



# RED SWASTIKA SCHOOL

## SCIENCE 2018 SEMESTRAL ASSESSMENT 1 PRIMARY 6

Name : \_\_\_\_\_ (     )

Class : Primary 6/ \_\_\_\_\_

Date :

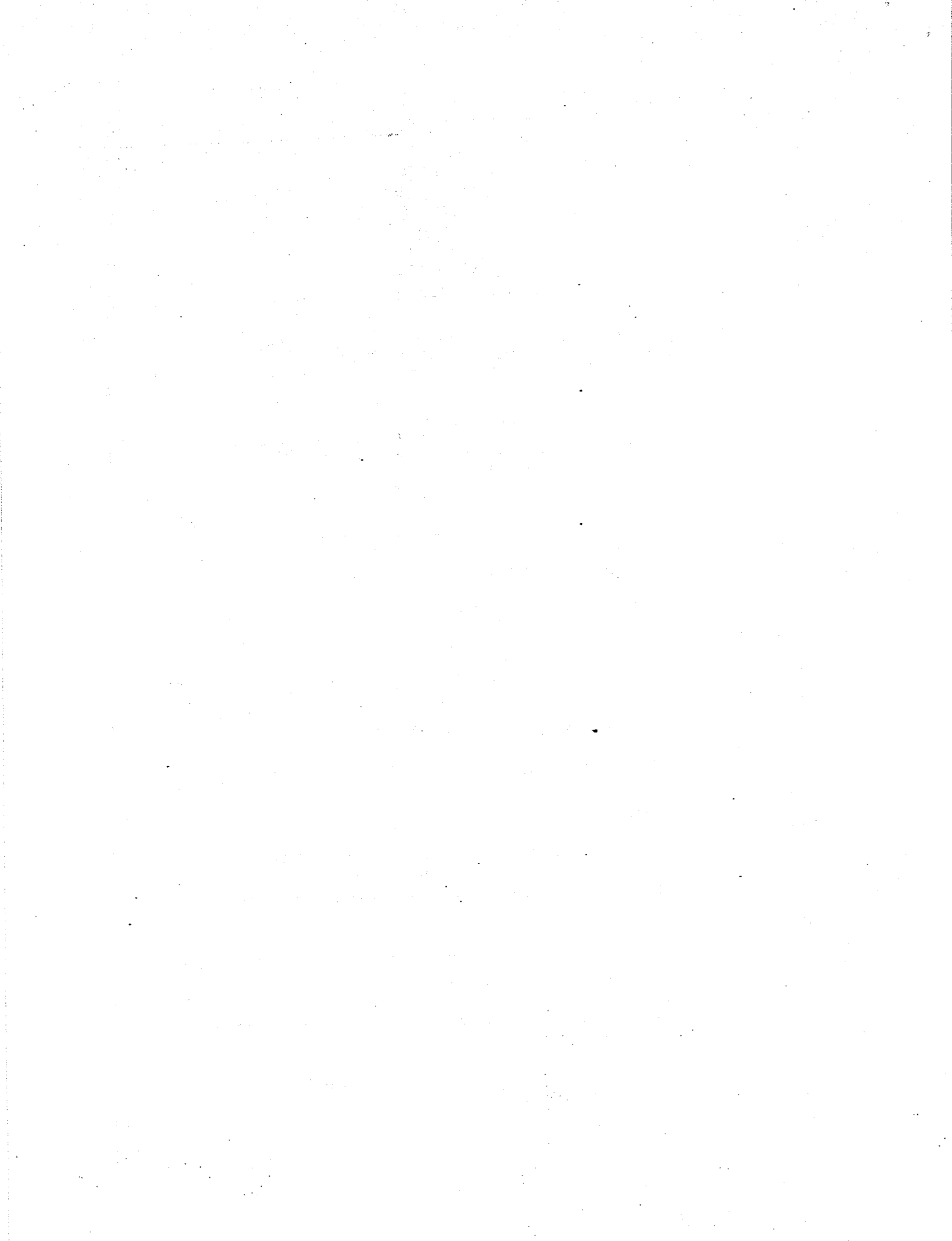
### BOOKLET A

Total time for Booklets A & B: 1h 45 min

Booklet A: 28 questions (56 marks)

**Note:**

1. Do not open the booklet until you are told to do so.
2. Read carefully the instructions given at the beginning of each part of the booklet.
3. Do not waste time. If the question is too difficult for you, go on to the next question.
4. Check your answers thoroughly and make sure you attempt every question.
5. In this booklet, you should have the following:
  - a. Page 1 to Page 21
  - b. Questions 1 to 28



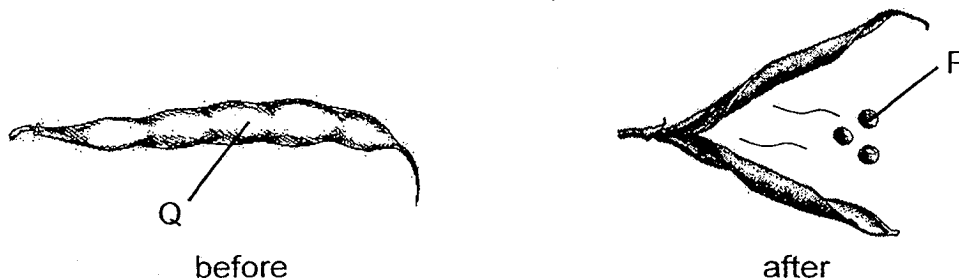
For Questions 1 to 28, choose the most suitable answer and shade its number in the OAS provided.

1. Pei Wen conducted an experiment to find out how quickly bacteria K can reproduce when they are kept at different temperatures and the results are shown below.

Temperature at which bacteria K is kept (°C)	Number of bacteria K (units)	
	At the start of the experiment	12 hours later
25	1	80
30	1	120
35	1	280
40	1	150
45	1	70

Based on the results, which of the following best describes how bacteria K change with temperature?

- (1) The higher the temperature, the greater the number of bacteria.
  - (2) The higher the temperature, the faster the bacteria reproduces until 35 °C.
  - (3) 35 °C is the worst temperature for bacteria to survive.
  - (4) All bacteria will die at 35 °C.
2. The diagrams show a part of a plant.

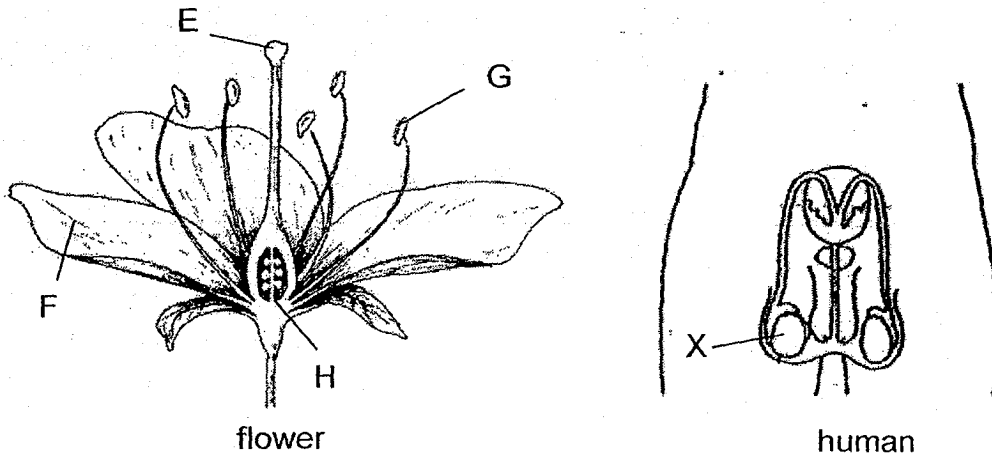


Which of the following statements is/are correct?

- A: P is developed from the ovary.
- B: Q is a fruit.
- C: Q is developed from a female flower.

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

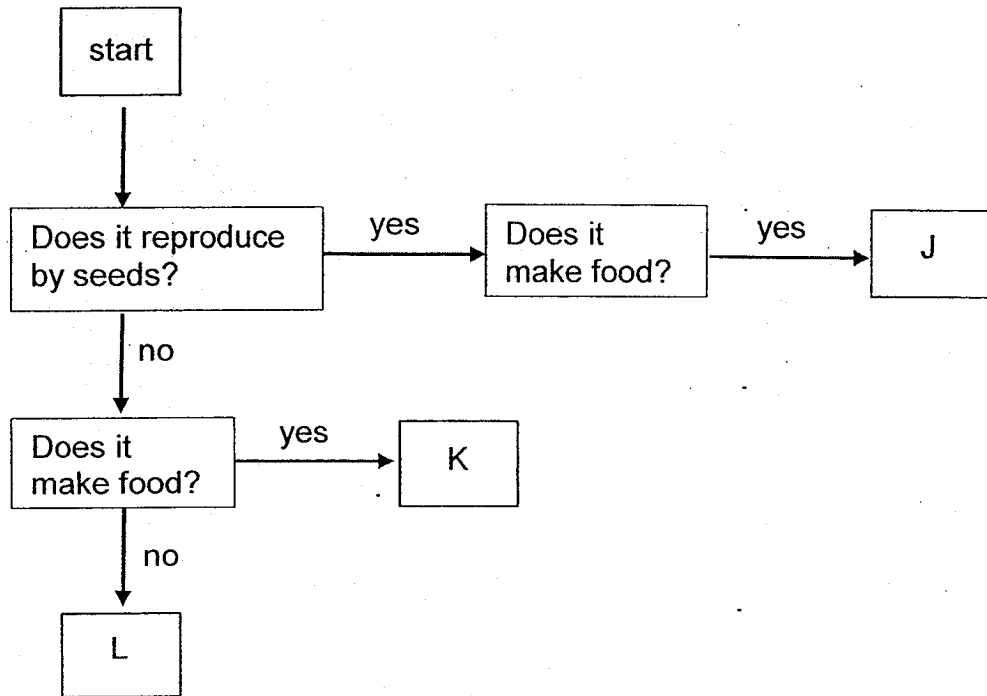
3. The diagrams below show the reproductive systems of a flower and a human.



Which part of the flower, E, F, G or H, has the same function as part X of the human reproductive system?

- (1) E
- (2) F
- (3) G
- (4) H

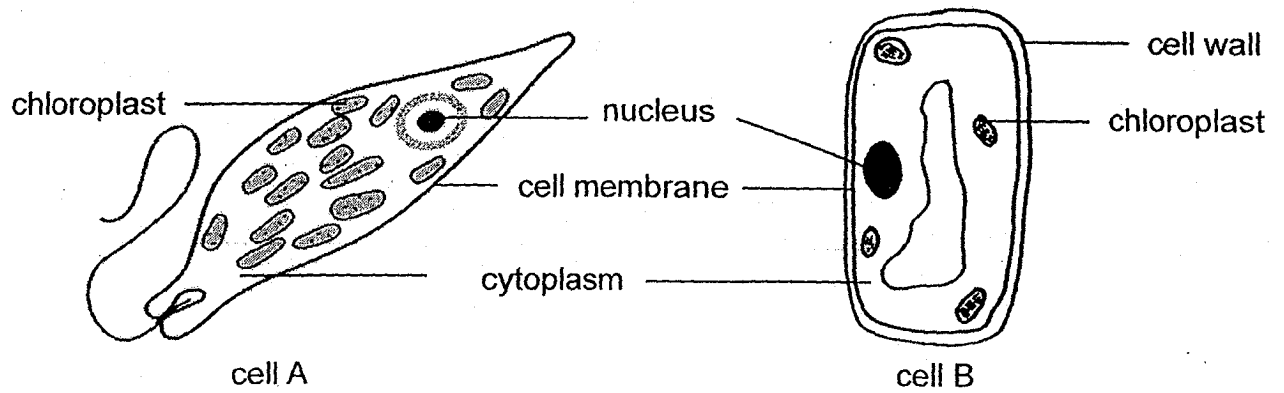
4. Study the flow chart below.



