SEMESTRAL ASSESSMENT ONE

(2017) PRIMARY FIVE

SCIENCE

BOOKLET A

Name: _____ ( )

Class: Primary 5 - _____

Date: 9 May 2017

28 questions

56 marks

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

INSTRUCTIONS TO CANDIDATES

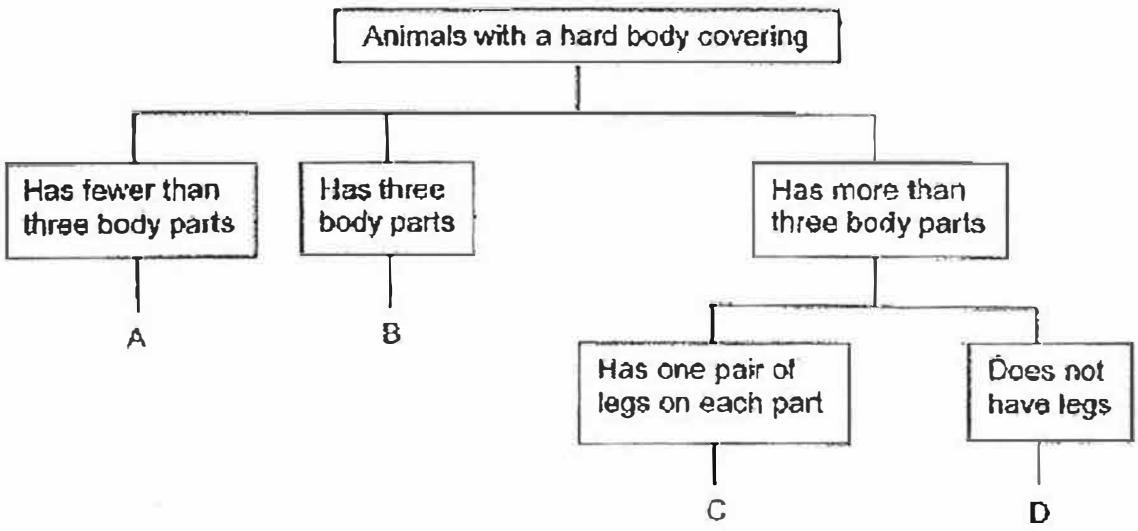
Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Shade your answers in the Optical Answer Sheet (OAS) provided.

This booklet consists of 21 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 The diagram below shows how animals A, B, C and D are classified.



Jacky found an animal as shown below. He noted that the animal had a hard body covering.

Which one of the following, A, B, C or D, best represents the above animal?

(1) A

(2) B

(3) C

(4) D

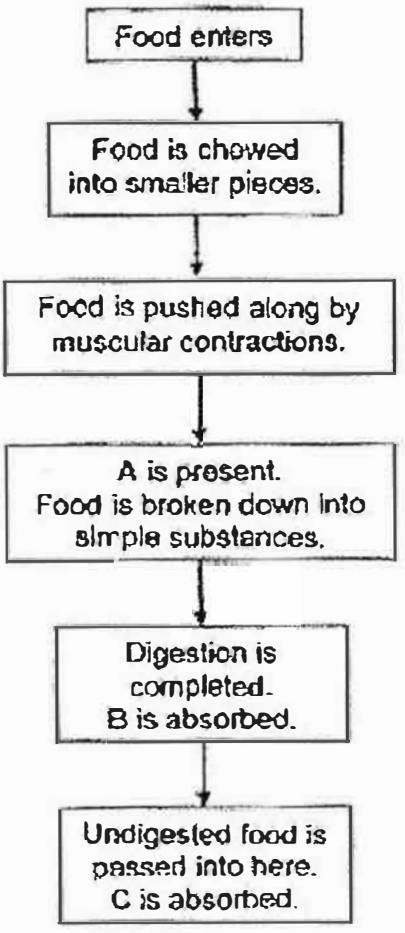
2 Which one of the following comparisons between non-flowering plants and fungi is correct?

	Non-flowering plants	Fungi
(1)	can bear fruits	cannot bear fruits
(2)	can make food	cannot make food
(3)	can be pollinated	cannot be pollinated
(4)	can reproduce by spores	cannot reproduce by spores

3 Which one of the following does not describe the function of a plant part correctly?

	Plant parts	Function
(1)	stem	transports water only
(2)	roots	anchor the plant to the ground
(3)	leaves	make food
(4)	flowers	attract animals for pollination

4 The diagram below shows what happens in the human digestive system.



Based on the information given above, what do A, B and C represent?

	A	B	C
(1)	nutrients	water	digestive juice
(2)	nutrients	digestive juice	water
(3)	digestive juice	nutrients	water
(4)	digestive juice	water	nutrients

5 The diagram shows an insect.

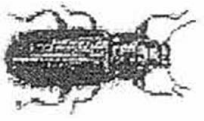
Which of the following animals have the same number of stages in their life cycles as the insect above?

mosquito

grasshopper

chicken

frog



mealworm beetle

(1) chicken and frog only

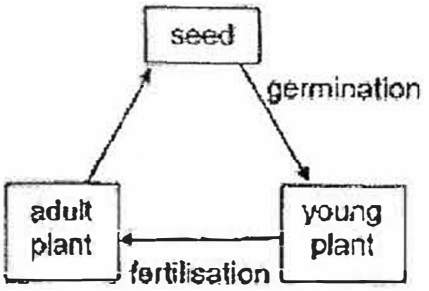
(2) mosquito and grasshopper only

(3) mosquito and mealworm beetle only

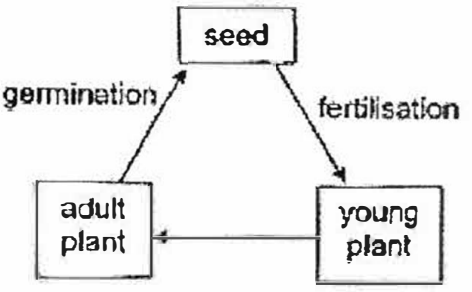
(4) mosquito, grasshopper and mealworm beetle only

6 Which one of the following shows the order of stages and processes in the life cycle of a plant?

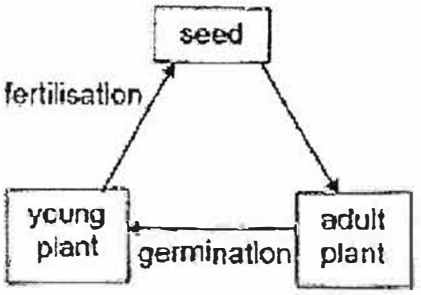
(1)



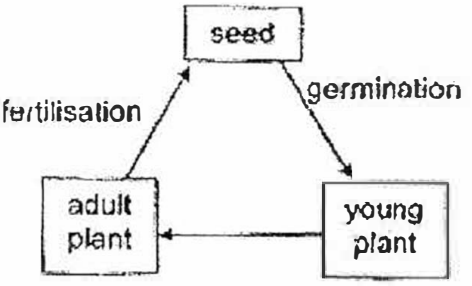
(2)



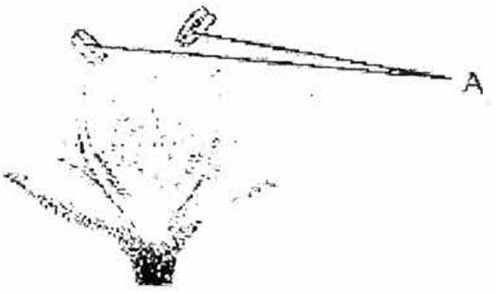
(3)



(4)



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

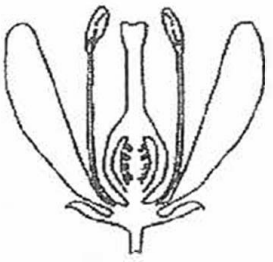


What will happen to the flower if A is cut off?

A The flower will die.
B Fertilisation will not take place.
C The flower cannot produce pollen grains.

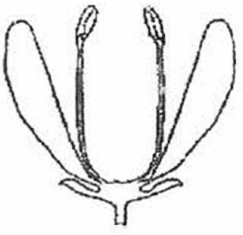
(1) A only
(2) C only
(3) A and B only
(4) B and C only

8 . Jackie conducted an experiment on Flower K which he found in the park near his home.

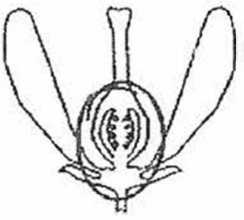


Flower K

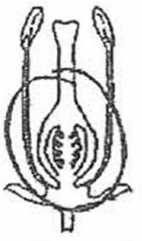
He took three such flowers and removed some parts from each flower as shown below.



Flower 1



Flower 2



Flower 3

Next, he dusted pollen from Flower K onto each of the above Flowers 1, 2 and 3. He observed the flowers over the next few weeks.

Which of the flower(s) will not develop into fruits?

