RAFFLES GIRLS' PRIMARY SCHOOL

SEMESTRAL ASSESSMENT (1) 2018

Section A	/56
Section B	/44
Your score out of 100 marks	
Parent's signature	

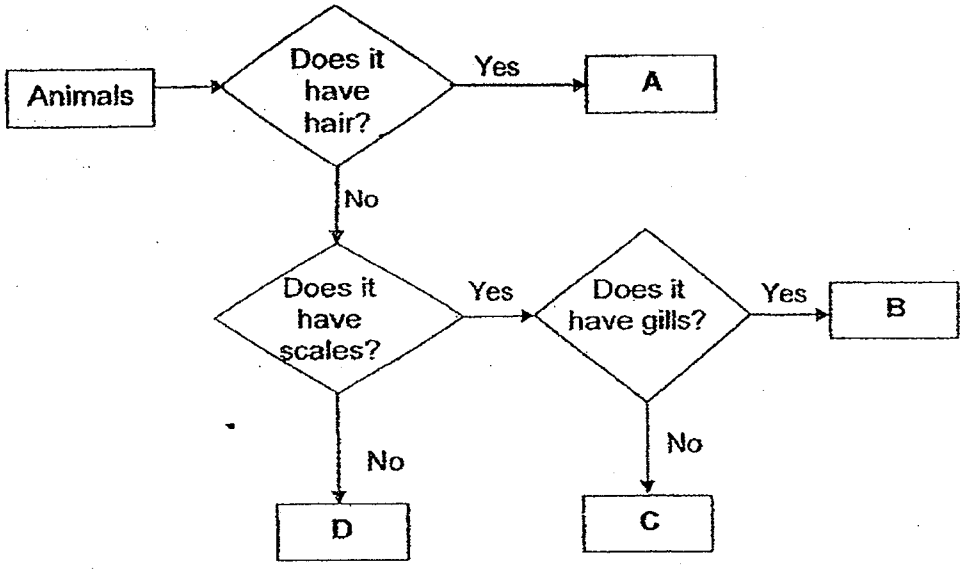
Name : _____ Index No: ____ Class: P6 ___

8 May 2018 SCIENCE Attn: 1h 45min

SECTION A (28 X 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 the correct oval on the Optical Answer Sheet.

1. Study the flow chart below.



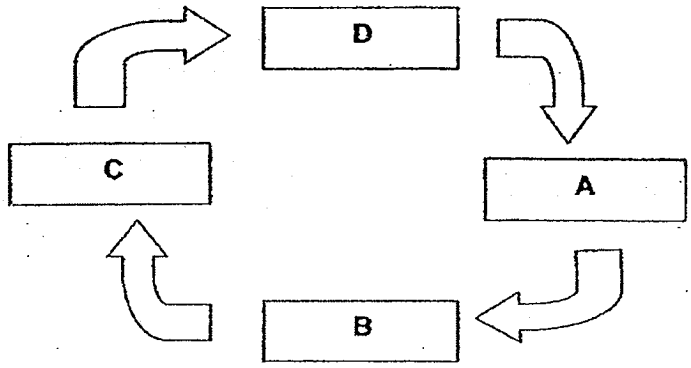
Which one of the following is classified correctly?

	A	B	C	D
(1)	reptile	fish	amphibian	bird
(2)	mammal	amphibian	fish	reptile
(3)	insect	reptile	mammal	bird
(4)	mammal	fish	reptile	bird

2. Which one of the following statements about fungi is correct?

(1) All fungi are edible.
(2) Fungi are non-flowering plants.
(3) Fungi can make food in the presence of light.
(4) Fungi can break down dead matter into simple substances.

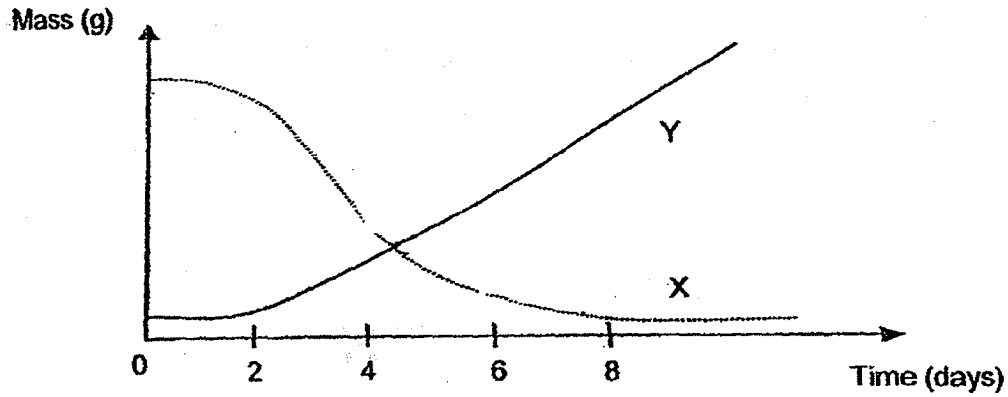
3. A, B, C and D are the stages of the life cycle of an insect.



At stage A, it does not feed, move or moult.
Which one of the following represents the stages of the life cycle of the insect?

	A	B	C	D
(1)	egg	larva	pupa	adult
(2)	adult	egg	larva	pupa
(3)	pupa	adult	egg	larva
(4)	larva	pupa	adult	egg

4. Samuel observed a seed growing into a seedling and plotted two curves to show the changes in the dry mass of the seed leaf and the shoot of the seedling over time.

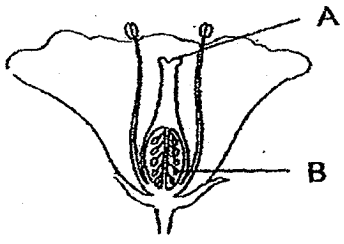


Based on the graph above, which statement(s) is / are correct?

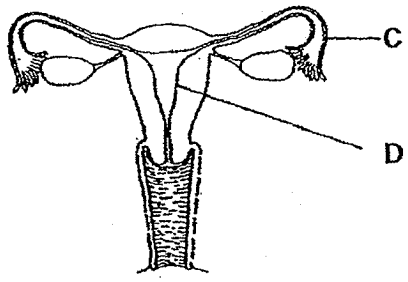
A Line X shows the change in mass of the seed leaf as the seedling grows.
B Line Y shows the seedling make food in the presence of light.
C The mass of the shoot of the seedling remains constant from day 8 onwards.

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

5. The diagrams below show the plant and female human reproductive systems.



Plant reproductive system

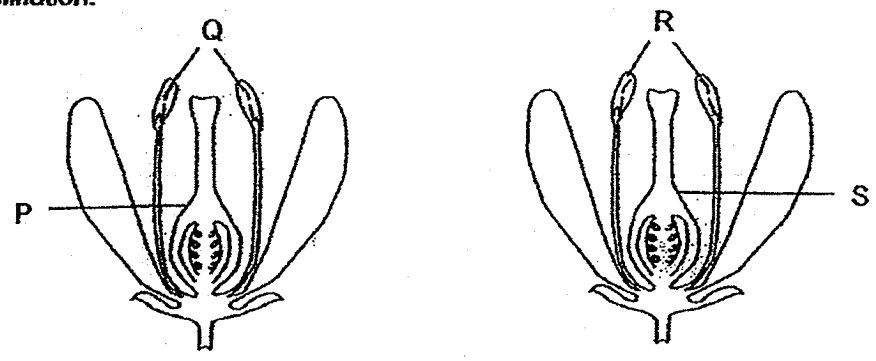


Female human reproductive system

Which one of the following correctly identifies the parts where fertilisation takes place in the plant and human reproductive systems?

	Plant Reproductive System	Human Reproductive System
(1)	A	C
(2)	A	D
(3)	B	C
(4)	B	D

6. The diagram shows two flowers of the same plant. Both flowers undergo cross-pollination.

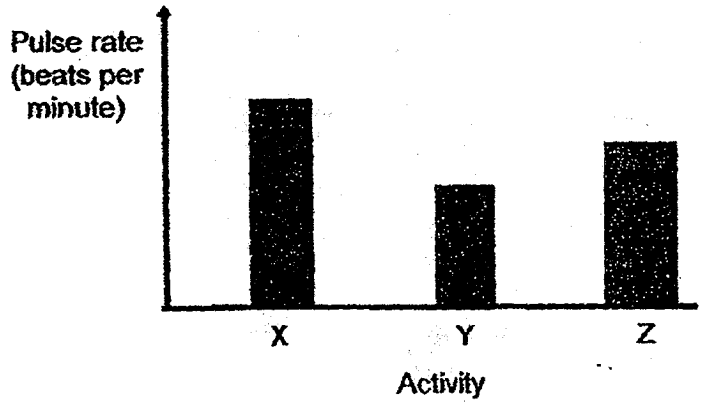


Which parts of the flowers can be removed such that one of the flowers can still develop into a fruit?