Which of the following options is correct?

	J	K	L
(1)	flowering plant	fern	fungi
(2)	fungi	fern	flowering plant
(3)	fern	flowering plant	fungi
(4)	flowering plant	fungi	fern

5. Study the cells shown below.



Three statements were made about the cells.

A: Both cells contain traits in their nucleus.

B: Cell A is able to make food but cell B is not able to.

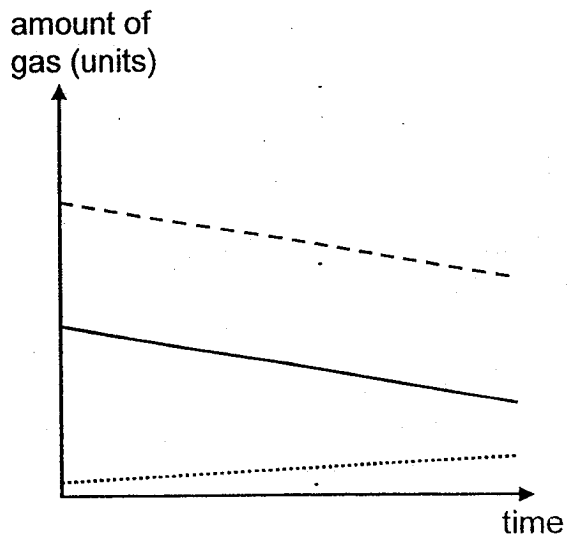
C: Cell B has a fixed shape but cell A does not.

Which of the above statements is/are correct?

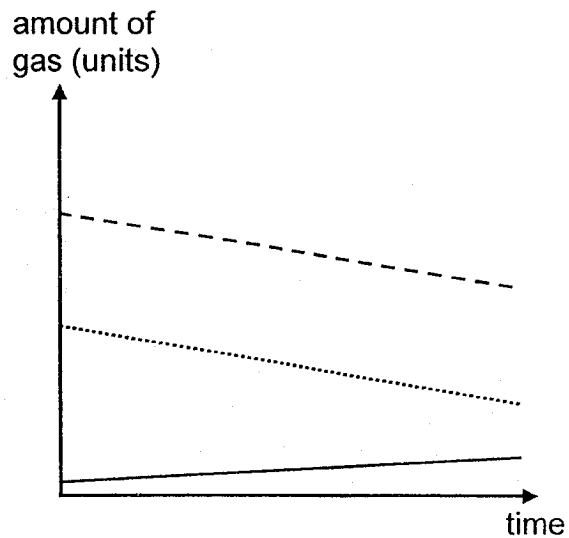
- (1) A only
- (2) B only
- (3) A and C only
- (4) A, B and C

6. A group of students are stuck in a lift for an hour. Which of the following graphs shows the correct change in gases in the lift over the time period?

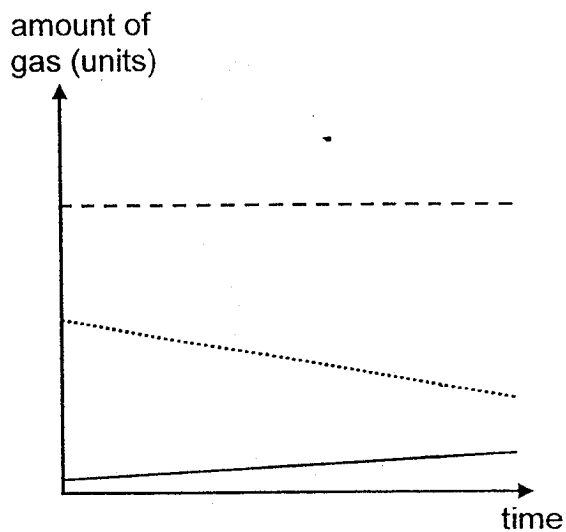
(1)



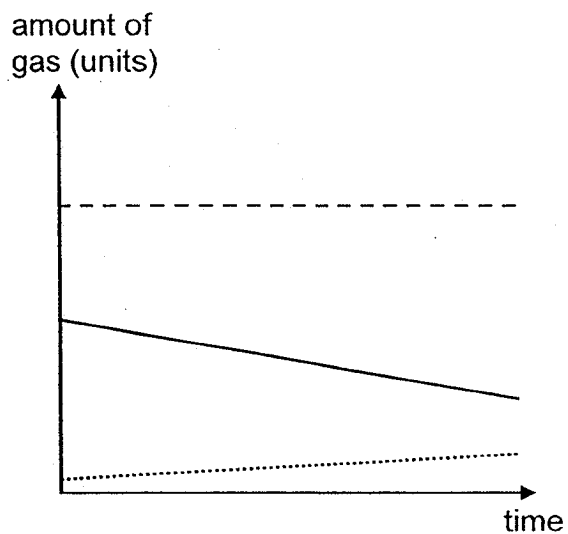
(2)



(3)



(4)



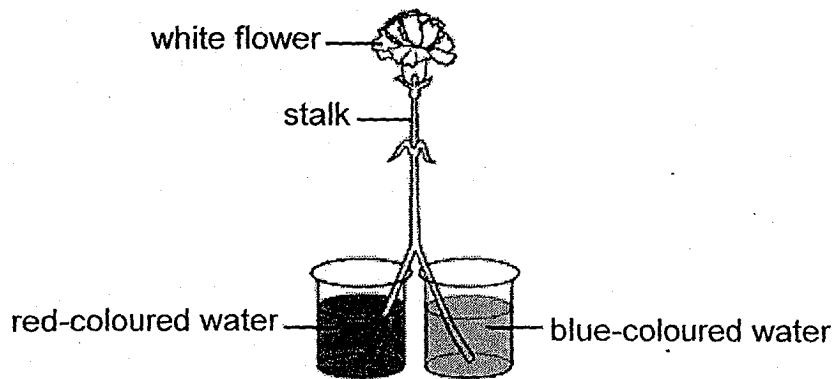
**Key**

Oxygen: ———

Nitrogen: - - - - -

Carbon dioxide: ·······

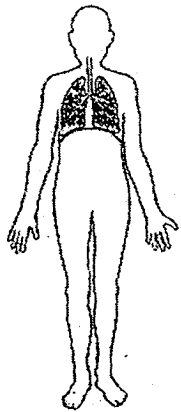
7. Nicky carried out the experiment shown below.



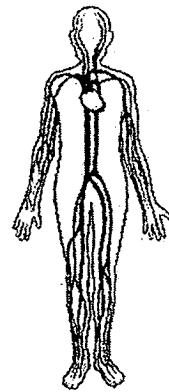
After two days, he observed that the white flower had patches of red and blue. His friend told him that the system in the flower that was responsible for the observation is similar to a system in the human body.

Which of the following body systems is similar to the one in the flower observed by Nicky?

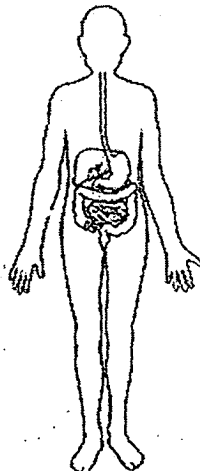
(1)



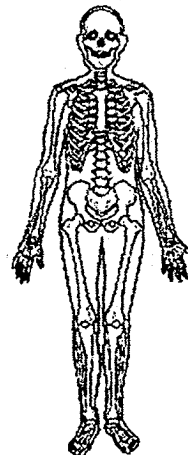
(2)



(3)

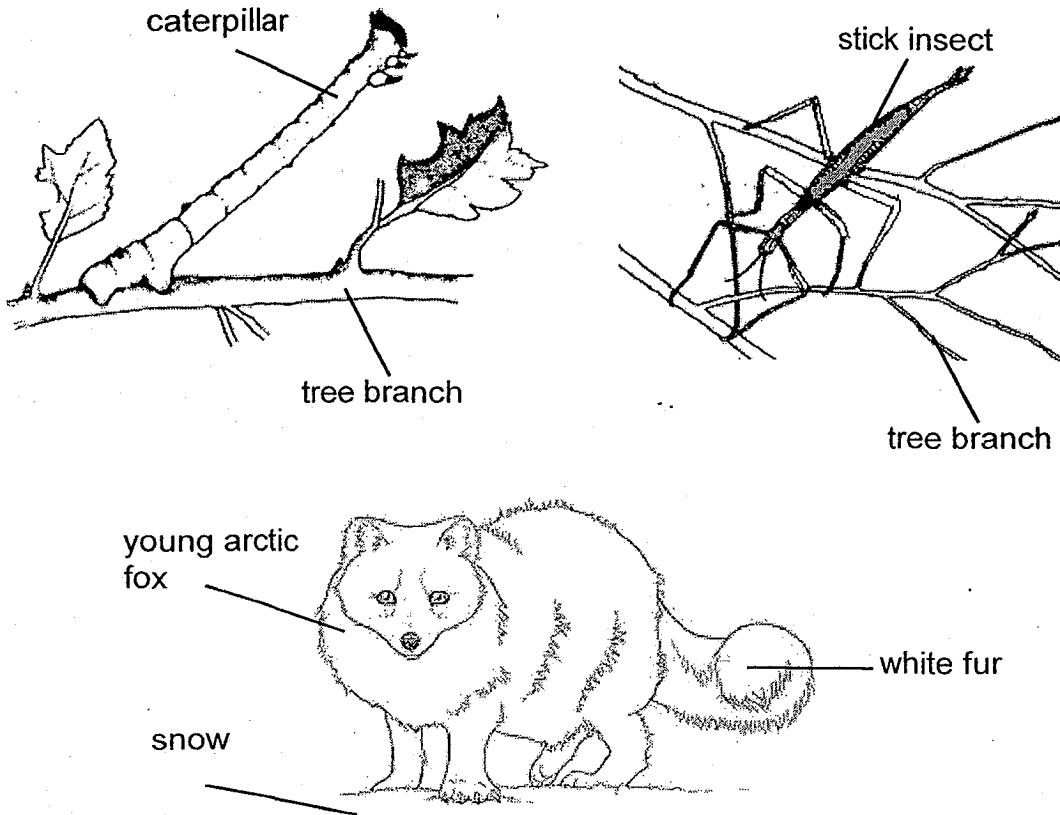


(4)





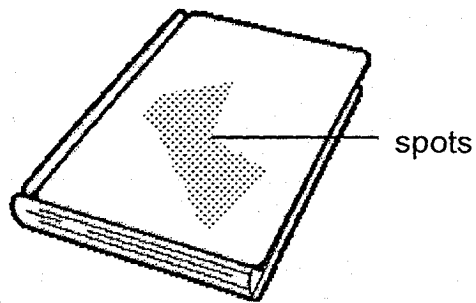
8. Observe the three animals shown below.



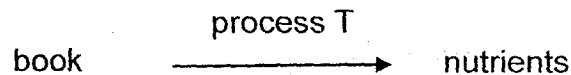
Based on the above information, which of the following is currently shown by all the animals as an adaptation?

- (1) keeping warm
- (2) streamline body
- (3) adaptation for movement
- (4) hide from predators

9. The diagram shows an old book that has black spots growing on it.



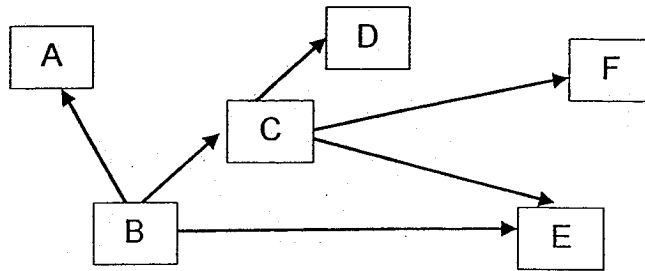
Devi saw the book and said that it has undergone process T as shown below.



