PRIMARY 6 MID-YEAR EXAMINATION 2015

Name : _____ ( ) Date: 15 MAY 2015

Class : Primary 6 ( ) Duration: 1h 45min

Parent's Signature :_____ Marks: _____ / 60

SCIENCE

BOOKLET A

INSTRUCTIONS TO CANDIDATES

Write your name, class and register number.

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Booklet 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 on the Optical Answer Sheet (OAS) provided.

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1. The table below shows some specimens of plant and animal collected by a group of students from a community.

Plant	Animal
hibiscus	ant
mimosa	bird
love grass	snail
mango tree	butterfly

Based on the table above, which community do the specimens likely belong to?

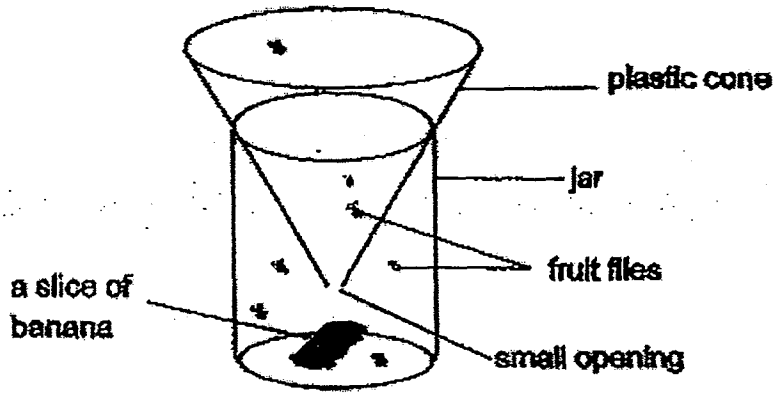
(1) garden

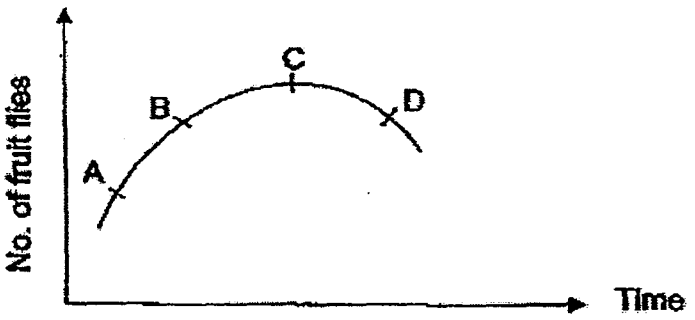
(2) swamp

(3) rainforest

(4) grassland

2. A slice of banana was placed inside a jar to attract some fruit flies. A plastic cone was attached to the jar to trap the fruit flies as shown in the diagram below.





The number of fruit flies were counted and recorded over a period of time in the graph above.

Which of the following shows what might have happened at D?

(1) More flies flew into the jar.

(2) A huge lizard entered the jar.

(3) All the flies flew away from the jar.

(4) There were no more bananas in the jar.

3. Some chilli seeds were planted in four similar pots, A, B, C and D. The conditions of each pot were shown in the table below.

[illegible]	[illegible]	[illegible]	[illegible]
A	10	garden	yes
B	20	garden	no
C	10	clayey	yes
D	20	clayey	yes

Which two pots should be used in order to find out how the types of soil affect the growth of chilli plant?

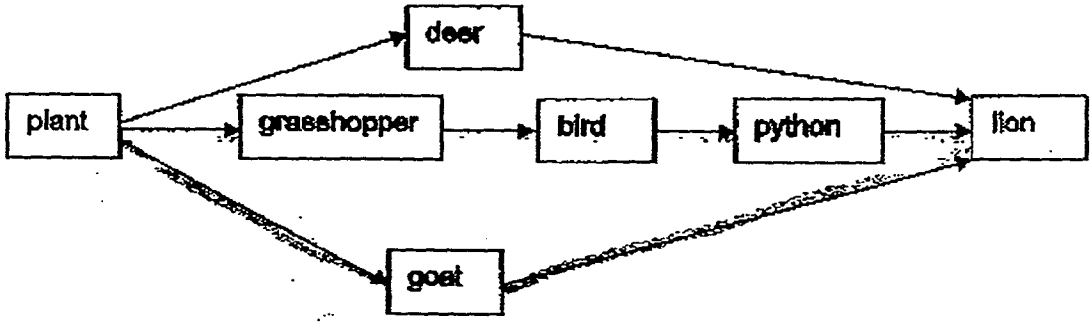
(1) A and B

(2) B and C

(3) A and C

(4) B and D

4. Study the food web below.



How many food chains are there in the above food web?

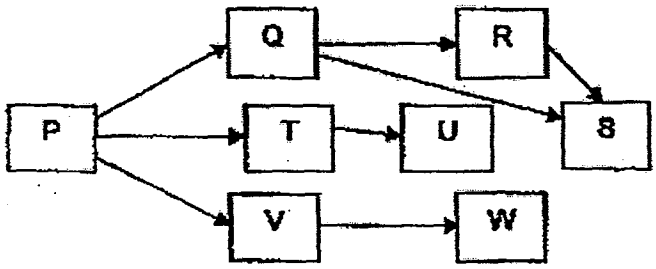
(1) 3

(2) 4

(3) 5

(4) 6

5. Study the food web below.



Which of the statements is true of the food web shown above?

(1) T is the predator of P and U.

(2) R is both a prey and a predator.

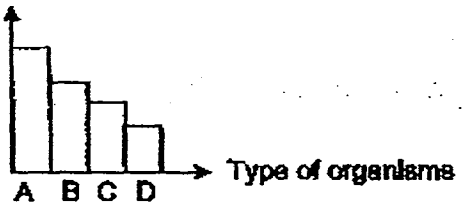
(3) Only S, U and W are animal eaters.

(4) Q, T and V are plant and animal eaters.

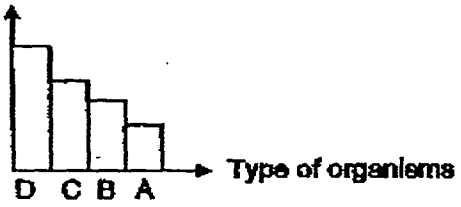
6. Study the food chain as shown below carefully.

Which of the following graphs represents the above food chain?

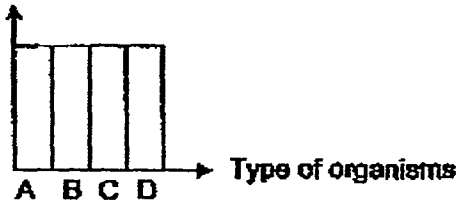
(1) Number of organisms



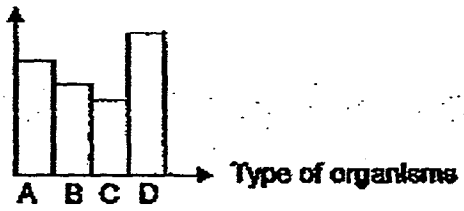
(2) Number of organisms



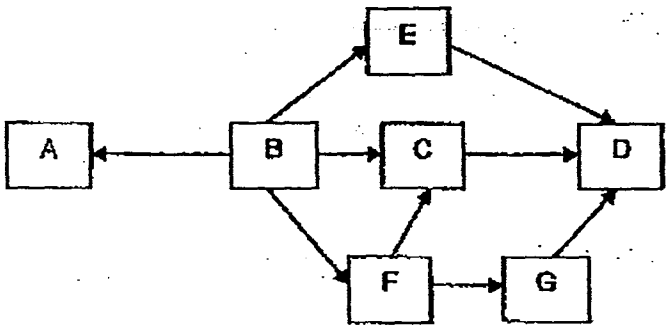
(3) Number of organisms



(4) Number of organisms



7. Below shows a food web in a community.



Which of the following has correctly described the effect on other populations of organisms when one population of organism increases or decreases?

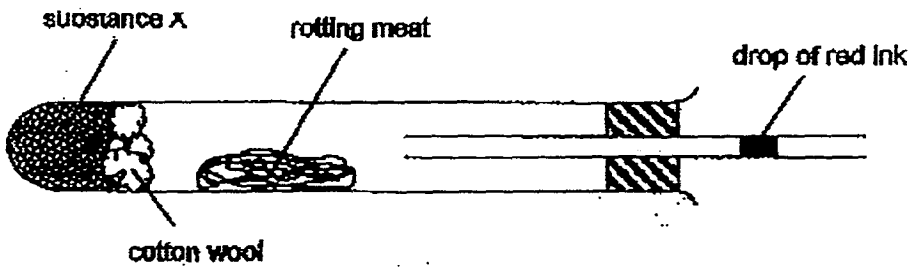
(1) When population C increases, population D will decrease.

(2) When population F decreases, populations C and G will decrease.

(3) When population D increases, populations C, F and G will increase.

(4) When population B decreases, populations A, C, E and F will increase.

8. The set-up below was used to measure the amount of oxygen used by a piece of rotting meat. The movement of the drop of red ink was measured after 5 hours. The drop of red ink moved towards the rotting meat.



Substance X absorbed a certain gas. What was this gas?

(1) oxygen

(2) nitrogen

(3) water vapour

(4) carbon dioxide

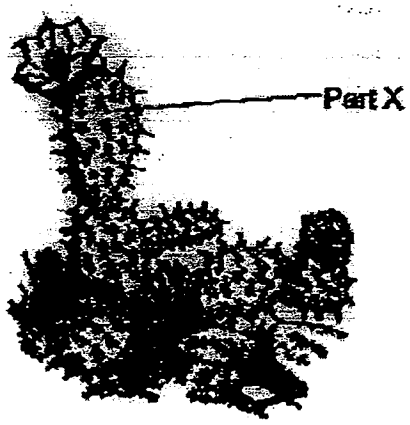
9. The table below shows the functions of 4 different adaptations of an aquatic animal.

S	to allow the exchange of gases
T	to propel its body forward
U	to stay buoyant
V	to overcome water resistance

Which of the following correctly represents S, T, U and V?

(1)	gills	tail fin	swim bladder	streamlined body
(2)	lungs	flippers	swim bladder	layer of fats
(3)	lungs	swim bladder	flippers	streamlined body
(4)	gills	streamlined body	layer of fats	flippers

10. Below shows a diagram of a plant. Part X of the plant is thick, green and waxy.



Which of the following shows how Part X helps the plant to survive in a desert?

A: It helps to make food.

B: It helps to store water.

C: It helps to reduce water loss.

D: It helps to anchor the plant firmly to the soil.

(1) A and B only

(2) C and D only

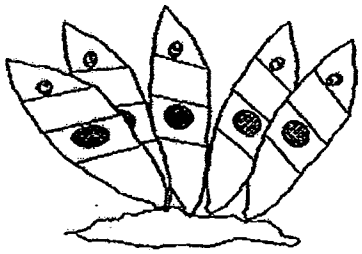
(3) A, B and C only

(4) A, B, C and D

11. Which of the following adaptive features of the various organisms is correctly matched with its function?

	[illegible] organism	[illegible] adaptive feature	[illegible] function of adaptive feature
(1)	Polar bear	stiff hairs on underside of paws	to glide easily
(2)	Chameleon	body changing colours	to hide from its prey
(3)	House lizard	long sticky tongue	to trap its prey as food
(4)	Pitcher Plant	leaf modified as pitcher	to camouflage from prey

12. The diagram below shows Organism M which can be found along the seashore.



Which of the following sea stars is most easily spotted by its predator if the sea star stays close to Organism M?

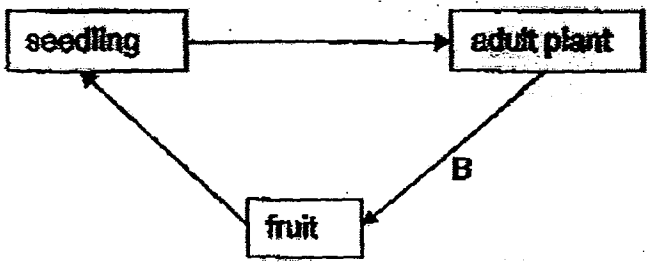
(1) 

(2) 

(3) 

(4) 

13. The diagram below shows the life cycle of a plant.



Which of the following best represents the processes at B?

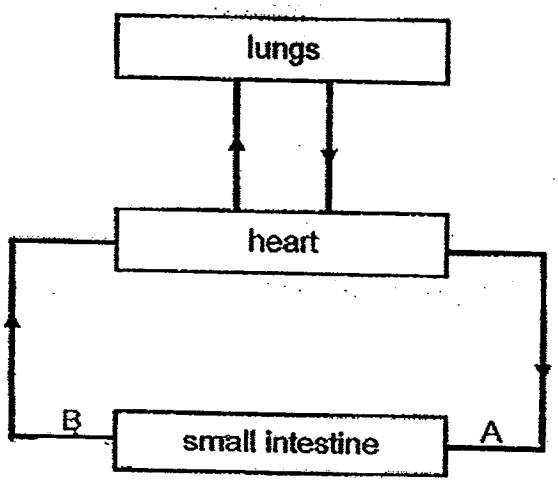
(1) dispersal, germination

(2) dispersal, pollination

(3) pollination, fertilisation

(4) germination, pollination

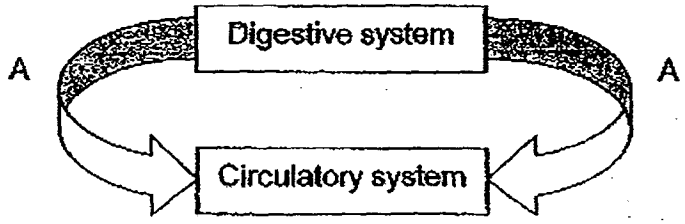
14. The diagram below shows how blood flows in certain parts of the body a few hours after a meal.



