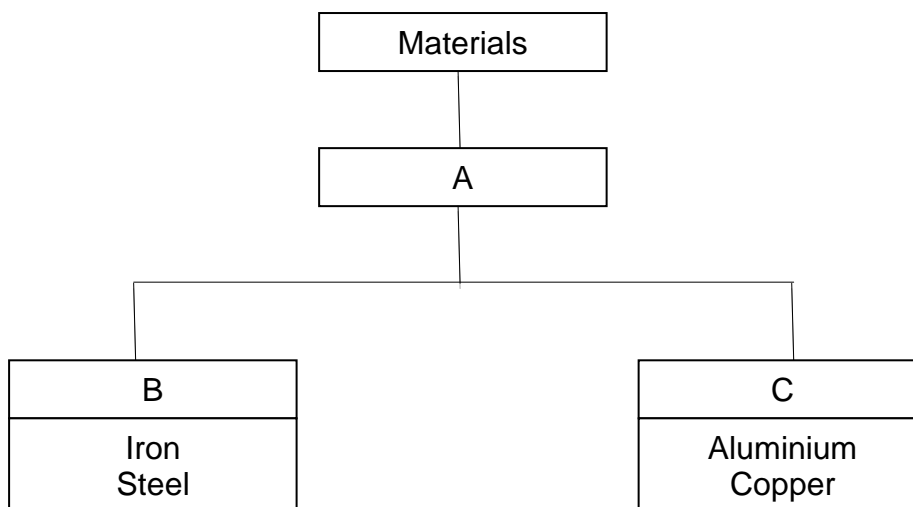


Part I

For each question from 1 to 16, three options are given. One of them is the most appropriate answer. Make your choice (1, 2 or 3) and shade in the Optical Answer Sheet (OAS). [32 marks]

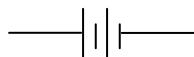
1. The chart below shows the classification of four materials.



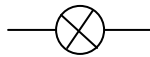
In which box would the word “Metals” be correctly placed?

- (1) A
(2) B
(3) C
2. Plants get their energy from the _____ to carry out photosynthesis.
- (1) Air
(2) Sun
(3) Water
3. The different states of water depend on its_____.
- (1) mass
(2) volume
(3) temperature

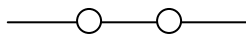
4. Which of the following is the correct symbol for 'batteries with wires' in a circuit diagram?



(1)

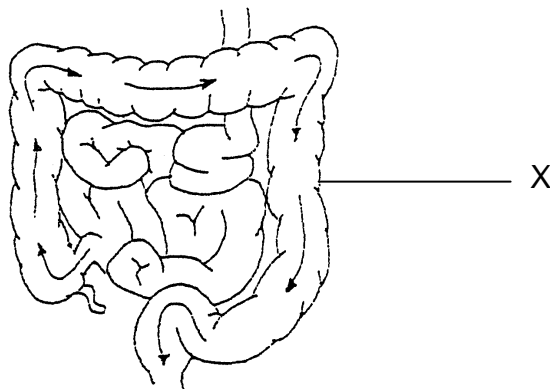


(2)



(3)

5. The diagram below shows part of the digestive system.



What happens at the part labelled 'X'?

- (1) Water is absorbed.
- (2) Undigested food is stored here.
- (3) Digested food is absorbed into the bloodstream.

6. In which one of the following circuits will the bulb not light up?



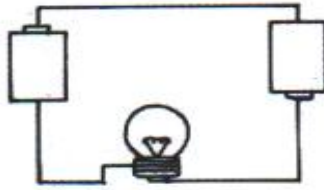
A



B



C



D

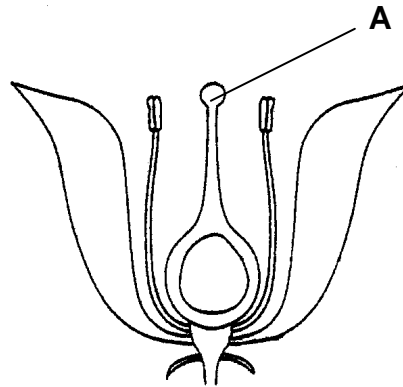
- (1) A and B only
- (2) B and D only
- (3) A, B and C

7. Kelvin wanted to find out whether the amount of moisture affected the growth of mould on bread. Which of the following should he keep the same to ensure that it is a fair test?

- A : The type of bread
- B : The amount of bread
- C : The place where the bread was left
- D : The amount of water sprinkled on the bread

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

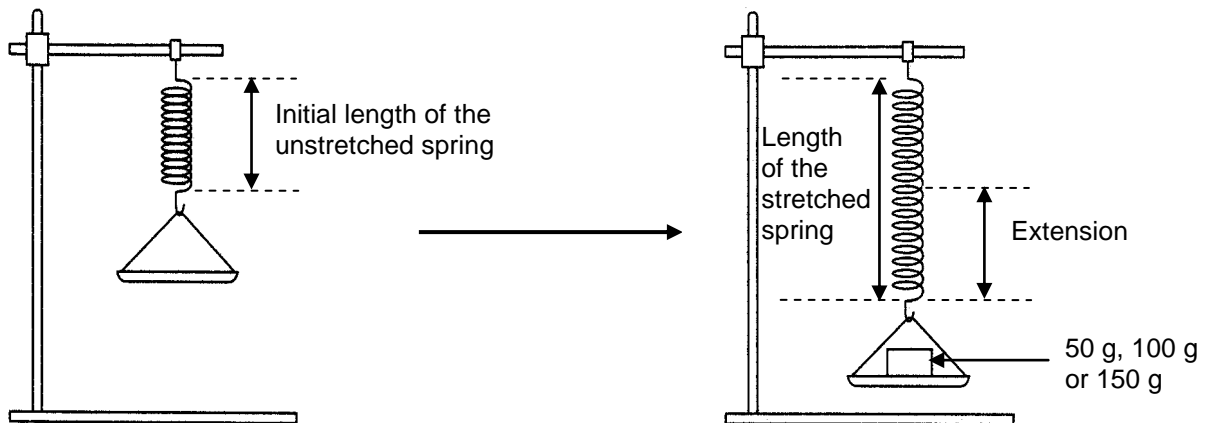
8. The diagram below shows the flower of a plant.



