



AI TONG SCHOOL

2009 SEMESTRAL ASSESSMENT (2) PRIMARY FIVE SCIENCE

DURATION: 1hr 45 min

DATE: 5 November 2009

INSTRUCTIONS

Do not open the booklet until you are told to do so.

Follow all instructions.

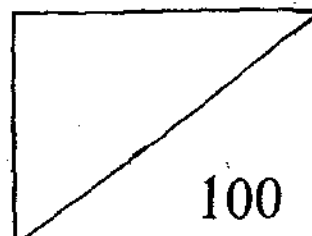
Answer all questions.

Name : _____ ()

Class : Primary 5 ____

Parent's Signature : _____

MARKS:

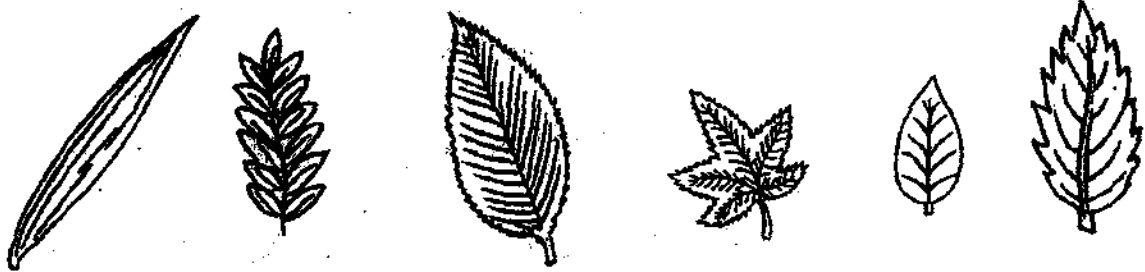


Date : _____

Section A (30 x 2 marks)

For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). **Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.**

1. The diagrams below show six types of leaves.



Based on observation only of the diagrams, which of the following statements describe how these leaves can be classified?

- A By the texture.
- B By the leaf edge.
- C By the vein pattern.
- D By the number of leaf blades.

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

2. The table below shows what Hilary observed in the development of a butterfly for about one month.

Date	Observation
15 Feb	A butterfly laid eggs on a lime leaf.
20 Feb	A caterpillar hatched from the egg.
4 Mar	A cocoon was formed.
18 Mar	A butterfly emerged from the cocoon.

On which date did the larva stop feeding and moving?

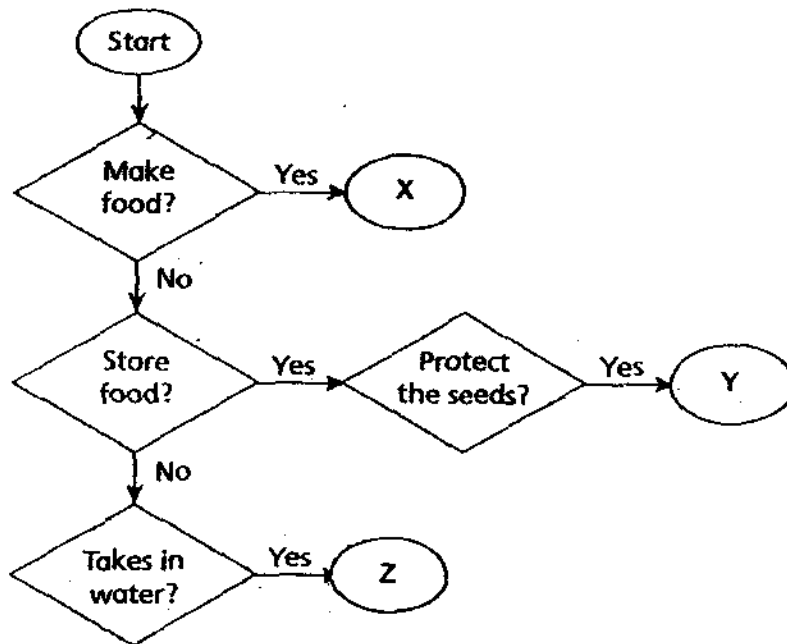
- (1) 15 Feb
- (2) 20 Feb
- (3) 4 Mar
- (4) 18 Mar

3. Jason carried out an experiment to study the germination of five types of seeds. He put an equal amount of similar soil into five containers of the same type. Then he placed three seeds of each type into each container. The five containers were placed in a corner of a room. The seeds were watered with an equal amount of water every day.

After one week, Jason observed that two types of seeds did not germinate. Which one of the following is a possible explanation for his observation?

- (1) There is an insufficient amount of light.
- (2) The two types of seeds were boiled before the experiment.
- (3) The nutrients in the soil are insufficient due to overcrowding.
- (4) The containers were unsuitable for the two types of seeds to germinate in.

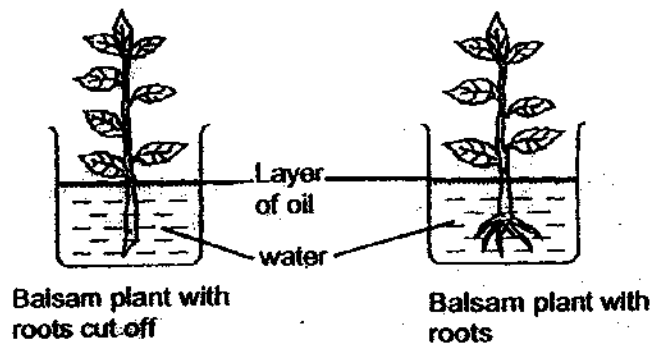
4. The flowchart below shows the functions of different plant parts X, Y and Z.



Which one of the following shows the correct plant parts?

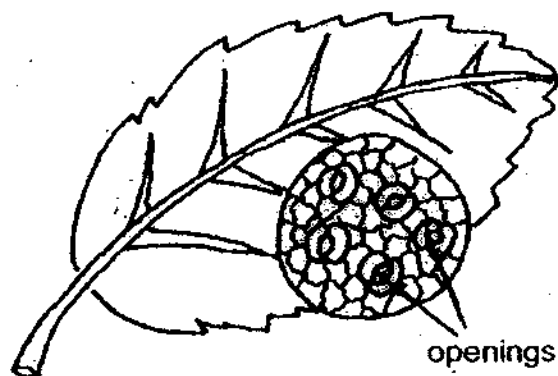
	X	Y	Z
(1)	leaf	flower	root
(2)	leaf	fruit	root
(3)	seed	root	flower
(4)	seed	fruit	stem

5. Mei Yen carried out an experiment as shown in the diagram below.



What could the aim of her experiment be, based on the above set-up?

- (1) To investigate the function of roots.
 - (2) To investigate the effects of oil on plant growth.
 - (3) To find out whether water is needed for plant growth.
 - (4) To find out whether plants can stay upright without roots.
6. Carol used a microscope and observed many tiny openings on the underside of a leaf as shown below.



Underside of a leaf

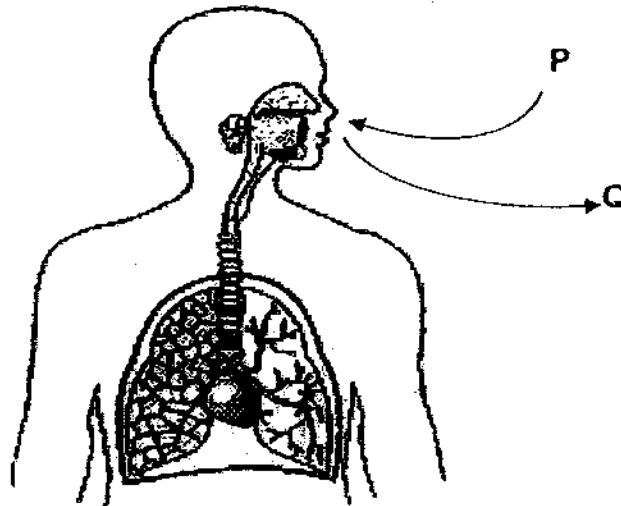
What will happen to a plant if Carol spreads a layer of oil on the underside of all of its leaves?