Which of the following correctly shows the comparison of the oxygen and digested food in blood A and B?

	Blood in A	Blood in B
(1)	less oxygen more digested food	more oxygen less digested food
(2)	less oxygen less digested food	more oxygen more digested food
(3)	more oxygen more digested food	less oxygen less digested food
(4)	more oxygen less digested food	less oxygen more digested food

15. The systems shown in the diagram below belong to that of an animal.



These systems are compared to the systems of a plant, what would the arrows A represent?

(1) Transporting food to the other parts of the plant.

(2) Taking in oxygen and giving out carbon dioxide.

(3) Taking in carbon dioxide and giving out oxygen.

(4) Transporting water and mineral salts to the other parts of the plant.

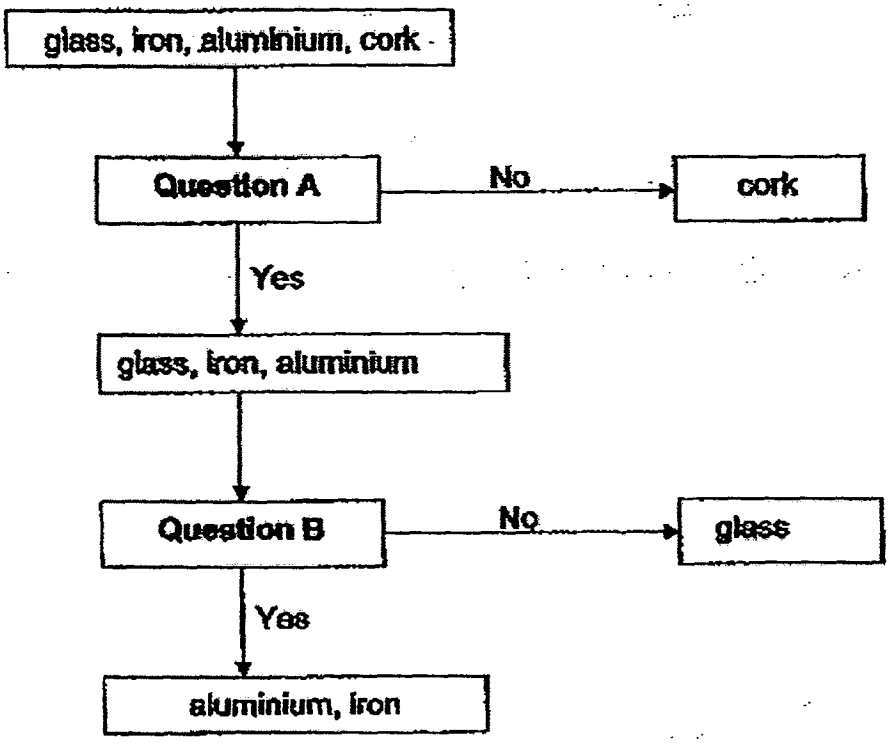
16. The following table shows the comparison between sexual reproduction in humans and plants.

Male reproductive cell	sperm	pollen grain
Female reproductive cell	A	B
After fertilisation	a baby is formed	C

Which one of the following best matches the missing information in the table?

(1)	ovary	egg	seeds are formed
(2)	ovum	egg	flowers are formed
(3)	ovary	ovary	fruits are formed
(4)	ovum	egg	seeds are formed

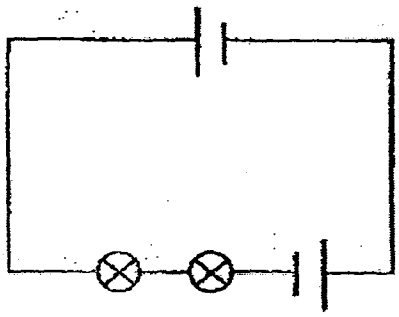
17. Study the flow chart below carefully.



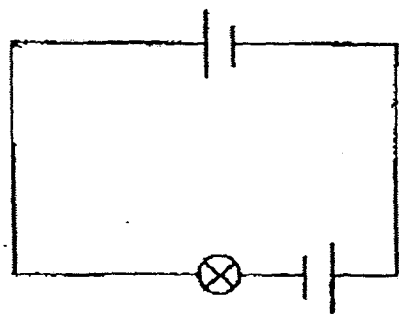
What are the two questions, A and B?

	Question A	Question B
(1)	Will it float on water?	Does it conduct electricity?
(2)	Will it sink in water?	Does it conduct electricity?
(3)	Will it float on water?	Is it magnetic?
(4)	Will it sink in water?	Is it fragile?

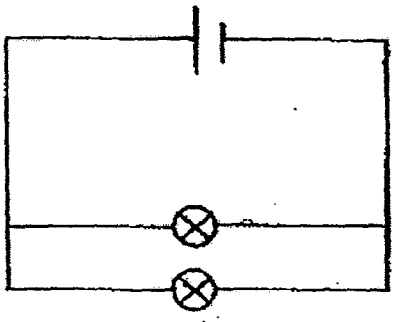
18. Eric wanted to find out how the arrangement of bulb(s) in a circuit would affect the brightness of the bulbs.



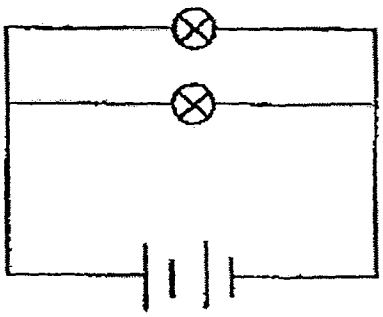
Set-up A



Set-up B



Set-up C



Set-up D

Which of the above set-ups should he choose to conduct his experiment?

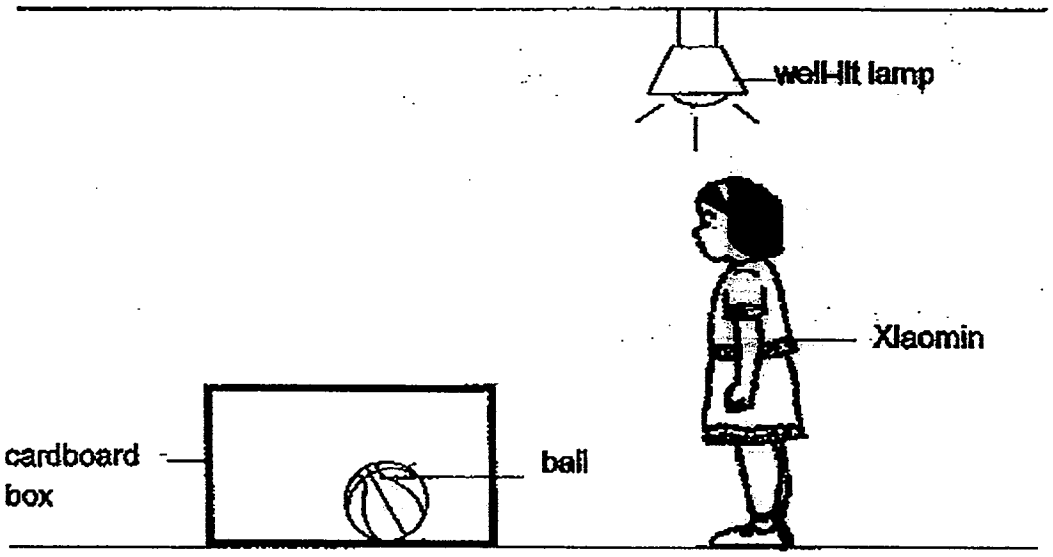
(1) Set- ups A and B

(2) Set-ups A and D

(3) Set-ups B and C

(4) Set-ups B and D

19. When Xiaomin was standing in the room, she could not see the ball.



Which of the following was the reason for Xiaomin not being able to see the ball?

(1) The box did not allow light to pass through.

(2) The ball did not allow light to pass through.

(3) The ball was transparent and did not reflect light.

(4) The light which was reflected by the ball could not reach Xiaomin's eyes.

20. Ravi was given a container containing three powders, X, Y and Z, mixed together. These powders do not dissolve in water. The properties of the three powders are given in the table below.

	Property A	**Property B**	**Property C**
	Is it a magnetic material?	Does it sink in water?	Is it a good conductor of heat?
Powder X	Yes	No	Yes
Powder Y	No	Yes	Yes
Powder Z	No	No	No

Which property / properties should Ravi make use of to separate the three powders quickly?

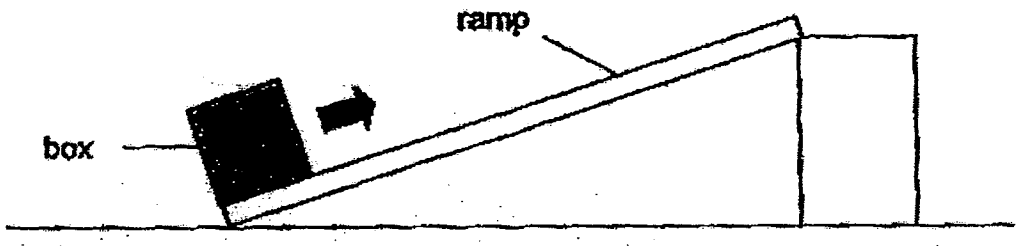
(1) A only

(2) B only

(3) A and B only

(4) B and C only

21. Simon wanted to move a box up a ramp. He pushed the box but the box did not move at all.



Which of the following statements is correct for explaining why it was difficult to push the box up the ramp?

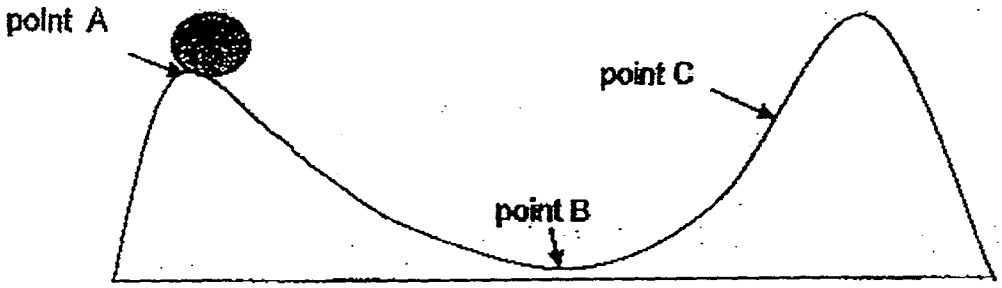
(1) There was no force acting on the box.

(2) Frictional force was acting upwards along the ramp.

(3) A force smaller than the frictional force was applied.

(4) Only gravity prevented the box from moving up the ramp.

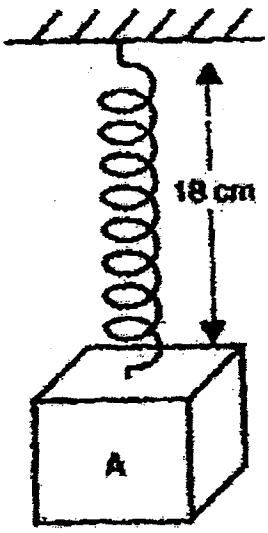
22. A ball was released at point A and it rolled to point C before rolling back towards point A.



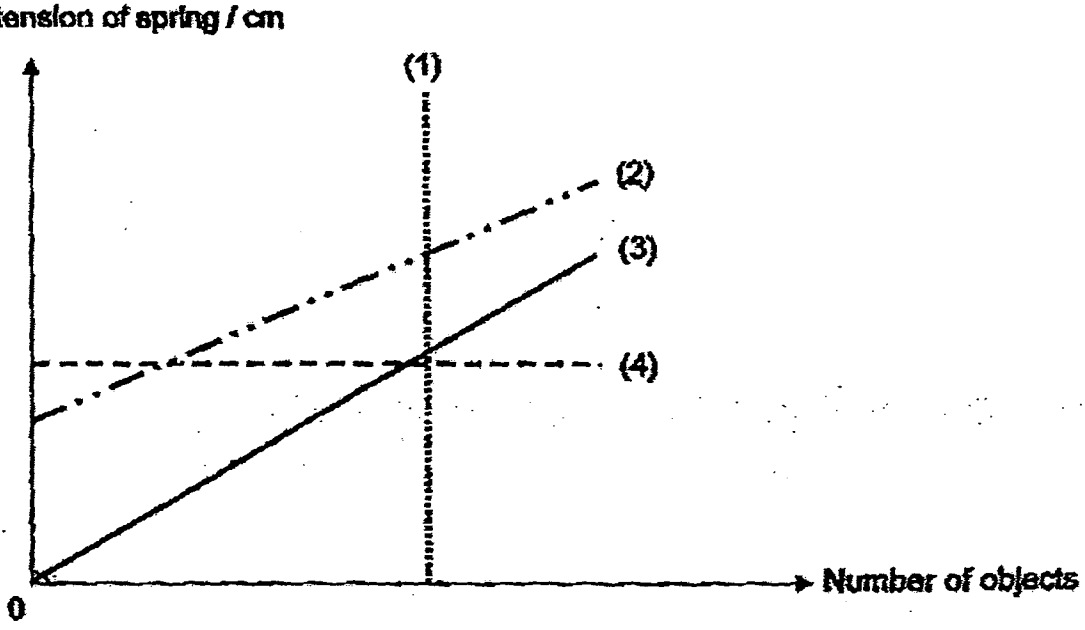
Which of the following shows correctly the changes in the potential energy and kinetic energy of the ball as it rolls from point A to point C?

