SEMESTRAL ASSESSMENT 2 (2016)

PRIMARY 5

SCIENCE

BOOKLET A

Thursday **3 November 2016** **1 hr 30 min**

Name: _____ ( ) Class: 5.( )

INSTRUCTIONS TO PUPILS

1 Do not turn over the pages until you are told to do so.

2 Follow all instructions carefully.

3 There are 25 questions in this booklet.

4 Answer ALL questions.

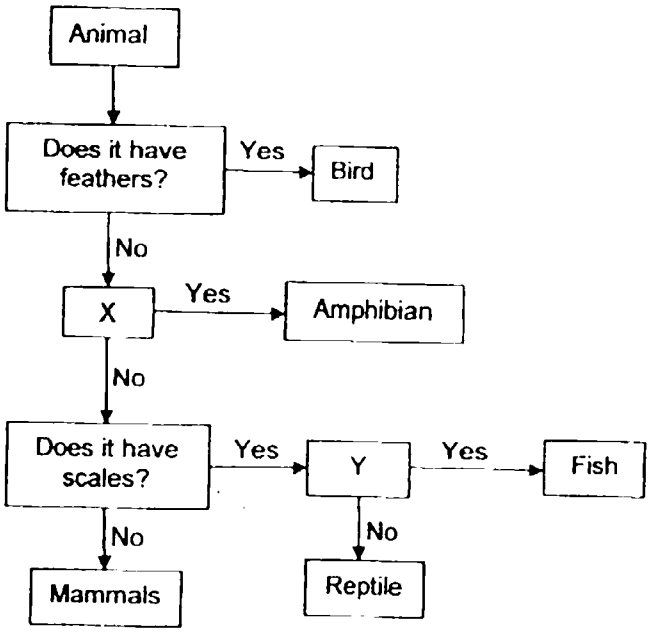
5 Shade your answers in the Optical Answer Sheet (OAS) provided.

This question paper consists of 16 printed pages (inclusive of cover page).

Booklet A (50 marks)

For each question from 1 to 25, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade your answer on the Optical Answer Sheet. (25 x 2 marks)

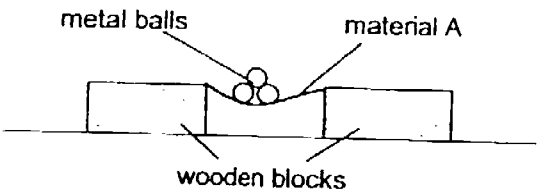
1. Study the flowchart below.



The letters X and Y represent questions that are used to classify animals in the flowchart above. Which of the following best represents X and Y?

	X	Y
(1)	Does it breathe through lungs?	Does it have dry skin?
(2)	Does it live on land?	Does it breathe through gills?
(3)	Does it breathe through moist skin?	Does it have fins?
(4)	Does it live in water?	Does it live on land?

2 Anna set up the experiment below. She secured material A to two wooden blocks and added identical metal balls onto the sheet until the sheet broke.



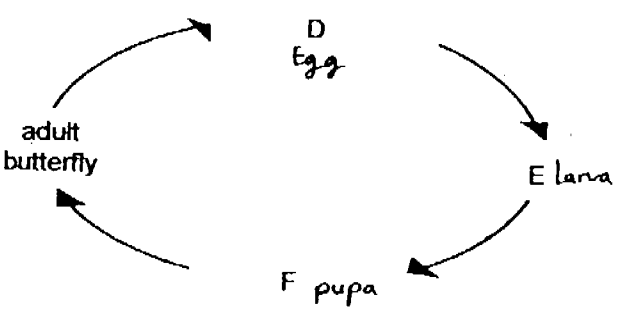
She repeated the experiment using material B which was made of a different material. She recorded her observation in the table below.

	Number of metal balls added before the material broke
Material A	18
Material B	5

Anna wants a bag to carry heavy books to school. Based on her experiment, which material would be more suitable to make the bag?

	Material	**Reason**
(1)	A	A is stronger than B
(2)	A	A is more flexible than B
(3)	B	B is stronger than A
(4)	B	B is able to break more easily than A

3. The diagram below shows the life cycle of a butterfly.



At which stage of the life cycle is the butterfly considered a pest to farmers?

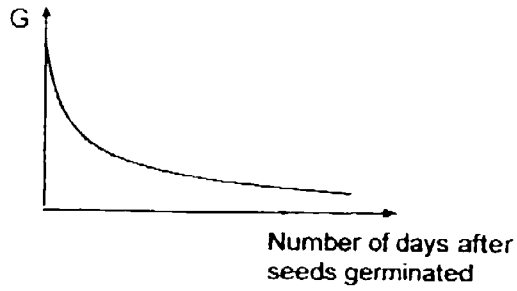
(1) D only

(2) E only

(3) F only

(4) E and F only

4. Study the graph below on the germination of seeds.



What could G represent?

(1) Average mass of the seedlings

(2) Average height of the seedlings

(3) Average mass of the seed leaves

(4) Average length of the roots of the seedlings

5. Alan carries out the following procedure for an experiment.

A He weighed the soccer ball at first.

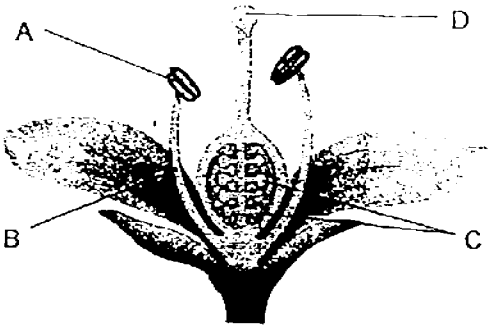
B He then pumped more air into the ball and observed that the size of the ball did not change.

C He weighed it again and recorded the mass.

Which of the following is most likely the results and conclusion of his experiment?

	Mass of ball at the start of the experiment	**Mass of ball at the end of the experiment**	**Conclusion**
(1)	500 g	480 g	Air takes up space and has no mass.
(2)	500 g	500 g	Air has no mass.
(3)	500 g	520 g	Air has mass and can be compressed.
(4)	500 g	600 g	Air has a definite volume.

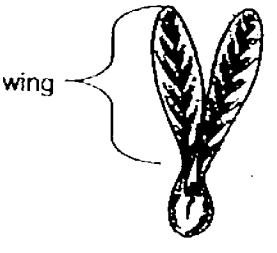
6. The diagram below shows the cross-section of a flower.



Which part is **not** matched to its function?

	Part	Function
(1)	A	Produces pollen grains
(2)	B	Holds up the anther
(3)	C	Contains the egg cells
(4)	D	Develops into a fruit

7. Sam wants to find out whether the length of the wing of the fruit affects the distance it is dispersed.



He has 4 set-ups as shown:

Set-ups	Length of wing (cm)	Mass of fruit (g)	Presence of wind
A	5	8	Yes
B	5	14	No
C	10	8	Yes
D	10	14	Yes

Which 2 set-ups should Sam use to conduct a fair test?

(1) A and B

(2) A and C

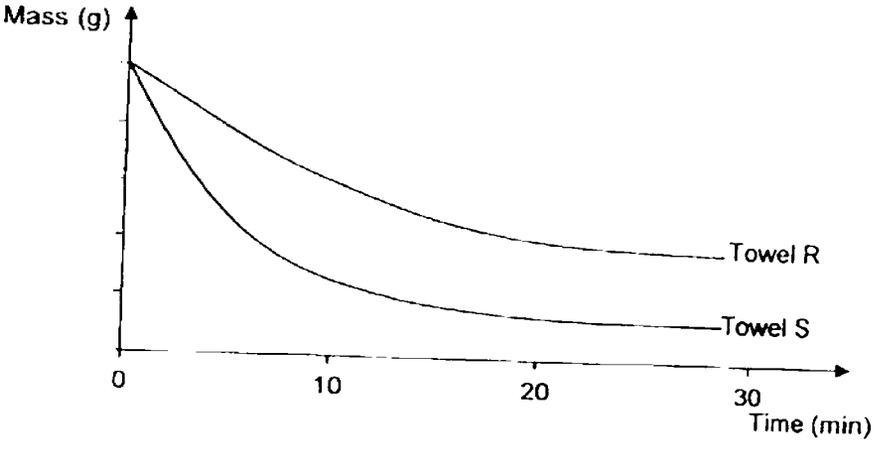
(3) B and D

(4) C and D

8. Which part of the male and female human reproductive system produces the male sex cells and female sex cells?

	Produces Male Sex Cells	Produces Female Sex Cells
(1)	Penis	Womb
(2)	Penis	Vagina
(3)	Testes	Ovaries
(4)	Testes	Fallopian tube

9. Two identical towels wet with the same amount of water, R and S, were hung outside a house to dry. The graph below shows the mass of the wet towels as they dried up.



Based on the above results, which of the following two conclusions are correct?

