CATHOLIC HIGH SCHOOL
PRELIMINARY EXAMINATION 1
2014
PRIMARY SIX

SCIENCE

BOOKLET A

Name: _____ ( )

Class: Primary 6 - _____

Date: 16 May 2014

30 questions

60 marks

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

INSTRUCTIONS TO CANDIDATES

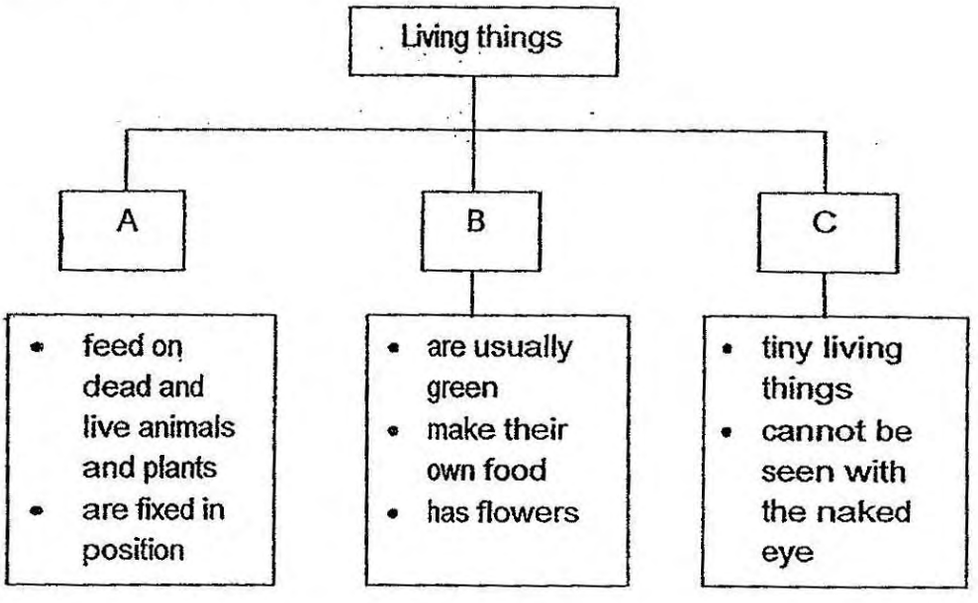
Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Shade your answers in the Optical Answer Sheet (OAS) provided.

This booklet consists of 26 printed pages, excluding cover page.

Booklet A (30 × 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 your answer on the Optical Answer Sheet. (60 marks)

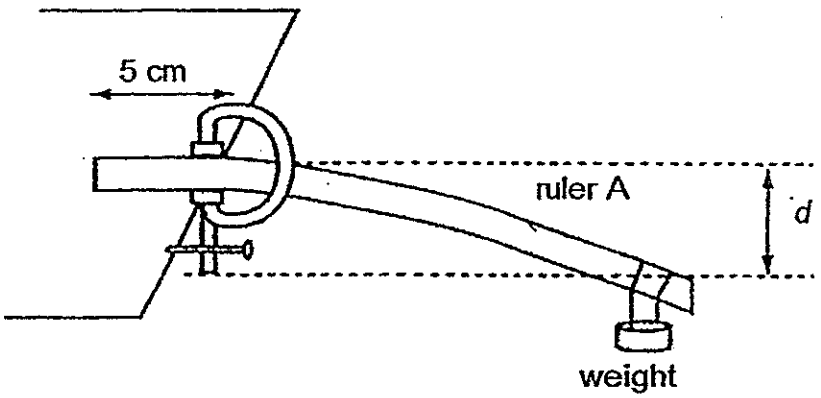
1 Study the classification chart below.



Which of the following headings do A, B and C represent?

	A	B	C
(1)	Fungi	Micro-organisms	Non-flowering plants
(2)	Fungi	Flowering plants	Micro-organisms
(3)	Plants	Decomposers	Micro-organisms
(4)	Decomposers	Flowering plants	Fungi

2 Zenon fixed one end of a ruler A to a table and hung a weight on the other end. He then observed how far the ruler could be bent, just before it broke, by measuring the distance *d*, as shown in the diagram below.



Zenon repeated the above experiment with three other rulers, B, C and E, and recorded his results in the table below.

Ruler	Distance *d* (cm)
A	3
B	7
C	5
E	10

Arrange the rulers according to their flexibility, starting with the most flexible to the least flexible.

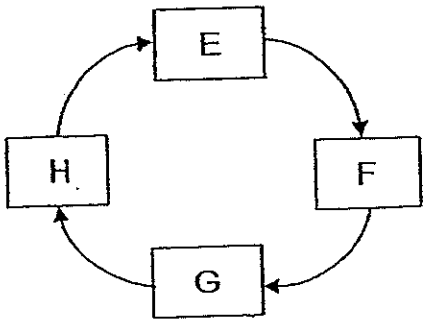
(1) A, B, C, E

(2) A, C, B, E

(3) C, B, E, A

(4) E, B, C, A

3 Each letter in the diagram below represents a stage in the life cycle of a mealworm beetle.



Which of the following statements are true if G represents the adult stage?

A At Stage H, it has developed wings.

B At Stage G, it spends most of its time eating.

C At Stage E, it moults several times as it grows.

D At Stage F, it does not move around and does not eat.

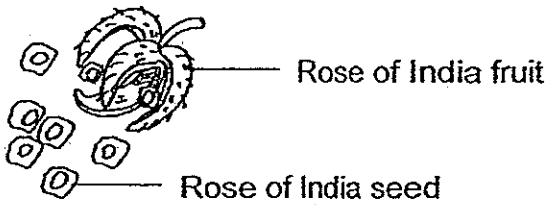
(1) A and B only

(2) A and C only

(3) B and D only

(4) C and D only

4 Lionel did some findings on the seeds of the Rose of India fruit and presented them in the table below. The seeds of the Rose of India were dispersed by wind after the Rose of India fruit split open.



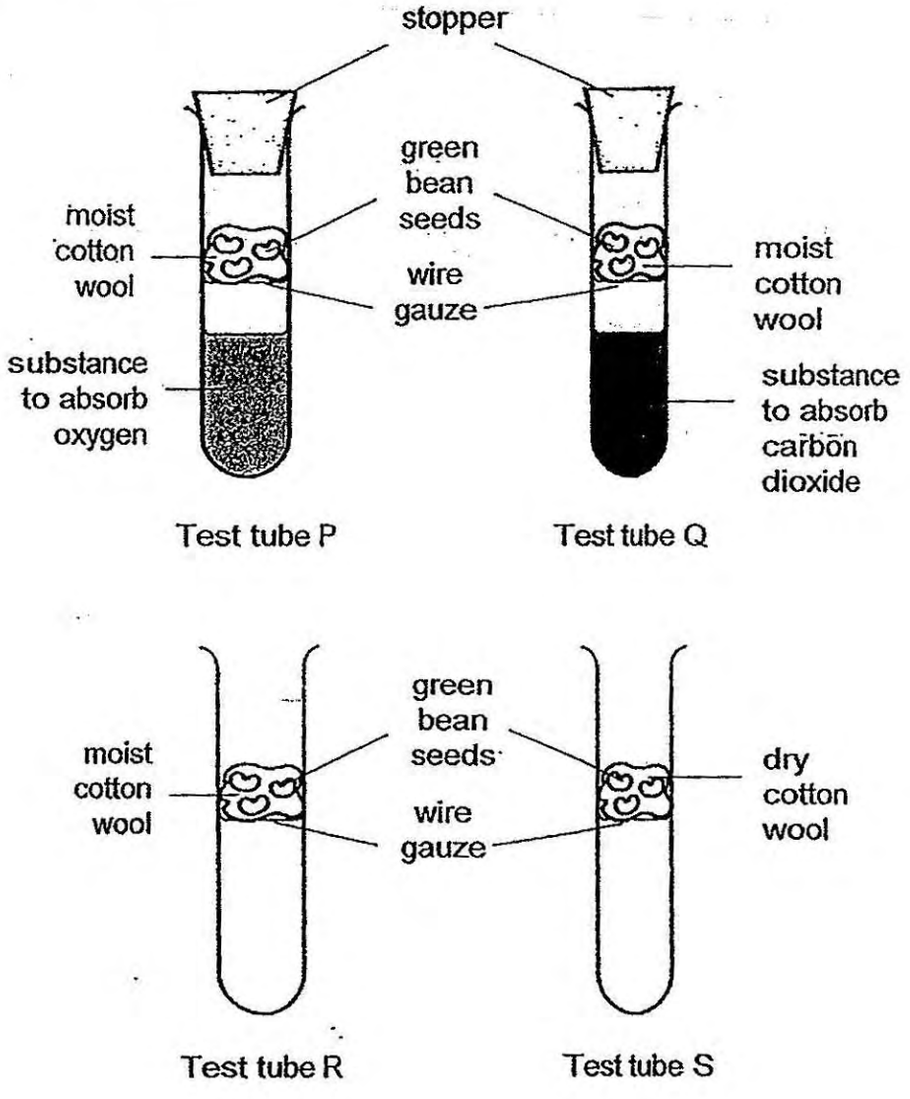
Rose of India seeds	Surface area of seed (cm^2)
A	0.25
B	0.75
C	0.5
D	1

He then dropped seeds A, B, C and D, one at a time, from a fixed height above the ground and recorded the distance travelled by each seed.

Which of the following most likely shows Lionel's results?

	Distance moved by the Rose of India seeds (cm)			
	A	B	C	D
(1)	14.5	43.8	23.1	56.7
(2)	14.5	23.1	43.8	56.7
(3)	23.1	56.7	14.5	43.8
(4)	56.7	14.5	43.8	23.1

5 Meiling placed seeds in 4 test tubes of the same size, P, Q, R and S. Test tubes P, Q and S were kept in a room with temperature of 30°C while test tube R was kept in a black box with temperature of 30°C. The 4 test tubes were exposed to different conditions as shown in the diagram below.



In which of the above test tubes would the seeds most likely to germinate?

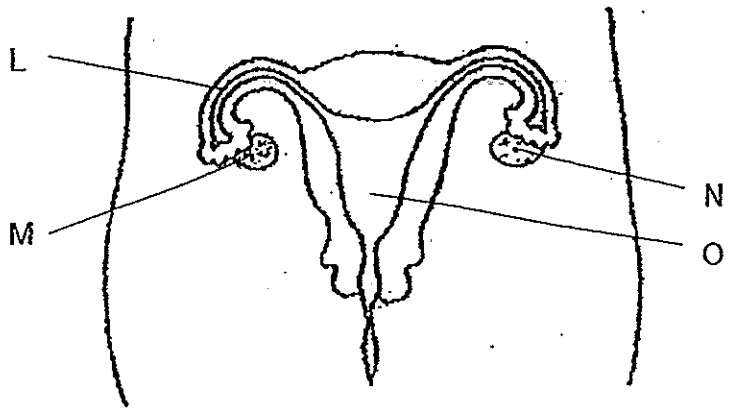
(1) P and R only

(2) P and S only

(3) Q and R only

(4) Q and S only

6 The diagram below shows a female reproductive system.



Which of the following statements are true?