	Change in kinetic energy from A to B	Change in potential energy from B to C
(1)	decrease	decrease
(2)	decrease	increase
(3)	increase	increase
(4)	increase	decrease

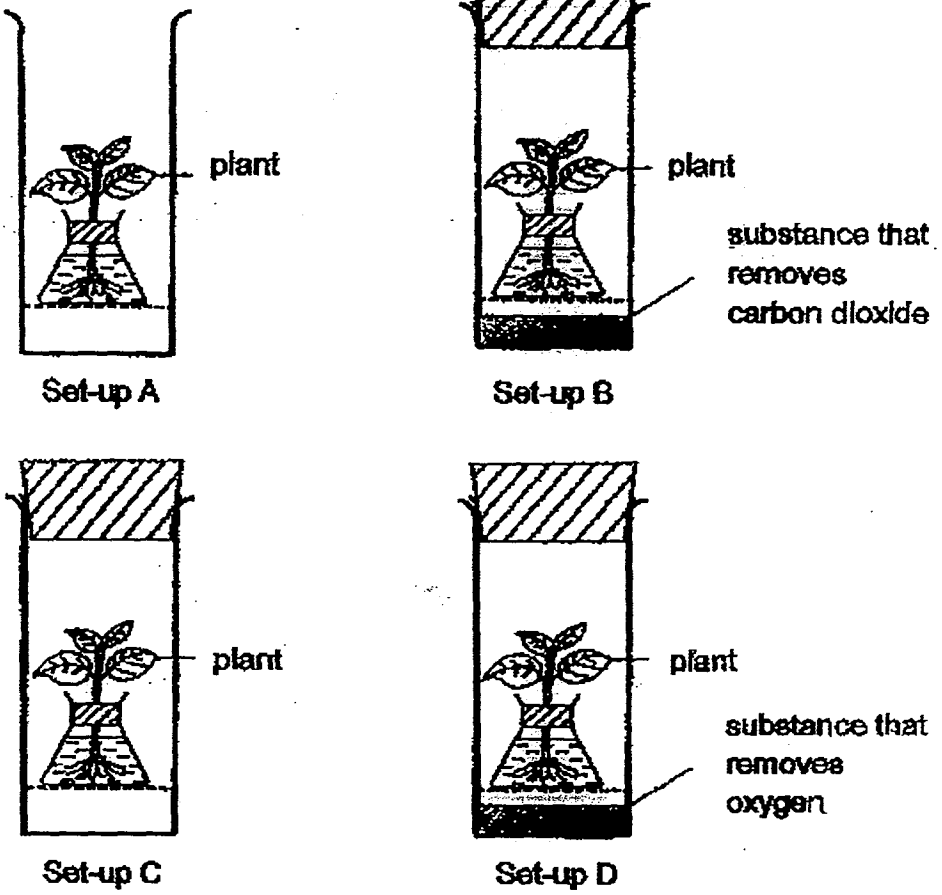
23. Bala hung Object A on a spring. The spring extended as shown in the diagram below. Bala measured the extension of the spring each time he added an identical object to the spring until there were 4 objects.



Which of the following line graph represents the relationship between the extension of the spring and the number of identical objects that were added to the spring?



24. David wanted to conduct an experiment to find out if carbon dioxide is needed for photosynthesis to take place.



Which two set-ups should he use for his experiment to ensure a fair test?

(1) Set-ups A and B

(2) Set-ups A and C

(3) Set-ups B and C

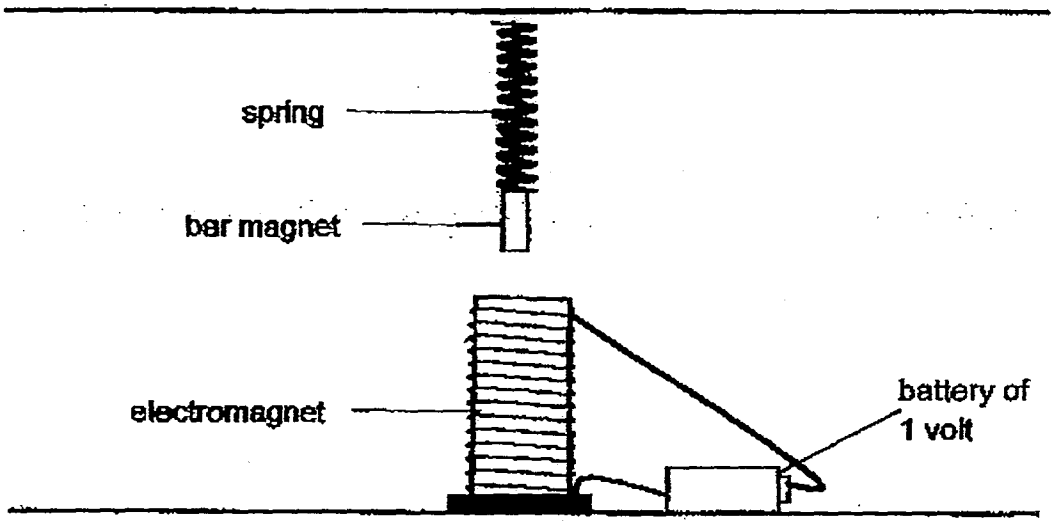
(4) Set-ups B and D

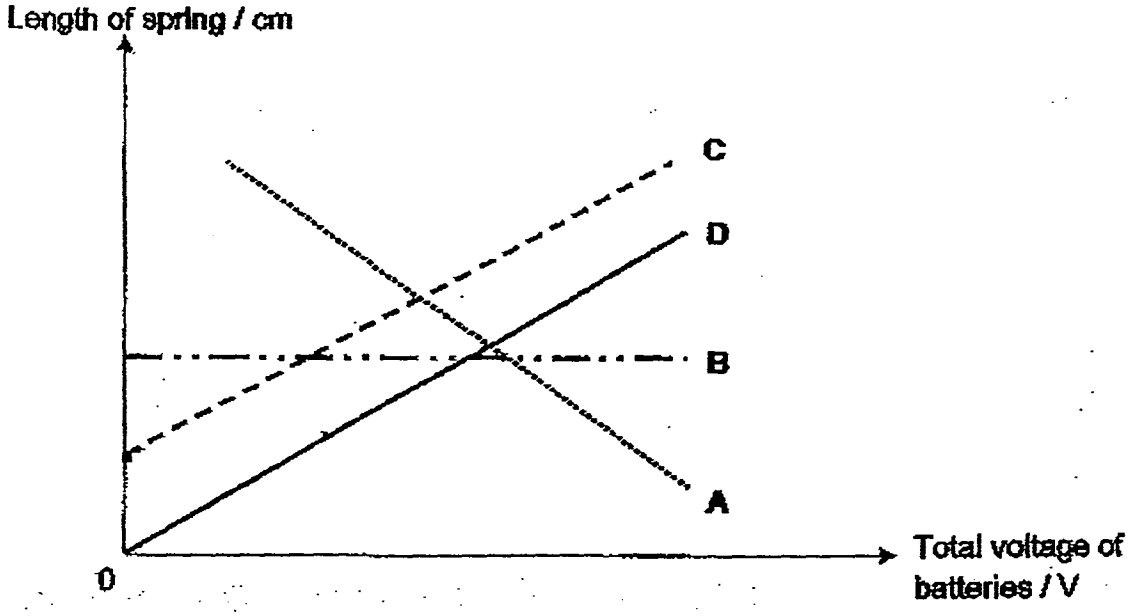
25. Substance P freezes at 65 °C and boils at 379 °C.

Which one of the following shows the correct state of substance P at 75 °C and 250 °C?

	State of substance P at	
	75 °C	250 °C
(1)	solid	liquid
(2)	solid	solid
(3)	liquid	gas
(4)	liquid	liquid

26. In the set-up below, the bar magnet is attracted by the electromagnet when batteries of 1 volt each were added to the circuit. The extension of the spring is measured when the number of batteries attached to the circuit increases by one each time till a total of 4 batteries are used.





Which graph, A, B, C or D, shows the possible length of the spring as batteries were added to the circuit?

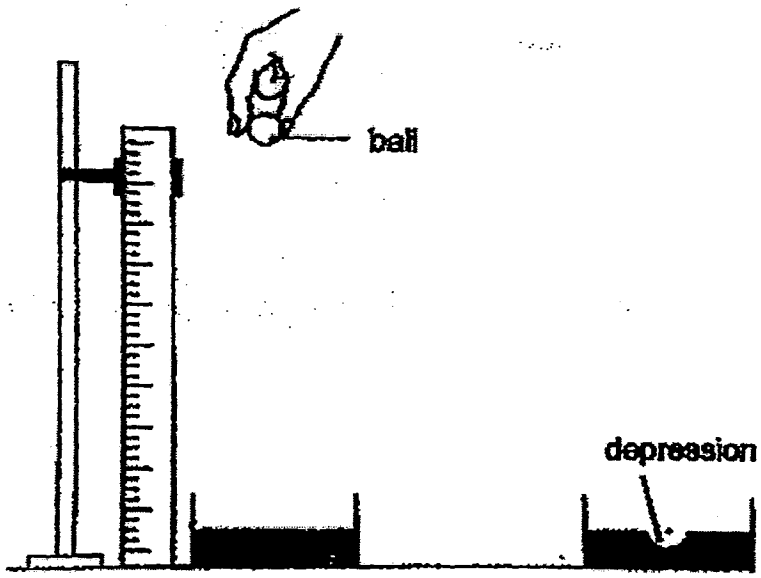
(1) A

(2) B

(3) C

(4) D

27. Amelia wanted to find out how the mass of a ball would affect the depression made in the sand when the ball was dropped from a fixed height.



The results of the experiment are shown in the table below.

Mass of ball (g)	Depth of depression made in the sand (mm)
10	5
20	9
30	15
40	21

Based on the results, which of the following statements is correct?

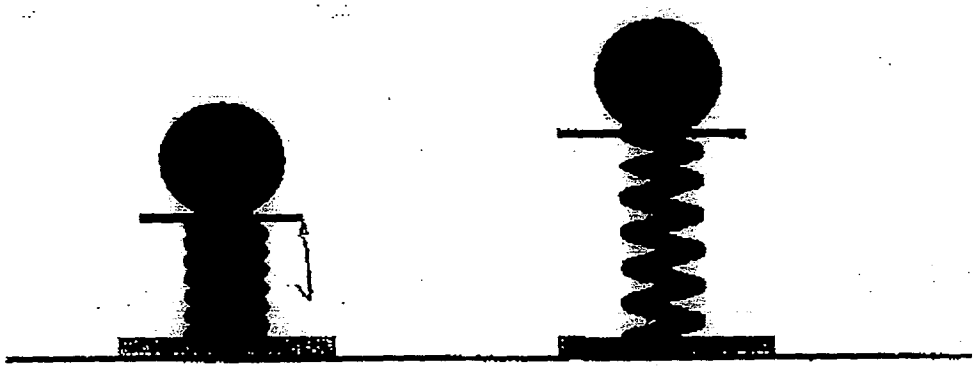
(1) The smaller the mass of the ball, the deeper the depression made by the ball.

(2) The kinetic energy of the ball increases as the mass of the ball increases.

(3) The gravitational potential energy of the ball decreases as the height from which the ball is dropped increases.

(4) The kinetic energy of the ball is converted into heat energy and sound energy for the ball to move.

28. Mary designed and constructed two toys using two identical springs and two balls made of different materials as shown below. The two balls are of the same size.



Toy A Toy B

Based on the diagram above, which one of the following statements is <u>not</u> correct?

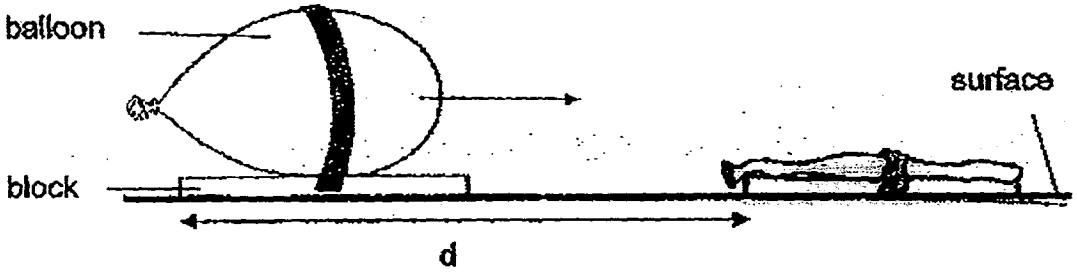
(1) The ball in Toy A is heavier than the ball in Toy B.

(2) The spring in Toy A has more elastic potential energy than the spring in Toy B.

(3) The elastic potential energy in Toy A will convert to more kinetic energy than that in Toy B.

(4) The spring in Toy A has more gravitational potential energy than the spring in Toy B.

29. Amy made a toy using a wooden block and a balloon. She pumped in 800 cm^3 of air into the balloon and then released it. She then measured the distance, d, moved by the toy.