A P and R
B P and S
C Q and R
D Q and S

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

7. The graph below shows Natalie's pulse rate measured immediately after activities X, Y and Z respectively.

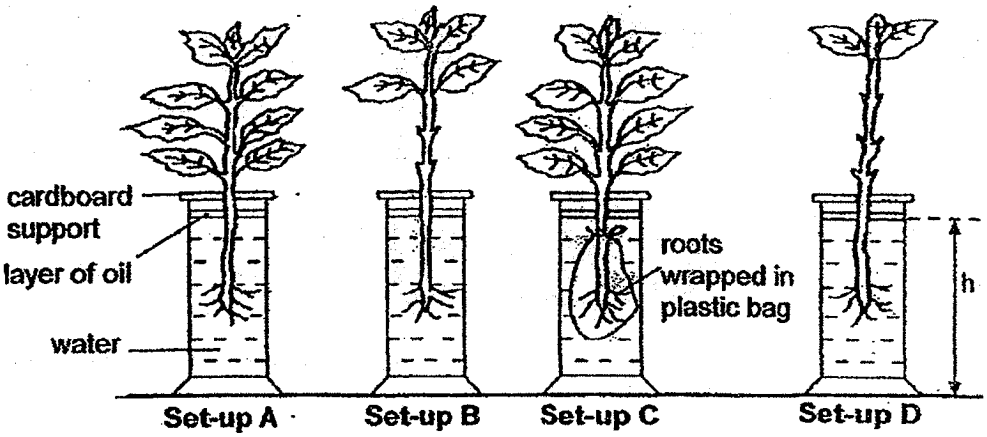


Which one of the following best represents activities X, Y and Z?

	X	Y	Z
(1)	running	reading	walking
(2)	walking	running	climbing
(3)	reading	walking	running
(4)	running	climbing	reading

8. Benjamin placed four plants in identical jars, each containing water at the same level as shown below.

He then placed the four set-ups, A, B, C and D, next to the window for an hour.

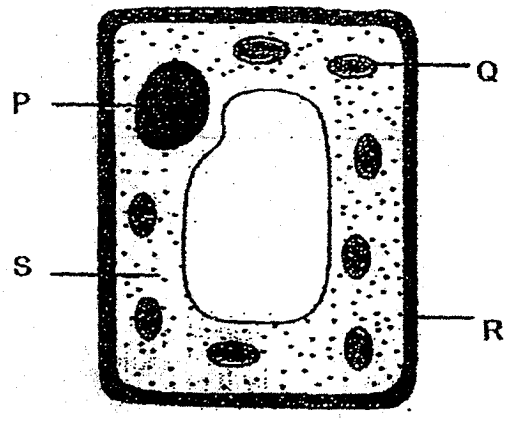


At the end of the experiment, Benjamin measured the height of the water level, *h*, in each jar.

Which of the following correctly shows the height of water in set-ups A, B, C and D?

	Height, *h*, of the water left at the end of the experiment (mm)			
	Set-up A	**Set-up B**	**Set-up C**	**Set-up D**
(1)	250	195	180	170
(2)	180	170	195	250
(3)	170	180	250	195
(4)	195	250	170	180

9. The diagram below shows a plant cell.



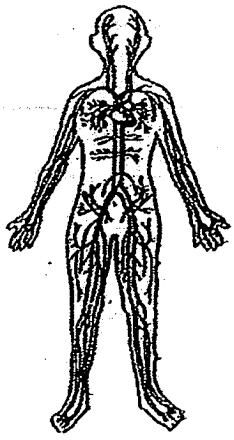
The statements below are some statements about the parts of the above cell.

	Parts	Functions
A	P	Controls all activities within the cell
B	Q	Captures sunlight for plants to make food
C	R	Supports and gives the cell its shape
D	S	Controls the movement of substances in and out of the cell.

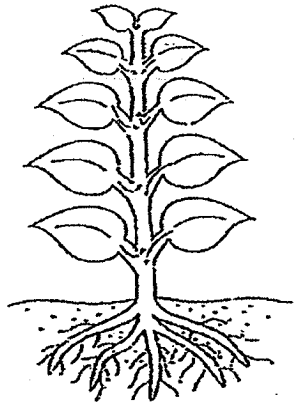
Which of the following have parts that match with their functions correctly?

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

10. The diagrams below show the human circulatory system and the plant transport system.



Human circulatory system

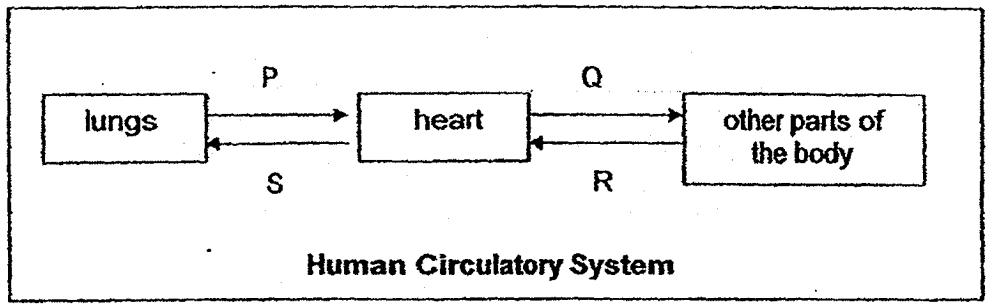


Plant transport system

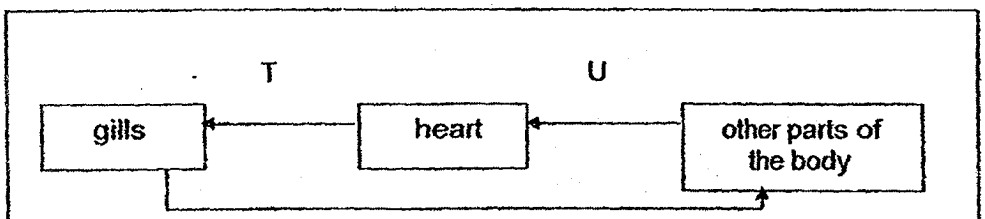
Which one of the following statements about the two systems is true?

(1) Both break down food into simpler substances.
(2) Both lose water in the form of water vapour only.
(3) Both take in oxygen and give out carbon dioxide only.
(4) Both transport nutrients and water to the different parts.

11. The diagram below shows the circulatory systems in a human and a fish.



Human Circulatory System

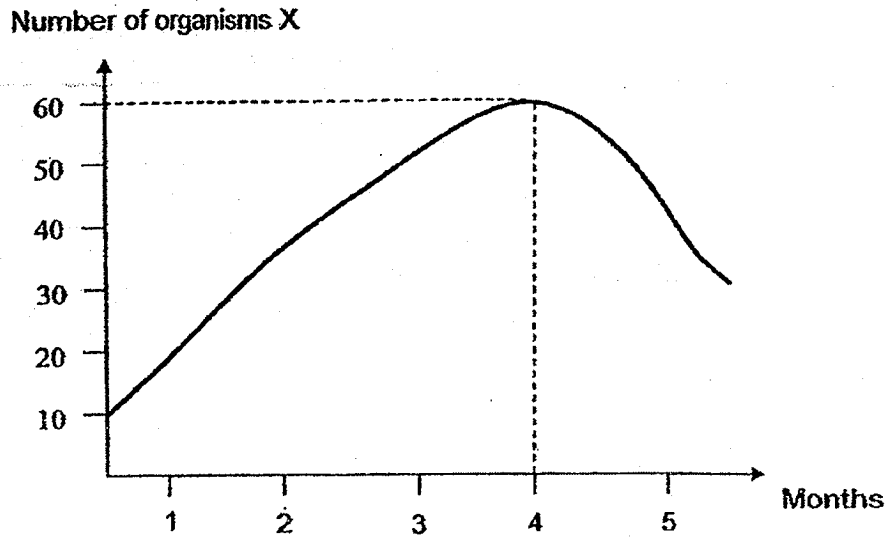


Fish Circulatory System

Which one of the following identifies oxygen rich and carbon dioxide rich blood at the different parts correctly?

	Oxygen rich	Carbon dioxide rich
(1)	P,Q,V	R,S,T,U
(2)	P,Q,T,U	R,S,V
(3)	P,T	Q,R,S,U,V
(4)	R,S,V	P,Q,T,U

12. The graph below shows the change in the population of organisms X in a habitat. There is no predator of organisms X in the habitat.



Based on the graph above, which of the following reasons are possible?

A The population of organism X increased in the first four months as there was sufficient food.

B The decrease in the population of organism X from the 4th month onwards was because it migrated to other places.

C The birth rate of organism X is the same as the death rate as such there was a decrease in the population of organism X.

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

13. Kate wanted to find out the effect of temperature on the percentage of eggs hatched from organism X. She recorded her results in the table below.

	Percentage of eggs hatched (%)	
Temperature (°C)	Male	Female
24	10	0.1
26	20	0.1
28	100	0.1
30	100	0
32	100	0

Based on the information given above, which of the following statements are correct?