A M and N are the ovaries.

B L provides nutrients to the foetus.

C M can still produce eggs if N is removed.

D O is the place where a fertilized egg will develop into a foetus.

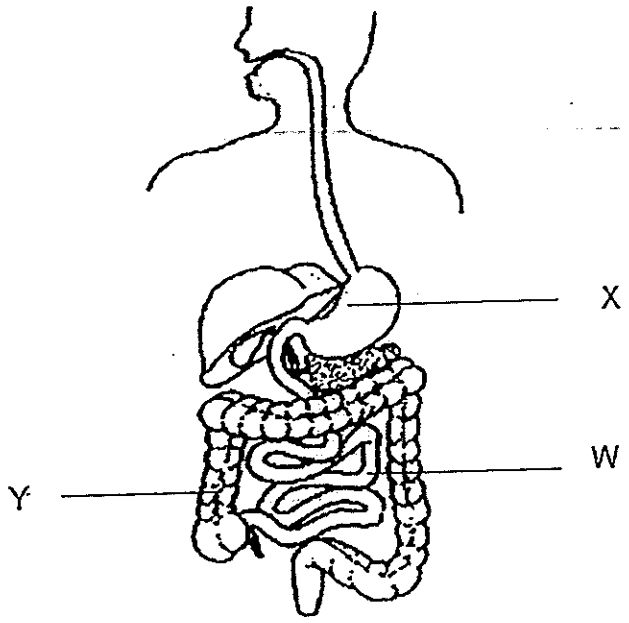
(1) A and B only

(2) A, C and D only

(3) B, C and D only

(4) A, B, C and D

7 Look at the diagram of a human digestive system below.

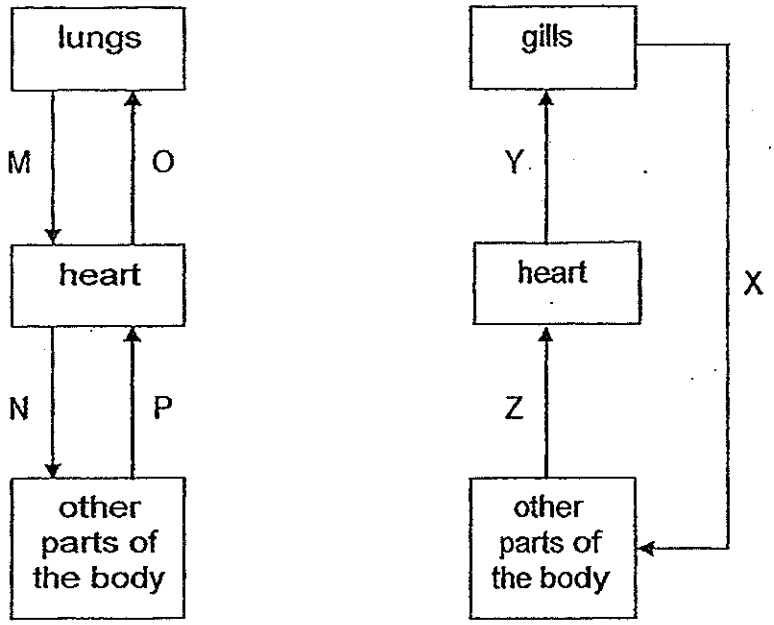


Which of the following correctly shows what happens at W, X and Y?

	W	X	Y
(1)	Digestion of food	Absorption of water	Absorption of water
(2)	Absorption of water	Completion of digestion	Absorption of digested food
(3)	Completion of digestion	Digestion of food	Absorption of digested food
(4)	Absorption of digested food	Produces digestive juices	Absorption of water

8 The diagrams below show the circulatory systems of two organisms, a man and a fish.

The arrows represent the blood vessels that carry blood around the body.



Circulatory System of a Man

Circulatory System of a Fish

Based on the diagrams above, which of the following statements is/are correct?

A Only blood vessels O, P and Y carry blood with less oxygen.

B Oxygen-rich blood from the heart goes to the gills of the fish.

C Only blood vessels M, N and X carry blood with more oxygen.

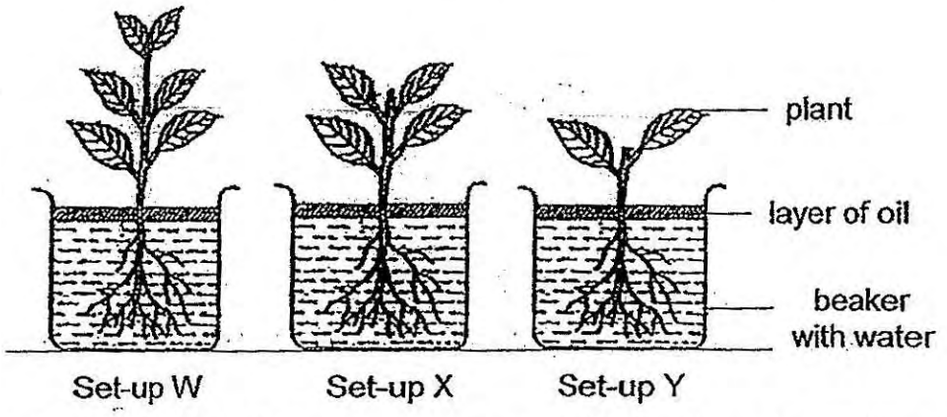
(1) C only

(2) A and B only

(3) B and C only

(4) A, B and C

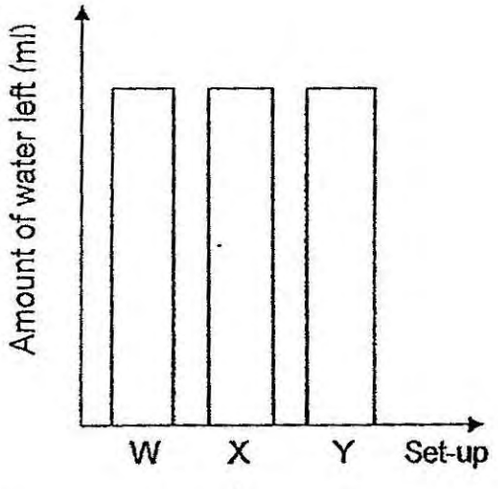
9 Lucien placed three plants of the same species in identical beakers. Each beaker contained an equal amount of water as shown in the diagram below. He placed set-ups W, X and Y near a window for a day.



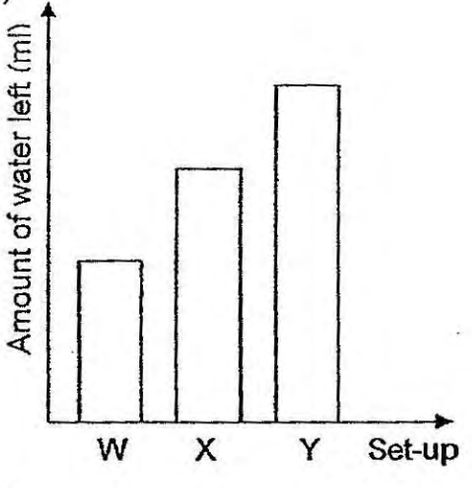
He then recorded the amount of water left in each beaker at the end of his experiment.

Which one of the following graphs below shows the correct height of water level in set-ups W, X and Y at the end of the experiment?

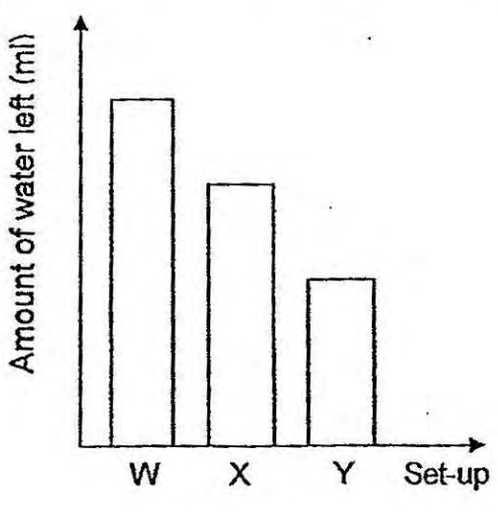
(1)



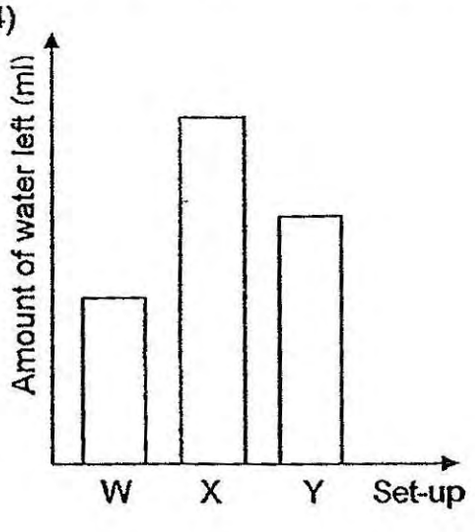
(2)



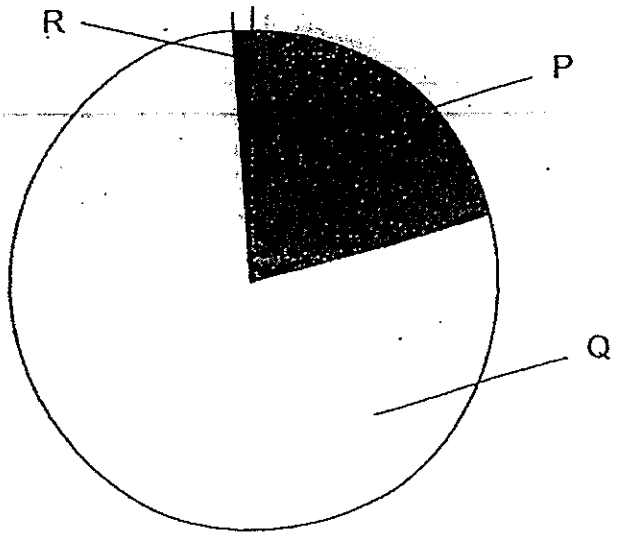
(3)



(4)



10 The amount of different gases in the air is shown in the pie chart below.



Which of the statements are true?

A Plants take in R during respiration.

B Plants produce P during photosynthesis.

C Animals only breathe out R during gaseous exchange.

D Animals breathe in P, Q and R during gaseous exchange.

(1) A and B only

(2) A and C only

(3) B and D only

(4) B, C and D only

11 Four pupils observed some plant and animal cells under a microscope. They recorded their observations and their findings in the table below.