Which of the following correctly shows what will happen to distance, d, when the changes are made to the experiment?

	Change made	**Distance, d, moved by the balloon**
(1)	Added lubricant to the surface	Decrease
(2)	Used a rougher surface	Increase
(3)	Added lubricant to the surface	Increase
(4)	Used a smoother surface	Decrease

30. The table below shows three situations involving forces.

A	B	C
Cycling down a slope	Keeping the door of a refrigerator closed	Hanging a ring magnet on a wooden pole above the ground

Which of the following correctly shows the forces involved in each situation?

	Frictional Force	Magnetic Force	Gravitational Force
(1)	A only	B only	A and C only
(2)	A and B only	B and C only	A only
(3)	B only	B and C only	A only
(4)	A and B only	B only	C only

End of Booklet A

METHODIST GIRLS' SCHOOL

Founded in 1887

SEMESTRAL ASSESSMENT 1 2015
PRIMARY 6
SCIENCE

BOOKLET A1

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

INSTRUCTIONS TO CANDIDATES

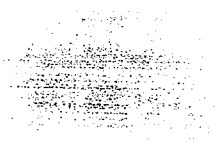
Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Shade your answers in the Optical Answer Sheet (OAS) provided.

Name: _____ ( )

Class: Primary 6._____

Date : 14 May 2015

This booklet consists of 17 printed pages including this page.



For each question from 1 to 15, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet (OAS).

[30 marks]

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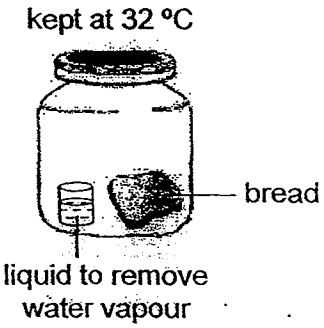
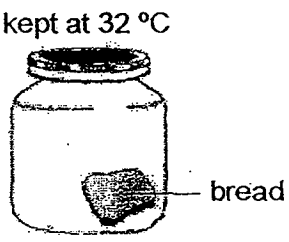
1. An experiment was conducted to find out whether moisture is needed for fungi to grow. The following set-up was prepared.

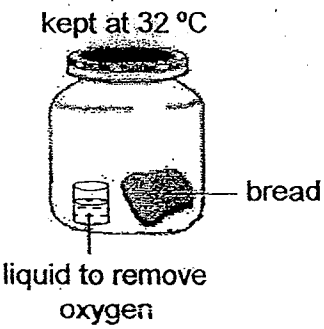


Which one of the following set-ups should be used as a control for the experiment?

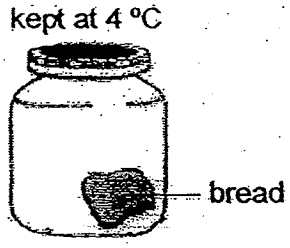
(1)



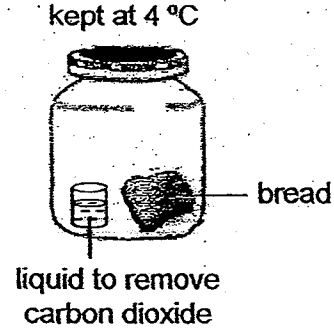
(2)



(3)



(4)



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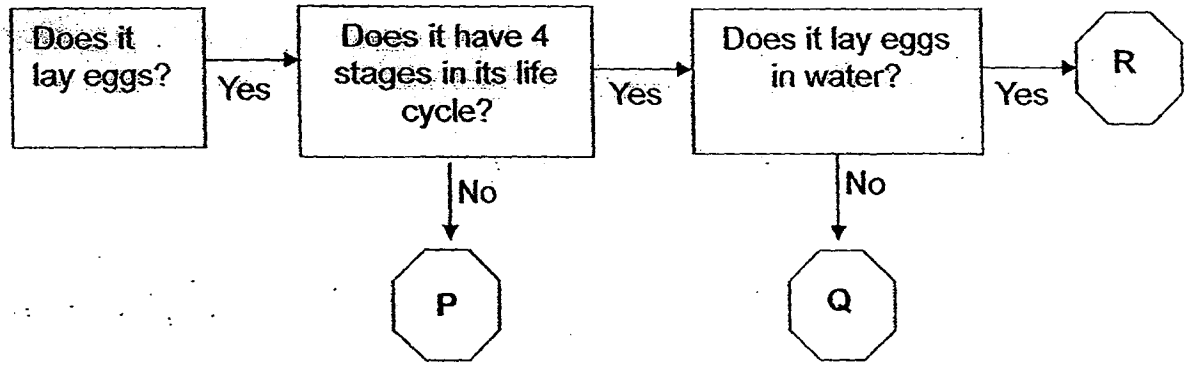
2. Study the flow chart below.



Three pupils made the following statements based on the flow chart above.

Aseng	:	Animals P, Q and R do not give birth to their young live.
Barney	:	Animal P has 4 stages in its life cycle but Animal Q does not.
Cindy	:	Animal R lays its eggs in the water but Animal Q does not lay its eggs in the water.

Whose statements are correct?

(1) Aseng and Barney

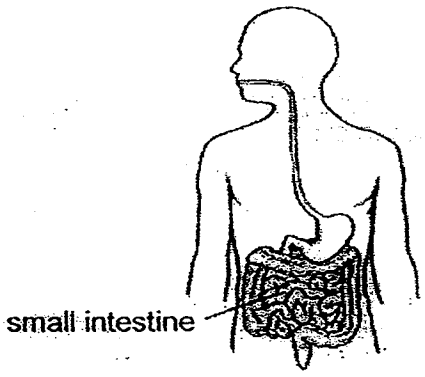
(2) Barney and Cindy

(3) Cindy and Aseng

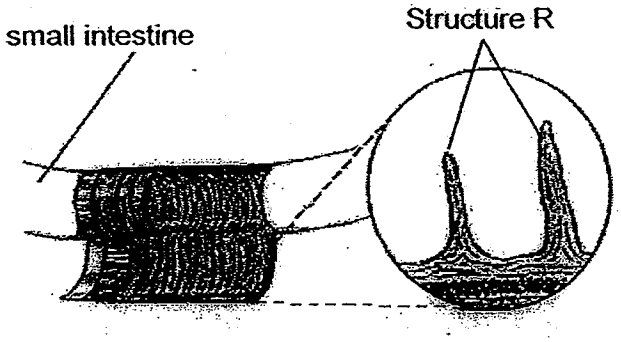
(4) Aseng, Barney and Cindy

(Go on to the next page)

3. The diagram below shows the small intestine of the digestive system.



The diagram below shows numerous tiny structures, R, found in the small intestine.



Which one of the following statements explains how Structure R helps the body to absorb digested food faster?

Structure R _____.

(1) decreases the surface area of the small intestine so that less water is absorbed

(2) increases the surface area of the small intestine allowing more digested food to be absorbed

(3) increases the surface area of the small intestine allowing more undigested food to be absorbed

(4) decreases the surface area of the small intestine so that less digested food is absorbed

(Go on to the next page)

4. Sarah placed a leaf into a beaker of hot water as shown in Diagram 1 below.

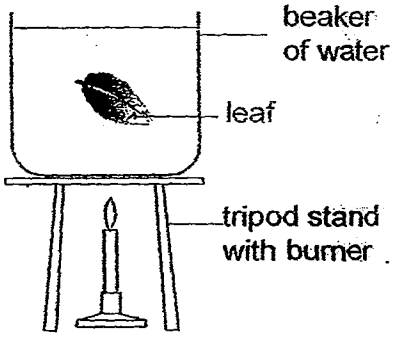


Diagram 1

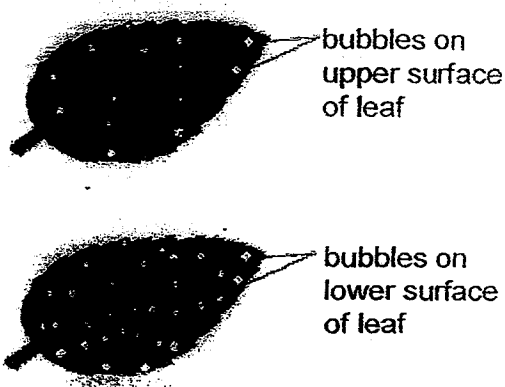


Diagram 2

She observed that small bubbles of air appeared almost immediately and started to escape from both the upper and lower surfaces of the leaf. There were also more air bubbles forming on the lower surface of the leaf compared to the upper surface above as shown in Diagram 2

Which one of the following statements below best explains her observation in Diagram 2?

(1) There were more stomata on the upper surface of the leaf to take in more dissolved oxygen.

(2) There were more stomata on the lower surface of the leaf which allow more gas to escape.

(3) There was more chlorophyll on the upper surface of the leaf to trap light energy.

(4) There were more stomata on the lower surface of the leaf to absorb water.

(Go on to the next page)

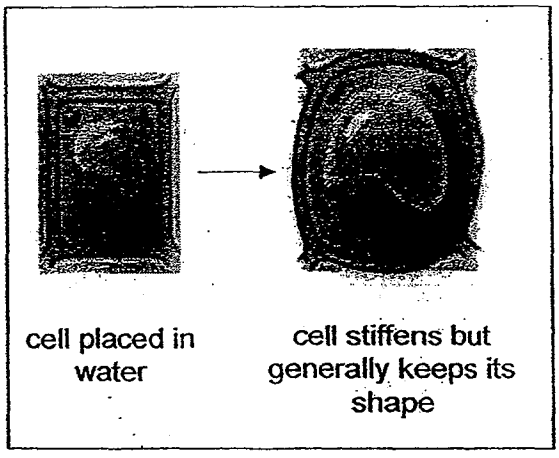
5. A group of students was given four different types of cells, A, B, C and D. They observed the cells under a microscope and recorded their observations in the table shown below.

Parts	Type of Cell			
	A	B	C	D
Cell wall	Absent	Absent	Present	Present
Cell membrane	Present	Present	Present	Present
Cytoplasm	Present	Present	Present	Present
Nucleus	Absent	Present	Present	Present
Chloroplast	Absent	Absent	Absent	Present

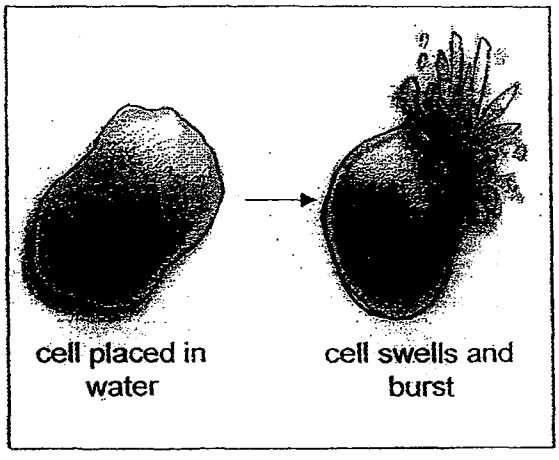
The students then carried out an experiment on the four cells to find out what happens when each of the cells was soaked in a beaker of water for 5 hours.

The diagram below shows the results of the experiment 5 hours later.

Result X



Result Y



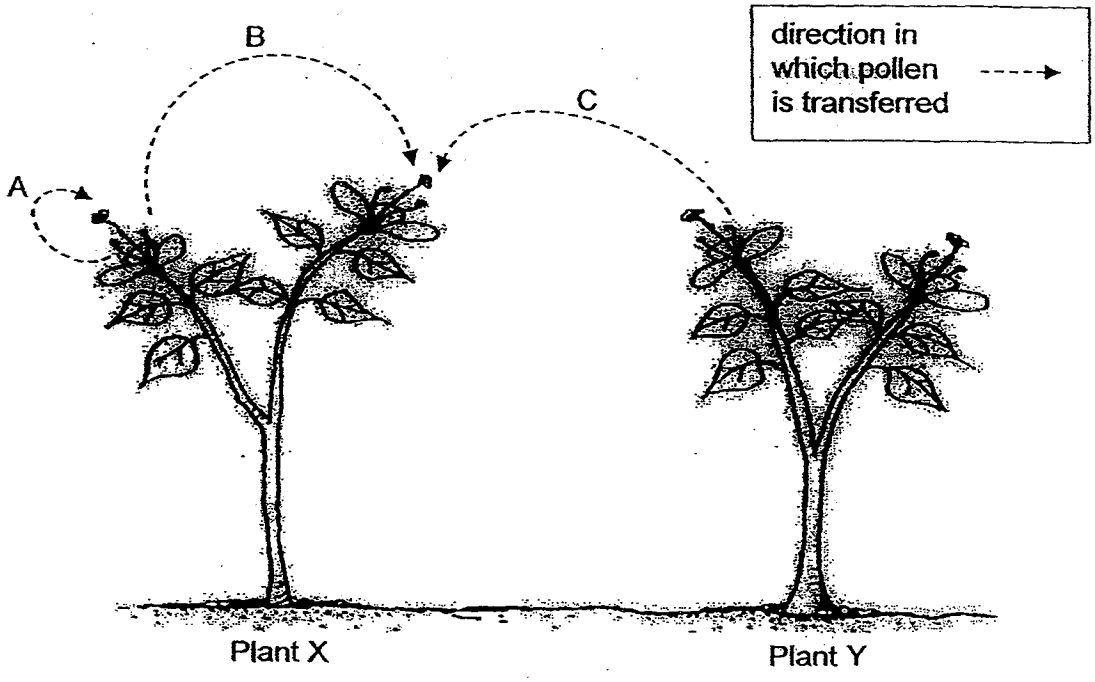
Two of the cells reacted the same way as Result X while the other two cells reacted the same way as Result Y.