Which one of the following correctly identifies process T and the conditions required for it to take place?

	<b>process T</b>	<b>conditions needed</b>
(1)	photosynthesis	water, warmth and sunlight
(2)	photosynthesis	carbon dioxide, water and sunlight
(3)	decomposition	carbon dioxide, water and sunlight
(4)	decomposition	oxygen, water and warmth

10. The diagram shows a food web.



Kiko made the following statements about the food web.

A: There are five food chains.

B: When F increases in population size, D will decrease in its population size.

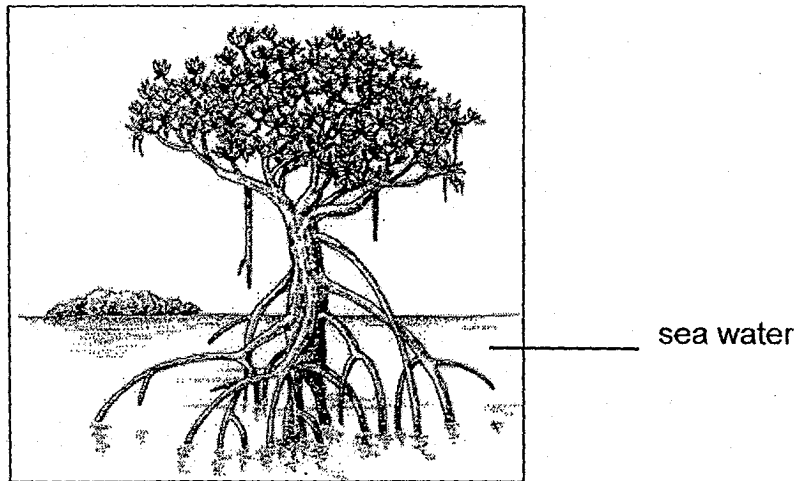
C: There are three organisms that only feed on animals.

D: A is a predator.

Which of the statements are correct?

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

11. Animal D lives in a mangrove swamp. The swamp is flooded at least twice a day.



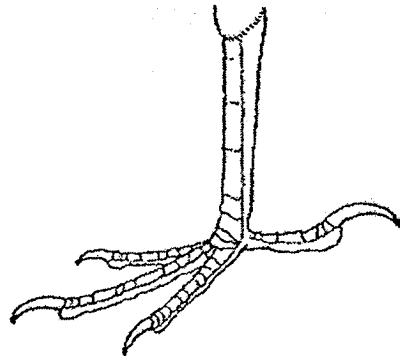
Animal D feeds on the organisms in the water. At low tide, it will be walking in the water to catch its prey. At high tide, it will stand on the tree to avoid being washed away.

Based on the above information, which of the following feet will most likely belong to animal D?

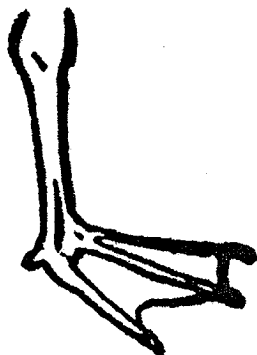
(1)



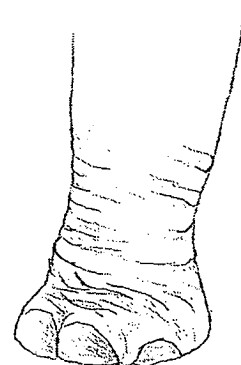
(2)



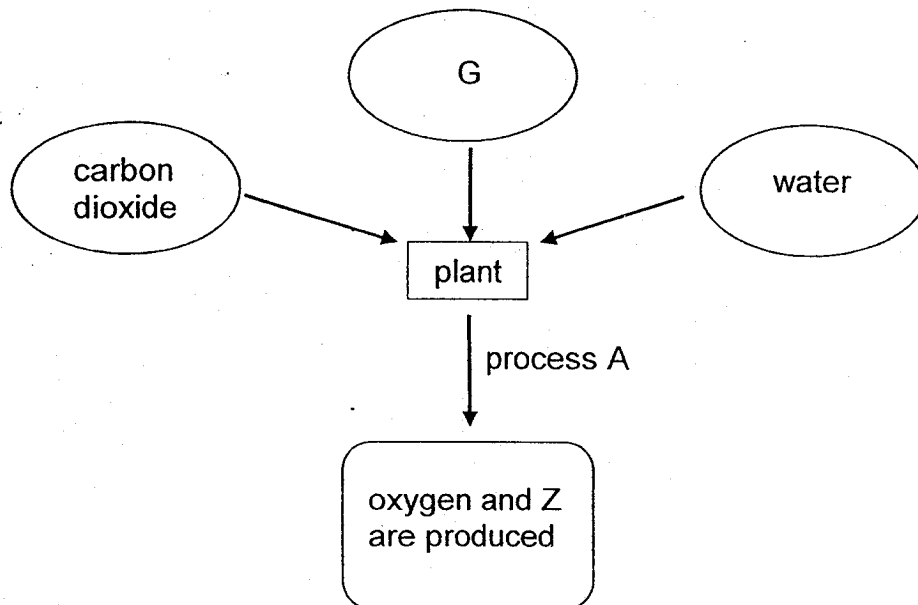
(3)



(4)



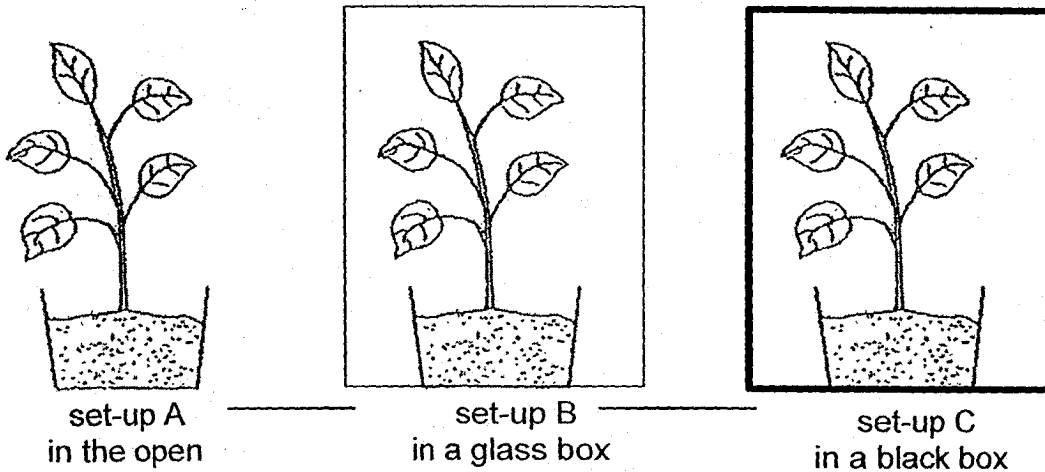
12. Study the flow chart shown below.



Which of the following options correctly matches G and Z shown in the flow chart?

	G	Z
(1)	minerals	sunlight
(2)	minerals	water
(3)	sugar	warmth
(4)	sunlight	sugar

13. Sandy placed three potted plants in a garden. She placed two of them in a clear glass box and a black box respectively. All the leaves were green in colour.

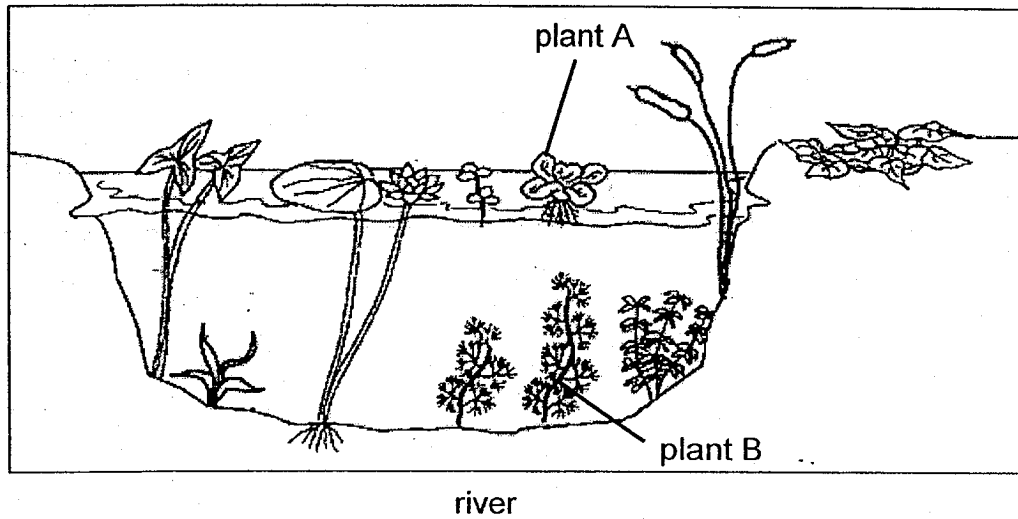


Sandy watered the plants daily for a week. At the end of the week, she plucked a leaf from each of the boxes and conducted a starch test on the leaves.

Which of the following is the correct colour of the iodine solution on the leaves?

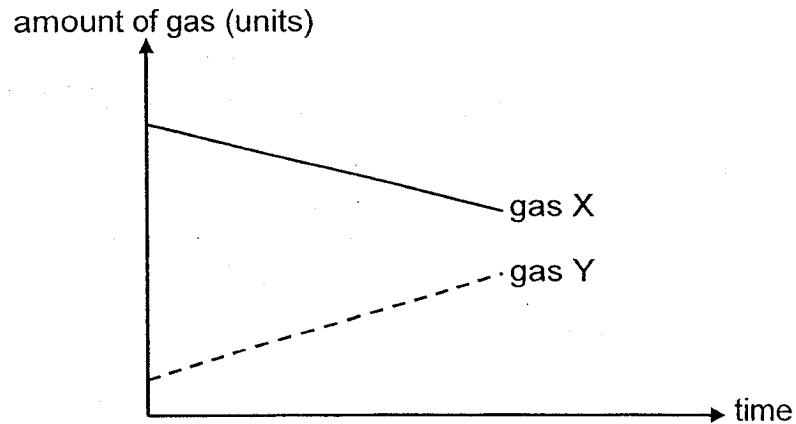
	leaf from set-up A	leaf from set-up B	leaf from set-up C
(1)	yellowish-brown	dark blue	yellowish-brown
(2)	dark blue	yellowish-brown	dark blue
(3)	dark blue	dark blue	yellowish-brown
(4)	dark blue	yellowish-brown	yellowish-brown

14. A river has plants A and B growing in it.



Plant A grows on the surface of the water. Over the next few months, there is a sudden increase in the number of plant A growing in the river.

The graph below shows the change in the amount of two gases in the water for the next few months.



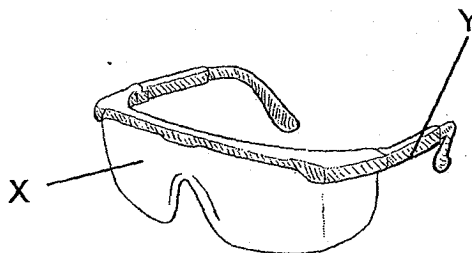
Which of the following shows the correct gases in the water and the change in the population size of plant B?

	gas X	gas Y	plant B
(1)	oxygen	carbon dioxide	increase
(2)	oxygen	carbon dioxide	decrease
(3)	carbon dioxide	oxygen	increase
(4)	carbon dioxide	oxygen	decrease

15. The following table shows the properties of four different materials, A, B, C and D.

Material	Is it transparent?	Is it strong?	Is it flexible?	Is it a good conductor of heat?
A	yes	yes	no	no
B	no	yes	no	yes
C	no	yes	yes	no
D	yes	no	yes	yes

A company wants to use the materials to make the parts labelled X and Y for their new fireman safety goggles.

