25

Name: _____( )

Class: Primary 5 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL

Primary 5
Semestral Assessment 2 – 2016
SCIENCE

BOOKLET A

27 October 2016

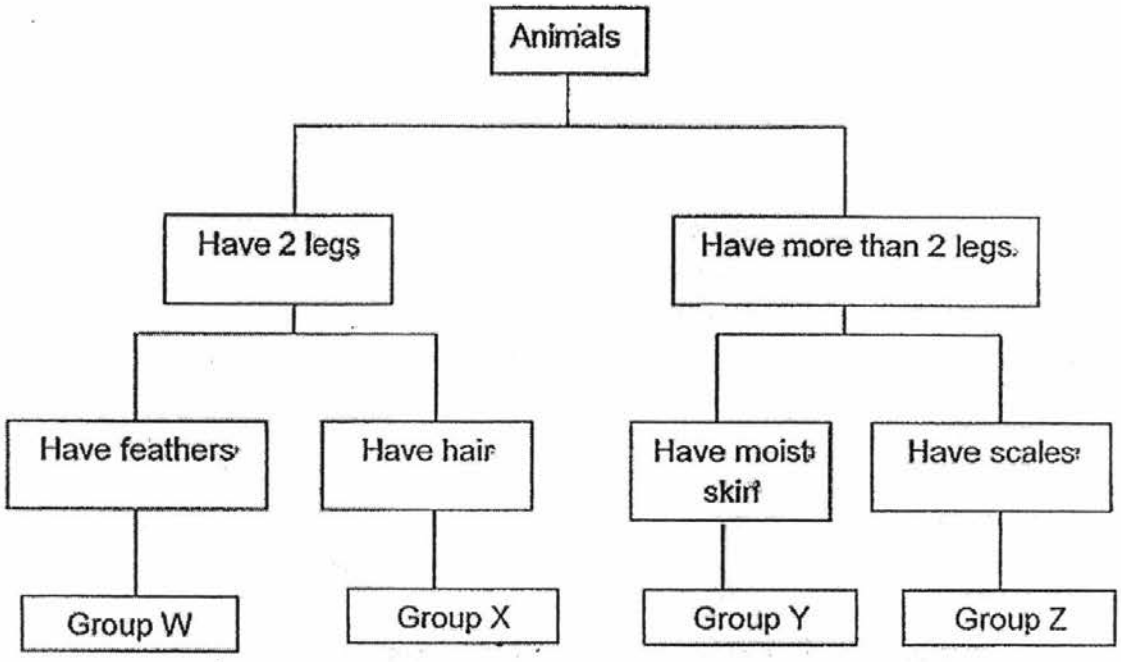
Total Time for Booklets A and B: 1 hour 45 minutes

28 questions
56 marks

Do not open this booklet until you are told to do so.
Follow all instructions carefully.
Answer all questions.
This booklet consists of 20 printed pages.

Section A (28 x 2 marks = 56 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 (1, 2, 3 or 4) on the Optical Answer Sheet provided.**

1. The diagram below shows how some animal groups are classified.



Which of the following statements about the animal groups shown above is definitely **true**?

(1) Animals in Group W and Group X can fly.
(2) Animals in Group Y and Group Z can live on land and in water.
(3) Animals in Group W and Group Z have the same breathing method.
(4) Animals in Group X and Group Y have the same reproduction method.

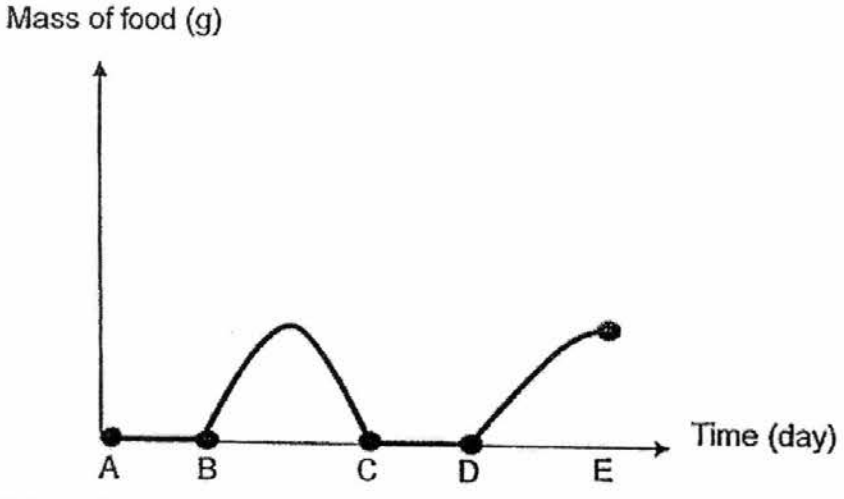
2. John studied animals, X and Y, and drew a checklist for his observations as shown below.

Observations	Animal X	Animal Y
Lays eggs in water	✓	✓
Has a 3-stage life cycle	✓	X
Its young looks like its adult.	X	X
Has 3 pairs of legs	X	✓

Which of the following most likely represents Animal X and Animal Y?

