RED SWASTIKA SCHOOL

SCIENCE
2015 SEMESTRAL EXAMINATION 1
PRIMARY 5

Name : _____ ( )

Class : Primary 5/ _____

Date : 12 May 2015

BOOKLET A

Total time for Booklets A & B: 1h 45 min

Booklet A: 30 questions (60 marks)

Note:

1. Do not open the booklet until you are told to do so.
2. Read carefully the instructions given at the beginning of each part of the booklet.
3. Do not waste time. If the question is too difficult for you, go on to the next question.
4. Check your answers thoroughly and make sure you attempt every question.
5. In this booklet, you should have the following:
   a. Page 1 to Page 19
   b. Questions 1 to 30

Section A

For Questions 1 to 30, choose the most suitable answer and shade its number in the OAS provided.

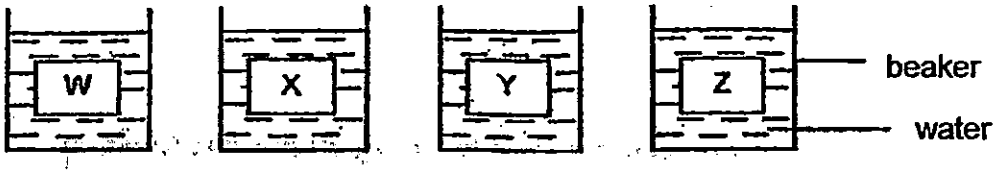
1. Lynette conducted an experiment on plants to find out if the amount of water will affect the growth of seedlings. She planted equal number of seedlings in 4 pots labelled L, M, N and O. She recorded their growth at the end of the experiment. The results are shown below.

Pot	L	M	N	O
Duration of experiment	1 week	2 weeks	1 week	3 weeks
Location	Next to the window	Next to the window	Next to the window	Next to the window
Amount of water given daily	20 ml	20 ml	0 ml	0 ml

Which two set-ups should she use to make sure her experiment is fair?

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

2. Gary weighed 4 sheets of different materials, W, X, Y and Z, of similar sizes and thickness, and put them into 4 beakers containing equal volumes of water as shown in the diagram below.



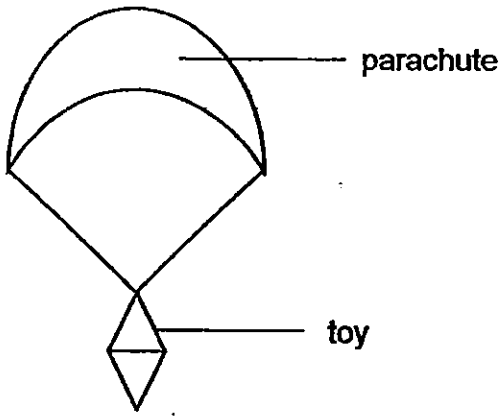
After 20 minutes, Gary weighed each sheet of material again. He recorded their masses before and after the experiment in the table below.

Material	Mass at the beginning (g)	Mass at the end (g)
W	8	17
X	12	16
Y	14	14
Z	16	19

Gary wants to make a raincoat. Which is the most suitable material he should choose?

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

3. Ranjeet wanted to find out whether paper or plastic used for a parachute would allow the toy attached to it to fall to the ground faster.



Ranjeet dropped the two parachutes from a certain height and recorded the time taken for the toy to land on the ground. The results of his experiment were shown in the table below.

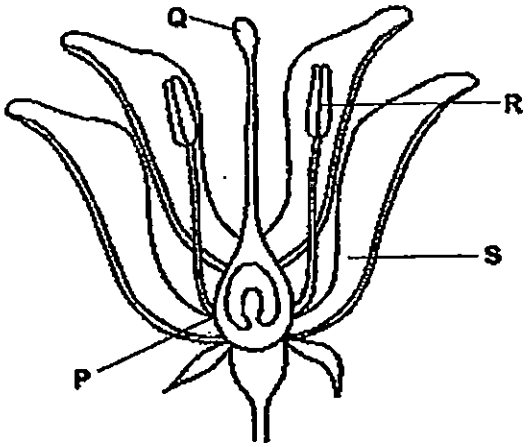
Type of Parachute	Time taken for toy to reach the ground (s)
Paper	87
Plastic	115

Which of the following variables should Ranjeet keep the same in order to achieve the aim of his experiment?

A: Mass of toy
B: Height of drop
C: Size of parachute
D: Material of parachute

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

4. The diagram below shows part of a flower.



Which part, P, Q, R or S, should the pollen grains land on for pollination to be completed?

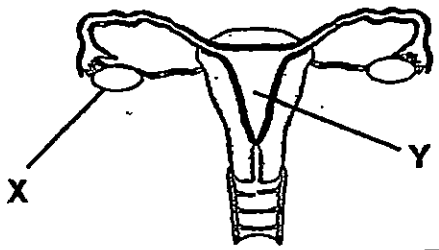
(1) P
(2) Q
(3) R
(4) S

5. Which of the following are parts of the male human reproductive system?

A: anther
B: penis
C: testis
D: filament

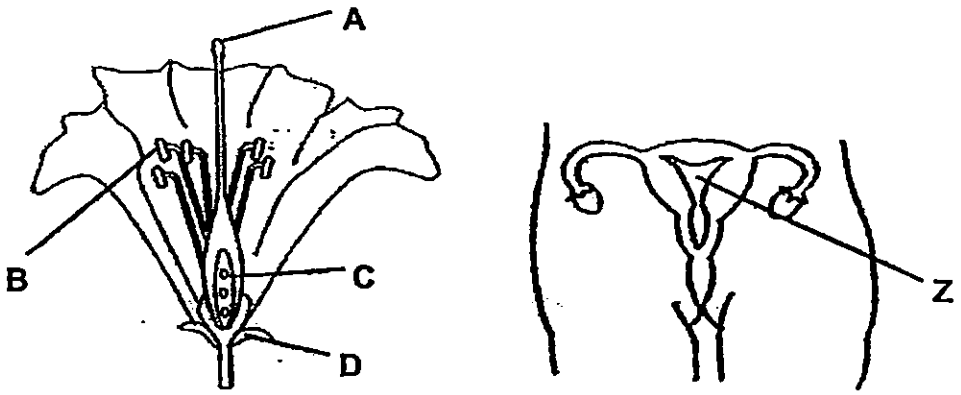
(1) A and D only
(2) B and C only
(3) A, B and C only
(4) B, C and D only

6. The diagram below shows the female human reproductive system. Identify parts X and Y.



	X	Y
(1)	egg	vagina
(2)	egg	womb
(3)	ovary	ovule
(4)	ovary	womb

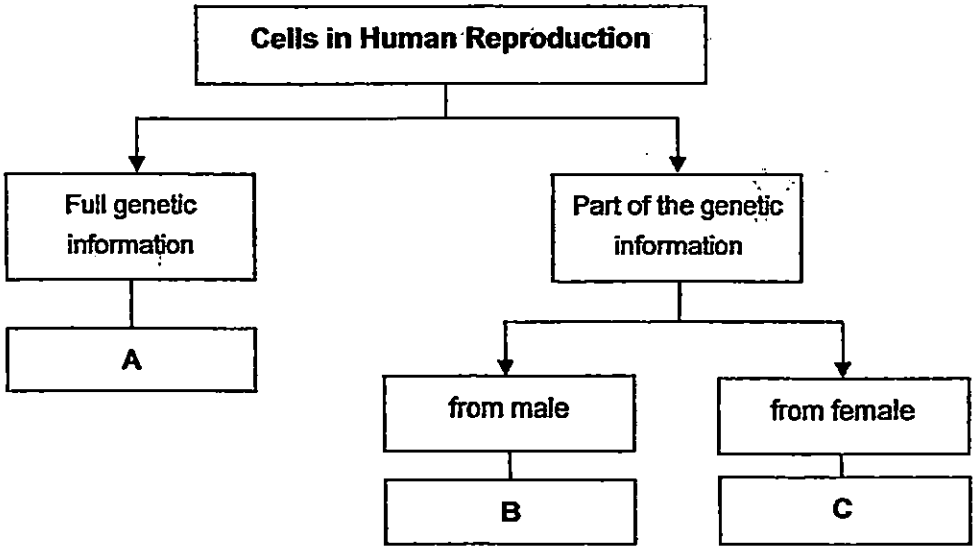
7. The diagrams below show the cross section of a flower and a human reproductive system.



Part _____ of the flower has the same function as part Z in the human reproductive system.

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

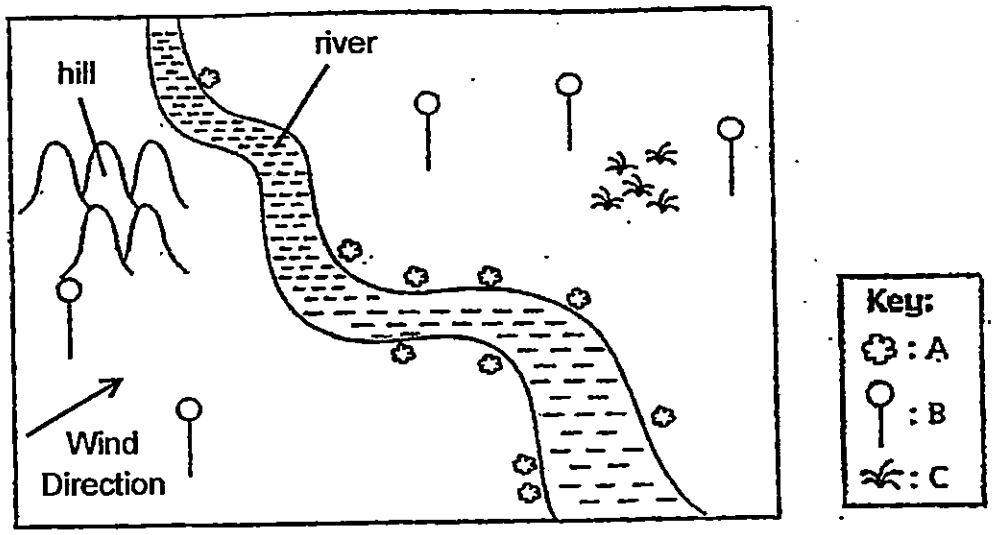
8. Study the following classification table carefully.