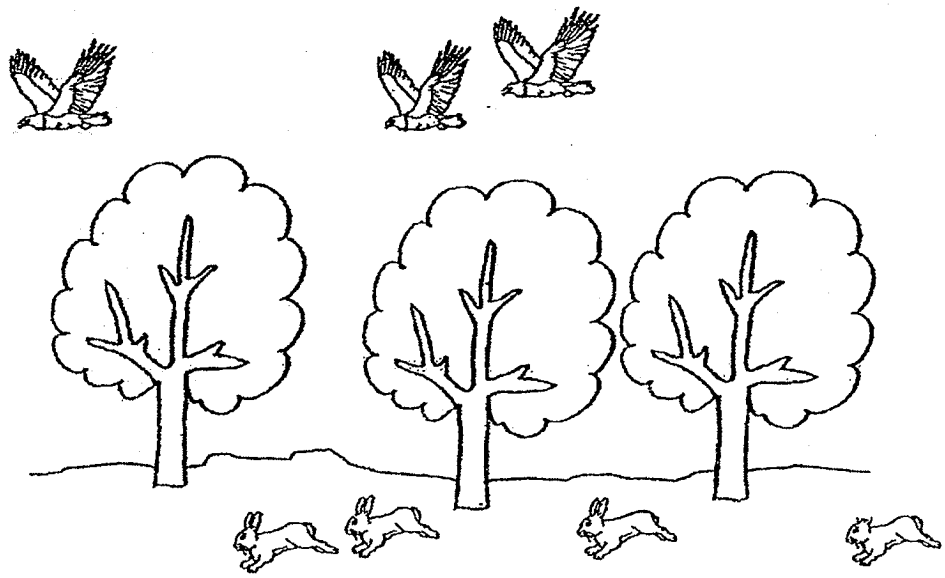
A As the environment becomes hotter, the greater the percentage of male organisms X being hatched.

B As the environment becomes hotter, the greater the percentage of male and female organisms X being hatched.

C As temperature in the environment increases, the population of organisms X may eventually die out.

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

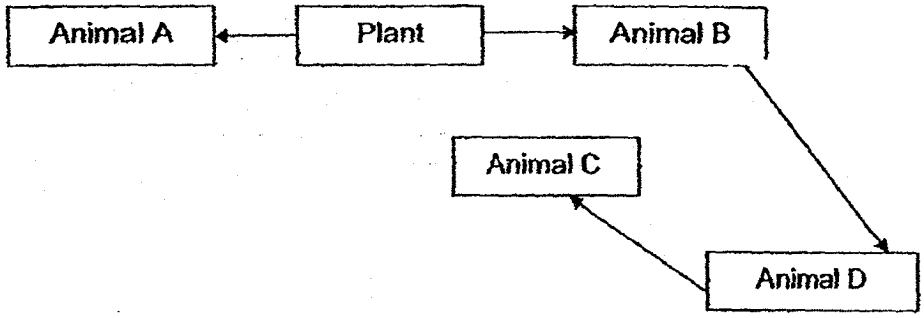
14. The diagram below shows a forest habitat.



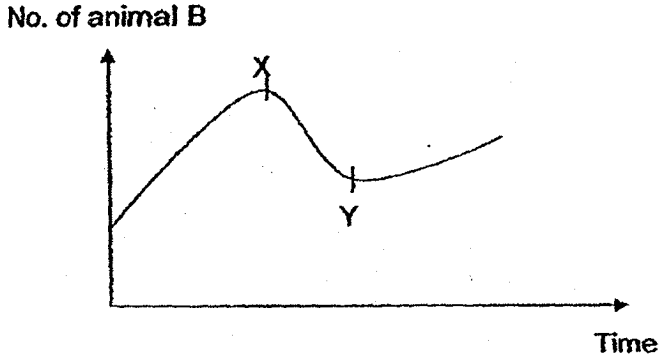
Which one of the following statements is **not** true?

(1) The group of trees forms one population.
(2) The trees and rabbits form one community.
(3) The eagles and rabbits form two populations.
(4) The trees, rabbits and eagle form one community.

15. The food web below shows the food relationship of some organisms.



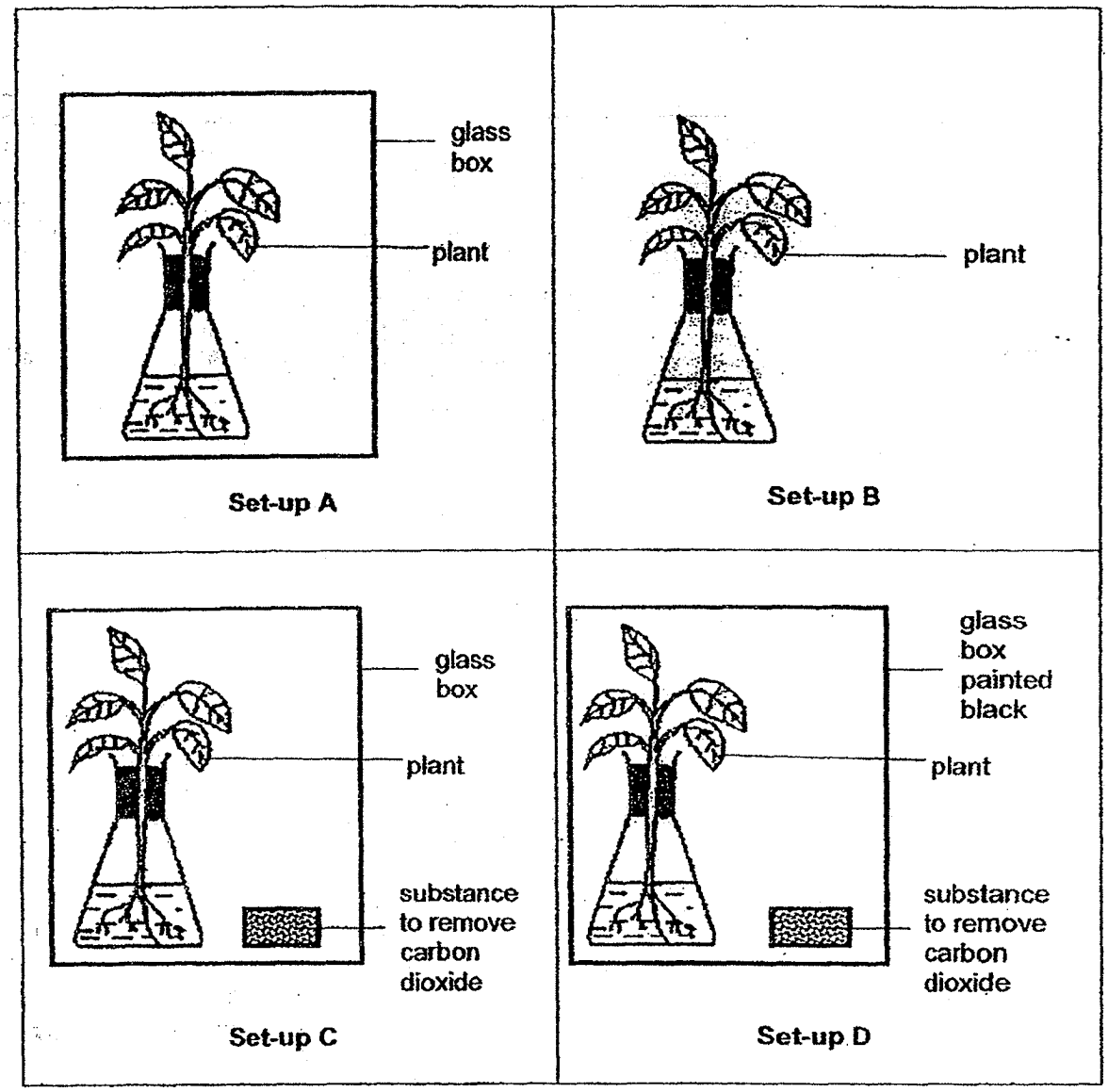
The graph below shows the number of animal B over a period of time.



Which one of the following explains the change in the population of animal B shown by XY in the graph?

(1) The population of plant increases.
(2) The population of animal A decreases.
(3) The population of animal C decreases.
(4) The population of animal D decreases.

16. Sarah wanted to find out if carbon dioxide is needed for photosynthesis. She prepared four set-ups, A, B, C and D, as shown below.



Which of the above set-ups should Sarah use to conduct her experiment?

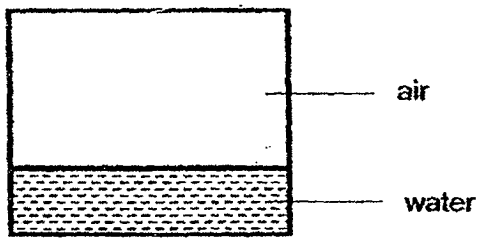
(1) A and C only
(2) A and B only
(3) B and C only
(4) C and D only

17. Wood is used as building materials to build houses as shown below.

Houses built using wood can withstand the force of strong wind and heavy rain.
Why is this so?

(1) Wood is flexible.
(2) Wood is strong.
(3) Wood is opaque.
(4) Wood is able to float.