Name of pupil	Observations on cell parts seen	Function of mentioned cell parts
Ian	Both the plant and animal cells have cell membranes.	Holds the cytoplasm and chloroplasts inside the cell.
Lucas	The plant cell has a cell wall but an animal cell does not have a cell wall.	Controls the movement of substances in and out of the cell.
Callum	Both the plant and animal cells have cell membranes.	Controls the movement of substances in and out of the cell.
Nathan	Both the plant and animal cells have cytoplasm.	Place where many activities of the cell takes place.

Which of the children made the correct conclusions?

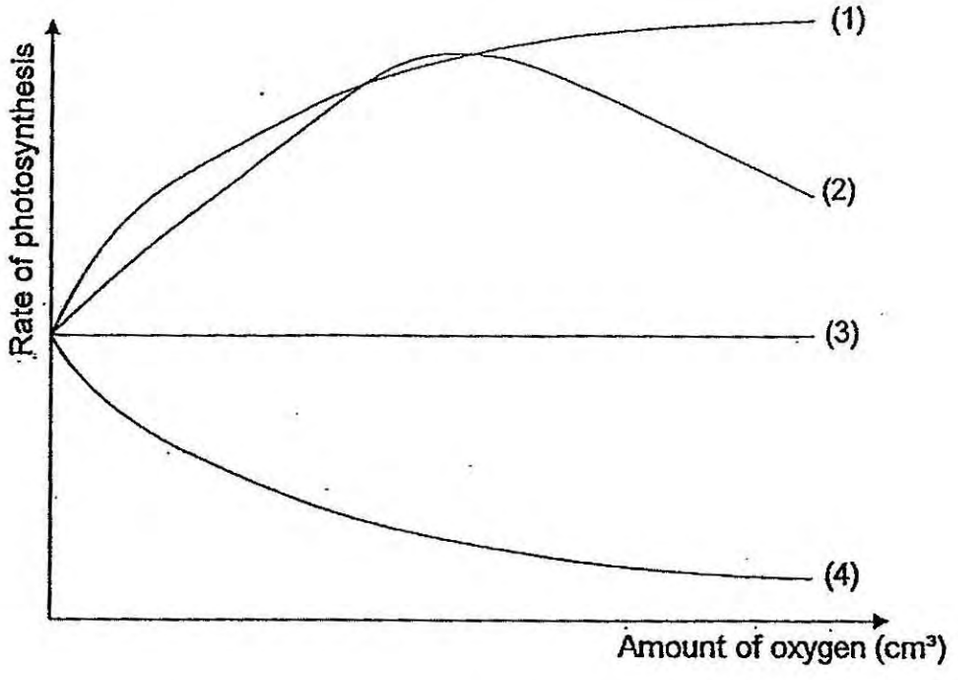
(1) Ian and Lucas

(2) Callum and Nathan

(3) Nathan, Ian and Lucas

(4) Nathan, Callum and Lucas

12 Joel carried out an experiment to see how the amount of oxygen taken in during respiration affects the rate of photosynthesis in a plant. Which of the following correctly shows the results of his experiment if he had carried out a fair test?



13 Hendric counted the number of organisms in a pond community and recorded the findings below.

Organisms	Number of organisms
Guppy	8
Mosquito larva	1
Water lily	10
Mosquito	3
Pond skater	3
Water hyacinth	3
Mosquito pupa	4
Water moss fern	7

Which of the following statements about the organisms in the pond community is true?

(1) There were 6 populations of animals altogether.

(2) There were 8 populations of organisms altogether.

(3) The population size of the mosquito is the same as that of the guppy.

(4) There are more organisms in the animal populations than plant populations.

14 The characteristics of Environment P are listed in the table below.

Environment P	
Temperature	24°C
Light Intensity	0 units to 10 units
Moisture	Very high
Availability of oxygen	Very little
Availability of carbon dioxide	High

The table below shows the characteristics of the preferred habitats of 3 organisms, A, B and C.

Organisms	Characteristics of Preferred Habitat			
	Temperature	Light Intensity	Moisture	Air
A	15°C to 25°C	11 units	Very High	Thrives well in places rich in oxygen
B	20°C to 30°C	3 units	Very High	Thrives well in places poor in oxygen
C	Any temperature	5 units	Very High	Thrives well in places rich in carbon dioxide

Which of these organisms, A, B or C, could live in Environment P?

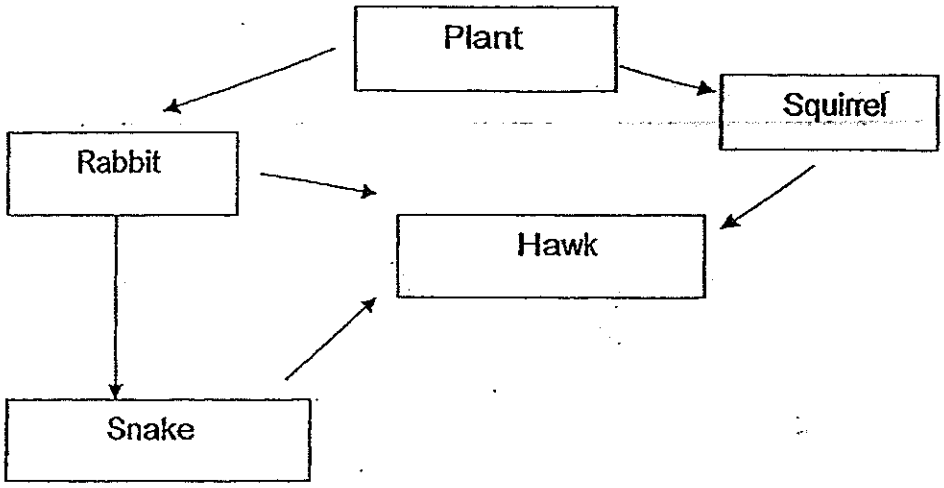
(1) A only

(2) B only

(3) A and C only

(4) B and C only

15 Study the food web shown below.



Which organisms would be most badly affected over a long period of time if all the rabbits are removed from the food web?

A Plant

B Snake

C Squirrel

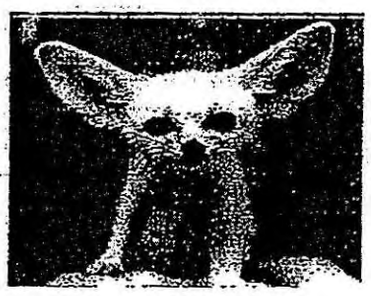
(1) A and B only

(2) A and C only

(3) B and C only

(4) A, B and C

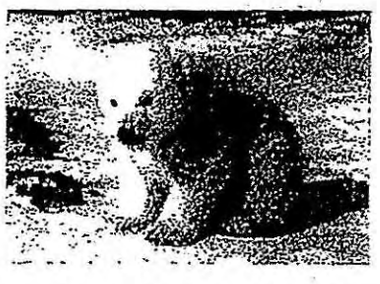
16 The pictures below show some adaptations which animals use to cope with the extreme temperature in their environment.

A 

Fennec fox has big oversized ears.

B 

Camel urinates very little.

C 

Polar bear has small ears.

D 

Grizzly bear hibernates.

E 

Emperor penguins huddle together in groups.

Which of the following are examples of behavioural adaptations of animals to cope with the extreme temperature in their environment?

(1) A and C only

(2) B, D and E only

(3) C, D and E only

(4) B, C, D and E only

17 The table below shows the freezing points of three substances, A, B and C.

Substance	Freezing Point (°C)
A	10
B	40
C	160

Based on the above information, which one of the following is correct?

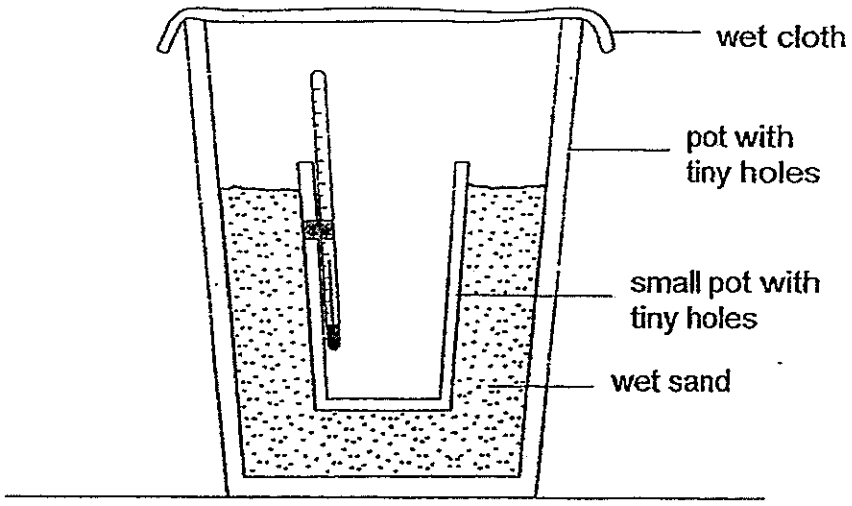
(1) A is a solid at 8°C.

(2) A and B are both liquids at 35°C.

(3) B and C are both solids at 170°C.

(4) C can be a liquid or a gas at 160°C.

18 Oliver set up an experiment in a classroom as shown below.



Which of the following would most likely result in a drop in the temperature of air inside the small pot?

A Use a dry cloth to cover the pot.

B Add cold water to the wet sand.

C Place a fan in front of the set-up.

D Add warm water to the wet sand.

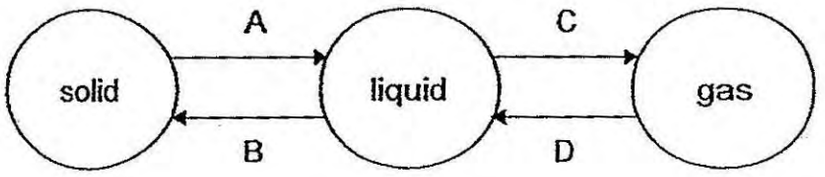
(1) A and D only

(2) B and C only

(3) B and D only

(4) A, B and C only

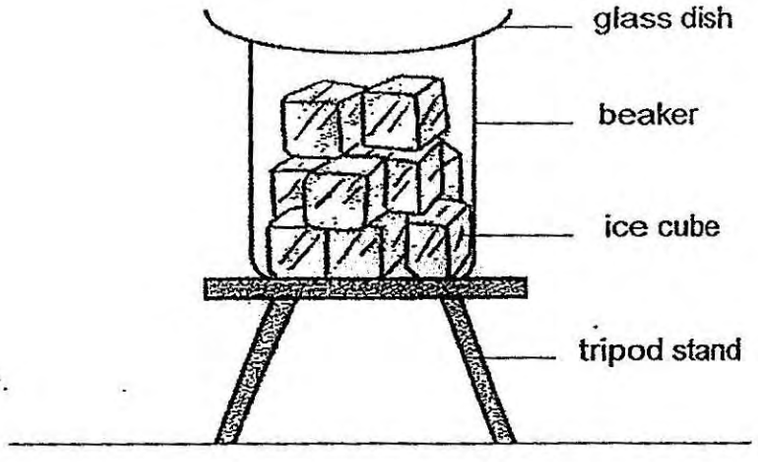
19 The diagram below represents the changes in the states of water.



