CATHOLIC HIGH SCHOOL

SEMESTRAL ASSESSMENT TWO (2018)

PRIMARY FIVE

SCIENCE

BOOKLET A

Name: _____ ( )

Class: Primary 5 - _____

Date: 31 October 2018

28 questions

56 marks

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

INSTRUCTIONS TO CANDIDATES

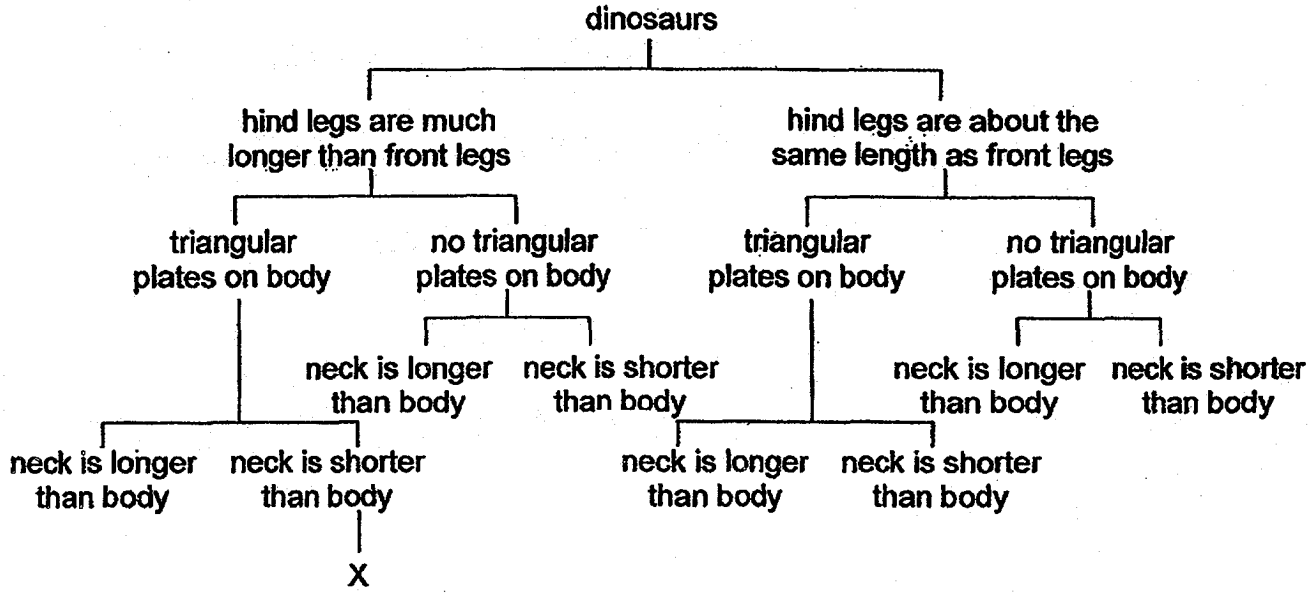
Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Shade your answers in the Optical Answer Sheet (OAS) provided.

This booklet consists of 20 printed pages, excluding the cover page.

Booklet A (28 × 2 marks)

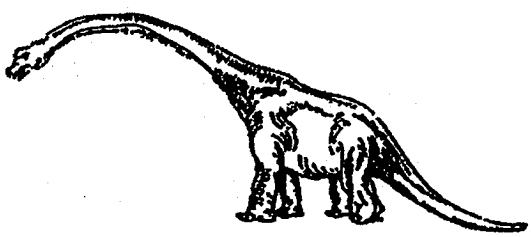
For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade your answer on the Optical Answer Sheet. (56 marks)

1 Study the chart below.

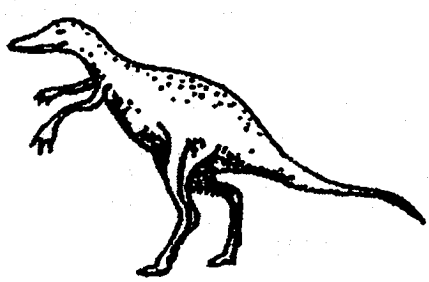


Which one of the dinosaurs shown below could be represented by X?

(1)

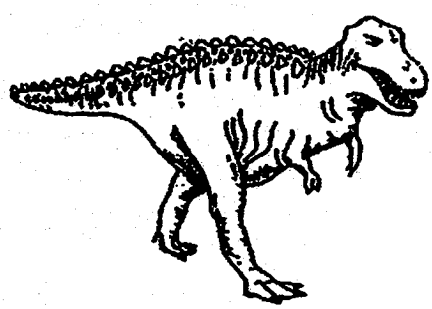


(2)

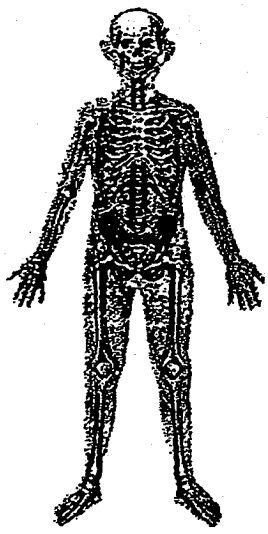


(3)

(4)

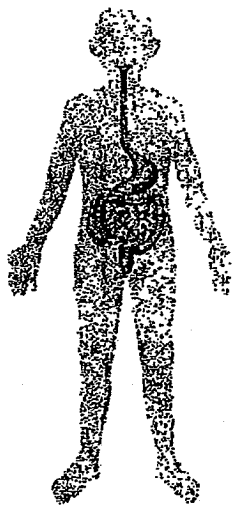


2 The diagram below shows a human body system.

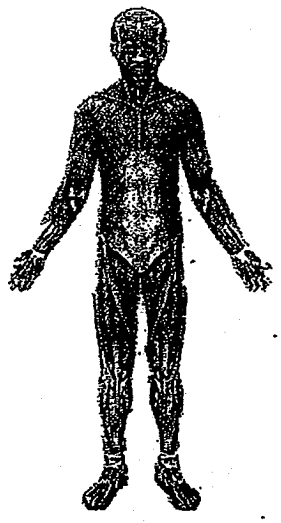


Which one of the following must work directly with the above body system to enable movement?

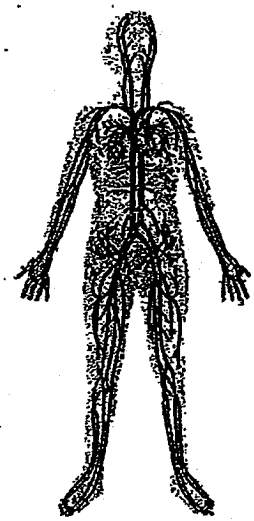
(1)



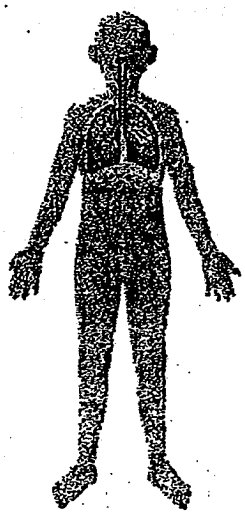
(2)



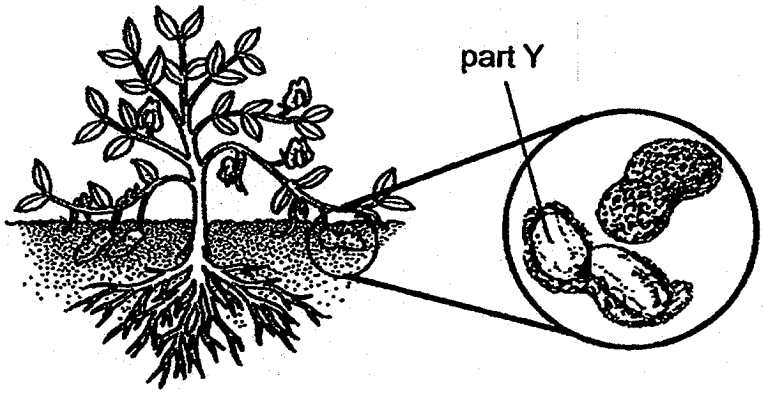
(3)



(4)



3 Look at the diagram below.

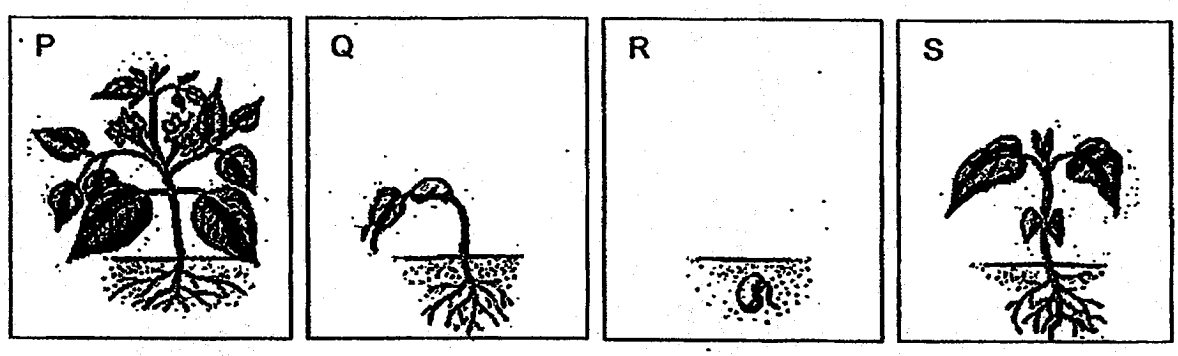


Why is part Y important to the plant?

A It can develop into a new plant.
B It anchors the plant firmly to the ground.
C It stores excess food made by the plant.

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

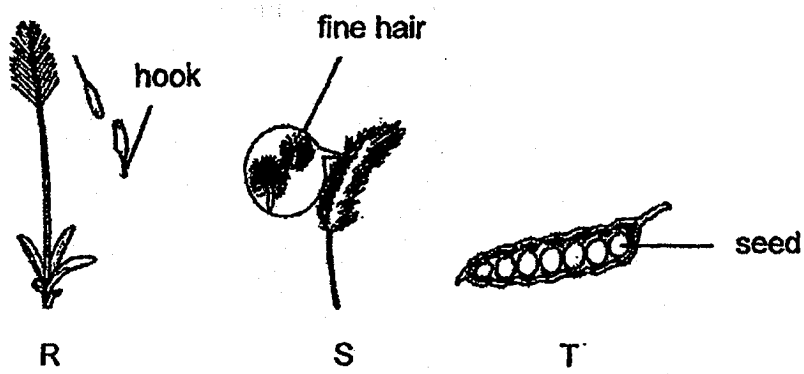
4 The diagrams below show the stages of a plant life cycle.