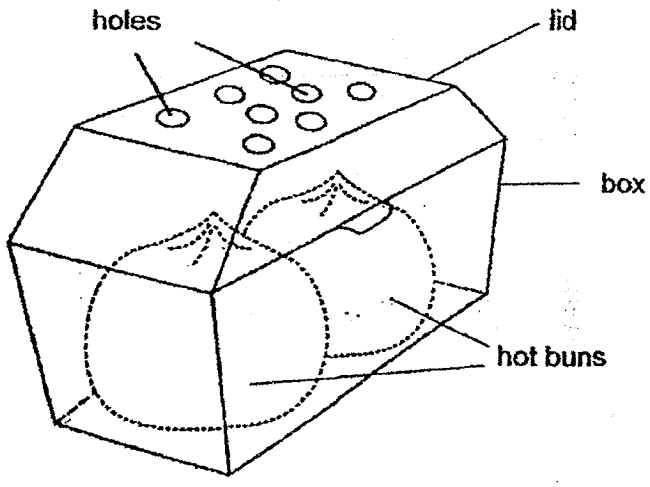
18. A cube contains some water and air as shown in the diagram below.



Peter used a syringe to remove some air from the cube.
Which one of the following shows the changes in the volume and mass of the air in the cube after some air has been removed?

	Volume of air	Mass of air
(1)	decrease	decrease
(2)	decrease	remains the same
(3)	remains the same	remains the same
(4)	remains the same	decrease

19. Pei Ling put two identical hot buns, of the same temperature, into each identical boxes, A, B and C. Each box had different number of holes on its lid.



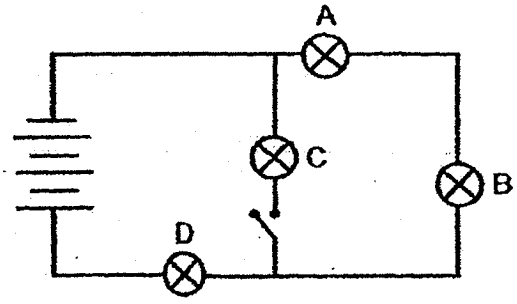
The table below shows the number of holes on the lid of each box.

Boxes	Number of holes on the lid
A	2
B	7
C	10

Based on the nformation above, which one of the following statements made by Pei Ling is correct?

(1) The rate of evaporation would be the fastest in box C.
(2) Most of the hot water vapour was condensed on the buns.
(3) The buns in box A would be the wettest as most condensed water vapour would be dripping from the lid.
(4) The rate of condensation of water vapour is faster in boxes B and C than A as more surrounding air can enter the boxes.

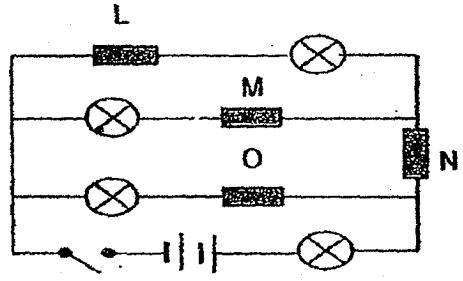
20. The diagram below shows the arrangement of four bulbs, A, B, C and D, in a circuit.



Which one of the bulbs can be controlled by the switch?

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

21. Study the circuit diagram below carefully.

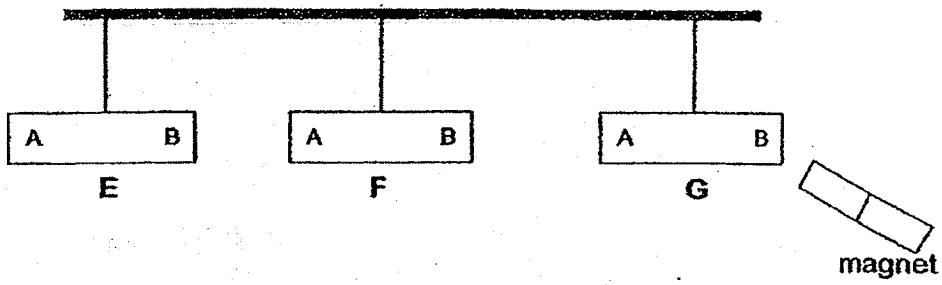


Four objects, L, M, N and O, are connected to the circuit. One of them is a non-conductor of electricity while the others are conductors of electricity. When the switch is closed, only two bulbs light up.

Which one of the following objects is a non-conductor of electricity?

(1) L
(2) M
(3) N
(4) O

22. Chloe hung three metal bars, E, F and G, from a rod as shown below. She labelled the two ends of each metal bar, A and B. She then brought a bar magnet close to each end of the metal bar and recorded her observations on the interactions between the metal bars and bar magnet.



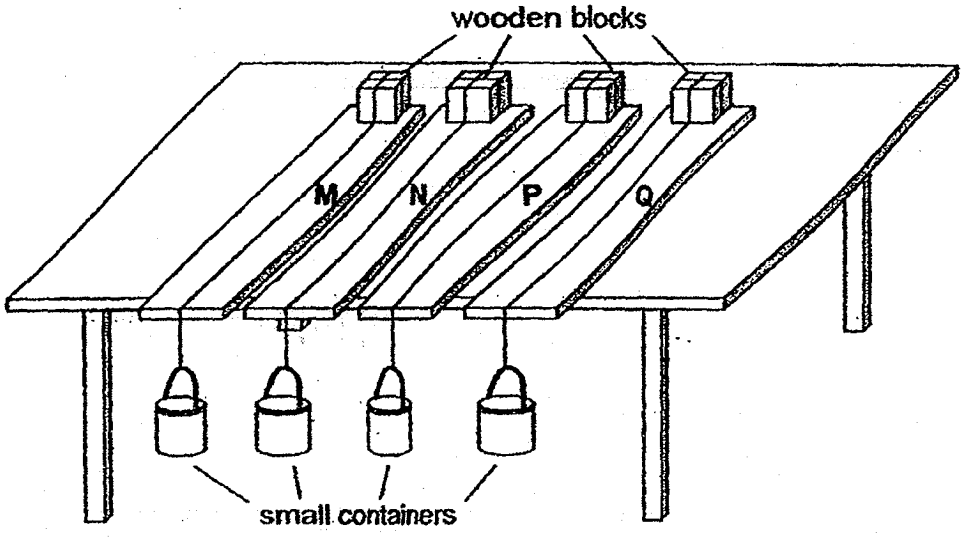
Her observations are shown in the table below.

Metal Bar	Observation	
	Magnet and End A	Magnet and End B
E	attracted	attracted
F	no interaction	no interaction
G	attracted	repelled

Which of the following could E, F and G be?

	E	F	G
(1)	steel	magnet	gold
(2)	gold	steel	magnet
(3)	iron	gold	magnet
(4)	magnet	iron	steel

23. Marcus set up the experiment as shown below. He tied each identical wooden block to a small container. Next, he placed the wooden blocks on four different surfaces labelled M, N, P and Q.



Marcus added 10g-weight one by one into each container until the wooden block attached started to slide across the surface. He recorded the results in the table below.

Surface	Number of 10g-weights required for block to start sliding
M	8
N	2
P	10
Q	5

Based on the information above, which of the following statement(s) is/are correct?

A Surface M is smoother than P but rougher than N and Q.

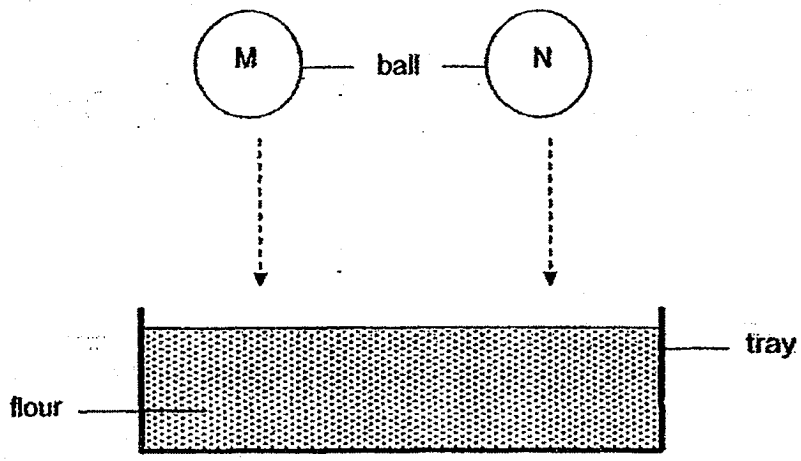
B Most gravitational force is acting on the block sliding on surface P.

C Frictional force between the wooden block and surface had to be overcome before it started sliding.

D The minimum amount of weights required to move the wooden block on surface N is 20g.

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

24. Catherine dropped two balls, M and N, of the same size into a tray of flour from the same height as shown below. Ball M has a greater mass than ball N.



She recorded the depth of the dent made by the balls in the tray of flour in the table below.