Which of the following do A, B, C and D represent?

	A	B	C	D
(1)	Melting	Freezing	Boiling	Condensation
(2)	Melting	Evaporation	Freezing	Boiling
(3)	Freezing	Condensation	Melting	Evaporation
(4)	Condensation	Melting	Evaporation	Boiling

20 Patrick set up an experiment at room temperature as shown in the diagram below.



What would most likely happen after some time?

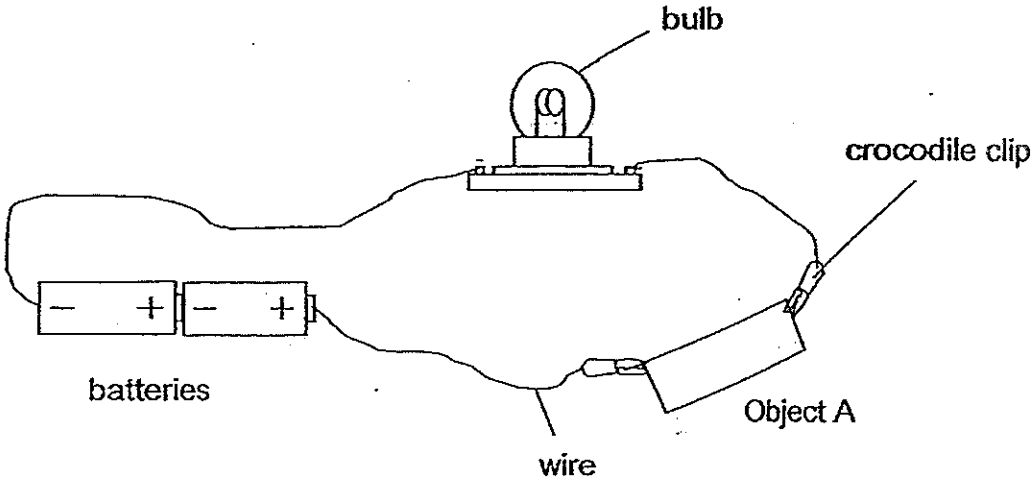
(1) The inside of the beaker would be dry.

(2) There would be tiny water droplets on the outside of the beaker.

(3) There would be water vapour collected on the inside of the beaker.

(4) There would be more water droplets on the underside of the glass dish.

21 Jacob carried out an investigation to find out if objects, A, B, C and D, allow electricity to pass through the electrical circuit as shown below.



He repeated the same experiment using objects, B, C and D. The four objects, A, B, C and D, are made of different materials but are similar in size and thickness.
Jacob recorded the results in the table shown below.

Object	Does the bulb light up?
A	Yes
B	No
C	Yes
D	No

Which of the following shows the materials which objects A, B, C and D are made of?

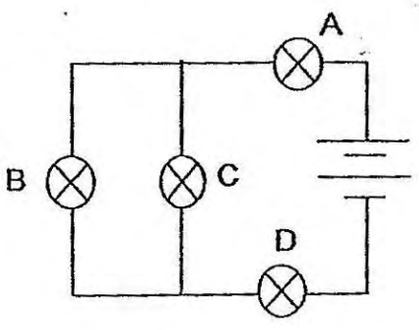
	A	B	C	D
(1)	iron	ceramic	copper	rubber
(2)	steel	iron	paper	fabric
(3)	fabric	ceramic	plastic	carbon
(4)	rubber	steel	glass	carbon

22 Ronald was asked to suggest how four bulbs could be arranged. All bulbs were initially lit. The table below shows which bulbs would continue to light up when one of the bulbs had fused.

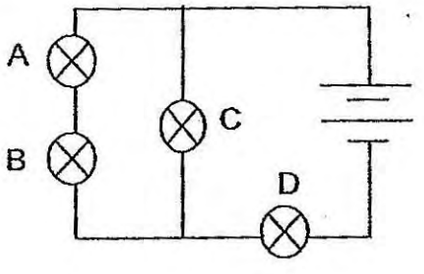
Fused bulb	Bulb(s) that light up
A	None
B	A, C and D
C	A, B and D
D	None

Based on the information above, which one of the following circuit diagrams is correct?

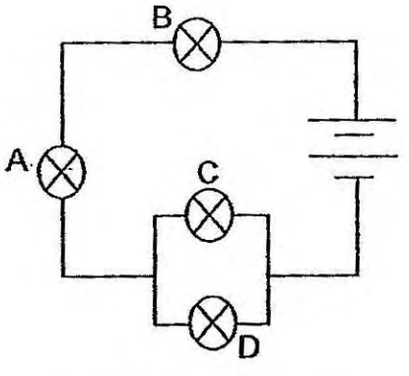
(1)



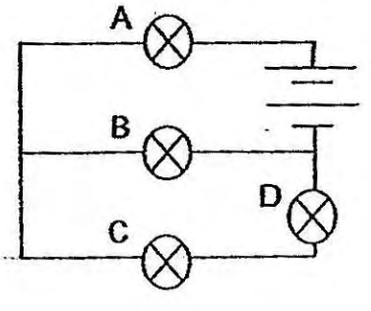
(2)



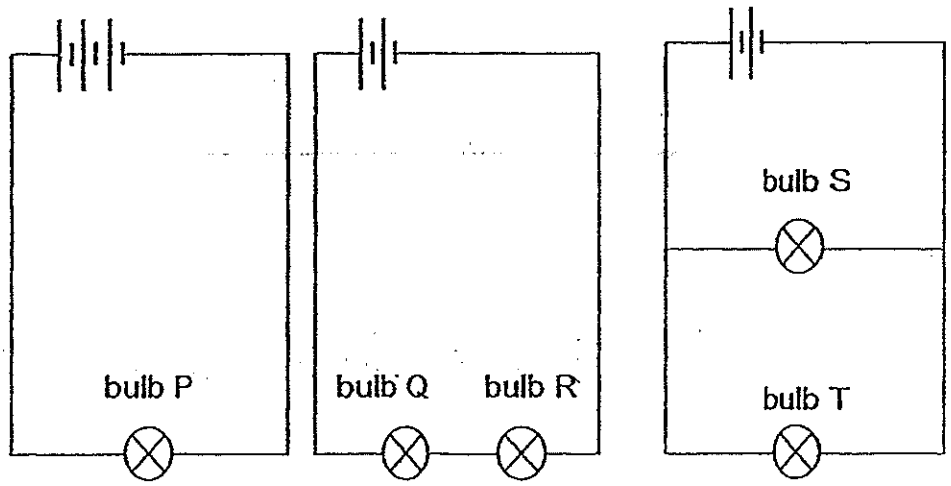
(3)



(4)



23 Circuits C, D and E are made up of similar batteries and bulbs.



Circuit C Circuit D Circuit E

Which of the following shows the correct order of bulbs arranged from the brightest to the least bright bulbs?

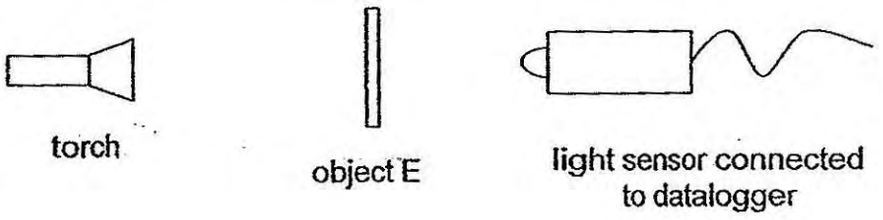
(1) R, S, P

(2) S, R, Q

(3) P, S, R

(4) T, Q, P

24 Kienan set up an experiment as shown below using object E.



He repeated the same experiment using objects F, G and H. The four objects, E, F, G and H, are made of different materials but are similar in size and thickness. He recorded the amount of light picked up by the light sensor connected to the datalogger as shown in the table below.

Object	Amount of light detected by datalogger (lux)
E	350
F	400
G	150
H	0

What was the aim of Kienan's experiment?

To find out how _____.

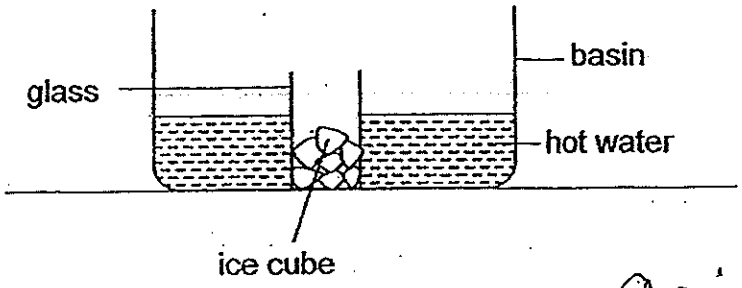
(1) the amount of light detected by the datalogger affects the material of the object

(2) the material of an object affects the amount of light allowed to pass through the object

(3) the thickness of an object affects the amount of light allowed to pass through the object

(4) the size of an object affects the amount of light allowed to pass through the object

25 Faridah put a glass of ice cubes into a basin of hot water as shown below.



gain in heat

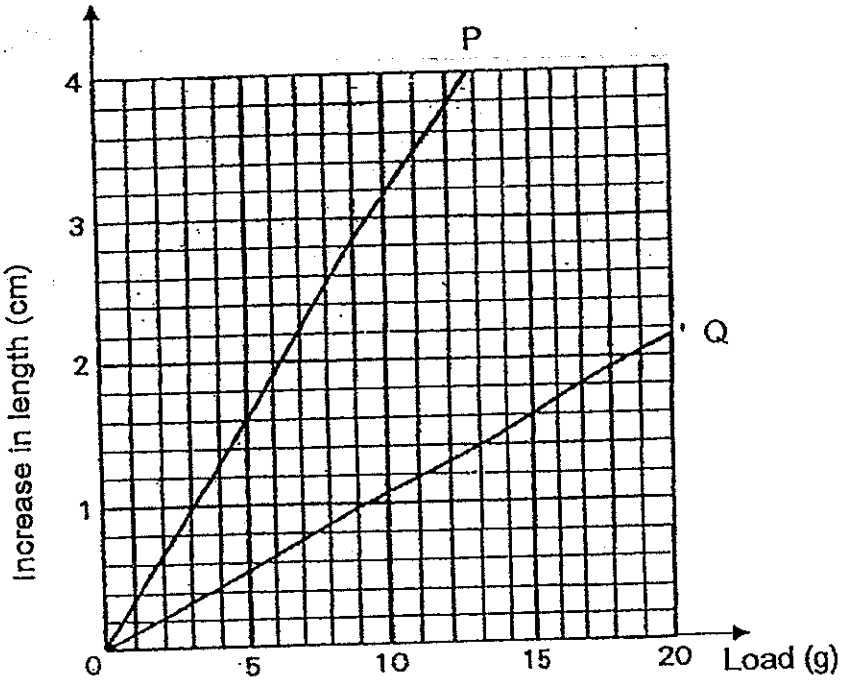
Which of the following items will experience a ~~rise in temperature?~~

A Basin
B Glass
C Hot water
D Ice cubes

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

Use the graph below to answer questions 26 and 27.