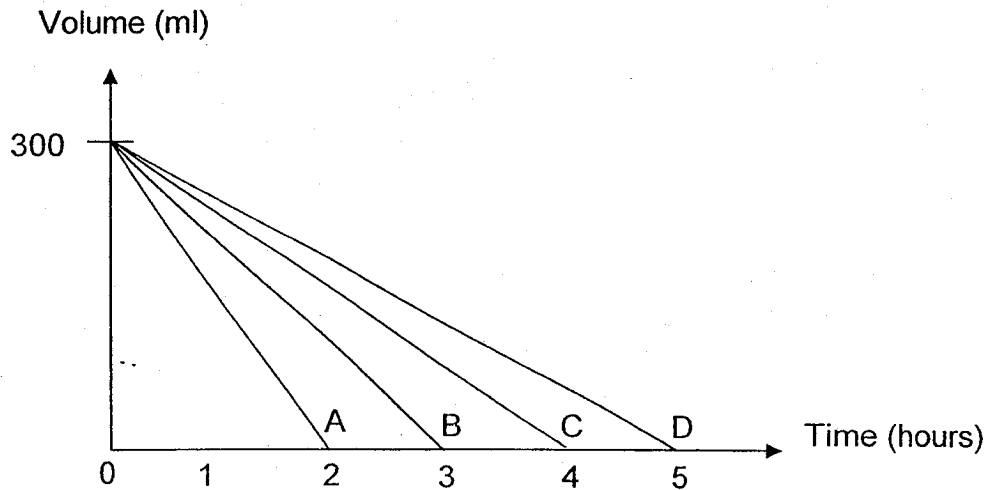


Which of the materials are most suitable to make the parts labelled X and Y?

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



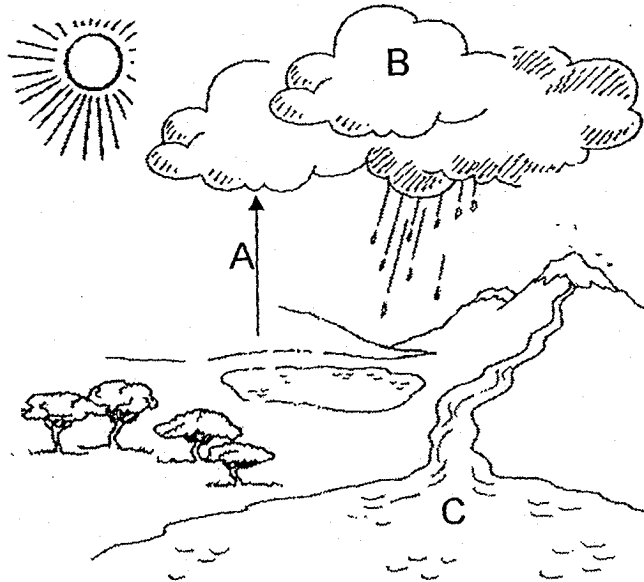
16. Four identical containers, A, B, C and D, were left at different places. Each container contained 300ml of water at the same temperature. Devi checked the containers at the end of each hour. The graph below showed how the volume of water in the containers changed over time.



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

- (1) Container A is in a hotter location than container D.
- (2) Container C is in a hotter location than container B.
- (3) Container B is in a cooler location than container D.
- (4) Container A is in a cooler location than container C.

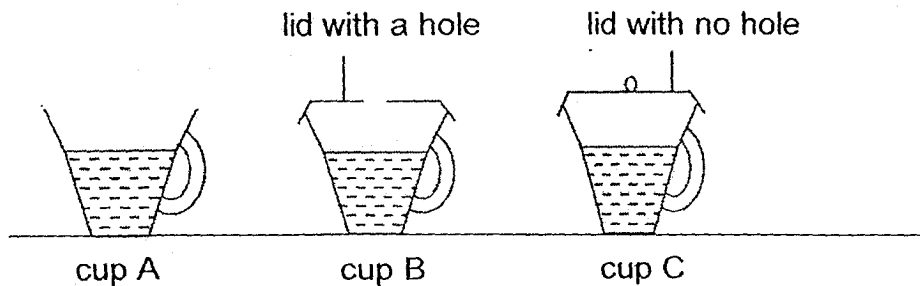
17. The diagram below shows a water cycle.



Which of the following represents the correct states of the water at A, B and C?

	A	B	C
(1)	gaseous	gaseous	liquid
(2)	gaseous	liquid	liquid
(3)	liquid	liquid	gaseous
(4)	liquid	gaseous	liquid

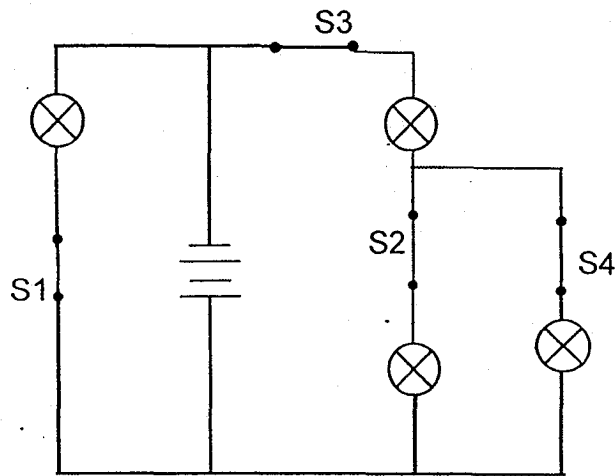
18. Three cups containing hot water of the same temperature were left on a kitchen table.



In which cup(s) would evaporation of hot water take place?

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

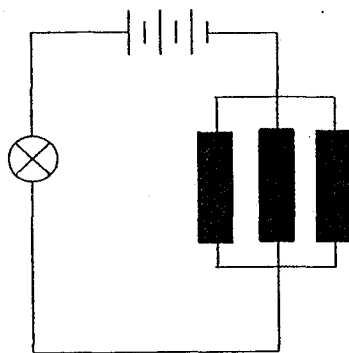
19. Mary set up the circuit as shown.



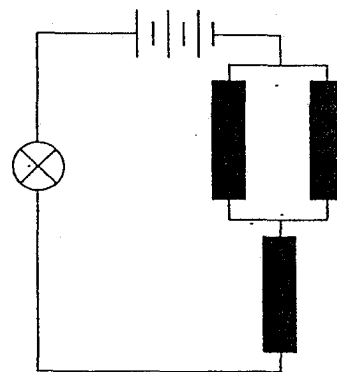
All the bulbs were lit when all the switches were closed. She had the fewest number of bulbs lit by opening one switch while the rest remained closed. Which switch did she open?

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

20. The diagram below shows two circuits, A and B. Each of the circuit has an iron rod, a glass rod and a wooden rod which is represented by the black rectangles.



circuit A

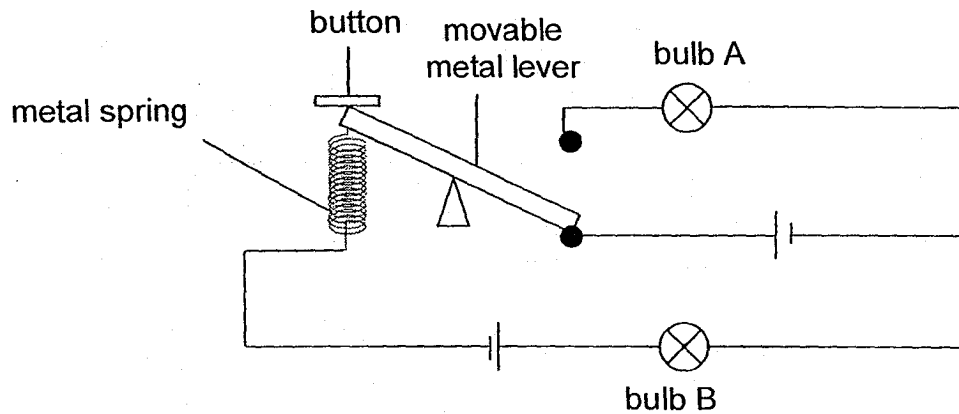


circuit B

Which observation is correct based on the above circuits?

	bulb in circuit A	bulb in circuit B
(1)	lights up	does not light up
(2)	lights up	lights up
(3)	does not light up	does not light up
(4)	does not light up	lights up

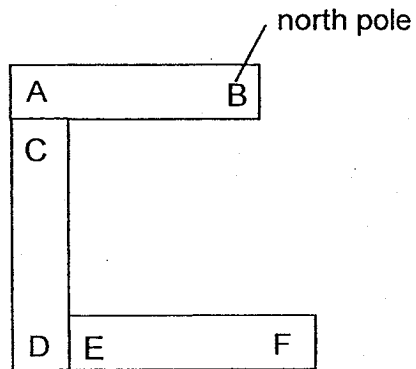
21. Study the circuit shown. Bulbs A and B are identical. The batteries used are also identical. At first, bulb A is unlit while bulb B is lit with a brightness of 20 units.



If the button is pressed and held down, what will happen to bulbs A and B?

	<b>bulb A</b>	<b>bulb B</b>
(1)	lit with less than 20 units of brightness	unlit
(2)	unlit	lit with less than 20 units of brightness
(3)	lit with 20 units of brightness	lit with 20 units of brightness
(4)	lit with less than 20 units of brightness	lit with less than 20 units of brightness

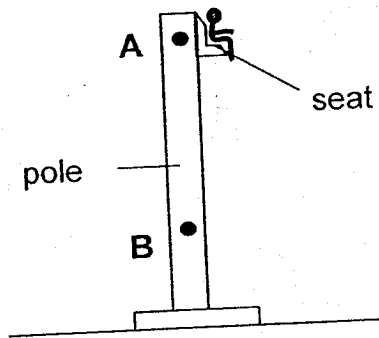
22. Three similar bar magnets were placed next to one another. The poles of the magnets were attracted as shown.