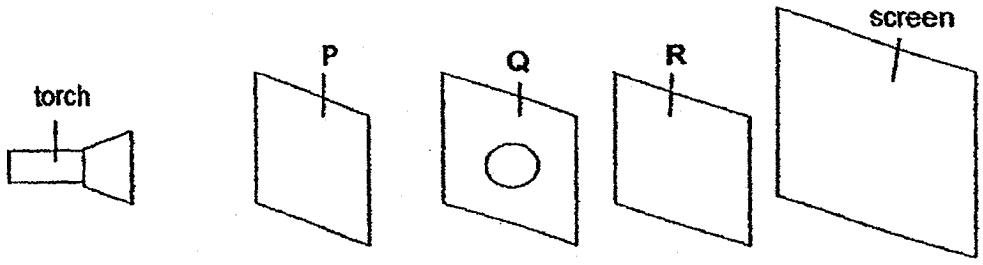
	Depth of dent (cm)			
Ball	**1st try**	**2nd try**	**3rd try**	**Average**
M	3	3.5	3.5	3.33
N	?	?	?	?

Based on the results in the table above, which of the following statement(s) is/are definitely correct?

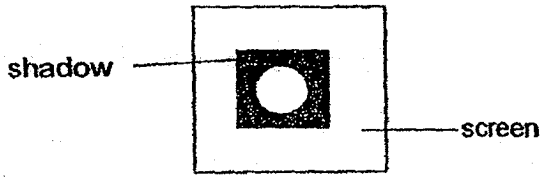
A More frictional force was acting on M than N.
B More amount of gravitational force was acting on M than N.
C The average depth of the dent made by ball N would be less than 3.33cm.

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

25. Sheets P, Q and R are made of different materials. Sheet Q has a circular cut-out in the centre as shown in the diagram below.



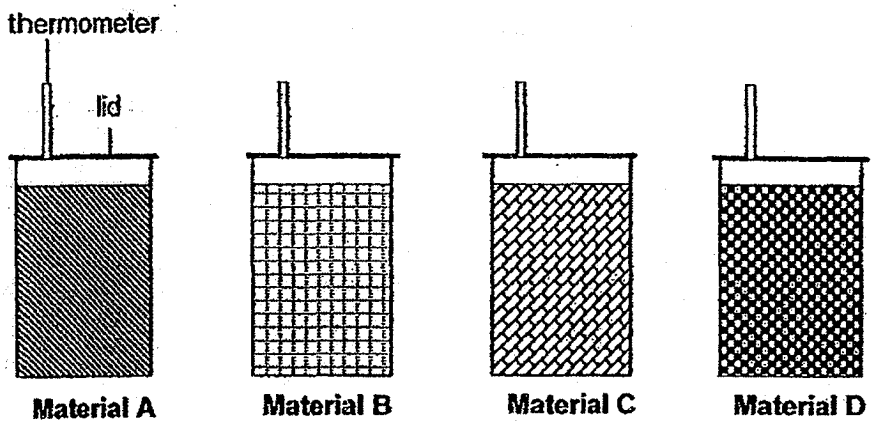
When the torch was switched on, a shadow was formed on the screen as shown below.



Which of the following correctly shows the properties of P,Q and R?

	Allows no light to pass through	Allows some light to pass through	Allows most light to pass through
(1)	P, Q		R
(2)	R	P	Q
(3)	R	Q	P
(4)	Q		P,R

26. Natalie wanted to make a shirt to keep her warm on cold days. She wrapped four materials, A, B, C and D, around each identical container covered with a lid. Each container was filled with the same amount of hot water as shown below.



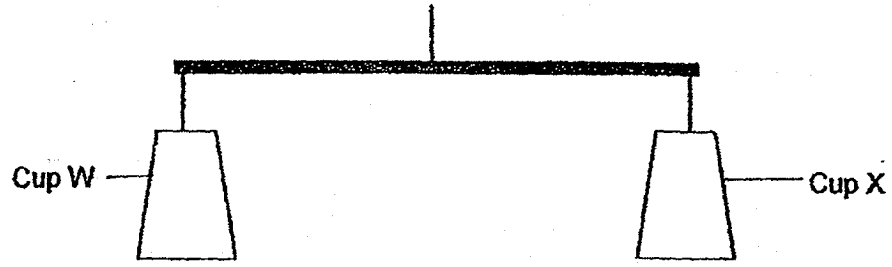
Natalie recorded the temperature of the water at the start of the experiment and twenty minutes later. The results of her experiment are recorded below.

Time (min)	Temperature of water (°C) in container wrapped with ...			
	Material A	Material B	Material C	Material D
0	60	60	60	60
20	32	40	38	36

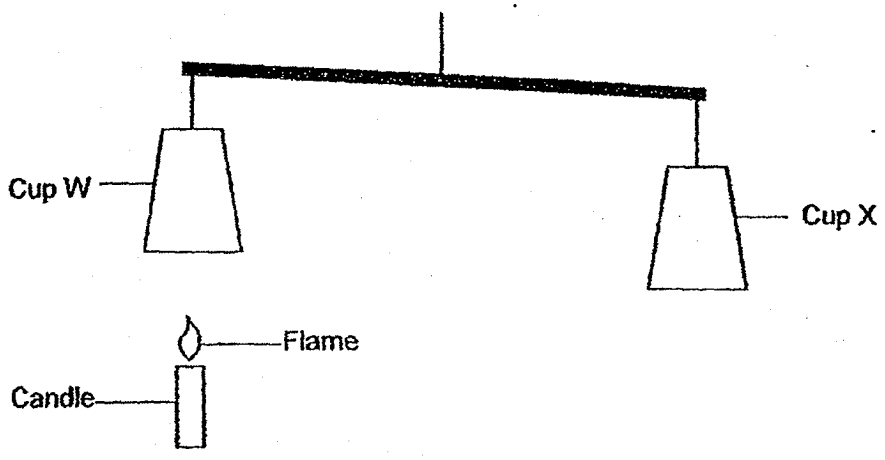
Based on the results, which cloth material should Natalie choose for making the shirt?

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

27. Kenneth attached two cups, W and X, on a balanced rod as shown below.



He placed a candle below Cup W and observed the following ten minutes later.



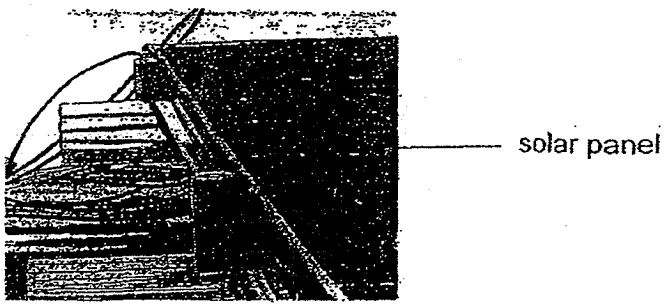
Three of his classmates gave the following explanations for the above observations:

Alex : Cup X is made of a better conductor of heat.
Betty : The air above the candle flame gained heat.
Cody : The air above the candle flame rose.

Which of his classmates correctly explained the observation?

(1) Betty only
(2) Cody only
(3) Alex and Betty only
(4) Betty and Cody only

28. The picture below shows a solar panel which is found on the roof of a house. The solar panel is connected to the water heater in the bathroom.



Which of the following shows the correct energy conversion taking place from the solar panel to the water heater?

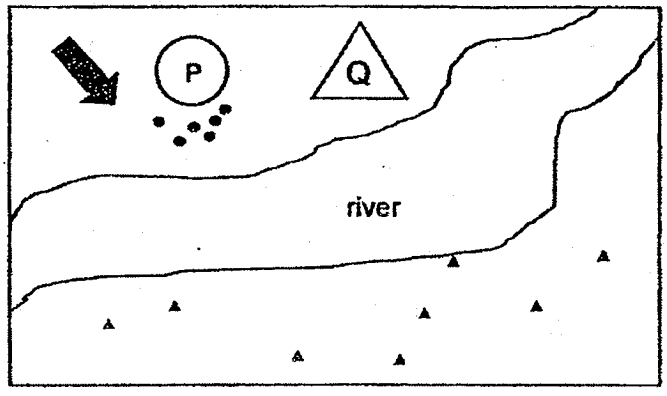
(1) potential energy → light energy → heat energy
(2) light energy → electrical energy → heat energy
(3) kinetic energy → electrical energy → heat energy
(4) electrical energy → chemical energy → heat energy

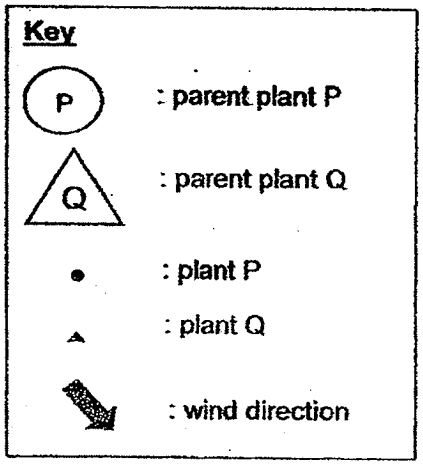
Name : _____ Index No : _____Class : P6___ 44

SECTION B (44 marks)

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

29. Sam conducted a field study on the seed dispersal of plants P and Q. He recorded his observations on the distribution of seeds by the plants in the diagram below.