Which one of the following options shows how the cells reacted when the cells were soaked in the beaker of water for 5 hours?

	Result X		Result Y	
(1)	A	B	C	D
(2)	A	C	B	D
(3)	C	D	A	B
(4)	D	B	A	C

(Go on to the next page)

6. The diagram below shows two plants, X and Y, from the same species.



The following statements were made about pollination.

Student	Statement
Ranice	Arrow A represents self-pollination where pollen grains are transferred within the same flower.
Samy	Arrow B represents self-pollination where pollen grains are transferred to another flower on the same plant.
Tim	Arrow C represents cross-pollination of which pollen grains are transferred to the flower of another plant of the same species.

Who made the correct statement/s?

(1) Ranice only

(2) Samy and Tim only

(3) Tim and Ranice only

(4) Ranice, Samy and Tim

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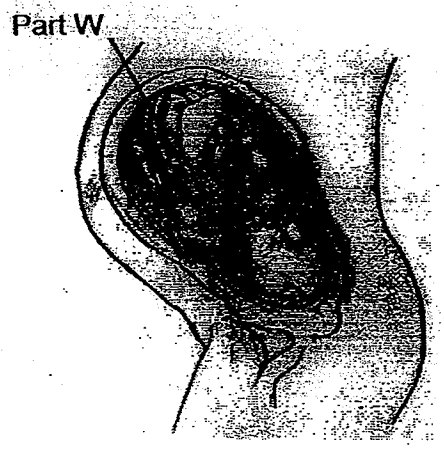
7. The diagram below shows a developing baby in the mother's womb.



How does Part W help the developing baby?

A: It carries nutrients to the developing baby.

B: It carries oxygen-rich blood to the developing baby.

C: It carries the developing baby's wastes to his mother to be removed.

(1) A only

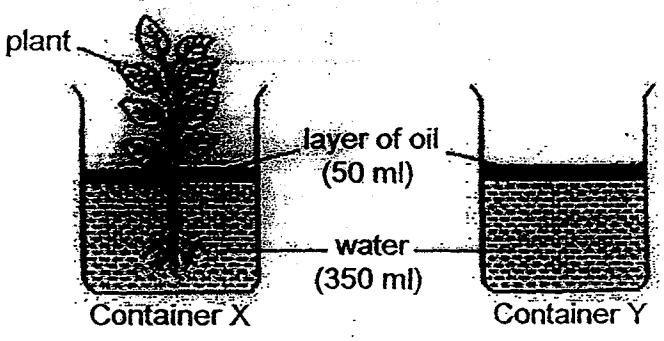
(2) B only

(3) A and B only

(4) A, B and C

(Go on to the next page)

8. Sally poured the same amount of water into two identical containers, X and Y. She placed a plant into Container X while Container Y was set up as a control as shown in the diagram below. Both containers were left on the table near the window for three days.



Which one of the following observations is correct?

(1) The water level in Container X increased because the plant gave out water.

(2) The water in Container X decreased because the roots of the plant absorbed water.

(3) The water level in Container Y decreased more because more water evaporated.

(4) The water level in Container Y increased because water vapour condensed into water droplets.

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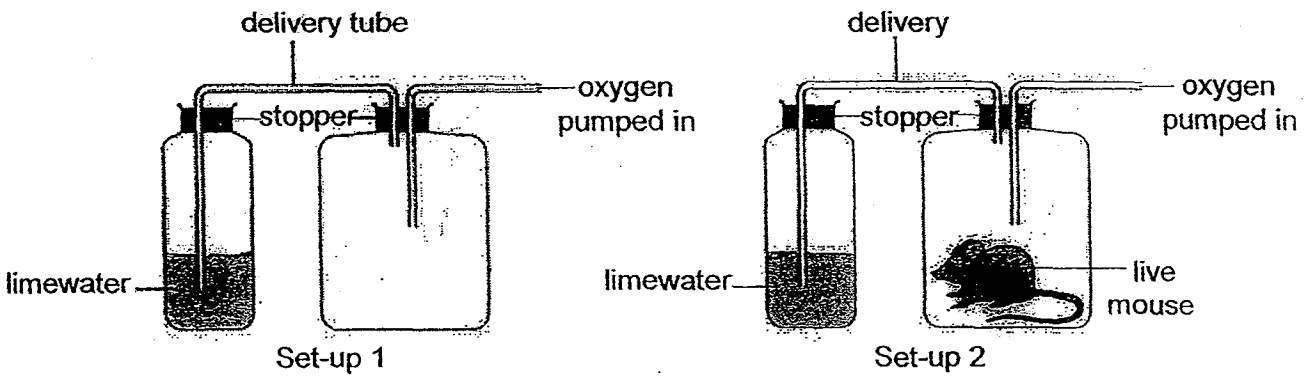
9. Study the set-ups as shown below.



After some time, the limewater in Set-up 2 turned chalky but the limewater in Set-up 1 remained clear.

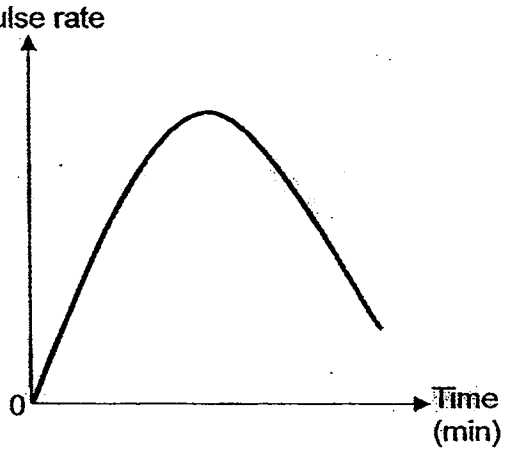
Which one of the following options shows the process that has taken place in Set-up 2 and the purpose of having Set-up 1?

	Name of process occurring in Set-up 2	**Purpose of having Set-up 1**
(1)	Respiration	To show that oxygen was taken in by the mouse.
(2)	Decomposition	To show that there was not enough carbon dioxide in the air.
(3)	Digestion	To show that limewater remained clear when it reacted with oxygen.
(4)	Respiration	To show that carbon dioxide was given out by the mouse.

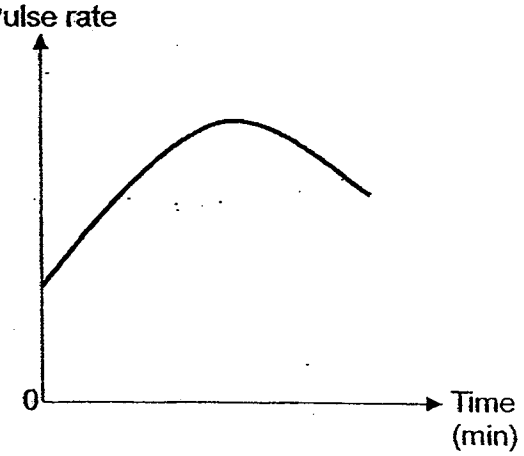
(Go on to the next page)

10. Johan cycled continuously for half an hour on his racing bicycle. Then he took a fifteen-minute rest. Which one of the following graphs shows his pulse rate during his training session?

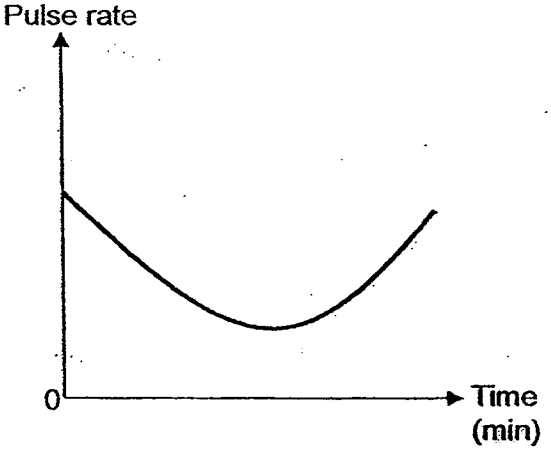
(1)



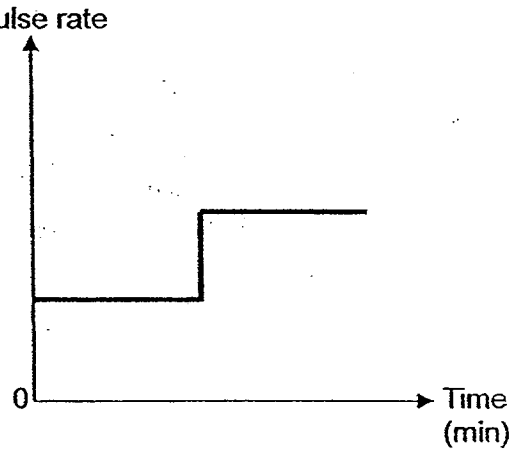
(2)



(3)



(4)



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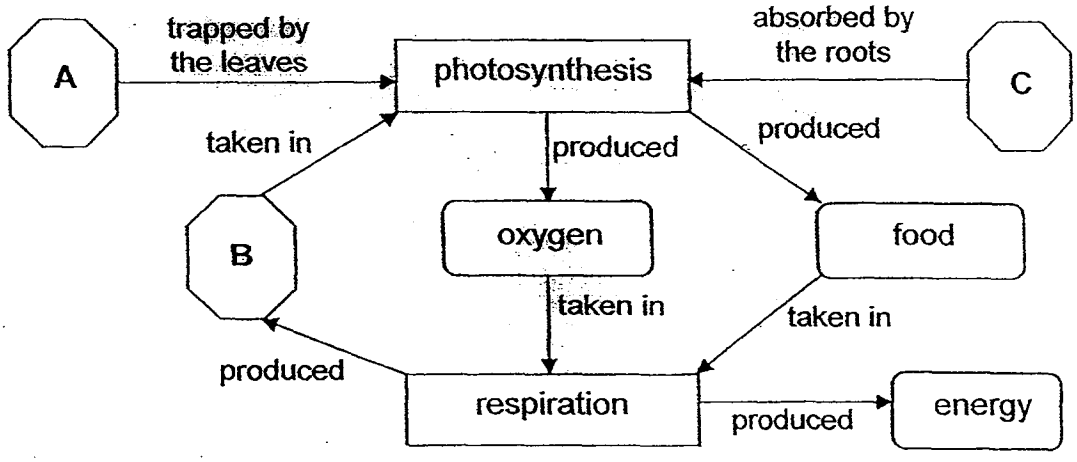
11. Study the diagram shown below.



Which one of the following options best represent letters, A, B and C correctly?

	A	B	C
(1)	water	chlorophyll	carbon dioxide
(2)	sunlight	carbon dioxide	water
(3)	sunlight	water	carbon dioxide
(4)	chlorophyll	carbon dioxide	water

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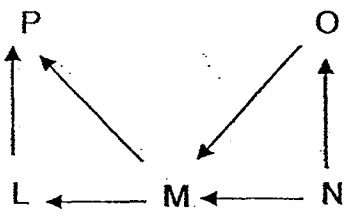
12. The table below shows some information about the food relationships among some organisms in a community.

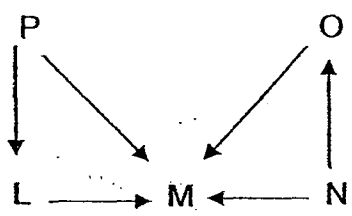
Organism	Information
L	a plant-eater
M	• feeds on L and P • a prey of O
N	a predator of M
O	a prey of N
P	gets its energy directly from the sun

Based on the information above, which one of the following shows the correct food web, involving organisms A, B, C, D and E in the community?

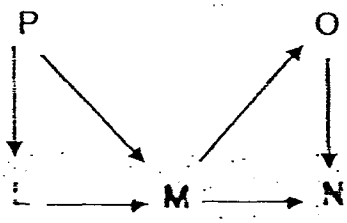
(1)



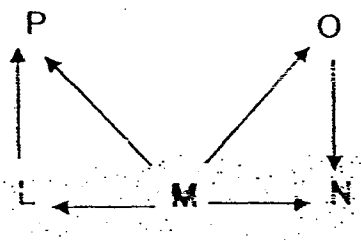
(2)



(3)



(4)



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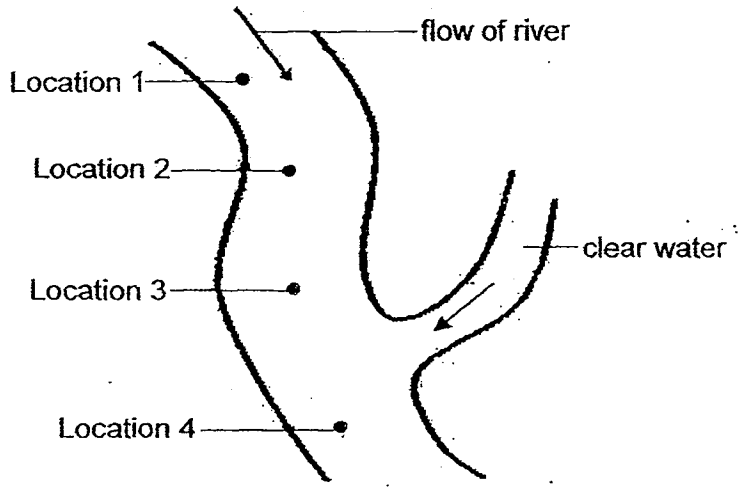
13. The diagram below shows a river where two aquatic organisms, X and Y, can be found. There is a factory located near the river. This factory releases its waste products into the river. The waste products cause the population of organism X to increase but the population of organism Y to decrease.