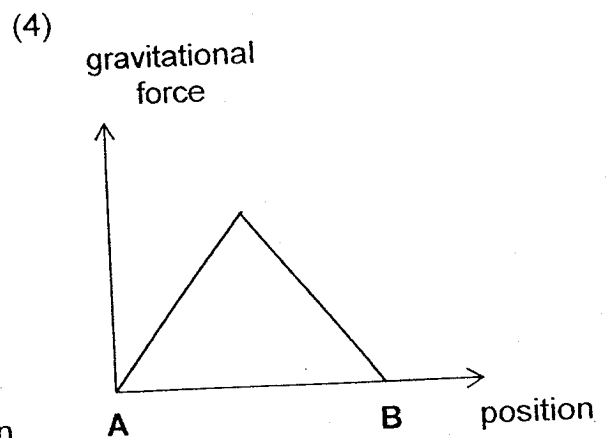
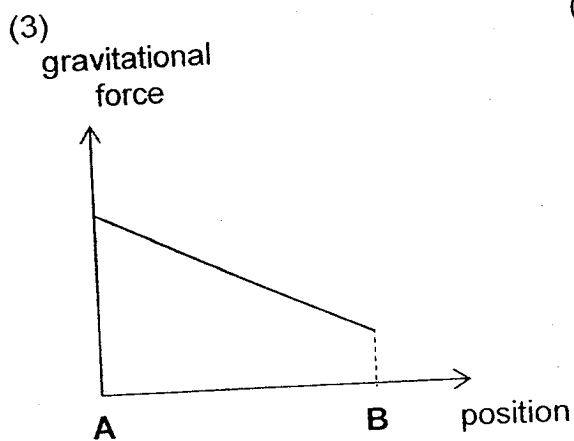
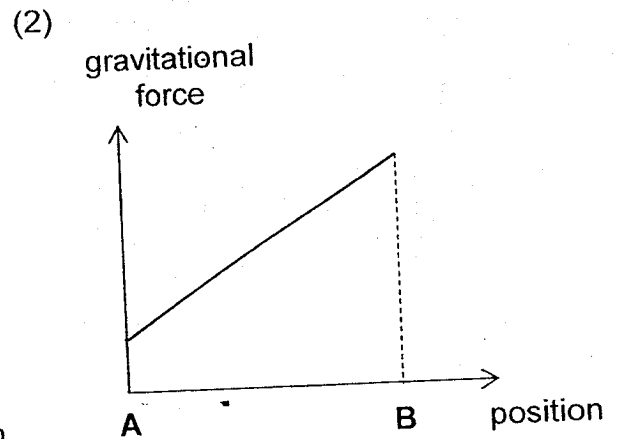
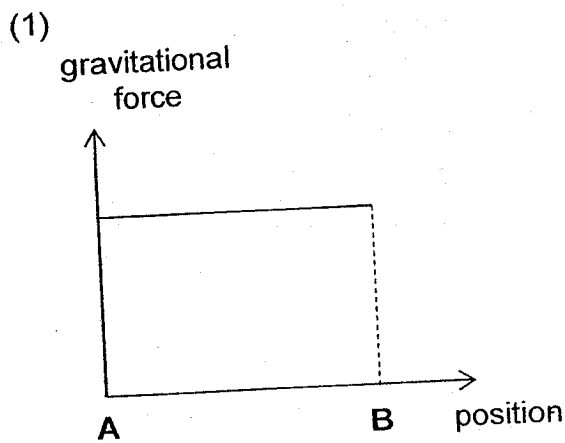
If pole B is a north pole, which one of the following observations is correct when two poles of the magnets are placed near to each other?

	<b>poles</b>	<b>observation</b>
(1)	B and E	attract
(2)	C and F	repel
(3)	A and F	repel
(4)	A and D	attract

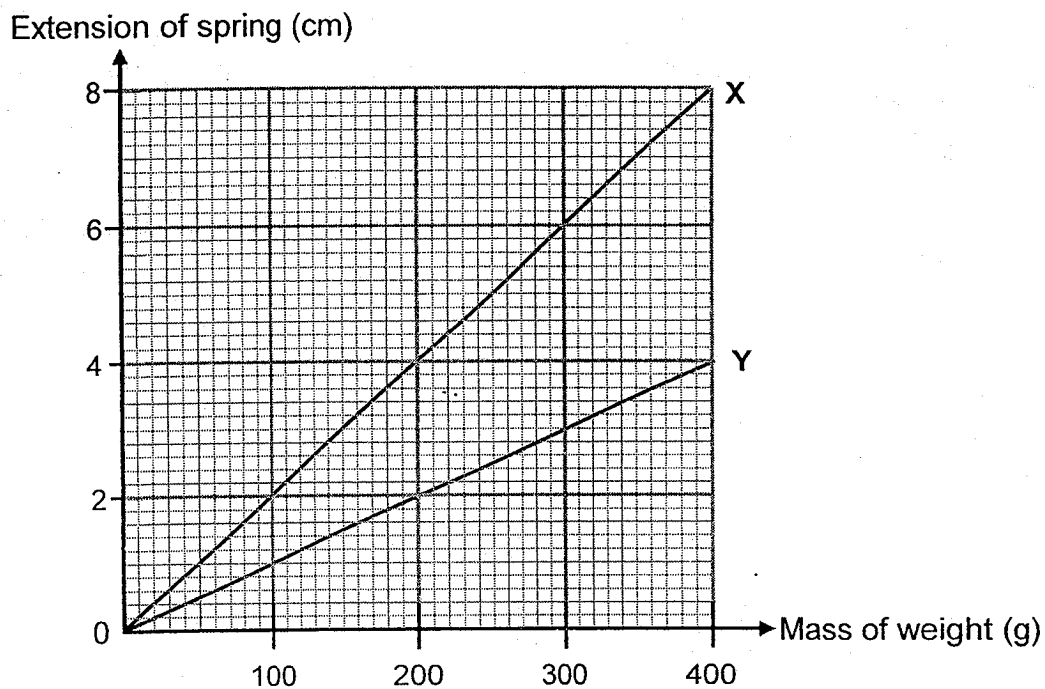
23. In an amusement park, a passenger is strapped to a seat and is raised to the top of a vertical pole. At position A, the seat is released. The seat falls and stops at position B.



Which graph best describes the gravitational force acting on the passenger from position A to B?



24. The original length of spring X and Y was 10 cm. After various weights were hung on them, the extension of each spring was measured and shown in the graph below.



Which of the following is correct when a 200 g weight was hung on each spring?

	Length of spring X (cm)	Length of spring Y (cm)
(1)	4	2
(2)	2	4
(3)	18	14
(4)	14	12

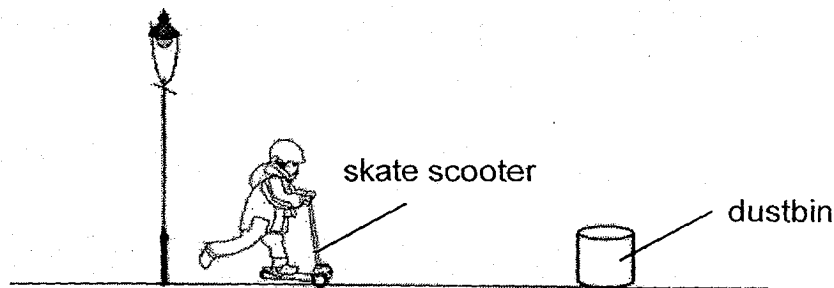
25. A chef wants to find out how different materials affect the time taken for ice to melt. He put a similar ice cube each into four boxes of the same size but made of different materials. He recorded his findings in the table shown.

Material of box	A	B	C	D
Time taken for the ice cube to melt completely (minutes)	7	9	4	10

The chef wants to defrost some frozen meat in covered boxes so that pests cannot reach the meat. Which material will enable the meat to defrost most quickly?

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

26. Alan was riding his skate scooter at night.

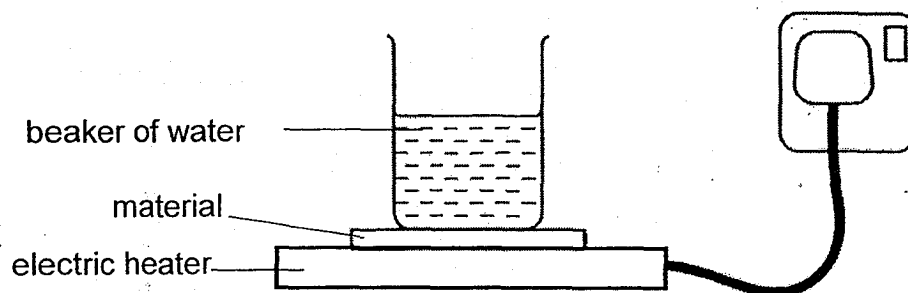


He could see the dustbin in front of him because the light from the street lamp was reflected by \_\_\_\_\_.

- (1) the ground onto the dustbin
- (2) Alan's eyes onto the dustbin
- (3) the dustbin into Alan's eyes
- (4) the skate scooter into Alan's eyes



27. Mr Raja conducted an experiment using the set-up shown.



He recorded the time taken for the water in the beaker to boil when different materials, X, Y and Z, were placed below the beaker of water in the table below.

Material	How well the material conducts heat	Time taken for water to start boiling (minutes)
X	good	8
Y	poor	8
Z	very good	8

After completing the experiment, Mr Raja realised that he had forgotten how much water he had used.

Which of the following most likely shows the volume of water (in  $\text{cm}^3$ ) used at the start of the experiment?

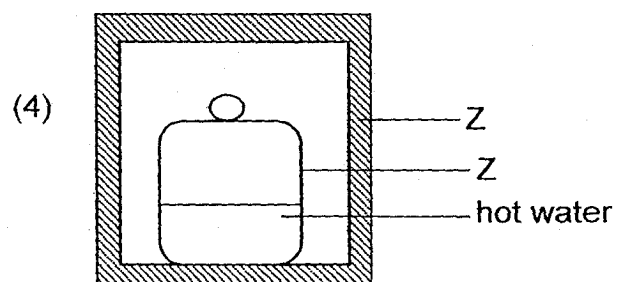
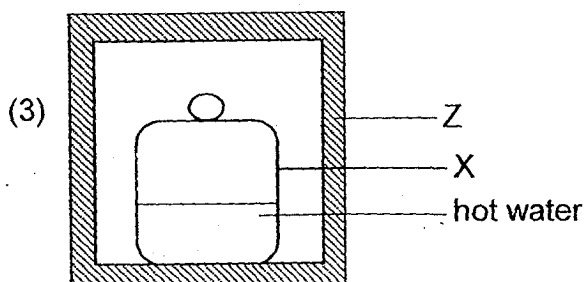
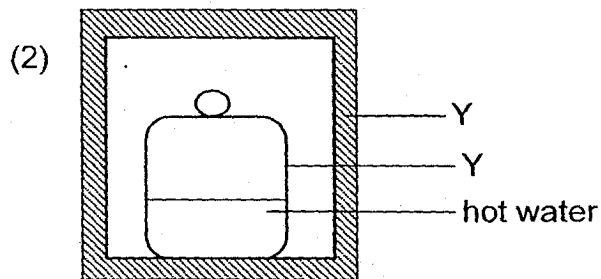
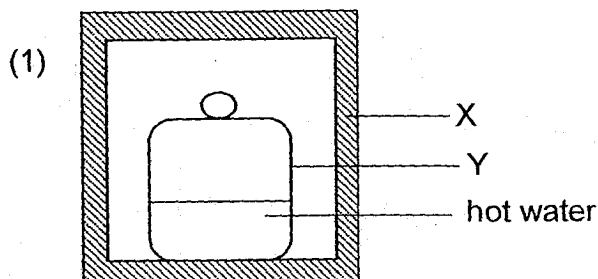
	X	Y	Z
(1)	100	200	300
(2)	200	100	300
(3)	100	300	200
(4)	300	200	100

28. Three materials of the same size, thickness and temperature were heated with the same bunsen burner. The time taken for the temperature of the three materials to increase by  $10^{\circ}\text{C}$  were recorded in the table shown.

Material	Time taken to increase the temperature by $10^{\circ}\text{C}$ (min)
X	12
Y	7
Z	20

The materials were then used to make the following containers. The same amount of hot water at  $90^{\circ}\text{C}$  was poured into each container.

Which of the following set-ups would keep the water hot for the longest time?



