIMARY 6 SCIENCE**

**TERM : PRELIM**

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

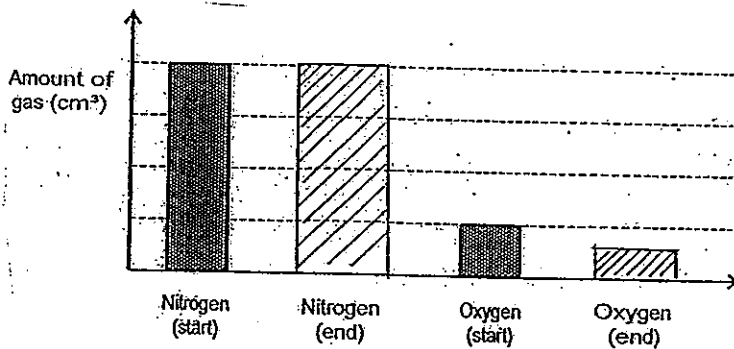
Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
1	2	1	1	4	3	3	1	1	1	2	2	1

31)a) A, C, D, B

b)1) Simon should use two balloons. / To represent 2 lungs.

2) Simon should use a Y-shaped tube. / To represent the windpipe and bronchi.

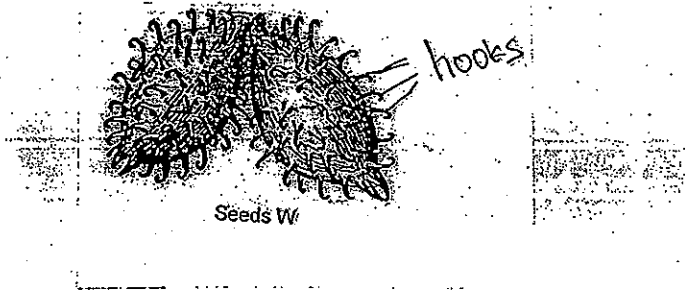
32)a)



b) The amount of oxygen decreased. The grasshopper took in oxygen during respiration.

33)a)The hook-like structures/hooks.

b)



c)The seed has hook-like structures to attach itself the coast of animal.

34)a)Parts Q and T.

b)The cell membrane/part P did not allow any substance/substance X to pass through.

35)a)He can count the number of bubbles give out over a fixed period time/compare the height of the water level in the test tube/compare the amount of air space in the test tube.

b)The greater the size of the leaf, the more the amount of oxygen released by the leaf.

c)A larger leaf has more chlorophyll/ can receive more sunlight/so rate of photosynthesis increases.

36)a)As the amount of carbon dioxide in the atmosphere increase, the average global temperature increases.

b)Reforestation will help reduce the amount of carbon dioxide as trees take in carbon dioxide for photosynthesis and this will result in less heat trapped.

37)a)T b)Not c)T d)T

38)a)Sea water. sea water is hotter than tap water so sea water lost heat to the tap water, so heat traveled from the sea water to the tap water, so there was heat transferred from the sea water to the tap water.

b)The amount of water found under the lid will be less than 10ml as the sea water cooled down more quickly, so less water evaporated and less water vapour condensed under the lid.

39)a)Gravitational Potential → Kinetic energy → Kinetic energy

b)The greater the mass of the block, the greater the number of turns made by the blade in 10 seconds.

c)Set-up C and F.



40)a) The like poles of both ring magnets, X and Y are facing each other so they repel each other and that kept X suspended above Y.

b)i) The plastic disc is made of non-magnetic material.

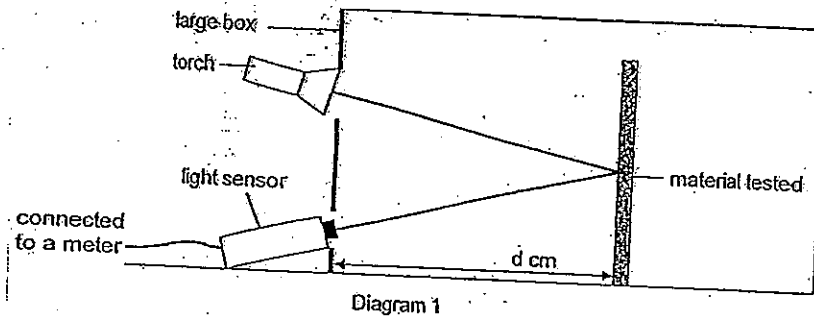
ii) The plastic disc allows magnetism to pass through and did not affect the magnetic strength of the magnets, X and Y, so  $d$  remains the same.

41)a) 1) Add powder on the entire surface of the plank.

3) Use the spring balance to pull the wooden block up the plank.

b) The surface of the metal cover will become rougher and friction between the shoes and the metal cover will increase to prevent people from slipping.

42)a)



b) So that light from the surroundings will not interfere with the experiment and cause the readings to be wrong.

c) ✓

✓

✓

d) Material C. It is able to reflect the most amount of light compared with the other materials so silver bands from far away.

43) Air is a bad conductor of heat. A single-layer glass cup has no air so it conducts heat from the hot tea to the her hands faster than the double-layer glass cup.

44)