If A is cut off, which one of the following will happen?

- (1) No egg cells will be produced.
- (2) Fertilization will not take place.
- (3) The petals will drop off immediately.

9. Ali set up the following experiment. First, he measured the initial length of the spring. Then he placed a 50-gram, 100-gram and 150 gram weights individually in the pan and measured the length of the stretched spring and recorded the readings in the table shown below.

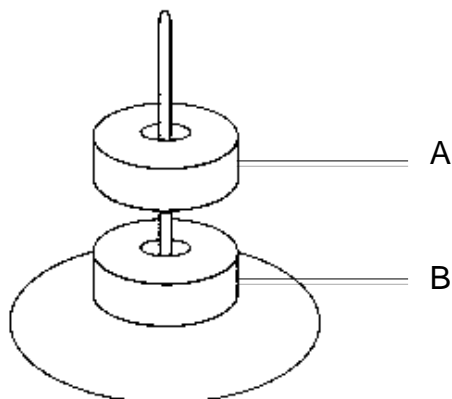


Weights (g)	Length of stretched spring (cm)	Extension of spring (cm)
50	8	3
100	10	5
150	12	7

From the experiment, Ali can conclude that _____ .

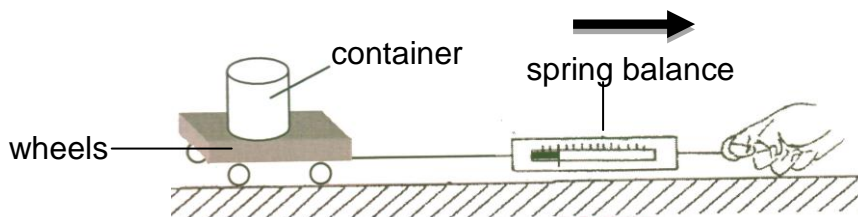
- (1) the heavier the weights, the more the spring stretched
- (2) the extension of the spring affects the mass of the weights
- (3) the initial length of the unstretched spring is between 8 cm to 12 cm

10. The diagram below shows a ring magnet floating above another similar ring magnet.



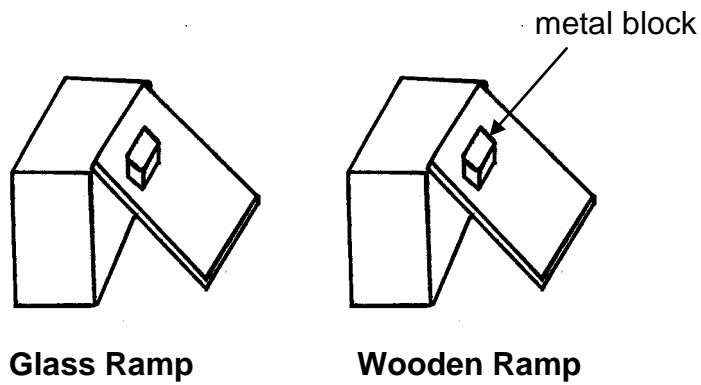
Which of the following correctly explains the observation above?

- (1) Gravity is acting on Magnet B and not Magnet A.
 - (2) Magnet A is made of a lighter material than Magnet B.
 - (3) The North-seeking pole of Magnet A is facing the North-seeking pole of Magnet B.
11. When a container is pulled in the direction as shown in the diagram below, the reading on the spring balance is 20g. What will happen to the reading when two more wheels are added?



- (1) The reading will increase.
- (2) The reading will decrease.
- (3) The reading will remain the same.

12. Look at the diagram below.



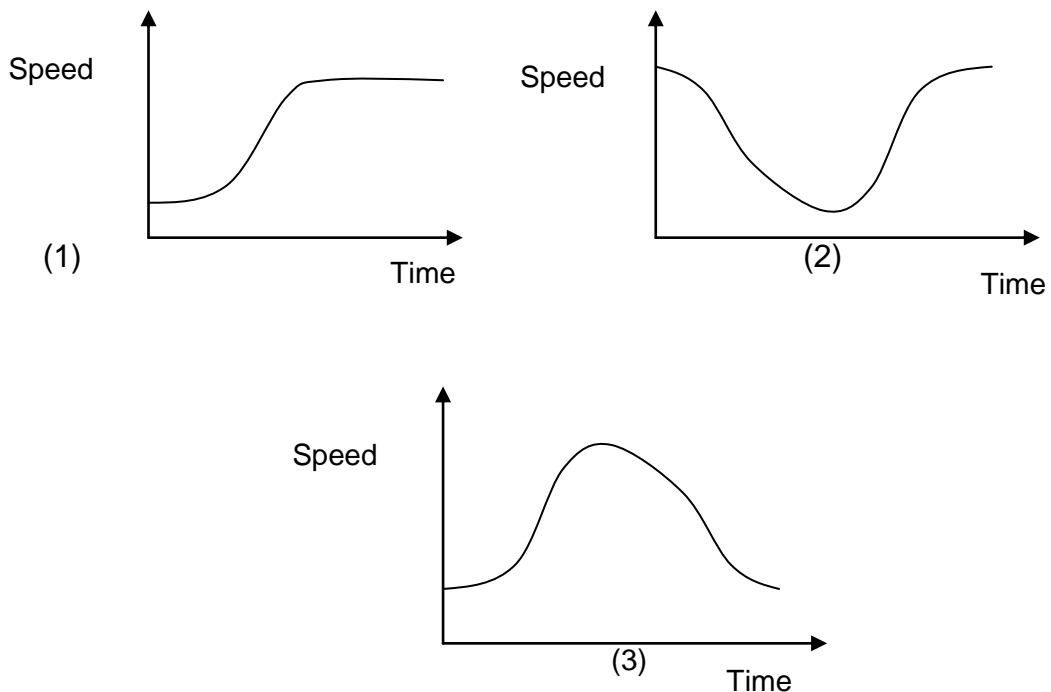
Jenny conducted an experiment. She slid a metal block down wooden and glass ramps of the same length at the same time with the same amount of force. She then measured the distance travelled by the metal block for each surface. She was trying to compare the _____.