What could A, B and C be?

	A	B	C
(1)	egg	fertilised egg	sperm
(2)	egg	sperm	fertilised egg
(3)	fertilised egg	egg	sperm
(4)	fertilised egg	sperm	egg

9. A group of scouts went jungle trekking. They collected data of the number and position of trees found in the jungle. They recorded this data in the map below.



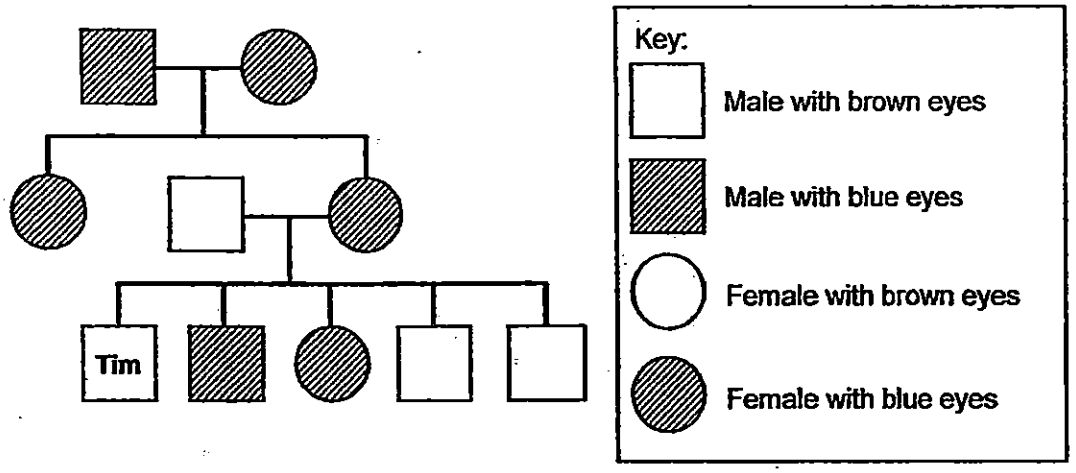
The scouts then made the following statements about the fruits on the trees.

Alan	Fruits on Tree A have husks which trap air.
Bob	Fruits on Tree B have wing-like structure.
Calvin	Fruits on Tree C split open with an explosive force.

Which of the scout(s) made a correct statement?

(1) Bob only
(2) Alan and Bob only
(3) Bob and Calvin only
(4) Alan, Bob and Calvin

10. Study the diagram given below carefully.



Which of the following information can be obtained from the diagram above?

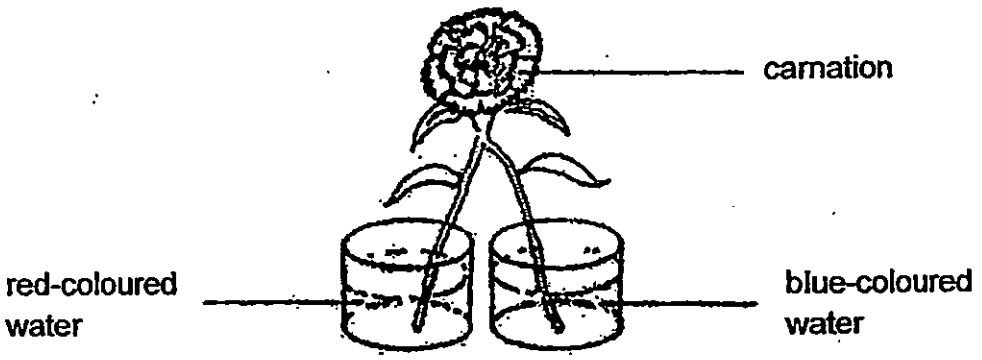
A: Tim has brown eyes.

B: Tim's maternal grandparents have brown eyes.

C: Tim inherited his eye colour from his father.

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

11. Study the diagram below carefully.



The stalk of a white-coloured carnation flower is split equally into two and dipped into two beakers, each containing red-coloured and blue-coloured water respectively. Which one of the following is most likely to be observed after 6 hours?

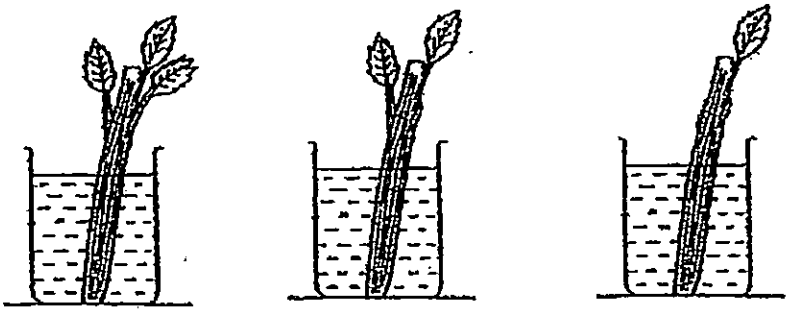
(1) The stem and the petals turn red.
(2) The stem and the petals turn blue and red.
(3) The stem turns blue and the petals turn red.
(4) The stem remains green and the petals remain white.

12. Which of the following statements are similarities between a human digestive system and a plant system?

A: Both systems make food.
B: Both systems have parts which perform different functions.
C: Both systems are made up of more than one part.

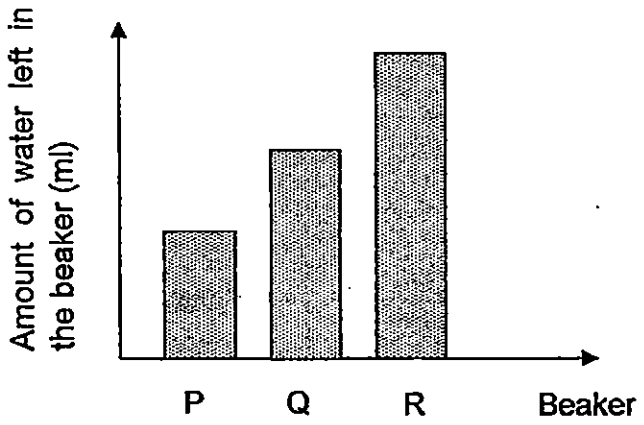
(1) B and C only
(2) A and B only
(3) A and C only
(4) A, B and C

13. Donny set up 3 beakers, P, Q and R, as shown below. Each of the 3 beakers contained 25 ml of water and were placed at the same location for 12 hours.



Beaker P Beaker Q Beaker R

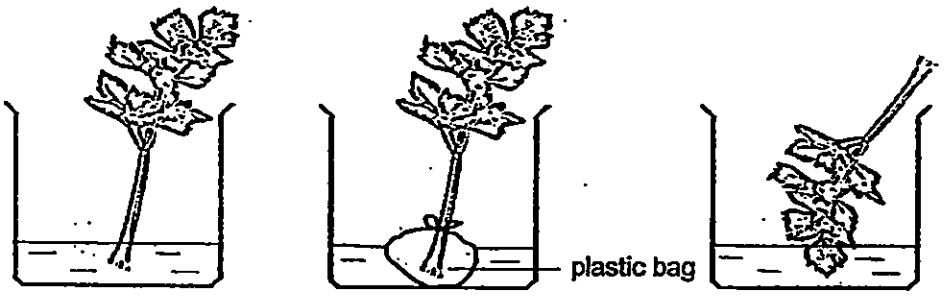
Donny then presented his findings in the graph below.



Which one of the following statements best describes the relationship between the variables of Donny's experiment?

(1) The fewer the number of leaves, the greater the amount of water lost.
(2) The greater the number of leaves, the greater the amount of water lost.
(3) The fewer the number of leaves, the greater the amount of water absorbed by the plant.
(4) The greater the number of leaves, the greater the amount of water left in the beaker.

14. Meizhen conducted an experiment to find out how plants transport water. She placed a plant each into three separate beakers, each filled with 25 ml of water. The beakers were then kept in the Science room. The set-ups were shown below.



Beaker A Beaker B Beaker C

In which beaker(s) is/are the plant(s) likely to wilt first after a few days?

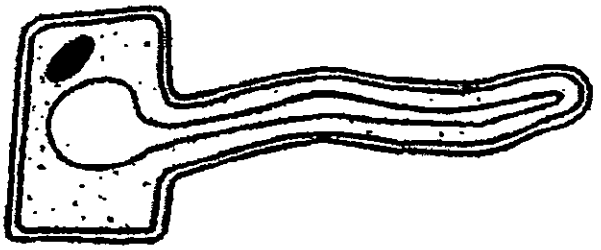
(1) A only
(2) A and B only
(3) A and C only
(4) B and C only

15. Which of the following statements about inhaled air and exhaled air are true?

A	Inhaled air contains more carbon dioxide than exhaled air.
B	Inhaled air contains more oxygen than exhaled air.
C	Inhaled air contains more water vapour than exhaled air.
D	Inhaled air contains less water vapour than exhaled air.

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

16. Study the root hair cell below carefully.



Which of the following statements is incorrect?