- (1) The plant will continue to grow well.
- (2) The fruits of the plant will rot at a faster rate.
- (3) The flowers will wither due to the loss of water.
- (4) The plant will die because it cannot photosynthesize.

7. In preparation for an important event the next day, some workmen packed a lot of potted plants into a dark storeroom in the late afternoon. Which of the following correctly shows the changes that would happen to the air in the room over the next few hours?

	Amount of oxygen	Amount of carbon dioxide	Amount of water vapour
(1)	decreased	decreased	decreased
(2)	increased	decreased	increased
(3)	decreased	increased	increased
(4)	increased	increased	decreased

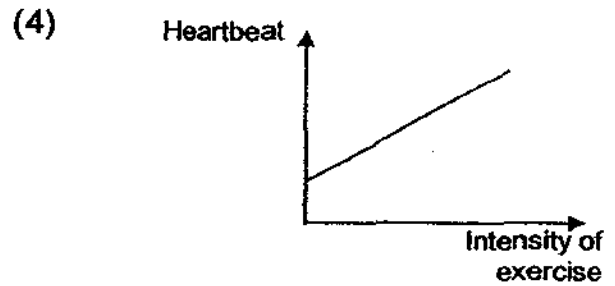
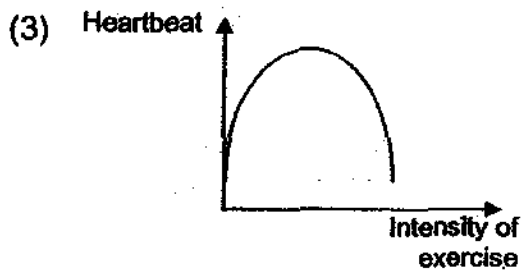
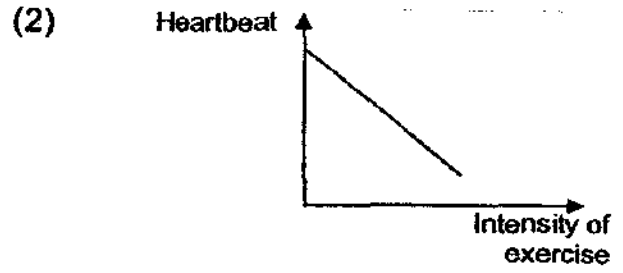
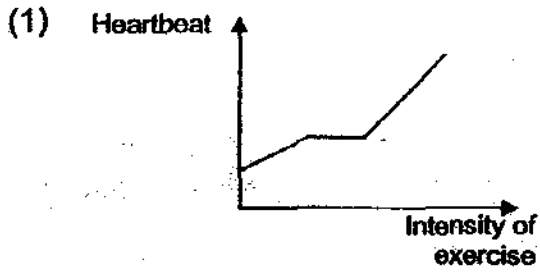
8. The diagram below shows the human respiratory system. P represents the air from the surroundings that enters the system while Q represents the air that leaves the respiratory system.



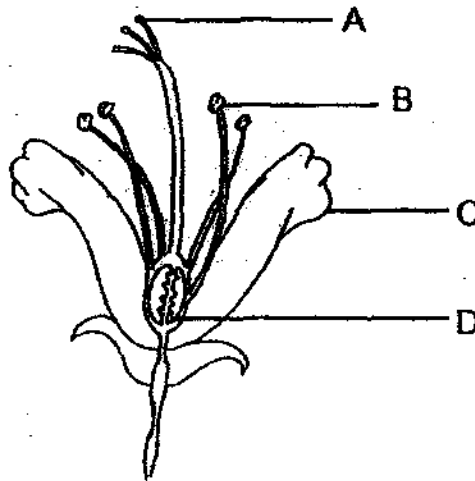
Which of the following statements about P and Q are correct?

- A Q can make limewater turn chalky.
 - B P contains not only oxygen and nitrogen.
 - C Q contains carbon dioxide that the body is trying to get rid of.
 - D P enters the nose and travels down the windpipe but only oxygen in P enters the lungs.
- (1) A and D only
 (2) A, B and C only
 (3) B, C and D only
 (4) A, B, C and D

9. Which of the following graphs shows the correct relationship between our heartbeat and the intensity of exercise?



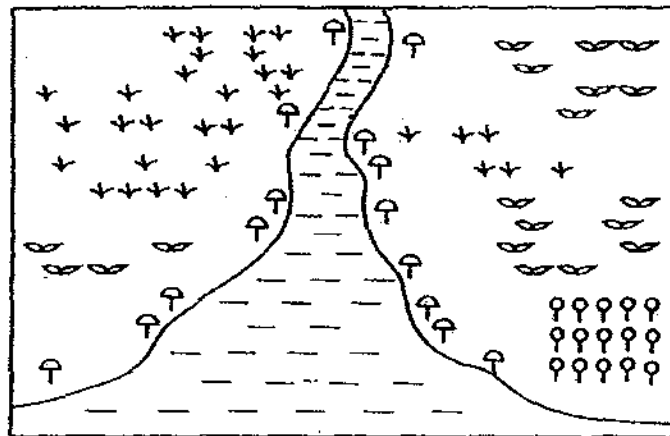
10. The diagram below shows parts of a flower.







Which two parts of the flower are involved in pollination?

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

11. The diagram below shows how four types of plants are dispersed.



Which one of the plants is **not** dispersed by natural methods?

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

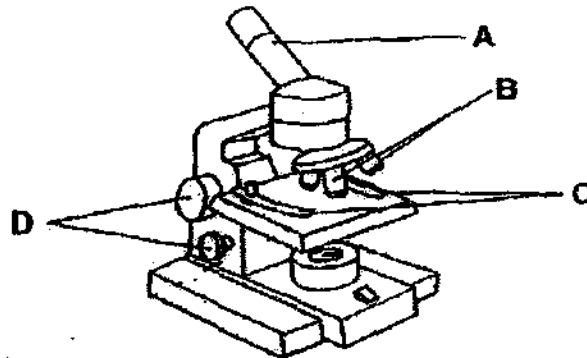
12. May created the following table to summarise the differences between parts found in a leaf cell and parts found in an animal cheek cell.

Cell Parts	Nucleus	Cytoplasm	Cell Wall	Part X
Leaf cell	Present	Present	Present	Present
Animal cheek cell	Present	Present	Absent	Absent

What could Part X be?

- (1) genes
- (2) chloroplasts
- (3) chromosomes
- (4) cell membrane

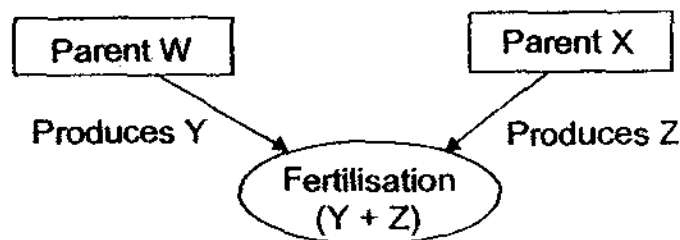
13. The diagram below shows a microscope with some of its parts labelled.



Simon looked through the microscope to view a specimen slide. He felt that the image was very unclear and wanted to make the image sharper and clearer. Which part of the microscope should he adjust?

- (1) A
 - (2) B
 - (3) C
 - (4) D
14. Which of the following statements about plant cells is correct?
- (1) Plant cells are three-dimensional.
 - (2) Plant cells carry out only one function.
 - (3) Plant cells have only one shape and size.
 - (4) All plant cells have chloroplasts in order to absorb light to make food.