- (1) strength of glass and wood
- (2) textures of glass and wood
- (3) hardness of glass and wood

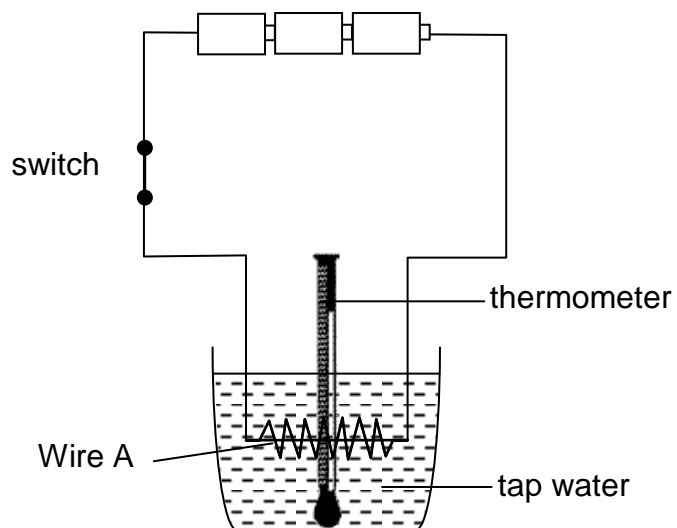
13. Sam slowed down his car when it travelled across a speed hump. After that, he drove at his original speed again. He noted the change in speed and plotted a graph.



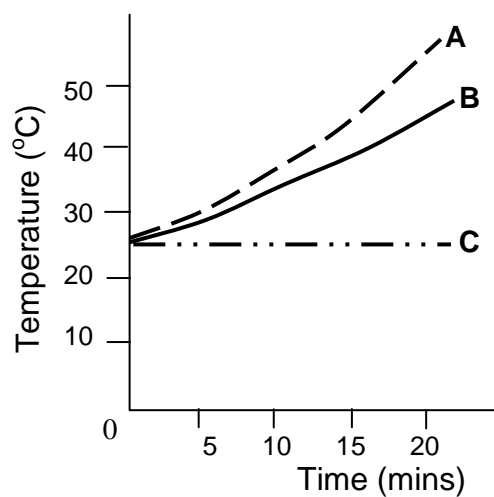
Which graph shows how the car's speed changes with time?



14. Three wires made of different materials A, B and C, were tested using the set-up below.



The wire was connected to a circuit. The switch was closed for 20 minutes and the temperature of the water taken after every 5 minutes. This was repeated for the other two wires, B and C. The graph below shows the results of the experiment.



Which material, A, B or C, is the best conductor of heat and electricity?

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

15. Surya conducted an experiment on the organisms found in a pond community over a period of three months. He placed three types of organisms, W, X and Y in separate transparent containers containing 1 litre of pond water each and left them in the Sun. He varied the amount of carbon dioxide given over the three months.

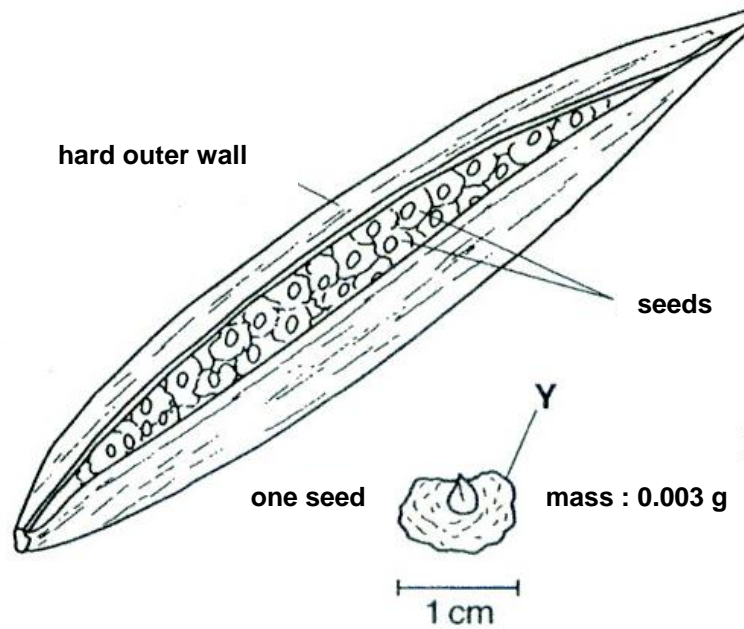
The results of his findings are recorded in the table below.

Amount of carbon dioxide in 1 litre of pond water (mg)	Size of Population		
	Organism W	Organism X	Organism Y
1	70	100	200
5	60	95	209
10	50	90	215
15	30	50	230

Which organism, W, X or Y, is most likely the food producer in the pond community?

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

16. The diagram below shows a fruit of a tree.



The hard outer wall and the seed structure suggest that the fruit is dispersed by _____.