(a) State the method of seed dispersal of plant P and Q. [1]

(i) P: _____

(ii) Q: _____

(b) Give a reason for your answer in (a)(i). [1]

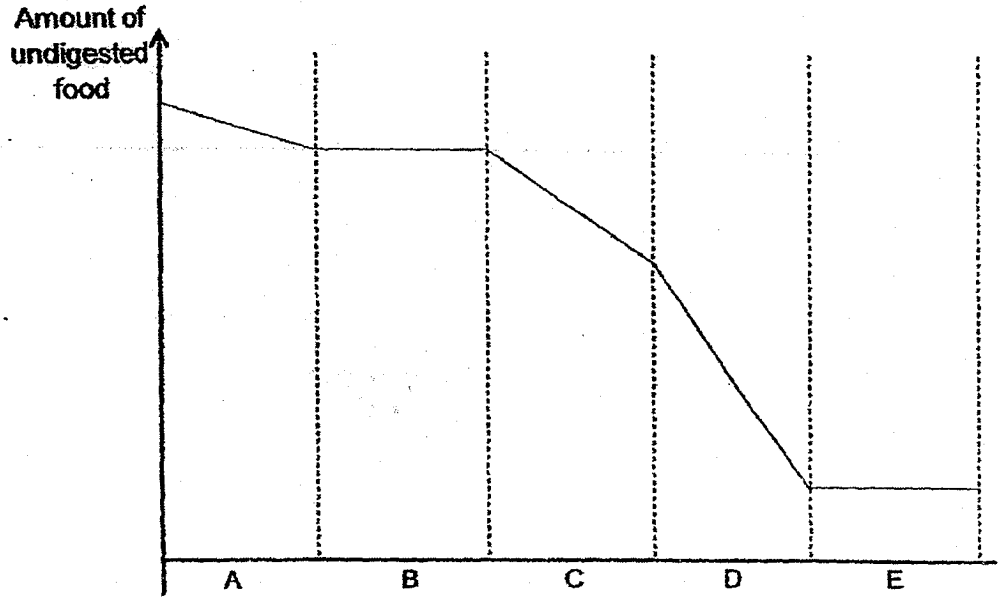
_____

(c) State one physical characteristic the fruit of Q is most likely to have that helps in its dispersal. [1]

_____

Score 3

30. The graph below shows the amount of undigested food as it goes though the different parts of the digestive system.



(a) Based on the graph, in which part of the digestive system, A, B, C or D, was the greatest amount of food digested? Explain your answer. [2]

(b) Which part of the graph represents the large intestine? Give a reason for your answer. [1]

Score 3

31. The following food relationships were observed among four organisms, P, Q, R and S, which live in the same community.

P feeds on S Q gets its food from P and R R feeds on P

(a) Based on the information above, draw a food web in the box below for this community. [2]

(b) Organism P is a migratory species and will fly to another place in the summer. What will happen to the population of organisms Q and R when organisms P migrate in the summer? Give a reason for your answer. [2]

(i) Organism Q: _____

Reason : _____

_____

(ii) Organism R: _____

Reason _____

_____

Score	/ 4

32. Angie has two plantations, P and Q. The diagram below shows the food relationship between organisms in the plantations.

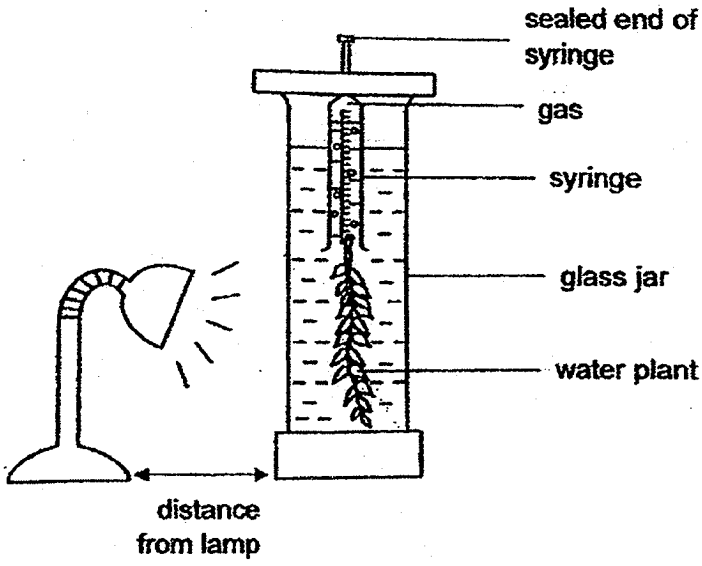
Plantation P	Plantation Q
Plant X ⟶ bee	Plant X ⟶ bee Plant X ⟶ Z

(a) Angie noticed that there was an increase in the number of fruits produced in plantation P when there were more bees. Give an explanation for her observation. [2]

(b) However, in plantation Q there was a decrease in the number of plant X which resulted in less fruits being produced as compared to plantation P. Give an explanation for her observation. [2]

Score	/ 4

33. Peter conducted an experiment shown below in a dark room. He then repeated his experiment by adding some water snails.



He recorded his result in the table below.

Distance of lamp from water plant (cm)	Number of bubbles produced per minute	
	Without water snail	With water snails
5	16	19
10	11	14
15	6	10
20	2	5

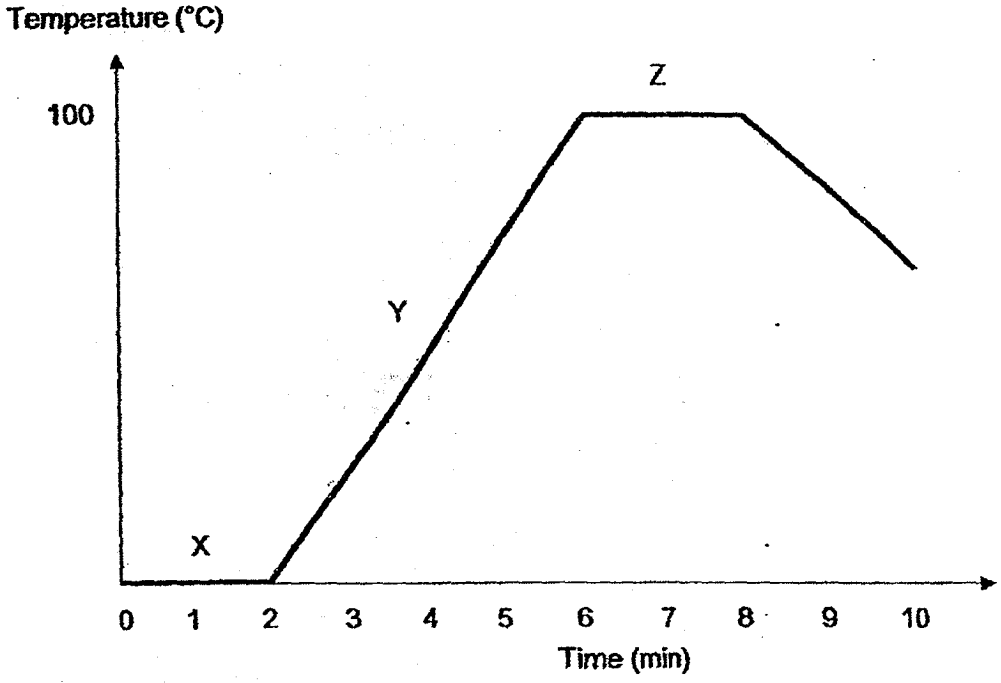
(a) In the absence of water snail, the number of bubbles produced decreases as the distance from the lamp increases. Explain why. [1]

(b) Explain why there was an increase in the number of bubbles produced when water snails were present. [2]

(c) Peter conducted the experiment in a dark room. Give a reason why this helped to make the experiment a fair test. [1]

Score	/4

34. A beaker of ice was heated and the change in temperature was recorded in the graph below.



(a) Name the processes that are represented by parts X and Z of the graph.[2]

X	
Z	

Score	2

Continue on next page

Continued from previous page

(b) Fill in the blanks below with a (√) against the parts X, Y, Z in the table to indicate if there is heat gain as water changes from one state to another. [1]

Parts	Heat gain
X	
Y	
Z	

(c) The burner was not switched off throughout the experiment.