The table below shows the population of organisms X and Y present in samples taken at 4 different locations, 1, 2, 3 and 4 of the river.

Location	Population of X	Population of Y
1	16	83
2	17	82
3	32	39
4	18	43

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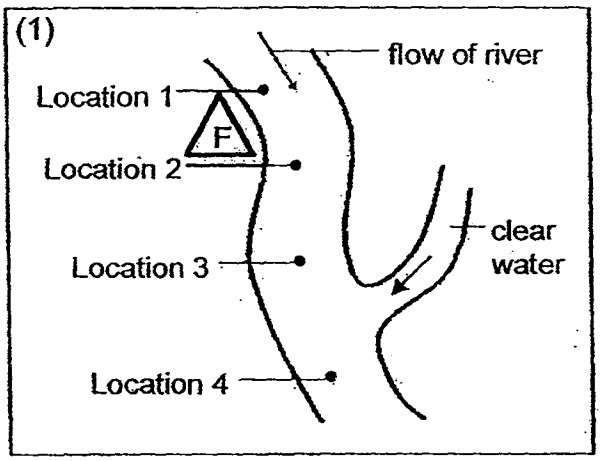
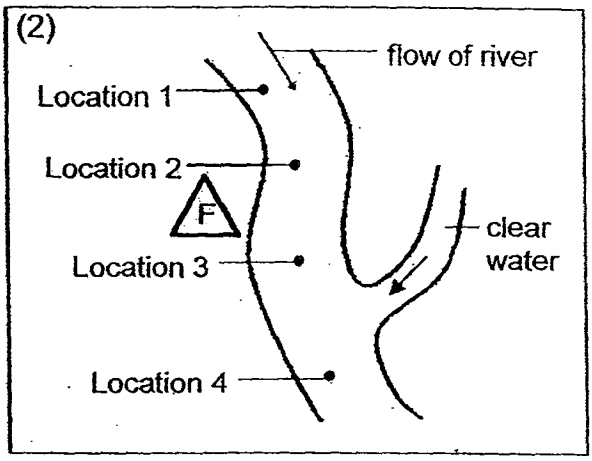
Based on the results, which one of the diagrams below shows where the factory should be located to cause the least impact on the organisms?

most

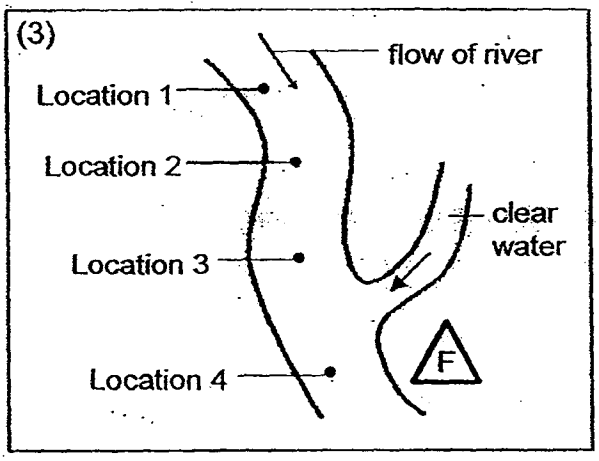
(1)



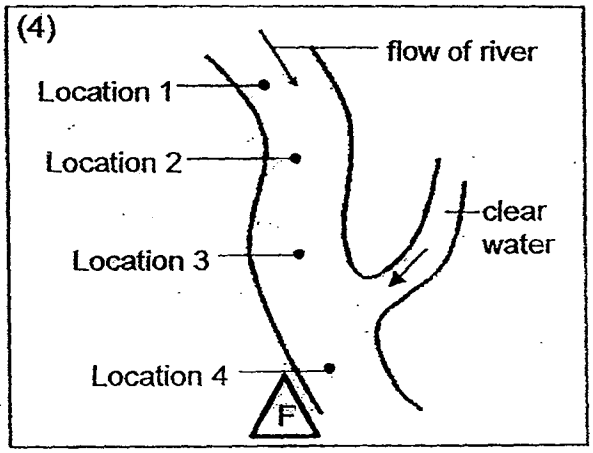
(2)

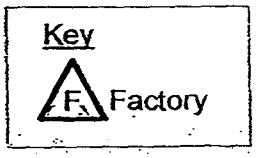


(3)



(4)





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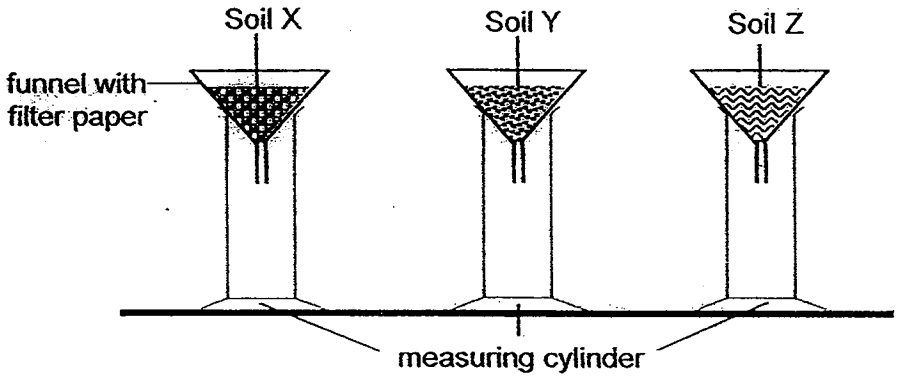
14. Ahmad set up an experiment to find out which type of soil was suitable for growing 3 different plants, A, B and C. The profile of the plants is as shown in the table below.

	Plant A	Plant B	Plant C
Habitat	garden	swamp	Desert

He lined 3 funnels with filter paper and poured the same amount of soil, X, Y and Z, into each funnel. He then poured 50ml of water into each funnel and recorded the volume of water collected in each measuring cylinder after 5 minutes.



Ahmad then recorded the results of his experiment as shown in the table below.

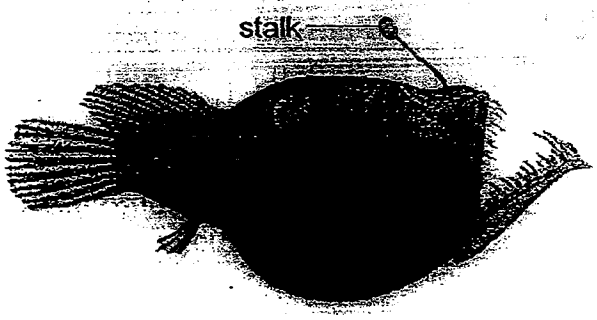
	Soil X	Soil Y	Soil Z
Volume of water collected	47 ml	8 ml	26 ml

Which one of the following correctly matches the plants to their suitable soil?

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

(Go on to the next page)

15. Kim did some research on an angler fish as shown in the diagram below. She discovered that the angler fish is a predatory animal and is usually found at a depth where the temperature of the water is lower than 5°C.



The table below shows the physical conditions in the ocean at different depths.

Ocean Zone	Depth/m	Intensity of light
Sunlight Zone	0 - 200	Bright
Twilight Zone	200 - 1000	Dim
Dark Zone	1000 - 4000	Dark

Based on the information given in the data above, Kim concluded that the minimum depth at which the angler fish would be expected to live in is 1000m.

Which one of the following statements best explains how the stalk helps the angler fish to survive in its environment?

The light emitted from the stalk on the angler fish's head _____.

(1)	scares its predators away
(2)	helps it to swim quickly in the water
(3)	provides it with light energy to make its own food
(4)	attracts its prey towards it so that it can catch its prey easily

End of Booklet A1

PRIMARY 6 MID-YEAR EXAMINATION 2015

Name :_____ ( ) Date: 15 MAY 2015

Class : Primary 6 ( ) Duration : 1h 45min

Parent's Signature :_____ Marks: _____ / 40

SCIENCE

BOOKLET B

INSTRUCTIONS TO CANDIDATES

Write your name, class and register number.

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

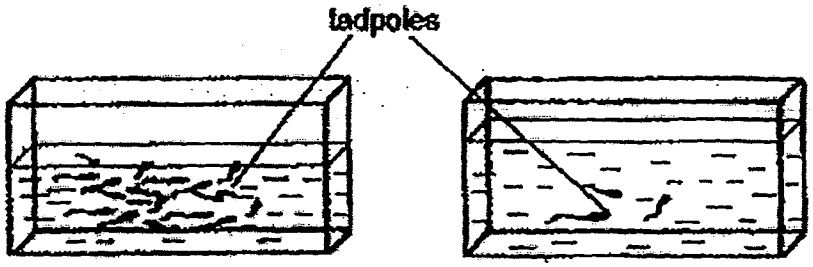
Answer all questions.

Booklet B (40 marks)

For questions 31 to 44, write your answers clearly in the spaces provided.

---

31. An experiment was carried out to find out which type of water, pond water or tap water, is more suitable for the tadpoles to grow healthily. Some tadpoles were caught and they were placed into 2 identical tanks as shown below.



(a) Is the above experiment a fair test? Give 2 reasons for your answer. [2]

_____

_____

_____

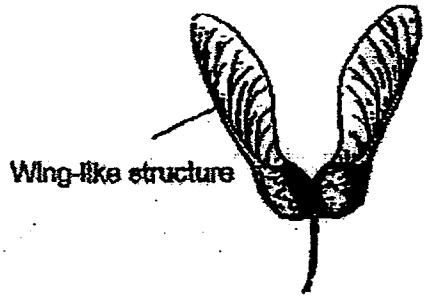
(b) Write down one item that can be added into the tank of tap water to help the tadpoles survive? [1]

_____

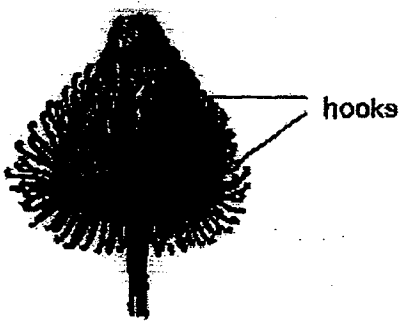
_____

Score	/3

32. Study the pictures below carefully.



Fruit A



Fruit B

(a) Identify the method of dispersal for the fruits shown above. [1]

I. Fruit A: _____

II. Fruit B: _____

(b) Explain how the physical characteristics of Fruit A and Fruit B help them to be dispersed by the methods mentioned in (a). [2]

_____

_____

_____

Score	/ 3

33. The table below shows how some animals from a single tree community depend on the different parts of the tree for food. The (√) represents the parts of the tree the organisms depend on for food.

Part of tree / Animal	leaf	flower	fruit	bark
Caterpillar	√			
Butterfly		√	√	
Beetle			√	√
Bat			√	
Mealy bug	√			
Squirrel			√	
Termite				√

(a) If the pollination of the flower does not take place, which animal(s) would not be able to obtain any food from the tree? [1]

_____

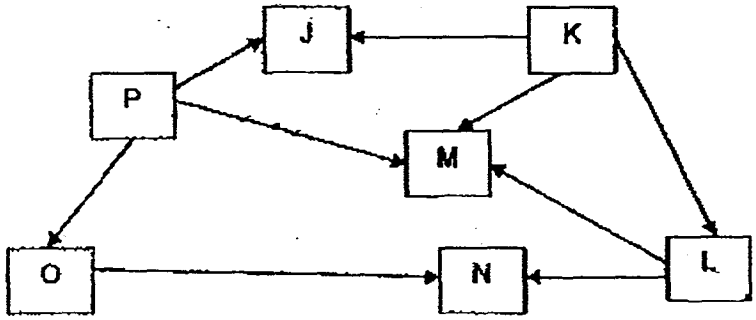
(b) Explain the reason for your answer in (a). [1]

_____

_____

Score	2

34. The food web below shows a feeding relationship between some organisms living in a community.



(a) Based only on the food web above, fill in the blanks in the table below with the letters, J, K, L, M, N, O and P, representing the various organisms. [2]

	Type of Organism	Letters
i.	Food producer	
ii.	Plant eater	
iii.	Animal eater	
iv.	Plant and animal eater	

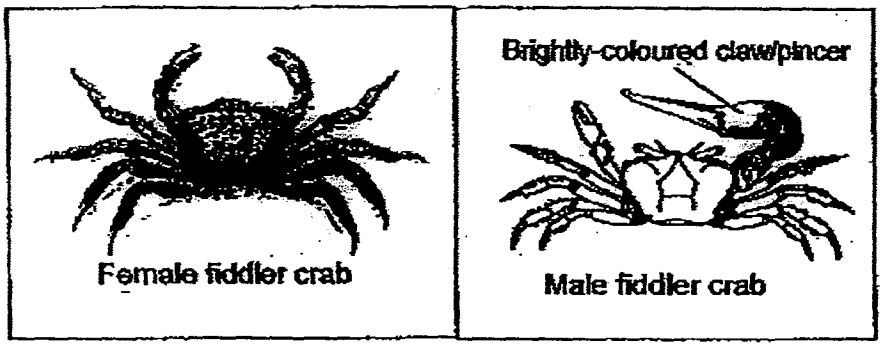
Organisms X has the following characteristics:

- Organism X is a plant and animal eater.
- When the population of Organism X increases, the population of P decreases.
- When the population of Organism X increases, the population of J and O decreases.