15. The diagram below represents what happens when fertilisation takes place in human reproduction.



Y from Parent W fuses with Z from Parent X.

Which of the following combinations of W, X, Y and Z is correct?

	Parent W	Parent X	Y	Z
(1)	male	female	egg	sperm
(2)	female	male	sperm	sperm
(3)	male	female	sperm	egg
(4)	female	male	egg	egg

16. Which of the following statements about the male and female reproductive system is not correct?

- A A human egg is larger than a human sperm.
- B A male human is born with sperms in the testes.
- C A human egg moves itself to meet the sperm.
- D A female human is born with immature eggs in her ovaries.

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

17. Mr and Mrs Tan have the following features.

	Hair	Thumb	Earlobe	Nails
Mr Tan	naturally straight	Hitchhiker's thumb	attached	short
Mrs Tan	naturally curly	straight thumb	attached	short

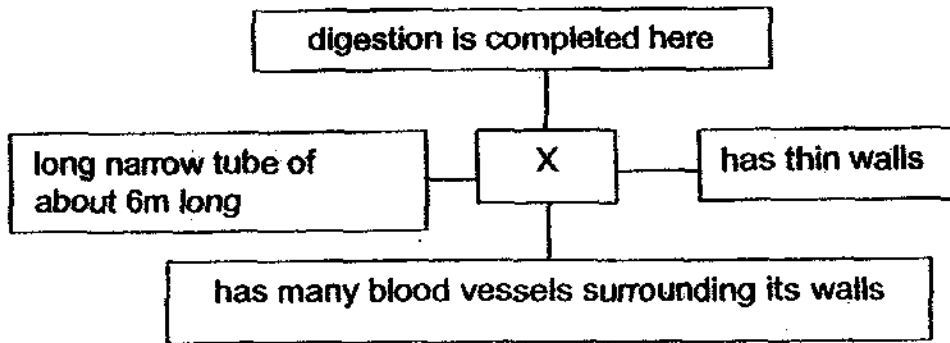
They have four children and the table below describes their features.

Children	Hair	Thumb	Earlobe	Nails
Kay	naturally straight	straight thumb	attached	short
Ken	naturally curly	straight thumb	attached	short
Kate	naturally curly	Hitchhiker's thumb	detached	short
Kelly	naturally straight	Hitchhiker's thumb	attached	long

One of their children is adopted. Based on the information given above, which one of the children is most likely the adopted one?

- (1) Kay
- (2) Ken
- (3) Kate
- (4) Kelly

18. The concept map below gives information about X, which is a part of the human digestive system.



What is X?

- (1) gullet
 (2) stomach
 (3) large intestine
 (4) small intestine
19. What will happen if undigested food passes through the large intestine too quickly?
- (1) The food does not get digested completely.
 (2) The person will pass out very hard and dry solid waste.
 (3) The food will be stored for a shorter time in the stomach.
 (4) Not enough water is removed from the undigested food before it is passed out.
20. The table below compares the degree of hardness of four materials A, B, C and D by indicating whether the material can scratch another and how deep the scratches are.

	A	B	C	D
When A scratches B, C and D	X	Deep scratches	No scratches	Faint scratches
When B scratches A, C and D	No scratches	X	No scratches	No scratches
When C scratches A, B and D	Faint scratches	Deep scratches	X	Deep scratches
When D scratches A, B and C	No scratches	Faint scratches	No scratches	X

Arrange the materials from the hardest to the least hard.

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

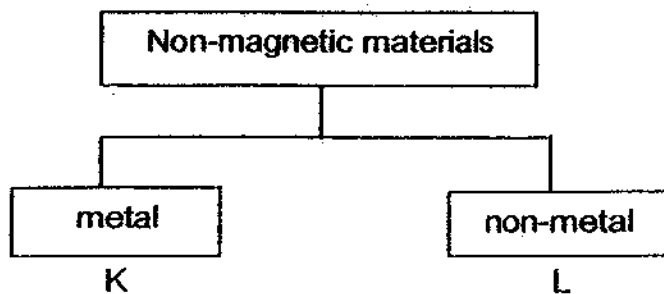
21. The table below shows how some materials have been classified.

Materials		
Obtained from plants	Obtained from animals	Obtained from non-living things
silk rubber	leather ceramics	plastic metal

Which of the materials has/have been placed in the wrong group?

- (1) silk only
- (2) plastic only
- (3) ceramics and silk only
- (4) leather and rubber only

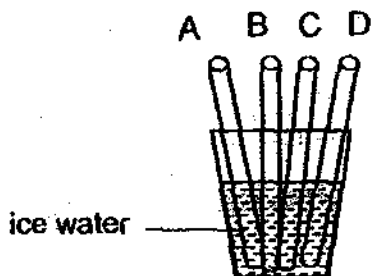
22. The following shows how two materials K and L can be classified.



What can K be?

- A Aluminium
 - B Cotton
 - C Iron
 - D Silver
- (1) B only
 - (2) C only
 - (3) A and D only
 - (4) A, C and D only

23. Ting Ting obtained 4 rods, A, B, C and D, of similar size and shape but each was made of a different material. The rods were all at the same room temperature. She then placed them into a glass of ice water as shown in the diagram below.



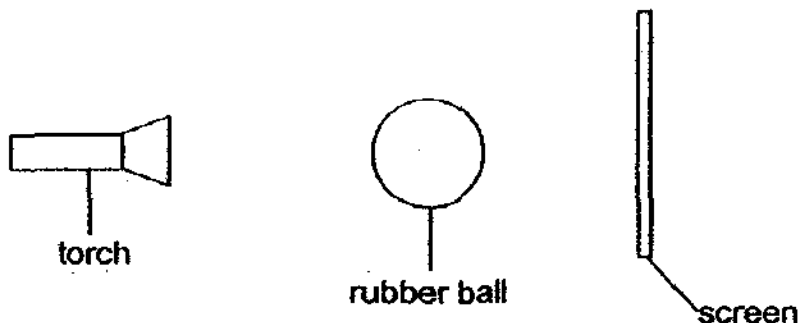
After 3 minutes, without removing the rods from the ice water, she measured the temperature of the ends of each rod that were sticking out of the glass. She obtained the following temperature readings.

Rod	Temperature before experiment (°C)	Temperature after 3 minutes (°C)
A	28	27
B	28	15
C	28	8
D	28	23

Which of the following gives the correct order of the rods starting from the best conductor of heat to the poorest conductor of heat?

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

24. Susan set up the experiment as shown below. The rubber ball cast a shadow on the screen.

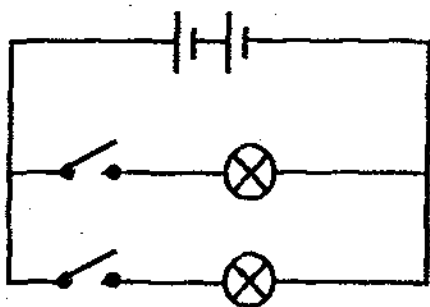


Susan wanted a bigger shadow of the rubber ball. Which of the following are possible actions she could take?

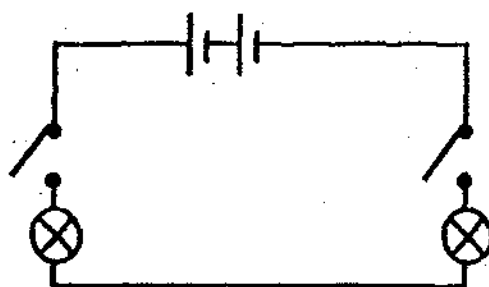
- A Move the rubber ball closer to the screen.
- B Move the torch closer to the rubber ball.
- C Move the screen closer to the rubber ball.