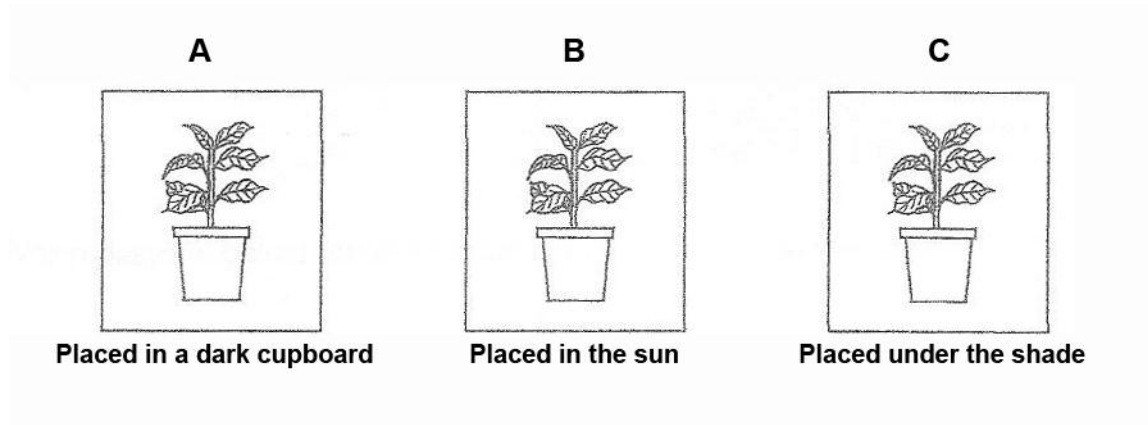
- (1) wind only
- (2) splitting and wind
- (3) splitting and animals

End of Part 1

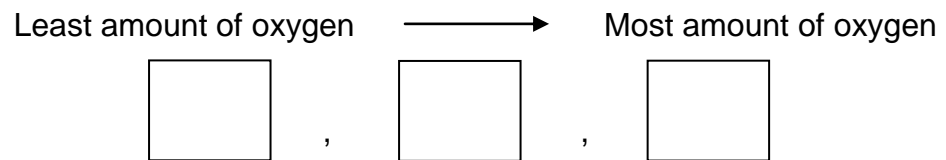
Part II

For each question from 17 to 22, fill in the blanks with suitable words or phrases. [14 marks]

17. Three identical potted plants are placed in three separate glass cases A, B and C. The glass cases contain the same amount of oxygen at the beginning of the experiment. They are placed at different locations as shown below.

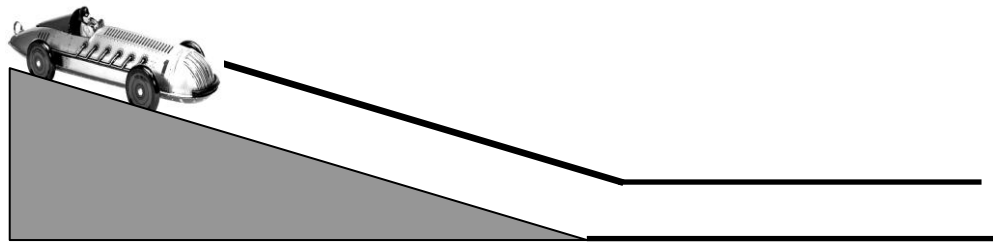


a) Arrange the glass cases, in **increasing order**, according to the amount of oxygen in them after a few hours. (1m)

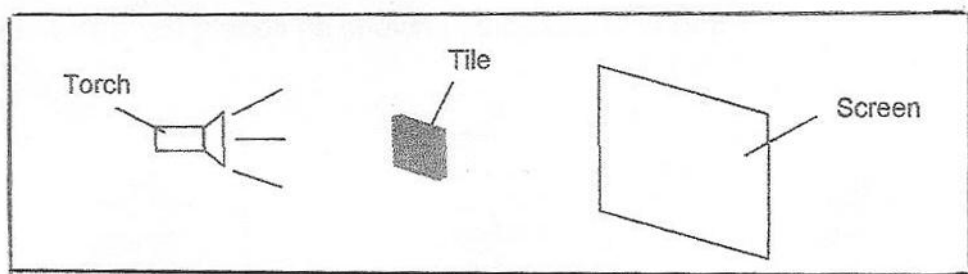


b) Plants need raw materials such as _____
and _____ to make food. (1m)

18. A toy car was placed at the top of a ramp as shown below. It was released from the top of the ramp. The distance the car travelled down the ramp was recorded.

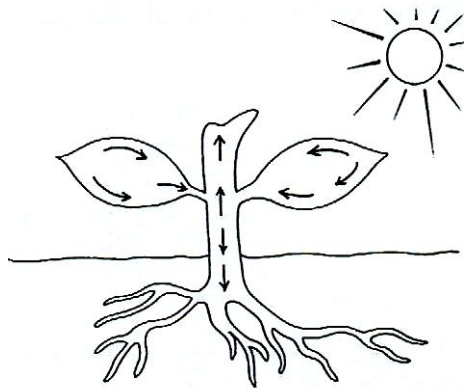


- a) The force that slows down the movement of the car down the ramp is _____ . (1m)
- b) In order to increase the distance travelled down the ramp, water can be applied on the tyres to reduce _____ . (1m)
19. Look at the diagram below carefully.



- a) A shadow of the tile is formed on the screen because _____
_____. (1m)
- b) When the tile is moved **further from the torch**, the shadow formed is _____
_____. (1m)

