

RAFFLES GIRLS' PRIMARY SCHOOL
SEMESTRAL ASSESSMENT (1)
2008



Your score out of 100 marks		
	Class	Level
Highest score		
Average score		
Parent's signature		

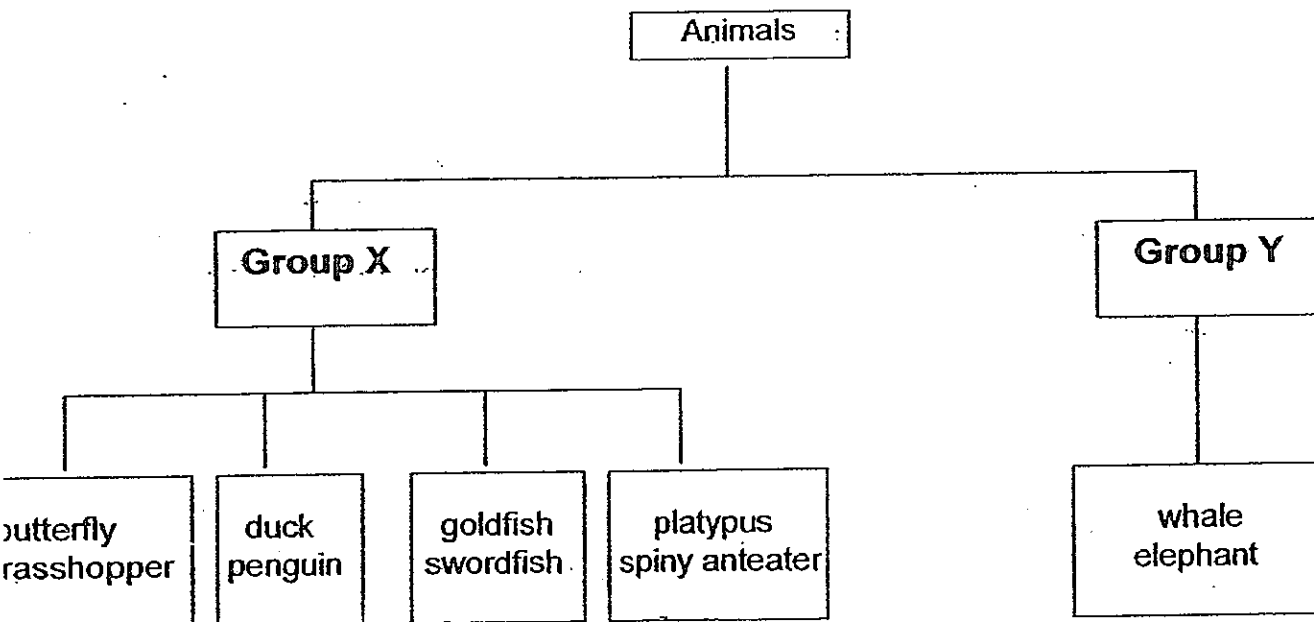
Name : _____ Index No: _____ Class: P 6 _____

7 May 2008 **SCIENCE** Att: 1 h 45 min

SECTION A (30 X 2 marks)

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

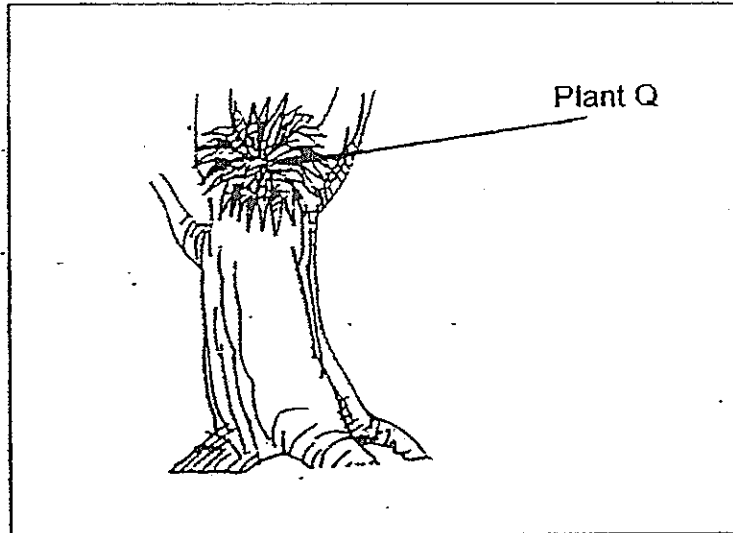
1 The animals below are classified into two groups, X and Y.



Based on the information above, the animals in Groups X and Y have been classified according to _____.

- (1) their diet
- (2) their body coverings
- (3) the way they breathe
- (4) the way they reproduce

2 The diagram below shows Plant Q growing between two branches of a tree.



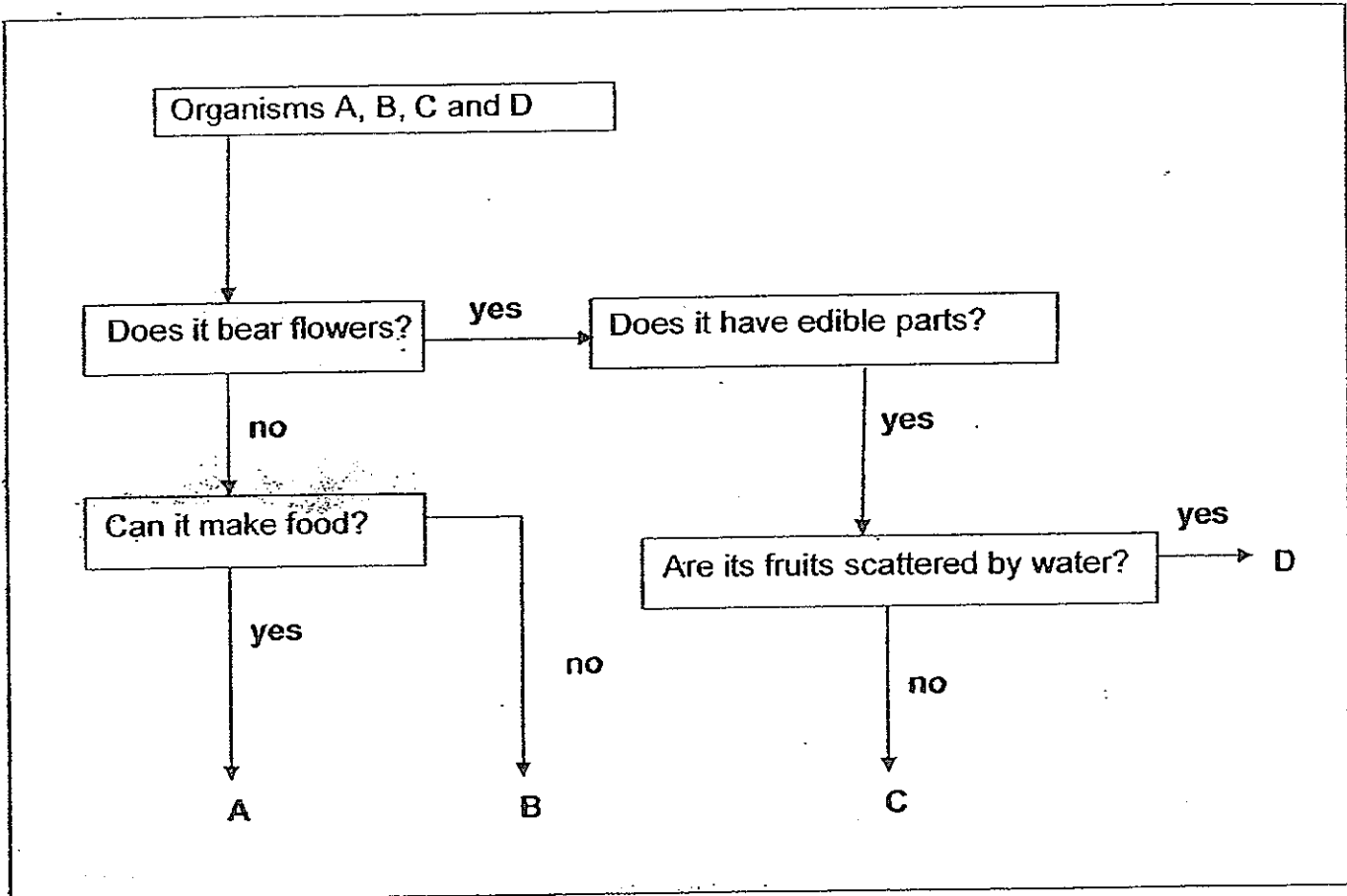
Plant Q is green and does not bear flowers.

Based on the information given, which of the following statements about Plant Q is / are most likely to be true?

- A Plant Q produces fruits and seeds.
- B Plant Q has chlorophyll in its leaves.
- C Plant Q depends on the tree for support to obtain sunlight.

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

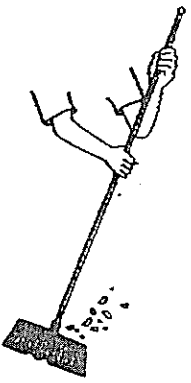
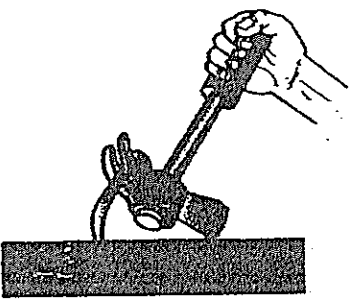
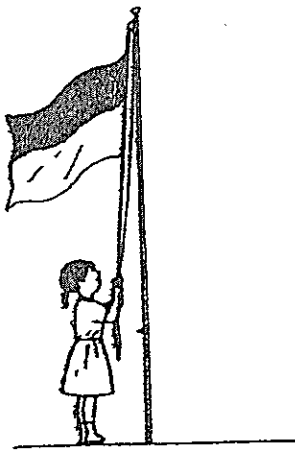
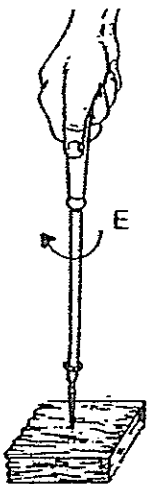
3 The letters A, B, C and D represent different organisms in the diagram below



Based on the diagram above, which one of the following set of organisms has been correctly matched to the letters A, B, C and D?

	A	B	C	D
(1)	ladder fern	bracket fungus	lady's finger	pong pong
(2)	mushroom	fern	tomato	mangrove
(3)	moss	mushroom	chilli	coconut
(4)	maidenhair fern	staghorn fern	love grass	lotus

4 Which of the following simple machines enable a smaller force to overcome a heavier load?

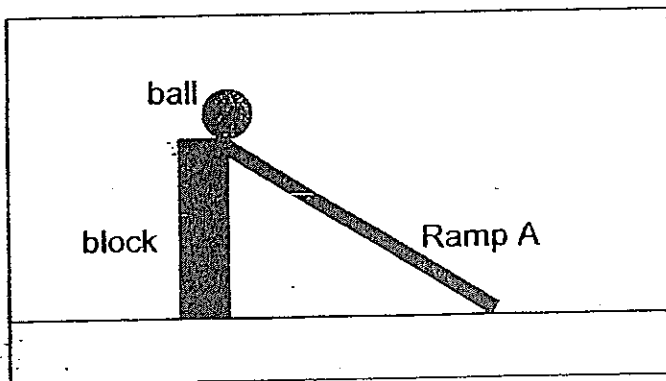
<p>A</p>  <p>broom</p>	<p>B</p>  <p>claw hammer</p>
<p>C</p>  <p>using the flagpole</p>	<p>D</p>  <p>screwdriver</p>

- A and C only
- B and D only
- A, B and C only
- A, B, C and D

5. Johari conducted an experiment as shown below.

He released a ball down Ramp A and recorded the time taken for the ball to reach the floor.

He repeated the experiment by using 2 similar ramps, Ramp B and Ramp C which had the same length and same angle of inclination but he changed the texture of each ramp surface.



Johari recorded his results in the table shown below.