A R was folded in half, while S was spread out to dry.

B S was folded in half, while R was spread out to dry.

C R was hung in the shade and S was hung in the Sun.

D S was hung in the shade and R was hung in the Sun.

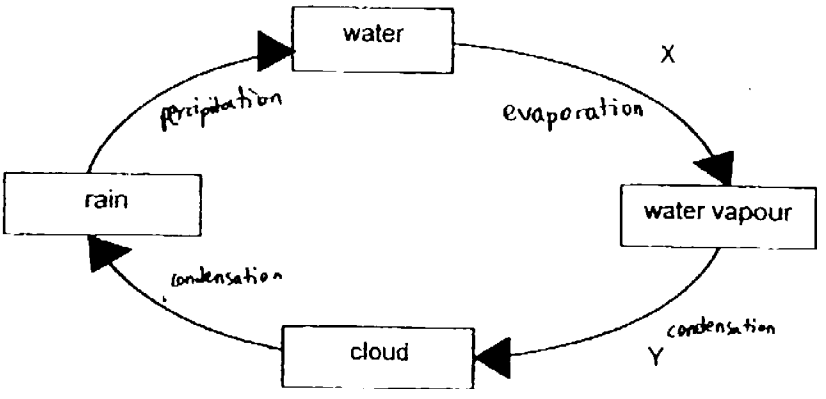
(1) A and C

(2) A and D

(3) B and C

(4) B and D

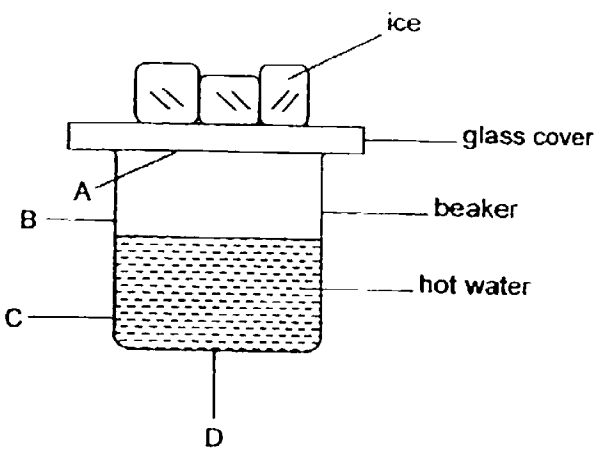
10. The diagram below represents the water cycle.



Which of the following is correct?

	Condensation occurs at	Evaporation occurs at
(1)	X	Y
(2)	Y	X
(3)	Y	Y
(4)	X	X

11. Vicky sets up an experiment as shown in the diagram below.



After a while, she noticed that some water droplets formed. At which part of the diagram, A, B, C or D, did the water droplets form?

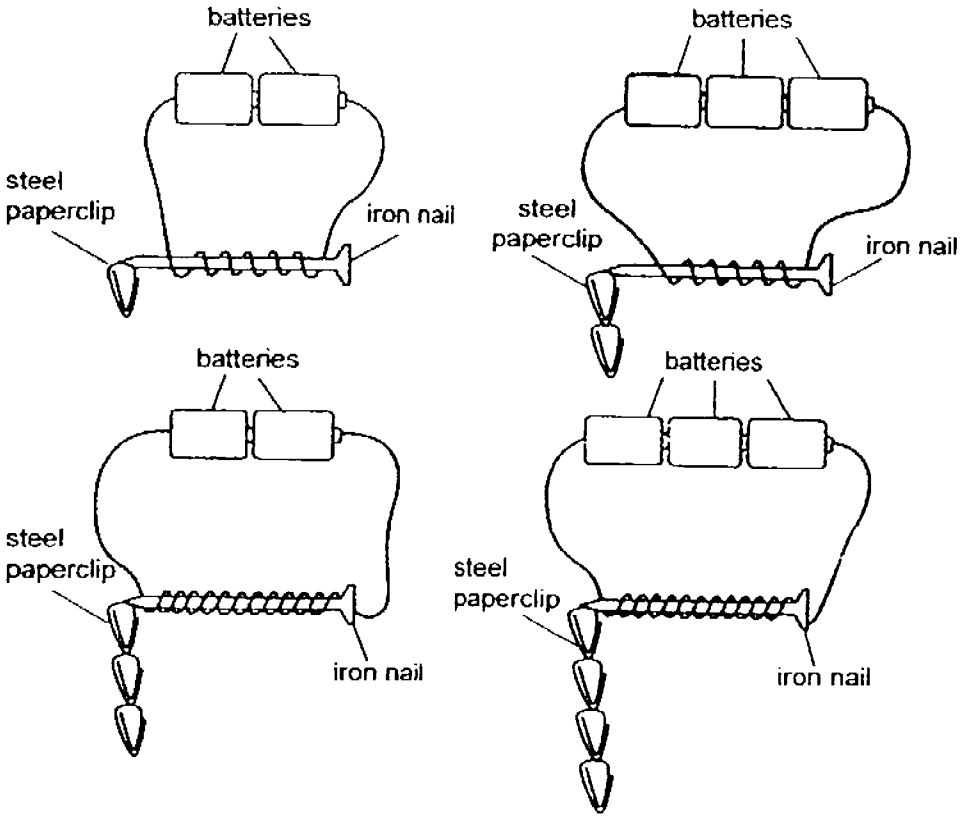
(1) A

(2) B

(3) C

(4) D

12. Jim uses four identical iron nails to make electromagnets to conduct an experiment to attract steel paperclips as shown in the diagram below.



What can Jim conclude from the above results?

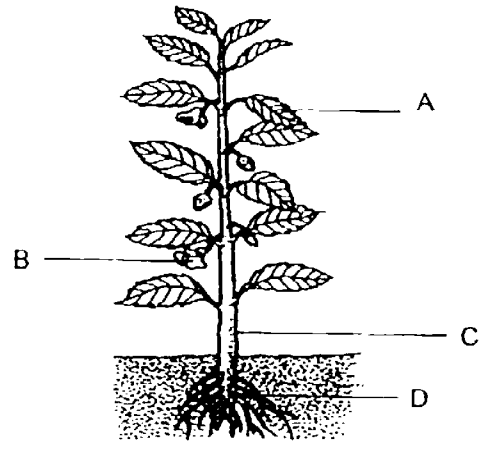
(1) The number of batteries does not affect the strength of the electromagnet.

(2) The number of turns of coils of wire around the iron nail does not affect the strength of the electromagnet.

(3) The strength of the electromagnet depends only on the number of coils of wire around the iron nail.

(4) The strength of the electromagnet depends on both the number of batteries and the number of coils of wire around the iron nail.

13. The diagram below shows a plant.

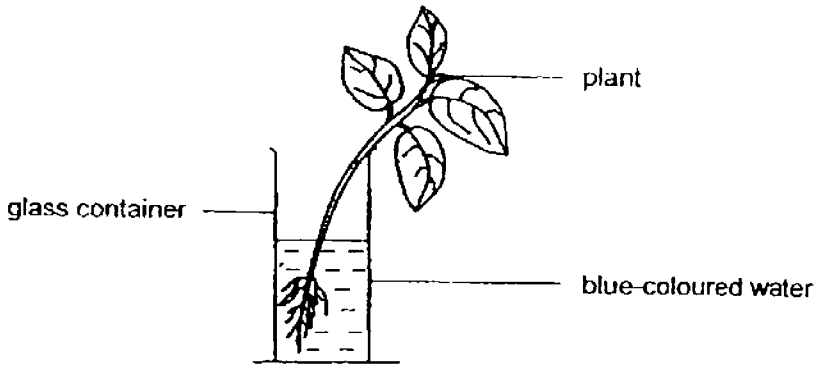


Which of the following statements describe correctly the functions of the plant parts labelled A, B, C and D?

Parts	Functions
A	Trap the light energy from the Sun.
B	Develop into fruit for reproduction.
C	Transport food from the roots to the leaves.
D	Absorb dissolved mineral salts and nutrients.

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

14 Nathaniel placed a plant in a glass container filled with blue-coloured water. Two days later, he noticed that the leaves and stem had turned blue.



Based on his observation, he made the following statements.

A Roots absorb the water.
B Leaves use water to make food.
C Water is transported through the stem.
D Water is transported from the leaves to the stem and roots.

Which of his above statements are correct?

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

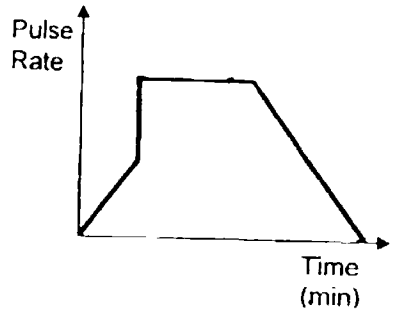
15. Which of the following substance(s) pass(es) through the stomata of the leaves?