26. The graph below shows the increase in length of two springs, P and Q, when loads were hung on them. The original length of both springs is 2 cm.



What is the length of Spring P when a weight of 5g is hung on it?

(1) 0.6 cm

(2) 1.6 cm

(3) 2.6 cm

(4) 3.6 cm

27 Based on the graph above, which one of the following statements is true?

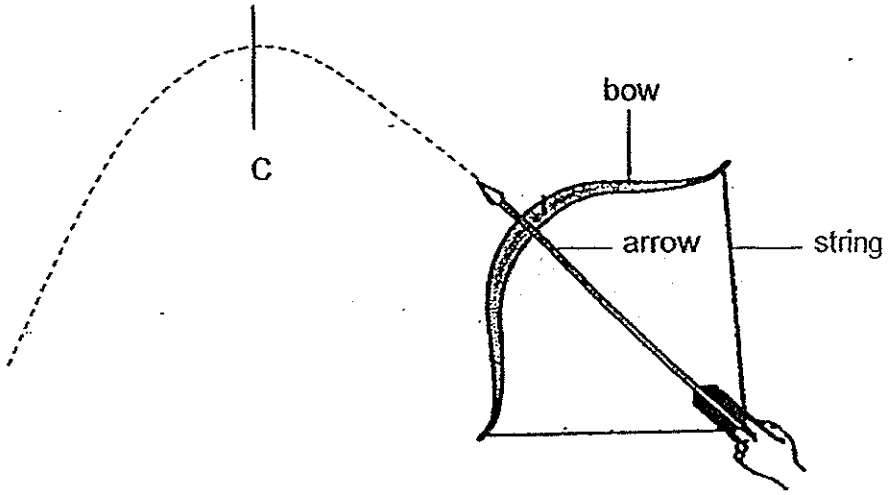
(1) The length of spring P is longer than the length of spring Q.

(2) The extension of both springs is the same for the same weight hung.

(3) Spring P has more elastic potential energy than spring Q when the same weight is hung.

(4) The elastic spring force on spring P is the same as that of spring Q when the same weight is hung.

28 When Desmond shot an arrow from a bow, the arrow propelled forward and upward before falling to the ground. The path of the arrow is shown in the diagram below.



What energy changes occurred when the arrow was released to propel the arrow up to the greatest height, C?

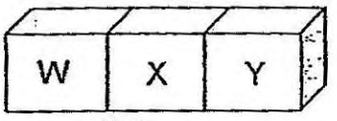
(1) Gravitational potential energy ⟶ Elastic potential energy ⟶ Kinetic energy

(2) Elastic potential energy ⟶ Kinetic energy ⟶ Gravitational potential energy

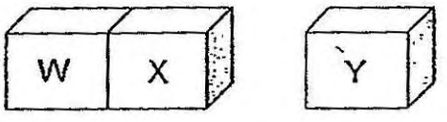
(3) Gravitational potential energy ⟶ Kinetic energy ⟶ Gravitational potential energy

(4) Elastic potential energy ⟶ Kinetic energy ⟶ Gravitational potential energy ⟶ Kinetic energy

29 The diagram below shows three cubes, W, X and Y, being held next to one another as shown below.



However, when the cubes are released, cube Y is being pushed away while cubes W and X are attracted to each other.



Which one of the following statements about the cubes is correct?

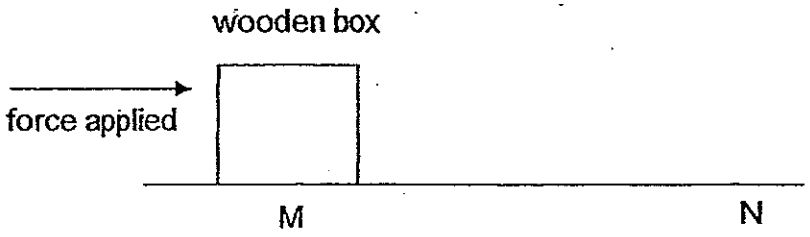
(1) Cube Y is not a magnet.

(2) Cube W must be made of iron.

(3) There are at least two magnets.

(4) Cubes W and X have the same poles facing each other.

30 A wooden box needs to be moved from position M to N, as shown in the diagram below.



Which one of the following must happen for the box to move from position M to N?

(1) The gravitational force and the frictional force acting on the box must be equal.

(2) The frictional force acting against the box must be greater than the applied force.

(3) The force applied to the box must be greater than the frictional force acting against it.

(4) The frictional force acting against the box must be greater than the gravitational force acting on it.

End of Booklet A

CATHOLIC HIGH SCHOOL
PRELIMINARY EXAMINATION 1
2014
PRIMARY SIX

SCIENCE

BOOKLET B

Name: _____ ( )

Class: Primary 6 - _____

Date: 16 May 2014

Parent's Signature: _____

Booklet A	60
Booklet B	40
Total	100

14 questions

40 marks

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

INSTRUCTIONS TO CANDIDATES

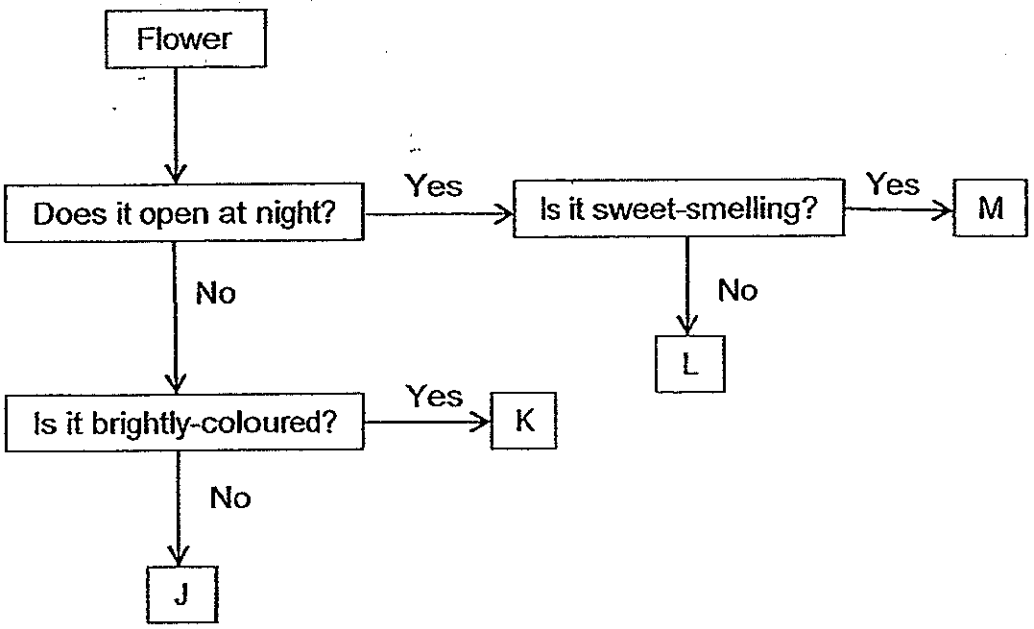
Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Write your answers in this booklet.

This booklet consists of 16 printed pages, excluding cover page.

Booklet B (40 marks)

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

31 Jess was at the Gardens by the Bay and she made the following observations of the characteristics of four flowers, J, K, L and M, as shown in the chart below.



Jess also spotted an animal pollinator with the characteristics listed in the table below.

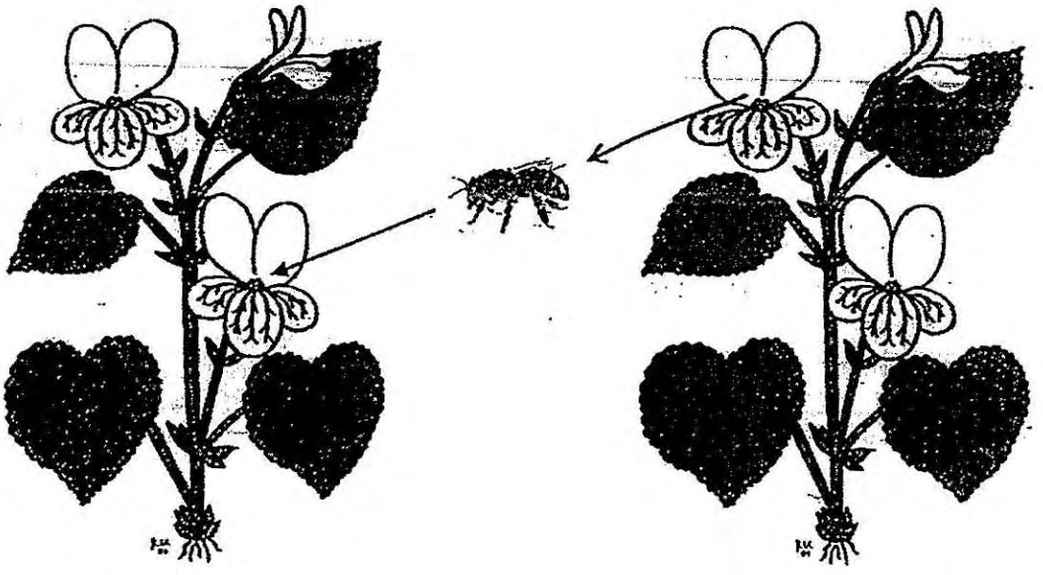
(a) Based on Jess' observations, which flower, J, K, L or M, is most likely to be pollinated by the animal pollinator? Write your answer in the box below. [1]

Characteristics of the animal pollinator	Flower most likely to be pollinated by the animal pollinator
• Active in the day • Prefers bright red flowers	

(Go on to the next page)

SCORE	1

(b) Jess walked around the garden and saw an insect flying from a flower in plant Y to a flower in plant X of the same species.