END OF BOOKLET A



# RED SWASTIKA SCHOOL

## SCIENCE 2018 SEMESTRAL ASSESSMENT 1 PRIMARY 6

Name : \_\_\_\_\_ ( )

Class : Primary 6/ \_\_\_\_\_

Date :

### BOOKLET B

13 Questions  
44 Marks

In this booklet, you should have the following:

- Page 22 to Page 35
- Questions 29 to 41

### MARKS

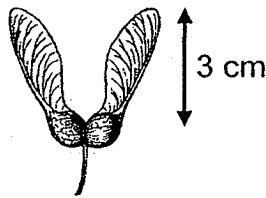
	OBTAINED	POSSIBLE
BOOKLET A		56
BOOKLET B		44
TOTAL		100

Parent's Signature : \_\_\_\_\_



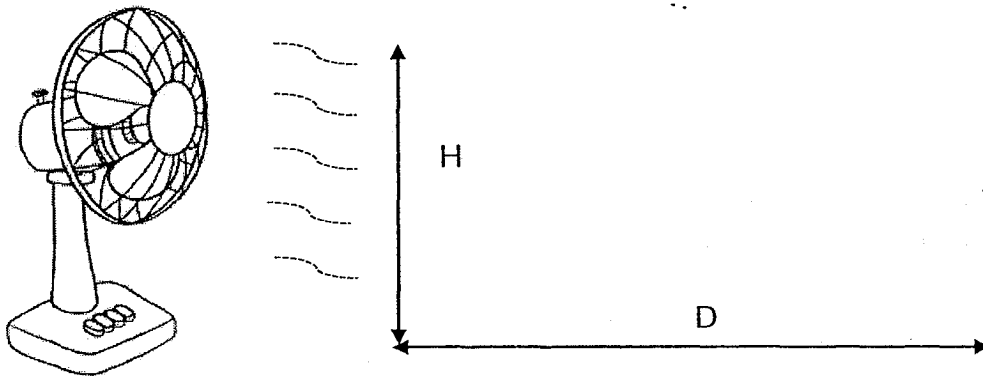
Answer all the questions in the spaces provided.

29. John conducted an experiment to find out how the speed of wind would affect the distance a seed travelled. Seed J has a 3 cm wing-like structure as shown below.



seed J

He dropped seed J from a height (H) in front of a fan as shown. He measured the distance (D) travelled by seed J.



Seed J was dropped from the same height but at different fan speeds and the readings are shown below.

fan speed (units)	0	1	2	3
distance travelled by the seed (D cm)	5	22	36	51

- (a) Based on John's results, why is it an advantage for the seed to be found at a windy place? (1m)

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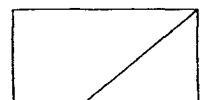
John reduced the wing-like structure of seed J to 1cm. He repeated the experiment and recorded the results again.

- (b) What will happen to all the distances travelled by the seed? Explain your answer. (1m)

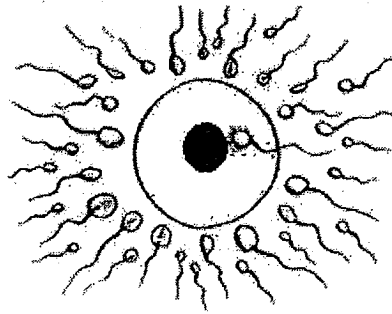
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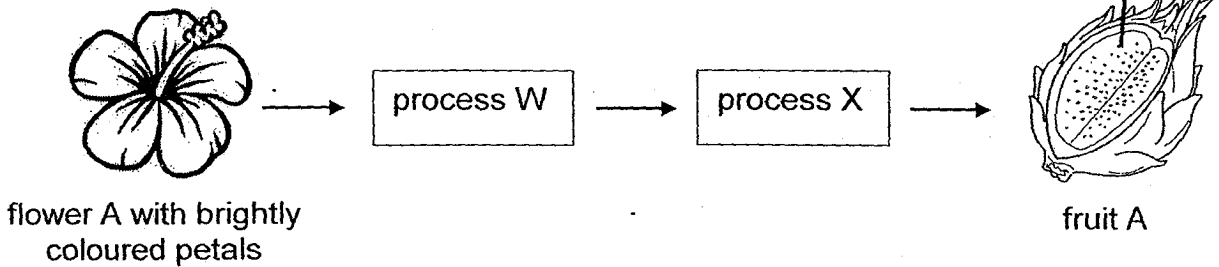
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30. Study the processes shown below.



process X

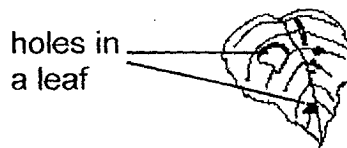


Process X takes place in both humans and plants.

(a) Identify process X. (1m)

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(b) Flower A was found in a farm with many butterflies. Farmer Tan was upset that the leaves on his plants were damaged by the caterpillars as shown below.



Farmer Tan used pesticides to remove the caterpillars. However, after some time, the number of fruit A in the farm decreased. Explain why. (2m)

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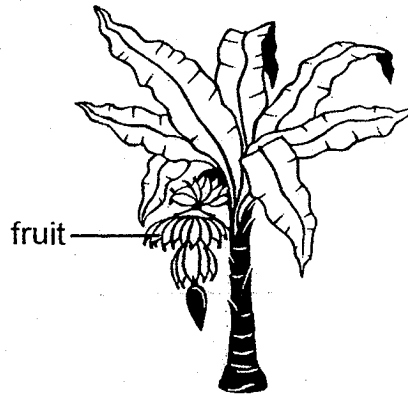


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31. Li Lin observed a plant over a period of 12 weeks.



She cut the fruit and placed a few drops of iodine solution on it. The iodine solution turned dark blue.

(a) Name the form of energy that is present in the fruit that resulted in the iodine solution turning dark blue. (1m)

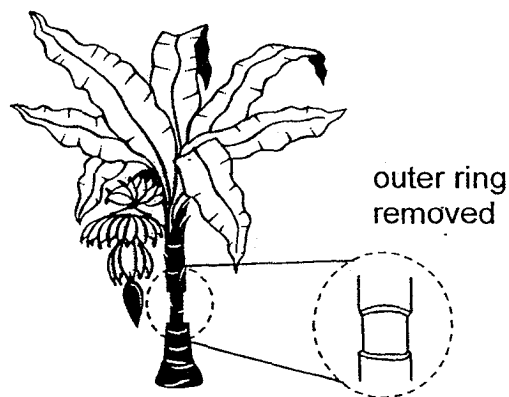
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(b) Explain the process(es) that took place in the plant which caused the iodine solution to turn dark blue when it was placed on the fruit. (2m)

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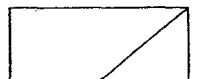
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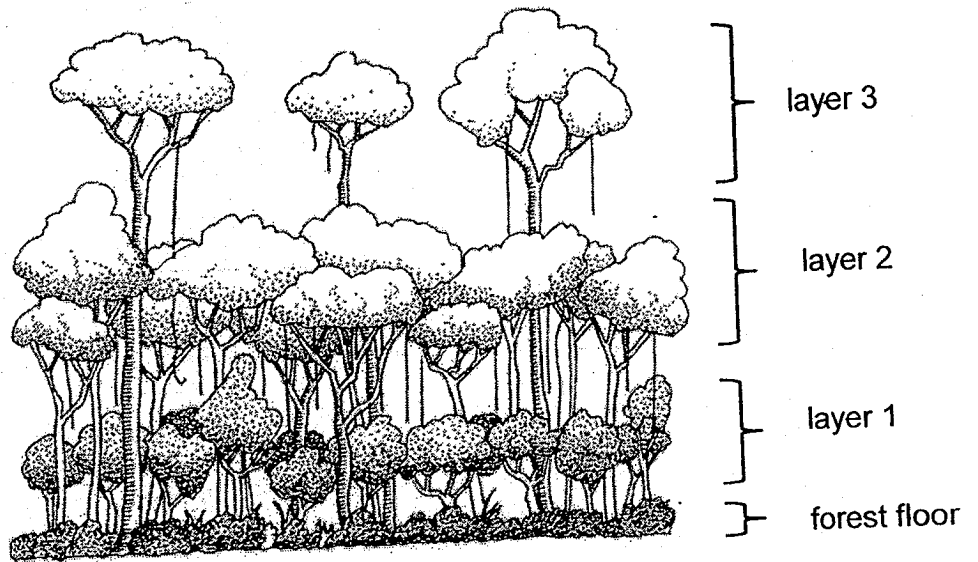
Farmer Chua told Li Lin that if she removed the outer ring of the plant as shown above, the size of the fruit will increase at a faster rate.

(c) Name the part of the plant transport system that was removed. (1m)

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32. The diagram below shows four layers of a rainforest.



Annie studied the leaves of the plants in layer 1 and layer 3 as shown below



leaf in layer 1  
width of leaf: 17cm



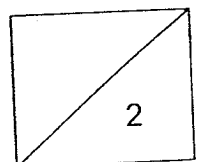
leaf in layer 3  
width of leaf: 11cm

(a) Based on the above pictures, explain how the plants in layer 1 are adapted to survive better in the rainforest. (2m)

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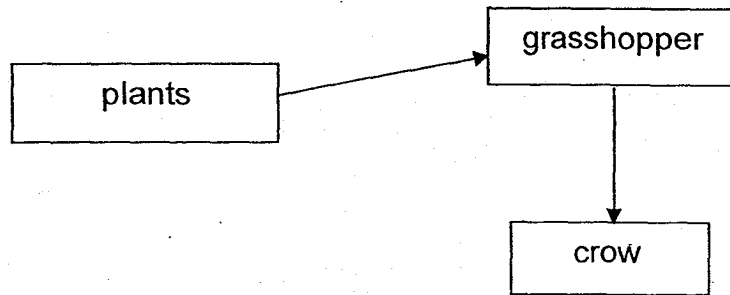
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32. Annie drew a food chain of some organisms found in the rainforest.



She introduced a predator, organism Z, to the habitat. As a result, the population of grasshoppers decreased immediately. The crow eats the grasshopper only.

(b) Draw organism Z in the food chain. (1m)

(c) If all the crows are killed, what will be the effect on the plants? Explain your answer clearly. (1m)

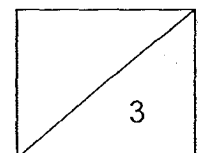
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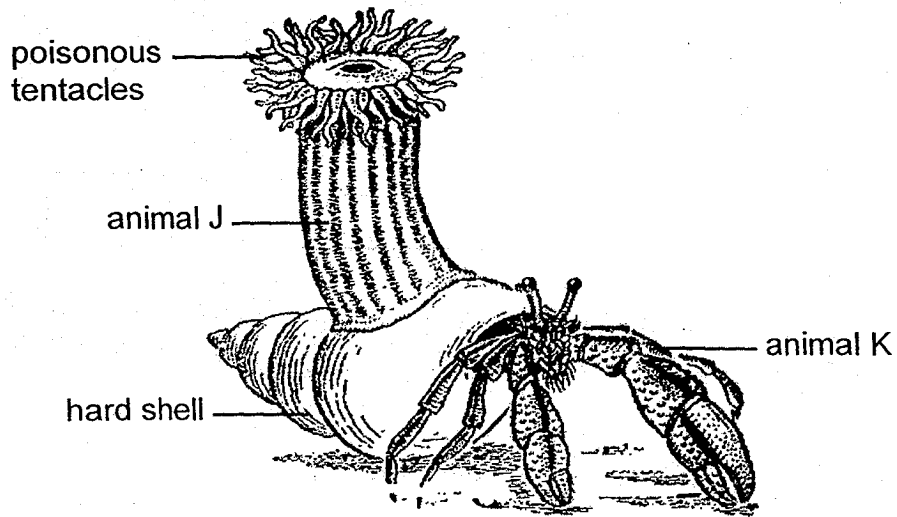
(d) Describe how the presence of decomposers will benefit the plants in the food chain. (1m)

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33. Study the animals shown below.



Animal K has a hard shell and lives underwater. The shell has a dull colour. It is able to curl up in its shell and hide from predators. It moves around in the water to look for food.

Animal J lives on the shell of animal K and it has poisonous tentacles.