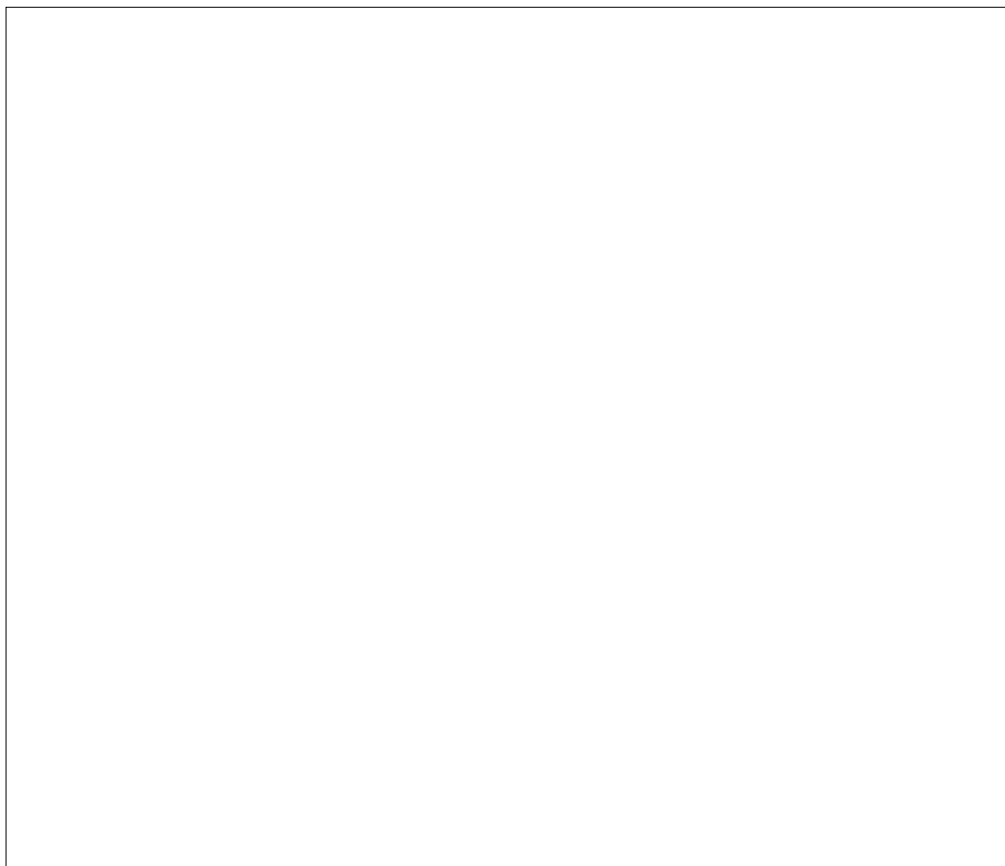
20. The diagram below shows the stem, leaves and roots of a plant.



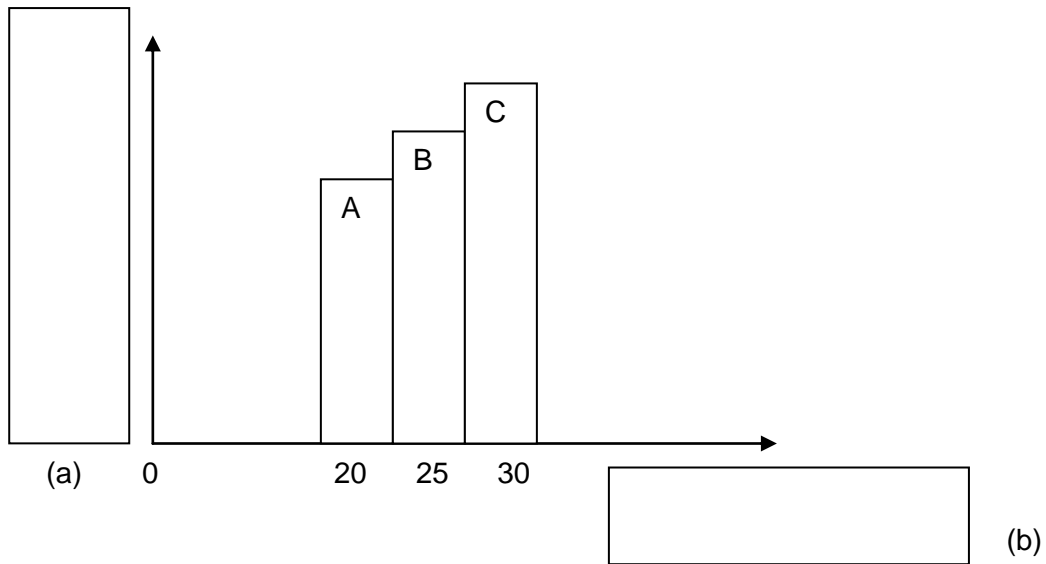
a) The tubes in the stem of the plant make up the _____ system of the plant. (1m)

b) The arrows in the diagram show the movement of _____ to all parts of the plant. (1m)

21. Melissa was given three similar bulbs, two similar batteries and wires to set up an electric circuit. Using symbols to represent the bulbs, batteries and wires, draw in the space provided below a circuit that produces the **dimmiest bulbs**. (You need not use all the bulbs and batteries given). (2m)



22. Sam wanted to find out the effect of temperature on the germination of seeds. He placed twenty green bean seeds in three similar petri dishes, A, B and C. The set-ups were placed at different temperatures. The graph below shows what happened after one week.



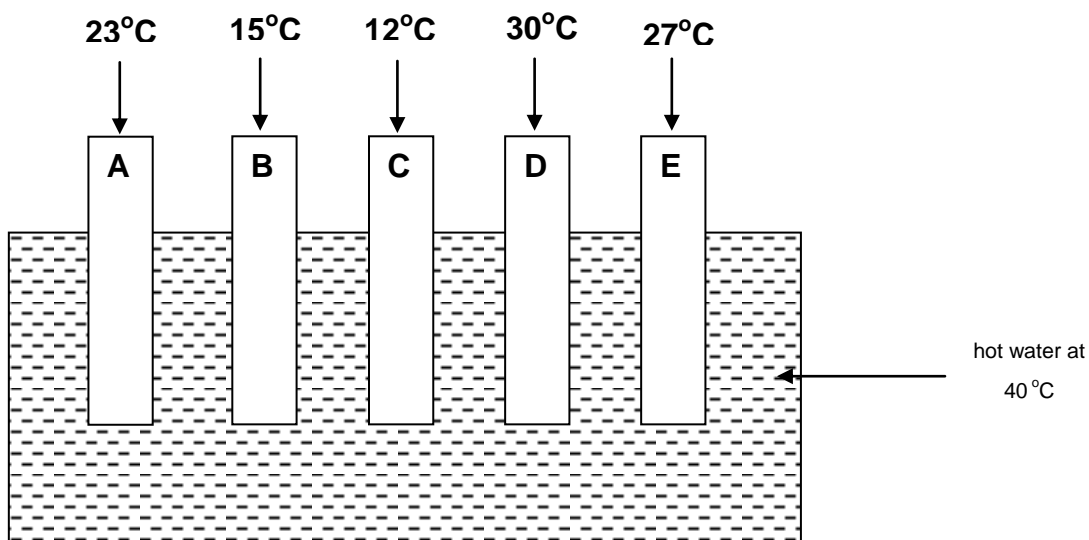
Write down a suitable heading for each axis of the graph in the space provided above. (2m)

Part III

For each question from 23 to 30, write your answers in the spaces provided.