Which one of the following shows the stages in the correct order?

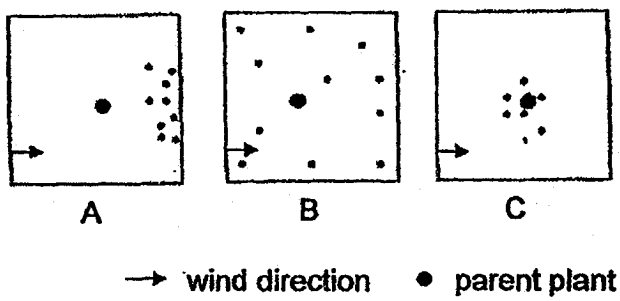
(1) P, S, Q, R
(2) P, R, Q, S
(3) R, Q, P, S
(4) R, P, S, Q

5 The diagrams below show the seeds of three plants, R, S and T.



Each plant was planted in the centre of three similar plots of land, A, B and C.

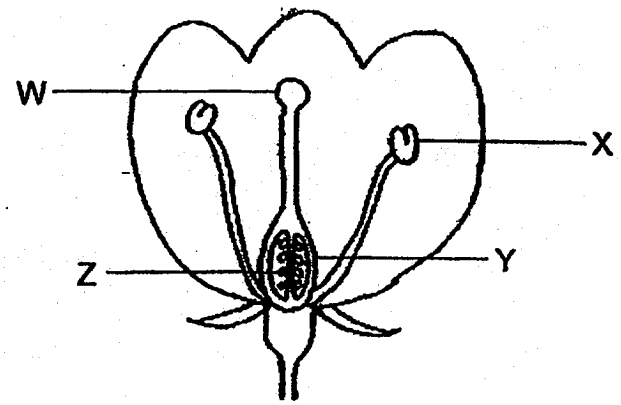
The diagrams below show where the seeds of each plant were being dispersed in each plot of land.



Which one of the following were most likely planted in each plot of land?

	Plot A	Plot B	Plot C
(1)	R	S	T
(2)	R	T	S
(3)	S	T	R
(4)	S	R	T

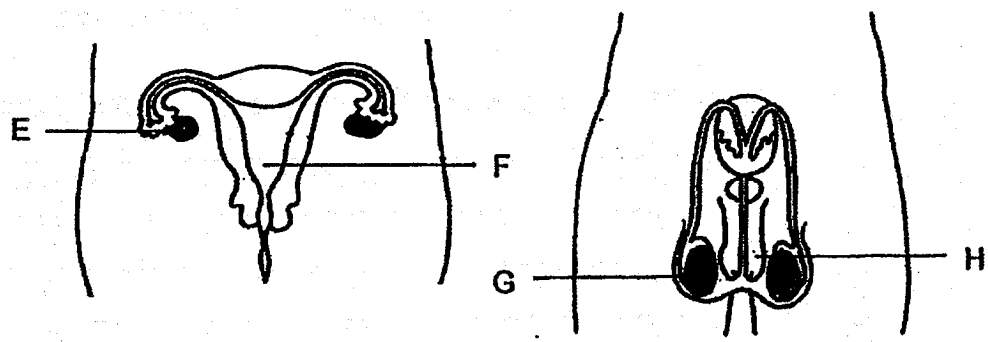
6 The diagram below shows parts of a flower.



Which part, W, X, Y or Z, will develop into a fruit?

(1) W
(2) X
(3) Y
(4) Z

7 The diagrams below show the male and female human reproductive systems.



Which one of the labelled parts produce cells that are necessary for fertilisation to take place?

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

8 Which of the characteristics below are passed on from the parent plants to the young plants?

A type of seed
B shape of leaf
C colour of flower
D number of fruits

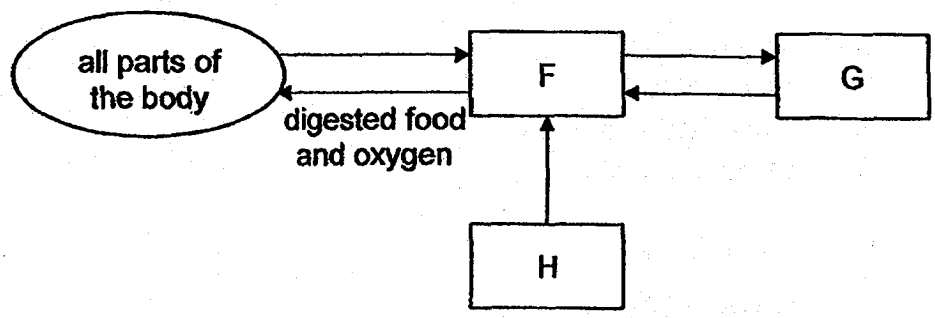
(1) A and B only
(2) C and D only
(3) A, B and C only
(4) A, B, C and D

9 Plants take in water through their roots. Where is the water transported to?

A fruits
B stems
C leaves
D flowers

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

10 The diagram below shows how the different human body systems work together. The arrows represent the transfer of substances and food.



Which one of the following correctly shows the body systems represented by F, G and H?

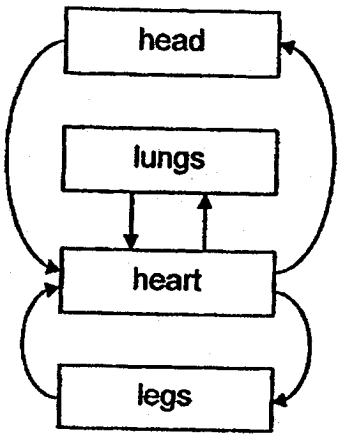
	F	G	H
(1)	circulatory	respiratory	digestive
(2)	digestive	respiratory	circulatory
(3)	circulatory	respiratory	muscular
(4)	digestive	muscular	respiratory

11 Which one of the following is the basic unit of life of a plant and an animal respectively?

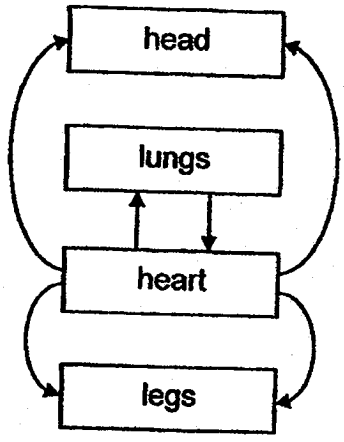
	Plant	Animal
(1)	cell wall	cell membrane
(2)	cell	cell
(3)	chloroplast	nucleus
(4)	nucleus	nucleus

12 Which one of the following diagrams correctly shows the flow of blood in the human circulatory system?

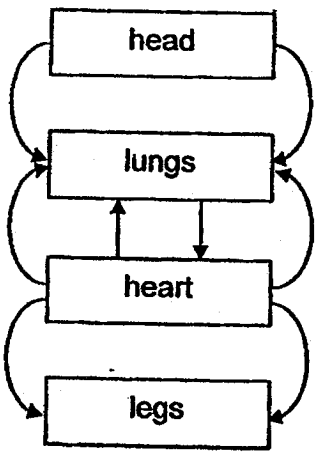
(1)



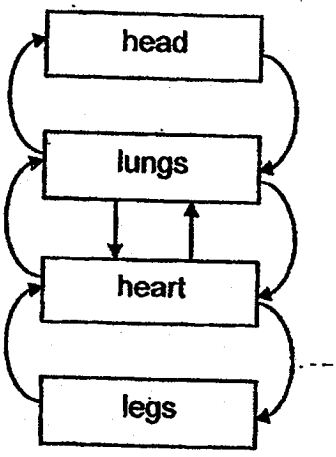
(2)



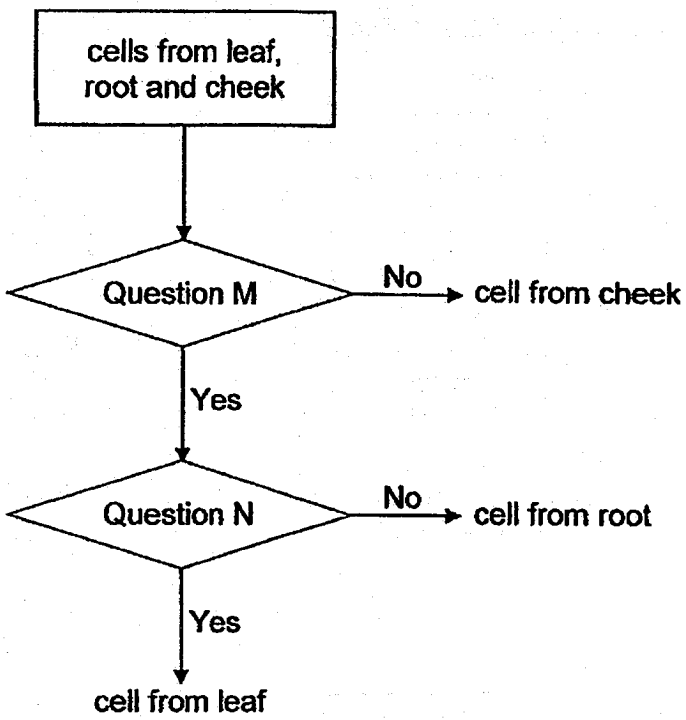
(3)



(4)



13 Study the chart below.



What do Questions M and N represent?

	Question M	Question N
(1)	Does the cell have chloroplast?	Does the cell have a cell wall?
(2)	Does the cell have a cell wall?	Does the cell have chloroplast?
(3)	Does the cell have a nucleus?	Does the cell have a cell membrane?
(4)	Does the cell have a cell membrane?	Does the cell have a nucleus?