A oxygen
B water vapour
C carbon dioxide

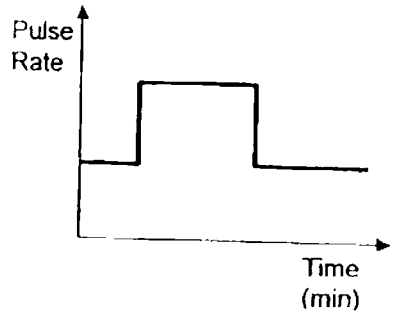
(1) A only
(2) B only
(3) A and C only
(4) A, B and C

16. Benjamin ran for 10 minutes. Which one of the following graphs correctly shows his pulse rate from 5 minutes before his run to 10 minutes after his run?

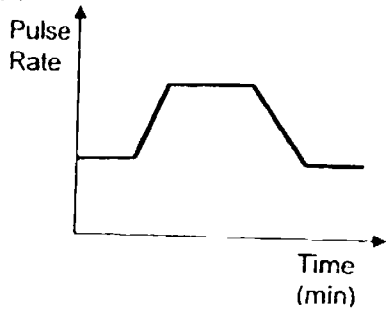
(1)



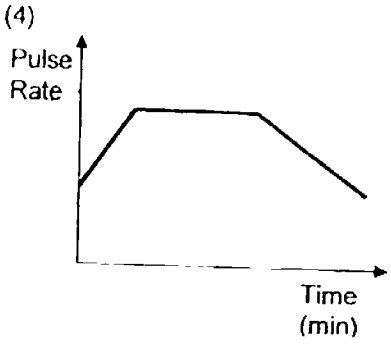
(2)



(3)



(4)



17. Cayden observed three cells, X, Y and Z, and completed the table below. A tick (✓) indicates that the part was observed in the cell.

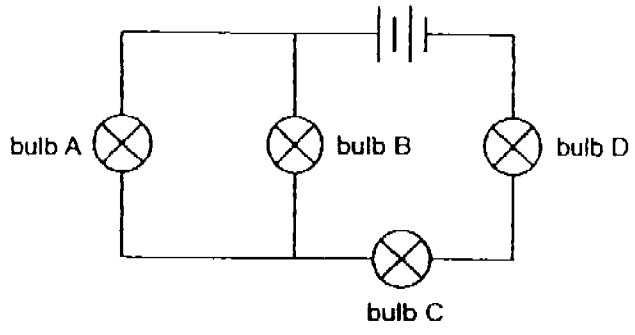
Parts of Cell	Cell X	Cell Y	Cell Z
Cytoplasm	✓	✓	✓
Cell wall	✓		✓
Cell membrane	✓	✓	✓
Chloroplasts			✓
Nucleus	✓	✓	✓

Based on what he had observed, he classified the three cells, X, Y and Z, into two groups.

Which of the following shows the correct classification?

	Animal Cells	Plant Cells
(1)	Y	X , Z
(2)	X , Z	Y
(3)	X, Y	Z
(4)	Z	X, Y

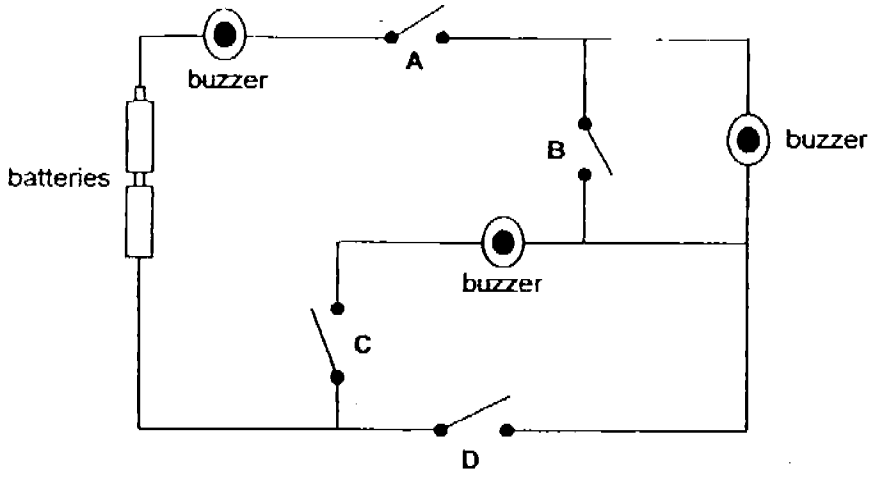
18. The diagram below shows four bulbs connected to two batteries.



If bulb D fuses, how many bulbs will still light up?

(1) 0
(2) 1
(3) 2
(4) 3

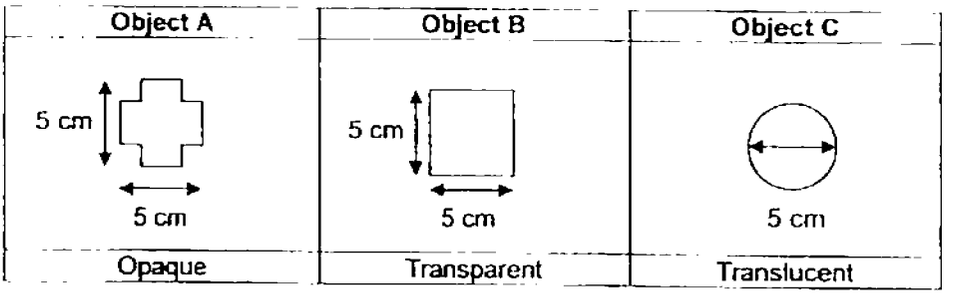
19. Russell connected 3 buzzers as show in the circuit below.



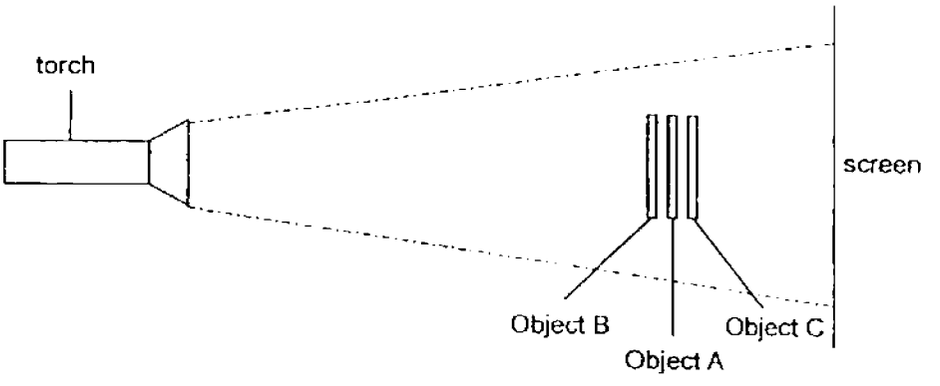
In order to sound all the buzzers in the set-up, what is the least number of switches that he needs to close?

(1) 1
(2) 2
(3) 3
(4) 4

20. Christopher used 3 flat objects, A, B and C, below to conduct an experiment on light and shadows. The specifications and properties of the objects are stated below.



During the experiment, he positioned the 3 objects as shown below.



From the experiment above, which of the following will be the image shown on the screen?

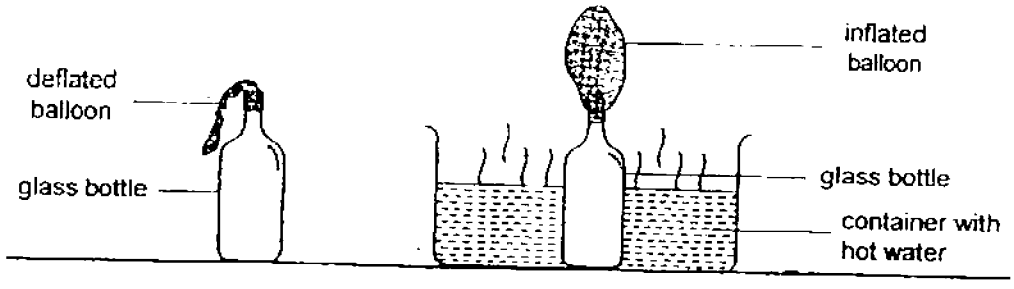
(1) 

(2) 

(3) 

(4) 

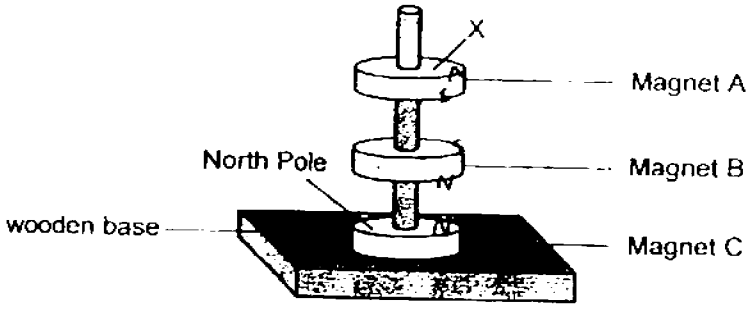
21 Calvin stretched the mouth of a balloon over the mouth of a thin glass bottle. He then placed the glass bottle into a container of hot water. After a short while, he noticed that the balloon was inflated.