[24 marks]

23. Matthew carried out an experiment with five rods A, B, C, D and E. The rods were each made of different materials. He first kept the rods at the same temperature of 10°C . Matthew then put one end of each rod into a container filled with hot water of temperature 40°C . The temperature at the other end of each rod was measured and recorded after five minutes.



- a) Why was it important to keep the temperature of the rods the same at the beginning of the experiment? (1m)

- b) Which rod is the worst conductor of heat? Explain your answer in a). (2m)

24. Andy set up the experiment as shown below. He fixed one end of a rubber band to the base of a stand and pulled the other end over the rod as shown in Figure X. The rod became parallel to the table when a weight was placed in the pan as shown in Figure Y.

Figure X

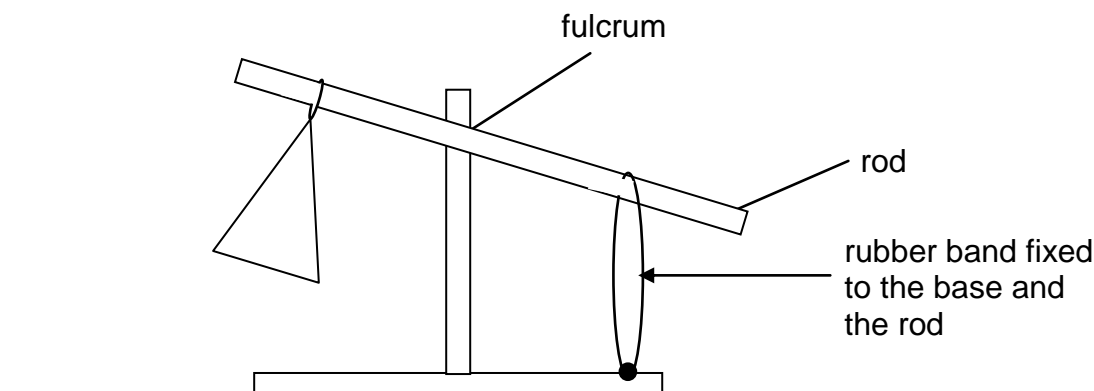
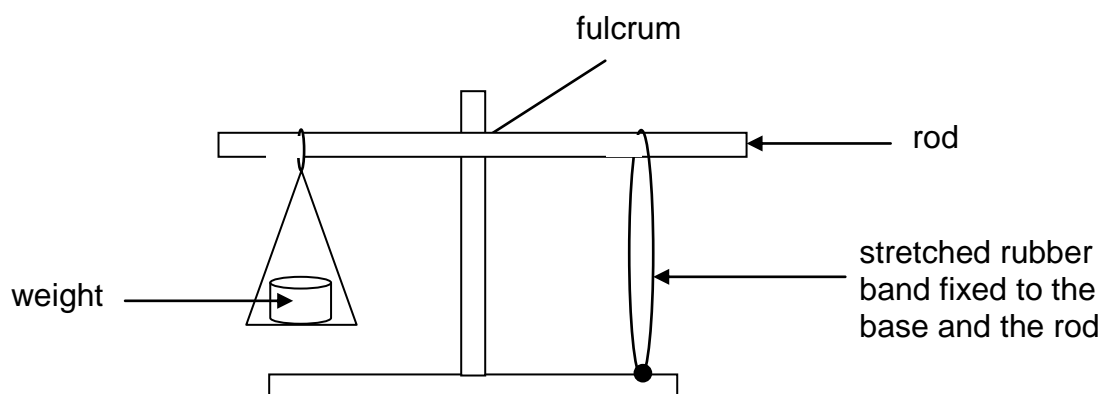


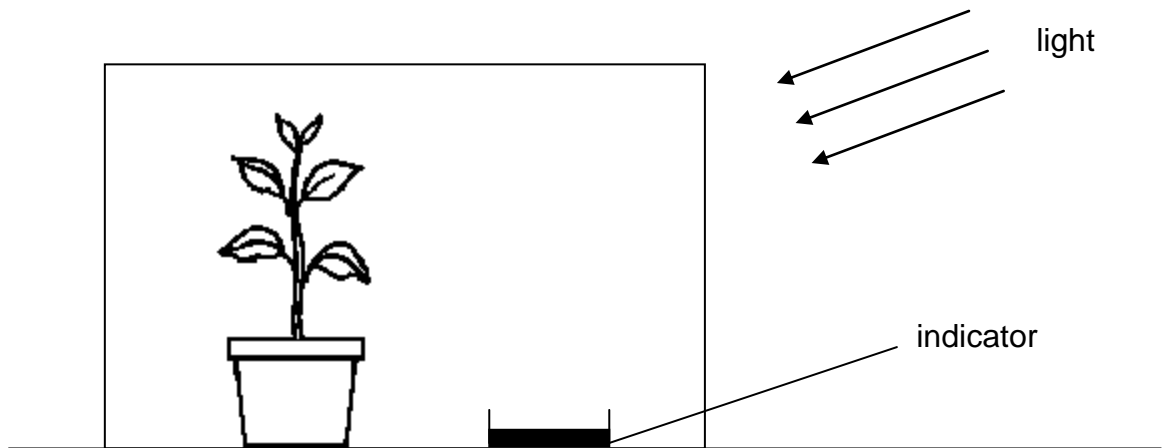
Figure Y



- a) What would happen to the rubber band when Scott placed **another weight** of the same mass in the pan? Explain your answer. (2m)