Type of surface	A	B	C
Time recorded (sec)	2.6	3.2	1.5

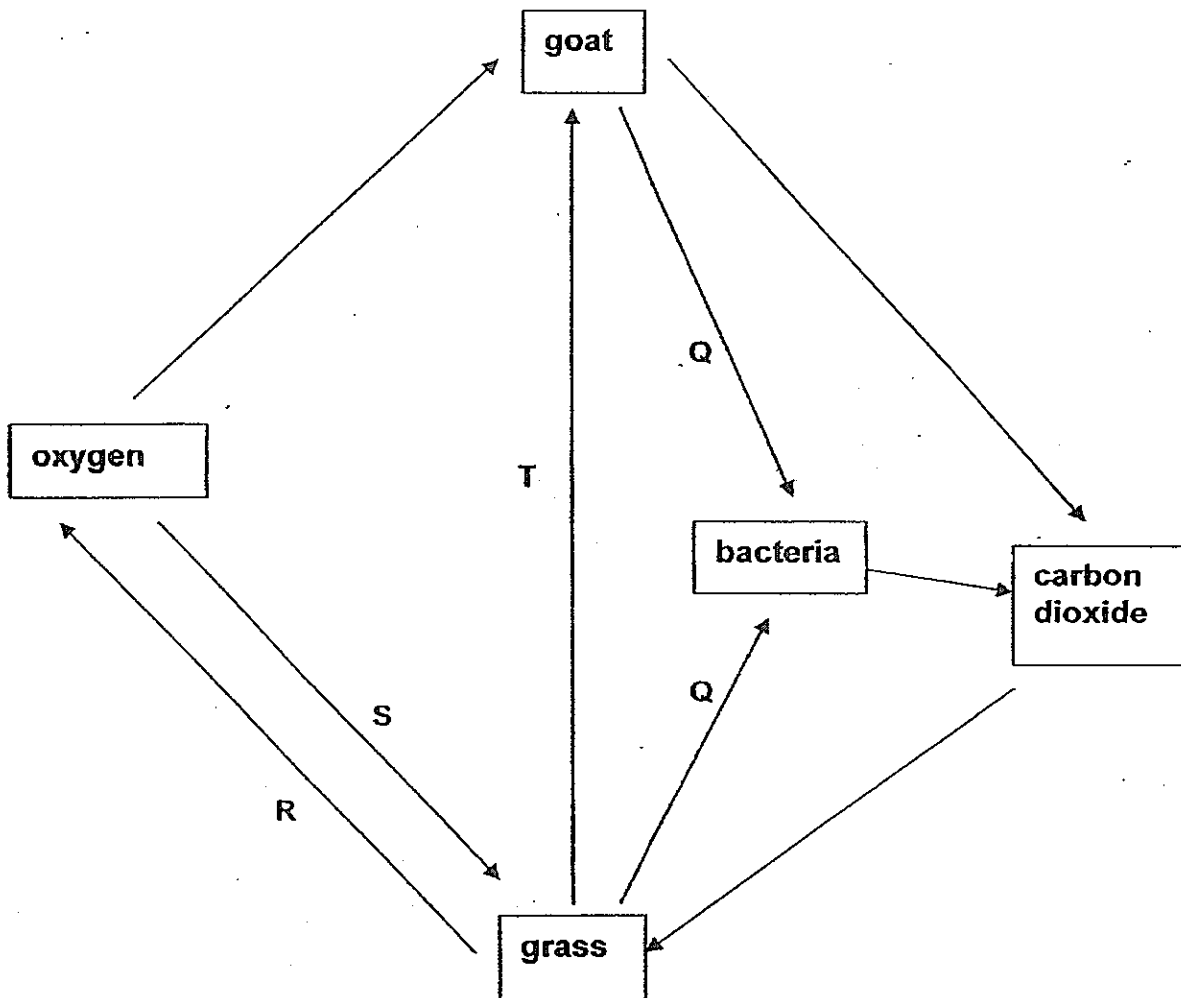
From his experiment, Johari concluded that Ramp C enabled the ball to move the fastest.

Which of the following steps should Johari take to ensure that the results of his experiment were more reliable?

- A He should use a different ball with each surface.
- B He should repeat the test with each surface at least three times.
- C He should measure the distance travelled by the ball along the floor.

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

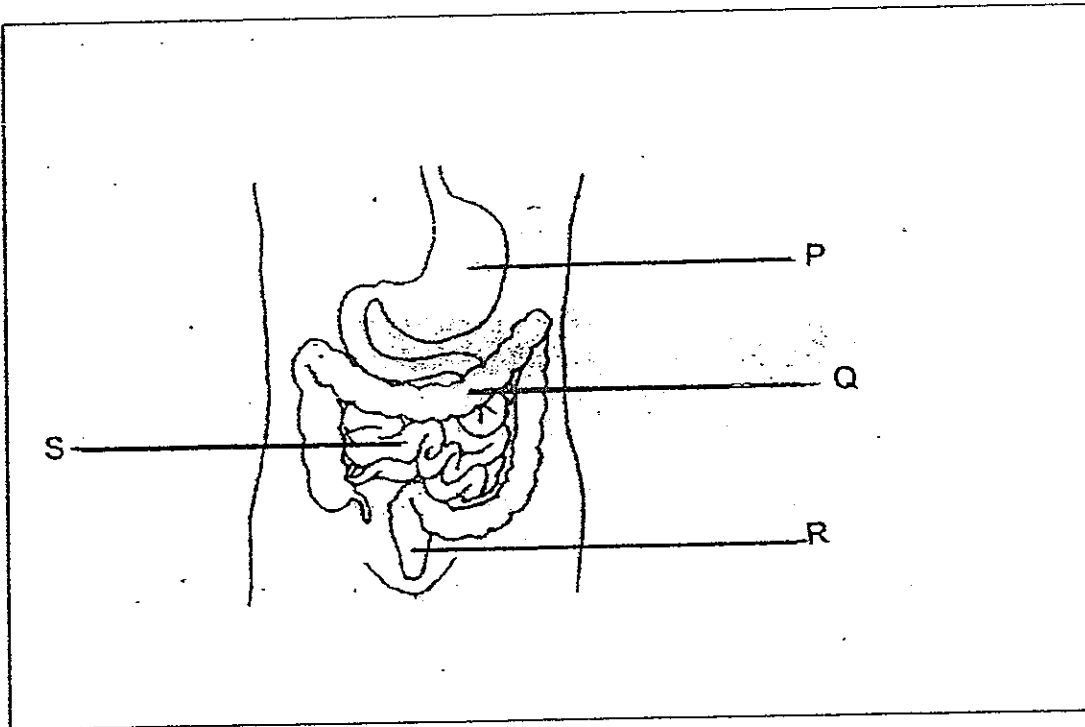
6. The diagram below shows how living things interact with the environment through processes P, Q, R, S and T.



Based on the diagram above, which one of the following set of processes is correctly matched to the letters, P, Q, R, S and T?

	death	decay	feeding	photosynthesis	respiration
(1)	P	Q	T	R	S
(2)	Q	P	S	T	R
(3)	Q	P	T	R	S
(4)	T	R	Q	S	P

7. The diagram below shows parts of our food canal.



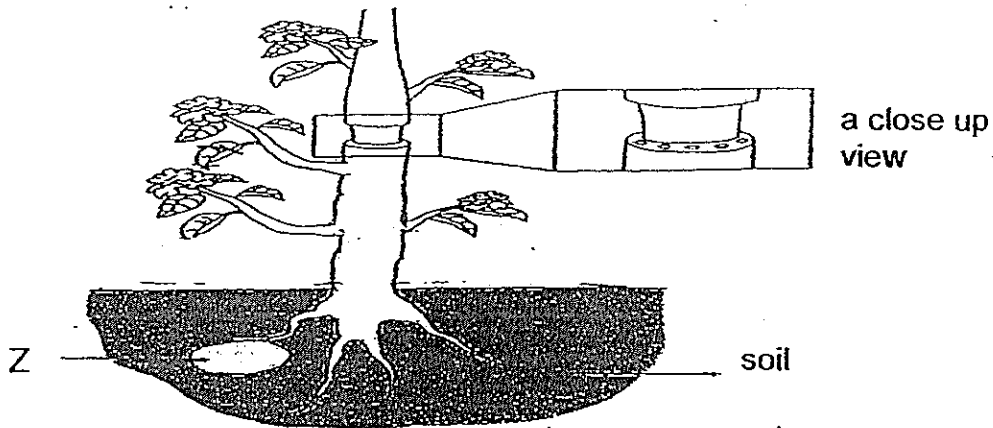
The following statements, A, B, C and D, describe the activities that take place at the various parts of our food canal:

- A Solid waste can be passed out from here.
- B Digested food enter the blood from here.
- C A mixture of water and undigested food is found here.
- D The swallowed food and liquid can remain here for about two to three hours.

Which one of the following set correctly matches the activities to the parts of the food canal, P, Q, R and S?

	P	Q	R	S
(1)	C	A	D	B
(2)	D	C	A	B
(3)	D	B	A	C
(4)	C	D	A	B

8. Kai Li removed the outer ring of the stem from a plant as shown below. In doing so, some of the tubes carrying water and food in the plant were also removed. She continued to water the plant.



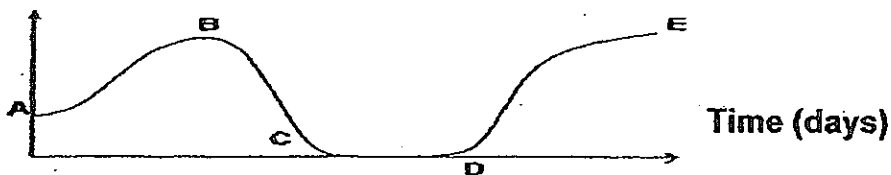
What would Kai Li possibly observe of the plant after one month?

- A Z grew bigger
- B Z shrank in size
- C All the leaves turned yellow

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

9. The graph below shows the physical activity of an organism X as it goes through its life cycle.

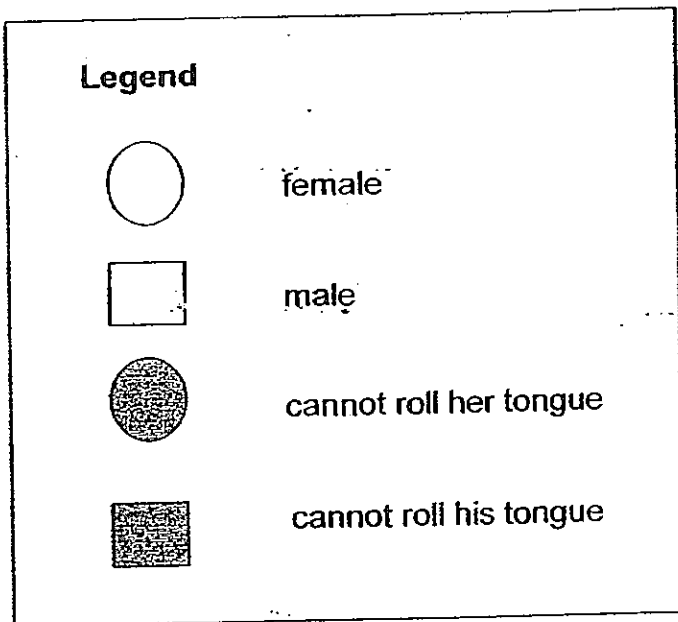
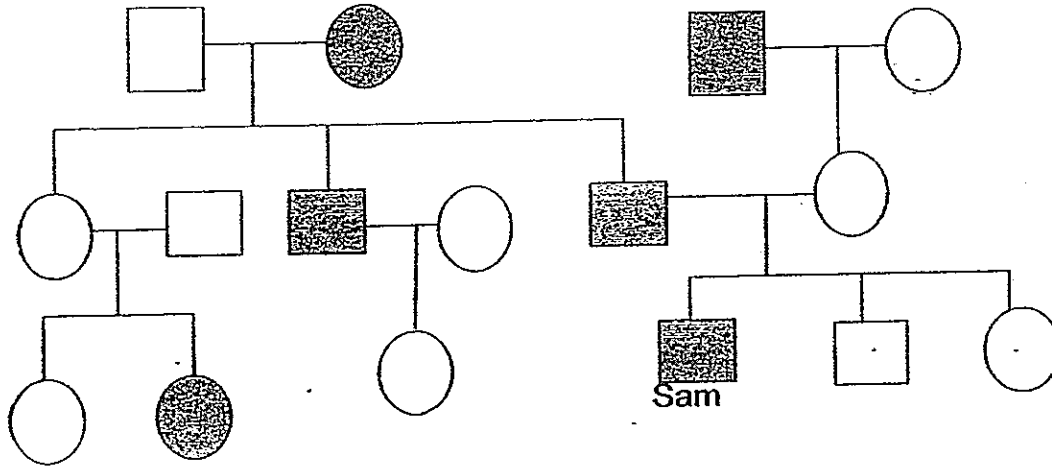
Rate of physical activity



Which one of the following describes correctly the life cycle of the organism X?

	number of stages ^{in the} life cycle	stage CD
(1)	3	larva
(2)	3	nymph
(3)	4	pupa
(4)	4	adult

10. Sam's family tree is shown below.

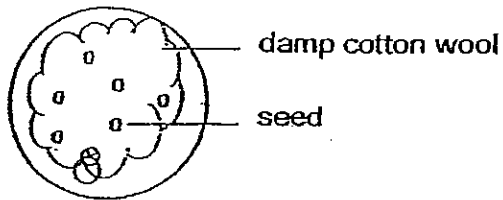


Based on the information above, Sam's siblings can roll their tongues because

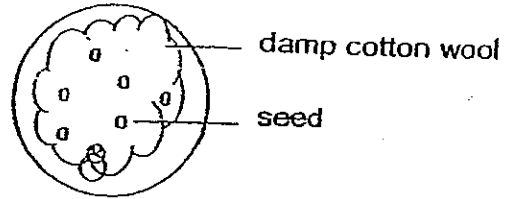
- A they practise hard enough to roll their tongues
- B they learnt the skill from their relatives who can roll their tongues
- C they inherited the tongue rolling characteristics from their mother.