14 Which one of the following statements about energy is not correct?

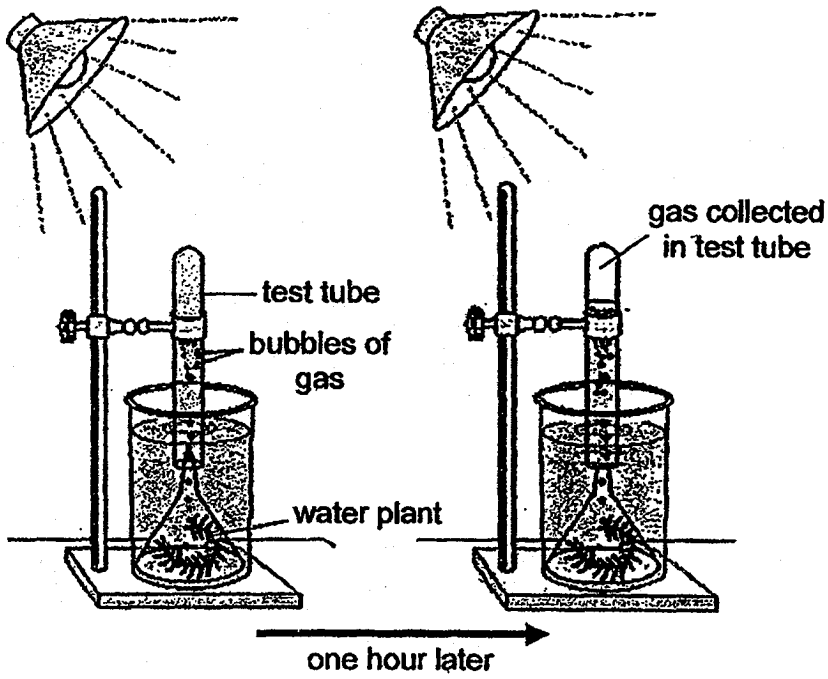
(1) The sun provides light and heat energy.

(2) Man obtains energy indirectly from the sun.

(3) Plants obtain energy from the sun to make food.

(4) An animal that is sleeping does not require energy.

15 Dorothy set up an experiment as shown below.



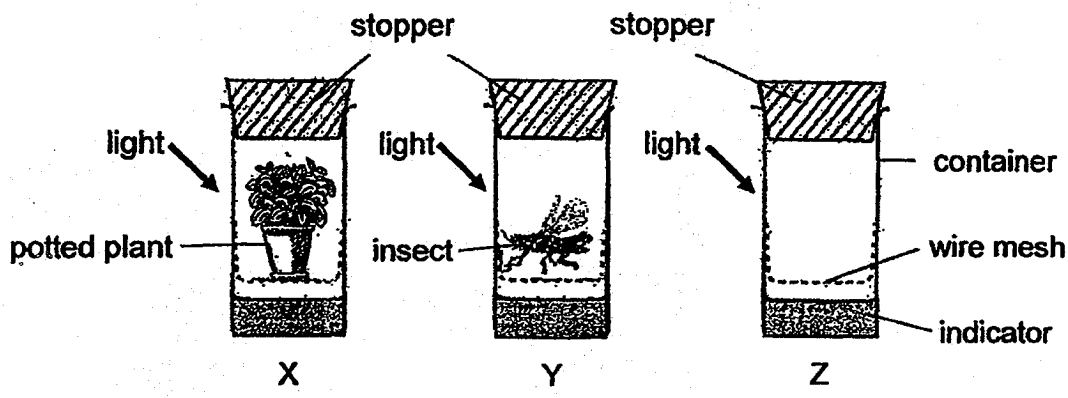
She noticed that there was gas collected in the test tube one hour later.

Based on the experiment, which of the following statements are correct?

A The plants were photosynthesising.
B The gas collected in the test tube was oxygen.
C The bubbles of gas were mostly carbon dioxide which the plants gave off.
D The gas collected took up space in the test tube once occupied by the water.

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

16 Rashid wanted to find out if plants and animals affect the amount of carbon dioxide in their surroundings. He set up three containers as shown below.



The same amount of indicator was added to each container. At the start, the colour of the indicator was red. If the amount of carbon dioxide increases, the indicator will change from red to yellow.

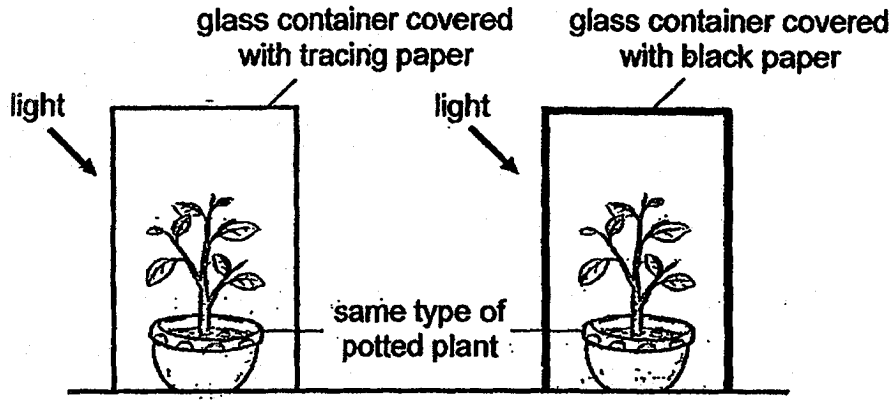
The table below shows the colour change of the indicator according to the different amounts of carbon dioxide present.

Colour of indicator	Amount of carbon dioxide
purple	less than normal
red	normal
yellow	more than normal

Which one of the following correctly shows the colour of the indicator in each container after two hours?

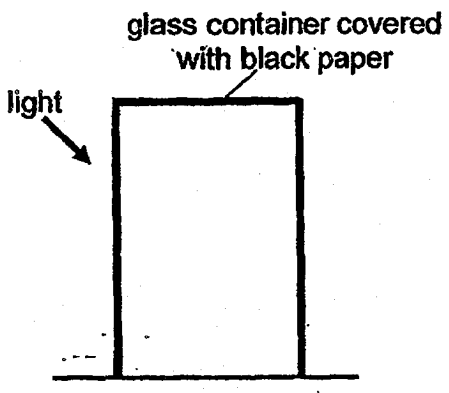
	X	Y	Z
(1)	purple	yellow	red
(2)	purple	red	yellow
(3)	red	yellow	purple
(4)	yellow	red	purple

17 Shi Kai wanted to investigate how the amount of light affects the rate of photosynthesis. The diagram below shows each of his set-ups in a glass container.

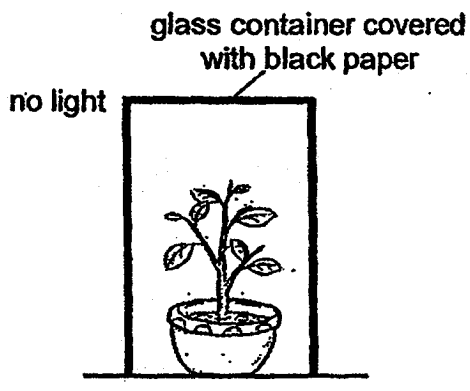


Which one of the following could be used as a control for his investigation?

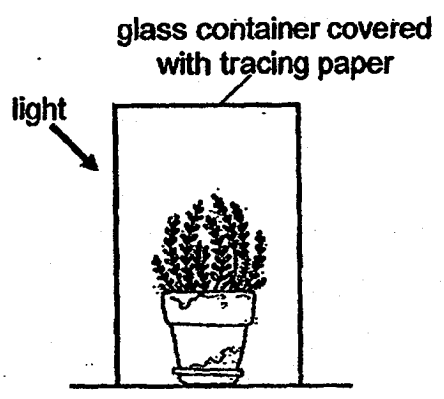
(1)



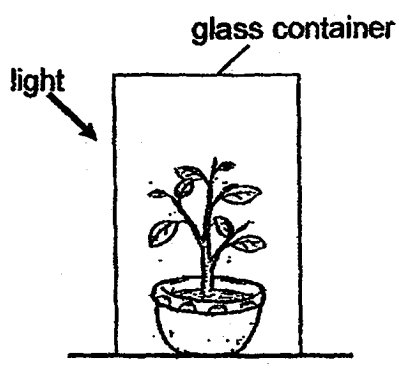
(2)



(3)



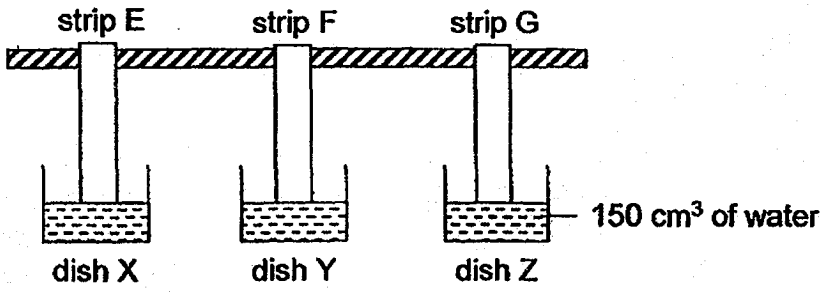
(4)



18 Which one of the following materials does not match its property and use?

	Material	Property	Use
(1)	fabric	flexible	dress
(2)	rubber	ability to sink	tyre of a car
(3)	metal	strong	cage
(4)	glass	transparent	display window

19 Wei Ling placed three different strips of materials, E, F and G, of equal thickness and lengths into three similar dishes, X, Y and Z, respectively as shown below. Each dish contained 150 cm^3 of water.



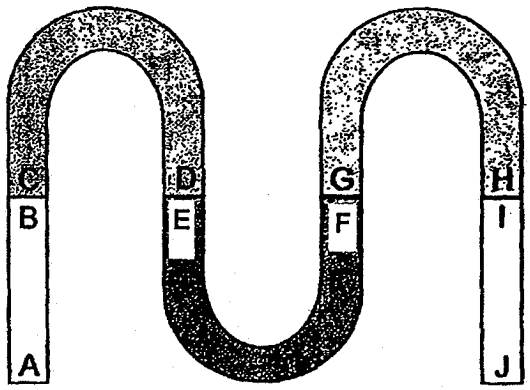
After five minutes, the amount of water left in each dish was recorded in the table below.