How did the balloon get inflated?

(1) The air in the balloon lost heat and contracted.
(2) The air in the bottle gained heat and expanded.
(3) The surrounding air gained heat and entered the balloon
(4) The warm water vapour from the hot water entered the balloon

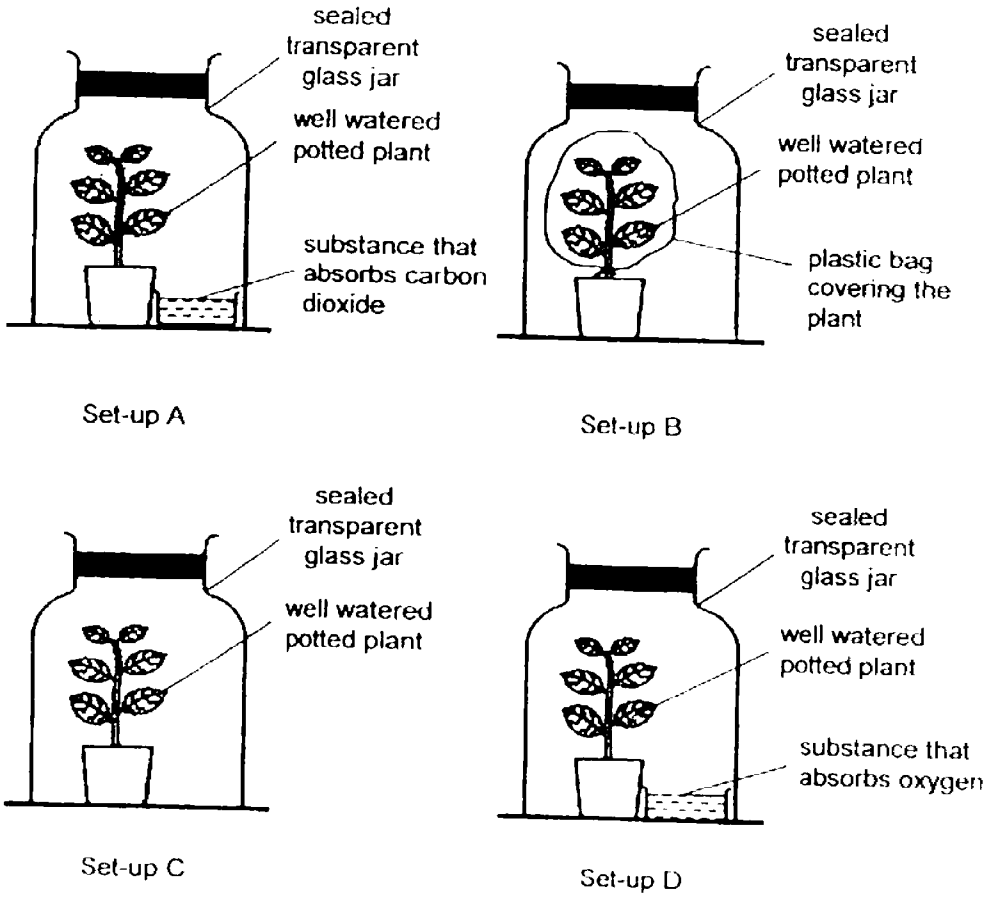
22. Study the diagram below.



Which of the following is correct based on the diagram?

	Pole at X	Explanation
(1)	South	Magnet A is repelling magnet B
(2)	South	Magnet A is attracting magnet B
(3)	North	Magnet A is repelling magnet C
(4)	North	Magnet A is repelling magnet B

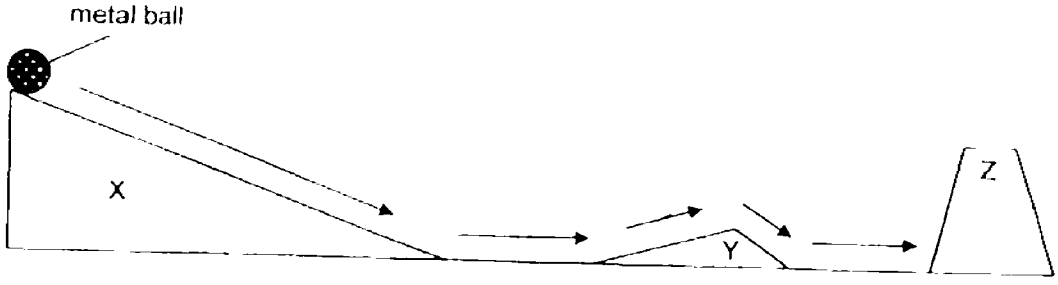
23 Dillon wanted to find out if carbon dioxide is needed for photosynthesis.



Which 2 set-ups, when placed in a sunny location, will help him conclude that carbon dioxide is necessary for photosynthesis to take place?

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

24. Oliver released a metal ball from the top of slope X. The ball rolled down the slope, along the floor, up and down ramp Y and was blocked by tower Z, before it came to a stop.

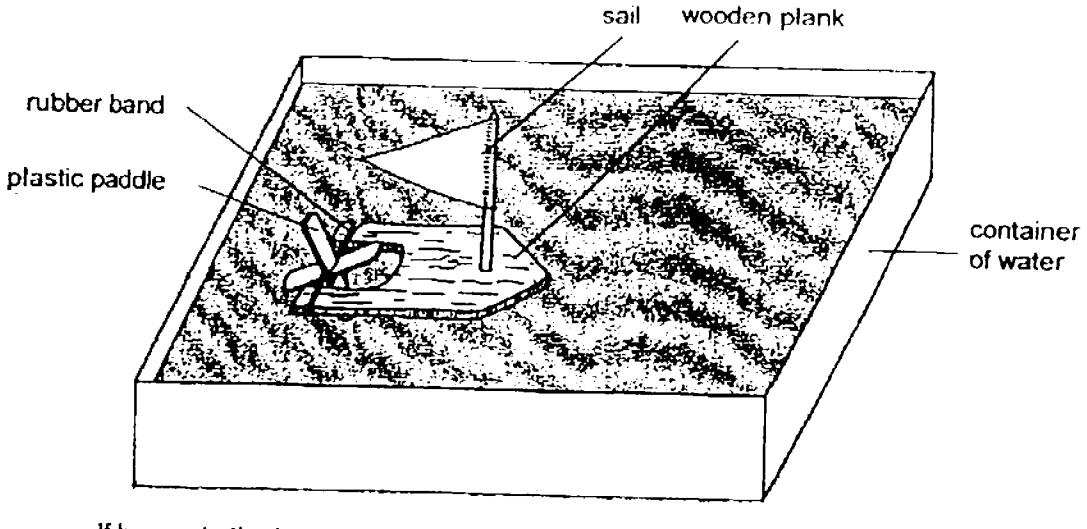


Based on the experiment, Oliver made the following statements.
Which one of the following statement(s) is/are correct?

A The ball had the most potential energy at the top of slope X.
B The ball stopped at tower Z as it had the most kinetic energy.
C The potential energy of the ball increased as it rolled down ramp Y.
D The kinetic energy of the ball was the highest at the foot of slope X

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

25. Marc made a simple toy boat using a rubber band that is wound round a paddle as shown.



If he wants the boat to travel further across the water, what should he do?

(1) Use a smaller sail made of a different material.
(2) Increase the width and thickness of the wooden plank.
(3) Change the material of the paddle from plastic to wood.
(4) Increase the number of times the rubber band is wound round the paddle.

End of Booklet A

SEMESTRAL ASSESSMENT 2 (2016)

PRIMARY 5

SCIENCE

BOOKLET B

Thursday **3 November 2016** **1 hr 30 min**

Name: _____ ( ) Class: 5.( ) Parent's Signature: _____

INSTRUCTIONS TO PUPILS

1 Do not turn over the pages until you are told to do so.

2 Follow all instructions carefully.

3 There are 14 questions in this booklet.

4 Answer ALL questions.

5 The marks are given in the brackets [ ] at the end of each question or part question.

Booklet	Possible Marks	Marks Obtained
A	50	
B	40	
PBA	10	
Total	100	

This question paper consists of 16 printed pages (inclusive of cover page).

Booklet B (40 marks)

For questions 26 to 39, write your answers in this booklet.
The number of marks available is shown in brackets [ ] at the end of each question or part question.