(1) The cell membrane allows water and mineral salts to pass through to enter the root hair cell.
(2) The root hair cell gives the root a large surface area for it to absorb water.
(3) There is no chloroplast in the root hair cell because it does not need to water to produce food.
(4) The cell wall prevents the root hair cell from bursting when it absorbs water.

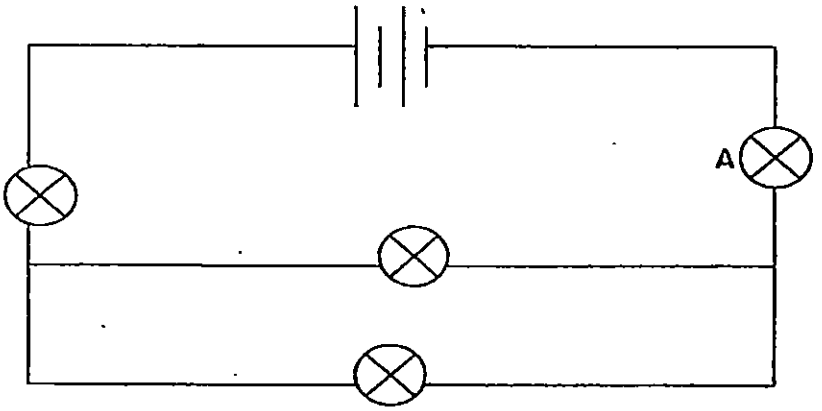
17. Jan observed a cell through the microscope and wrote down her observations in the following table.

Observations
It has a nucleus.
It has a regular shape.
It has no chloroplast.

What could the cell be?

(1) hydrilla leaf cell
(2) onion cell
(3) elodea leaf cell
(4) human cheek cell

18. Study the circuit diagram below carefully.

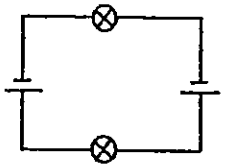


If Bulb A is faulty and the rest of the bulbs are in good working condition, how many bulbs will remain lit?

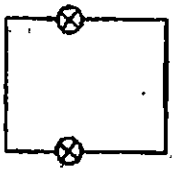
(1) 0
(2) 1
(3) 2
(4) 3

19. Which of the following set-ups will enable 2 bulbs to light up?

(1)

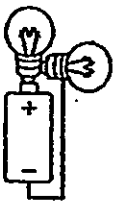


(2)

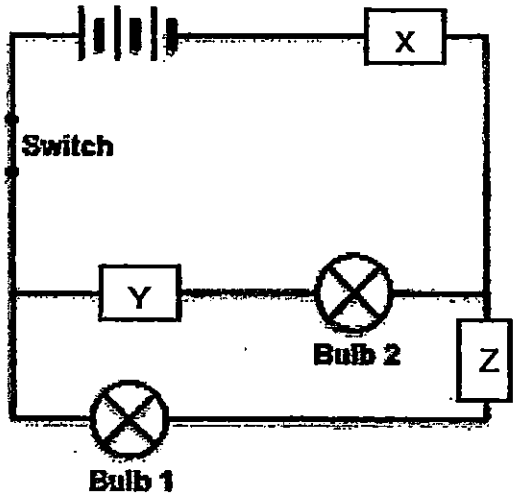


(3)

(4)



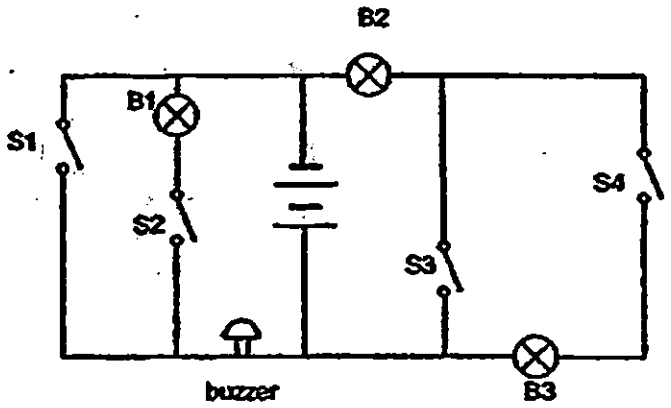
20. In the circuit below, X, Y and Z are unknown materials. Bulb 1 and Bulb 2 are in working condition. When the switch is closed, only Bulb 2 lights up.



Which of the following is true?

	Conductors of electricity	Insulators of electricity
(1)	X, Y and Z	none
(2)	X and Y	Z
(3)	X and Z	Y
(4)	none	X, Y and Z

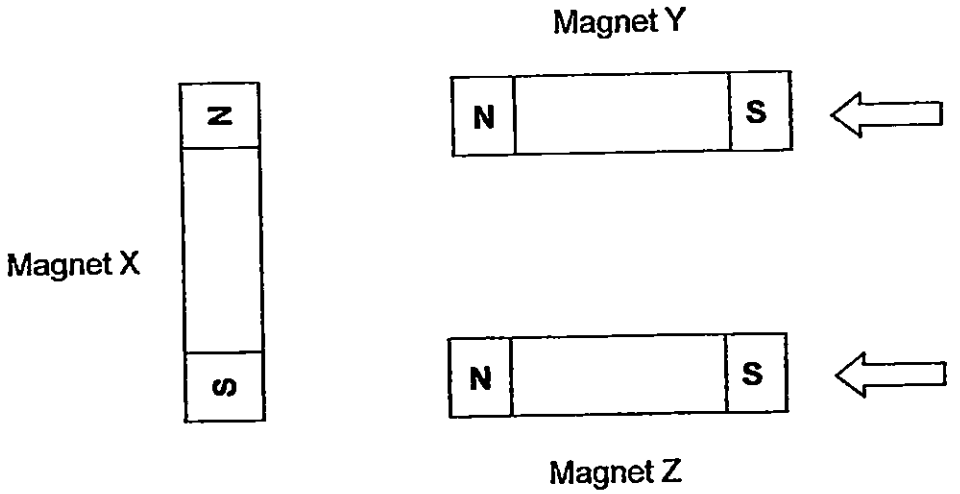
21. In the circuit below, bulbs B2 and B3 are in working condition, but bulb B1 is fused.



Which switch should be closed in order to sound the buzzer?

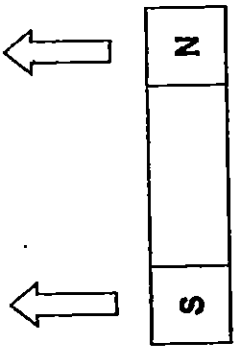
(1) S1
(2) S2
(3) S3
(4) S4

22. Mindy moved 2 magnets, Y and Z, towards magnet X at the same time as shown in the diagram below.

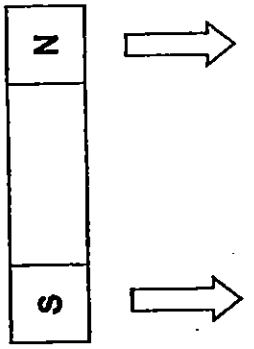


Mindy observed that magnet X moved. Which of the diagrams below best shows how magnet X moved in response to magnet Y and Z?

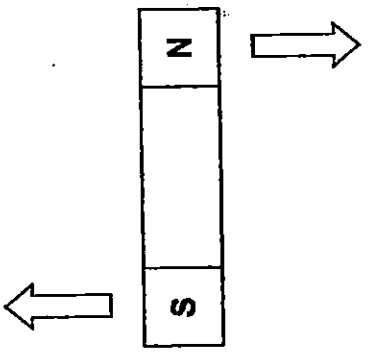
(1)



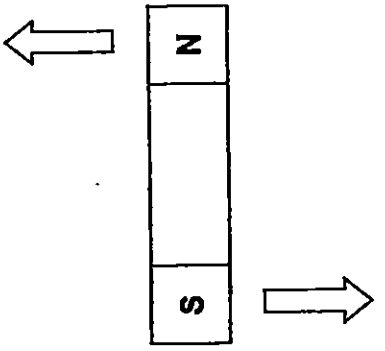
(2)



(3)



(4)



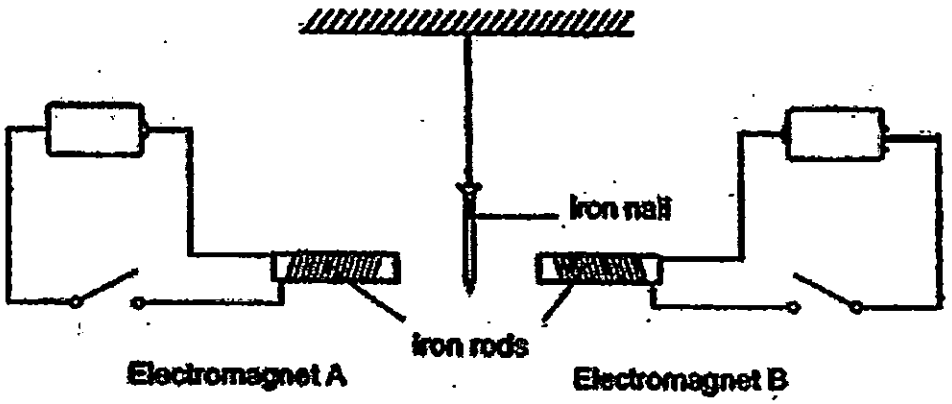
23. Jacqueline tried to magnetise an iron nail using the stroking method. She wanted to find out whether the iron nail was magnetised after the stroking was done. She placed the iron nail near a magnet and a steel paper clip. She recorded her observations below.

A: The iron nail repelled the magnet.
B: The iron nail was attracted to the magnet.
C: The iron nail attracted the steel paper clip.