Dish	Amount of water left (cm^3)
X	150
Y	35
Z	88

What could materials E, F and G be made of?

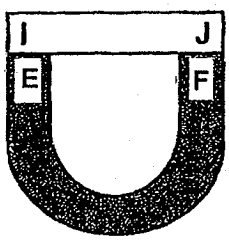
	E	F	G
(1)	plastic	fabric	paper
(2)	plastic	paper	fabric
(3)	paper	fabric	plastic
(4)	fabric	plastic	paper

20 The diagram below shows the arrangement of five magnets when they are attracted to each other.

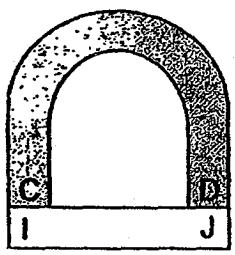


Which one of the following arrangements is correct?

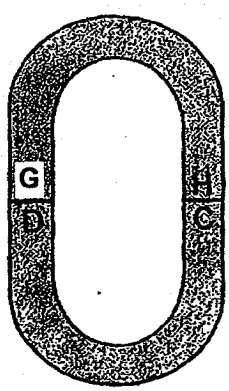
(1)



(2)

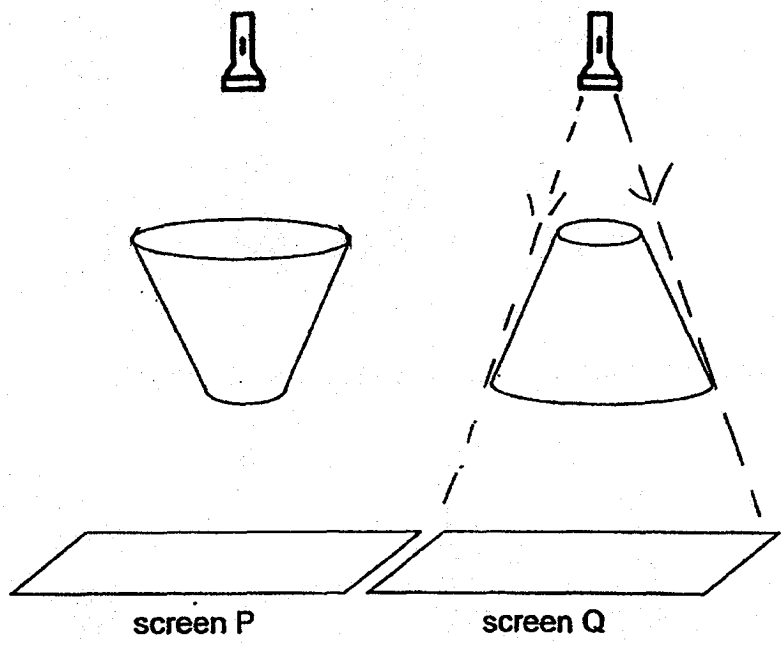


(3)

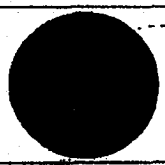
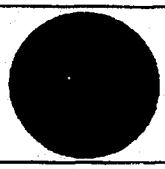
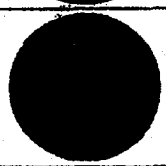
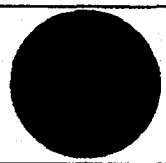


(4)

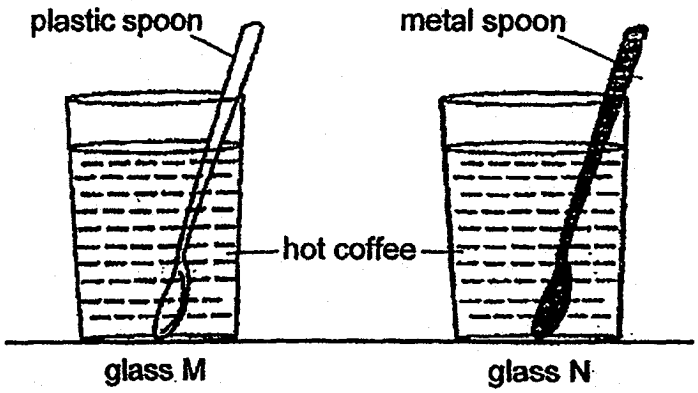
21 Two similar objects, each consisting of two circular surfaces and a curved surface, were placed in different ways directly under similar light sources in a dark room as shown below. The shadows were formed on screens P and Q.



Which one of the following shadows would be observed for each screen?

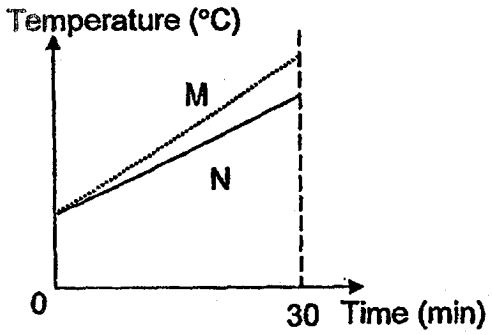
	screen P	screen Q
(1)		
(2)		
(3)		
(4)		

22 Kai Lin poured an equal amount of hot coffee into two similar glasses, M and N. She placed two spoons of the same size and shape, each of a different material, in the glasses as shown below.

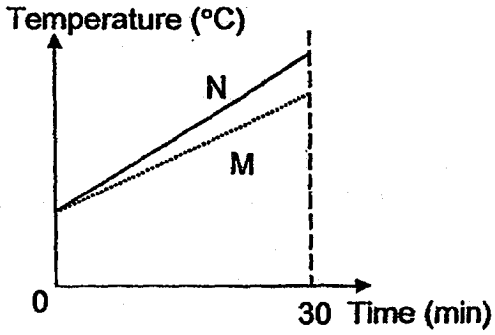


Kai Lin recorded the change in the temperature of coffee in glasses M and N for 30 minutes. Which one of the graphs below represents the change in the temperature of coffee in both glasses over time?

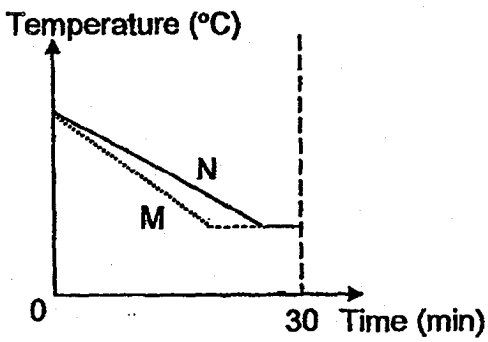
(1)



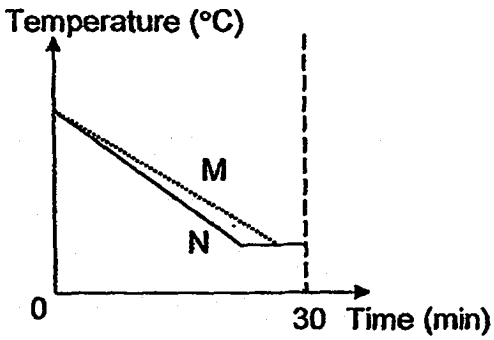
(2)



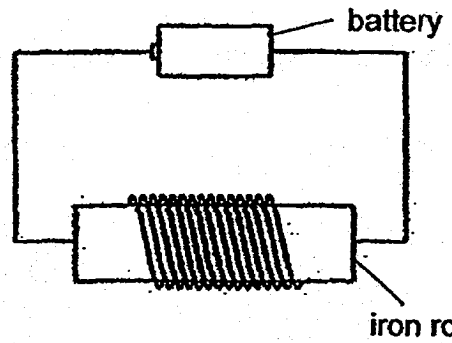
(3)



(4)



23 Greg made a magnet with an iron rod as shown below.

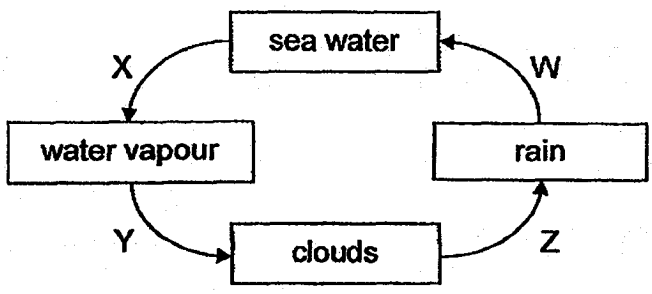


What should Greg do to ensure that the magnet attract more paper clips?

A Use two batteries instead of one battery.
B Increase the time for electric current to pass through the iron rod.
C Use a longer iron rod with the same number of coils of wire around it.

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

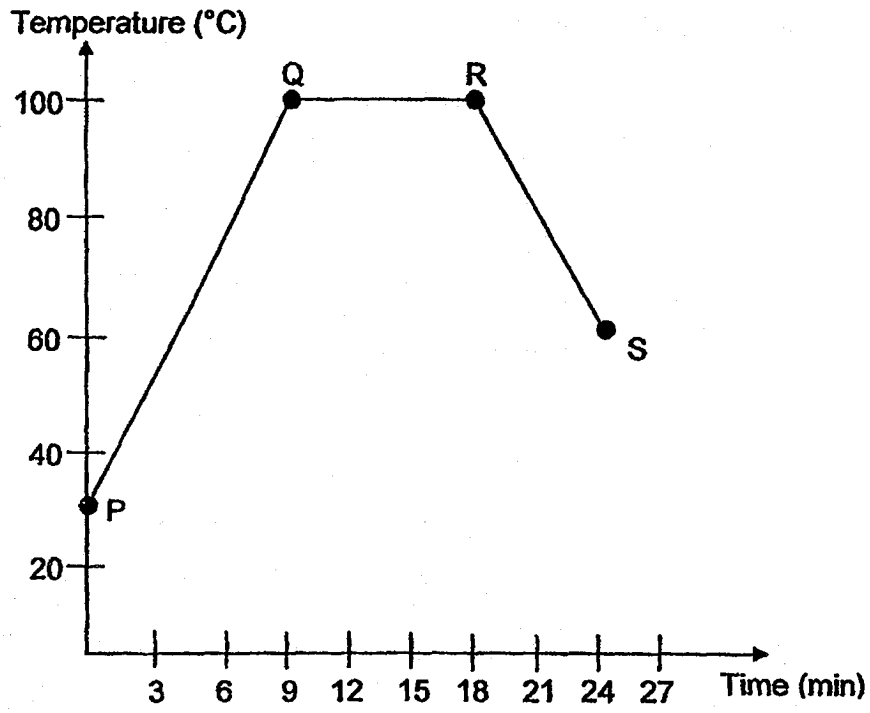
24 The diagram below represents the water cycle.