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

11. Susan carried out an experiment using 2 identical plates of seeds as shown below.



in a closed cupboard



in a freezer

She put one plate in a closed cupboard and the other in a freezer.
What would Susan observe of the seeds throughout the first ten days?

- A The seeds in the freezer did not germinate.
- B The seeds in the closed cupboard germinated.
- C The masses of the seed leaves for both plates of seeds decreased.
- D Only the mass of the seed leaves kept in the cupboard decreased.

- A and B only
- A and C only
- B and C only
- A, B and D only

12. Three plants, X, Y and Z, were planted on a piece of land as shown in Diagram A below.

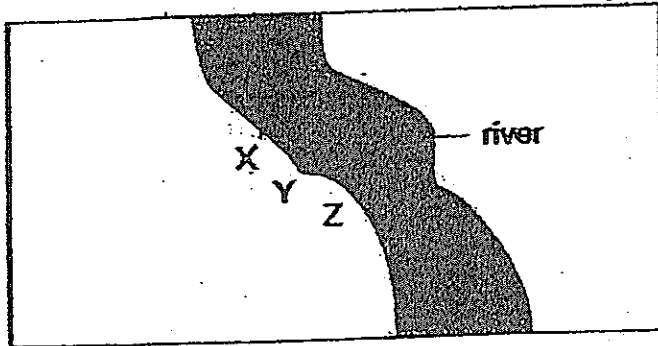


Diagram A

A few years later, many plants were found growing on the same piece of land as shown in Diagram B below.

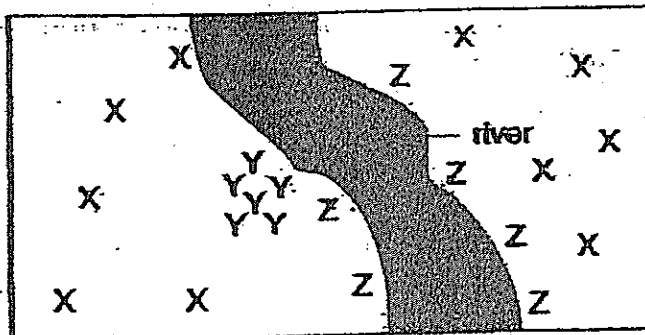


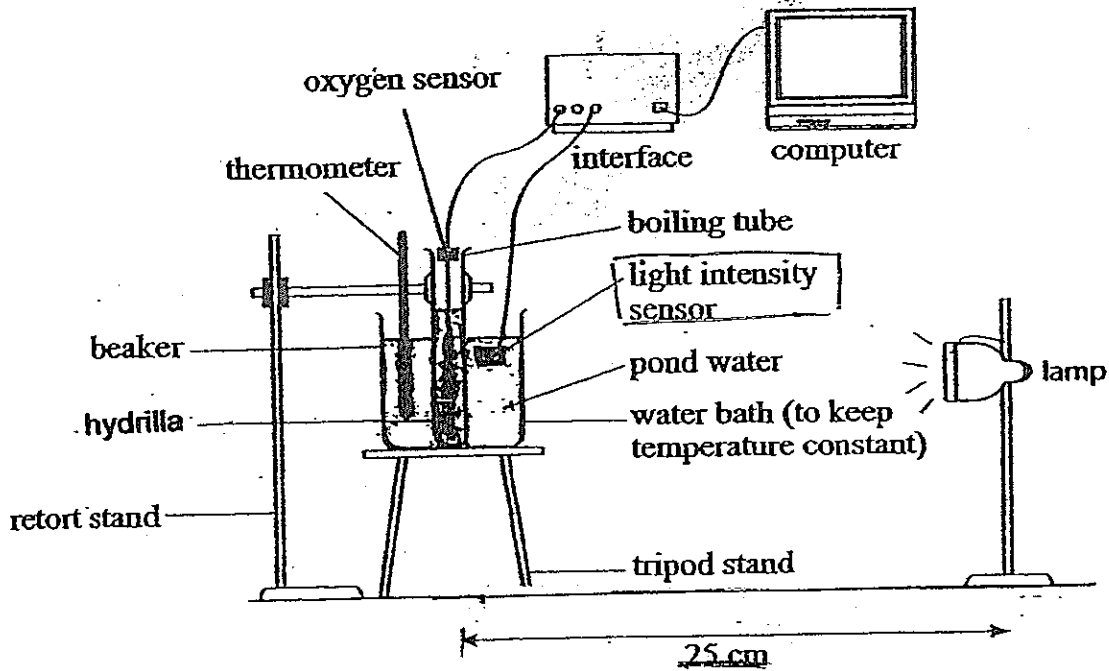
Diagram B

Based on the information above, which of the following statements about the plants X, Y and Z are TRUE?

- A Plants X, Y and Z are all flowering plants.
- B The fruits of plant X are dispersed by wind.
- C Plant Z has fruits or seeds which can float on water.
- D The seeds of plant Y are dispersed by animals.

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

13. In the set-up below, a Hydrilla plant was placed in a boiling tube of pond water. An electric lamp placed 25 cm away was shining on the boiling tube. The amount of oxygen released (oxygen concentration) by the Hydrilla was recorded by a data logger at 5 minutes and at 10 minutes.



The experiment was then repeated with the lamp placed at 5 cm away from the boiling tube.

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

Distance of lamp (cm)	Oxygen concentration after 5 mins (% saturation)	Oxygen concentration after 10 mins (% saturation)
25	60	65
5	64	84

What conclusion can we draw from the results above?

As the light intensity increases, the rate of _____.

- A respiration increases
- B respiration decreases
- C photosynthesis increases
- D photosynthesis decreases

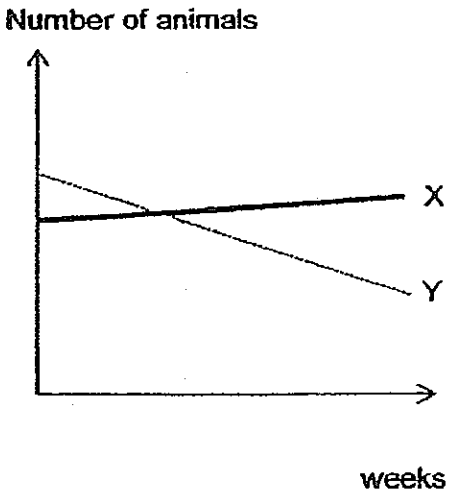
- (1) A only
- (2) C only
- (3) A and D only
- (4) B and C only

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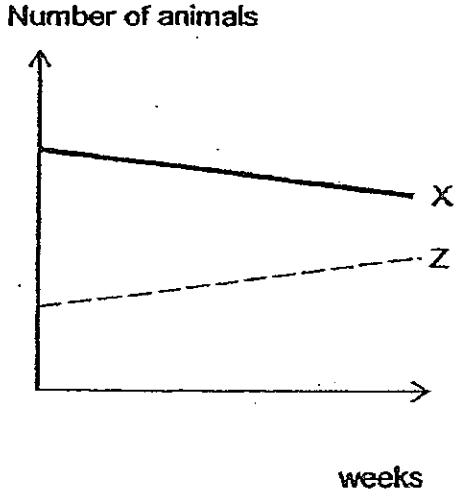
14. Fauziah put three different types of animals, X, Y and Z, from the same community into two identical tanks, A and B, under the same conditions.

She also put an equal number of plants in both tanks.
 She observed that there were **NO** dead animals in the tanks.

She counted the number of animals in the 2 tanks every week for a month and plotted 2 graphs as shown below to show her findings.



Tank A



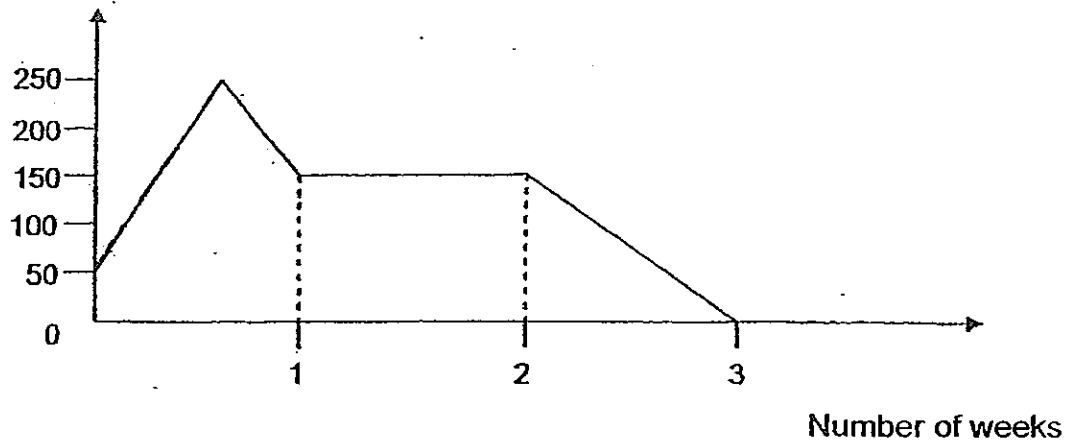
Tank B

Based on Fauziah's findings, which one of the following correctly represents the animals X, Y and Z?

	X	Y	Z
(1)	ladybird	aphid	spider
(2)	fruitfly	spider	bird
(3)	bird	caterpillar	bee
(4)	aphid	ladybird	spider

15. The diagram below shows how the number of organism P changes over a period of three weeks.

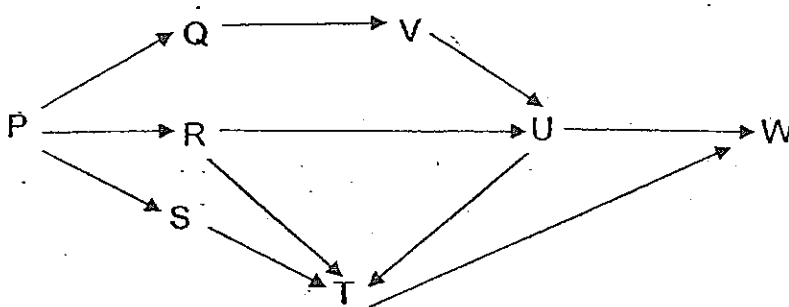
Number of organisms



Based on the graph, which of the following statements are true?

- A The number of organism P remained constant for at least a week.
 - B The maximum number of organism P was recorded within week 1.
 - C The whole population of organism P was killed by predators eventually.
 - D The number of organism P increased and then decreased in both week 1 and week 3.
- (1) A and B only
(2) A and C only
(3) B and D only
(4) A, B and C only

16. The food web below shows the inter-relationships among some organisms.



Based on the food web above, which of the following statements are true?

- A Q is an omnivore.
- B There are four predators.
- C There are three herbivores.
- D More than four food chains can be formed.

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

17. Which of the following adaptations will enable a polar bear to live in a cold climate?

- A It has a white coat of fur.
- B It has soles covered with stiff hairs.
- C It has a thick layer of fat under its skin.

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

18. Simon wanted to build a dog kennel outside his garden. Which of the following properties of the material used must he consider before building the dog kennel?

- A The material must be hard.
- B The material must be transparent.
- C The material must be a conductor of electricity.
- D The material must be able to withstand heat.

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

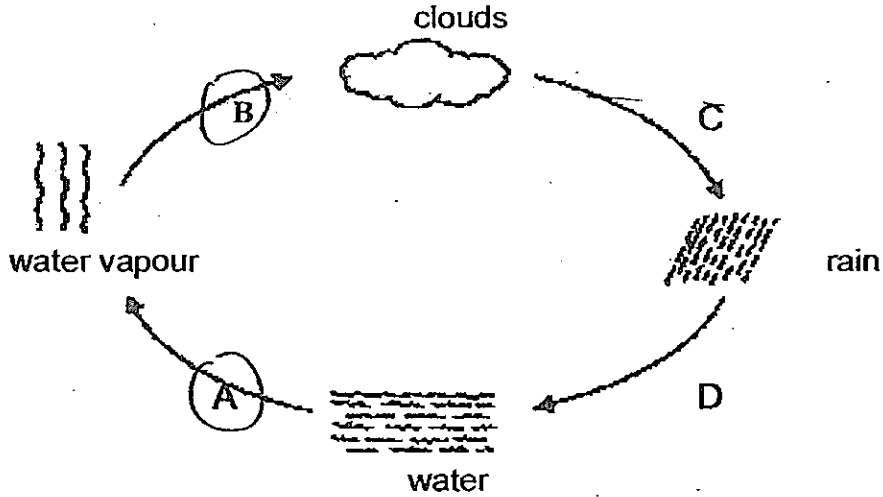
19. The table below shows the boiling point and freezing point of some substances.

substance	boiling point (°C)	freezing point (°C)
A	55	- 2
B	62	- 10
C	75	- 15
D	90	- 38

Based on the information above, which one of the following substances will be in the liquid state at 85°C?