Which of the following observation(s) help Jacqueline to confirm definitely that the nail was magnetised?

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

24. The diagram below shows an iron nail suspended between two electromagnets, A and B. The batteries, wires, number of coils of wire around the iron rod, iron rods and switches are identical in both systems. When both switches were closed, the iron nail remained in the same position.



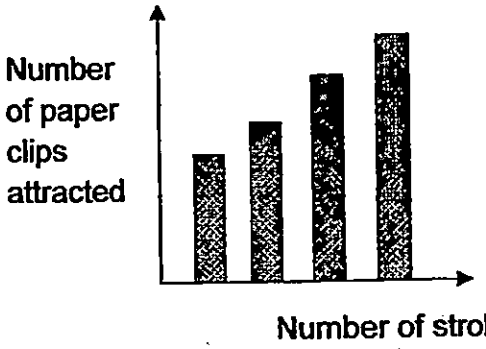
What can be done to allow the iron nail to move towards electromagnet B?

(1) Add two more batteries to the set-up for electromagnet A.
(2) Reduce the number of coils of wire around electromagnet B.
(3) Add more coils of wire around electromagnet A.
(4) Add two more batteries to the set-up for electromagnet B.

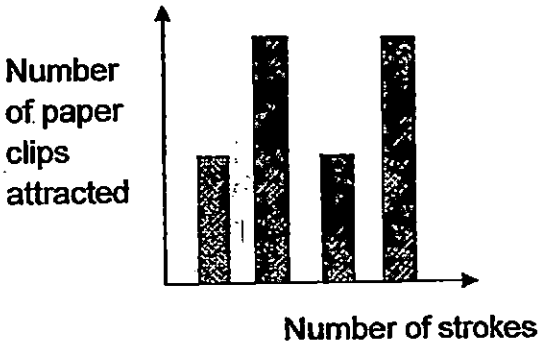
25. Dennis wanted to make a steel nail into a magnet by stroking it with a bar magnet. He stroked the nail with different number of strokes. He recorded the number of paper clips the nail could attract and plotted a graph.

Which of the graphs best represents the relationship between the number of strokes made and the number of paper clips the nail could attract?

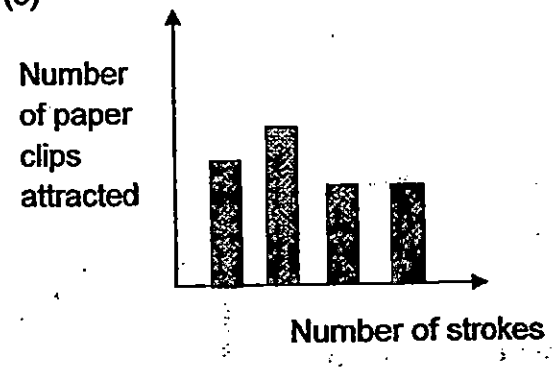
(1)



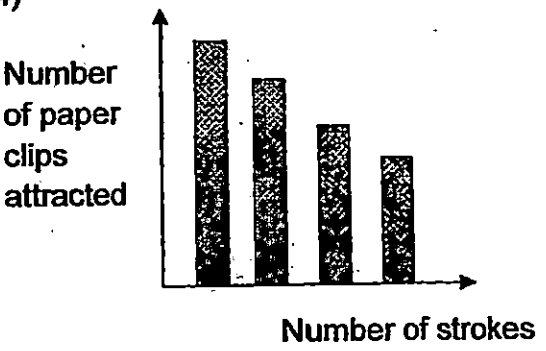
(2)



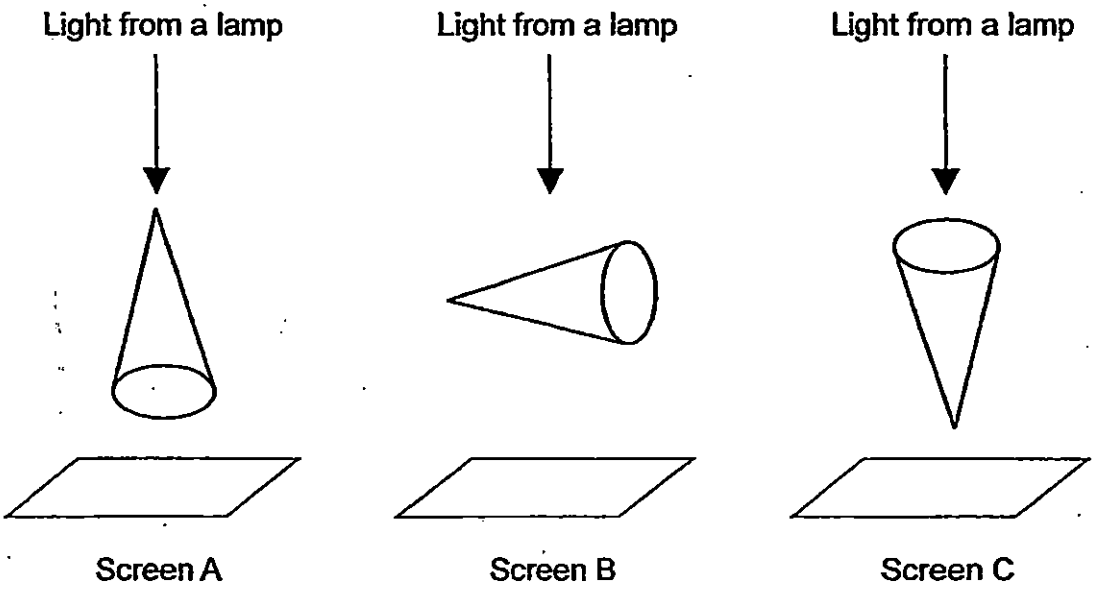
(3)



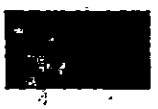
(4)



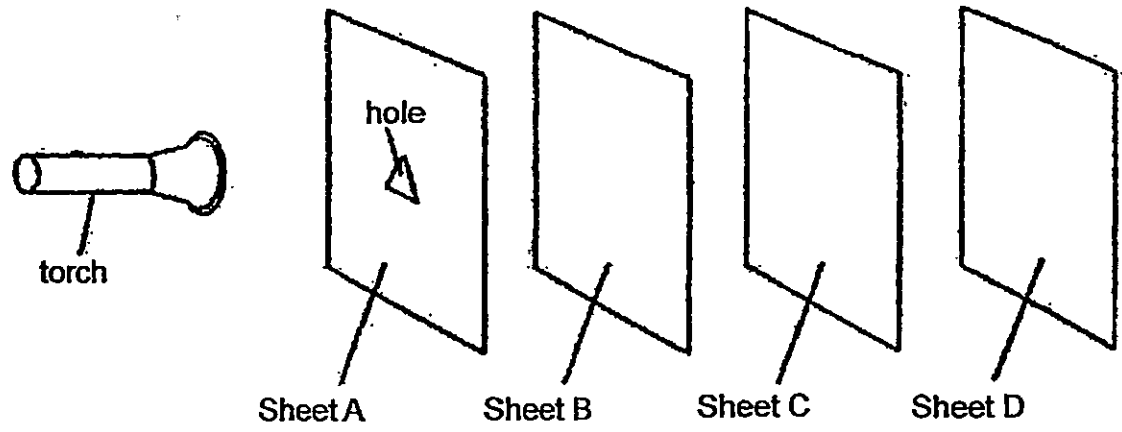
26. Xian Yang wanted to find out how the shape of the shadow of an object is affected by the way the object is placed. He placed 3 similar objects in 3 different positions and shone light from the same lamp. He observed the shadows cast on screen A, B, and C below.



Which one of the following shadows would Xian Yang observe on the screens?

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

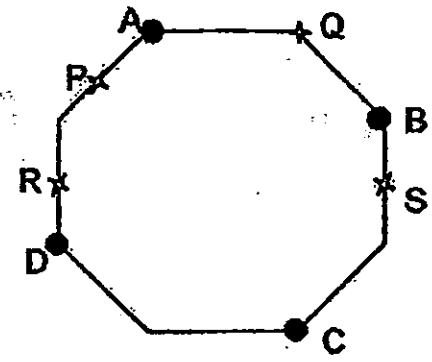
27. Cleon set up an experiment in a dark room as shown below. He placed a sheet of cardboard, tracing paper, clear glass and copper sheet at various distances from the torch. When he switched on the torch, a bright triangle could be seen on sheet C only.



Which of the following shows the likely materials for sheets A, B, C and D?