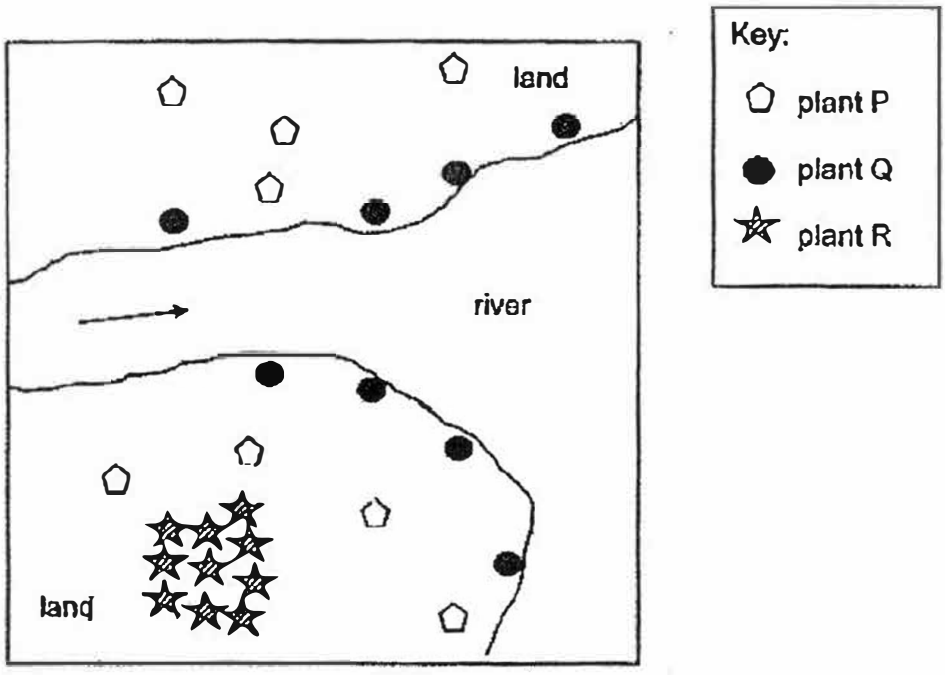
(1) Flower 1 only

(2) Flower 2 only

(3) Flowers 2 and 3 only

(4) Flowers 1, 2 and 3

9 Kate mapped the location of plants P, Q and R in an area as shown below.

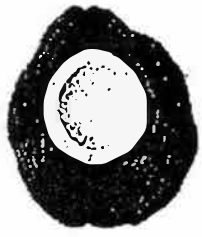


Kate found the following fruits in the same area.

Fruit X

Fruit Y

Fruit Z



Which of the following correctly matches each fruit to its parent plant?

	Fruit X	Fruit Y	Fruit Z
(1)	plant P	plant Q	plant R
(2)	plant R	plant P	plant Q
(3)	plant Q	plant P	plant R
(4)	plant P	plant R	plant Q

10 Tom conducted an experiment using some similar seeds and planted them in different types of soil over two weeks. The size of the pots and the amount of soil have been kept the same. He recorded his experiment in the table as shown below.

Pot	Type of soil	Amount of water given daily (cm^3)	Number of seeds planted	Average height of seedlings after 2 weeks (cm)
P	Garden	100	10	5.0
Q	Sandy	100	20	9.5
R	Garden	100	20	7.5
S	Sandy	100	10	6.0

Which of the following are possible aims for Tom's experiment?

A To find out if overcrowding affects the average height of seedlings.
B To find out if the average heights of seedlings affect the growth of seedlings.
C To find out if different types of soil used affect the average height of seedlings.
D To find out if different amounts of water given daily affect the average height of seedlings.

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

11 The table below shows the physical characteristics of Angie and her parents, Mr. and Mrs. Chia.

	Physical Characteristics			
	Earlobes	Eyelids	Dimples	Hair length
Mr. Chia	Detached	Single	Yes	Short
Mrs. Chia	Attached	Double	No	Short
Angie	Attached	Double	Yes	Short

How many characteristics did Angie inherit from her parents?

(1) She inherited one from her father and one from her mother.
(2) She inherited one from her father and two from her mother.
(3) She inherited two from her father and one from her mother.
(4) She inherited two from her father and three from her mother.

12 Which one of the following statements is incorrect about sexual reproduction in both flowering plants and humans?

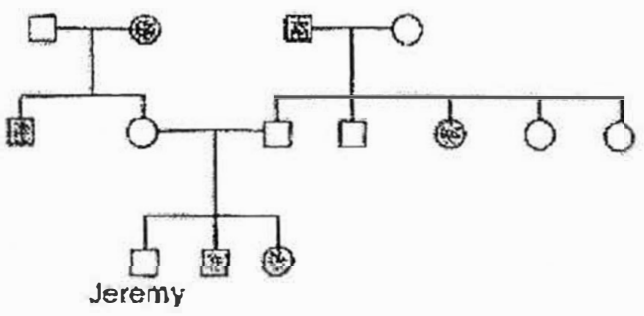
(1) Pollination must take place before fertilisation.

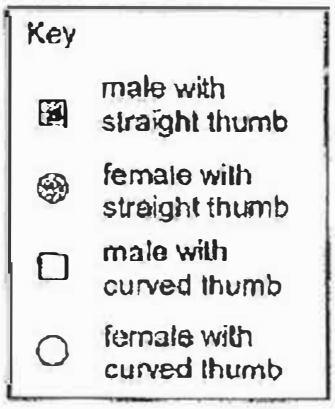
(2) Sexual reproduction involve male and female reproductive cells.

(3) Fertilisation occurs when the male and female reproductive cells fuse

(4) Characteristics are passed on from parents to their young through sexual reproduction.

13 Study Jeremy's family tree below. The family tree shows the members who have straight or curved thumbs.





Which one of the following statements about Jeremy's family tree is correct?

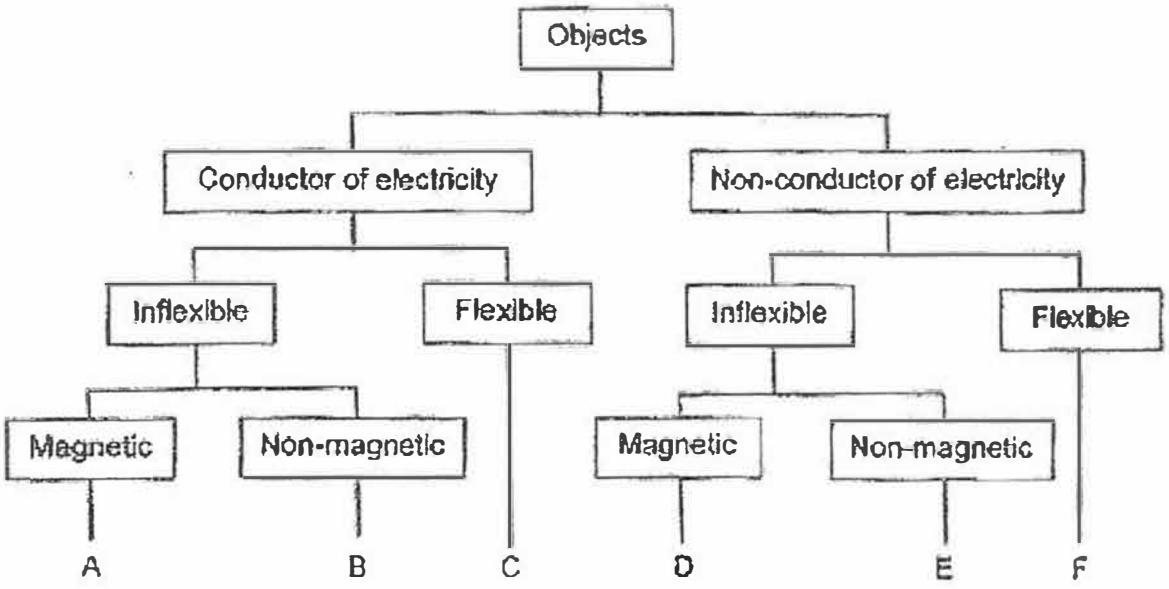
(1) Jeremy's parents have straight thumbs.

(2) Both Jeremy and his sister have straight thumbs.

(3) Both Jeremy's grandmothers have curved thumbs.

(4) Jeremy's father has a brother with a curved thumb.

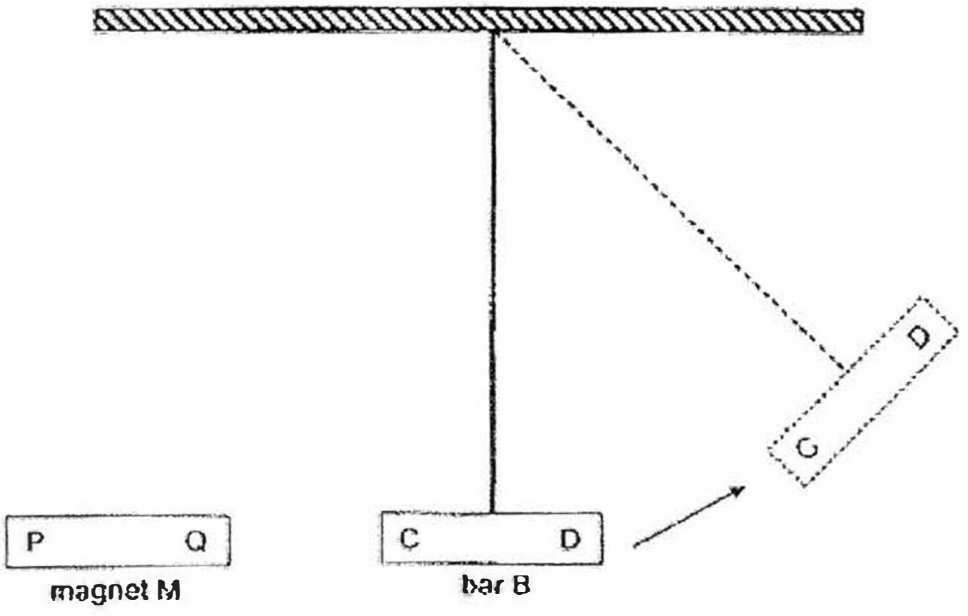
14 Study the classification chart below.