- (a) State another reason how the shell is useful for animal K's survival. (Do not mention animal J). (1m)

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- (b) Describe how animal J is able to help animal K escape from being eaten by other animals. (1m)

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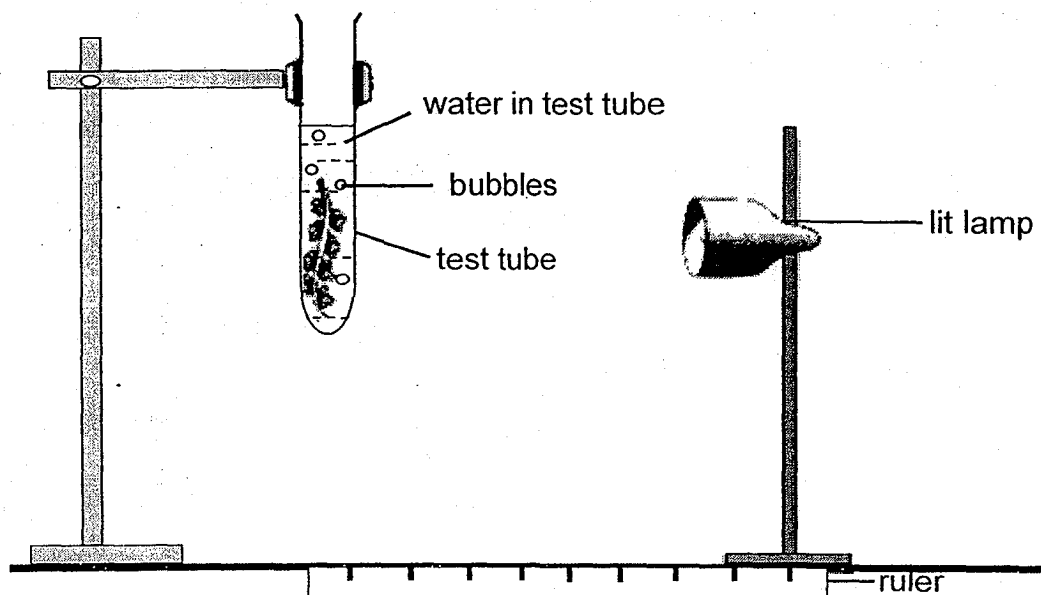
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- (c) How does animal J benefit by being on the shell of animal K? (1m)

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34. Shila conducted an experiment in a dark room using the set-up shown below. She measured the number of bubbles produced by the water plant every minute.



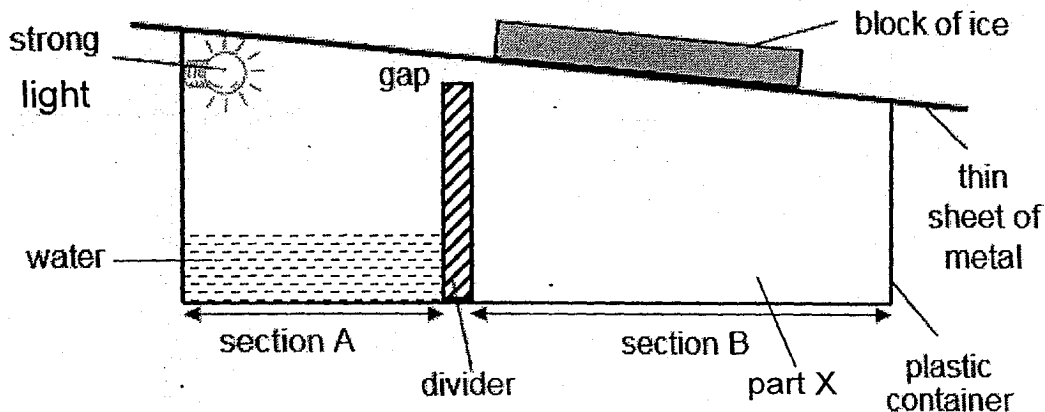
Shila repeated the experiment by increasing variable K and keeping all other variables the same. Her results were shown below.

<b>Variable K (units)</b>	10	20	30
<b>Number of bubbles (per min)</b>	65	37	18

- (a) Without adding or removing anything from the diagram shown, state what variable K was. (1m)
- 
- (b) Name the gas produced by the plant as a result of the process shown in the above experiment. (1m)
- 
- (c) Shila added a few fish into the test tube and repeated the experiment. After some time, the number of bubbles produced by the water plant increased. Explain why. (2m)
- 
- 
- 



35. Mr Lim set up an experiment as shown below. Section A contained some water while section B was dry at the start of the experiment. The divider blocked water in section A from seeping into section B.



He switched on the strong light for two hours. After two hours, he observed some water collected at part X of the container in section B.

- (a) Based on the diagram, explain how the water at part X of the container in section B was formed. (2m)

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Mr Lim was caught in a heavy rain. His body was wet and he felt cold. A strong wind blew and he felt even colder.

- (b) Explain why he felt even colder when the strong wind blew. (2m)

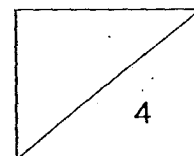
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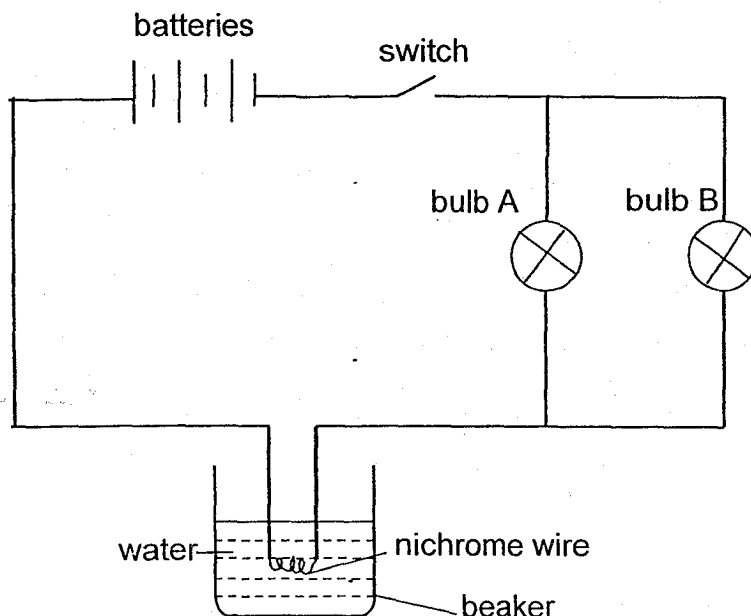
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36. Mark set up the experiment as shown. When he switched on the circuit, the nichrome wire soon became heated up and the temperature of the water in the beaker increased.



- (a) If Mark had used less water, how would this affect the time taken to heat up the water? (1m)

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- (b) Identify one property of the nichrome wire that enabled the bulbs to light up. (1m)

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- (c) If bulb A is fused, will the water still become warm when the switch is closed? Explain your answer. (1m)

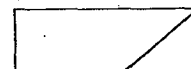
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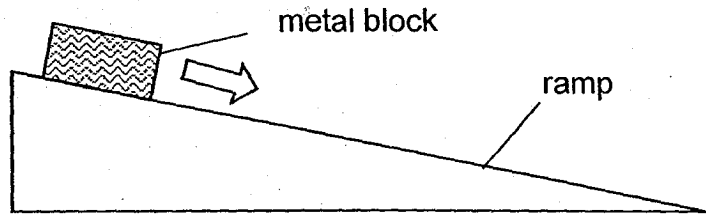
- (d) The nichrome wire is replaced with a glass rod. Explain what will happen to the bulbs when the switch is closed. (1m)

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37. Raja set up the experiment shown below.



He released the metal block from the top of the ramp and recorded the time taken for it to reach the bottom of the ramp.

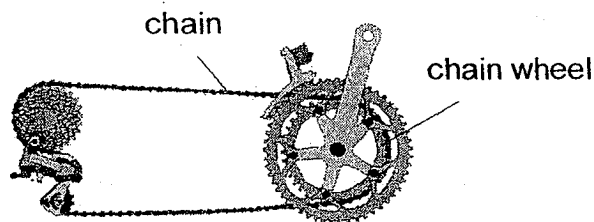
He then repeated the experiment by applying different types of substances, X, Y and Z, on the surface of the ramp. The results were recorded in the table.

Substance applied	Time taken (s)
none	9
X	8
Y	3
Z	5

(a) What was the force that caused the block to slide down the ramp? (1m)

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The diagram shows a part commonly found in a bicycle. The chain and chain wheel are in contact to help the bicycle move.



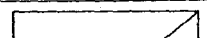
After usage over a long time, the chain wheel would make more noise and turn more slowly due to wear and tear.

(b) From Raja's experiment, which of the substances, X, Y or Z, will be most suitable for slowing down wear and tear? Explain your answer. (2m)

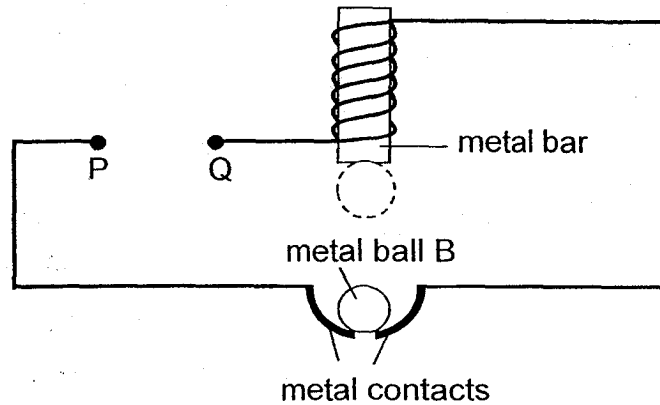
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38. A wire was coiled around a metal bar in the circuit shown below.



Different objects were connected between points P and Q. The results were shown in the table.

Object connected between points P and Q	Observation on metal ball B
X	did not move
Y	moved to the metal bar before dropping back down repeatedly until object Y was removed

(a) Based on the results, state two properties of the material for metal ball B. (2m)

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(b) When object Y was connected between points P and Q, what was the effect on the metal bar that resulted in the observation made for metal ball B? (1m)

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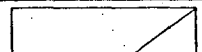
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(c) The metal contacts were changed to contacts made of material H. When object Y was connected between points P and Q, metal ball B did not move. Based on the results, identify a property of material H. (1m)

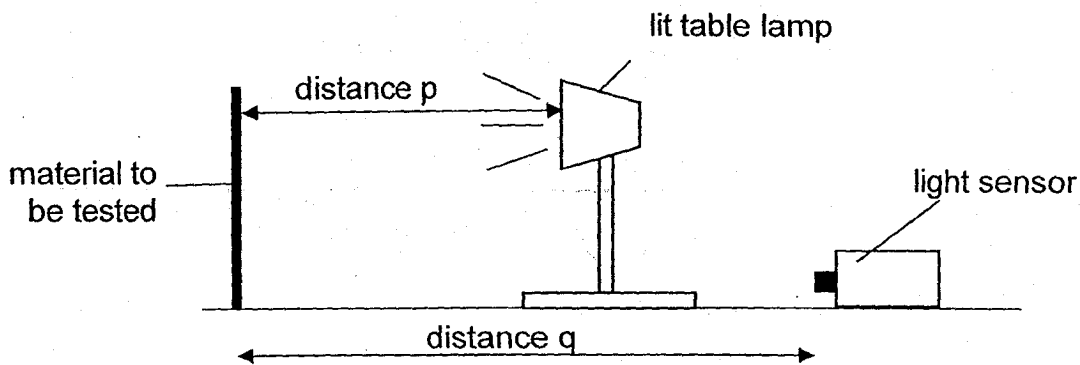
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39. Andrew conducted an experiment as shown below. He measured the amount of light detected by the light sensor at distance  $q$  for three different materials.