	Sheet A	Sheet B	Sheet C	Sheet D
(1)	clear glass	tracing paper	cardboard	copper sheet
(2)	tracing paper	clear glass	cardboard	copper sheet
(3)	cardboard	clear glass	copper sheet	tracing paper
(4)	copper sheet	tracing paper	clear glass	cardboard

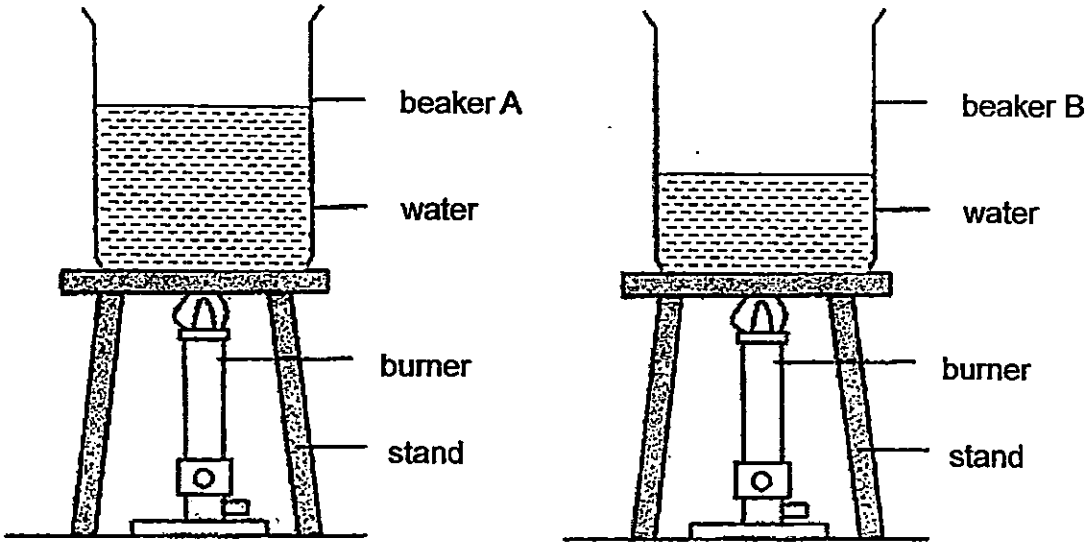
28. Su Lee placed 4 blobs of wax of equal sizes, A, B, C and D, on an octagon-shaped copper wire. She heated the copper wire at a certain point. She observed that the blobs of wax began to melt in the order of B, C, A and D.



At which point, P, Q, R or S, did Su Lee heat the copper wire?

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

29. Jamilah heated two beakers containing different amounts of tap water. The water was heated until it reached 80^0C.



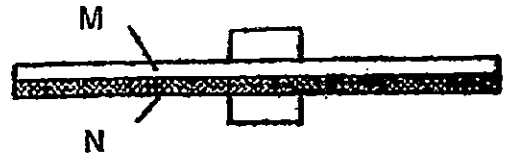
Based on her observation, Jamilah concluded her experiment with the following statements.

A: The water in beaker A takes a longer time to reach 80^0C.
B: The water in beaker B takes a shorter time to reach 80^0C.
C: The water in beaker B has less heat than the water in beaker A at 80^0C.
D: The water in beaker A has the same amount of heat as the water in beaker B at 80^0C.

Which of Jamilah's statements are correct?

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

30. The bimetallic strip, as shown below, is made up of two metals, M and N, fixed together. At room temperature, the bimetallic strip is straight and clamped at its centre.



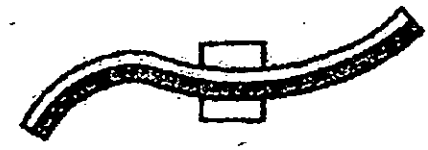
If metal N expands more than metal M when it is heated, which one of the following diagrams below represents the bimetallic strip after it has been heated?

(1)

(2)

(3)

(4)

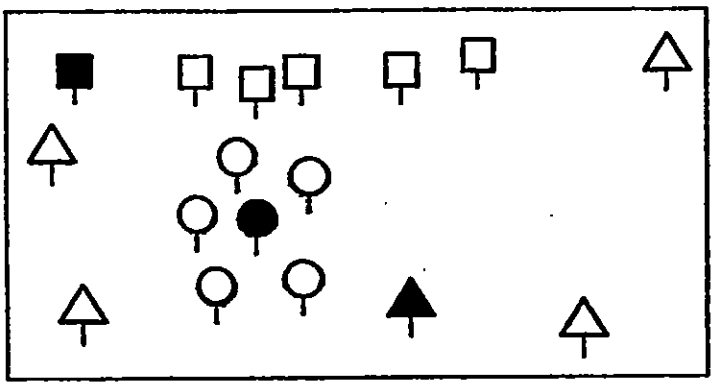


End of Section A

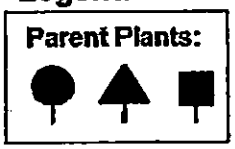
Please check your answer.

SECTION B
Answer all the questions in the spaces provided.

31. The diagram below shows three plants growing in a field. The plants are represented using symbols. The wind has been constantly blown towards the east of the field. Each plant is only dispersed by one method.



Direction of wind



(a) Which plant has seeds which are most likely to be dispersed by wind? Circle the correct symbol below. (1m)

(b) Give a reason to your answer for part (a). (1m)

_____

_____

(c) It is known that the seeds of the plant in (a) do not have wing-like structures. Describe a characteristic which the seeds of the plant in (a) would have to help the seeds to be dispersed by wind. Do not mention size. (1m)

_____

3

RED SWASTIKA SCHOOL

RED SWASTIKA SCHOOL

SCIENCE
2015 SEMESTRAL EXAMINATION 1
PRIMARY 5

Name : _____ ( )

Class : Primary 5/ _____

Date : 12 May 2015

BOOKLET B

14 Questions
40 Marks

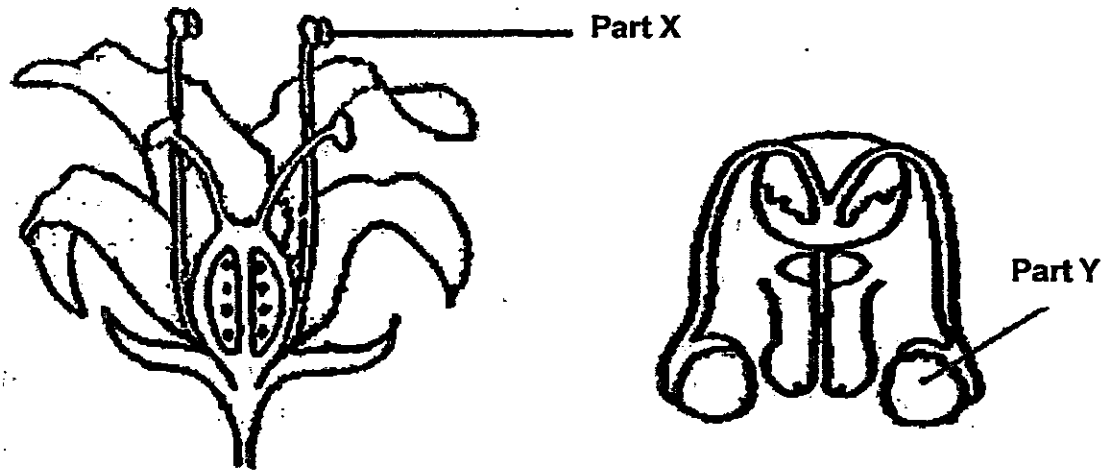
In this booklet, you should have the following:
a. Page 20 to Page 34
b. Questions 31 to 44

MARKS

	OBTAINED	POSSIBLE
BOOKLET A		60
BOOKLET B		40
TOTAL		100

Parent's Signature : _____

32. Look at the diagrams below.



(a) Identify part X and part Y. (1m)

Part X: _____

Part Y: _____

(b) How are part X and part Y similar in function? (1m)

_____

_____

(c) The flower in the diagram is not scented and has dull-coloured petals. Based on the structure of the flower, is the flower more likely to be pollinated by wind or insects? Why? (1m)

_____

_____

3

33. Jamal wants to find out how organism X's growth is affected by the presence of substance P in the water. He uses two 550 ml beakers for his experiment. The items in beaker 1 are shown in the table below.

He sets up a control experiment using beaker 2.

(a) Complete the table to show how he should set up beaker 2. (1m)

	Amount of substance P	**Amount of water used**	**Number of organism X**
Amount used in Beaker 1	10 ml	400 ml	50
Amount used in Beaker 2 (Control experiment)			

(b) Identify one other important variable that he must keep the same during the experiment. (1m)

_____

(c) What observation on organism X should he make in order to conclude that organism X grows better in beaker 1 at the end of the experiment? (1m)

_____

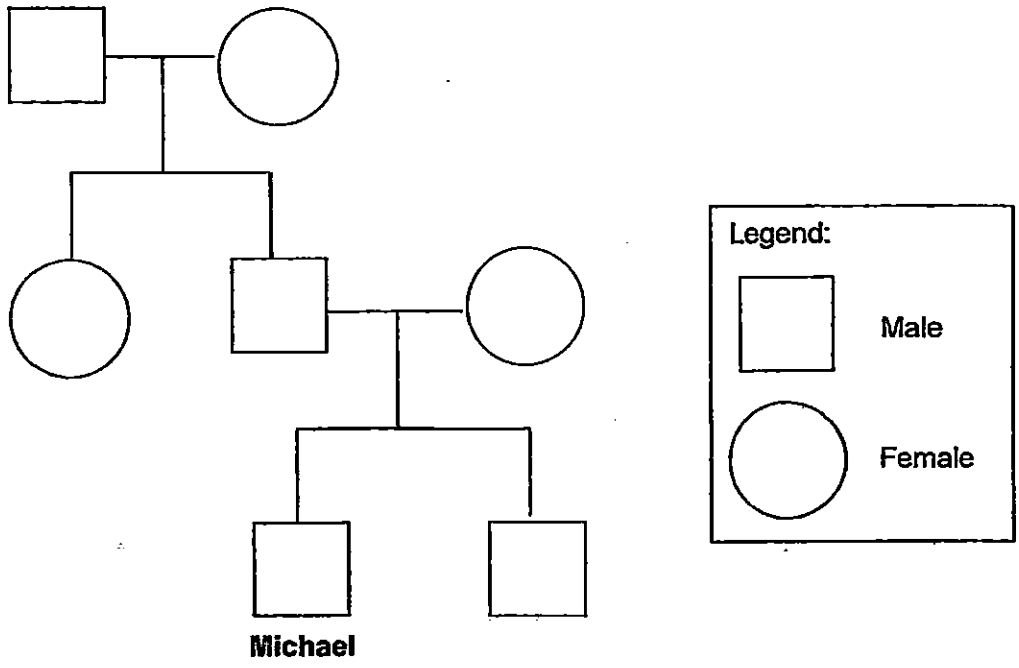
_____

3

34. The table shows information about Michael's family members and their natural hair colour.

Family member	Natural hair colour
Paternal grandfather	Brown
Paternal grandmother	Brown
Father	Brown
Mother	Black
Michael	Brown
Brother	Black

(a) The diagram below shows Michael's family tree. Shade the correct symbols which represent members of the family whereby the natural hair colour is black. (1m)



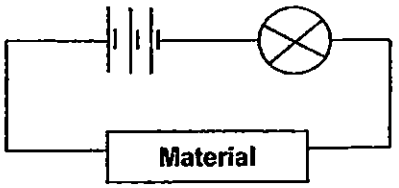
(b) Which part of his mother's egg cell contains the hereditary information that is passed down to Michael? (1m)

_____

(c) Circle the symbol which represents Michael's grandmother. (1m)

3

35. Xin Hui set up a circuit for an experiment as shown below.



She used three different materials, A, B and C of the same size and thickness. Whenever she changed the material, she would use new batteries and bulb for the experiment.