Which object, A, B, C, D, E or F, represent a steel nail and rubber hose?

	Steel nail	Rubber hose
(1)	A	F
(2)	A	E
(3)	B	F
(4)	C	D

15 The diagram below shows a freely-suspended metal bar B with ends labelled C and D.
When magnet M is brought near bar B, bar B swings away in the direction as shown below.



What can you conclude from this experiment?

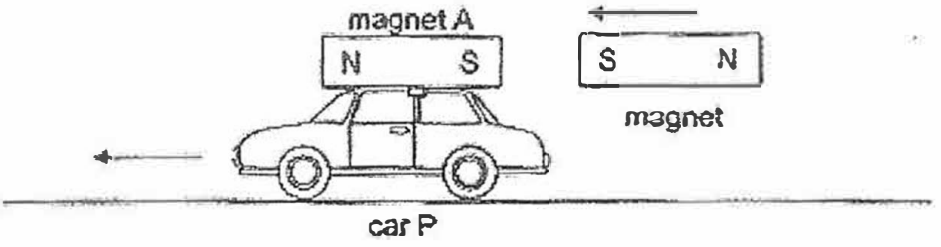
(1) Bar B is not a magnet.

(2) Bar B is made of silver.

(3) Ends Q and C are like poles.

(4) Ends P and D are unlike poles.

16 Magnet A was strapped to toy car P. Tim wanted to test the strength of 4 magnets, W, X, Y and Z, of similar sizes. He moved magnet W closer to magnet A and recorded the distance travelled by car P.
He then repeated the experiment with magnets X, Y and Z.



The distances travelled by car P are shown in the table below.

Magnet	Distance (cm)
W	8
X	14
Y	13
Z	20

Based on the results above, which magnet is the strongest?

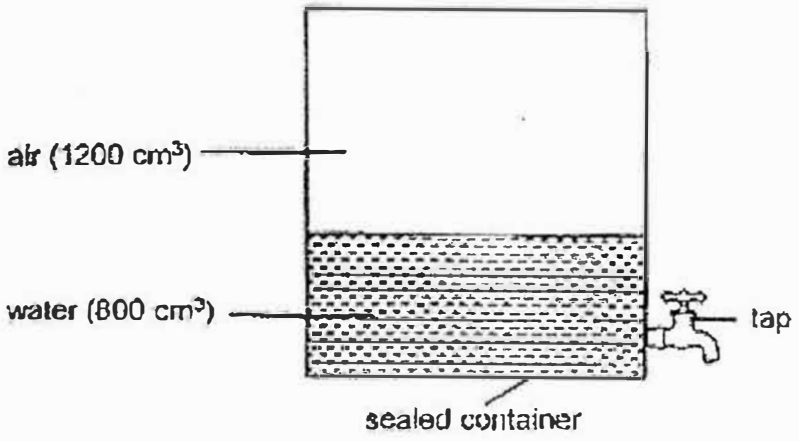
(1) W

(2) X

(3) Y

(4) Z

17 Dennis conducted an experiment using the set-up as shown.
The capacity of the container is 2000 cm^3.



He used the tap to remove 500 cm^3 of water.

What was the volume of air in the container after 500 cm^3 of water was removed?

(1) 800 cm^3

(2) 1200 cm^3

(3) 1700 cm^3

(4) 2000 cm^3

18 A torch was used to shine at a mug made from a material that does not allow light to pass through. The mug was placed in different positions.

Which one of the following shadows could not be formed?

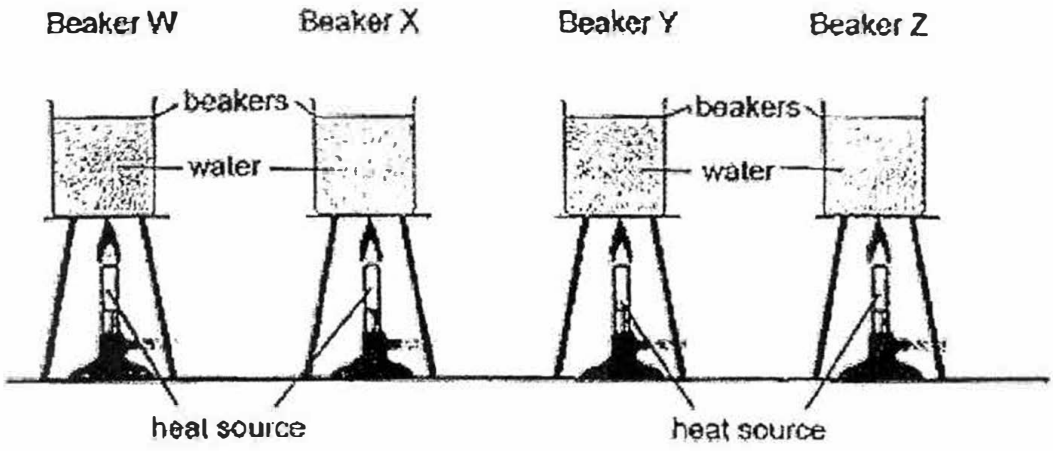
(1)

(2)

(3)

(4)

19 Four beakers, W, X, Y and Z, made of different materials but of similar size and thickness were filled with the same amount of water and the water was heated to boiling point using similar heat sources.



The table below shows the time taken for the water in each beaker to reach boiling point.

Beaker	Time (min)
W	22
X	9
Y	8
Z	14

Which of the following shows the likely material that each beaker was made of?

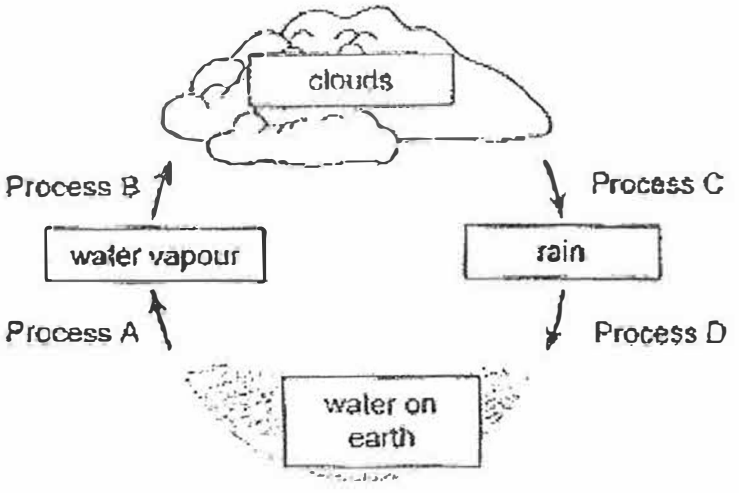
	Beaker W	Beaker X	Beaker Y	Beaker Z
(1)	iron	glass	ceramic	aluminium
(2)	glass	ceramic	aluminium	iron
(3)	aluminium	iron	glass	ceramic
(4)	ceramic	aluminium	iron	glass

20 A glass of water with some ice cubes were left on the table for half an hour.

Which of the following correctly shows the heat gain and heat loss taking place in the ice cubes, water in the glass and glass during the experiment?

	Ice cubes	Water in the glass	Glass
(1)	heat loss	heat loss	heat gain
(2)	heat gain	heat gain	heat loss
(3)	heat loss	heat gain	heat gain
(4)	heat gain	heat loss	heat loss

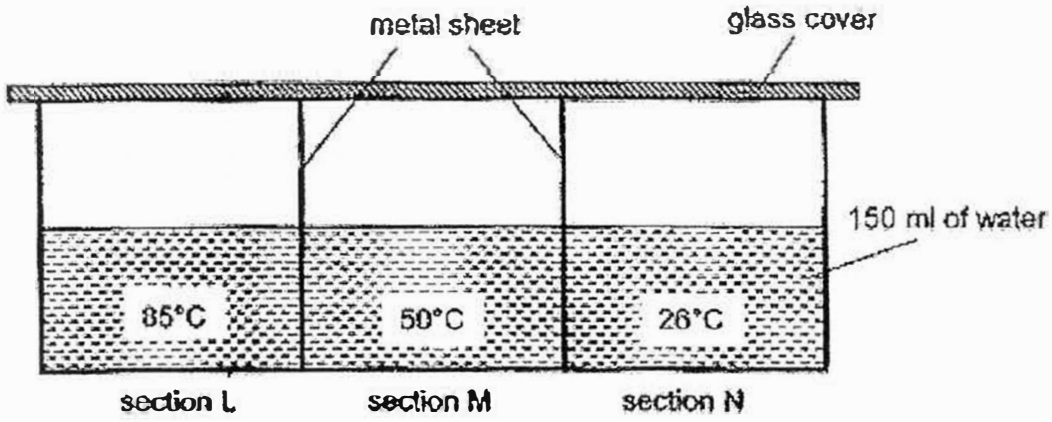
21 The diagram below shows the water cycle.