26. Reuben sets up the experiment shown below. He watered the plant before leaving it in a sealed cardboard box.

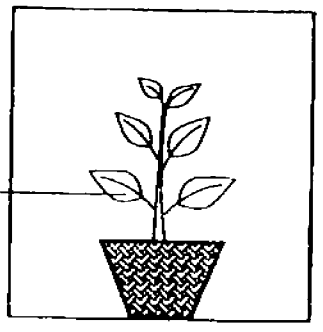


Diagram 1

Reuben cut a hole in the cardboard box and left it in the sun for a week. Diagram 2 shows how the plant looked at the end of the week.

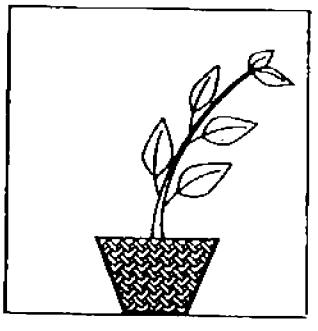


Diagram 2

(a) Draw an **X** on the cardboard box in diagram 2 to show the most likely position of the hole made by Reuben. [1]

(b) Explain why the plant bent to one side after one week. [1]

_____

_____

(c) If Reuben was to repeat the experiment with a similar plant placed in a clear glass box, would his observation be the same? Explain your answer. [1]

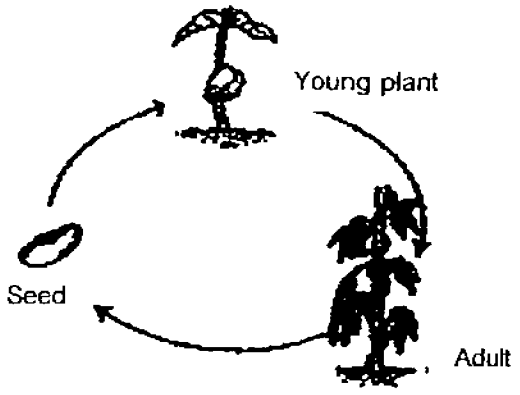
_____

_____

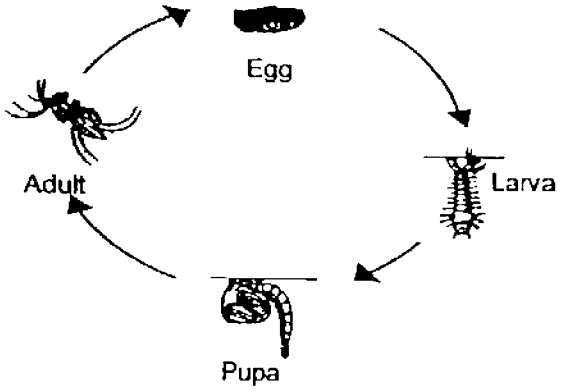
(Go on to the next page)

SCORE	
	3

27. The diagrams below show the life cycle of a plant and a mosquito.



Life cycle of a plant



Life cycle of a mosquito

Based on the above diagrams, state two differences between the life cycle of the plant and the mosquito. [2]

_____

_____

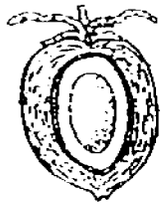
_____

(Go on to the next page)

SCORE	2

28. The diagram below shows a love grass and the cross section of a coconut.

love grass



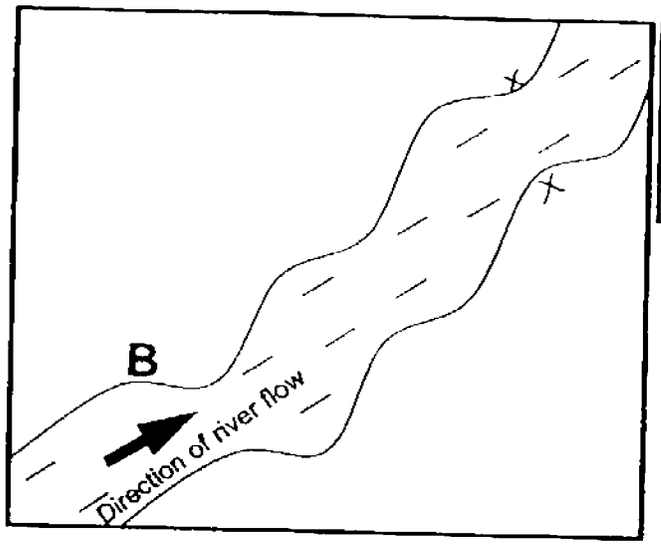
coconut

(a) State a characteristic of each fruit that helps in their dispersal. [1]

Love grass: _____

Coconut: _____

(b) **B** is an adult coconut tree on a piece of land as shown below.



Key:

Coconut - parent plant: **B**

Coconut - young plant: **X**

Using the key provided, indicate the likely locations of two young coconut plants based on how the fruits would be dispersed. [1]

(Go on to the next page)

SCORE / 2

29. The statements below describe the different stages in the process of fertilisation.

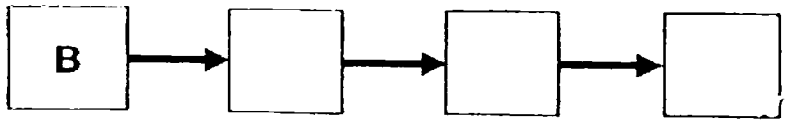
A : The nucleus of the sperm fuses with the nucleus of the egg.

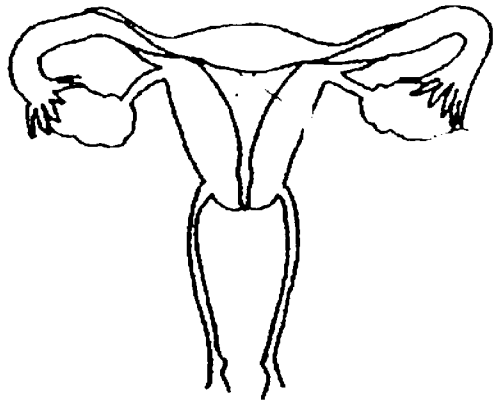
B : Many sperms try to penetrate the egg.

C : The fertilised egg divides.

D : One sperm enters the egg successfully.

(a) Arrange the above stages of fertilisation in the correct order in the boxes below. [1]



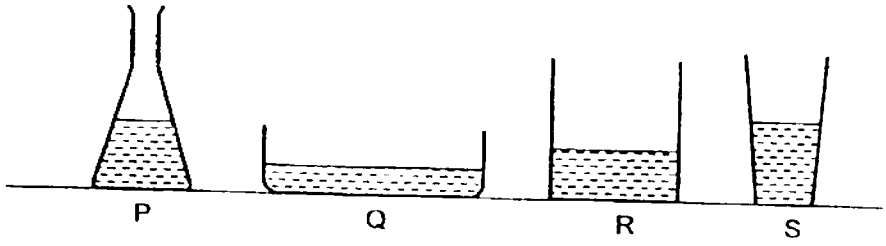


(b) The diagram above shows the human female reproductive system. Label and name the part where the fertilised egg develops. [1]

(Go on to the next page)

SCORE	/ 2

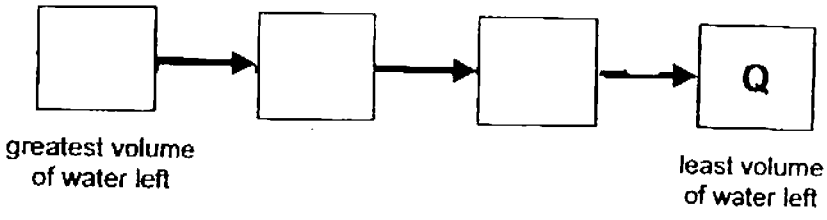
30. (a) John conducted an experiment with four containers, P, Q, R and S, as shown in the diagram below.
He poured equal amounts of water into the containers and placed them at the school field.



(i) After several hours, John noticed that the amount of water in all four containers had decreased. State the process that resulted in this change. [1]

_____

(ii) John measured the volume of water left in each container. He noted that the volume of water left in container Q was the least. Arrange the remaining containers in order of the volume of water left in the boxes below. [1]

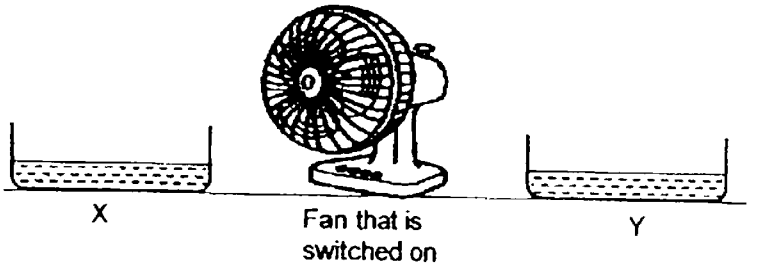


(iii) Explain why the volume of water left in container Q is the least. [1]

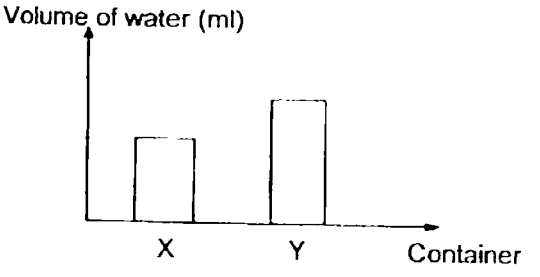
_____

_____

(b) John conducted another experiment to find out how the presence of wind affects the rate of evaporation of water. He filled 2 identical containers, X and Y, with equal amount of water and placed them in the classroom as shown in the diagram below.