Which one of the following is correct?

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

25 Ryan heated some water in a beaker until it boiled. He continued to allow the water to boil for some time before it was left to cool on a table. He recorded the results in the graph as shown below.



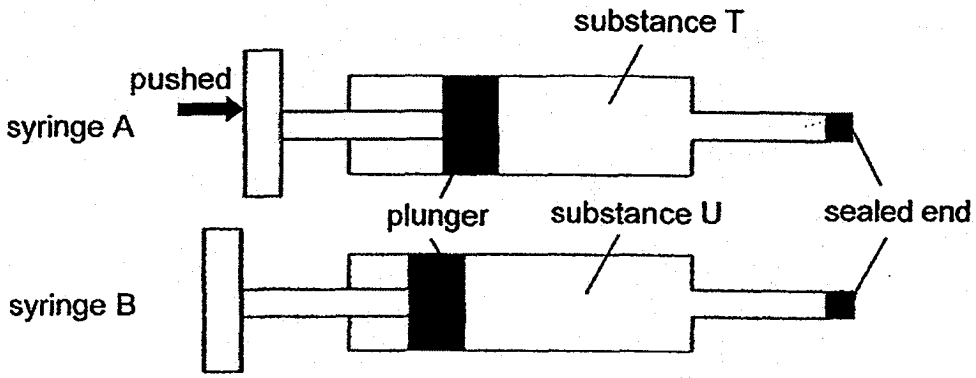
Which of the following statements are correct?

A There was heat gain at QR.
B Water existed in two states at PQ.
C Evaporation took place only at RS.
D The water was heated for 18 minutes.

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

26 Raudhah had two syringes, A and B, containing substances T and U respectively. She sealed the end of each syringe.

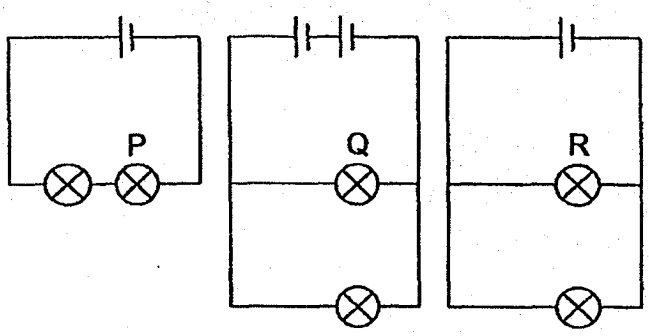
She observed that the plunger in syringe B could not be pushed in while the plunger in syringe A could be pushed in slightly.



What could substances T and U be?

	substance T	substance U
(1)	carbon dioxide	water
(2)	oxygen	carbon dioxide
(3)	tea	oxygen
(4)	water	tea

27 Study the circuits below. The batteries and bulbs used are similar.



Arrange the bulbs from the brightest to the dimmest.

	Brightest bulb →		Dimmest bulb
(1)	R	Q	P
(2)	P	R	Q
(3)	Q	P	R
(4)	Q	R	P

28 Four paper clips, A, B, C and D, were fixed onto a cardboard as shown in Diagram 1 below. Diagram 2 shows a battery and a bulb connected to two wires X and Y.

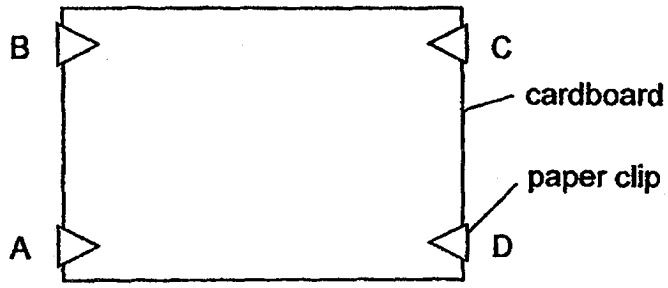


Diagram 1

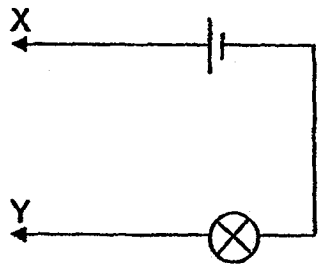


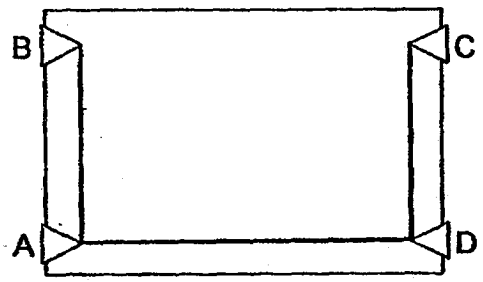
Diagram 2

Sheila connected some but not all of the paper clips on the cardboard in Diagram 1 with wires. She then connected X and Y across different pairs of paper clips in turn. She recorded her results in the table below.

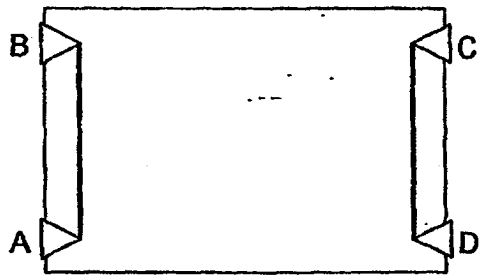
Clip connected to X	Clip connected to Y	Result
A	B	bulb lights up
A	C	bulb does not light up
C	D	bulb lights up

Which one of the following correctly shows the connections made by Sheila?

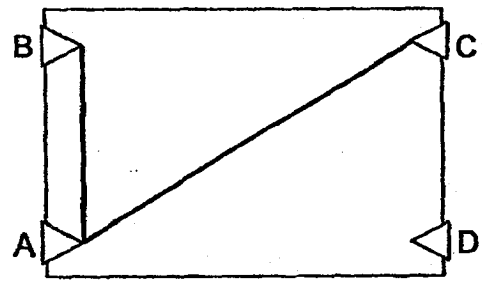
(1)



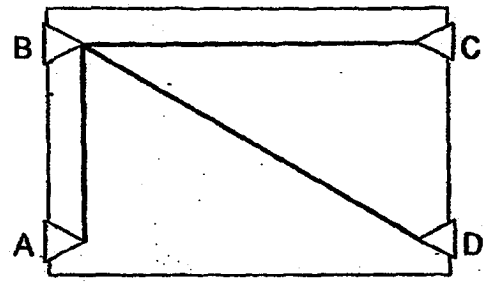
(2)



(3)



(4)



End of Booklet A

CATHOLIC HIGH SCHOOL

SEMESTRAL ASSESSMENT TWO (2018)

PRIMARY FIVE

SCIENCE

BOOKLET B

Name: _____ ( )

Class: Primary 5 - _____

Date: 31 October 2018

Parent's Signature: _____

Booklet A	56
Booklet B	44
Total	100

13 questions

44 marks

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

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Write your answers in this booklet.

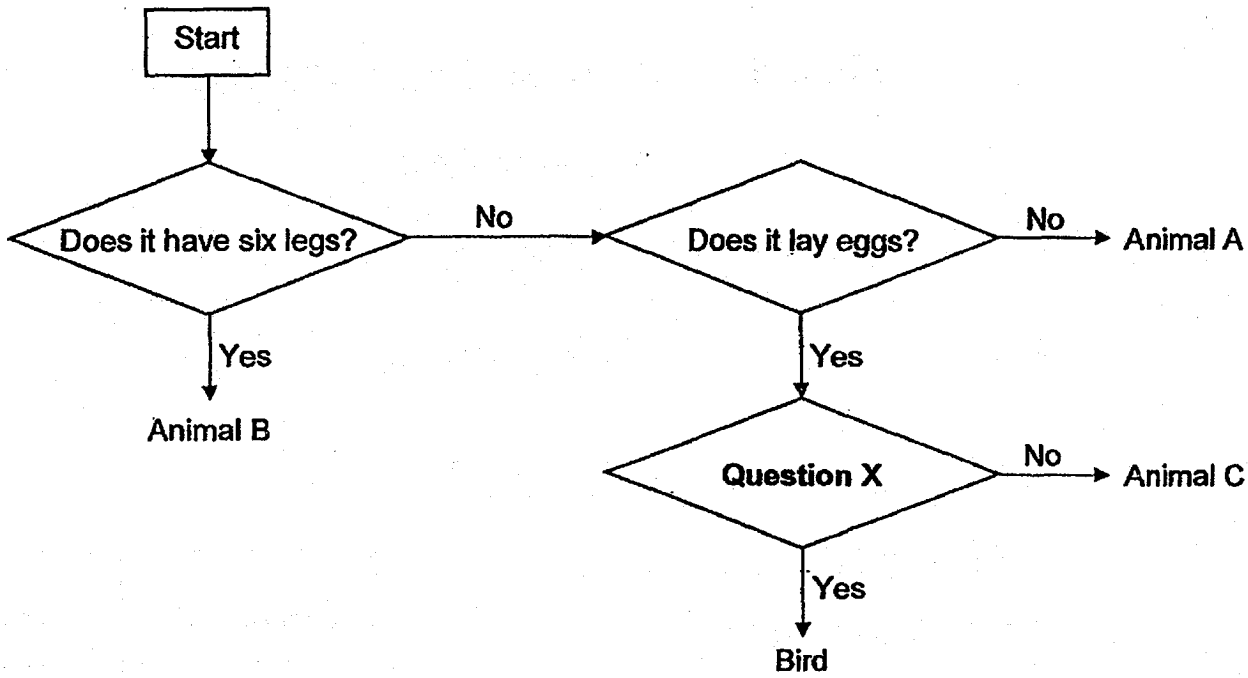
This booklet consists of 16 printed pages, excluding the cover page.

Booklet B (44 marks)

For questions 29 to 41, write your answers in this booklet. The number of marks available is shown in brackets [ ] at the end of each question or part question.