His results were recorded in the table below.

Material	Amount of light measured by the light sensor (lux)
X	300
Y	450
Z	150

- (a) When driving at night, Andrew noticed that a road sign would "glow" brighter as he drove closer to it. Which material is the best for making road signs to allow drivers to see them easily at night? Give a reason for your answer. (2m)

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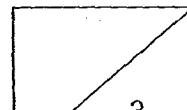
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- (b) If distance  $q$  is increased, state how the amount of light measured by the light sensor will be affected. (1m)

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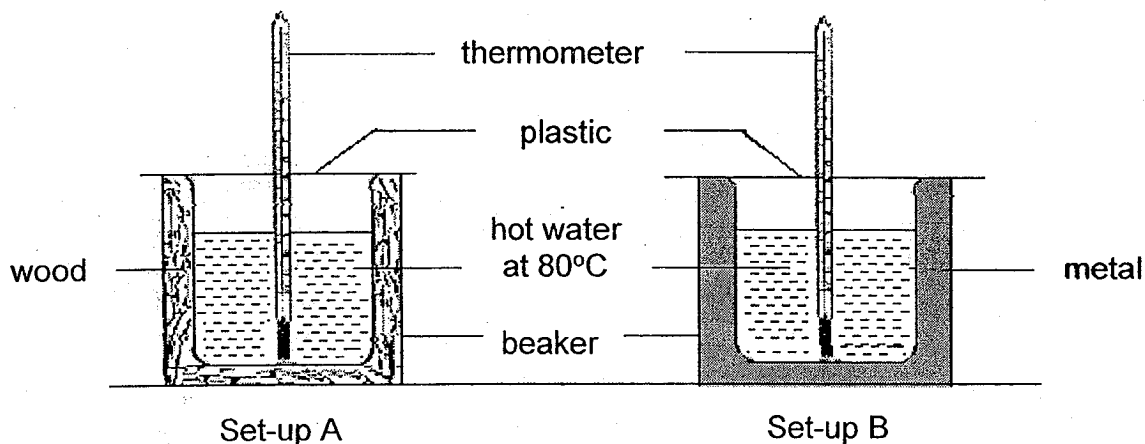


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39. Anne conducted an experiment using set-up A and B as shown below. She filled both beakers at the same time with the same amount of hot water at  $80^{\circ}\text{C}$ .



She recorded the results in the table shown. However, she forgot to identify the correct set-up in the table.

- (c) Complete the table by writing "A" or "B" in the correct boxes provided. (1m)

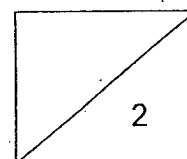
Set-up	Temperature of water ( $^{\circ}\text{C}$ )			
	0 min	5 min	10 min	15 min
	80	72	63	52
	80	77	73	67

- (d) Explain your answer given in part (c) for set-up B. (1m)

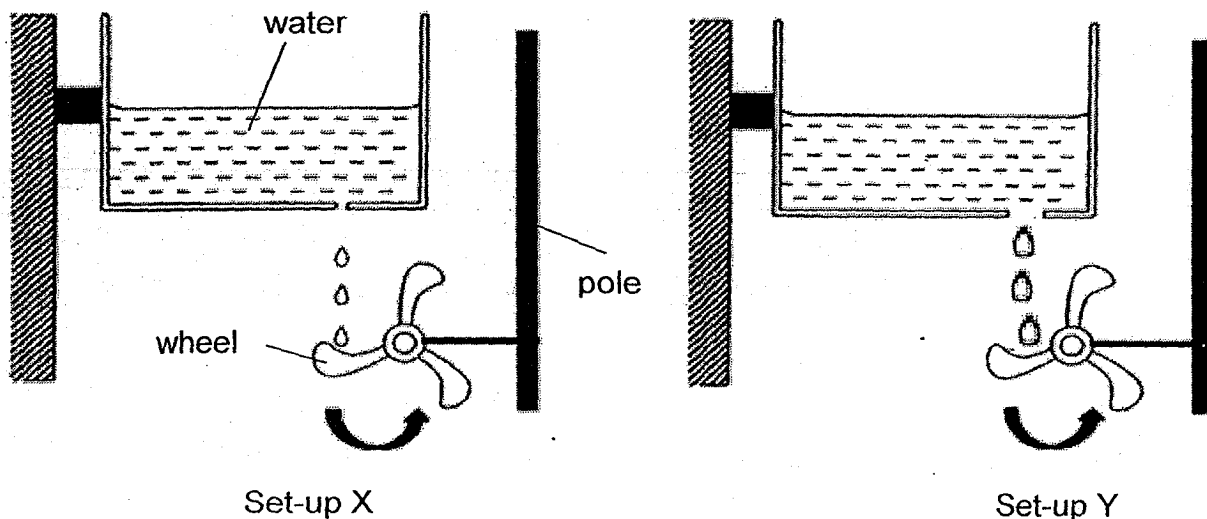
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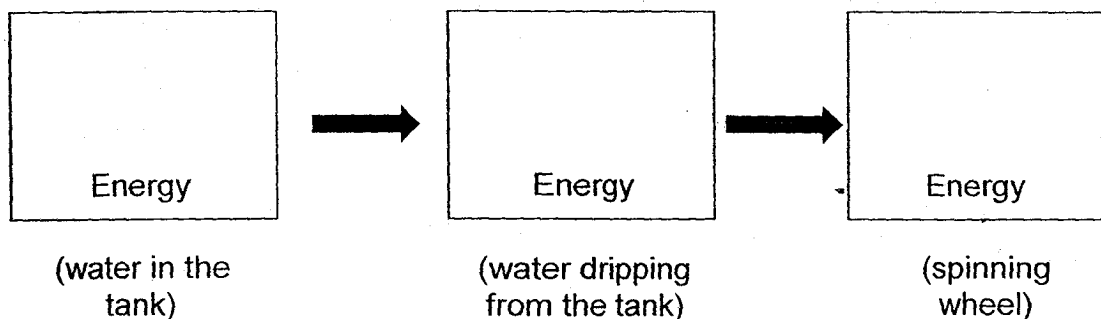
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40. Anna sets up the experiment as shown below. She observes that the wheels in both set-ups spin when water drips on it.



(a) Complete the following to show the main energy conversions taking place for the wheel to spin. (1m)



(b) Explain how the mass of the water droplets cause the wheel in set-up X to spin more slowly. (2m)

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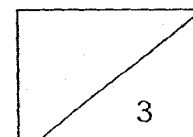


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END OF BOOKLET B  
PLEASE CHECK YOUR WORK



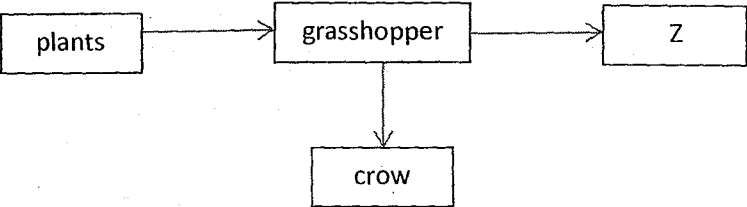
**SCHOOL : RED SWASTIKA PRIMARY SCHOOL**  
**LEVEL : PRIMARY 6**  
**SUBJECT : SCIENCE**  
**TERM : 2018 SA1**

**SECTION A**

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
2	3	3	1	3	4	2	4	4	1
Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
2	4	3	2	2	1	2	4	3	1
Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
4	3	1	4	3	3	2	4		

**SECTION B**

Q29)	<p>a) It can be carried to a further place to prevent over-crowding.</p> <p>b) All the distances travelled by the seed will be shorter than before as the surface area of the wings is smaller, it cannot stay in the air longer than that with 3-cm wings.</p>
Q30)	<p>a) Fertilisation</p> <p>b) As there are fewer caterpillars, there will be fewer butterflies. Since butterflies help to pollinate flower A, less pollination can take place. Thus, less fertilisation will take place which results in a decrease in the number of fruit A.</p>
Q31)	<p>a) Chemical potential energy</p> <p>b) With the presence of sunlight, water and carbon dioxide, photosynthesis took place and the plant made its own food. The excess sugar in the plant is stored in other parts of the plant as starch.</p> <p>c) Food-carrying tubes</p>

<p>Q32)</p>	<p>a) As the surface area of the leaves in layer 1 are larger, the leaves can trap more sunlight and photosynthesise at a faster rate than the leaves in layer 3.</p> <p>b)</p>  <pre> graph LR     plants --&gt; grasshopper     grasshopper --&gt; Z     grasshopper --&gt; crow   </pre> <p>c) The population of the plants will decrease. The crow feeds on the grasshopper so when there are no crows, the population of the grasshopper will increase and more grasshoppers will feed on plants, thus decreasing the population of the plants.</p> <p>d) Decomposers can break down dead matter into simpler substances like mineral salts, water and carbon dioxide which the plants need.</p>
<p>Q33)</p>	<p>a) The shell helps animal K to blend in the surroundings to lower the chances of predators spotting animal K.</p> <p>b) Other animals will stay away from animal J to prevent getting poisoned since animal J has poisonous tentacles which will help animal K escape being eaten by other animals.</p> <p>c) Animal K helps animal J to move around easily to find food.</p>
<p>Q34)</p>	<p>a) The distance between the lamp and the test tube.</p> <p>b) Oxygen.</p> <p>c) As fish respire and give out carbon dioxide, the water plant will take in more carbon dioxide from the water to photosynthesise, giving out more oxygen in the form of bubbles.</p>
<p>Q35)</p>	<p>a) Water from section A gained heat from the strong light and evaporated into water vapour. The water vapour touches the cooler surface of the thin sheet of metal, loses heat and condenses into tiny water droplets on the inner surface of the thin metal sheet. As the metal sheet is slanting towards section B, it dripped down into part X.</p> <p>b) When the wind blow, the water droplets on his body evaporated as presence of wind increases the rate of evaporation and thus, his body loses heat to the surrounding, causing him to feel eve colder when the strong wind blew.</p>

Q36)	<p>a) It would take shorter time to heat up the water.</p> <p>b) Good conductor of electricity</p> <p>c) Yes, the water will still be warm. As Bulb A and Bulb B are arranged in parallel, there is still a closed circuit for electricity to pass through bulb B and thus will heat up the water.</p> <p>d) The bulbs will not light up as glass rod is not a conductor of electricity. So there is an open circuit as no electricity will pass through.</p>
Q37)	<p>a) Gravitational force</p> <p>b) Substance Y. Wear and tear is caused by frictional force between the chain and the wheel. Since Substance Y will cause the metal block to slide down fastest, it will cause the block to have the least frictional force between the block and the ramp. So it will cause the chain to move more smoothly too and thus slowing down wear and tear.</p>
Q38)	<p>a) Metal ball is a good conductor of electricity and is a magnetic material.</p> <p>b) The metal bar will be magnetised as the current is closed and electricity passes through it and it will become an electromagnet.</p> <p>c) Material H is a non-magnetic material and does not allow electricity to pass through.</p>
Q39)	<p>a) Material Y as it reflects the most amount of light from the light source base on the experiment. Thus it will reflect the most amount of light from the road sign, enabling the drivers to see the road sign easily at night.</p> <p>b) The amount of light measured by the light sensor will decrease.</p> <p>c) B A</p> <p>d) As wood is a poor conductor of heat, it will gain heat from the water slower than metal and thus the temperature of the water in Set-up A will decrease slower than that in Set-up B.</p>
Q40)	<p>a) Gravitational Potential energy → Kinetic energy → Kinetic energy</p> <p>b) The mass of the water droplets in Set-up X was lesser than that of Y, less force is exerted on the wheel and thus the speed will be slower than that in Set-up Y.</p>