The graph below shows the volume of water left in each container after some time.



(i) State the relationship between the presence of wind and the volume of water left in the container. [1]

_____

_____

(ii) Explain why the volume of water in container X is lower than in container Y. [1]

_____

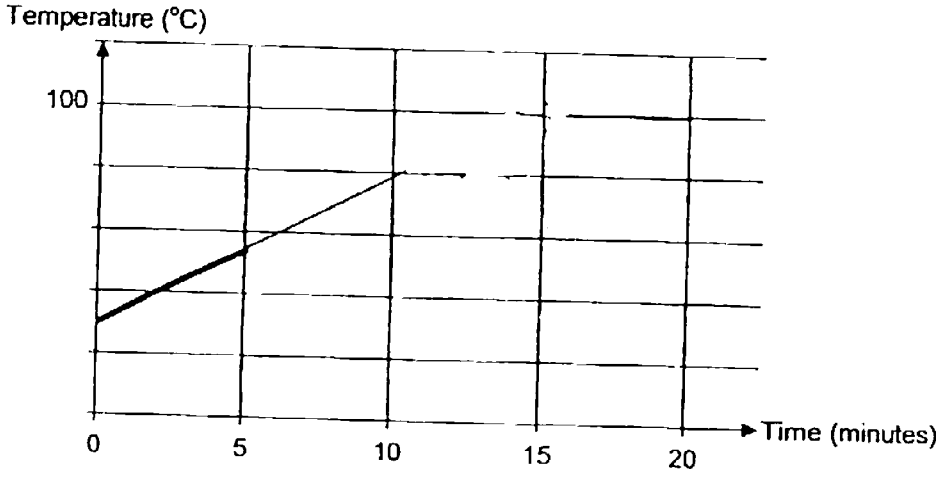
_____

(Go on to the next page)

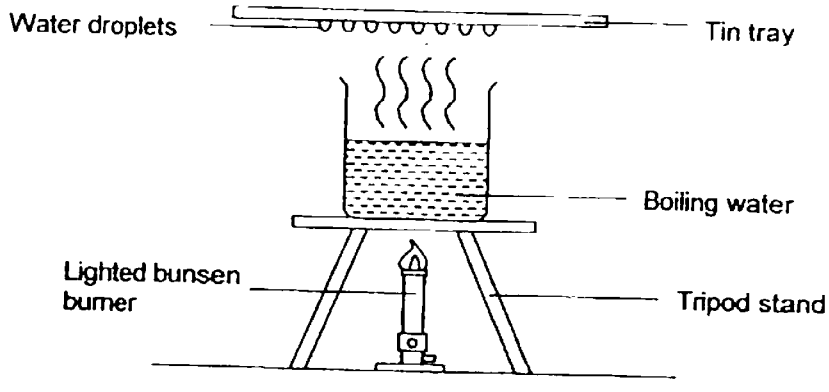
SCORE 5

31. Alice heated 500 ml of water at 27°C for 15 minutes before it started to boil. She continued heating the water for another 5 minutes.

(a) Complete the graph below to show the change in temperature of water with time for the first 20 minutes. The graph for the first 5 minutes has been done. [1]



As the water was boiling, Alice placed a tin tray above the beaker of water as shown in the diagram below.



(b) Alice noticed water droplets forming on the underside of the tin tray. Explain how these water droplets formed. [1]

_____

_____

(c) What can Alice do so that more water droplets form on the underside of the tin tray in a shorter time? [1]

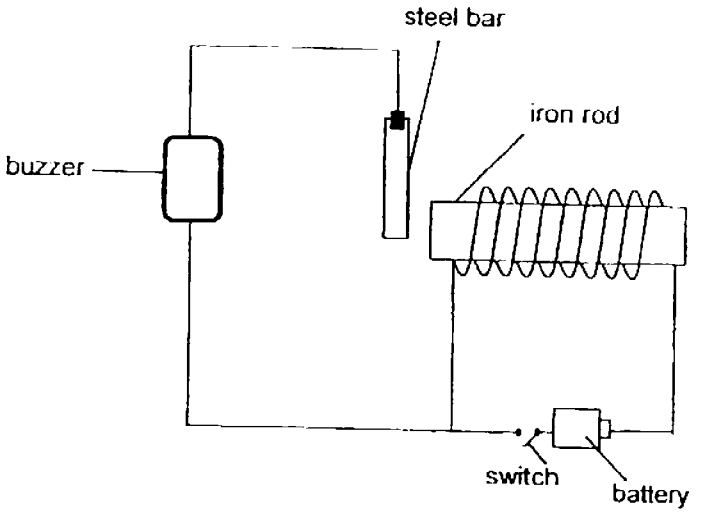
_____

_____

(Go on to the next page)

SCORE	
	3

32. Jonathan set up the circuit below.



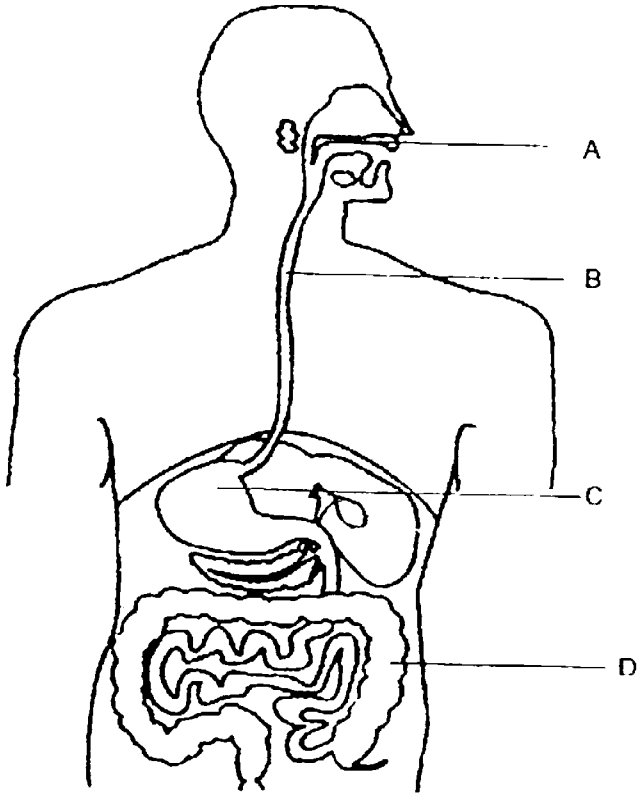
(a) When the switch in the circuit is closed, the buzzer produces a sound. Explain how this happens. [2]

(b) If the iron rod is replaced with a copper rod, will the circuit still perform its function? Explain your answer. [1]

(Go on to the next page)

SCORE	
	3

33. The picture below shows the human digestive system.



(a) Name the parts labelled B and D [1]

B : _____

D : _____

(b) Name the substance that is produced in the parts labelled A and C. [1]

_____

(c) What is the function of the substance mentioned in (b)? [1]

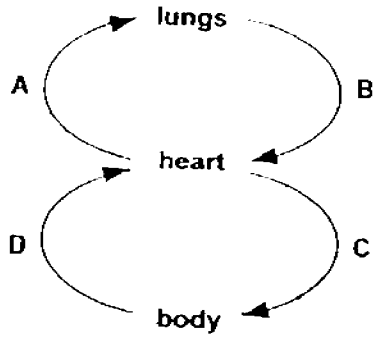
_____

_____

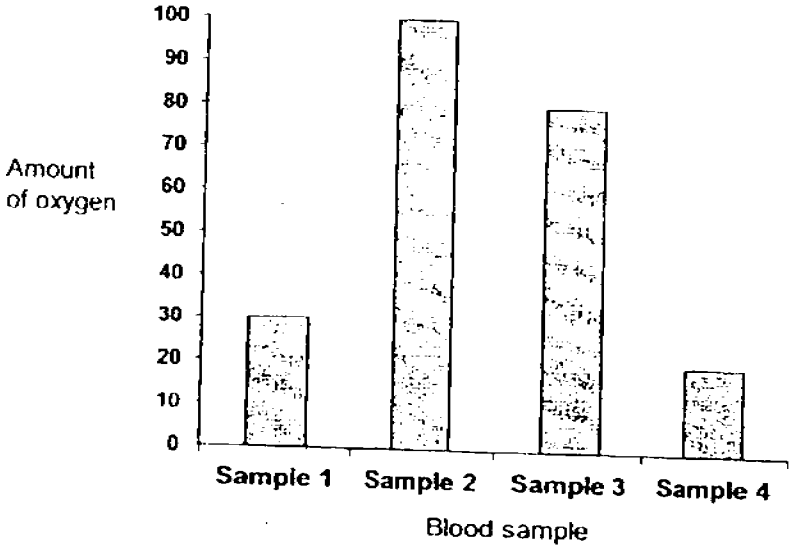
(Go on to the next page)

SCORE	/ 3

34. The diagram below shows the movement of blood in the circulatory system.



Blood samples were taken at points A, B, C and D as shown above. The amount of oxygen in each blood sample was then measured and tabulated in the graph below.