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

25. The diagrams below show two electric circuits A and B where identical batteries, bulbs and switches are used.



Circuit A

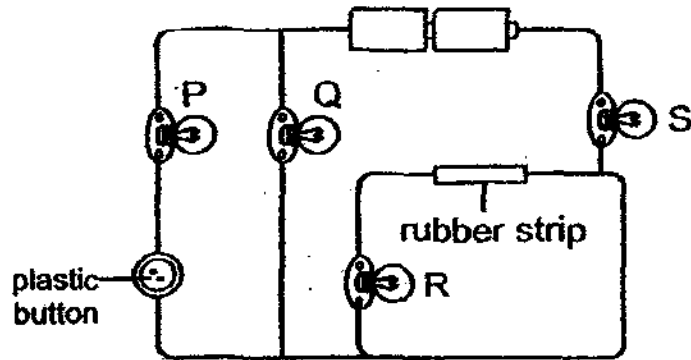


Circuit B

What will happen if one switch in Circuit A and Circuit B is switched off?

	Circuit A	Circuit B
(1)	Only one bulb will light up.	Both bulbs will not light up.
(2)	Only one bulb will light up.	Only one bulb will light up.
(3)	Both bulbs will not light up.	Both bulbs will not light up.
(4)	Both bulbs will not light up.	Only one bulb will light up.

26. An electric circuit was set up as shown in the diagram below using four identical bulbs.



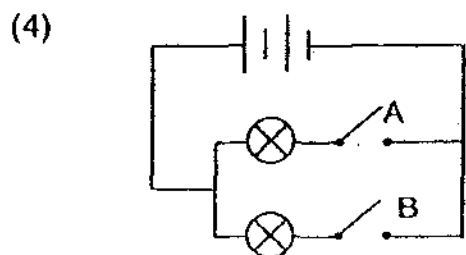
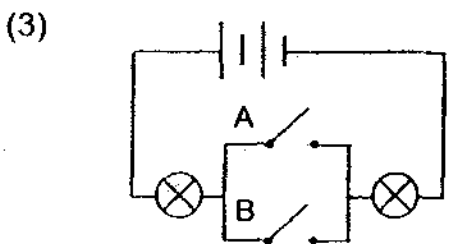
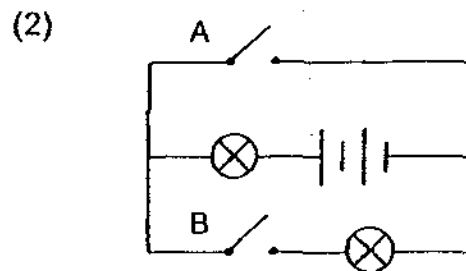
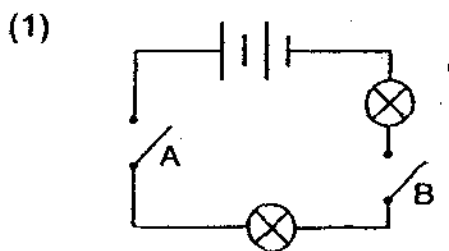
An electric circuit

Which of the bulbs P, Q, R or S will light up?

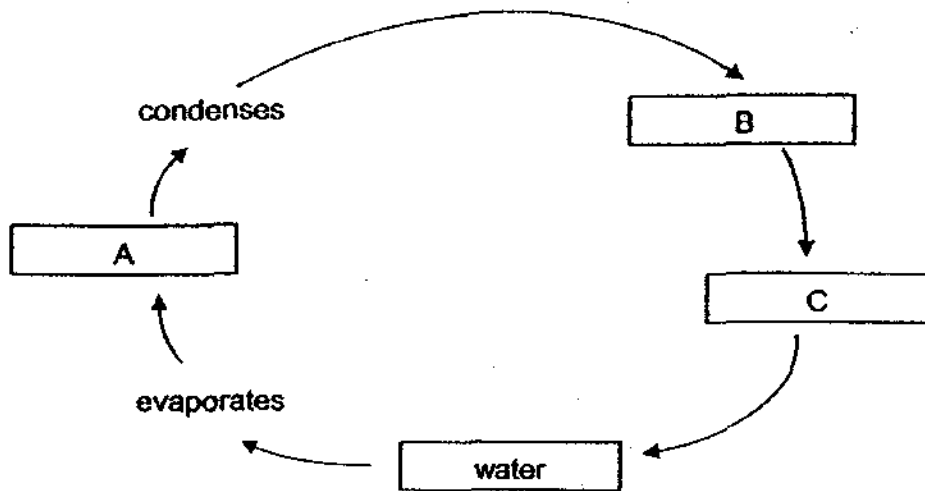
- (1) P and R
 - (2) Q and S
 - (3) P, Q and S
 - (4) Q, R and S
27. Kai Yang conducted an experiment using one of the four circuits shown below. He then recorded his results in the following table.

Switch A	Switch B	Number of Bulbs Lit
Off	Off	0
On	Off	1
Off	On	2
On	On	2

Which one of the following circuits did Kai Yang use?



28. The diagram below shows the water cycle with some missing words.

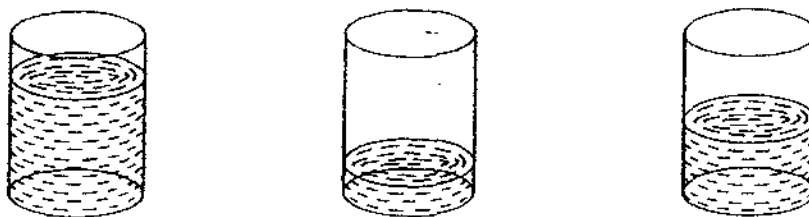


The Water Cycle

What do the letters A, B, and C in the boxes stand for?

	A	B	C
(1)	clouds	rain	water vapour
(2)	clouds	water vapour	rain
(3)	rain	clouds	water vapour
(4)	water vapour	clouds	rain

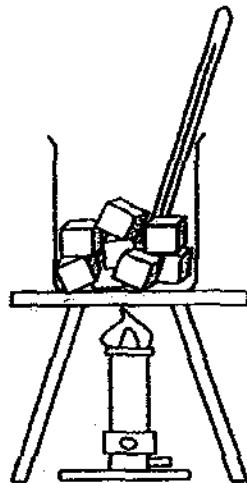
29. Three similar containers were filled with 120ml of water each and placed at three different locations. The diagrams below show what happened at the end of 24 hours.



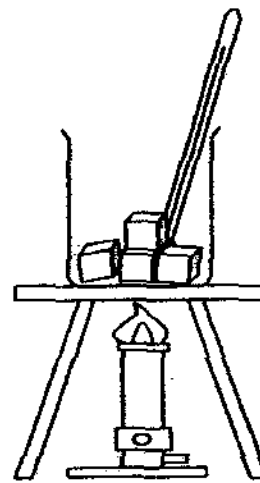
Which one of the following explains the differences in the water levels of the containers?

- (1) Evaporation takes place all the time.
- (2) Water changes to gas during evaporation.
- (3) The temperature of water increases as it evaporates.
- (4) Water evaporates at a different rate at each of the three locations.

30. 2 beakers, A & B, containing ice cubes of the same size and shape were taken out of the freezer. Beaker A had more ice cubes than Beaker B. Both beakers were heated with the same amount of heat per unit time until boiling happened. Temperature of the contents in each beaker was measured over time and the readings were plotted on a graph.