(44 marks)

29 Study the chart below.



(a) Based on the chart above, state one similarity between Animal A and Animal C. [1]

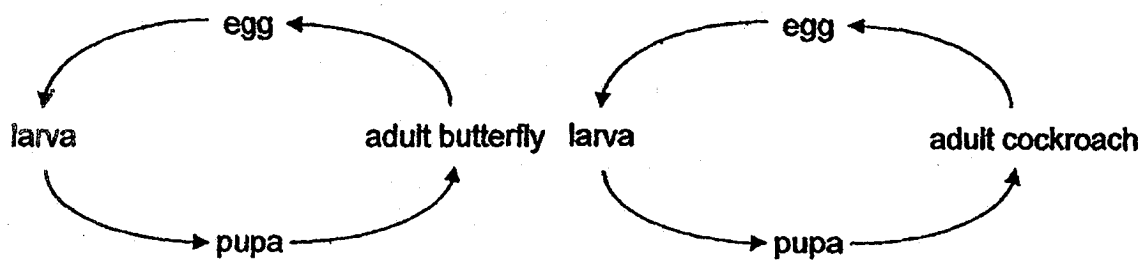
(b) Which animal group does Animal B belong to? [1]

(c) What question could be represented by X in the chart above? [1]

(Go on to the next page)

SCORE	3

30 Arif drew the life cycles of two insects, a butterfly and a cockroach, as shown below.



(a) One of the life cycles was not drawn correctly.

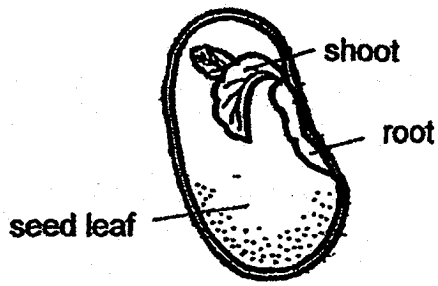
Draw the correct life cycle of that insect in the box below. [1]

(b) At which stage of the life cycle of a butterfly is it a pest to farmers? Give a reason. [1]

(Go on to the next page)

SCORE / 2

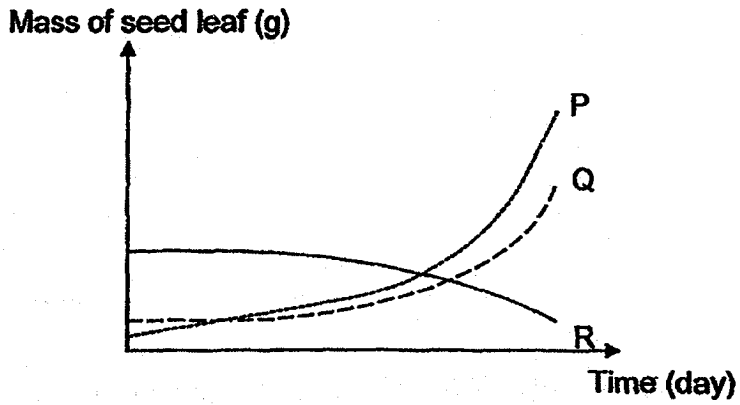
31 The diagram below shows part of a seed.



(a) State the function of the seed leaf. [1]

_____

In the graph below, the three curves, P, Q and R, show the changes in the mass of the seed leaf, the shoot and the root over a period of time.



(b) Based on the results above, which curve, P, Q or R, represents the mass of the seed leaf over a period of time? Explain your answer. [2]

_____

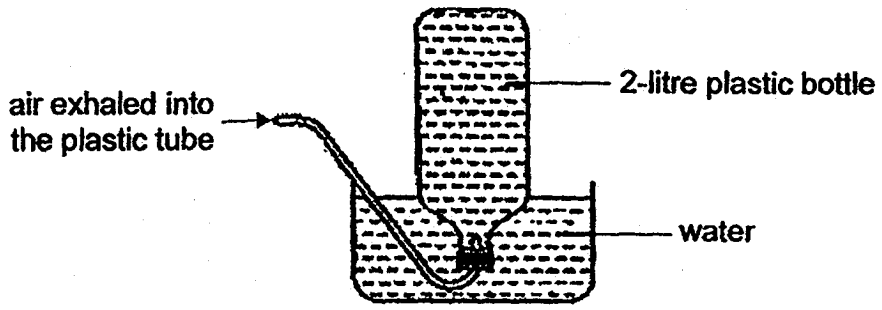
_____

_____

(Go on to the next page)

SCORE	3

32 A group of pupils set up an experiment as shown in the diagram below to find out whose lungs can hold the most air.



Each pupil took a deep breath and exhaled as much air as he could into the plastic tube. The table below shows the results they had obtained.

Name of pupil	Amount of water left in the plastic bottle (ml)
James	600
Peter	450
Adam	870
Sam	110

(a) Based on the results, which pupil had the greatest lung capacity? Give a reason for your answer. [1]

_____

_____

(b) Explain how this set-up is able to measure their lung capacity. [2]

_____

_____

_____

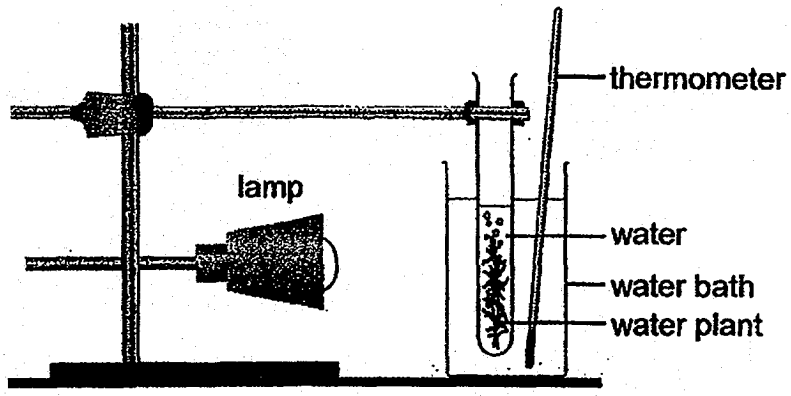
(c) State the gas(es) that is/are involved in gaseous exchange in the lungs. [1]

_____

(Go on to the next page)

SCORE	/ 4

33 Suzi set up the experiment below to find out how temperature affects the number of bubbles produced by the water plant.



She set the temperature of the water bath at 20°C to ensure that the water plant in the test tube was kept at the required temperature. She counted the number of bubbles produced per minute at 20°C. Next, she repeated the experiment at different temperatures. The results are shown below.

Temperature of water in the test tube (°C)	Number of bubbles produced per minute
20	8
25	12
30	25
35	36
40	31
45	25

(a) Describe how the rate of photosynthesis changes with temperature. [2]

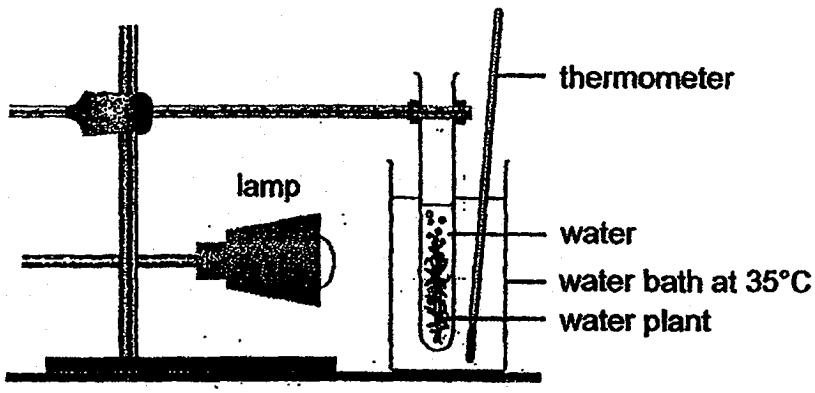
(b) Suzi conducted the experiment in a dark room. Give a reason why this helped to make the experiment a fair test.

(Go on to the next page)

SCORE 3

Continue from Question 33

Suzi also wanted to find out if the amount of light affects the number of bubbles produced by the water plant.



She kept the water bath at a constant temperature of 35°C and moved the lamp nearer to the water plant as shown above.

(c) What would she observe in the number of bubbles formed per minute? [1]

_____

(d) Explain how moving the lamp nearer to the water plant would cause the observation in (c). [1]

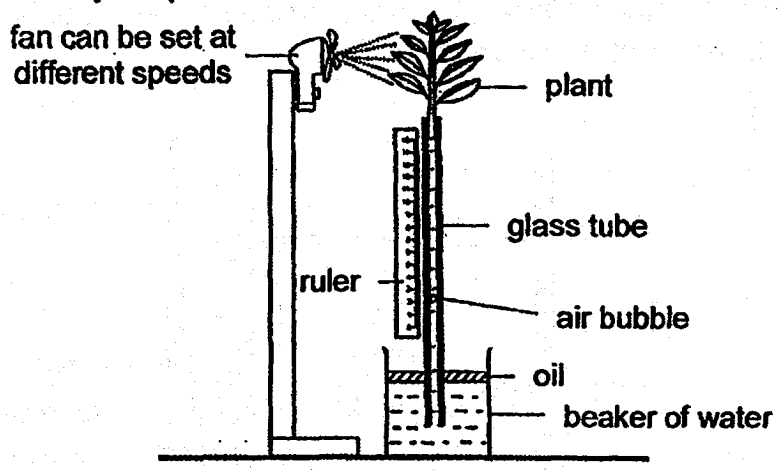
_____

_____

(Go on to the next page)

SCORE	/ 2

34 Wei Zheng used the set-up below to investigate how the speed of the fan affects the distance moved by the air bubble in the glass tube when water was taken in by the plant.



The investigation was conducted at different wind speeds over a duration of an hour. The results are shown in the table below.

Wind speed	Distance moved by the air bubble (cm)
high	13
medium	9
low	6

(a) What is the purpose of adding oil to the beaker of water in the set-up? [1]

_____

_____

(b) Based on the results of his investigation, what is the relationship between wind speed and the amount of water taken in by the plant? [1]

_____

_____

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

_____

_____

(Go on to the next page)

SCORE	3

35 A beaker was filled with 100 ml of water as shown in Diagram 1. Jie Bin put a cube of plasticine into the beaker of water as shown in Diagram 2.