- b) Should Andy move the rubber band away from the fulcrum or nearer to it if he wanted to balance the rod again? (1m)

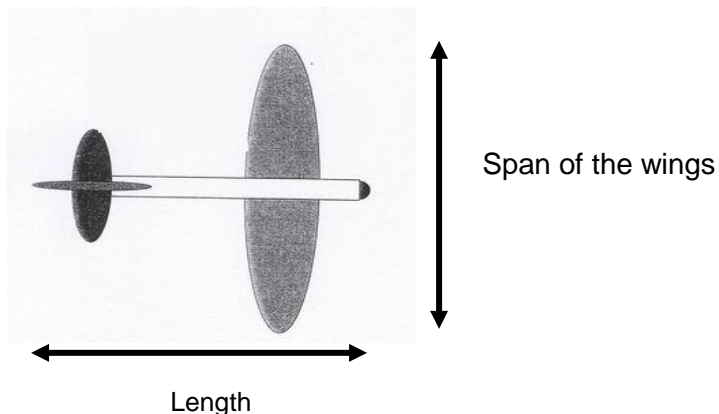
25. The diagram below shows an airtight box with a plant placed in it. The box was clear and allowed light to pass through. A dish that contained a blue liquid indicator was also placed in the box to find out if carbon dioxide was produced. The indicator will turn yellow if carbon dioxide is present.



- a) The colour of the indicator in the dish remained blue after three hours. Explain why this happened. (2m)

- b) How would the amount of nitrogen in the tank change after three hours? (1m)

26. The diagram shows the basic parts of a toy plane.



The table below shows the material and measurement of the different toy planes.

Trial	Material used in making toy plane	Span of the wings (cm)	Length of the toy plane (cm)	Time that it stayed in flight (secs)
1	Paper	10	25	
2	Paper	15	30	
3	Cardboard	15	25	
4	Cardboard	15	30	
5	Plywood	15	25	
6	Plywood	15	30	

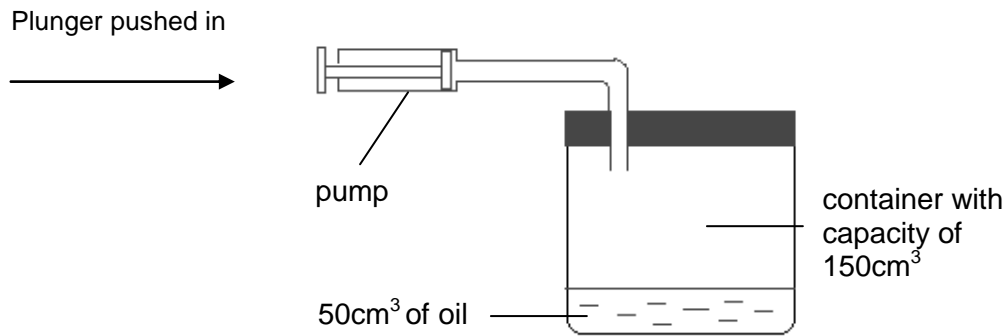
a) Which three trials will provide a fair test if the pupils wanted to find out the effect of the material used in making the toy plane on the time to stay in flight? (1m)

Trials _____, _____ and _____.

b) What would be the likely aim of the experiment if the pupils had compared the results of Trials 3 and 4 as well as Trials 5 and 6? (1m)

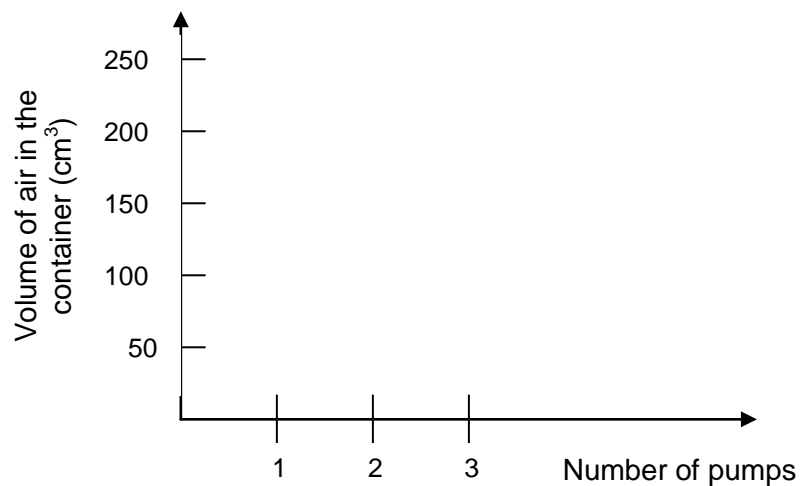
c) What are the forces acting on the toy plane as it stayed in flight? (1m)

27. The diagram below shows a pump fitted to a container which has a capacity of 150 cm^3 .



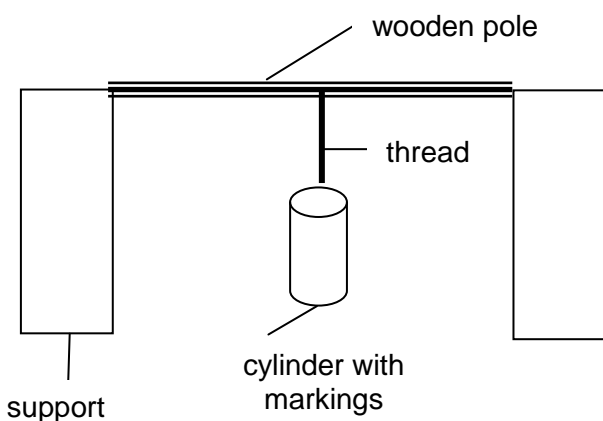
Each time the plunger of the pump is pushed in completely, 25 cm^3 of air would be introduced into the container.