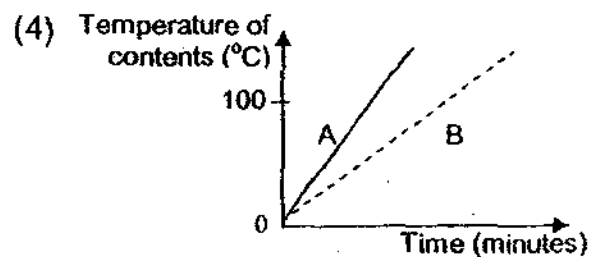
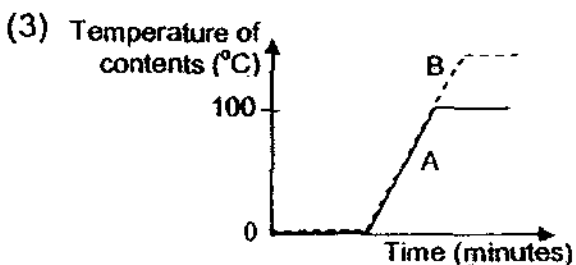
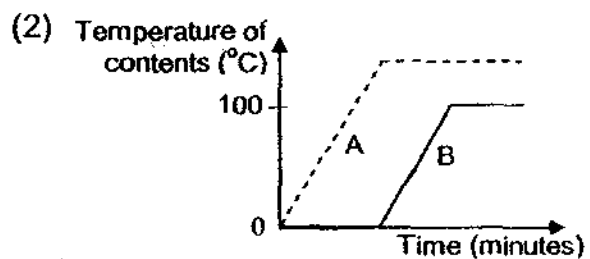
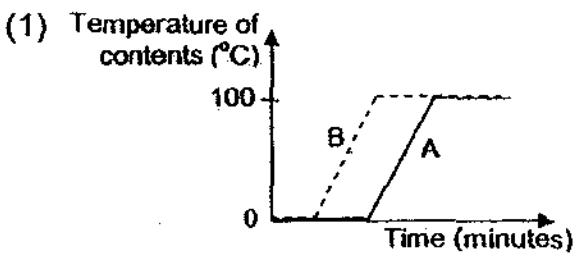


Beaker A



Beaker B

Which one of the following graphs is most likely the correct one?



Name: _____ ()
Class P5 ()

Section B: 40 marks

Read the questions carefully and write down your answers in the spaces provided.

31. Keegan conducted an experiment on an earthworm as shown in Figure 1 below. He placed the earthworm on side X of the tray and shone light over it for five minutes. After that, he observed that the earthworm moved towards side Y.

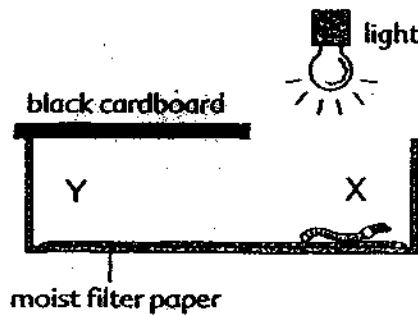
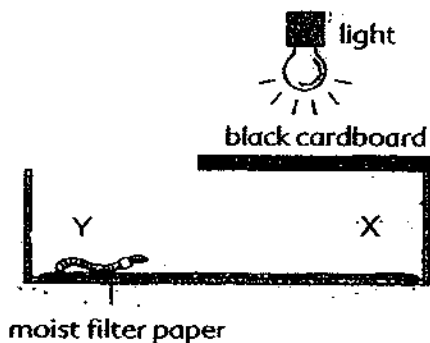


Figure 1

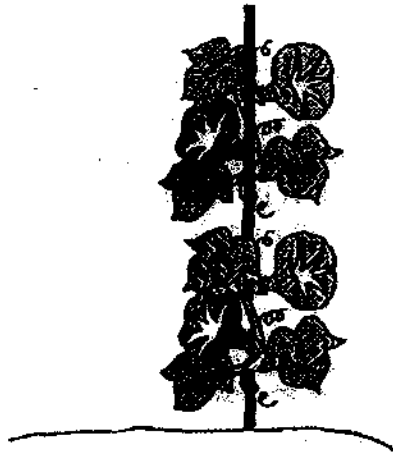
- (a) Based on Keegan's observation, state one characteristic of living things. [1]



- (b) If Keegan moved the black cardboard over to side X as shown in the diagram above, describe what he is likely to observe after five minutes. [1]

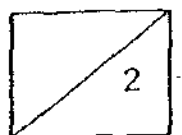
- (c) What will happen to the earthworm after two days if the moist filter paper is removed? Explain your answer. [2]

32. The diagram below shows a morning glory plant.



- (a) Based on your observation of the diagram above, what does the stem do to help the plant get sufficient sunlight? [1]

- (b) Give one characteristic of the leaf itself that also helps it to get sufficient sunlight. [1]



33

Mary put a young plant overnight in a bottle of red ink as shown in Diagram A below. The next day, she cut a section across the stem of the plant and examined it under the microscope. Diagram B shows what she saw through the microscope.

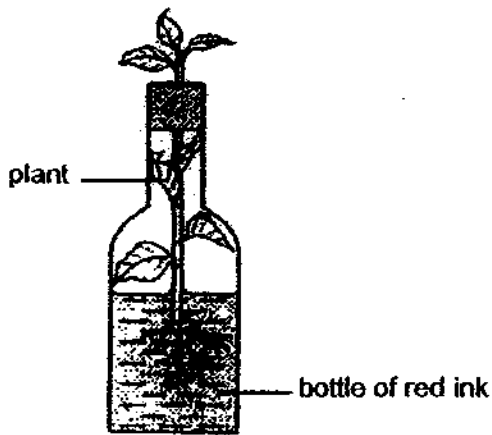


Diagram A

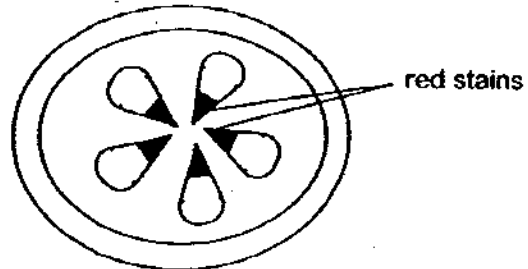


Diagram B – Cross-section of plant stem

- (a) Diagram B shows that some parts of the cross-section of the stem have been stained red.

Which part of the stem is stained red? Explain why.

[2]

Diagram C is a diagrammatic representation of the human transportation system. The arrows in the diagram show the flow of blood from one part of the body to another.

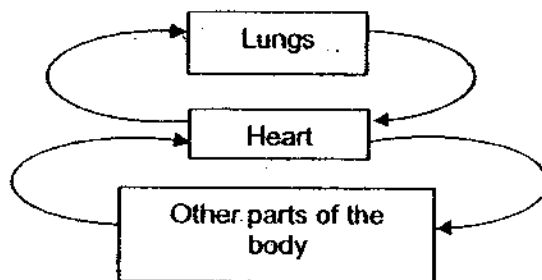


Diagram C

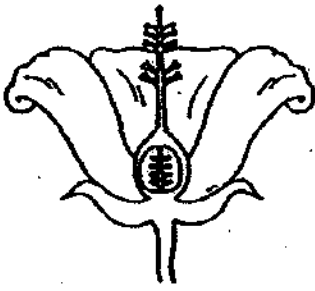
- (b) Which of the arrow(s) represent the blood vessels that contain oxygen-rich blood? Label it or them with an 'X'.

[1]

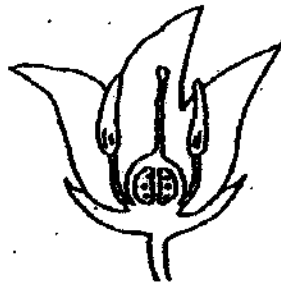
- (c) State one difference between the human transportation system and the plant transportation system.

[1]

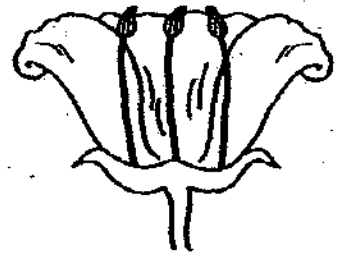
34. The diagrams below show three flowers A, B and C.