(a) Based on the graph, match the blood samples to the points, A, B, C and D, where they were taken from. [2]

Blood samples	Points where blood samples were taken from
1	D
2	B
3	C
4	A

(b) Explain why Sample 2 has the highest amount of oxygen. [1]

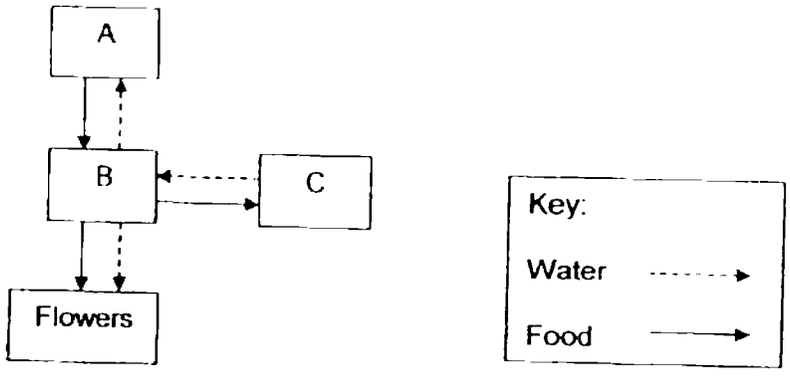
_____

_____

(Go on to the next page)

SCORE 3

35. The diagram below shows how water and food are transported in a plant.



(a) Identify parts A and C of the plant. [1]

A: _____

C: _____

(b) What is part B? State a function of part B. [1]

_____

_____

(c) When a red-coloured food dye was added into the water, the plant's white flowers had red-coloured stains after about 5 hours.

Why did the flowers have red-coloured stains? [1]

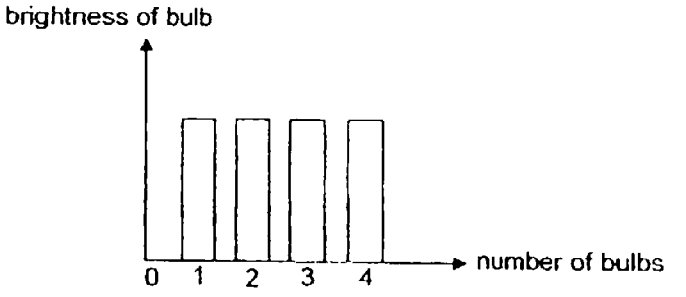
_____

_____

(Go on to the next page)

SCORE ___/3

36 The graph below shows how the number of bulbs in a circuit affects the brightness of a bulb, when the number of batteries used in the circuit remains the same.



(a) Based on the graph above, answer the following questions.

(i) How did the number of bulbs connected in the circuit affect the brightness of the bulbs? [1]

_____

_____

(ii) Is the arrangement of the bulbs in series or parallel? [½]

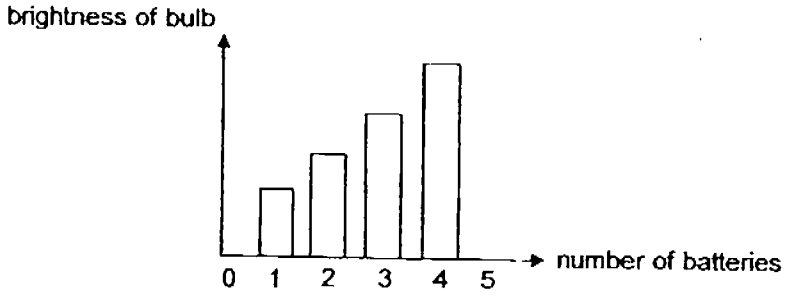
_____

(iii) State an advantage of the bulb arrangement mentioned in (a)(ii). [½]

_____

_____

The graph below shows the relationship between the number of batteries, up to 5 batteries, in a circuit and the brightness of the bulb in the circuit. Study the graph carefully.



(b) What happened to the brightness of the bulb when the fifth battery was added? Explain why. [1]

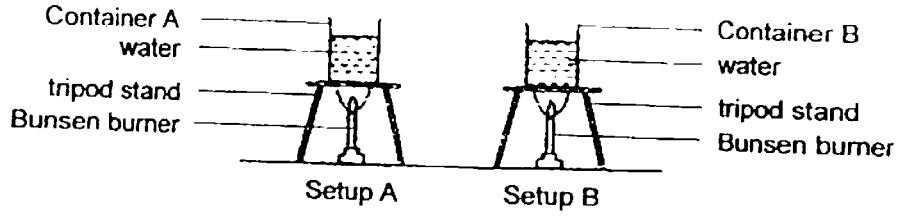
_____

_____

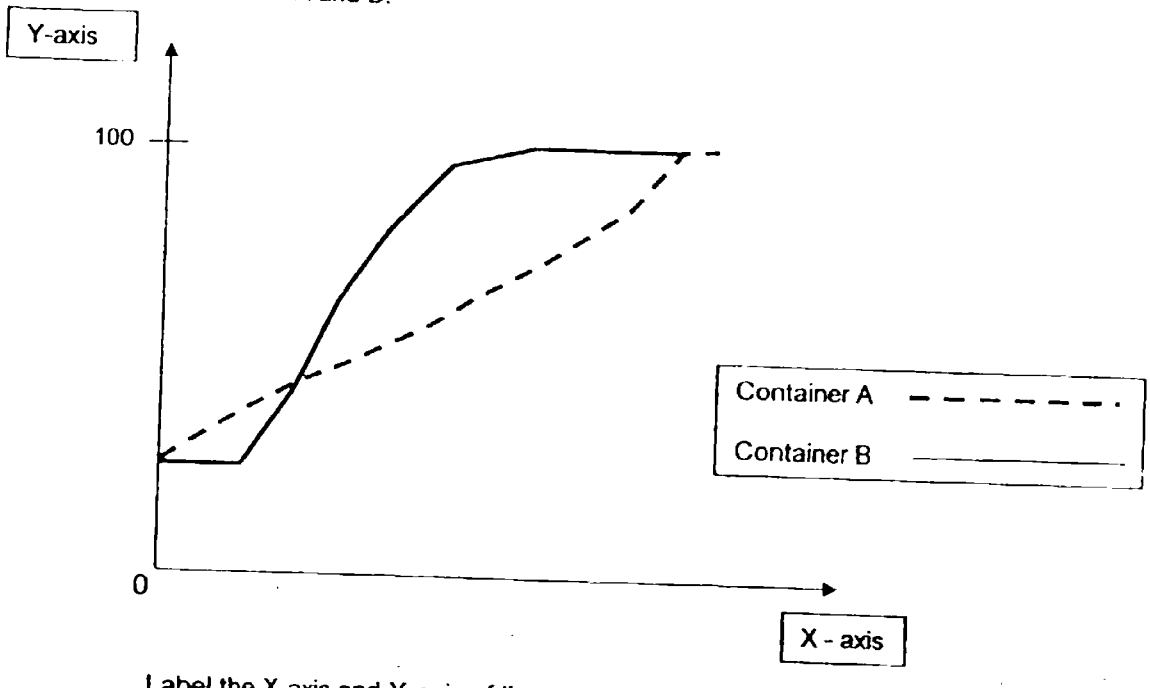
(Go on to the next page)

SCORE 3

37. Two identical containers of different materials containing 300 ml of water of the same temperature each were heated over two identical Bunsen burners set to the same heat intensity as shown in the diagram below. The flame of the Bunsen burner for Setup B was lit 5 minutes after the flame of the Bunsen burner in Setup A was lit.



(a) The graph below shows the changes in the temperature of the water in containers A and B.