- a) In the axes below, draw a line graph showing the volume of air in the container if the plunger is pushed in three times. (1m)



- b) Explain your answer in (a). (2m)

28. Janet set up the following to compare the elasticity of threads made from three types of material.

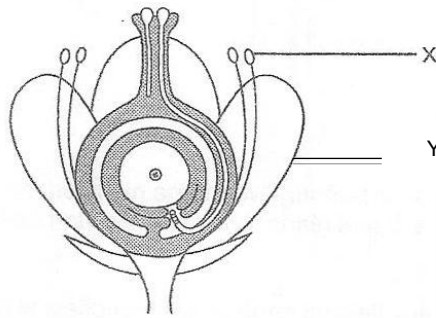


For each material, Janet slowly added water to the cylinder until the thread broke. She took note the amount of water in the cylinder just before each thread broke.

- a) How would Janet know which thread was the most elastic? (1m)

- b) Explain how the results of the experiment would change if Janet had used a longer wooden pole placed in the same position in the set-up above. (2m)

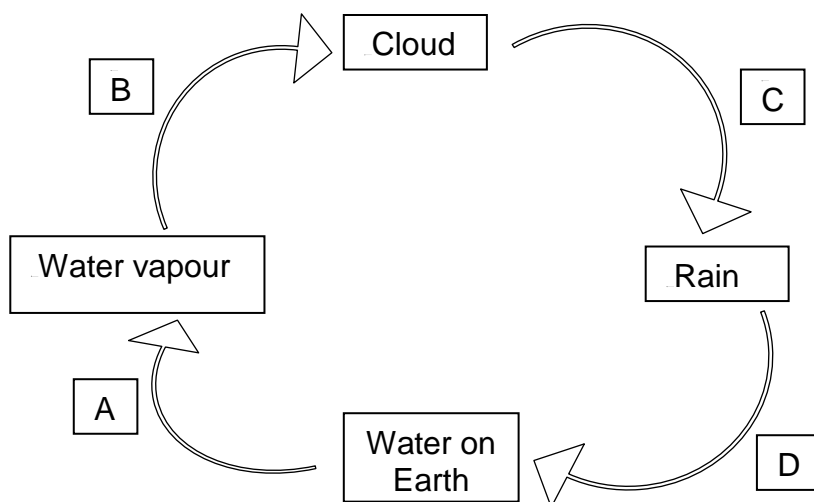
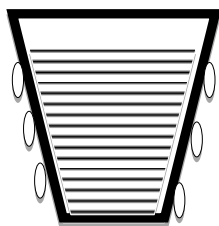
29. The diagram below shows a cross-section of a flower.



a) If Part X were missing from the flower, would pollination be able to take place? Explain your answer. (2m)

b) What is the function of Part Y? (1 mark)

30. A container containing cold apple juice was left on a table. After some time, droplets of water were seen on the outer surface of the container.



- a) Which process, A, B, C or D, in the water cycle shown above represents the formation of water droplets above? (1m)

Process

- b) Would more water droplets be formed if hot water was added into the container? Explain your answer. (2m)

End of Paper
Check your work thoroughly.

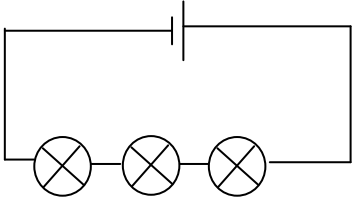
Answer Key (Science)

Type of Examination: **P6 PSLE Foundation Programme**
Year: 2013

MCQs

1	1	6	3	11	2	16	2
2	2	7	2	12	2		
3	3	8	2	13	2		
4	1	9	1	14	1		
5	1	10	3	15	3		

Open-ended questions (**Bold** denotes key words while underline denotes key concept)
(Note: For responses with multiple answers, award mark for every correct concept and deduct ½ m for each wrong concept)

Qn	Answer	Marks	Unacceptable Answer
17a	B,C,A	1 or 0 m	
17b	carbon dioxide and water	½ m each	Sunlight, chlorophyll Deduct ½ m overall for spelling mistake
18a	friction/ frictional force	1m	
18b	friction/ frictional force	1m	
19a	...path of light is blocked/tile is opaque	1m	
19b	smaller/sharper	1m	larger/brighter
20a	transport	1m	circulatory
20b	Food	1m	water/mineral salts
21		2 or 0m	
22a	Number of seeds	2 or 0m	No units – 0m
22b	Temperature (°C)		
23a	To ensure fair test	1m	
23b	B. Its end temperature is the <u>lowest</u> (0.5m), indicating that it <u>gained the least heat</u> (0.5m) and conducts heat the <u>slowest</u> (1m)	2m	
24a	It stretched <u>further/more</u> (1m) because of the <u>heavier mass</u> (1m) at the other pan	2m	
24b	Further	1m	
25a	Net amount of <u>carbon dioxide</u> <u>remains the same</u> (1m). Carbon dioxide is <u>used up for photosynthesis</u> (1m)	2m	
25b	Remains the same	1m	

26a	2, 4, 6	1 or 0m	
26b	...if the length of the toy plane affects the time taken it stayed in flight (for toy planes made of cardboard and wood)	1 or 0m	
26c	gravity and friction/air resistance	½ m each	Deduct ½ m at most for spelling error
27a		1 or 0m	
27b	Oil <u>occupies space</u> (1m) and <u>cannot be compressed</u> (1m) Or Air occupies space (1m) and air can be compressed (1m).	2m	
28a	...the thread that requires the most amount of water to break is the most elastic	1m	
28b	No change (1m) because the <u>flexibility of the material is the same</u> (1m)	2m	
29a	Yes, since <u>cross-pollination/wind-pollination</u> (1m) can still happen to <u>transfer the pollen grains to the stigma</u> (1m)	2m	
29b	...attract insects/agents of pollination	1m	
30a	B	1m	
30b	No, because hot water <u>increases the temperature</u> of the juice/glass outer surface (1m) and <u>rate of condensation will decrease</u> (1m), causing less water droplets to form	2m	