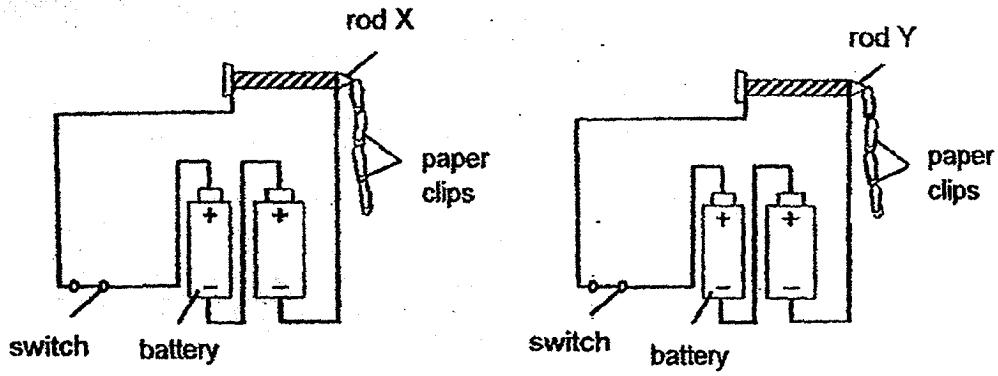
Suggest one reason why there was a decrease in temperature after the 8th minute. [1]

_____ _____ ____

_____ _____ ____

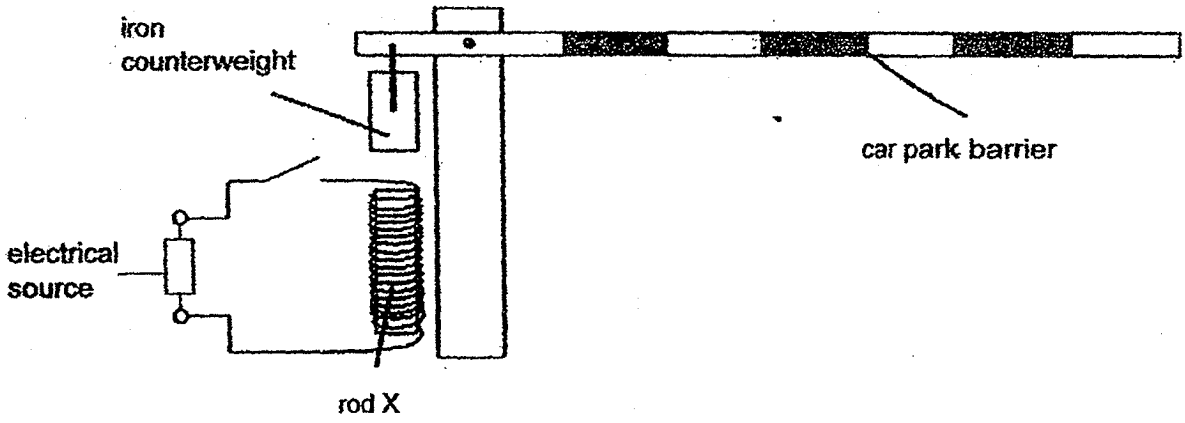
Score	2

35. Sophie made two electromagnets using rods X and Y and placed each of them the same distance above a tray of paper clips. She observed the number of paper clips attracted as shown below.



(a) Based on your observation, what can you conclude about the strength of both electromagnets? Give a reason for your answer. [1]

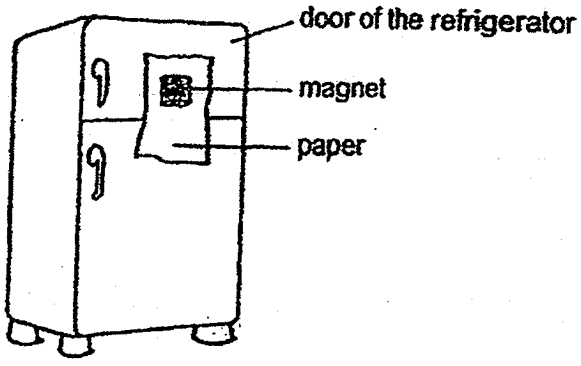
Sophie then studied how the car park barrier operates using the circuit shown below.



(b) Based on the information above, explain why the barrier rises when the switch is closed. [2]

Score	3

36. The diagram below shows a piece of paper held against the door of the refrigerator using a magnet.



(a) State the property of the magnet that allows it to hold the paper against the door of the refrigerator. [1]

_____

_____

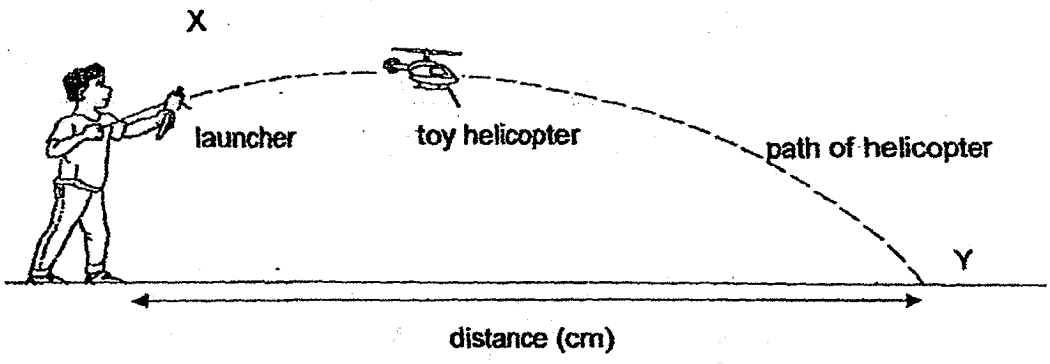
(b) Explain why when three sheets of paper were added, the sheets of paper and the magnet fell. [2]

_____

_____

Score	3

37. James carried out an experiment on two different toy helicopters, A and B, using the set-up shown below.



He launched the helicopter A at an angle. His results are shown below.

Attempts	Distance (cm)
1st	330
2nd	370
3rd	350

(a) Give a possible reason why the distance moved by helicopter A was different for each attempt. [1]

_____

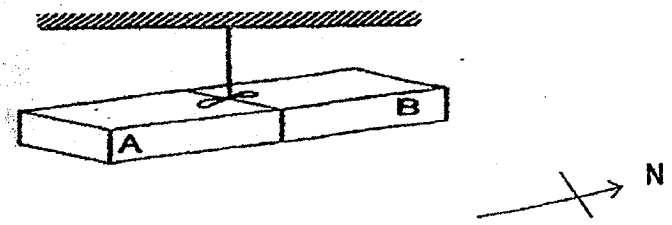
(b) Name two forces that were acting on the helicopter when it was moving. [1]

_____

(c) The average distance moved by the 15g toy helicopter A is 350 cm. If James launched a 35g toy helicopter B in the same direction with the same force, draw the path of toy helicopter B on the diagram above using the same starting point at X. [1]

Score	/ 3

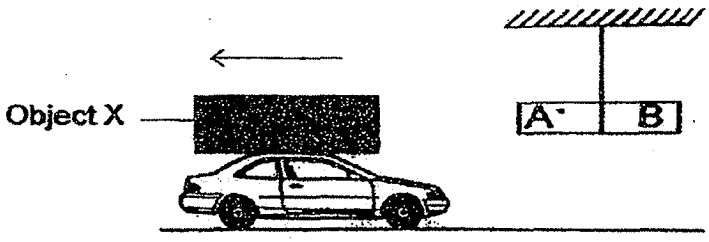
38. The diagram below shows a magnet hanging freely from a string. End B of the magnet points to the North.



(a) What are the poles at A and B of the magnet? [1]

A	
B	

Object X was taped onto the top of the aluminium toy car as shown.



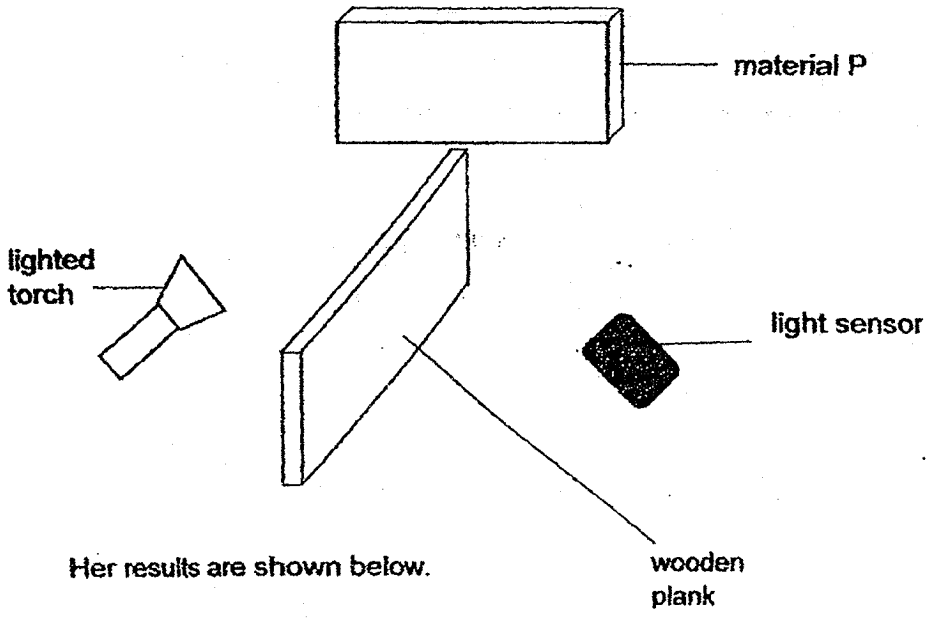
(b) When the magnet was brought near to the toy car, the toy car moved in the direction shown by the arrow above. Explain why. [2]

_____ _____

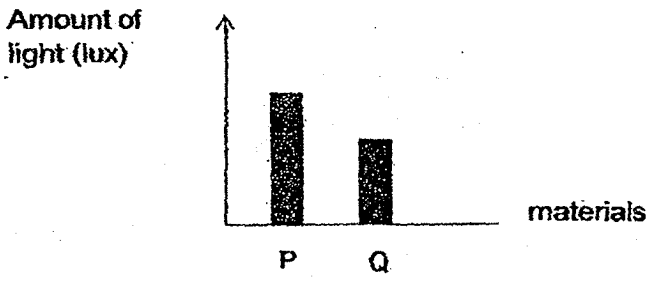
_____ _____

Score	3

39. Mariam conducted an experiment in a dark room. She positioned the torch, wooden plank and light sensor in the diagram as shown below. She shone the torch on two different types of materials, P and Q, one at a time as shown below. The light sensor is used to measure the amount of light reflected by the materials.