Xin Hui measured the brightness of the bulb using a datalogger for every different material used. The results were recorded below.

Material	Brightness of the bulb (units)	Temperature of the material (^{0}C)
A	30	38
B	40	34
C	0	28

(a) Give a possible example of material C. (1m)

_____

(b) Based on the brightness of the bulb when material A and B were used, what could be concluded about material B? (1m)

_____

_____

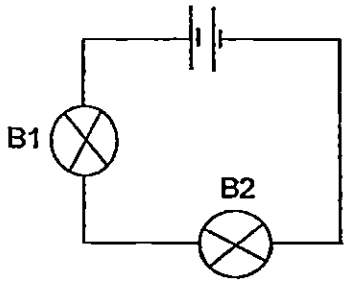
(c) Which material, A, B or C, is most suitable for making the handle of a cooking pot so that the user's hand would not be burnt easily? Why? (1m)

_____

_____

3

36. Study the diagram below.



(a) Identify the type of arrangement the bulbs are arranged in. (1m)

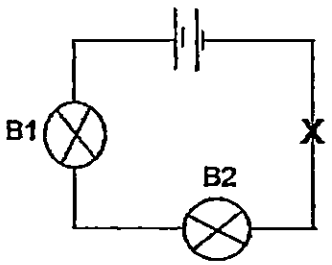
_____

(b) If bulb B1 fuses, what will happen to the brightness of bulb B2? Why? (1m)

_____

_____

Another bulb was added to the circuit at part X.



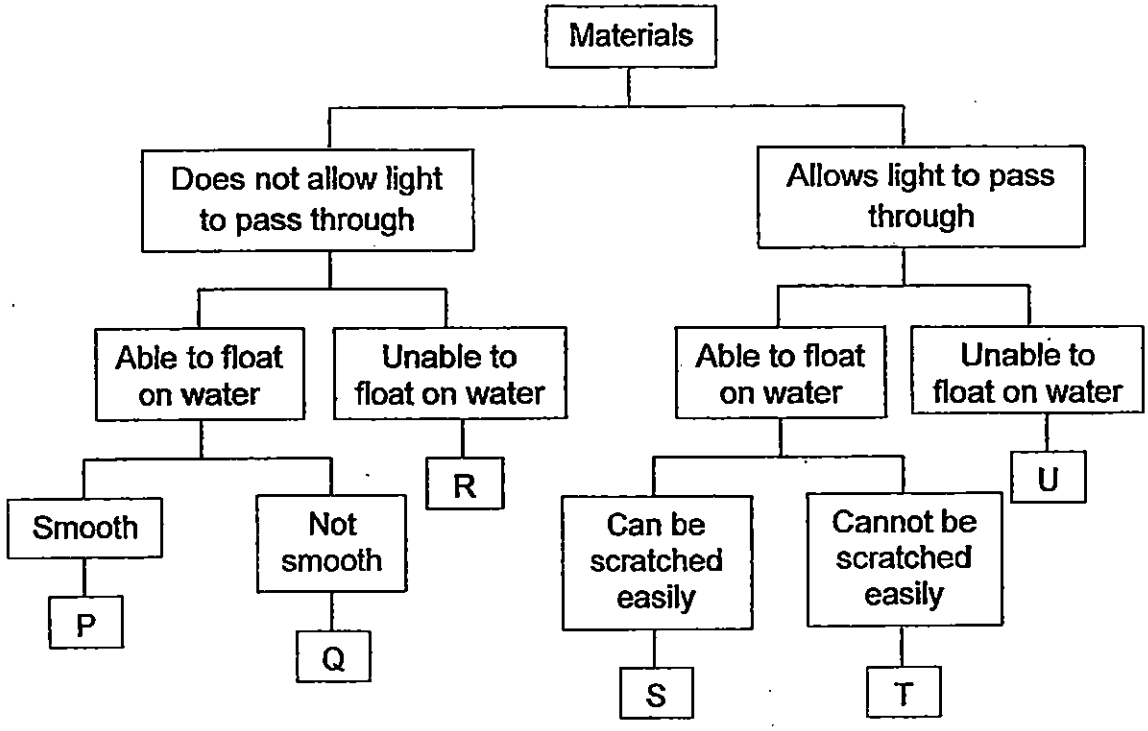
(c) If bulbs B1 and B2 are in working condition, what will happen to the brightness of bulb B2 after a bulb was added at part X? Why? (1m)

_____

_____

3

37. The chart below shows how some materials, P, Q, R, S, T and U, can be classified based on their characteristics.



(a) What is the similarity between material P and material T. (1m)

_____

_____

(b) Complete the classification table below using the materials listed in the box. (2m)

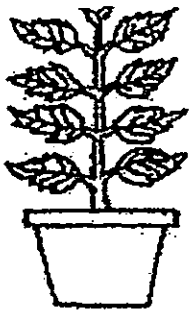
ceramic	iron	cotton	copper

Materials		
Non-metals	Metals	
(i)	A:	B:
(ii)	steel	silver
	(iii)	(iv)

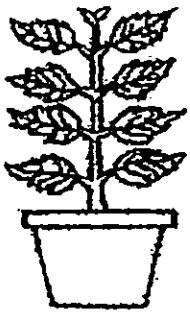
(c) Give suitable headings for A and B. (1m)

4

38. Mr Rami carried out an experiment using identical plants, X and Y, as shown in the diagram below. He gave an equal amount of water to each of the plants at the start of the experiment. He placed plant X under the sun and plant Y in the dark. Mr Rami measured the height of both plants daily over a period of 2 weeks.



Plant X placed under the sun



Plant Y placed in the dark

(a) Mr Rami found that he had to water plant X more often compared to plant Y. Explain why this was so. (1m)

_____

_____

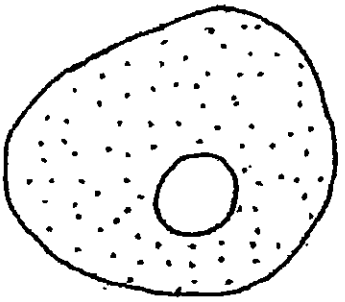
(b) Mr Rami repeated his experiment with 2 other pots of plant X and plant Y. Why did he do so? (1m)

_____

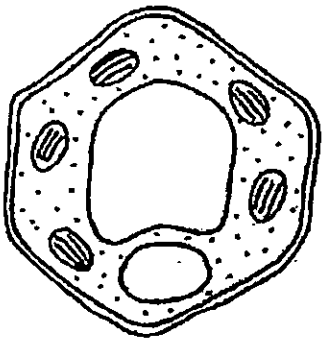
_____

2

39. The diagrams show a plant cell and an animal cell. The cells are labelled X and Y.



Cell X



Cell Y

(a) A certain part of cell Y is not found in cell X. Name this part. (½m)

_____

(b) What function can cell Y perform but cell X cannot? Why? (1½m)

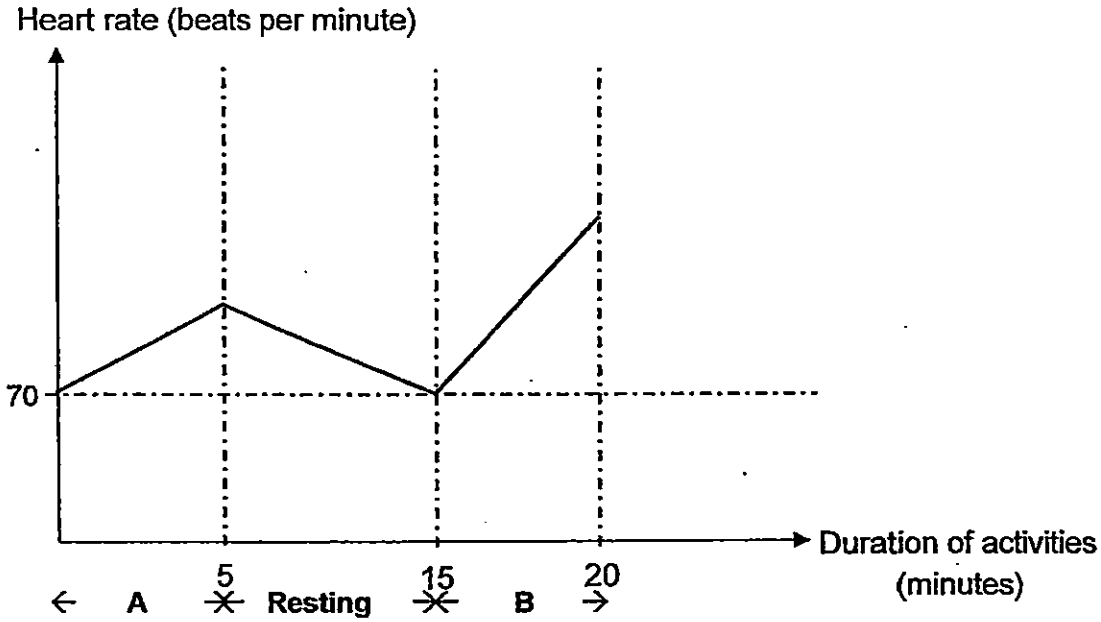
_____

_____

_____

2

40. When at rest, Gabriel's average heart rate is 70 beats per minute. Gabriel carried out three activities. The graph shows how his heart rate changed during the different activities.