(b) Include Organism X in the food web above. [1]

Score	/3

35. The male fiddler crab digs burrows to make a home using its large pincer. The female fiddler crab however, has a pair of pincers of equal size as shown below. At a special period of time, the male fiddler crab will be seen waving its extremely large and brightly-coloured claw.



(a) What could be the reason of the male fiddler crab waving its large and brightly-coloured pincer? [1]

_____

(b) How does the size of the pincer affect the survival of the fiddler crabs? [1]

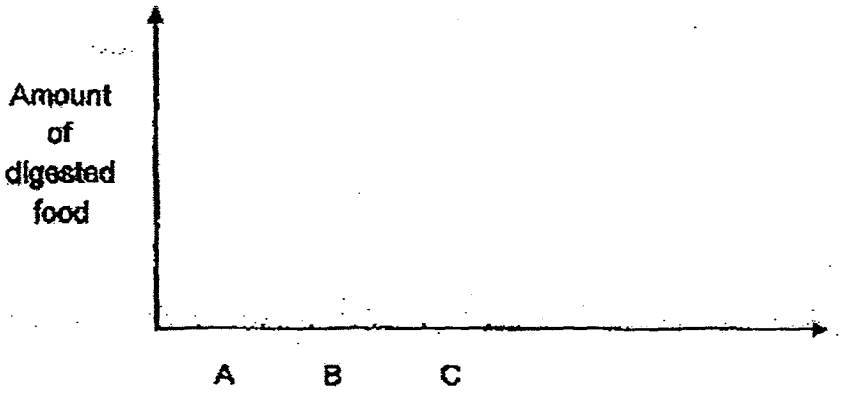
_____

(c) Explain why the fiddler crab has eyes that protrude from the front part of its shell. [1]

_____

Score	/ 3

36. Lily ate a fish burger for lunch. The graph below shows the amount of food from the burger that was digested at different parts of her digestive system after her lunch.



Part of the digestive system

Use the graph above to answer the following question.

(a) Match the following parts of the digestive system to the letters, A, B or C. Write the letter corresponding to each part in the boxes provided. [1]

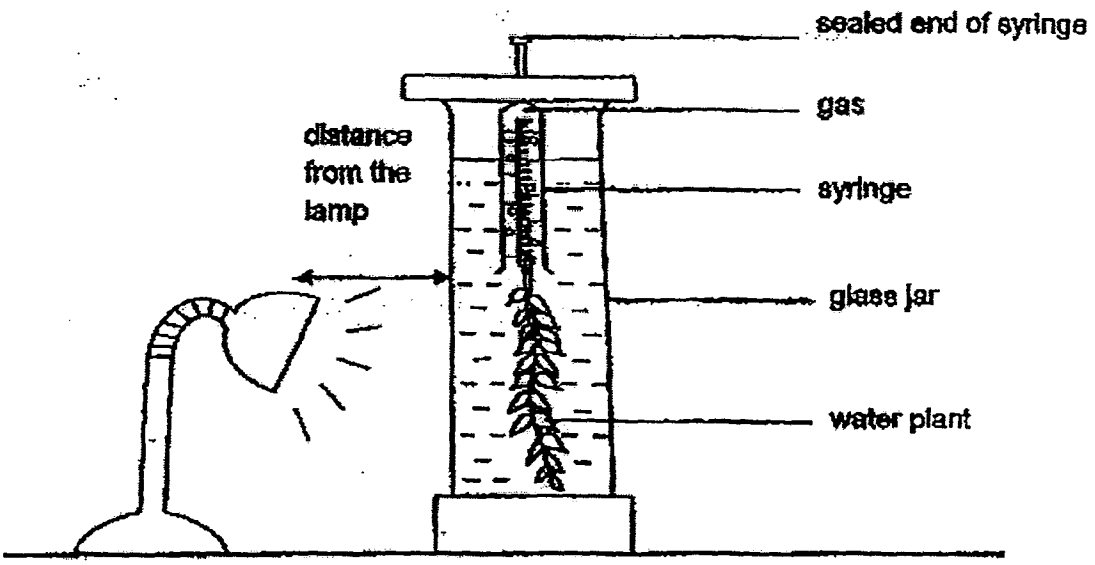
Part	Letter
Stomach	
Small intestine	

(b) Blood vessels carry blood to and from parts of the digestive system. Explain why there are blood vessels found on the walls of the small intestine. [1]

(c) Why do we have large amount of blood vessels on the intestine wall? [1]

Score	/3

37. Jess set up an experiment in a dark room as shown below.



She placed the lit lamp 30 cm away from water plant. It was observed that after some time, bubbles were formed in the syringe. She counted the number of bubbles formed and repeated the experiment, placing the water plant at various distances from the lamp. The results are shown in the table above.

Distance from the lamp (cm)	Average number of bubbles formed per minute
30	11
20	25
10	43

(a) What is the relationship between the number of bubbles formed and the distance between the water plant and the lamp? [1]

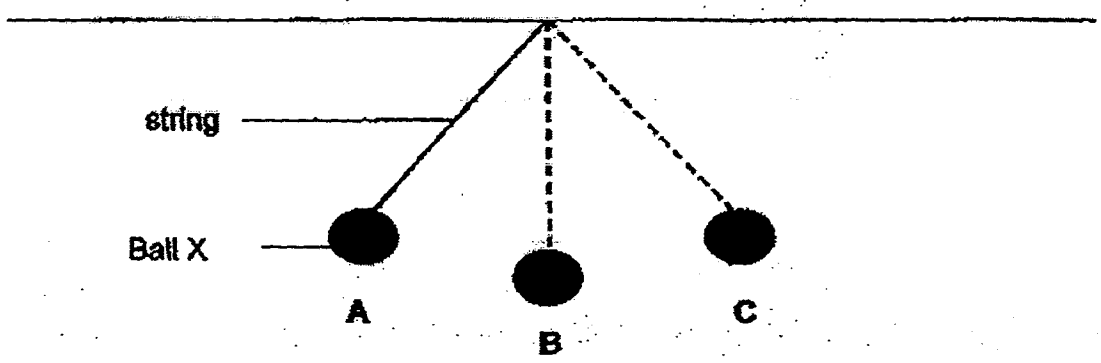
Score	
	1

(b) Mary conducted the experiment the fourth time. The average number of bubbles formed was 55 per minute when the distance of the water plant from the lamp was 5 cm.

Explain why there was an increase in the average number of bubbles formed per minute. [2]

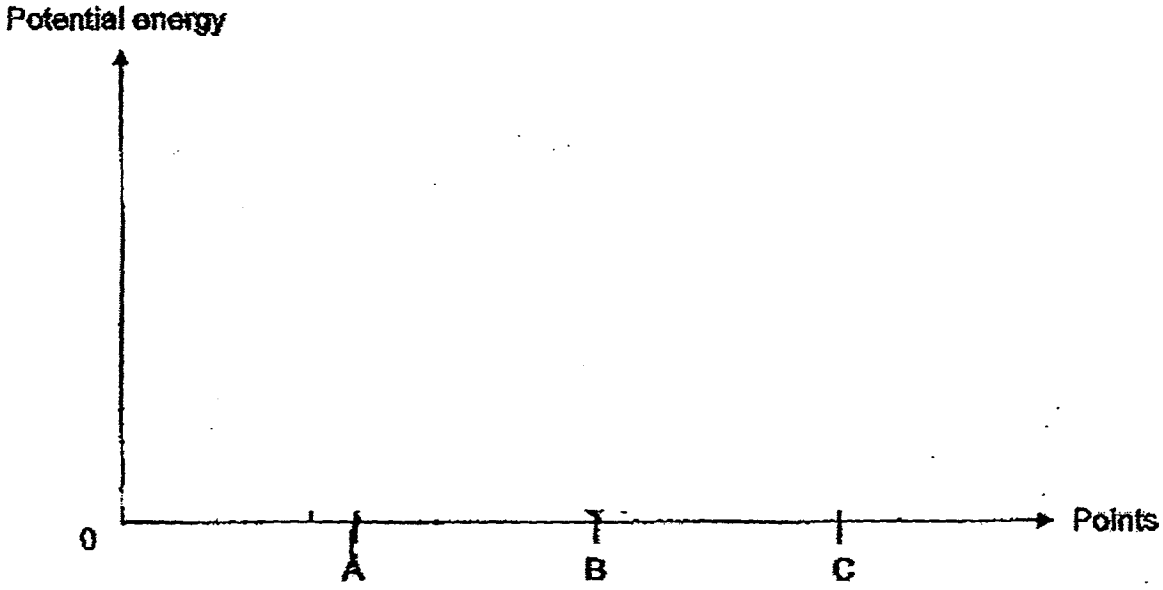
Score	/ 2

38. The diagram below shows a metallic ball, X, hung using a string from a support.



When Ball X is released at point A, it swings downwards to point B. Then it continues to move upwards to point C.

(a) Using the axes given below, draw the line graph to show the change in the amount of gravitational potential energy of Ball X as it moves from point A to point C. [1]



Score	$\frac{1}{2}$ / 1

(b) Will the ball be able to go back to the same height at point A after the first round of swing? Explain your answer. [1]

_____

_____

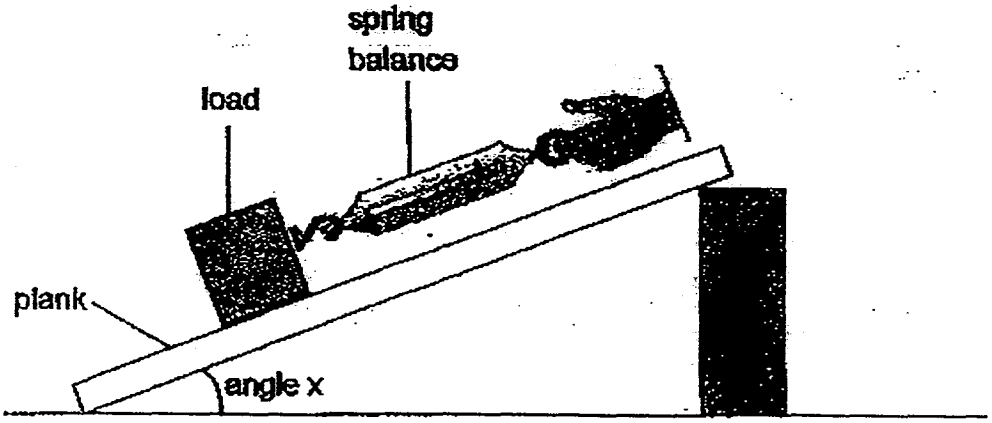
_____

(c) Fill in the blanks to show the energy changes involved when the ball moves from point A to point C. [1]

of ball at point A of ball at point B of ball at point C

Score	2

39. Roy set up an experiment as shown below. He pulled the load up a plank using a spring balance. He repeated the experiment for different values of angle x.



The results of his experiments are shown in the table below.

Angle x (°)	Force used to pull load up (N)
20	85
30	107
40	?
50	150

(a) What is the amount of force needed to move the load up the ramp at an angle of 40°? [1]

(b) Explain how the results will be affected if a smoother surface is used on the ramp. [1]

Score	2

40. Diagram 1 shows magnet B at rest between magnets A and C. Diagram 2 shows magnet B at rest above magnet C after magnet A is removed.