Which processes, A, B, C or D, represent evaporation and condensation?

	Evaporation	Condensation
(1)	A	B
(2)	B	A
(3)	C	D
(4)	D	C

22 A large metal container is separated by 2 similar metal sheets into 3 sections L, M and N. Each section is filled with 150 ml of water at different temperatures as shown. The room temperature is at 26°C.



Which of the following statements are correct about what would be observed after a period of time?

A Heat flows from section L to section M to section N.

B Water in section M gains heat from water in section L.

C Temperature of water in section N will drop after an hour.

D More water droplets will be found under the glass cover in section L than in section M.

(1) A and B only

(2) A and C only

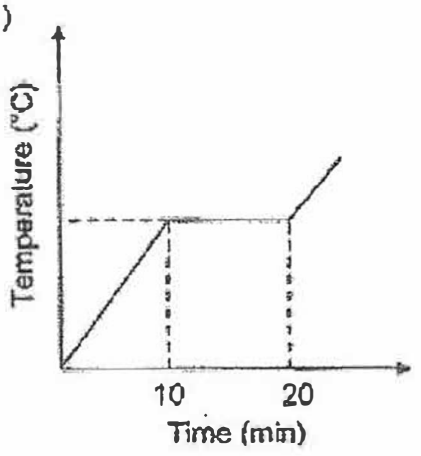
(3) A, B and D only

(4) B, C and D only

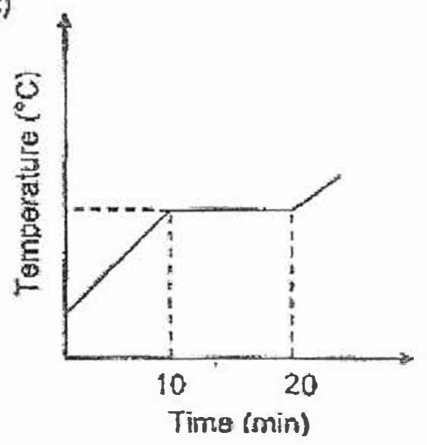
23 Linda heated a pot of tap water in her kitchen for 10 minutes until it started boiling. She continued boiling it for another 10 minutes before adding some vegetables into the water.

Which one of the following graphs shows the changes in the temperature of the water?

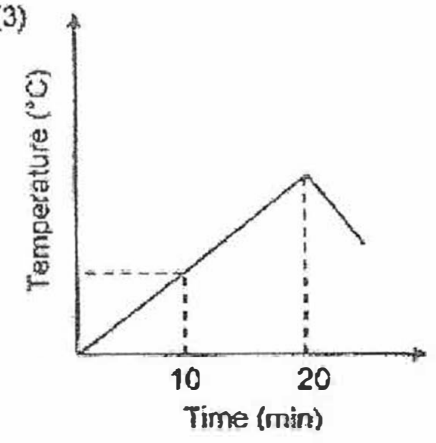
(1)



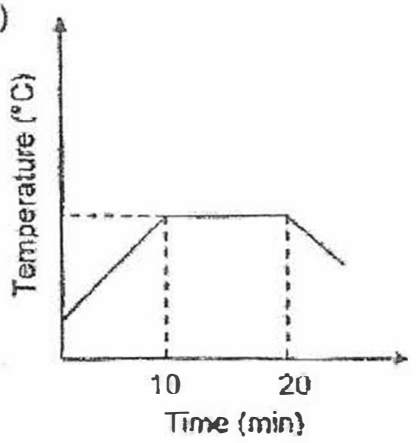
(2)



(3)

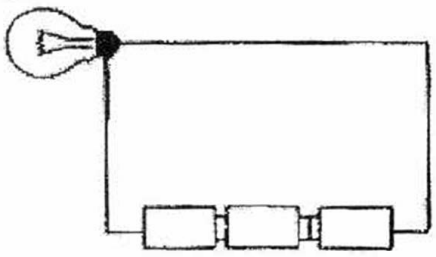


(4)

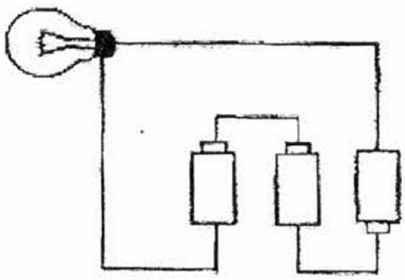


24 In which one of the following circuits will the bulb not light up?

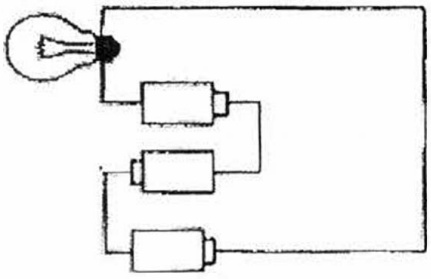
(1)



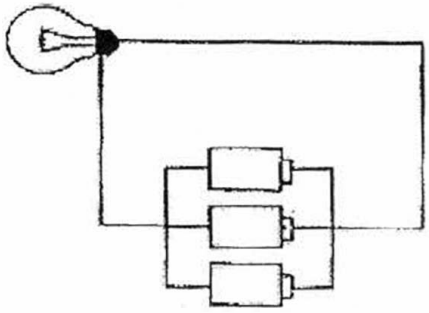
(2)



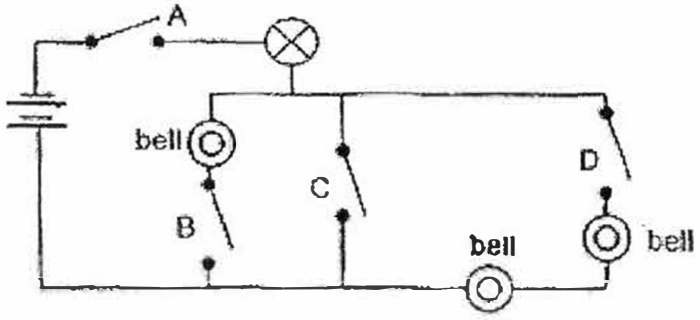
(3)



(4)



25 Study the circuit diagram below.



Which of the switches must be closed in order to light up only the bulb but not ring any bell?

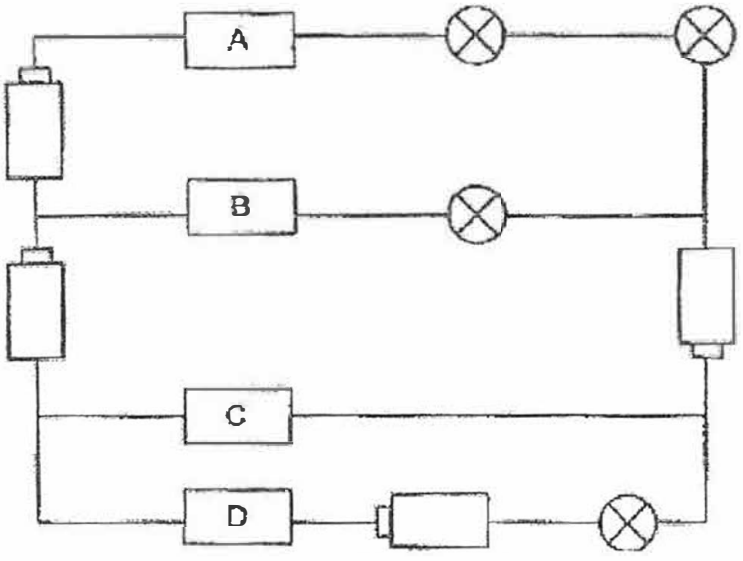
(1) A and C only

(2) A and D only

(3) B and C only

(4) B and D only

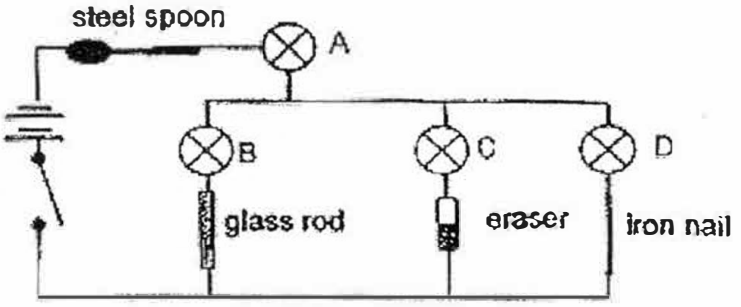
26 Four materials, A, B, C and D, of similar size were connected in the electrical circuit as shown below.



What could materials A, B, C and D be in the electrical circuit so that only two of the bulbs will light up?

	Material A	Material B	Material C	Material D
(1)	wood	copper	silver	plastic
(2)	plastic	silver	copper	wood
(3)	silver	plastic	copper	wood
(4)	copper	plastic	wood	silver

27 The diagram below shows four bulbs A, B, C and D connected correctly in a circuit.



Which of the bulbs will light when the switch is closed?