(a) Study the graph. Fill in the blanks in the table with the letters "A" or "B" to match the activity to the correct part of the graph. (1m)

Activity	Part A or B of the graph?
Running	
Walking	

(b) Explain why Gabriel's heart rate increased when he was running? (1m)

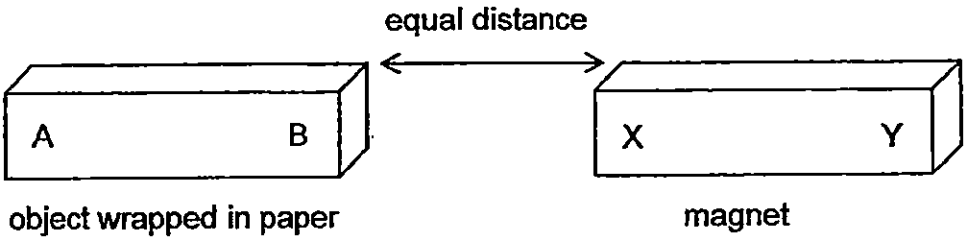
_____

_____

2

41. Jiemin was given three objects, P, Q, and R, wrapped in paper. The objects consist of magnets and non-magnets.

The objects, with parts A and B, were of similar sizes and made of different materials. Jiemin held a magnet, with poles X and Y, at an equal distance from each of them in the diagram shown below.



Jiemin recorded his observations in the table below.

Object	Observations
P	P moved away from the magnet.
Q	Q moved towards the magnet.
R	R did not move.

(a) Which object was definitely not a magnet? (1m)

_____

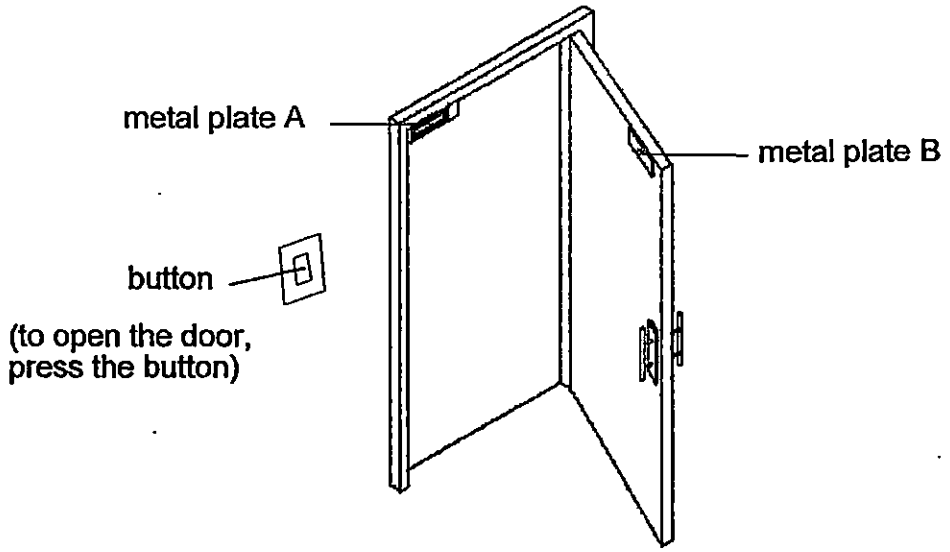
(b) Using the letters, A, B, X or Y, shown in the diagram, explain the observation for object P. (1m)

_____

_____

2

An electromagnetic lock makes use of an electromagnet to lock the door. When electricity is available, metal plate A becomes an electromagnet.



(c) When Benjamin pressed the button at the side, he was able to open the door. Would there be an open or closed circuit for the electromagnetic lock? (1m)

_____

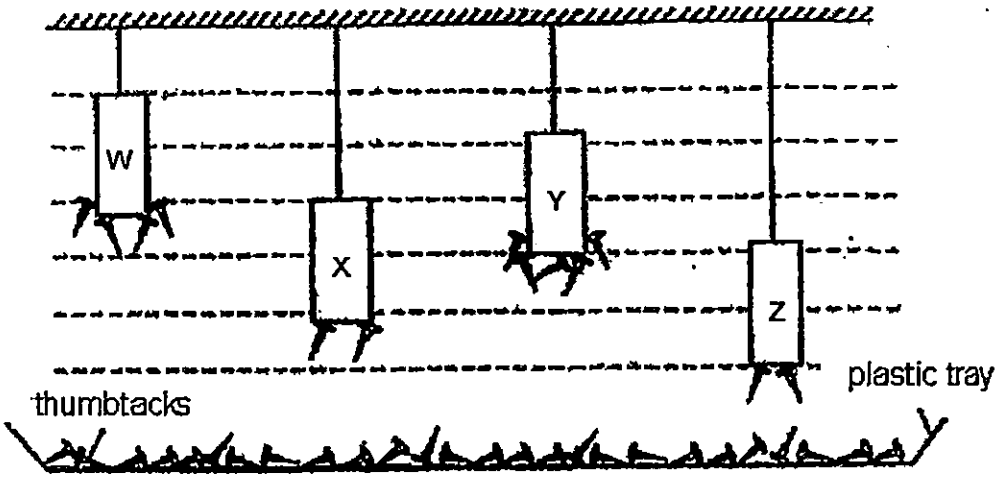
(d) Explain the answer for part (c). (1m)

_____

_____

2

42. Kayla wanted to compare the magnetism of 4 magnets of the same size, W, X, Y and Z. She set up the experiment below and observed the number of thumbtacks that were attracted by each magnet.



From the result of her experiment, Kayla could not conclude which magnet has the strongest magnetism.

(a) How should Kayla change her set-up so that she would be able to find out which magnet has the most magnetic strength? (1m)

_____

_____

_____

(b) For the answer in part (a), what should she observe to confirm which magnet had the greatest magnetic strength? (1m)

_____

_____

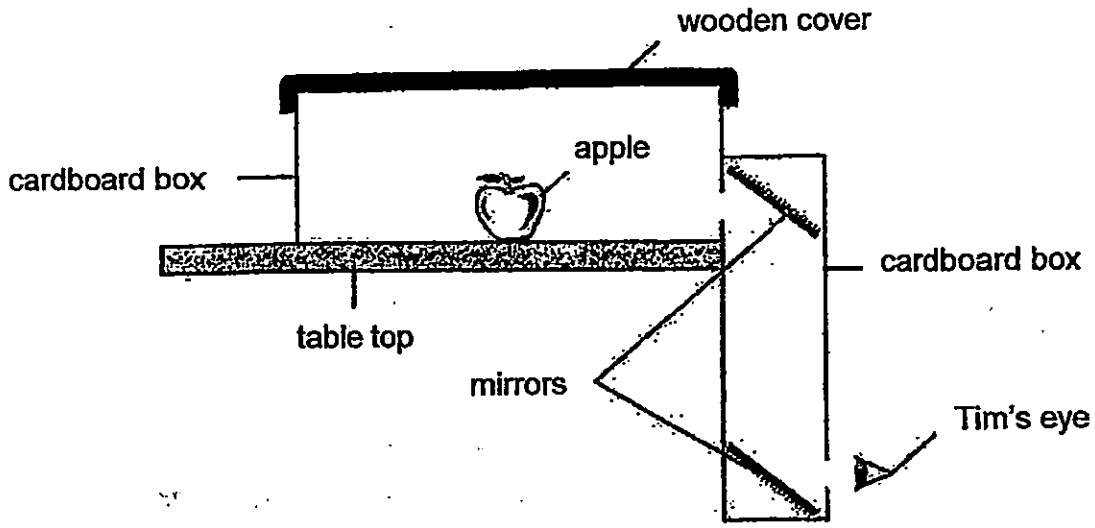
(c) Kayla replaced magnet Z with another magnet, M, of the same size. State one possible observation that Kayla could make if magnet M has a weaker magnetic strength compared to magnet Z. (1m)

_____

_____

3

43. The diagram below shows a model which Tim made using 2 mirrors and 2 cardboard boxes.



(a) When Tim looked through the hole, he was unable to see the apple. Explain why Tim was unable to do so. (1m)

_____

_____

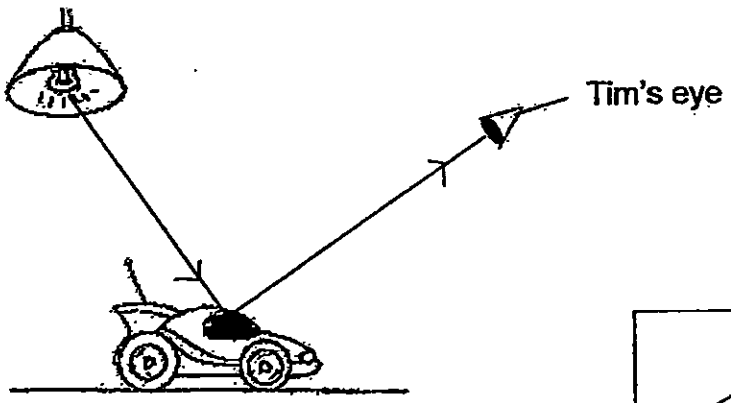
(b) Without introducing any new items to the set-up, what must Tim do to be able to see the apple? (1m)

_____

_____

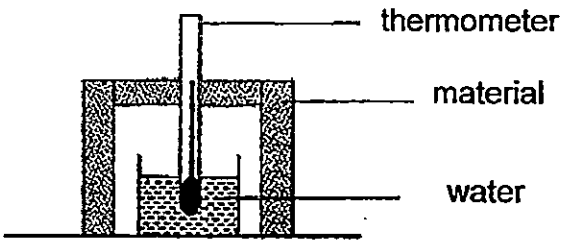
(c) Tim was able to see the toy car placed on the floor.