Plant X Plant Y

Based on the diagram above, will the young plants that develop from the seeds of Plant Y contain only the characteristics of the parent plant X ~~Y~~? Explain. [2]

_____

_____

_____

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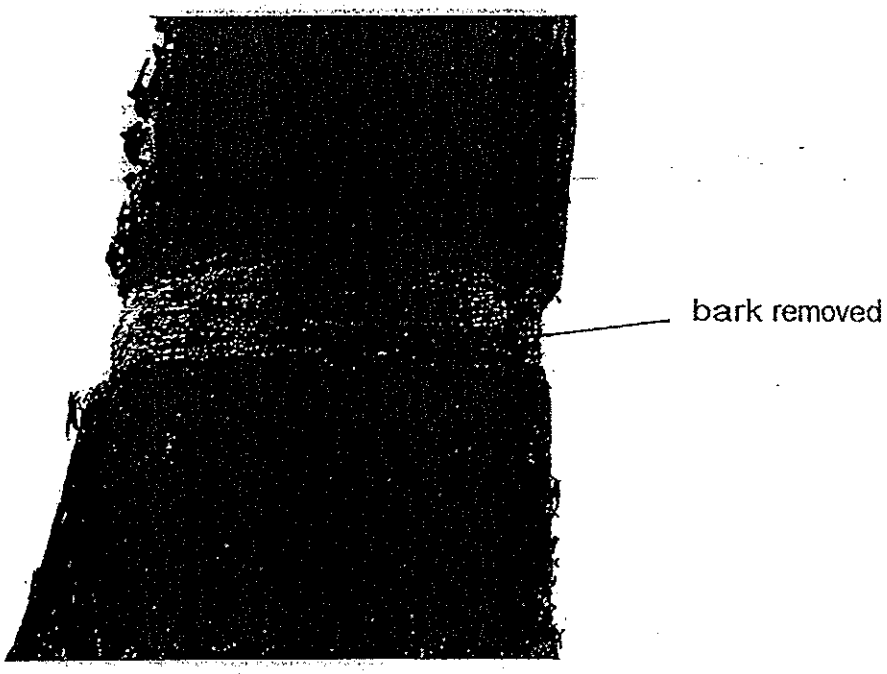
SCORE	/2

32 Mr Tan removed a ring of bark from a tree as shown in the diagram below.



After a few days, he found a swelling above the stripped area with a liquid leaking from it.

(a) What has been removed from the trunk together with the bark? [1]

_____

(b) Would the tree survive after a month? Explain your answer. [2]

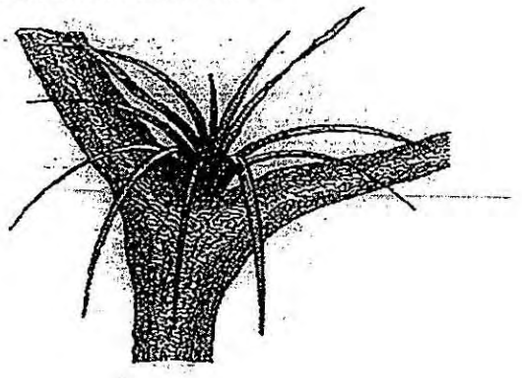
_____

_____

(Go on to the next page)

SCORE	/ 3

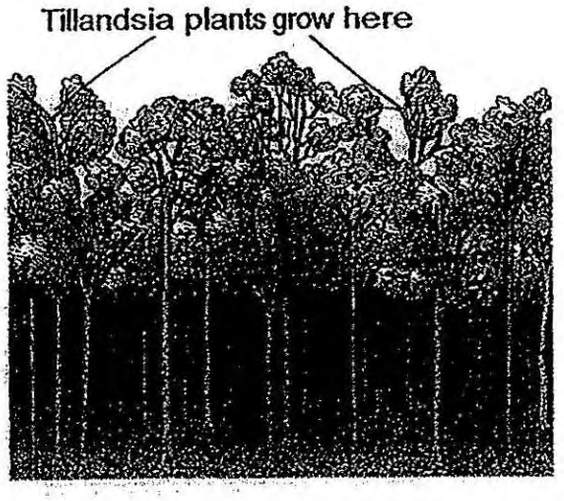
33 The drawing shows a plant called Tillandsia.



(a) The leaves of these plants absorb sunlight.
Why do plants need light? [1]

_____

(b) Tillandsia plants grow on the high branches of trees in rain forests.



Explain why these plants cannot grow well on the lowest branches of trees. [1]

_____

_____

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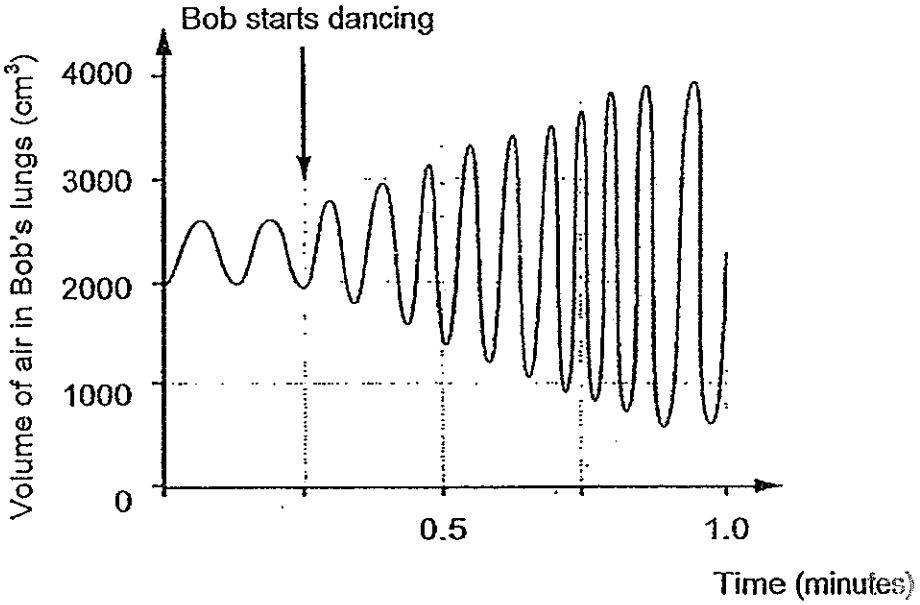
SCORE	2

34 Bob is a dancer.

(a) As Bob dances, his breathing changes because he needs more oxygen.
The graph below shows how oxygen in his lungs changes when he dances.

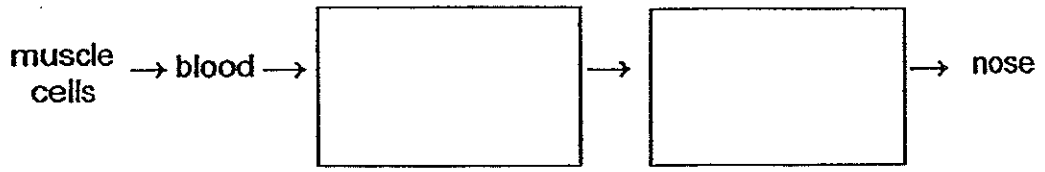


From the graph, state two ways his breathing changes as he dances. [2]

(i) _____

(ii) _____

(b) Bob's muscle cells produce carbon dioxide as he dances. Write the path taken by the carbon dioxide as it travels from his muscle cells to leave the body.



[1]

(Go on to the next page)

SCORE	3

35 Katy carried out an experiment to find out how the height of three similar plants was affected by the amount of light they had been exposed to for a period of time. The results were recorded in the table below.

Amount of light	Height of the plants (cm)	
	Start of the experiment	End of the experiment
Dim	2.5	3.5
Bright	2.1	3.8
Very bright	2.0	4.4

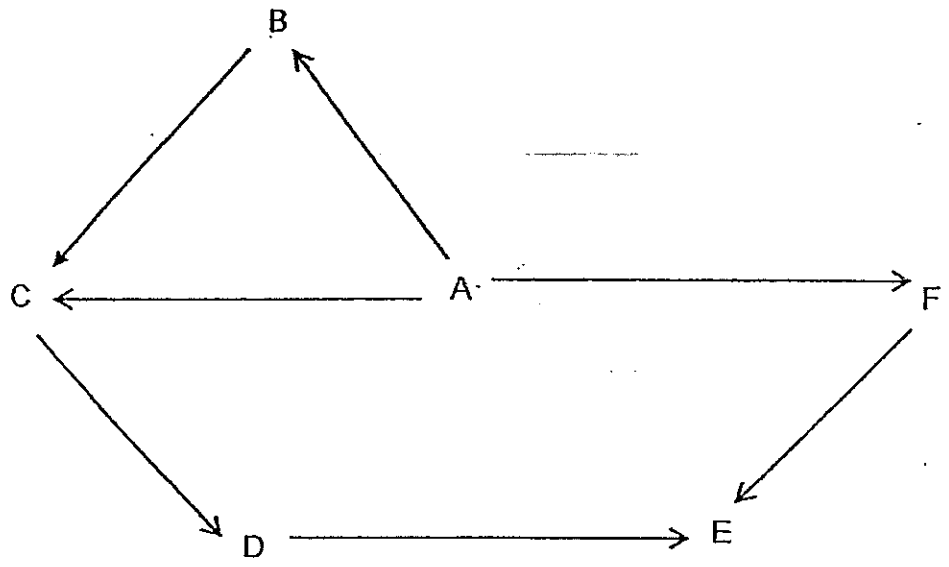
(a) Explain how the amount of light can affect the height of a plant in the experiment above. [1]

(b) Suggest how the above experiment can be improved to ensure more reliable results. [1]

(Go on to the next page)

SCORE	2

36 The food web below consists of organisms found in a certain habitat.



(a) Which organisms, A, B, C, D, E or F, are both predator and prey? [1]

_____

(b) Which organism, A, B, C, D, E or F, in the food web has the largest population? [1]

_____

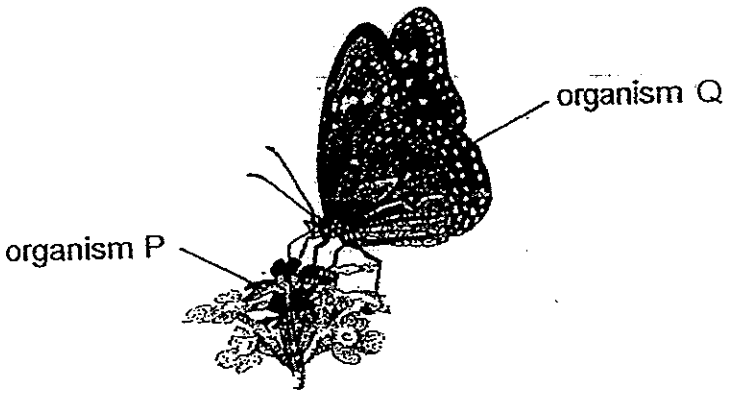
(c) Organism G is an animal that is a predator of B and a prey of F. Write the letter 'G' and draw the appropriate arrows to show organism G's place in the food web above. [1]

(Go on to the next page)

SCORE	3

37 Some organisms live in the same habitat because they need one another for survival.

(a) Organism P is a flowering plant and organism Q feeds on nectar.