Label the X-axis and Y-axis of the graph. [2]

X - axis: _____

Y – axis: _____

(b) Explain why the water in container B reached boiling point first. [1]

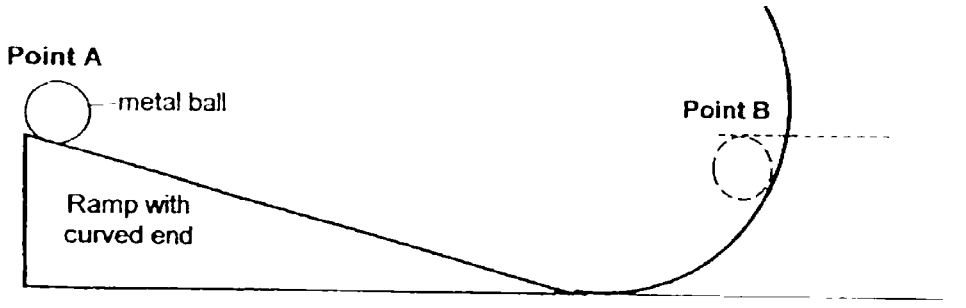
_____

_____

(Go on to the next page)

SCORE 3

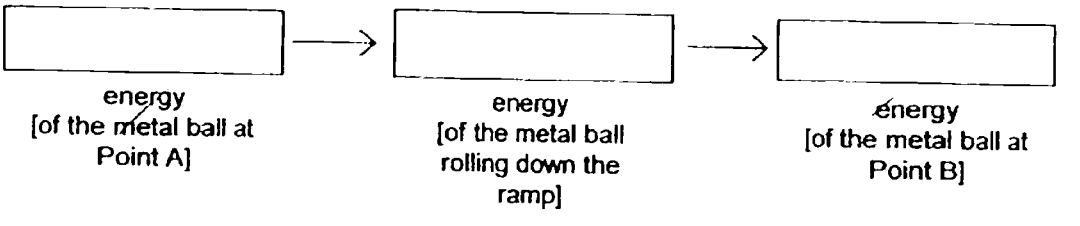
38 The diagram below shows a ramp with a curved end. Jayden released a metal ball from Point A. It reached Point B after it rolled up the curved end.



(a) Jayden then changed the metal ball to a heavier metal ball and repeated the experiment.
Will the heavier metal ball reach point B, higher than Point B or lower than Point B? Explain your answer. [1]

(b) What is the relationship between the mass of the metal ball and the height reached by the metal ball? [1]

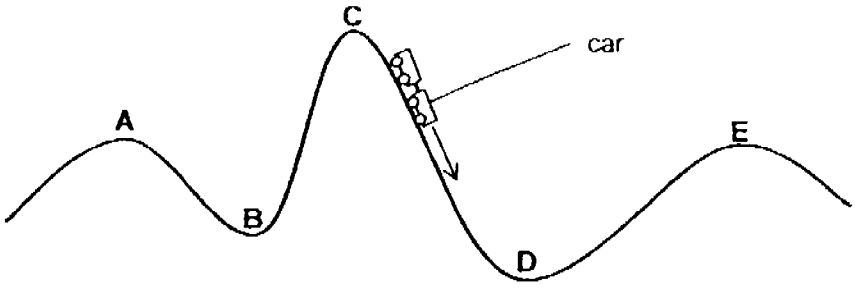
(c) Fill in the main forms of energy in the boxes below to show the conversion of energy that takes place when the metal ball rolled from Point A to Point B. [1]



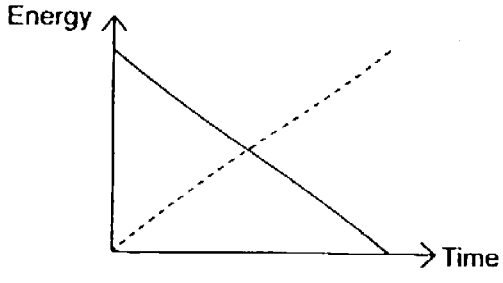
(Go on to the next page)

SCORE	3

39. The diagram below shows parts, A, B, C, D and E, on a roller coaster track. The arrow ($\longrightarrow$) represents the direction of movement of the car.



The graph below represents the changes in the energy of the car as it went past two parts of the roller coaster track, between A to E.



Key:

——— Kinetic Energy

- - - - - - - - - Gravitational Potential Energy

(a) Which two parts of the roller coaster track did the car travel past as represented by the graph? Tick (✓) the correct answers. [1]

Parts of the roller coaster track	Tick (✓)
A to B	
B to C	
C to D	
D to E	

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

_____

_____

End of Paper

SCORE	2

SEMESTRAL ASSESSMENT EXAM PAPER 2016

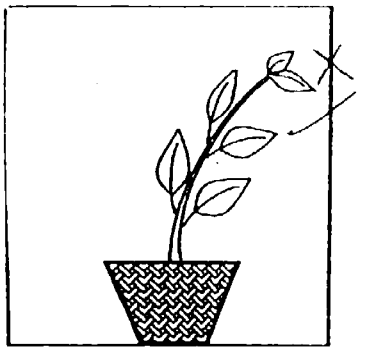
SCHOOL : ANGLO-CHINESE SCHOOL (JUNIOR)
SUBJECT : SCIENCE
TERM : SA2

BOOKLET A

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

BOOKLET B

Q26(a)



(b) The plant bend to one side as light needed for photosynthesis was coming from there.

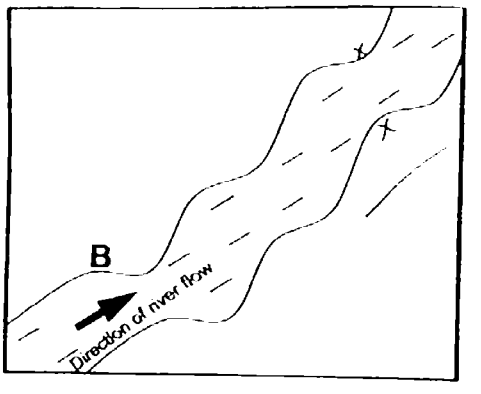
(c) No. The clear glass would allow sunlight will enter and the plant would bend to one side.

Q27. The life of a mosquito has four stages while the life of a plant has only three stags. Part of the life cycle of a mosquito is in water but the life cycle of a plant is entire on land.

Q28.(a) Love grass: It is light

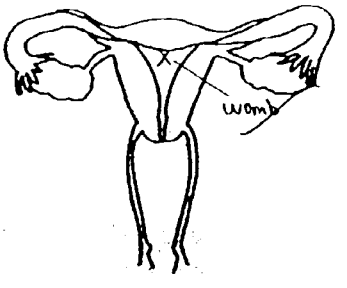
Coconut: It is waterproof

(b)



Q29(a) B→D→A→C

(b)



Q30(a)(i) The process is evaporation.

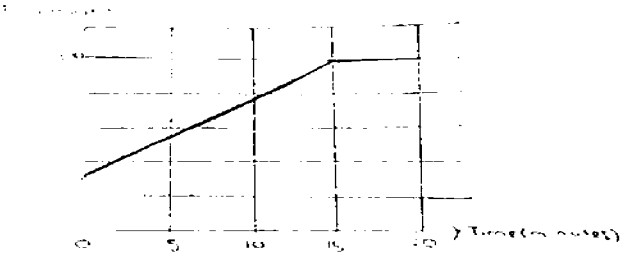
(ii) P→S→R→Q

(iii) As had the most exposed surface area, the water would evaporate quicker than the other containers.

(b)(i) When there is wind, the water let would be less.

(ii) It is because more water evaporated from container X compared to container Y as there was the presence of wind.

Q31(a)



(b) The water droplets are water evaporated into water vapour which then condensed on the cool tin tray to form water droplets.

(c) Alice can add ice onto the tray.

Q32(a) When the switch is closed the iron rod becomes an electromagnet and attract the steel bar closing the circuit.

(b) The circuit will not perform its function as copper is a non-magnetic material and will not attract the steel bar.

Q33(a) B: Gullet

D: Large intestine

(b) Digestive juices are produced there.

(c) To soften/break the food into simpler substances.

Q34(a) 1-D

2-B

3-C

4-A

(b) Sample 2 has the highest amount of oxygen as it has just taken oxygen from the lungs and has not used it up yet.

Q35(a) A: Leaves

C: Roots

(b) Part B is the stem. It helps in the transportation of food and water in the plant.

(c) The flowers had red-coloured stains as the roots of the plant absorbed the water, transported it through the stem to the flowers.

Q36(a)(i) Even when there is more bulbs, the brightness of each bulb remains the same.

(ii) The arrangement is in parallel.

(iii) If one bulb fuses, the other bulbs will still work.

(b) The brightness was zero. This is because the bulbs fused as there was too much electricity in the circuit.

Q37(a) X-axis: Temperature of water (°C)

Y-axis: Time (minutes)

(b) It was because container B was a better conductor of heat than container A. It gains heat faster.

Q38(a) The heavier the ball will higher than point Bas it had more potential energy which converted to kinetic energy than the lighter metal ball.

(b) The heavier the metal ball, the greater the height reacted by it.

(c) Potential → Kinetic → Potential

Q39(a) A to be & D to E

(b) As the amount of potential energy increase as something goes higher , it can be seen that the section has to be uphill like that of B to C and D to E but the kinetic energy decreases.