Flower A



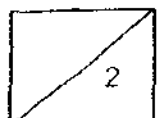
Flower B



Flower C

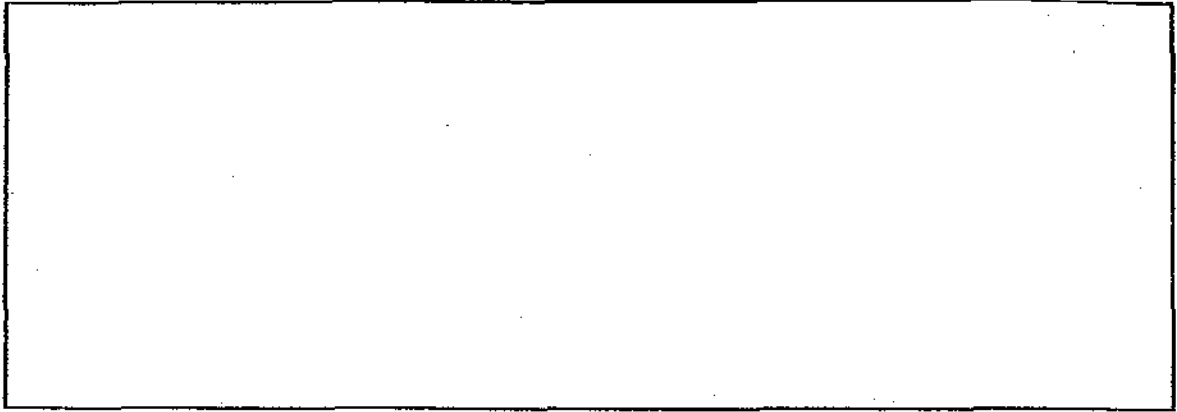
(a) Which of the flowers can develop into a fruit? [1]

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

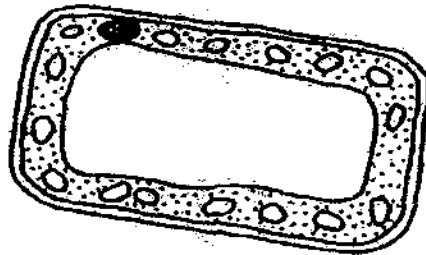


35. Mary obtained some typical animal cells from living thing X and looked at them through the microscope.

- (a) Draw an example of a typical animal cell that Mary would see in the space provided below and label its nucleus, cytoplasm and cell membrane. [2]



Mary then obtained some cells from living thing Y. The diagram below shows what one cell looked like when she looked at them through the microscope.



- (b) Is living thing Y also from an animal? Give one reason for your answer. [1]

36

The following organisms have been classified into two groups, M and N.

M	N
paramecium	mouse
bacteria	bee
amoeba	hibiscus plant

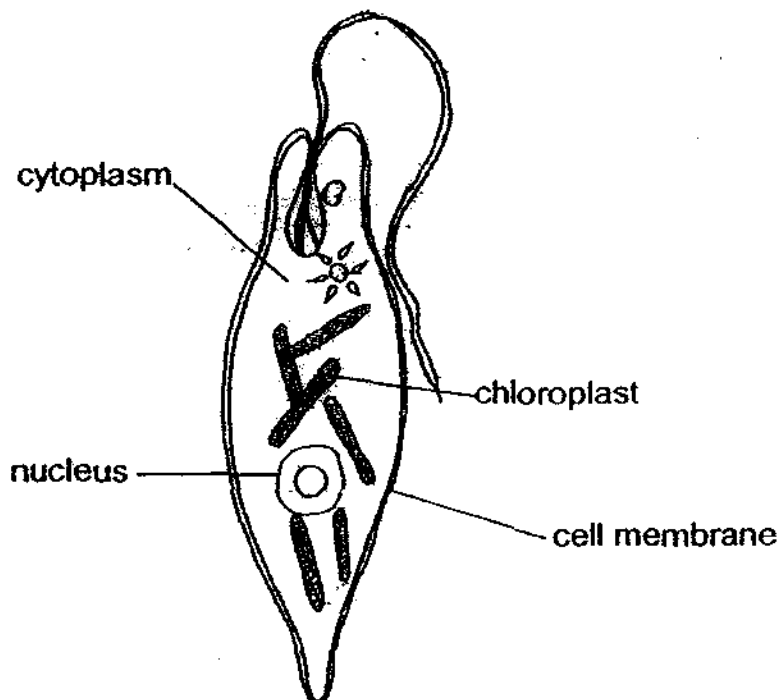
(a) Give a suitable heading for each of the group.

[1]

Group M : _____

Group N : _____

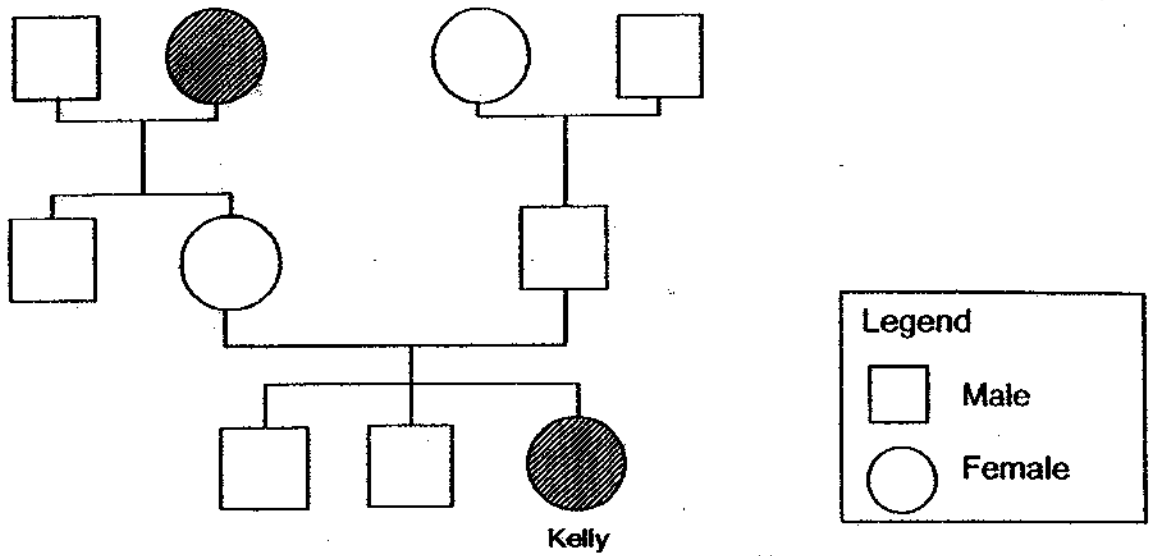
(b) The diagram below shows another organism, the Euglena.



In which group, M or N should the Euglena be placed?

[1]

37. The diagram below shows Kelly's family tree.



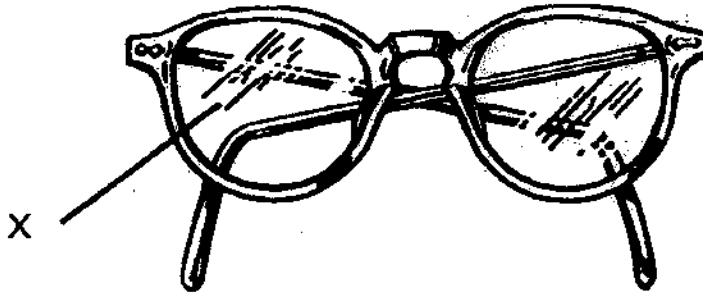
Members of the family that are shaded have naturally curly hair. The rest have naturally straight hair.

(a) How many generations are shown above in Kelly's family tree? [1]

(b) Who did Kelly inherit her curly hair from? [1]

(c) How many siblings did Kelly's father have? [1]

38. The diagram below shows a pair of spectacles.



(a) Give one material that X is usually made of.