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

20. The diagram below shows a water cycle.



Which stages show a change in the state of water?

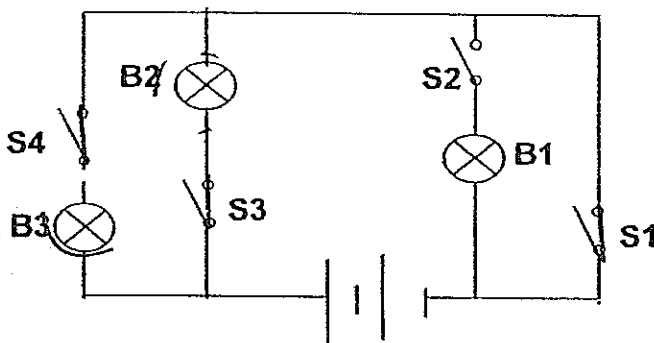
- (1) A and B only
 - (2) A and C only
 - (3) B and D only
 - (4) C and D only
21. Sally observed that the Moon appears to change its shape on different days. Which one of the following statements best explains Sally's observations on the phases of the Moon?
- (1) The Earth orbits round the Moon.
 - (2) The Moon orbits round the Earth.
 - (3) The Earth spins about its own axis.
 - (4) The Moon spins about its own axis.

22. Cactus is found growing in deserts. Due to the extremely hot temperature in the desert, the cactus has spines instead of leaves. How do the needle-like leaves help the plant to survive in the hot and harsh environment of the desert?

- A They help to reduce heat loss.
- B They help to reduce water loss.
- C They enable the plant to photosynthesize.
- D They protect the plant from being eaten by animals.

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

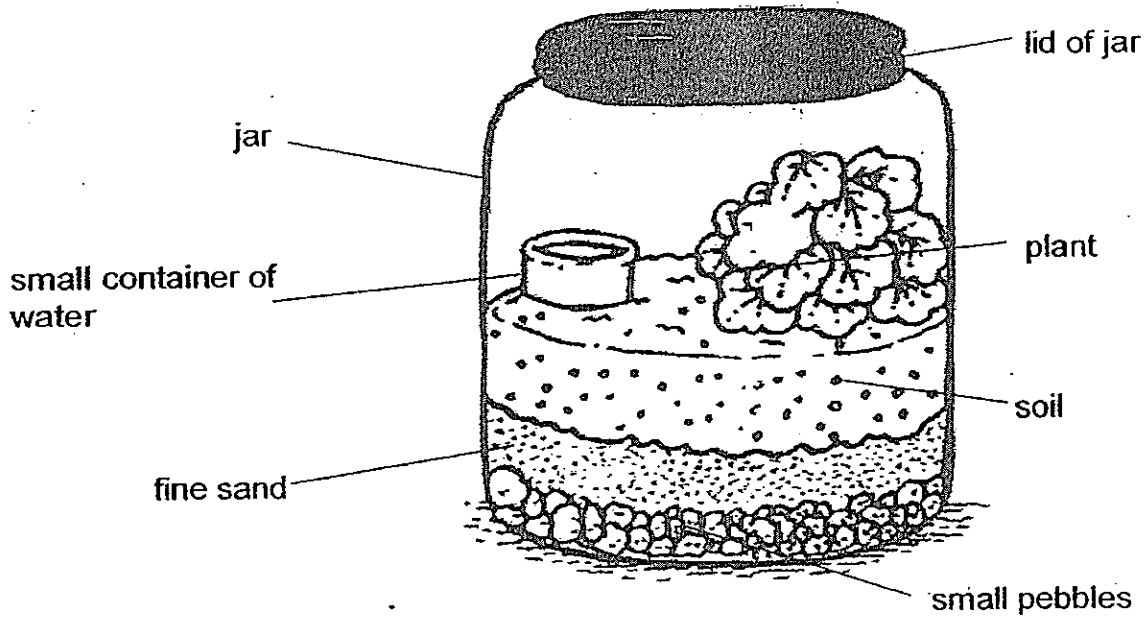
23. Kevin set up the electric circuit as shown below.



Which switches should Kevin close so that only bulbs B2 and B3 light up?

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

24. Jialing set up the experiment as shown below in the morning.
In the evening, she found water droplets on some parts of the set-up.

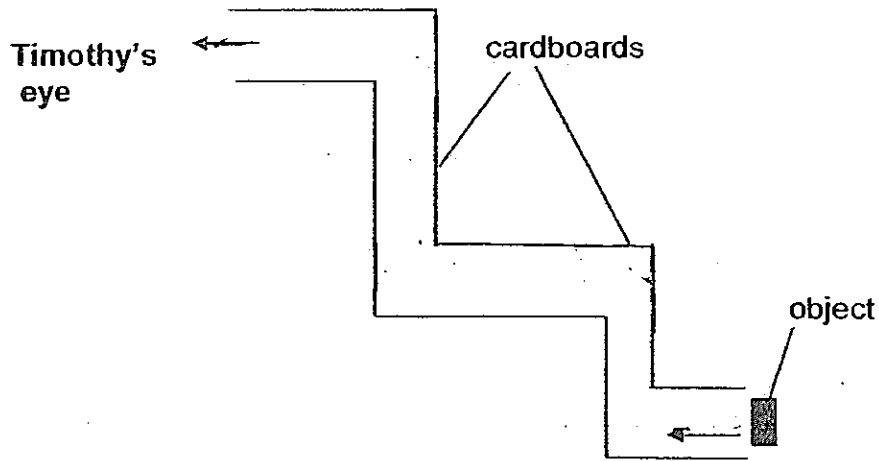


On which parts of the set-up did Jialing find tiny water droplets?

- A Leaves of the plant
- B Inner surface of the lid
- C Outer surface of the lid
- D Outer surface of the jar

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

25. Some thick cardboards were lined up to form a tunnel-like pathway as shown in the diagram below.

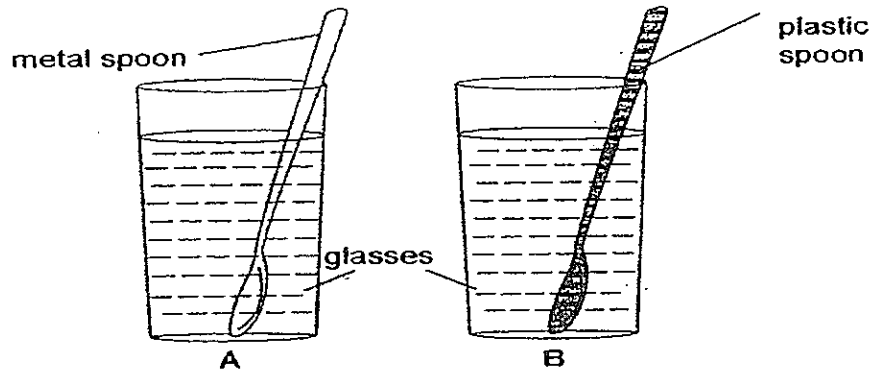


Timothy placed his eye at one end of the pathway so that he could see the object placed at the other end of it.

What was the minimum number of mirrors Timothy needed to place in the pathway to enable him to see the object?

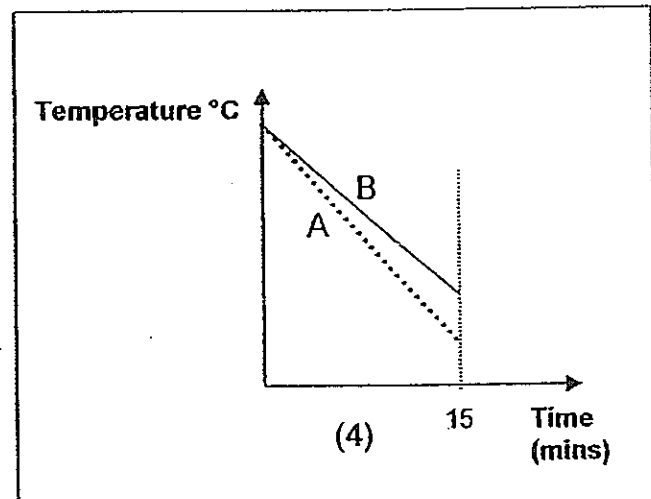
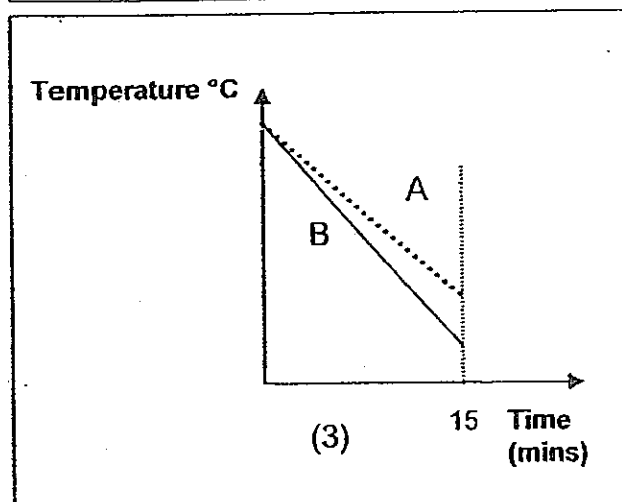
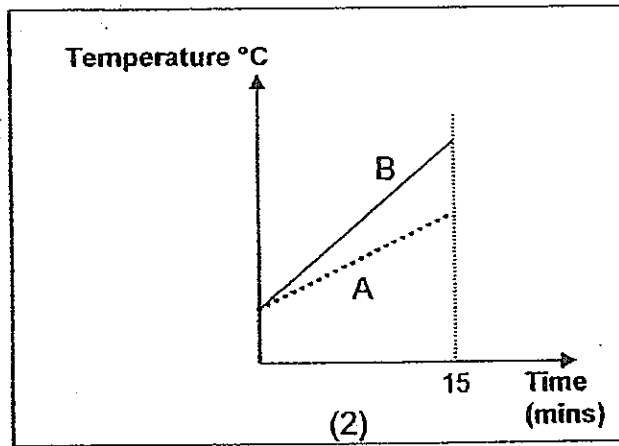
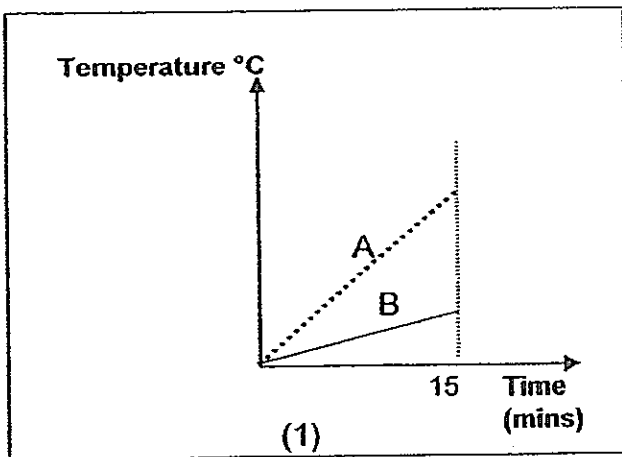
- (1) 8 mirrors
- (2) 6 mirrors
- (3) 3 mirrors
- (4) 4 mirrors

26. Sharon poured an equivalent amount of hot water into two identical glasses, A and B as shown below. Two spoons of the same size and shape, each of a different material, were placed in the glasses as shown below.



Fifteen minutes later, Sharon recorded the change in the temperature of the water in glasses A and B.

Which one of the graphs below represents the correct relationship of the temperature of water in both glasses in relation to time?

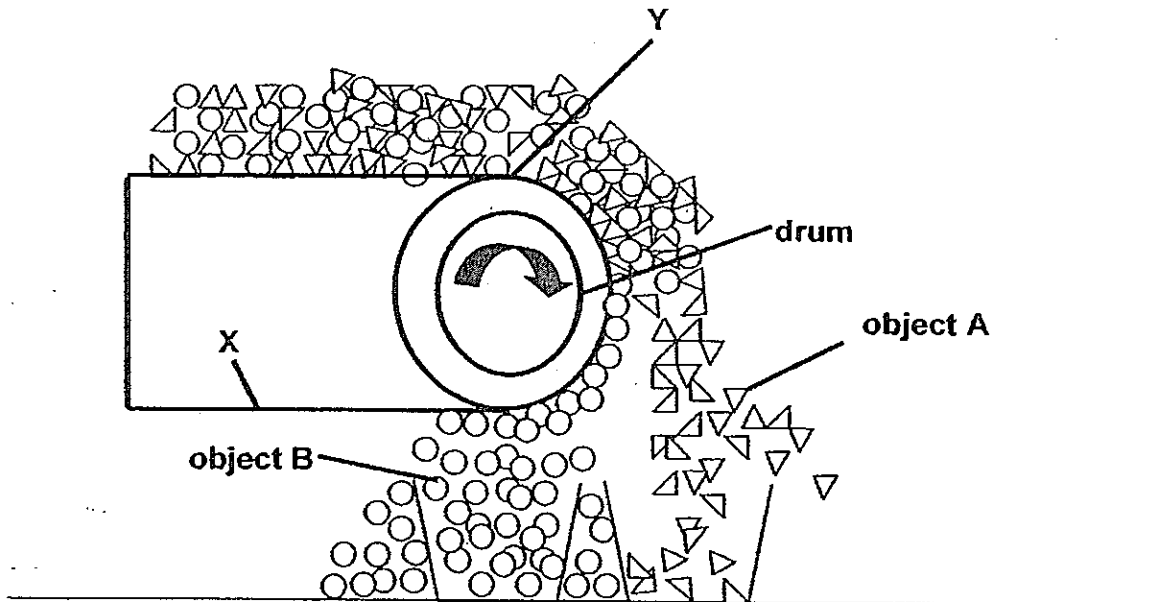


27. Which of the following sources of energy are renewable?

- A Sun
- B wind
- C natural gas
- D running water

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

28. The diagram below shows parts of an industrial material separator that runs on electricity which is used to separate objects A and B.