Her results are shown below.



(a) Explain why Mariam conducted the experiment in a dark room. [1]

_____ _____

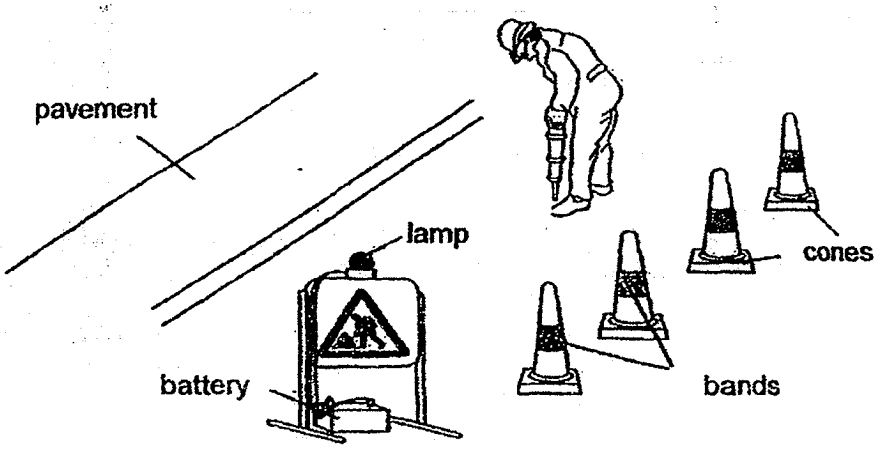
_____ _____

Continue on next page

Score 1

Continued from previous page

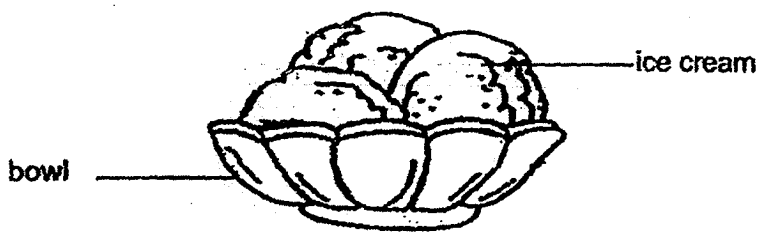
(b) The diagram below shows some cones used to cordon off the road at a road construction site.



Which material, P or Q, should be used to make the bands on the cones? Explain your answer. [2]

Score	2

40. Mrs Wong took a bowl from the kitchen cabinet and scooped some ice cream into it as shown in the diagram below.



(a) Put a tick (✓) in the boxes below to indicate if the bowl and ice cream would gained or lost heat when it was placed on the table after two minutes. [1]

	gained heat	lost heat
Bowl		
ice cream		

(b) Give a reason why Mrs Wong's hand felt cold when she touched the bowl after two minutes. [1]

_____

_____

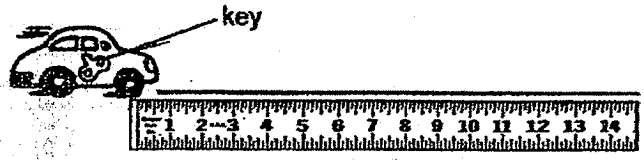
(c) Suresh then finished the ice cream and left the bowl on the table. Describe how the temperature of the bowl would change after an hour. [1]

_____

_____

Score	3

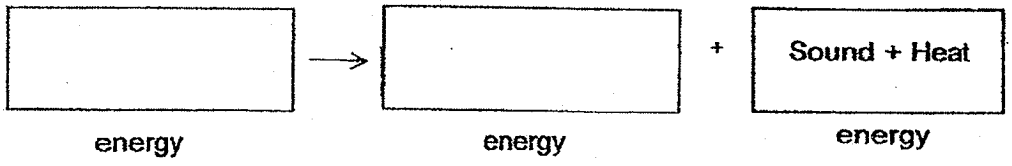
41. Su Min conducted an experiment using a wound-up toy car. She wound-up the toy car by turning the key and recorded the distance it travelled on the floor before coming to a complete stop.



She recorded her results as shown below.

Number of turns of key	Distance travelled (cm)
2	3
4	6
6	9
8	12

(a) State the energy conversion of the wound-up toy car when it was released in the boxes provided. [1]



(b) What is the relationship between the number of turns of the key and the distance travelled by the toy car? [1]

_____

_____

(c) Using the same toy car and floor surface, suggest one change Su Min could make to the car to enable it to travel a further distance. [1]

_____

(d) Explain why the toy car stopped moving after travelling a distance. [1]

_____

The End

Score 4

ANSWER KEY

YEAR	:	**2018**
LEVEL	:	**PRIMARY 6**
SCHOOL	:	**RAFFLES GIRLS' PRIMARY**
SUBJECT	:	**SCIENCE**
TERM	:	**SA1**

Booklet A

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

Booklet B

Q29 (a) (i) P: By splitting

(ii) Q: By wind

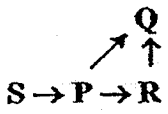
(b) The plants P are scattered near the parent plant P.

(c) The fruit of Q has a wing-like structure.

Q30 (a) D. The amount of undigested food in D decreased the most, compared to the amount of undigested food in A, B, C and E, which shows that D digested the most amount of food.

(b) E. The amount of undigested food in part E remained the same as the large intestine do not digest food and only absorb water from the undigested food.

Q31 (a)



(b) (i) Organism Q : Decrease.

Reason : When there is no P, R feeds on P, which will decrease in numbers. Since there is no P and less R. Q which feeds on P and R, will have less food

(ii) Organism R : The population of organism R will decrease.

Reason : R has lesser of P to feed on and has no other food source to feed on.

Q32 (a) The bees help in pollinating the flowers of Plant X by transferring the pollen grains from one flower to another while feeding on the nectar. Thus, fertilisation will take place and there will be more fruits produced.

(b) Z feed on plant X's parts, thus, less pollination and fertilization will occur, resulting in less fruits produced than plantation P as Z do not feed on plants X in plantation P.

Q33 (a) As the distance from the lamp increases, the water plant will receive less light and the rate of photosynthesis will be slower, the water plant will produce less oxygen.

(b) More carbon dioxide was produced as the water snails respire. This increases the rate of photosynthesis of the water plant, thus releasing more oxygen.

(c) To ensure that no other light except the light from the lamp will be received by the water plant to ensure a fair test.

Q34 (a) X – melting

Z – boiling

(b)

Parts	Heat gain
X	✓
Y	✓
Z	✓

(c) Some ice cubes were added in to the beaker. Thus, the temperature decreased.

Q35 (a) The strength of both electromagnets is the same. Both electromagnets attracted the same number of paper clips.

(b) When the switch is closed, it forms a closed circuit and electricity can flow through, thus magnetising rod X into an electromagnet. Rod X attracts the iron counterweight causing the carpark barrier to rise.

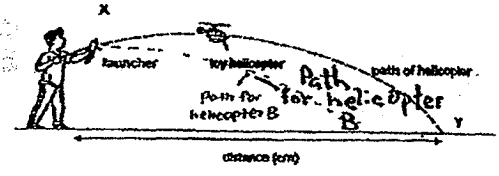
Q36 (a) Magnetic force can pass through non-magnetic materials, such as the paper.

(b) Magnetic force from the magnet is unable to pass through three sheets of paper as they are too thick for the magnet to hold. Thus, the sheets of paper and the magnet fell.

Q37 (a) He used a different amount of force to launch the toy helicopter A.

(b) Gravitational force and frictional force.

(c)



Q38 (a)

A	South-pole
B	North-pole

(b) Object X is a magnet and the pole facing the magnet of object X is also the south-pole. The like poles of the magnet and object X is facing each other so they repelled each other.

Q39 (a) To confirm that no other light except for the reflected light by the materials is detected by the light sensor.

(b) P. The light sensor detected more light from material P which shows that P is able to reflect more light into the driver's eye, enabling them to see the cones.

Q40 (a)

	gained heat	lost heat
Bowl		✓
ice cream	✓	

(b) The bowl lost heat to the ice creamand Mrs Wong's hand lost heat to the cold bowl when she touched the bowl.

(c) The temperature of the bowl would increase until it reaches room temperature.

Q41 (a)

Elastic potential	→	Kinetic	+	Sound + Heat
energy		energy		energy

(b) The greater the number of turns of the key, the further the distance travelled by the toy car.

(c) Apply lubricant on the floor surface to reduce frictional force between the wheels of the car and the floor surface.

(d) The kinetic energy has been converted to sound and heat