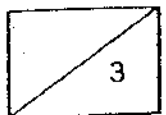
[1]

(b) Write down one significant characteristic that the material you gave in (a) has that makes it suitable to make X. Explain why the characteristic is important for the spectacles.

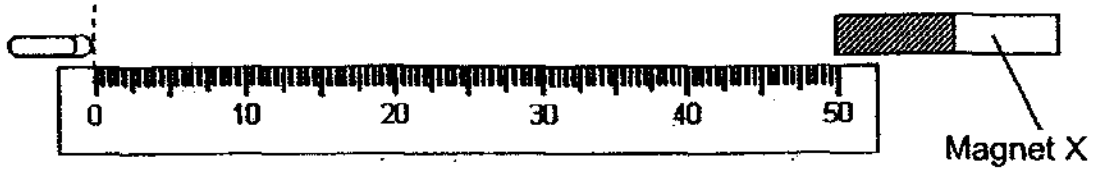
[2]

Characteristic : _____

Explanation : _____



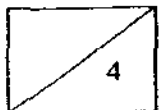
39. Sally had two bar magnets, Magnet X and Magnet Y. She wanted to find out which bar magnet was stronger. She set up an experiment as shown in the diagram below using Magnet X and repeated the experiment with Magnet Y.



(a) Write down and number the steps Sally would take, using the set-up shown in the diagram above, to find out which magnet is stronger. [2]

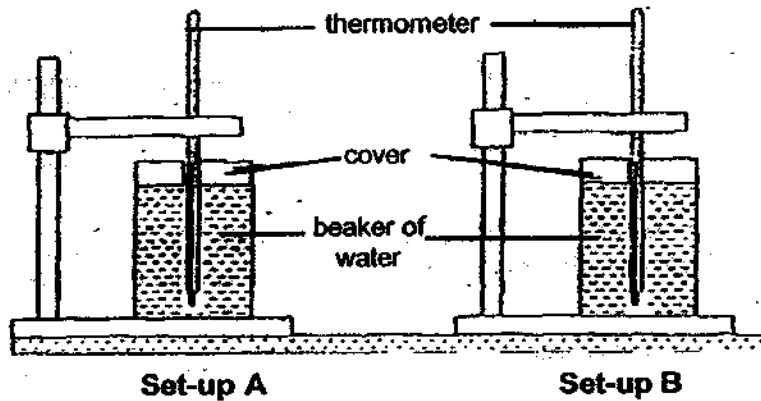
(b) What observation would she make if Magnet Y was stronger than Magnet X? [1]

(c) She carried out the experiment several times for each magnet before coming to a conclusion. Explain why she did so. [1]

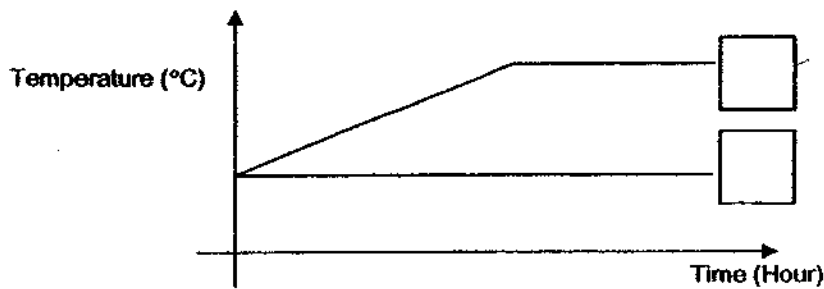


Handwritten mark

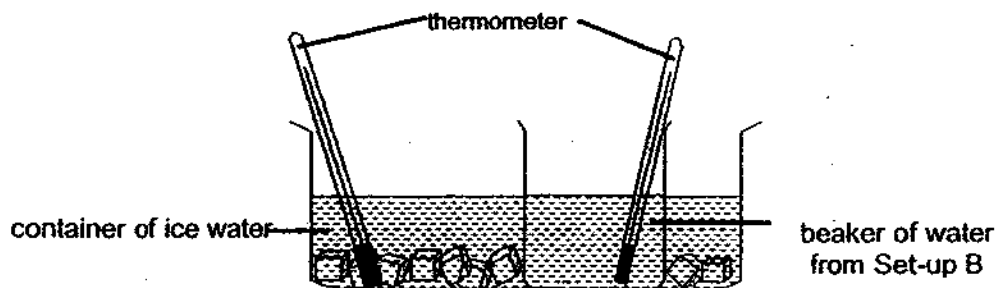
40. Kenneth set up an experiment as shown in the diagram below. Each set-up consisted of a covered beaker which contained an equal amount of water and a thermometer. Set-up A was placed in the Science lab and Set-up B was placed in an open field on a sunny day.



The initial temperature of the water was recorded as 27 °C. Then Kenneth recorded the temperatures of the water at regular intervals during the experiment and presented them in a graph as shown below.



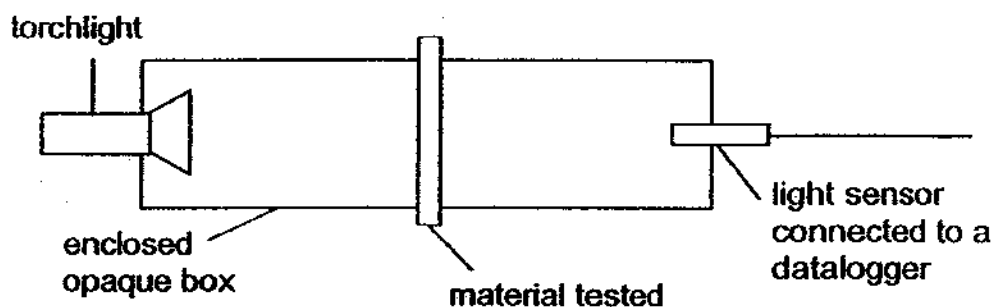
- (a) Label the graph with 'A' and 'B' in the boxes above to correctly represent the temperature change of the water in Set-up A and Set-up B. [1]



- (b) If Kenneth put the beaker of water from Set-up B into a container of ice water, describe the change in temperature of the water in the beaker and the ice water in the container that will take place. [1]

41. Benny wanted to find out the degree of transparency of four materials, P, Q, R and S. He obtained similar square pieces of each material and made sure each piece was of equal thickness and size.

He set up an experiment as shown in the diagram below where the square pieces would be slotted in one by one in between a torchlight and a light sensor connected to a datalogger in a specially designed enclosed opaque box.



The amount of light that passed through each material was recorded in the table below.

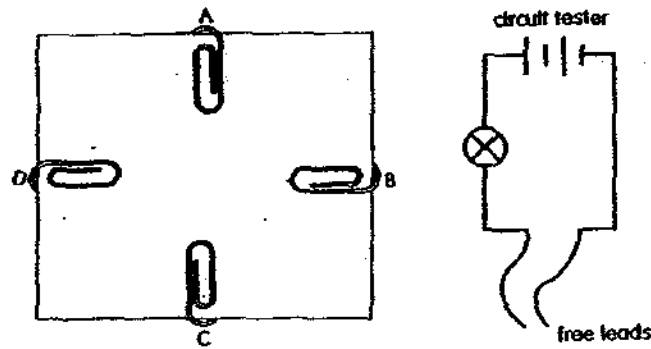
Material Tested	Datalogger Reading (in lux)
P	125
Q	0
R	450
S	700

- (a) Arrange the materials (P, Q, R and S) according to their degree of transparency, starting with the lowest to the greatest. [1]

- (b) What was the purpose of the enclosed opaque box? [1]

- (c) How does the thickness of a material affect its degree of transparency? [1]

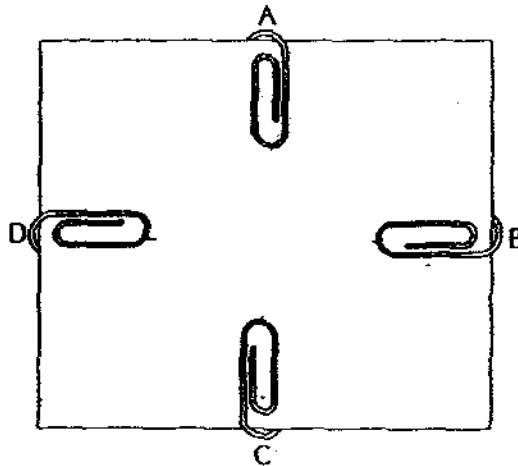
42. The diagrams below show a circuit card and a circuit tester. Cody wanted to find out the connection pattern of the wires in the circuit card, so he connected the free leads to two paper clips at a time.