What are the benefits of organisms P and Q to each other?

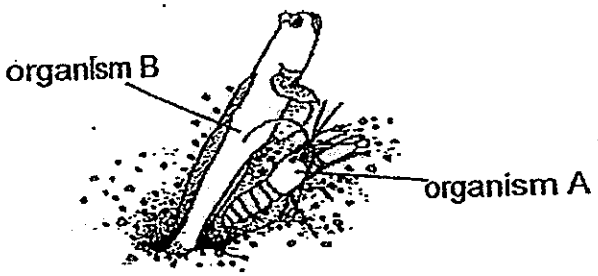
(i) Benefit of organism P to Q : _____ [1]

_____

(ii) Benefit of organism Q to P : _____ [1]

_____

(b) Organisms A and B live in the same habitat. Organism A is blind and digs a hole for itself while organism B, on spotting a predator, darts about and hides from predators in organism A's hole. This alerts organism A to the danger.



Explain how organism B benefits organism A. [2]

_____

_____

_____

(Go on to the next page)

SCORE

38 The diagram shows trees that grow in countries with heavy snowfall. They have many structural adaptations to help them cope with the low temperatures.and heavy snowfall.

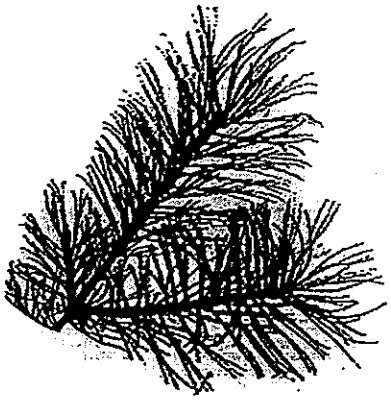
(a) After a heavy snowfall, snow accumulates on the branches of trees and might break the branches.
Explain how the shape of the trees above helps to prevent this from happening. [2]

_____

_____

_____

(b) During the winter season, the ground is frozen and very little water is available to trees. The diagram below shows the leaves of the above trees.



How are the leaves structurally adapted to prevent water loss? [2]

_____

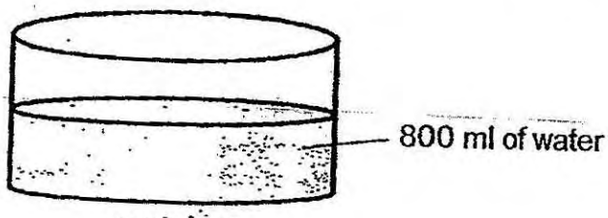
_____

_____

(Go on to the next page)

SCORE	/4

39. Joseph wanted to find out the rate of evaporation at different times of a day. He filled 3 similar containers with 800 ml of water each and placed one container at the same location at different time period of the day.



container

At the end of each time period, the amount of water left in the container was recorded in the table below.

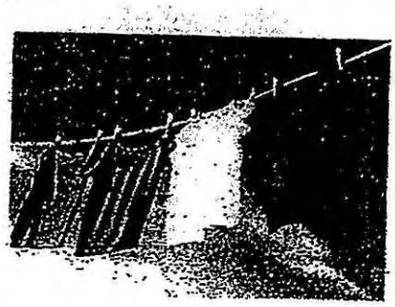
Time period	7 a.m. – 9 a.m.	1 p.m. – 3 p.m.	7 p.m. – 9 p.m.
Amount of water left in the container (ml)	740	680	760

(a) Based on the results of the experiment, what is the relationship between the surrounding temperature and the rate of evaporation? [1]

_____

_____

(b) Based on the results, state an appropriate time period to hang your wet clothes out to dry.



Explain your answer. [2]

_____

_____

_____

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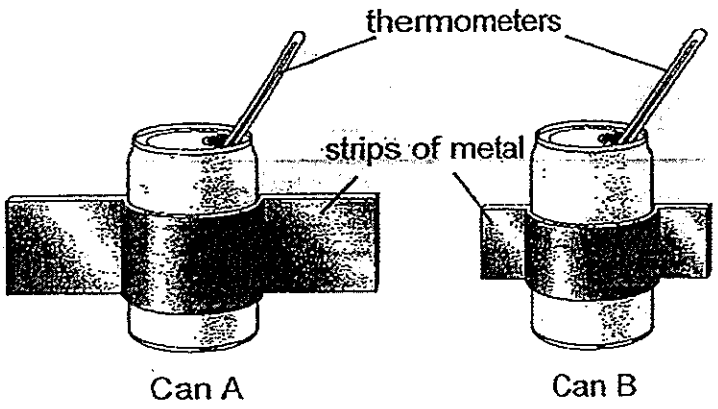
SCORE	3

40 Samuel filled two identical metal cans with 250 cm^3 of hot water and wrapped strips of metal of different sizes around them as shown below.



He recorded the temperature of the water in each can every 5 minutes. The table below shows his results.

	Temperature (°C)	
Time (minutes)	Can A	Can B
0	80	80
5	72	76
10	68	72
15	60	68
20	55	62

(a) Based on the experiment above, explain why the water in Can A cooled faster than the water in Can B. [2]

_____

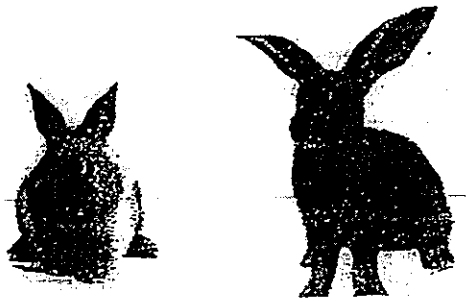
_____

_____

(Go on to the next page)

SCORE	/ 2

(b) Rabbits keep cool by losing heat from their ears.



Rabbit A Rabbit B

Which rabbit can lose more heat through its ears? Give a reason for your answer. [1]

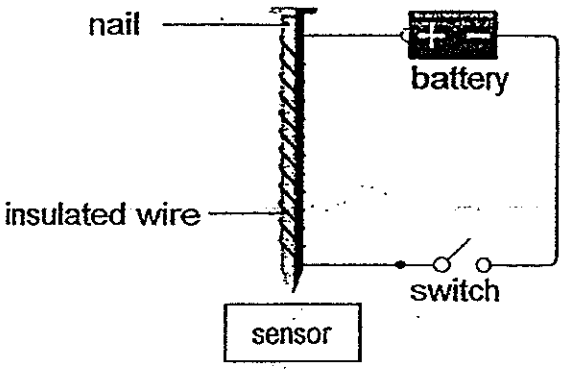
_____

_____

(Go on to the next page)

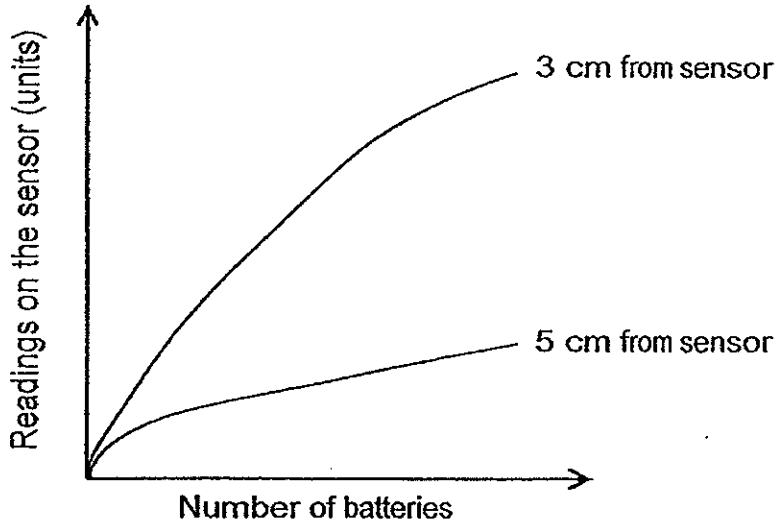
SCORE	/ 1

41 Daniel made an electromagnet as shown below.



He used a sensor to measure the strength of the electromagnet. He placed the sensor 3 cm from the magnet and increased the number of batteries. He repeated the experiment with the sensor 5 cm from the electromagnet.

The graph below shows his results.



(a) How did the distance of the sensor from the electromagnet affect the reading on the sensor? [1]

_____

_____

(b) What else can Daniel do to the electromagnet to increase its strength? [1]

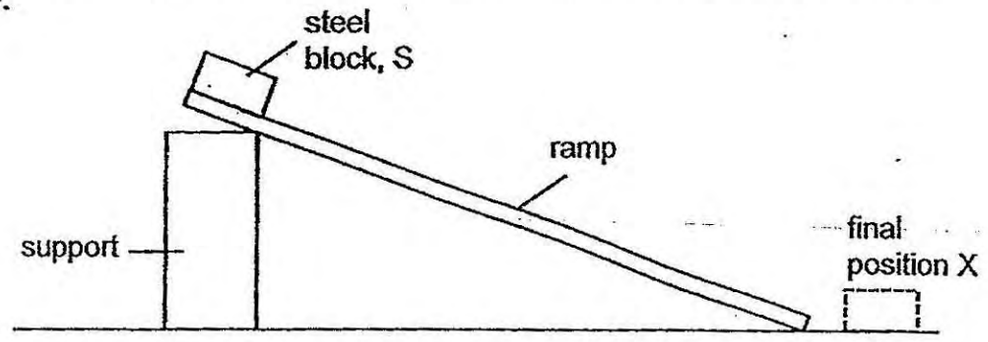
_____

_____

(Go on to the next page)

SCORE	2

42 Carl placed a steel block, S, at the top of a ramp as shown in the diagram below.

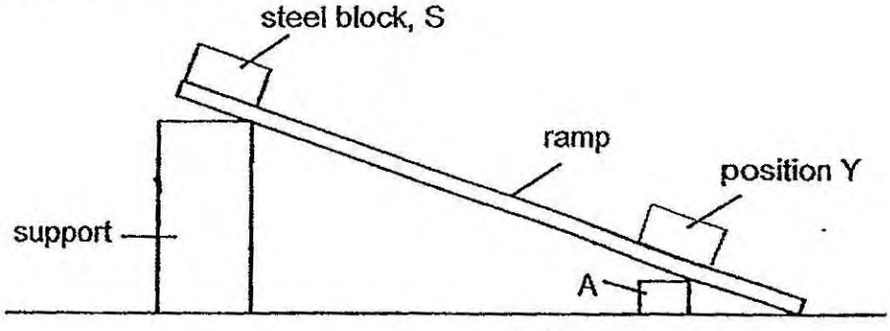


When Carl let go of the block, it slid down the ramp and came to rest at position X.

(a) Other than friction, name another force acting on the block. [1]

_____

When object A was placed at a point below the ramp as shown in the diagram below, block S took a shorter time to move down the ramp and came to rest at position Y.