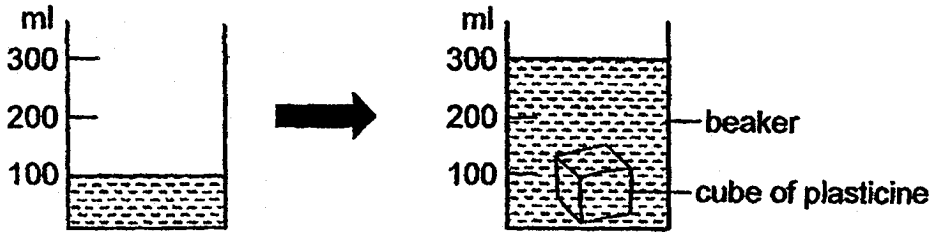


Diagram 1 Diagram 2

(a) He observed that the water level rose. Why? [1]

_____

_____

(b) Jie Bin took the cube of plasticine out, flattened it and put it back into the beaker of water again.

What was the total volume of the contents in the beaker now? Explain your answer. [2]

_____

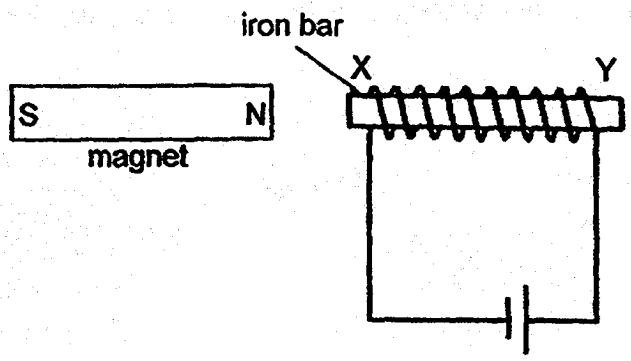
_____

_____

(Go on to the next page)

SCORE	/ 3

36 An iron bar XY was magnetised using the electrical method as shown below.



A magnet was brought near the iron bar and the magnet was immediately attracted to it.

(a) State what the magnetic poles of the iron bar would be at X and Y. [1]

At X: _____

At Y: _____

Aaron conducted a test with the magnetised iron bar in (a). Pins were placed, one at a time, at E, F and G until no more pins could be attracted by the iron bar. The result was observed as shown in Diagram 1.

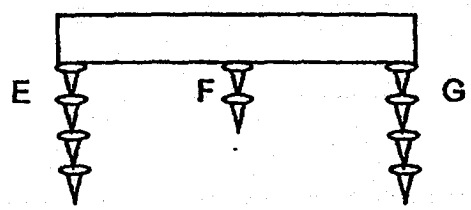


Diagram 1

(b) Based on his observation in Diagram 1, what can he conclude about the magnetised iron bar? [1]

_____

_____

(Go on to the next page)

SCORE	/2

Continue from Question 36

Aaron conducted a second test with two bars of the same size, M and N. One of the bars was a magnet and the other was a magnetic material.

In order to find out which bar was the magnet, Aaron arranged the bars, M and N, as shown in Diagram 2. He found that there was a weak attraction between the bars. When he rearranged the bars as shown in Diagram 3, the attraction between them was strong.

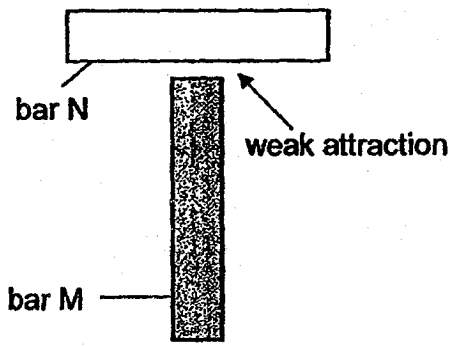


Diagram 2

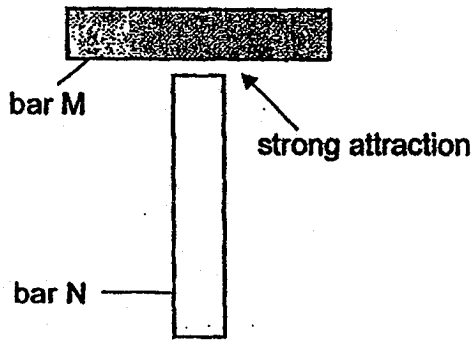
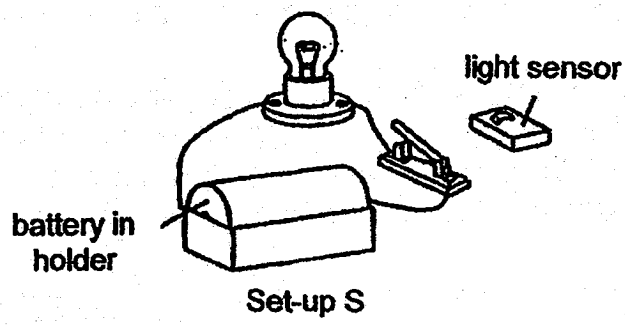


Diagram 3

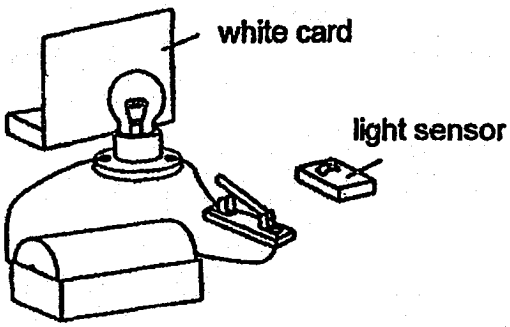
(c) Based on the observations made in Aaron's two tests, which bar, M or N, was the magnet? Explain your answer. [2]

SCORE 2

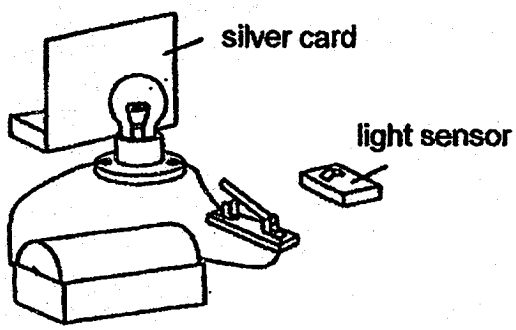
37 Gabby conducted an experiment in a dark room using similar bulbs and batteries with the set-ups below. A white and silver card was placed at the same distance behind the light bulb in set-ups T and U respectively.



Set-up S



Set-up T



Set-up U

She recorded the results in the table below.

Set-up	Light sensor reading (unit)
S	22
T	74
U	63

(a) Explain why the light sensor in Set-up T produced the highest reading. [1]

_____

_____

(Go on to the next page)

SCORE	/1

Continue from Question 37

(b) Give a reason how each of the following actions helps to make Gabby's experiment a fair test. [2]

(i) placing each card at the same distance behind the light bulb in set-ups T and U

____

____

(ii) using Set-up S

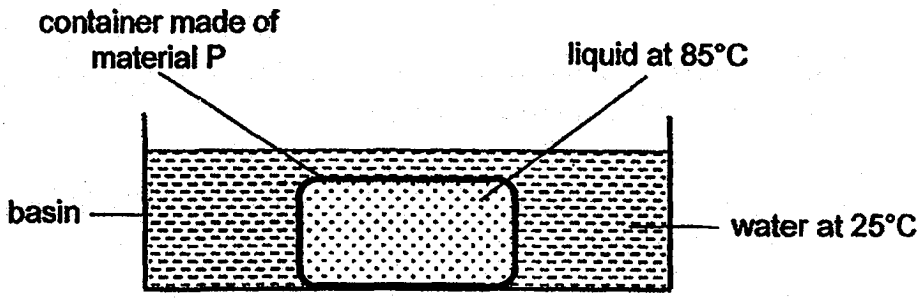
____

____

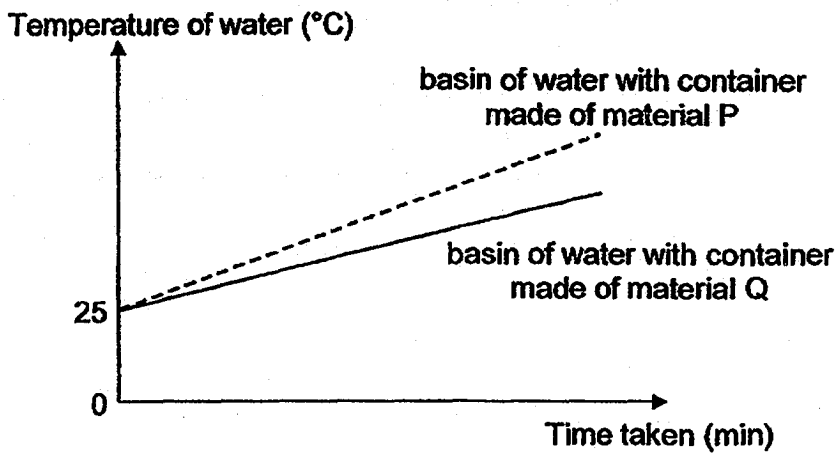
(Go on to the next page)

SCORE	2

38 Rahman conducted an experiment using the set-up below.



He measured the temperature of water in the basin over a period of time. He repeated the experiment using a container made of material Q. His results are shown in the graph below.



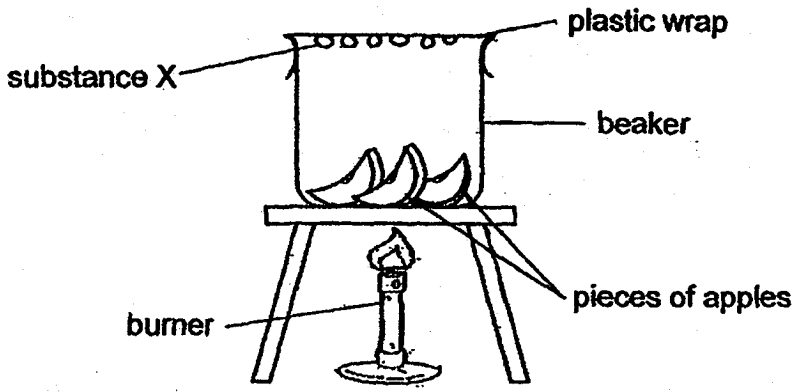
(a) Based on his results, which material, P or Q, is a better conductor of heat? Explain your answer. [2]

(b) Rahman wanted to bring cold drinks for a school trip. Which material, P or Q, would be more suitable for a container to keep the drinks cool for a longer period of time? Explain your answer. [1]

(Go on to the next page)

SCORE 3

39 Tanisha put some pieces of apples into a beaker and placed a clear plastic wrap over the opening as shown in the set-up below. The beaker was then heated over a burner.