He recorded the results in the table below.

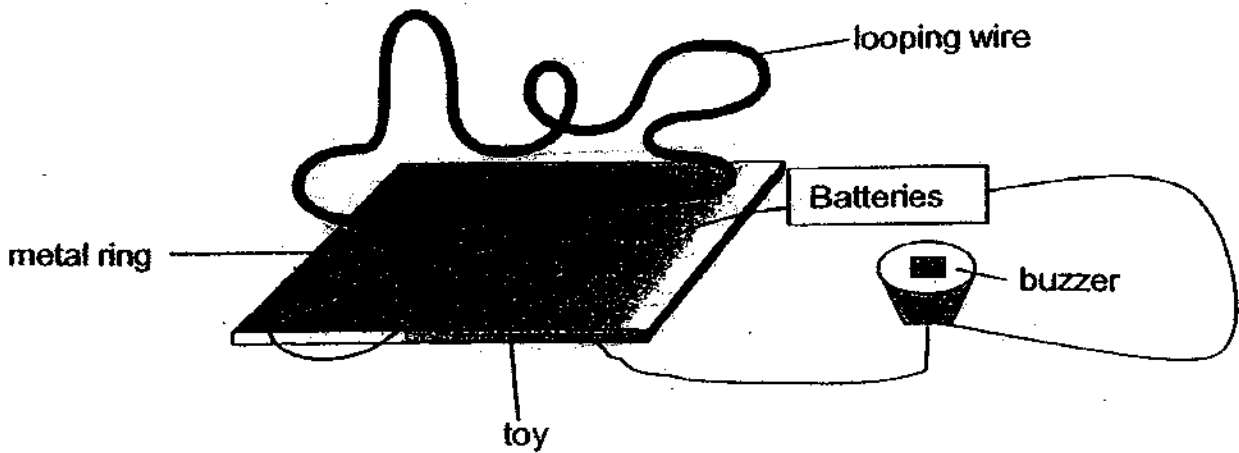
Free lead 1	Free lead 2	Bulb of circuit tester
A	C	Lit up
A	D	Lit up
C	D	Lit up
A	B	Did not light up
B	C	Did not light up

- (a) Based on the table above, draw in two wires to show how the paper clips A, B, C and D could be connected in the diagram below. [2]



- (b) What is the function of the bulb in the circuit tester? [1]

43. The diagram below shows a toy that uses an electric circuit to work. A buzzer will sound when the metal ring touches the looping wire.



Indicate whether the following statements about the set-up above are 'True', 'False' or 'Not possible to tell' by putting a tick in the correct column. [2]

	Statements	True	False	Not possible to tell
(i)	The metal ring is a good conductor of electricity.			
(ii)	The buzzer produces a sound because a closed circuit is formed.			
(iii)	The metal ring provides electricity to the electric circuit when it is in contact with the looping wire.			
(iv)	If the metal ring is in contact with the looping wire but no sound is made, it is because the buzzer is not working.			

44. Joe carried out an experiment to find out the temperature at which ice melts with and without impurities. He filled two beakers with the same number of similar ice cubes. He sprinkled some salt only into one of the beakers and left the other beaker of ice intact as a control. He measured and recorded the temperature of the ice in both set-ups at one-minute intervals as shown in the table below.

Time	Temperature ($^{\circ}\text{C}$)	
	Ice cubes without salt	Ice cubes with salt
1 st min	0	-2
2 nd min	0	-2
3 rd min	0	-2
4 th min	0	-2
5 th min	0	-2

- (a) State the change in the state of ice that Joe would observe in both beakers after five minutes.

[1]

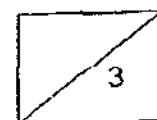
- (b) Based on the table above, state one difference between the melting point of ice with salt and the melting point of ice without salt.

[1]

- (c) During winter in temperate countries, salt is often sprinkled on the snow-covered roads. Based on the table above, give a reason to explain why this is so.

[1]

END OF PAPER



ANSWER SHEET

EXAM PAPER 2009

**SCHOOL : AITONG PRIMARY
SUBJECT : PRIMARY 5 SCIENCE**

TERM : SA2

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
3	3	2	2	1	4	3	2	4	1	3	2	4	1	3	2	3

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
4	4	3	3	3	4	1	1	2	2	4	4	1

31)a) Living things respond to changes.

b) The earthworm will move to side X.

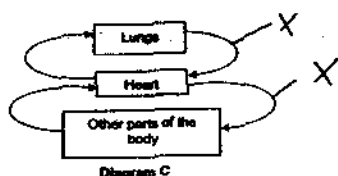
c) Living things need water to survive.

32)a) The stem twirls around a support to climb up waras.

b) Leaves have large surface area to catch as much sunlight as possible.

33)a) The xylem of the stem is stained red. The xylem tube helps to transport the red ink to other parts of the plant, so the tube will be stained red.

b)

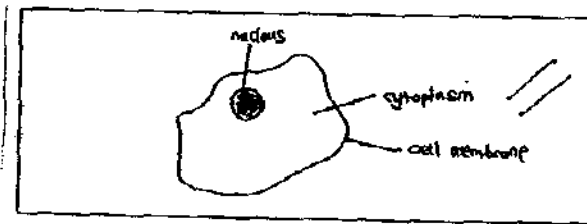


c) The human transportation system has an organ which helps to pump blood, but the plant transportation system does not.

34)a) Flowers A and B.

b) Both flowers have female reproductive parts.

35)a)



b) No, living thing Y is not from an animal. An animal does not have a cell sap, chloroplast and also the cell wall.

36)a) M: unicellular N: multi cellular
b) Group M.

37)a) 3 generations.
b) Kelly's material grandmother.
c) None.

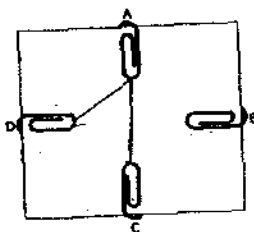
38)a) Plastic.
b) Characteristic: Plastic does not crack easily.
Explanation: When plastic is dropped on the floor, it will not crack, thus it is durable.

39)a) Move the paper clip until it attracts the magnet X. Record the distance. Next, replace magnet X as Magnet Y. Move the paper clip again until it attracts the Magnet. Record the distance. The magnet with the further distance is stronger than the other.
b) The distance that Magnet Y attracted to the paper clip is further than the one from Magnet X.
c) To obtain a more reliable reading.

40)a) B, A
b) The temperature in the beaker decreases, while the temperature in the container of ice water increases.

41)a) Q, P, R, S
b) It was to prevent light from other sources.
c) The thicker the material, the lower the degree of transparency.

42)a)



42)b0It is to test which of the paper clips connected will allow the bulb to light up to show that electric current is flowing.

43)a)i)T ii)T iii)F iv)Not

44)a)Solid to liquid.

b)The melting point of ice is higher than the melting point of ice with salt.

c)Salt lowers the melting point of ice and so causes show to melt more quickly.