Based on the diagram above, which of the following statements are correct?

- A Object A is magnetic but object B is non-magnetic.
- B Magnetism at X is less than that at Y on the machine.
- C The drum becomes an electromagnet when the switch is on.
- D Object A is made of aluminium while object B is made of copper.

- ~~A~~ A and D only
- ~~B~~ B and C only
- ~~C~~ A, B and C only
- ~~D~~ B, C and D only

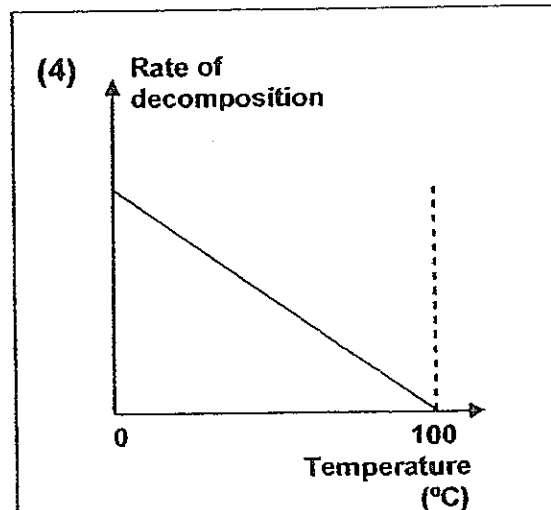
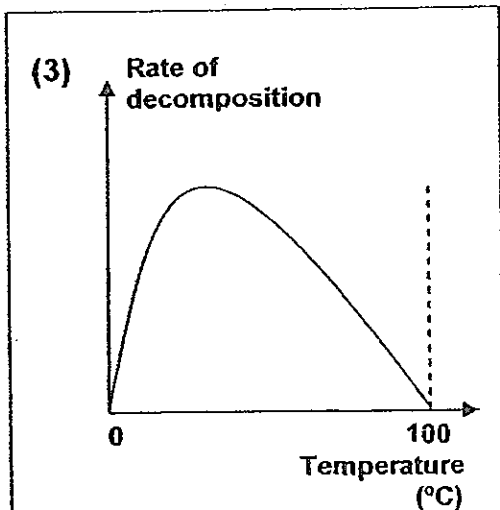
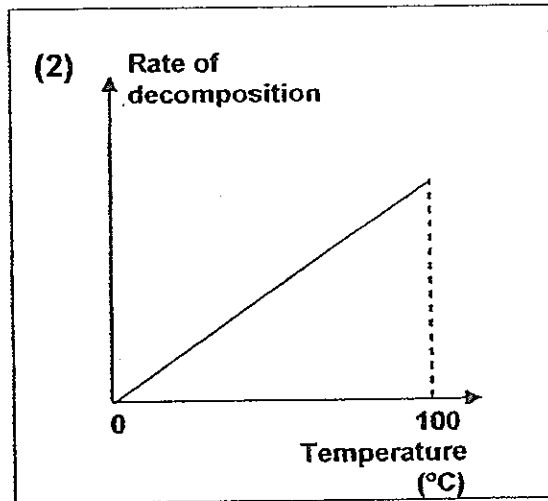
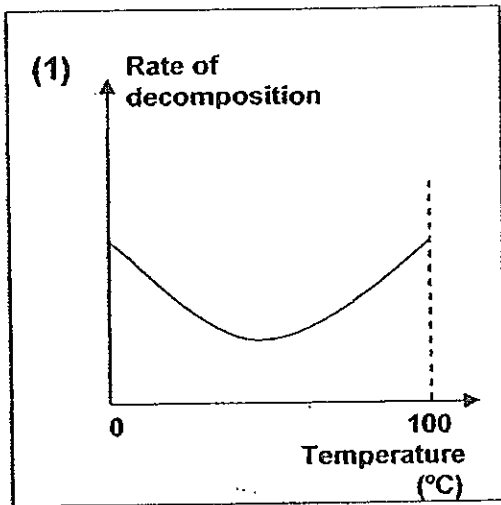
29. A basketball was tossed directly upwards into the air. Four boys made the following statements.

- Muthu : Gravity acted on the ball all the time.
- Farhan : Gravity acted on the ball when it was at its highest point.
- Aloysius : Gravity only acted on the ball when an upward force was acting on it.
- Weiming : Gravity acted on the ball the moment it was tossed up into the air.

Which one of the boys above made the correct statement?

- (1) Muthu
- (2) Farhan
- (3) Aloysius
- (4) Weiming

30. Which one of the following graphs best describes the relationship between the rate of decomposition and temperature?



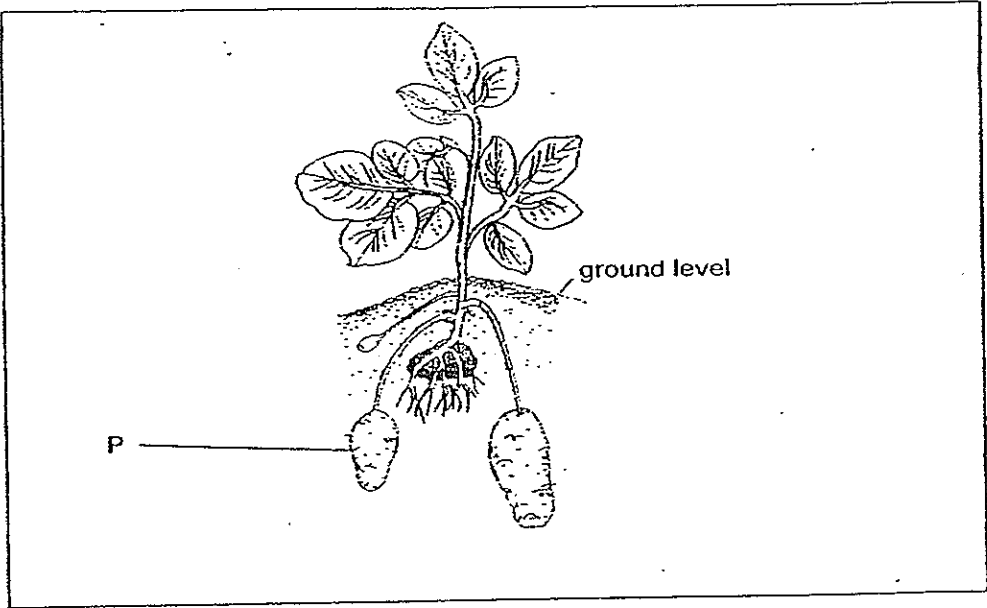
Name: _____ Index No: _____ Class: P6 _____

SECTION B (40 marks)

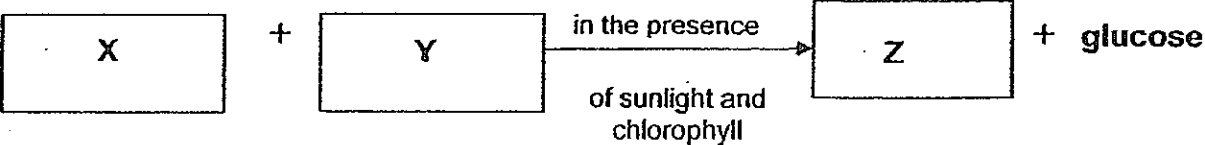
For questions 31 to 46, write your answers clearly in the spaces provided.

The number of marks available is shown in brackets [] at the end of each question or part question.

31. The diagram below shows parts of a potato plant.



The leaves of this plant trap the energy from the Sun to make glucose. This process is represented by the word equation as shown below.



(a) Based on the information above, state what each of these letters, X, Y and Z represents. [3]

- (i) X: _____
- (ii) Y: _____
- (iii) Z: _____

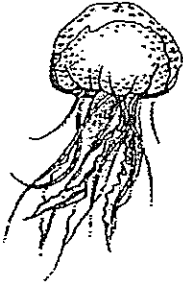

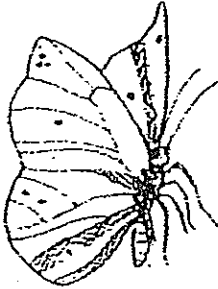
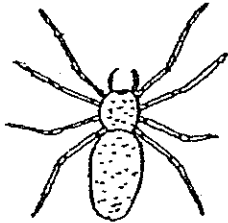


(b) The part labelled 'P' is able to receive the glucose made in the leaves.

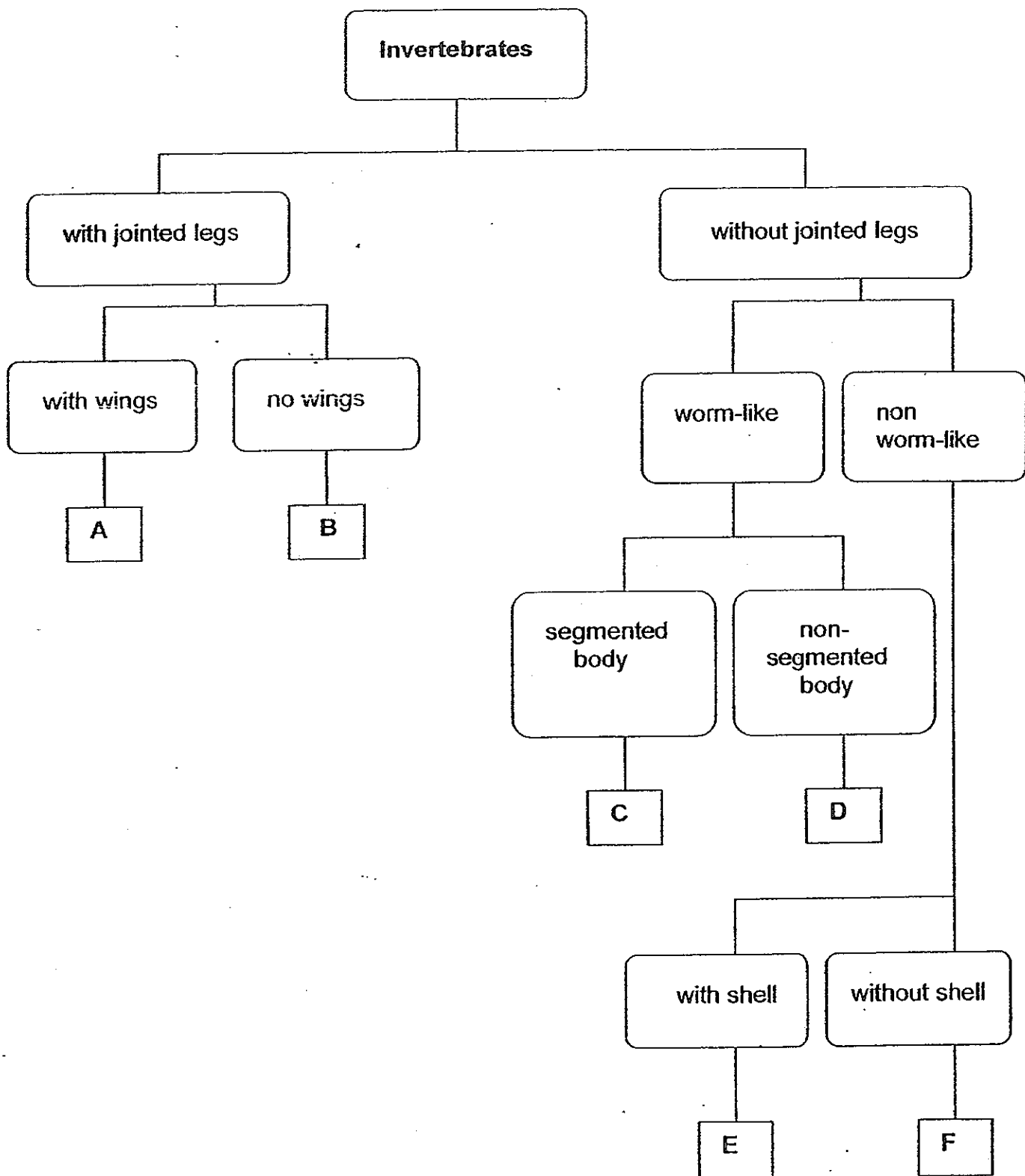
The glucose is stored as _____ and 'P' can also be used in the _____ of the potato plant. [1]

32. The pictures below show some invertebrates (animals without backbones).

Using the dichotomous key shown on page 26, identify the animals.
Write letters B, C, E and F ONLY.