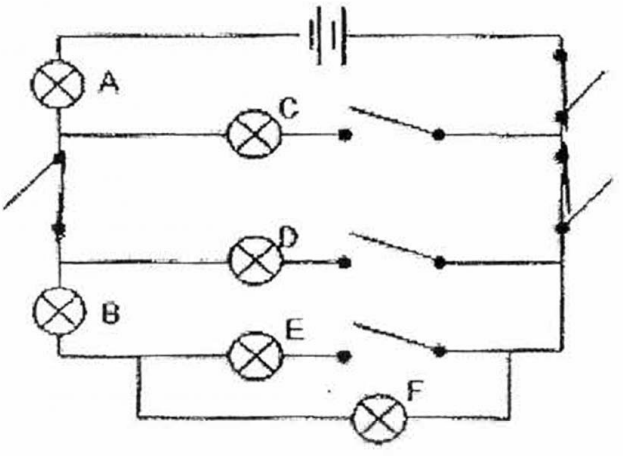
(1) A and D only

(2) B and C only

(3) A, B and C only

(4) A, B, C and D

28 Study the electrical circuit below.



What is the minimum number of switches that has to be closed so that bulbs A, B and F will light up?

(1) 3

(2) 4

(3) 5

(4) 6

End of Booklet A

SEMESTRAL ASSESSMENT ONE

(2017) PRIMARY FIVE

SCIENCE

BOOKLET B

Name: _____ ( )

Class: Primary 5 - _____

Date: 9 May 2017

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

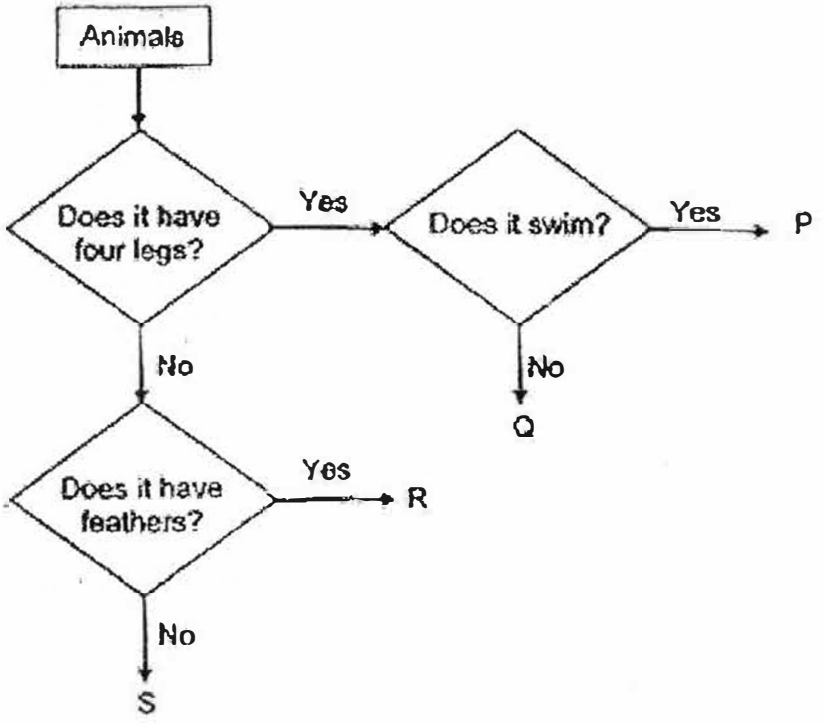
Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Write your answers in this booklet.

This booklet consists of 17 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 flow chart below.

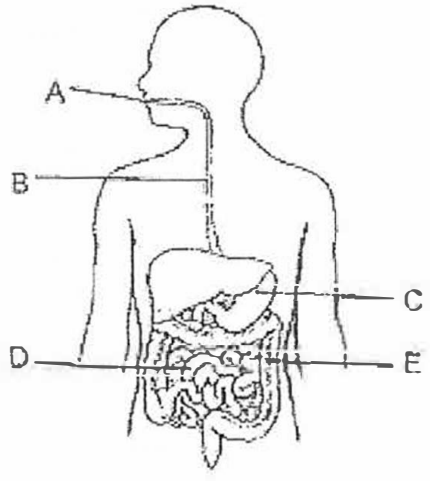


(a) Based on the flow chart above, write down the characteristics of animal Q. [1]

(b) How is animal Q different from animal R? [1]

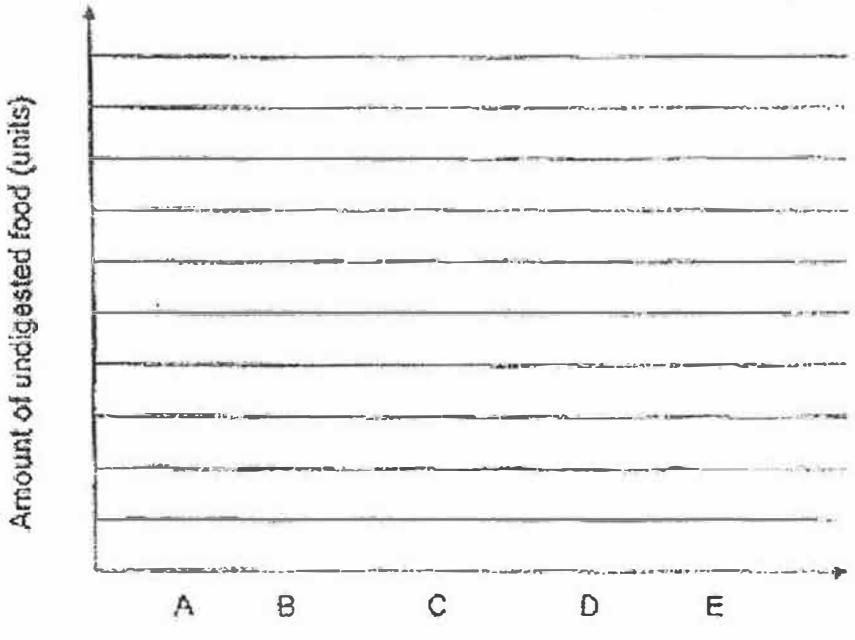
(Go on to the next page)

30 The diagram below shows the human digestive system.



The graph below shows the amount of undigested food in each part of the digestive system just before it travels to the next part.

(a) Draw bars to complete the graph to show the ~~amout~~ amount of undigested food at A and E. [1]

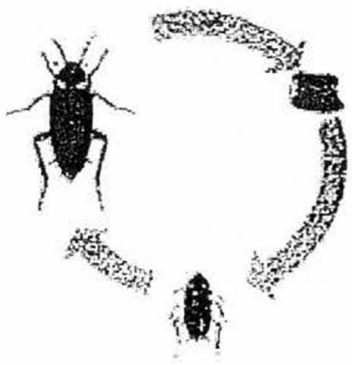


(b) Explain what happened to the digested food at D. [1]

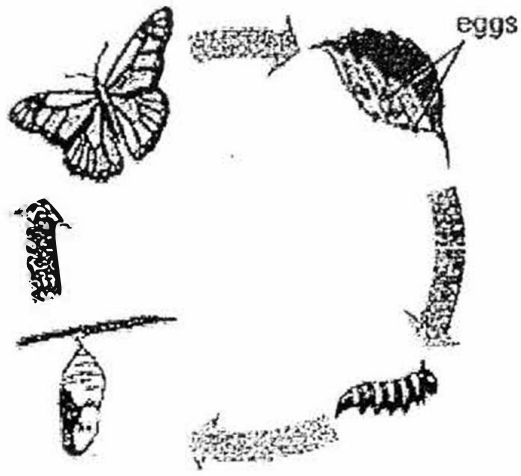
(Go on to the next page)

SCORE	2

31 Look at the two life cycles below.



Life cycle of a cockroach



Life cycle of a butterfly

Compare their life cycles and state two differences. [2]

(i) _____

_____

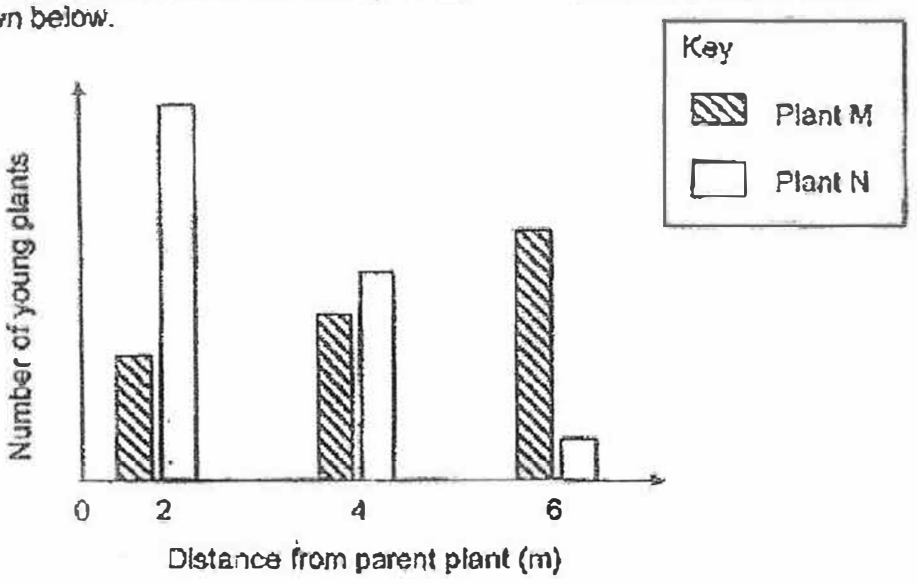
(ii) _____

_____

(Go on to the next page)

SCORE	2

32 Audrey counted the number of two different types of young plants, M and N, at various distances from their parent plants in a field. The results are shown below.