The lines represent light rays. Draw arrow heads on the lines to show how Tim could see the toy car. (1m)



3

44. Pamela set up 3 experiments. One example was shown below. She tested 3 different materials of equal thickness.



Pamela measured and recorded the temperature of water in each beaker at regular intervals. The results of the experiment were shown below.

Time (min)	Temperature of water (^{0}C)		
	Set-up A	Set-up B	Set-up Z
0	100	100	100
5	63	81	59
10	50	76	43
15	45	72	37
20	41	69	31

(a) Which set-up should Pamela choose if she needed to keep her cold drinks cold for the longest time? (1m)

_____

(b) Explain your answer in (a). (1m)

_____

_____

_____

End of Section B

Please check your answer.

2

EXAM PAPER 2015
LEVEL : PRIMARY 5
SCHOOL : RED SWASTIKA SCHOOL
SUBJECT : SCIENCE
TERM : SA1

BOOKLET A

Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q9	Q 10
2	3	3	2	2	4	3	4	4	3
Q 11	Q 12	Q 13	Q 14	Q 15	Q 16	Q 17	Q 18	Q 19	Q 20
2	1	2	4	4	3	2	1	4	2
Q 21	Q 22	Q 23	Q 24	Q 25	Q 26	Q 27	Q 28	Q29	Q30
1	4	3	4	1	2	3	4	3	1

BOOKLET B

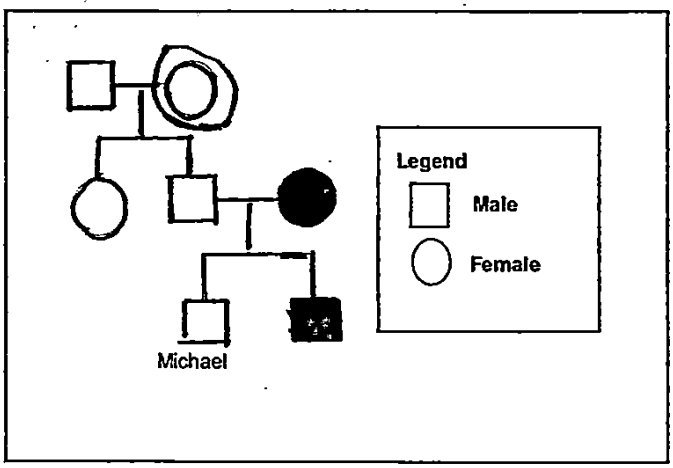
Q31a.

Q31b. The young plant is dispersed in the direction of wind.
Q31c. It is light.

Q 32a. Part X : Anther Part Y : Testis
Q32b. They produce male reproduction cells.
Q32c. It is wind., as insects are attracted to scented, bright coloured petals and nectar.

Q33a.
Amount of substance P – 0ml
Amount of water used - 400mL
Amount of organism X – 50
Q33b. The duration of the experiment
Q33c. See if substance P helps organism X to grow there will be a greater number of X in beaker 1 than in beaker 2.

Q34a. SEE PICTURE

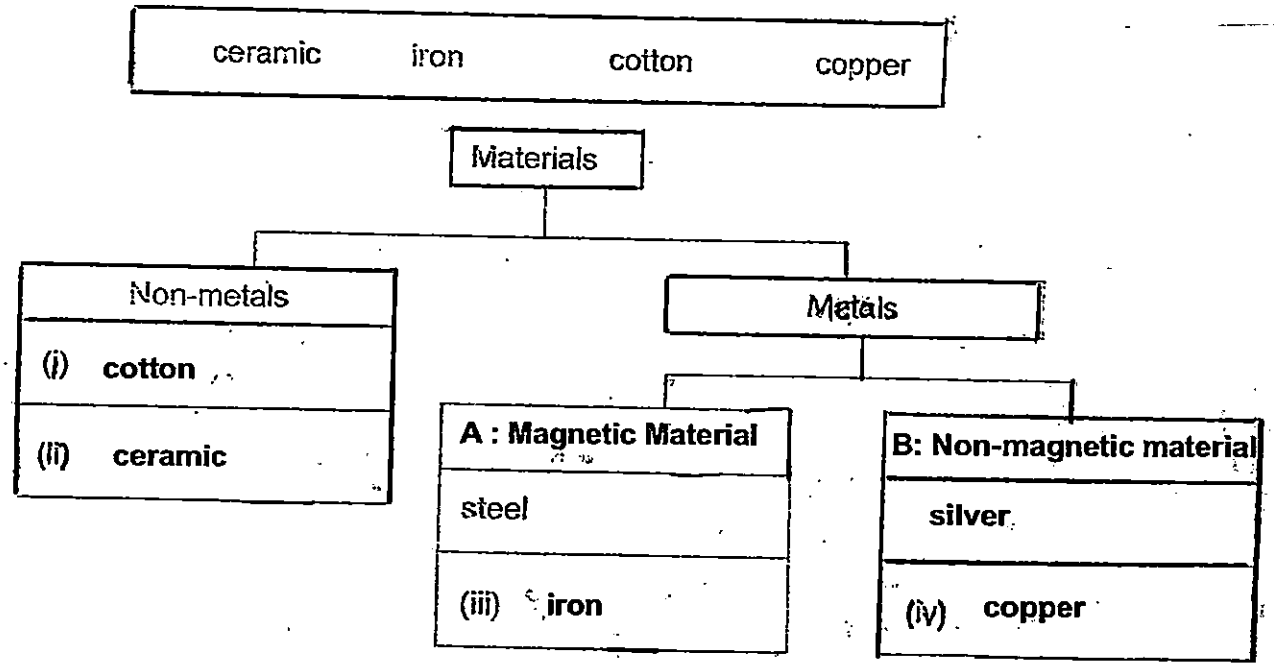


Q34b. The nucleus
Q34c. SEE PICTURE

Q35a. Plastic
Q35b. Material B is a better conductor of electricity than material A but a poorer conductor of heat than material A.
Q35c. Material C. Material C is most suitable since if the bulb does not light up nor does the material heated up indicating it does not conduct electricity. Poor conductors of electricity are usually non – metals so they are also poor conductors of heat.

Q36a. Series
Q36b. Bulb B2 will not light up. It will be an open circuit if bulb B1 fuses.
Q36c. The brightness of bulb B2 will be dimmer.

Q37a. They both can float on water.
Q37b n Q37C - SEE PICTURE



Q38a. Plant X was under the sun so it can photosynthesize, therefore the plant nees more water to carry out photosynthesis.
Q38b. To get a more reliable result.

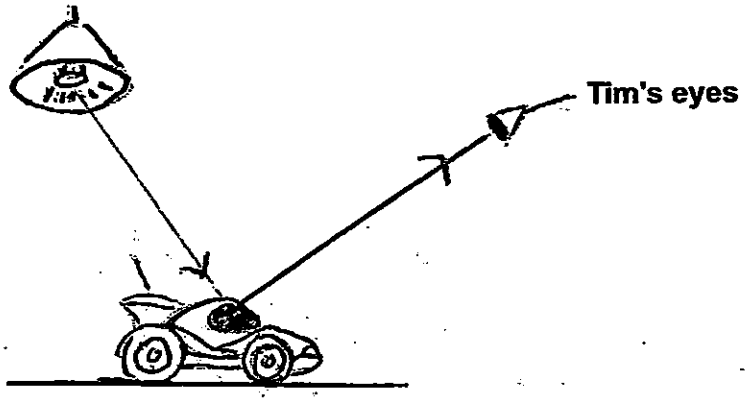
Q39a. Chloroplast
Q39b. Cell Y can make food on its own, but cell X cannot. In cell Y, there is chloroplast which contains a green pigment called chlorophyll that traps light energy to make food, but cell X does not have chloroplast.

Q40a.
Running – **B**
Walking – **A**
Q40b. The body needs more energy so the heart has to pump faster to transport digested food and air rich in oxygen to produce energy.

Q41a. R
Q41b. The poles B of object P and X were like poles so they repelled.
Q41c. Open.
Q41d. The electromagnet needs to be unmagnetised or else the door cannot open so electricity cannot flow through for the electromagnet to be unmagnetised , and the circuit must be open to prevent electricity from flowing through.

Q42a. Place the magnets at equal height
Q42b. To observe which magnet picks up the most thumbtacks.
Q42c. The thumbtacks attracted will decrease

Q43a. The wooden cover and the cardboard box is not allowing light to pass through, therefore no light can be reflected into Tim's eyes.
Q43b. Remove the wooden cover
Q43c. SEE PICTURE



Q44a. B
Q44B. It is the poorest conductor of heat.

THE END