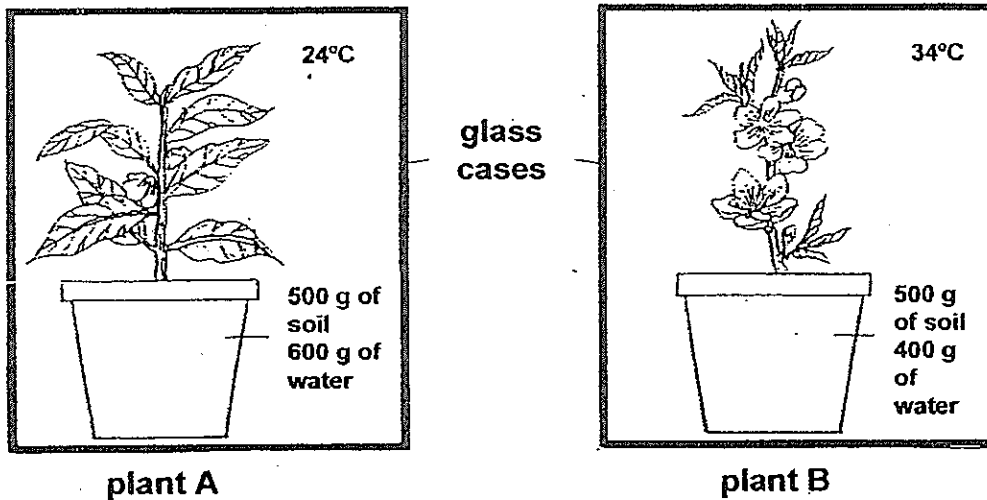
[2]

 <input type="text"/>	 <input type="text"/>	 <input type="text"/>
 <input type="text"/>	 <input type="text"/>	 <input type="text"/>



33. A group of pupils carried out an experiment and placed two potted plants, A and B of similar sizes, in two separate identical glass cases, under different conditions, as shown below.

(The diagrams shown below are NOT drawn to scale.)



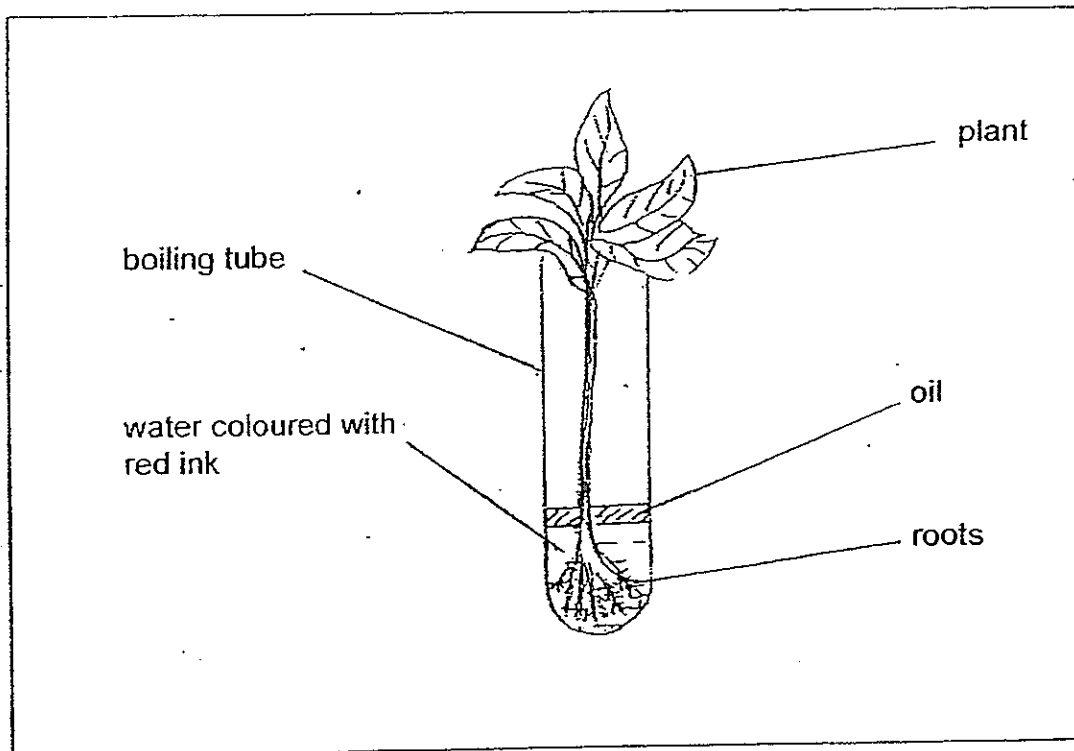
Each pupil made the following conclusions:

- Jack : Plant A loses water faster than Plant B because Plant A has bigger leaves.
- Jill : Plant B loses water faster than Plant A because the temperature of Plant B is higher.
- Jamal : Both plants lose water at the same rate because they are growing in similar soil conditions.
- Jane : Plant A will lose water faster than Plant B because Plant A has been given more water.

Their teacher said that none of their conclusions was possible.

What must the pupils do to ensure they have a clear conclusion at the end of the experiment? [2]

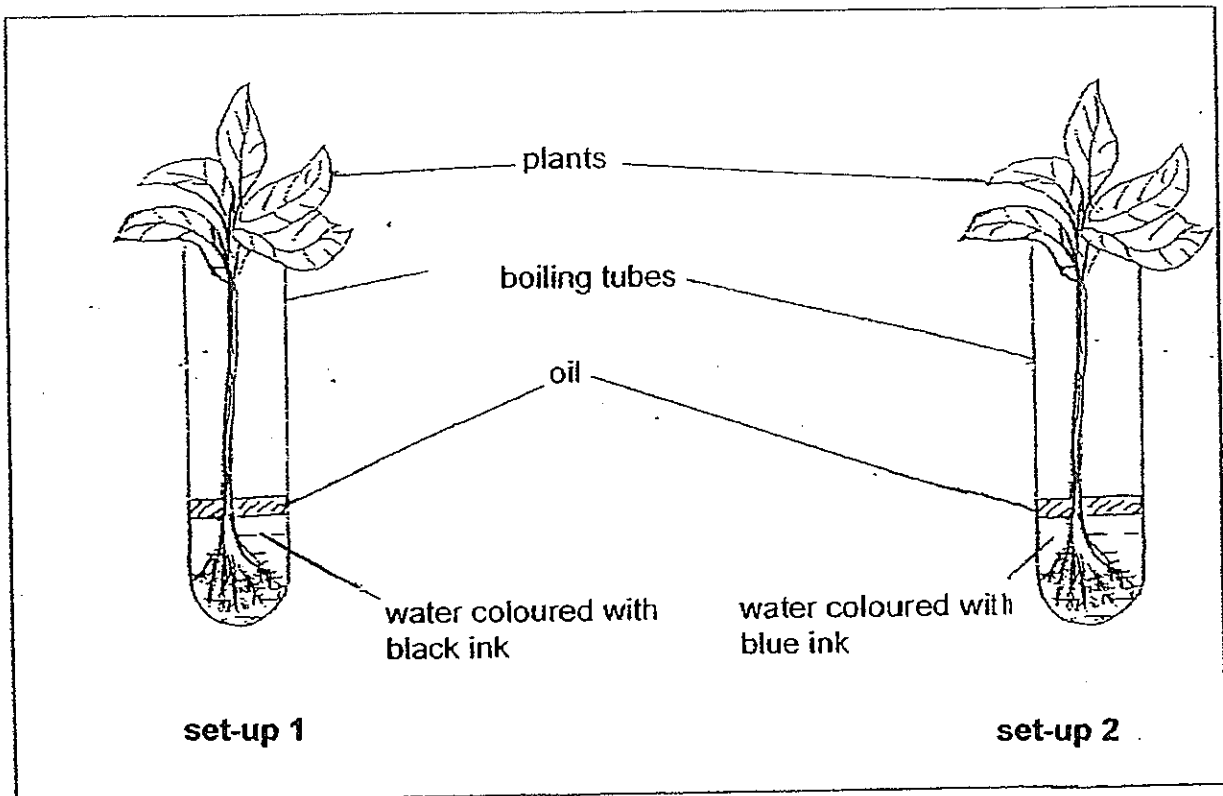
34. Sam conducted an experiment as shown in the diagram below to investigate one of the functions of the roots of plants.



After two hours, Sam noticed that the leaves had turned red.

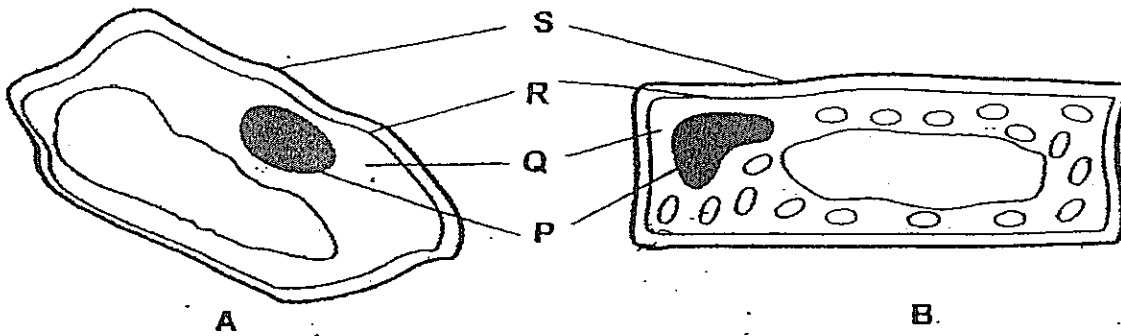
- (a) What was Sam investigating? [1]

Sam then used different coloured ink as shown in these two set-ups.



(b) What would Sam observe after two hours? Explain his observations. [2]

35. Rachel observed two different types of cells, A and B, taken from different parts of a living thing as shown in the diagram below.



(a) State one difference between the two cells.
[Do NOT mention shape and size.]

[1]

(b) What is the function of part R?

[1]

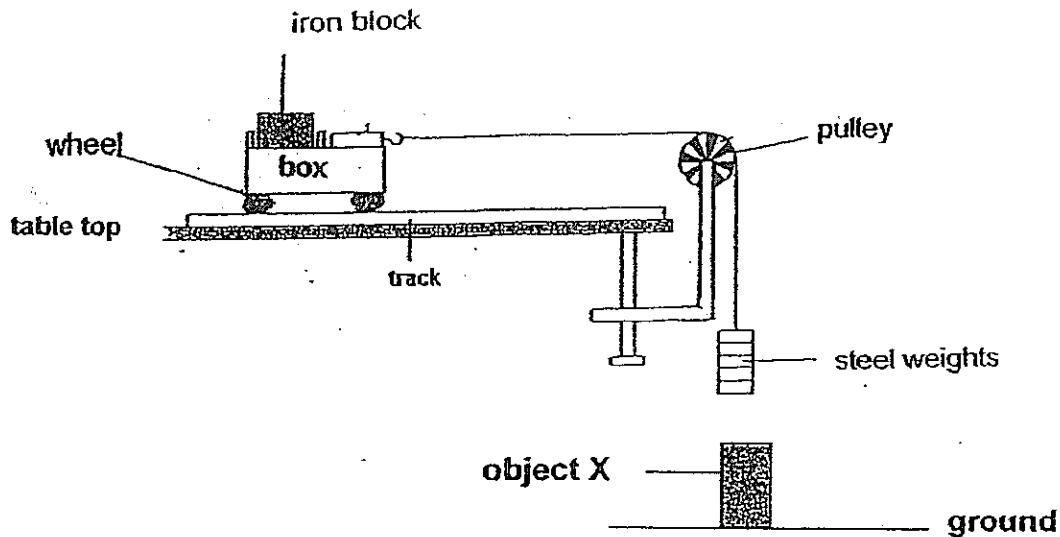
(c) (i) In which part of the living thing is Cell A most likely taken from?

[1]

(ii) Give a reason for your answer in (c) (i).

[1]

36. Bala used the set-up below to investigate the amount of force needed to move a box which contained an iron block. The total mass of the iron block and the box was 120g.
Bala added weights made of steel to one end of the rope till the box moved.



Bala found that the total effort needed to move the box and the iron block in it was less than 120 g.