(b) What could object A be? How did it affect the time taken for steel block S to reach position Y on the ramp? [2]

_____

_____

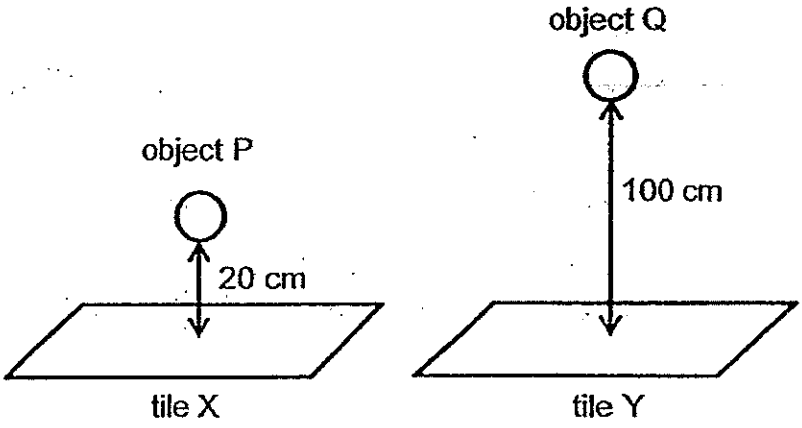
(c) Carl wanted steel block S to take an even shorter time to reach position Y on the ramp. Without changing the set-up or the position of steel block S, suggest one way for Carl to make the steel block S take a shorter time to reach position Y. [1]

_____

(Go on to the next page)

SCORE	/ 4

43 Alvin conducted an experiment to find out what happens when objects are dropped from different heights.
He dropped 2 identical objects, P and Q, from different heights. Object P was dropped from 20 cm and object Q from 100 cm.



2 identical tiles were placed on the floor just below each object. Tile Y broke when object Q landed on it but tile X did not break when object P landed on it.

(a) Complete the energy conversion of object Q from the point it was released to when it landed on tile Y. [1]

Gravitational potential energy of object Q

↓

Kinetic energy + Gravitational potential energy of object Q

↓

kinetic energy + [ ] energy + [ ] energy of broken tile Y

(b) Based on the experiment, why is it more dangerous when an object is dropped from a high-rise building as compared to a low building? [1]

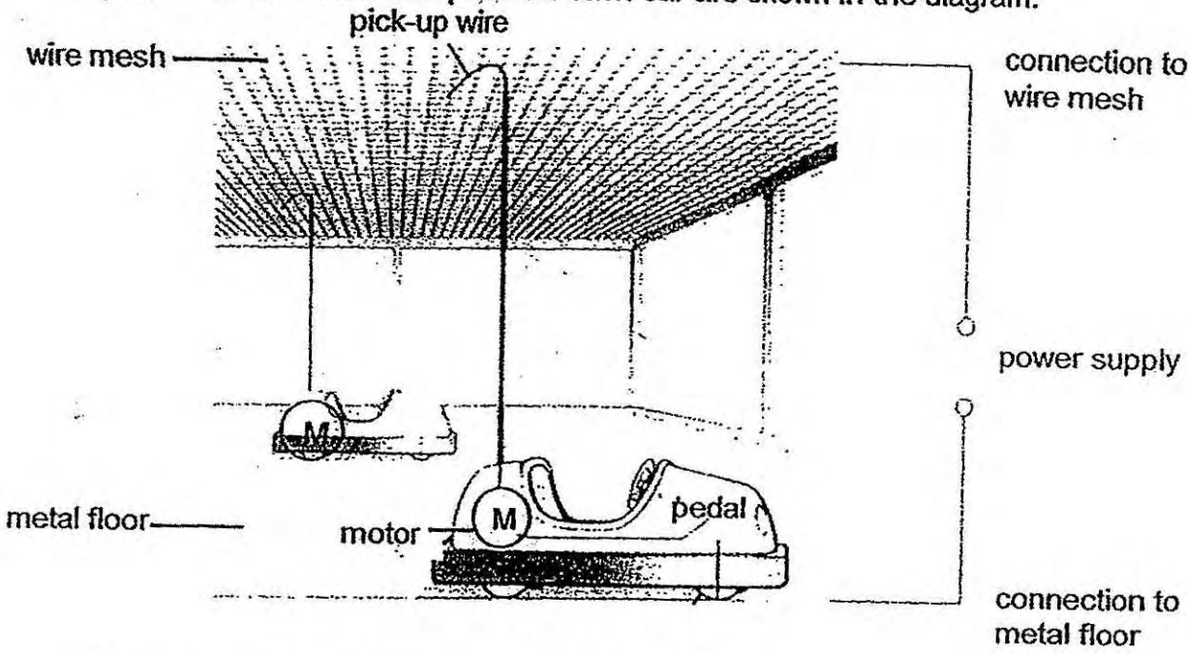
_____

_____

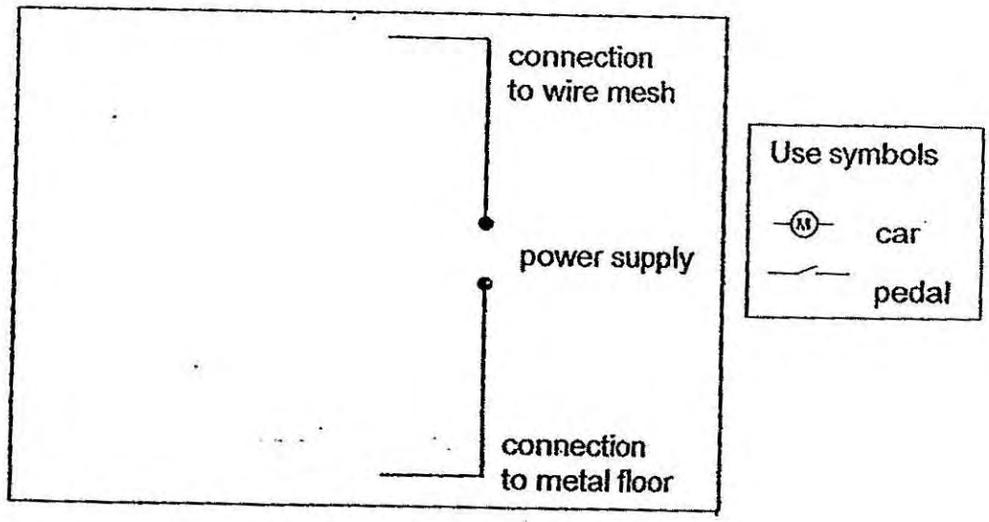
(Go on to the next page)

SCORE	/ 2

44 The diagram shows two bumper cars at a carnival. When the rider steps on the pedal, the circuit is closed. Therefore, the bumper car moves. The circuit symbols for the motor and pedal for each car are shown in the diagram.



(a) Bumper cars are connected using parallel circuits.
Complete the circuit diagram below to show how the two bumper cars are connected. [1]



(b) The operator looks after the bumper cars during the rides. [1]
Why does the man not get an electric shock as he walks across the metal floor?

_____

_____

End of Booklet B

SCORE	2

ANSWER SHEET

EXAM PAPER 2014
SCHOOL : CATHOLIC HIGH
SUBJECT : PRIMARY 6 SCIENCE

TERM : PRELIM 1

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

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

31)a)K
b)No, the young plant will have characteristics of both plants X and Y. The nucleus of both male and female cells containing genetic information fuse during fertilization. The young plant contains the genetic information of both parents, plant X and Y.

32)a)Food-carrying tubes or phloem.
b)No, The food-carrying tubes cannot transport food/sugars to the roots and as such, the roots used up their stored food and cannot take in water and died.

33)a)Plants need light to make food.
b)Leaves from the other tall trees block most of the light from reaching Tilandsia plants.

34)a)i)He needs to take in more air.
ii)His breathing increases.
b)lungs →windpipe.

35)a)The greater the amount of light, the greater the rate of photosynthesis, thus the plant has more food/energy to grow taller.

b)Have more plants, have plants of the same height at the start of the experiment. Repeat the experiment a few times using similar plants.

36)a)C and D.

b)A

c)B → G → F

37)a)i)Q can get nectar from P. ii)Q helps to pollinate P.

b)When organism B darts and tries to hide in the hole dug by organism A in view of approaching danger, its action also alerts organism A to do likewise and thus, keep itself safe from danger.

38)a)The conical shape of the tree allows snow to slide down the branches. Thus, this reduces the amount of snow collected on the branches.

b)The leaves have very small exposed surface area from which water can be lost, this prevents water loss.

39)a)As the surrounding temperature increases, the rate of evaporation also increases.

b)1 pm to 3 pm. The amount of water left in the container is the least so during this time period the wet clothes will dry faster.

40)a)As the strip of metal wrapped around can A has a greater exposed surface area, more heat is conducted away from the water, hence the water in can A lost heat faster.

b)Rabbit B. Its ears have a larger exposed surface area to lose more heat.

41)a)As the distance of the sensor from the electromagnet increases, the reading on the sensor decreases.

b)Increase the number of batteries in series.

42)a)Gravitational force.

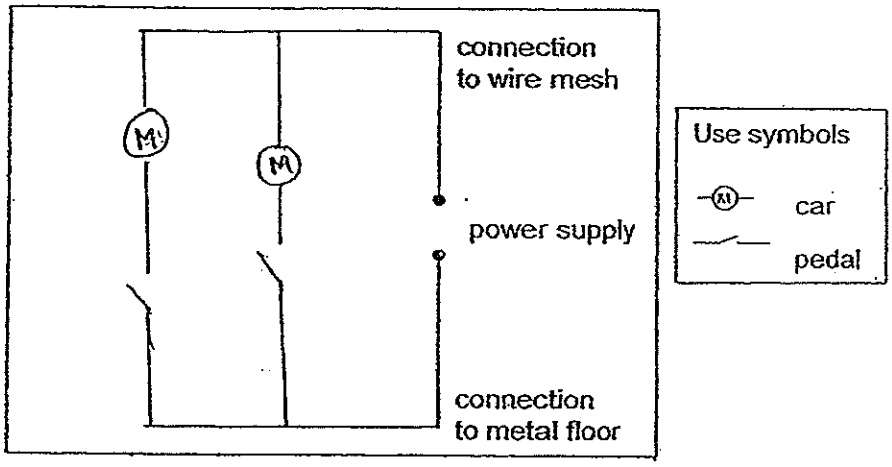
b)Object A could be a magnet. As steel is a magnetic material, it is attracted to magnet, hence the time taken for steel block S to reach position Y is shorter .

c)Put oil on the upper surface of the ramp to reduce the friction between the steel block and ramp.

43)a)heat , sound

b)When an object is dropped from a high-rise building, the object possesses greater amount of gravitational potential energy which is converted.

44)a)



b)The man is not connected to the metal floor and the wire mesh, so there is an open circuit.