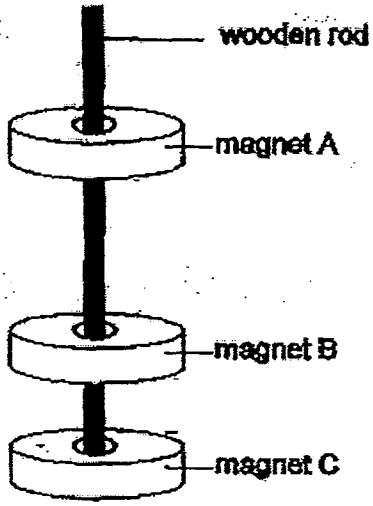


Diagram 1

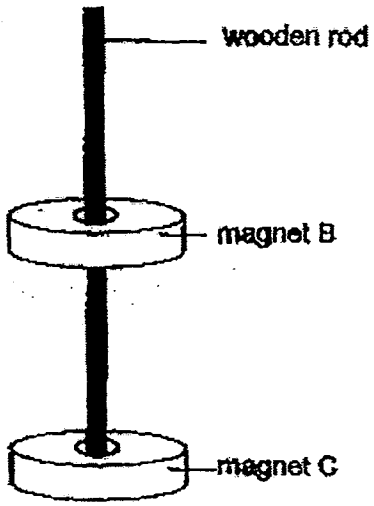


Diagram 2

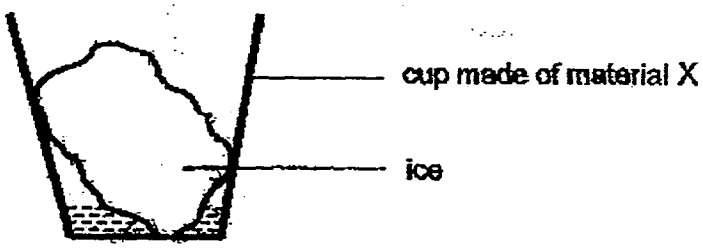
(a) What caused magnet B to be at rest between magnet A and magnet C as shown in Diagram1? [1]

(b) When Magnet B in Diagram 2 is pushed downwards and released, it will move up and down a few times before coming to rest again. Explain why magnet B moves up and down. [1]

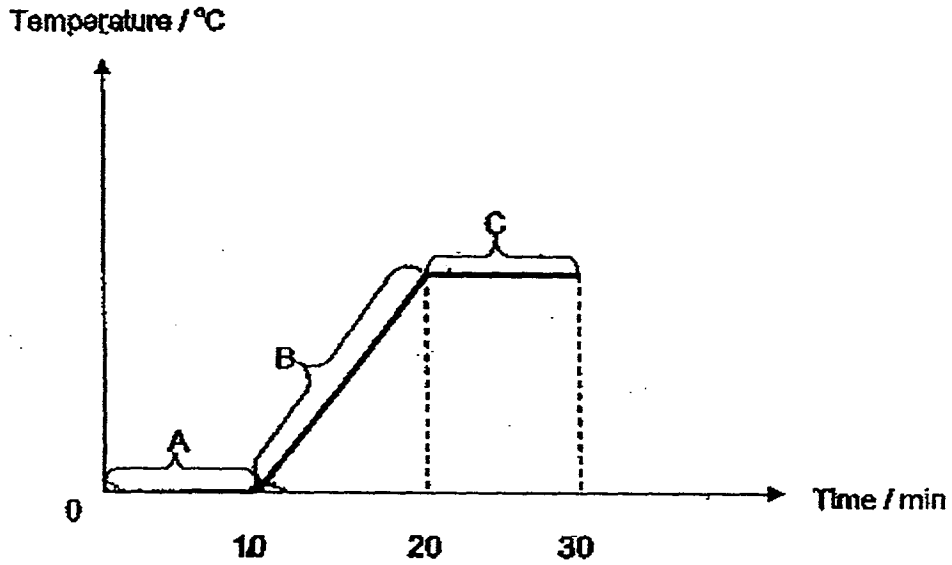
(c) Based on the diagrams, compare the strength of magnet A and magnet C. [1]

Score	/3

41. Julian put a piece of ice in a cup made of material X and left it in a classroom.



The temperature of the melting ice was recorded for some time even after all the ice has melted. The results are plotted in the graph below.



(a) How long did the ice take to melt completely? Explain your answer. [1]

(b) At which part(s), A, B, or C, of the graph does the ice or/and water gain heat? [1]

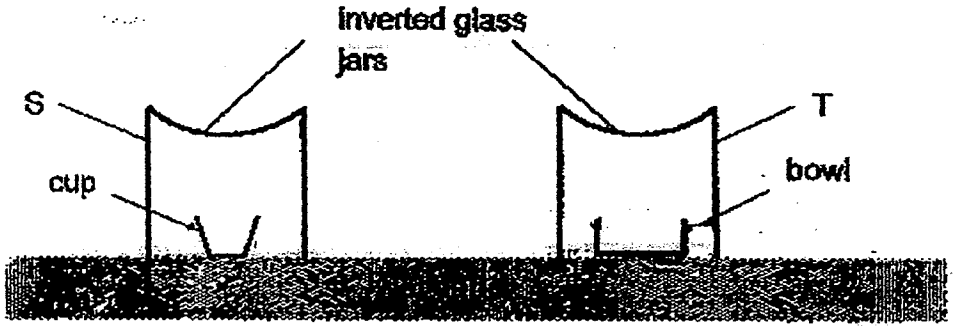
Score	/2

(c) Julian repeated the experiment using another cup made of material Y. He realised that an identical piece of ice took 10 minutes longer to melt completely.

Which material, X or Y, should Julian choose to make a box to ensure that the fried rice he brings to school will still be warm during his recess break? Explain your choice. [2]

Score	/ 2

42. On a sunny day, Faith inverted two identical glass jars, S and T, over a cup and a bowl respectively on some wet sand as shown.



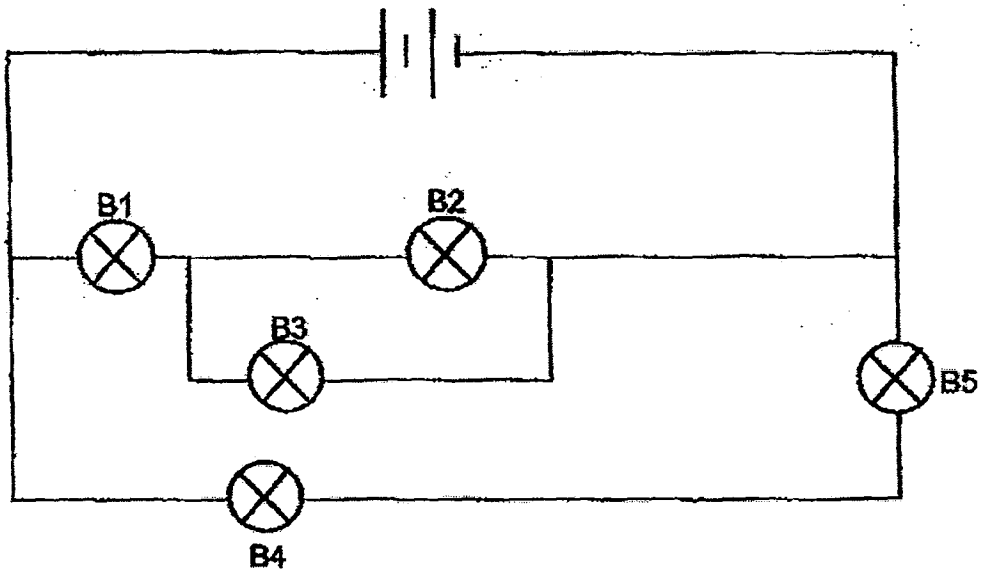
Water was collected in the small cup and big bowl after some time.

(a) Explain how the water was collected. [2]

(b) Explain why less water was collected in the bowl than in the cup. [1]

Score	3

43. Guangming set up a circuit as shown. All the bulbs in the circuit lit up.

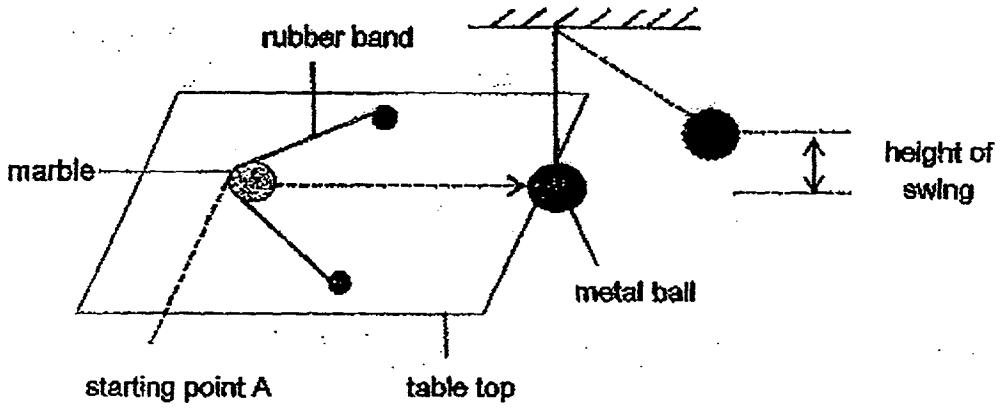


(a) What is the smallest possible number of bulbs that would remain lit when one of the bulbs in the circuit is blown? Explain your answer. [1]

(b) Mark on the circuit with an 'X' where you can place a switch to control both bulbs B4 and B5 at the same time. [1]

Score	/2

44. Siti conducted an experiment using the set-up below.



Siti stretched the rubber band with the marble to the starting point A before releasing the marble to hit the metal ball. The metal ball then swung to the height shown in the diagram above.
Siti repeated the experiment using another type of surface for the table top. She recorded the results in the table below.

	Height of swing with rough surface (cm)	**Height of swing with smooth surface (cm)**
1st reading	3	5
2nd reading	5	6
3rd reading	4	6

(a) Based on the results in the table, what can you conclude about the relationship between the type of surface of the table top and the height of the swing. [1]

(b) Explain your answer for part (a). [1]

(c) Why must Siti conduct the experiment at least 3 times? [1]

End of Booklet B

Score	3

Answer Ke

EXAM PAPER 2015

SCHOOL : TAO NAN

SUBJECT : P6 SCIENCE

TERM : SA1

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

31)a)No. There was not an equal amount of water in each tanks and there was difference in the number of tadpoles.

b)A plant that can photosynthesise.

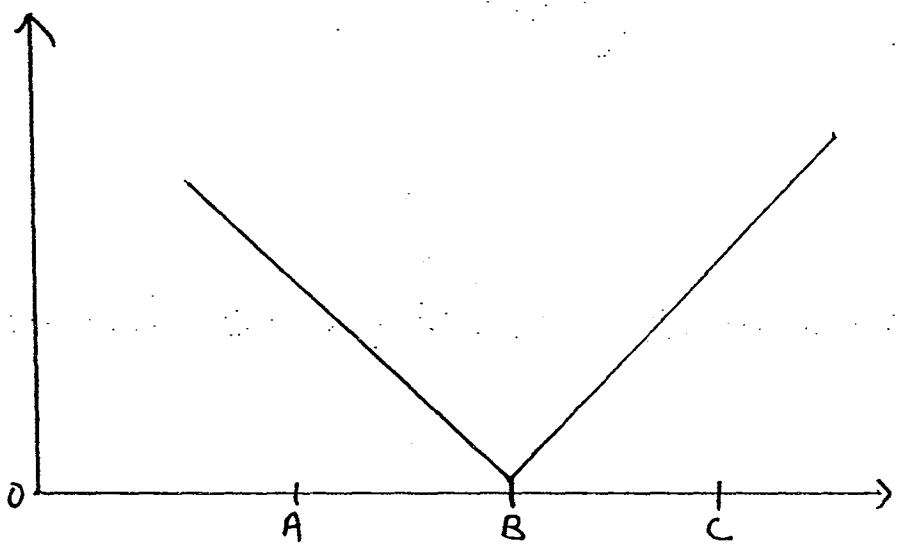
32)a)i)Wind ii)Animal

b)The wing-like structure of A can help it stay in air for a long period of time and the hooks on B can be hooked onto the animal's legs.

33)a)Bat and squirrel.

b)Without pollination, the tree will not produce fruits and the animals feed only on the fruits of the plant.

38)a)



b)No. When the ball was moving from A to B some of the kinetic energy was converted to heat and sound energy. So there is less kinetic energy to convert to gravitational potential energy.

c)Gravitational potential energy→Kinetic energy→Gravitational potential energy

39)a)130

b)Force used to pull load up is less and less frictional force between the surface of load and plank.

40)a)B is repelling A and C.

b)Gravity pulls down while magnetic repulsion between and B cause B to move up.

41)a)10mins. The temperature did not increase for the first 10mins as it is melt after that, the temperature increased.

b)B.

41)c)Y. It took a longer time to melt a ice as heat flowing through it is slower than X, meaning that it was poorer conductor of heat. Hence, when Julian brings the fried rice in the box of material y, it will stay warmer for a longer time than that of X.

Heat is conducted through Material Y at a slower rate so the food loses heat slower.

42)a)Water from the wet sand evaporated into water vapour which condensed on the cooler surface of the glass jar into water droplets which fall into cup and bowl.

b)There was smaller exposed surface area of the wet sand, thus the rate of evaporation of water was slower.

43)a)2. When B1 blows electrical can only flow through B4 & B5 as it is a closed circuit.

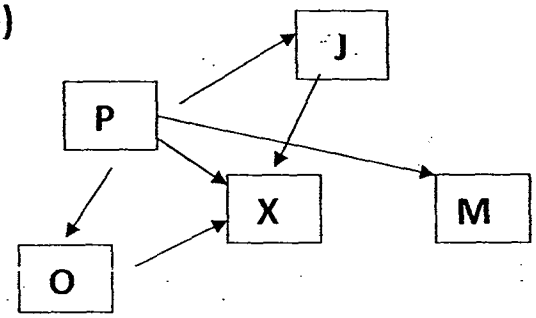
44)a)The rougher the surface of the table top the lower the height of the swing.

b)On a rougher surface, there is more friction between the table top and marble, so more force was used to overcome friction, causing it to swing lower.

c)To ensure the results are reliable.

34)a)i)P, K ii)J, O, L iii)N iv)M

b)



35)a)To attract female fiddler crabs.

b)The larger the size of the pincer, the better and easier the crab can dig a deeper hole for it to escape its predator.

c)The eyes can stick out from the burrow to enable the crab to see the complete view of its surrounding without exposing/moving its body.

36)a)Stomach : C Small intestine : A

b)To absorbs the digested food from the small.

c)Increase the rate of absorbtion of digested food.

37)a)The nearer the distance between the water plant and the lamp, the more the number of bubbles formed.

b)The lamp was nearer to the water plant, hence the plant receives more light and the rate of photosynthesis increase, hence more oxygen is produced with an increase in bubbles.