Based on the information above, answer the following questions:

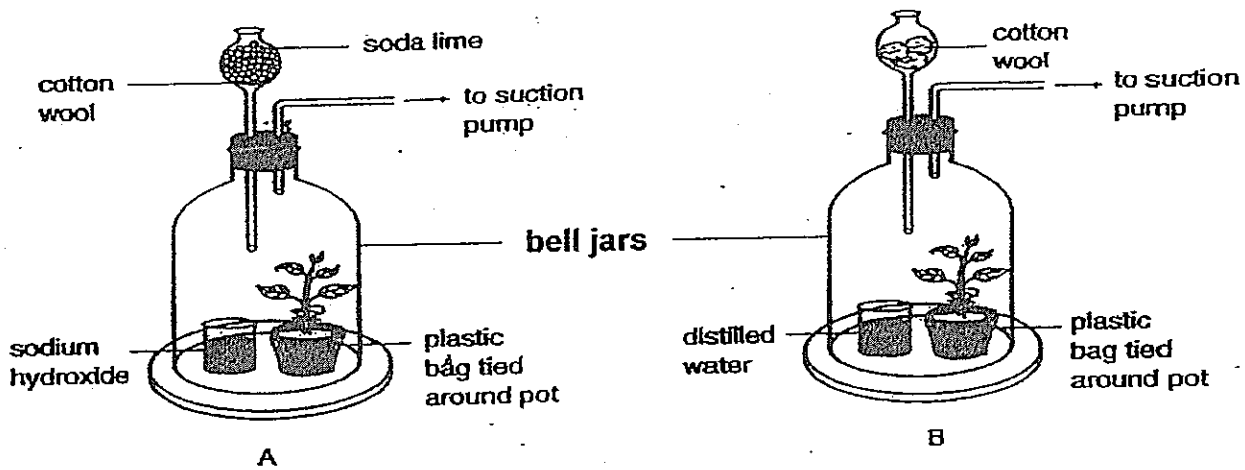
- (a) Explain the difference in the amount of force needed to move the box. [2]

- (b) Bala put Object X directly below the steel weights and noticed that the speed at which the box with the iron block moved increased greatly.

What was the Object X which Bala had used? [1]

37. Nina used the following apparatus to carry out an experiment. At the start of the experiment, she kept two similar potted plants in the dark for 3 days.

Next, she placed them under separate bell jars, A and B, as shown in the diagrams below.



Both set-ups were kept in bright light for 6 hours.

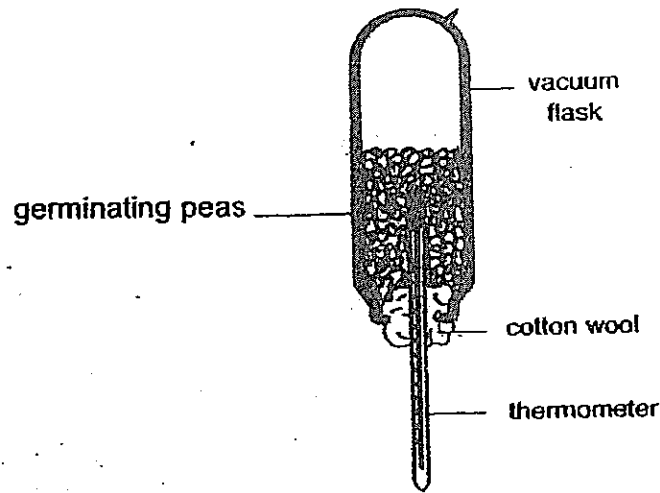
When the leaves from both plants were tested for the presence of starch, the following results were observed.

Leaves from set-up A	Iodine solution remained brown.
Leaves from set-up B	Iodine solution turned dark blue.

(a) Why did Nina use sodium hydroxide and soda lime in her experiment? [1]

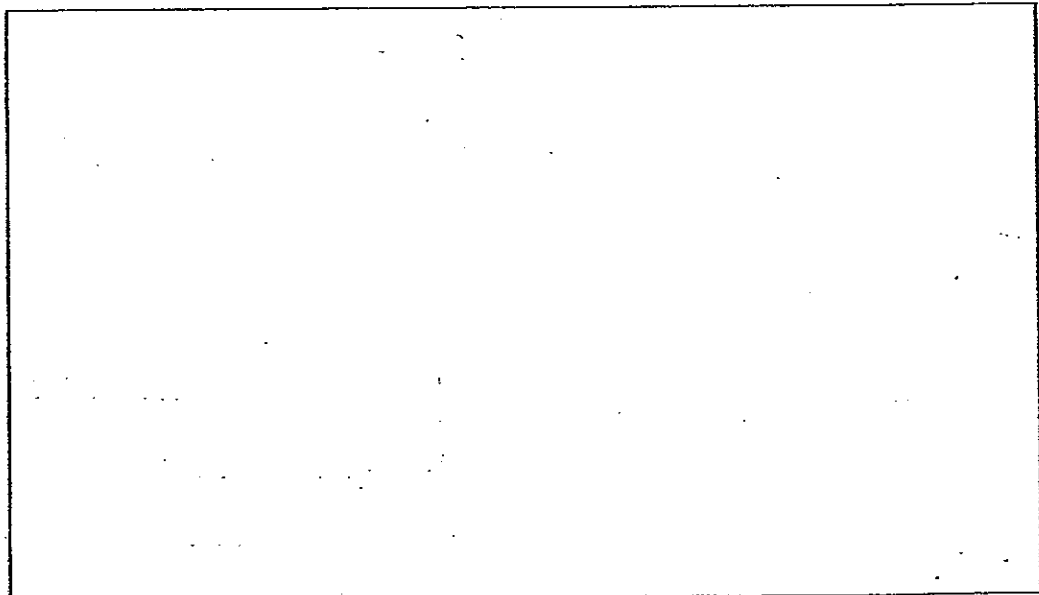
(b) What was the aim of Nina's experiment? [1]

38. Jason used the set-up below to find out if germinating peas give off heat during respiration.



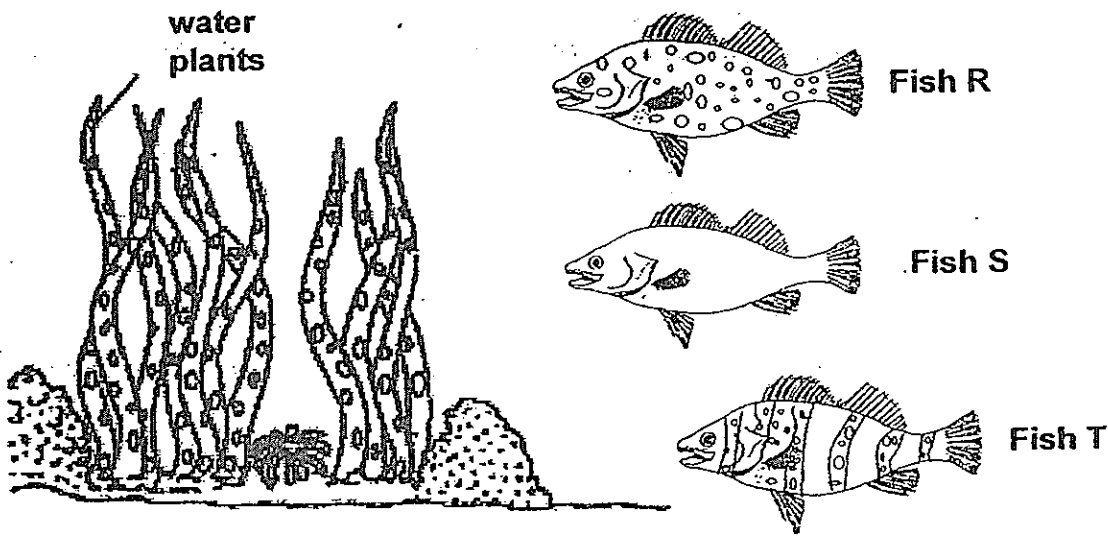
His teacher told him that he needed to have another set-up in order to ensure that his finding was correct.

- (a) **DRAW** in the space provided a **labelled** diagram of the set-up that Jason would need to include in his experiment. [1]



- (c) Jason put the peas in a vacuum flask instead of a bottle. Explain why he did that. [2]

39. The diagram below shows three types of fishes, R, S, T. The fishes live among the water plants in a river. A predator of the three types of fishes is introduced into the river.



Based on the diagram, which fish, R, S, or T, would most likely have the greatest decrease in number?

Explain your answer.

[2]

40. The diagrams below show the different ways Deborah reached her flat on the eighth storey.

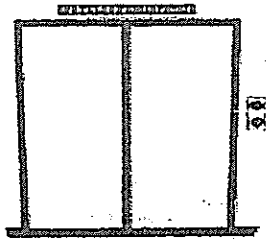


Diagram 1

Deborah took a lift up to the eighth storey.

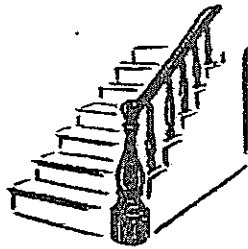


Diagram 2

Deborah walked up the steps to the eighth storey.

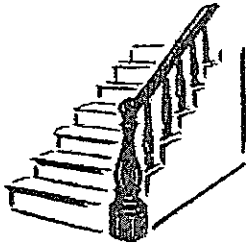


Diagram 3

Deborah ran up the steps to the eighth storey.

In each of the three ways used by Deborah, would she have the same gravitational potential energy when she reached the eighth storey?

Explain your answer.

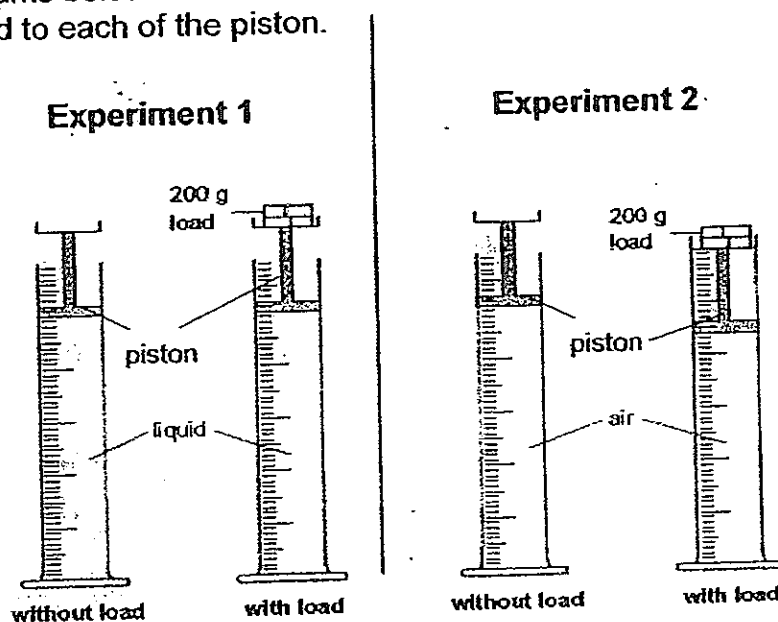
[2]

41. Ali set up two experiments as shown below.

In **Experiment 1**, Ali measured the volume of the liquid before and after a 200 g load was added to the piston.

In **Experiment 2**, Ali measured the volume of the air before and after a 200 g load was added to the piston.

The diagrams below show Ali's observations before and after the 200 g load was added to each of the piston.



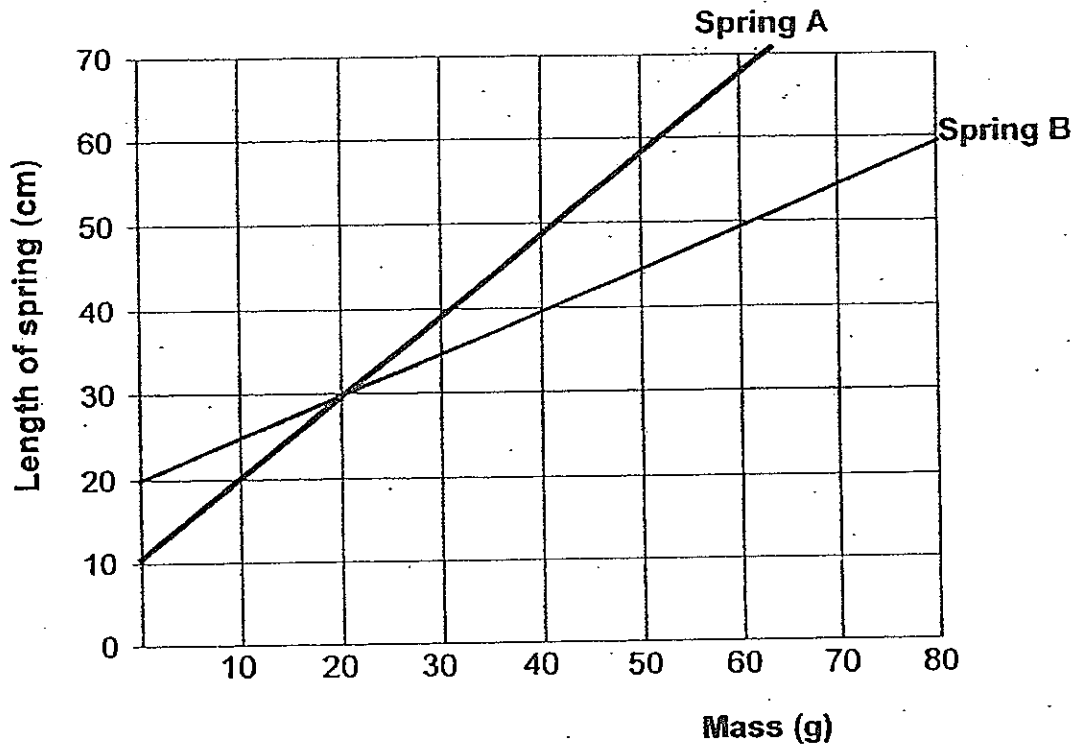
Compare Experiments 1 and 2.