Which one of the following is likely to be the fruit of plant M?
Choose your answer and put a tick (√) in the box.

☐

☐

Explain your answer. [2]

_____

_____

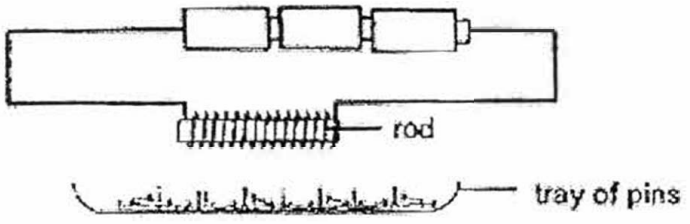
_____

_____

(Go on to the next page)

SCORE	/ 2

33 Mary had four rods, A, B, C and D, each made of different materials. She wanted to investigate the magnetic strength of each rod using the following set-up. The number of pins in the tray was 50.



She placed Rod A 15 cm above the tray of pins and recorded the number of pins left in the tray. She repeated the experiment with Rods B, C and D. The number of pins left in the tray was recorded in the table below.

Rod	Number of pins left in the tray
A	32
B	28
C	35
D	21

(a) Based on the table above, which rod was the strongest electromagnet when the switch was closed? Explain your answer. [1]

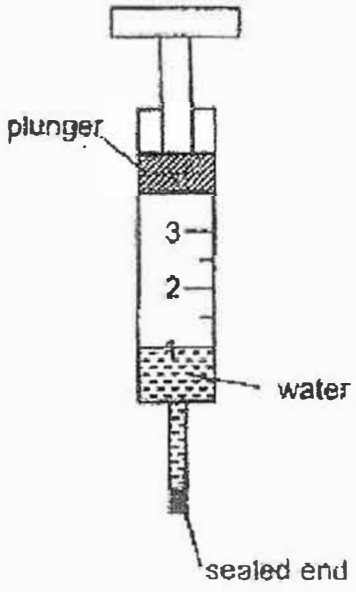
(b) Without changing the set-up, what could Mary do so that there would be fewer pins left in the tray? [1]

(c) When Mary replaced the rod with rod Q, she observed that the number of pins left in the tray was 50. Based on this observation, what can you tell about the property of rod Q? [1]

(Go on to the next page)

SCORE / 3

34 Jason filled a syringe with some water and then sealed the opening as shown below.



He then tried to push in the plunger.

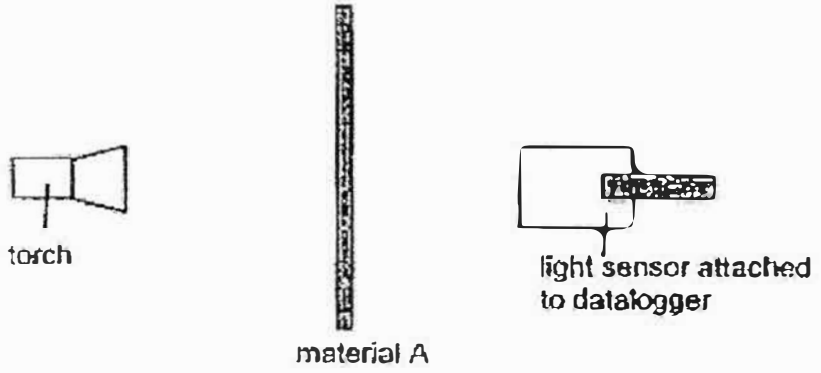
(a) What do you think would happen to the volume of air and water in the syringe when he pushed in the plunger? [2]

(b) If Jason were to continue pushing the plunger in, would it reach the "1" mark on the syringe? Explain your answer. [1]

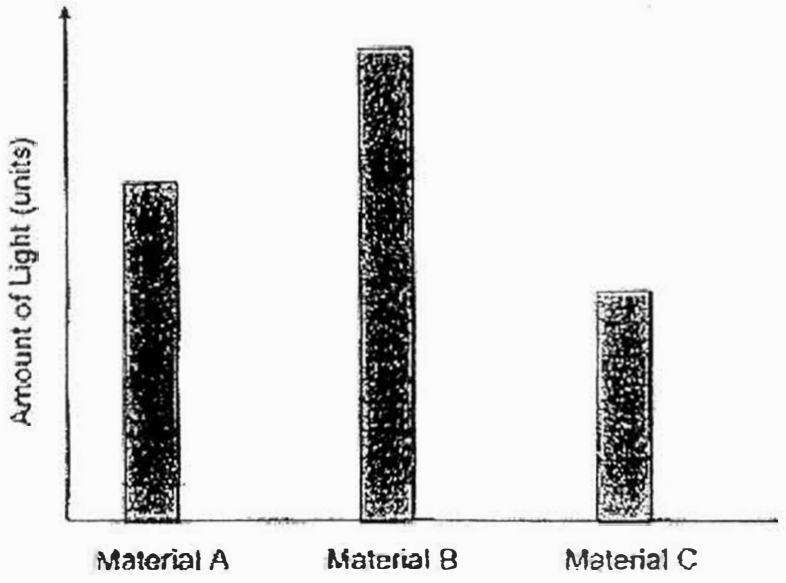
(Go on to the next page)

SCORE 3

35 Zach conducted an experiment in a completely dark room to find out how well materials A, B and C allow light to pass through. He shone a torch at a screen made of the material A and recorded the amount of light that passed through the material using a light sensor attached to a datalogger. He then repeated the experiment using materials B and C one at a time.



The graph below shows the results of Zach's experiment.



(a) Give a reason why Zach should conduct his experiment in a completely dark room. [1]

(Go on to the next page)

SCORE 1

Continue from question 35

(b) The window of a shop is designed to allow passers-by to see the displays clearly.

Based on Zach's experiment, which material is most suitable for making the window of the shop? Explain your choice. [2]

(c) Draw light rays below to show how Zach's sister is able to see what she is drawing. [1]

(Go on to the next page)

SCORE	3

38 (a) Justin conducted an experiment by heating three similar rods made of metals U, V and W for 25 minutes. He recorded the lengths of each rod before and after the heating in the table below.

Metal	Length before heating (cm)	Length after heating (cm)
U	3	3.20
V	3	3.07
W	3	3.04

(i) Based on the results of this experiment, what can Justin conclude about the effects of heating on different metals? [1]

(ii) In another experiment, Justin heated a thinner rod made of metal U of length 3 cm for 25 minutes.

Would the rod take less than, equal to or longer than 25 minutes to reach the length of 3.2 cm? Give a reason for your answer. [2]

(b) As Justin was walking across a bridge, he noticed that the bridge had special joints like the one shown in the picture below.

Why do you think a bridge need joints with gaps in them? [2]

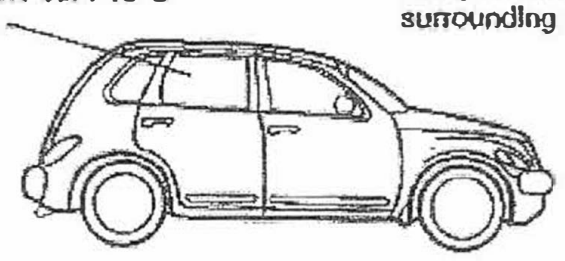
(Go on to the next page)

SCORE 5

37 Mr. Chan was driving his son to school when he noticed that the windows of his car had become misty.

Temperature in the car : 18°C

Temperature of the surrounding air : 33°C



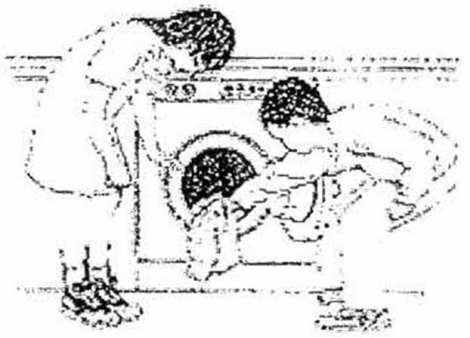
(a) He observed that water droplets were formed on the outer surface of the car windows. Explain how the water droplets were formed. [2]

(b) After he wound down one of the windows and switched off the air conditioner, water droplets stopped forming on the outer surface of the windows after a while. Explain why it happened. [1]

(Go on to the next page)

SCORE / 3

38 Some children washed a sweater and noticed that it felt heavier.



(a) Why was the sweater heavier after it was washed? [1]

_____

(b) The children wanted to find out how long it took for the sweater to dry. They hung the sweater up in the garden on a sunny day to dry.