After a while, substance X could be observed on the underside of the plastic wrap.

(a) What was substance X? [1]

_____

(b) Explain how substance X was formed on the underside of the plastic wrap. [2]

_____

_____

_____

(c) The plastic wrap in the above set-up was later changed to an aluminium sheet.

How would this affect the amount of substance X formed on the underside of it? Explain your answer. [2]

_____

_____

_____

(Go on to the next page)

SCORE	/ 5

40 Li Xin sets up a circuit as shown in Diagram 1 to find out what will happen to the bulb in the circuit when four rods, A, B, C and D, are placed one at a time across RS. The results are recorded in the table below.

Rod at RS	Bulb lights up
A	yes
B	yes
C	no
D	yes

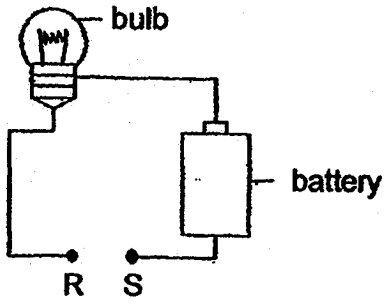


Diagram 1

After that, Li Xin sets up another circuit as shown in Diagram 2 below.

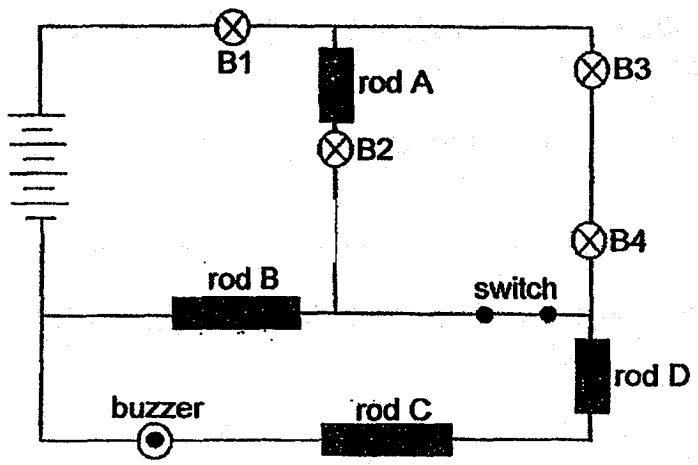


Diagram 2

(a) Based on the circuit in Diagram 2, how many bulbs will light up? [1]

_____

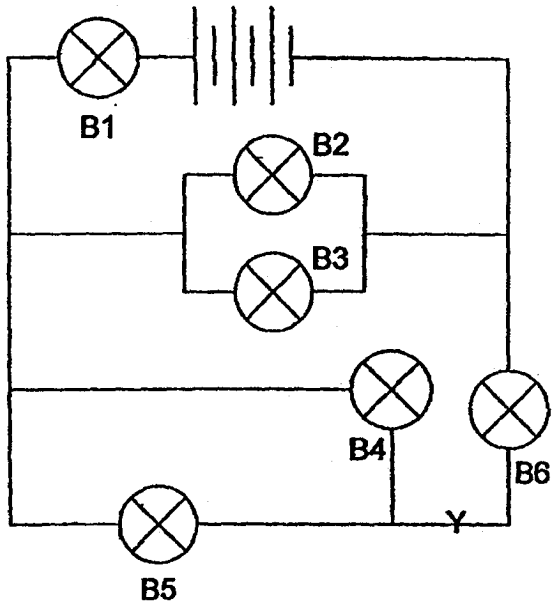
(b) Assuming that none of the bulbs are fused, what will you observe about the bulbs and the buzzer if the positions of rod B and rod C are switched? Put a tick (√) in the box below. [1]

Tick if the bulbs light up		Tick if the buzzer sounds
B1		
B2		
B3		
B4		

(Go on to the next page)

SCORE	2

41 Devan connected six identical bulbs, B1, B2, B3, B4, B5 and B6, to three batteries in the circuit as shown below.



He wanted to add three switches, S1, S2 and S3, to the circuit so that only certain bulbs would light up when different switches were closed according to the table below.

Switch(es) closed	Bulbs that will light up
S1, S2 and S3	all bulbs
S1 only	B1, B5 and B6 only
S2 only	B1, B4 and B6 only
S3 only	B1, B2 and B3 only

(a) Mark the positions of the three switches in the circuit above using 'X' and label them as S1, S2 and S3. [2]

(b) Devan added another bulb at the position marked 'Y'. When only S2 was closed, would B1, B4 and B6 be brighter, dimmer or remain the same? Explain your answer. [2]

_____

_____

_____

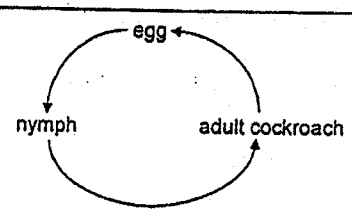
End of Booklet B

SCORE	4

SCHOOL : CATHOLIC HIGH PRIMARY SCHOOL
LEVEL : PRIMARY 5
SUBJECT : SCIENCE
TERM : 2018 SA2

SECTION A

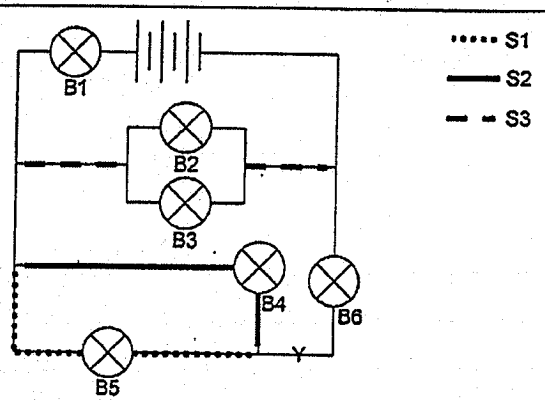
Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
4	2	3	2	4	3	1	3	4	1
Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
2	1	2	4	3	1	4	2	1	3
Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
2	4	1	3	3	1	4	2		

Qn	Correct / Acceptable Answer
29a	Both do not have six legs.
b	insect / insects
c	Does it have feathers?
30a	
b	larval stage It feeds on a lot of leaves of plants / crops / vegetables in preparation for the pupal stage.
31a	It provides / stores food for the shoot / baby plant / seedling.
b	R As the seedling grows, the mass of seed leaf decreases since the seedling gets its food supply from it.
32a	Sam He had the least amount of water left in the plastic bottle.
b	The air that is exhaled pushes the water out of the plastic bottle to occupy / take up the space in it. The amount of air in the plastic bottle (previously occupied by the water) is the lung capacity.
c	oxygen and carbon dioxide
33a	As the temperature of water increases, the rate of photosynthesis increases until 35°C. From 40°C, the rate of photosynthesis decreases.
b	To ensure that the water plant is only receiving light from the lamp and not other light sources.
c	The number of bubbles produced per minute would increase.

Qn	Correct / Acceptable Answer
33d	As the light intensity increases, more light is trapped by the water plant, hence rate of photosynthesis increases.
34a	To prevent the evaporation of water so that water lost from the beaker is due to the plant taking in water.
b	As wind speed increases / decreases, the amount of water taken in by the plant increases / decreases.
c	There is more water loss from the leaves, so the amount of water taken in by the plant increases.
35a	The cube of plasticine occupies / takes up space in the beaker of water hence the water level rose.
b	300 ml The cube of plasticine is a solid and has a definite volume even when it changes its shape.
36a	At X: South pole / South-seeking pole At Y: North pole / North-seeking pole
b	The magnetic strength / magnetism / magnetic force of the iron bar is strongest at its poles but weakest in the middle of the bar.
c	Bar N In Diagram 2, the middle of bar N used to attract bar M resulted in a weak attraction. In Diagram 3, the pole of bar N used to attract the middle of bar M resulted in a strong attraction. This happens only in a magnet where the magnetic strength / magnetism / magnetic force is strongest at its poles but weakest in the middle.
37a	The white card reflected the most light from the light bulb to the light sensor.
b	(i) Each card will receive the same amount of light from the light bulb. (ii) To compare and confirm that the changes in the light sensor readings are due to the cards reflecting the light from the bulb.
38a	Material P For the same duration, the temperature of water in the basin rises faster. The liquid in the container made of material P loses heat faster to the water in the basin.

<table>
<tr><th>Qn</th><th>Correct / Acceptable Answer</th></tr>
<tr><td>38b</td><td>Material Q. It is a poorer conductor of heat so the drinks gain heat slower from the surroundings.</td></tr>
<tr><td>39a</td><td>water / water droplets</td></tr>
<tr><td>b</td><td>Moisture / Water from the apple gained heat from the burner and evaporated.

The water vapour came into contact with the cool / cooler underside of the plastic wrap and condensed to form water droplets.</td></tr>
<tr><td>c</td><td>The amount of substance X increased / More water droplets would be formed.

Aluminium sheet is a better conductor of heat allowing more water vapour to condense on it.</td></tr>
<tr><td>40a</td><td>4</td></tr>
<tr><td>b</td><td>
<table>
<tr><th>Tick if the bulbs light up</th><th></th><th>Tick if the buzzer sounds</th></tr>
<tr><td>B1</td><td>✓</td><td rowspan="4">✓</td></tr>
<tr><td>B2</td><td>✓</td></tr>
<tr><td>B3</td><td>✓</td></tr>
<tr><td>B4</td><td>✓</td></tr>
</table>
</td></tr>
<tr><td>41a</td><td> 
</td></tr>
<tr><td>b</td><td>The bulbs would be dimmer.

The bulbs were arranged in series so electric current passing through the bulbs was reduced.</td></tr>
</table>