Explain the difference in Ali's observations.

[2]

42. Andy carried out an experiment using two springs A and B to find out how the mass of an object affects the length of a spring.

He recorded the results and plotted the graph below.



Based on the information above, answer the following questions:

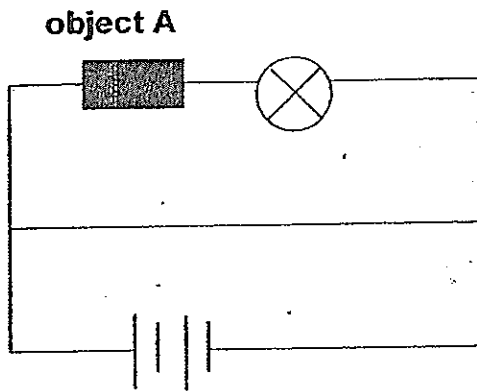
- (a) Which spring, A, B, is less elastic?
Give a reason for your answer.

[2]

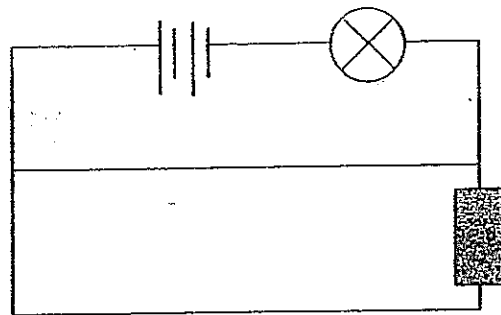
- (b) State the relationship between the mass of an object and the length of the spring when the object is hung from it.

[1]

43. Brenda set up the following electric circuits, X and Y, using identical bulbs, wires and batteries. She completed each electric circuit using objects A and B respectively.



Circuit X



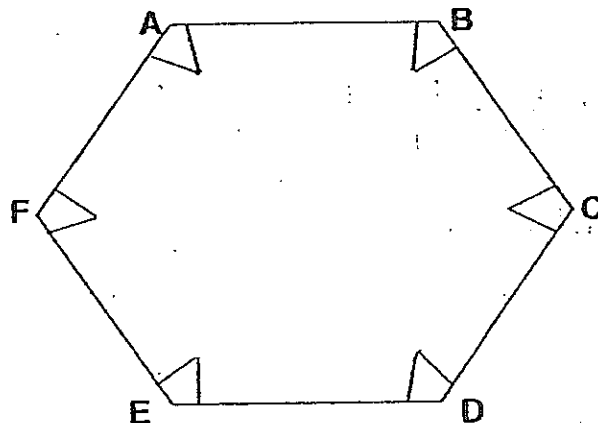
Circuit Y

- (a) Brenda noticed that the bulb in Circuit Y lighted up but not the bulb in Circuit X.

What could be the reason for her observation?

[1]

Next, Brenda was given a circuit card (with wires attached behind) as shown below and she used Circuit Y as a circuit tester to find out how the clips on the circuit card were connected.



She found out that the bulb lighted up when the following pairs of clips were connected to the ends of Circuit Y:

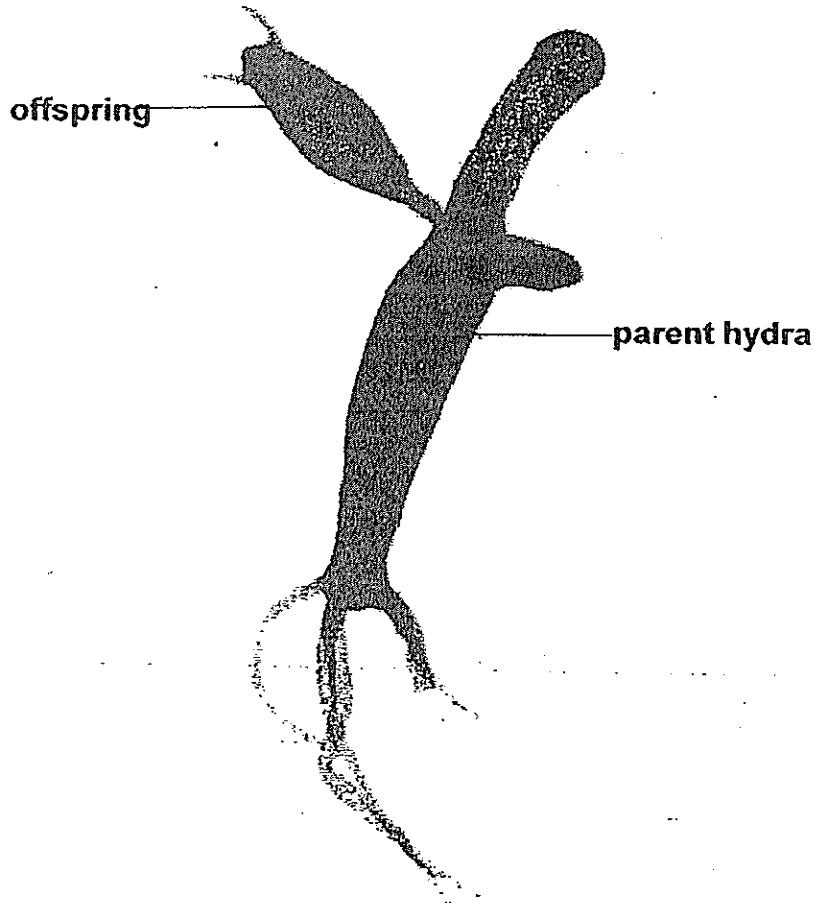
A and E	B and D
F and D	B and F

- (b) In the circuit card above, **DRAW** 1 way/how the clips were connected using only 3 lines.

[1]

44. Hydras are tiny organisms found in freshwater.

The diagram below shows a hydra undergoing the process of reproduction.



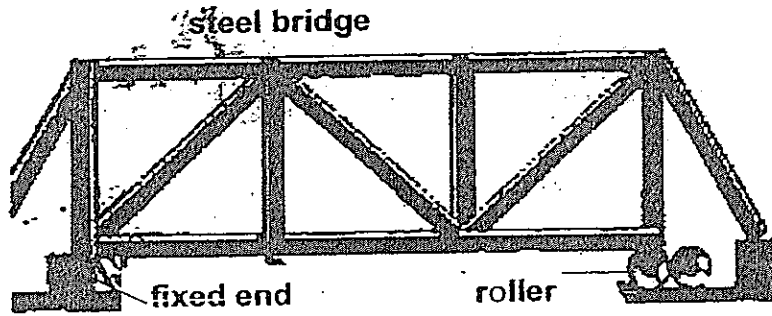
- (a) Jian Wen said that the hydra shown above reproduces in the same way as yeast.

State the method of reproduction.

[1]

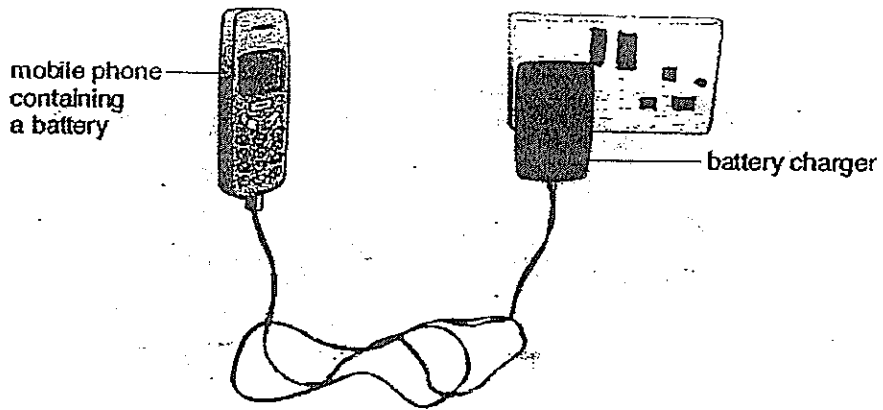
- (b) How is the above method of reproduction different from reproduction in mammals? [1]

45. The diagram below shows a steel bridge.
One end of the bridge is fixed securely to the structure while the other end is NOT fixed but attached to rollers instead.



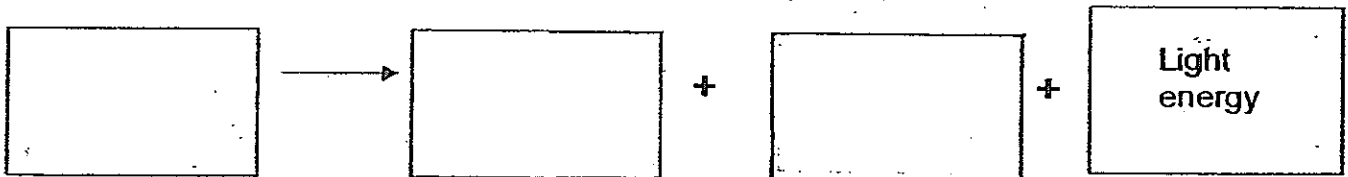
Explain why one end of the bridge is attached to the rollers. [2]

46. The diagram below shows a mobile phone being charged when it is switched off.



Write down the energy conversion that takes place when the battery of the phone is being charged.

[2]



- END OF PAPER -

Setters: Mrs Christina Lim
Mrs Martha John
Ms Lee Suan Khim
Ms Pek Xue Yan

RGS Primary School
Primary 6 Science SA1 (2008)

Answers Key

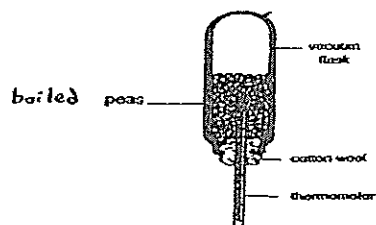
Qn no.	Ans
1	4
2	4
3	3
4	2
5	1
6	3
7	2
8	1
9	3
10	2

Qn no.	Ans
11	4
12	3
13	2
14	1
15	1
16	3
17	4
18	3
19	4
20	1

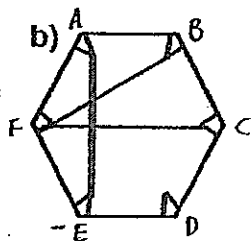
Qn no.	Ans
21	2
22	2
23	3
24	2
25	4
26	4
27	4
28	2
29	1
30	3

- 31a. X/Y : water/carbon dioxide
Z : oxygen
- 31b. Starch, reproduction
32. F C
B E
33. They should have used the same type of plant, same amount of water but kept the temperature different to ensure a fair test was conducted.
- 34a. He was investigating if water is absorbed by the roots.
- 34b. The leaves of the plants in Set-ups 1 and 2 turned black and blue respectively. The xylem tubes in the stems of the plants carry the colored liquids from the roots to the leaves.
- 35a. Cell B has chloroplasts but Cell A has no chloroplast.
- 35b. It controls the substances that go in and out of the cell.
- 35c(i) Underground stem
(ii) It does not contain any chloroplasts
- 36a. The wheels on the box helped to reduce friction between the box and the surface of the table top.
- 36b. A strong magnet.
- 37a. The soda lime was to absorb carbon dioxide from the surroundings and the sodium hydroxide was to absorb carbon dioxide in bell jar A.
- 37b. It was to find out if carbon dioxide is needed in photosynthesis for plants to make food.

38a.



- 38b. It was to prevent the heat from getting in and out from the germinating peas.
39. Fish S. Fish S does not have any patterns on its body to help it camouflage itself unlike Fish R and Fish T which have patterns on its body. Hence, it is easily spotted by its predators because it does not have any patterns on its body unlike Fish R and Fish T.
40. Yes. The vertical height for all methods is the same, resulting in the same gravitational potential energy.
41. Liquid has a definite volume so it cannot be compressed. However, air does not have a definite volume so it can be compressed.
- 42a. Spring B. For the same mass, Spring B stretches less than Spring A.
- 42b. The greater the mass of an object, the longer the extension of the spring when the object is hung from it.
- 43a. Object A was NOT a conductor of electricity but Object B was a conductor of electricity.
- 43b.



44a. Both reproduce from budding

44b. The above method (budding) is asexual reproduction while reproduction in mammals is sexual reproduction.

45. It was to allow room for expansion of the steel bridge on a hot day.

46.

electrical energy \longrightarrow chemical potential energy $+$ heat energy $+$ light energy