(i) Name the process that completely dries the sweater. [1]

_____

(ii) State the change of state in (i). [1]

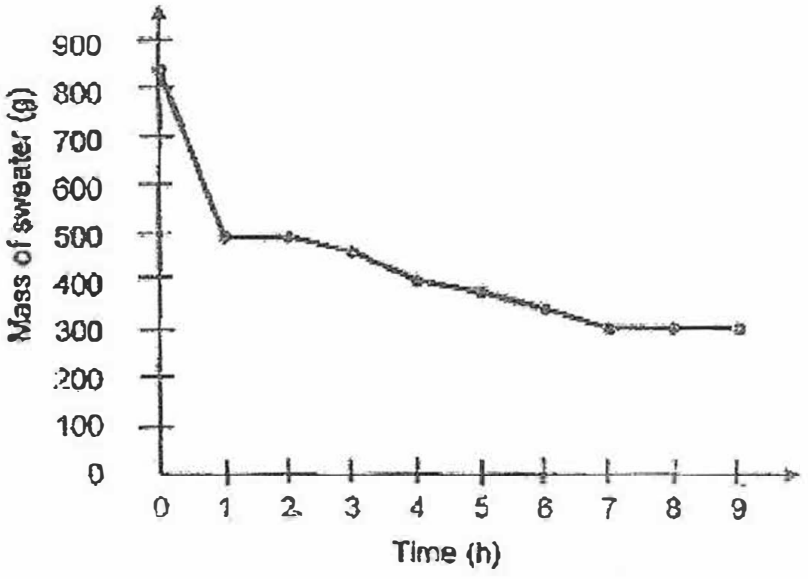
_____

(Go on to the next page)

SCORE	/ 3

Continue from question 38

(c) The children weighed the sweater every hour and plotted a graph with their results.



How long did the sweater take to dry completely? [1]

(d) The children repeated their test the next day. They washed and dried the sweater in the same way and in the same location. However, they noticed that the sweater dried more quickly.

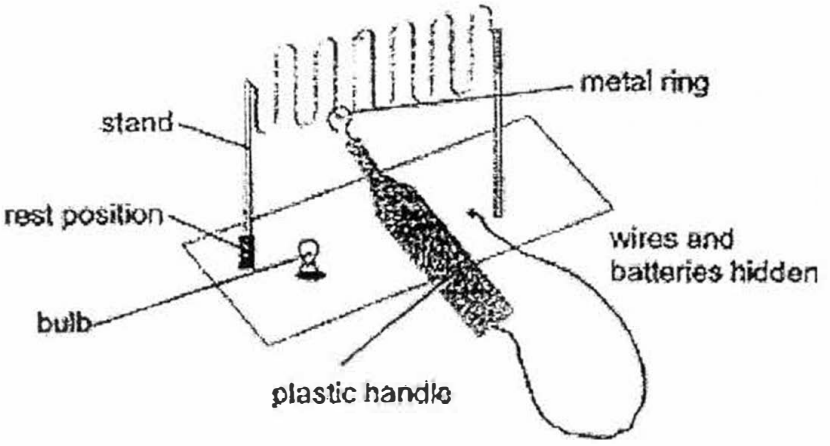
Give one possible reason why the sweater dried more quickly when they repeated their test. [1]

(Go on to the next page)

SCORE 2

39 Ray made a game in which he has to move a metal ring along a thick wire until it reaches the rest position. The metal ring is connected to the electrical circuit with a wire which is covered with a plastic handle.

When he is moving the metal ring, it must not touch the wire. If it touches the wire, a bulb will light.



(a) In order to allow electricity to pass through, what property must the metal ring and thick wire have? [1]

_____

(b) When the metal ring reaches the rest position, the bulb does not light up. Which of the following could Ray possibly use to cover the rest position? Tick (√) the correct box(es). [2]

Clear sticky tape	
Plasticine	
Steel wool	
Copper wire	
Cardboard	
Aluminium foil	

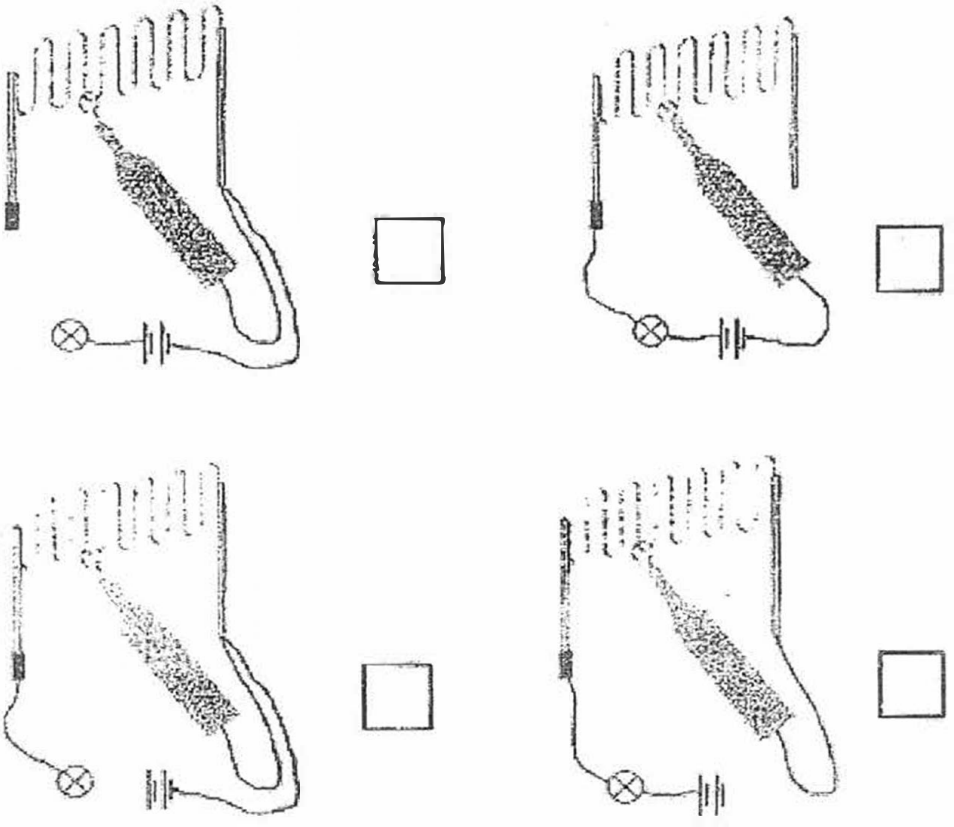
(Go on to the next page)

SCORE

Continue from question 39

(c) The bulb will only work in Ray's game when the metal ring touches the wire.

Put a tick in the box to show the correct set-up for his game. [1]



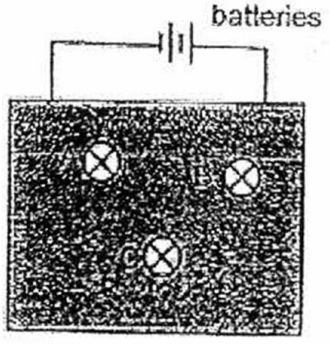
(d) Ray plays the game and decides that he wants the bulb to be brighter.
Without changing the bulb, how can he change the circuit to make the bulb brighter? [1]

_____

(Go on to the next page)

SCORE	2

40 Ben built a puzzle circuit with three identical bulbs and batteries. He covered the connections to the bulbs with a piece of card as shown below. The bulbs could be seen through holes in the card.



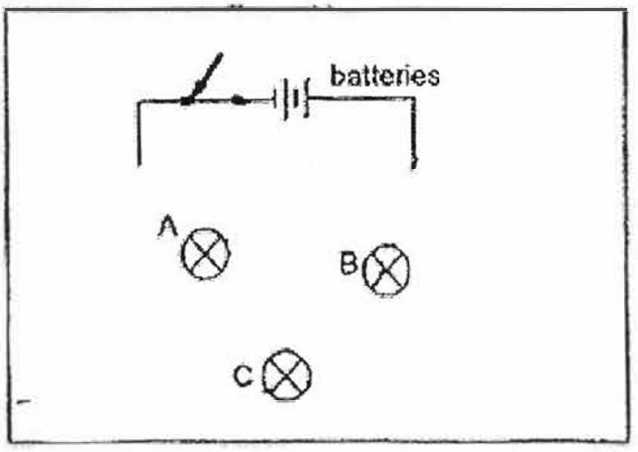
All the bulbs lighted up but their brightness was different.

Ben removed bulbs A, B and C in turn. Before connecting each bulb back into the circuit, he observed the other two bulbs.

He recorded his observations in the table below.

	Did the bulb light up?		
Removed	A	B	C
A		No	Yes
B	No		Yes
C	Yes	Yes	

(a) Complete the circuit in the diagram below to show how the three bulbs could be connected. [2]



(Go on to the next page)

SCORE	2

Continue from question 40

(b) Ben added a switch to the circuit so that he could turn on all three bulbs on and off at the same time. [1]

Put a letter 'S' on your circuit diagram where the switch could be placed.

(c) Ben used three similar bulbs but they were of different brightness. State one advantage and one disadvantage of bulbs arranged in parallel. [2]

Advantage : _____

_____

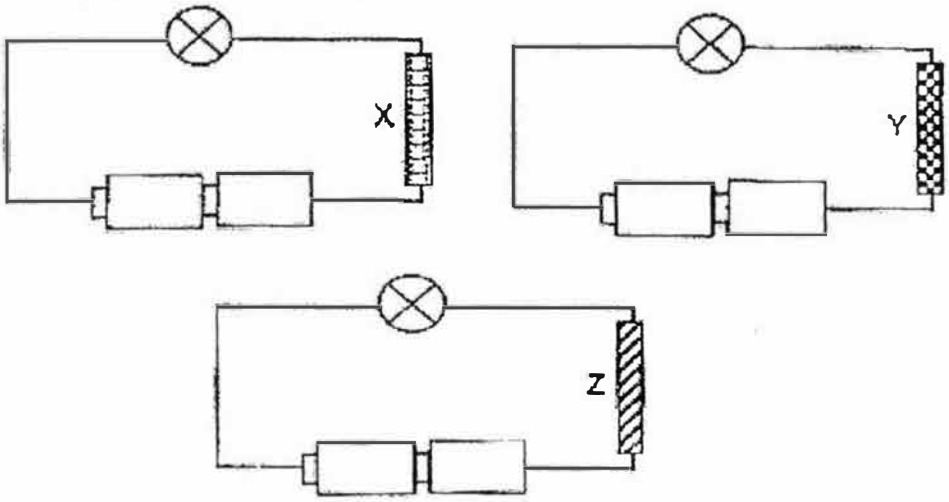
Disadvantage : _____

_____

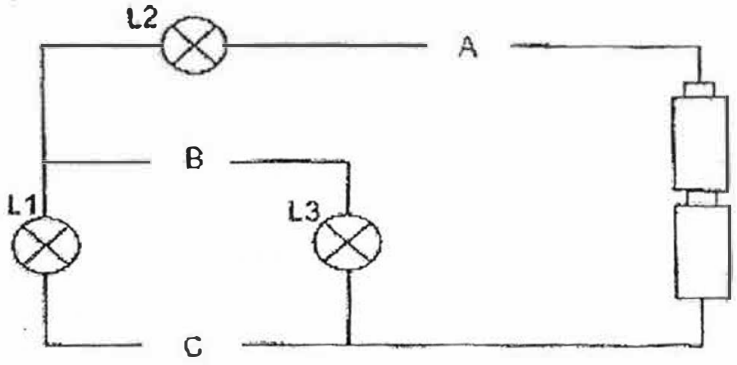
(Go on to the next page)

SCORE	/3

41 Daryl used three rods, X, Y and Z, and placed them one at a time in the electrical circuit as shown below. The rods are of similar size and thickness. The bulb lighted up when rods X and Z were used but did not light up when rod Y was used.



The rods were then used in another electrical circuit and placed at positions A, B and C.



[3]

Based on the circuit above, complete the table below.
Put a tick (✓) in the appropriate boxes to indicate if bulbs L1, L2 or L3 lights up.

	Position of rods			Bulb		
	A	B	C	L1	L2	L3
(i)	X		Z			
(ii)	Y	Z	X			
(iii)	Z	X	Y			

End of Booklet B

SCORE	3

YEAR : 2017

LEVEL : PRIMARY 5

SCHOOL : CATHOLIC HIGH SCHOOL

SUBJECT : SCIENCE

TERM : SA1

Booklet A

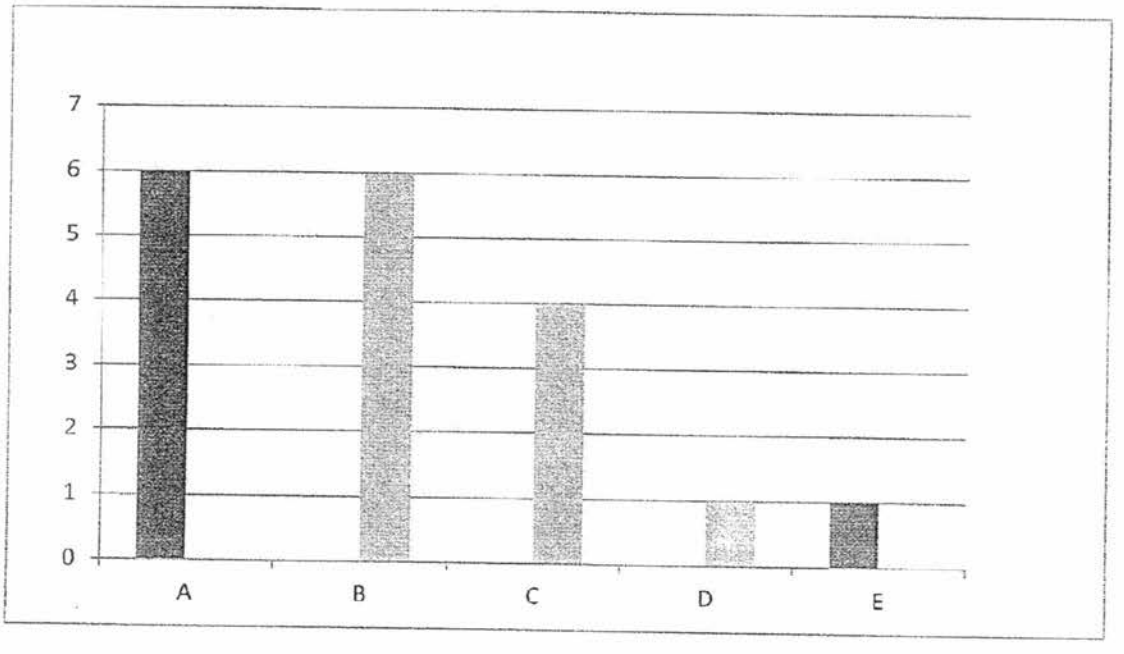
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
2	2	1	3	3	4	2	1	2	1
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
2	1	4	1	3	4	3	3	4	4
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
1	3	4	3	1	3	1	1		

Booklet B

Q29a Animal Q has four legs but does not swim.

Q29b Animal Q has four legs but animal R does not have four legs.

Q30a

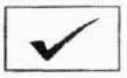


Q30b The digested food was being absorbed into the bloodstream of the intestinal walls.

Q31i The life cycle of a butterfly has 4 stages but the life cycle of a cockroach has 3 stages.

Q31ii The young of the cockroach resembles the adult but the young of the butterfly does not resemble the adult.

Q32



Explain: As the distance from the plant increases, the number of the young plants also increases. M was dispersed by wind because the wing like structure enable M to stay in the air for a longer period of time to be carried further away from the parent plant.

Q33a Rod D. the number of pins left on the tray was the least, so it attracted the most number of pins.

Q33b By decreasing the distance between the rod and the tray of pins.

Q33c Rod Q is not a magnetic material.

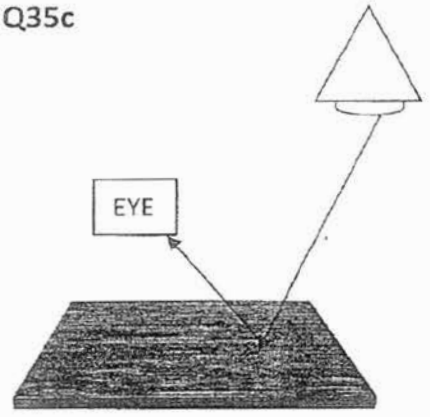
Q34a The volume of air would decrease but the volume of water would remain the same.

Q34b No. Air can only be compressed up to a certain limit as air occupies space.

Q35a To ensure that the light sensor only measures the light that passes through the material.

Q35b Material B. It allowed most light to pass through, thus when the sun shines onto the window, the passers-by can see what is inside the shop most clearly.

Q35c



Q36ai Different materials expand at different rates.

Q36aii Less than 25 minutes as the rod was thinner thus less heat was required to expand.

Q36b On a hot day, the bridge would expand and increase in length. The gaps in the joints would allow the bridge to expand.

Q37a The water vapour in the warmer surrounding air came into contact with the cooler surface of the window, it then losses heat and condenses into water droplets.

Q37b When he switched off the air conditioner and wound down the windows, the warmer water vapour in the air could flow into the car and the temperature in the car would be 33 °C. Temperature in the air would be the same as the temperature outside the car so no condensation would take place.

Q38a The sweater absorbed the water. So it was heavier as they were carrying the mass of both the sweater and the water.

Q38bi Evaporation

Q38ii Liquid to Gas

Q38c 7 hours

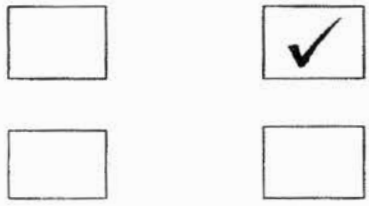
Q38d It was a windier day than the day before

Q39a Allow electricity to pass through

Q39b

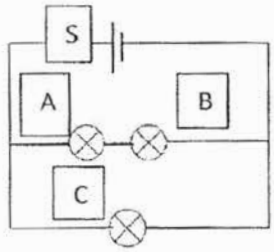
Clear sticky tape	✓
Plasticine	✓
Steel wool	
Copper wire	
Cardboard	✓
Aluminium foil	

Q39c



Q39d Add a battery

Q40a/b



Q40c Advantage: When one bulb fuses, the other bulbs remain lighted

Disadvantages: The batteries in the circuit do not last so long

Q41

L1	L2	L3
✓	✓	
	✓	✓