	Animal X	Animal Y
(1)	Beetle	Frog
(2)	Toad	Mosquito
(3)	Chicken	Guppy
(4)	Cockroach	Grasshopper

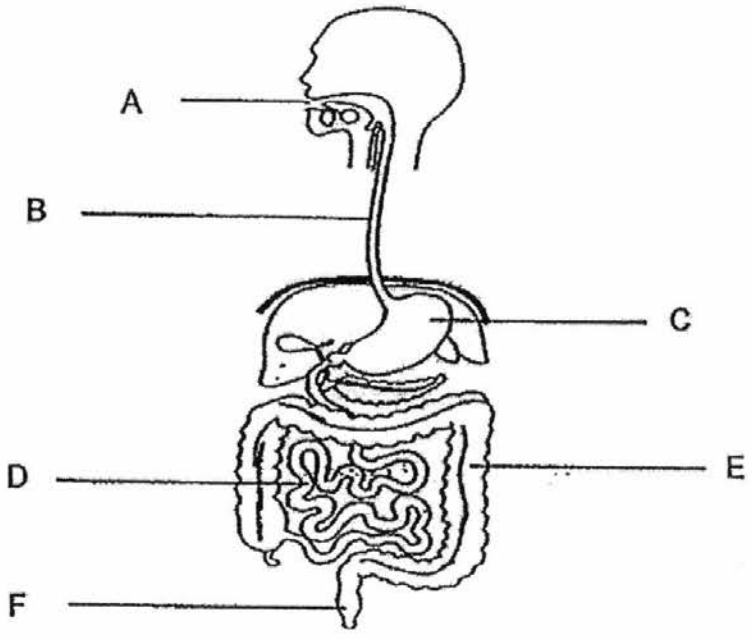
3. The graph below shows the mass of food eaten at different stages of the life cycle of a butterfly.



Which phase of the graph is the butterfly in its pupa stage?

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

4. Study the diagram below.



Which one of the following shows how food travels through the digestive system before the digested food enters the blood?

(1) A → B → C → D
(2) A → B → C → E
(3) C → E → D → F
(4) C → D → E → F

5. The diagrams below show the reproductive parts of a plant and a human respectively.

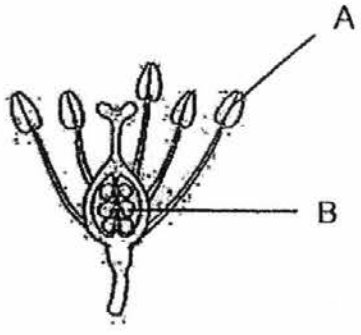


Diagram 1

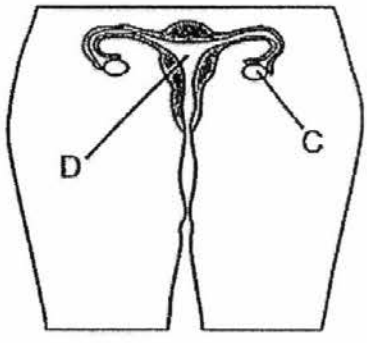
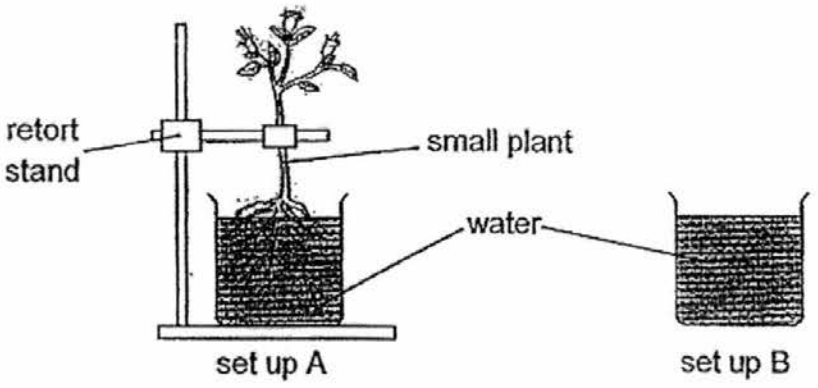


Diagram 2

Which of the parts contain female reproductive cells?

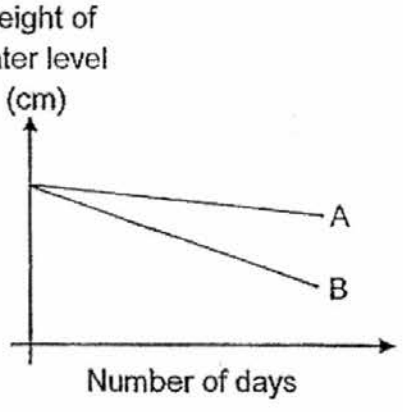
(1) A and C
(2) A and D
(3) B and C
(4) B and D

6. Raymond set up an experiment as shown in the diagram below to find out if plants take in water through their roots.

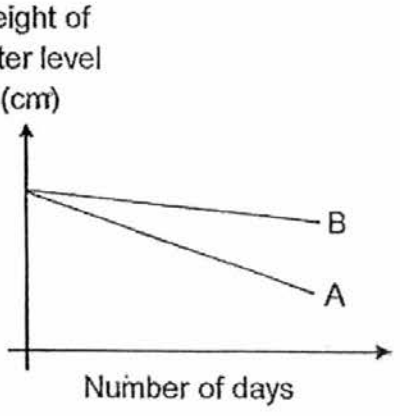


He left set up A and set up B in an open space next to each other. He then observed the water level in beakers A and B over 3 days. Which one of the following graphs correctly represents his observations?

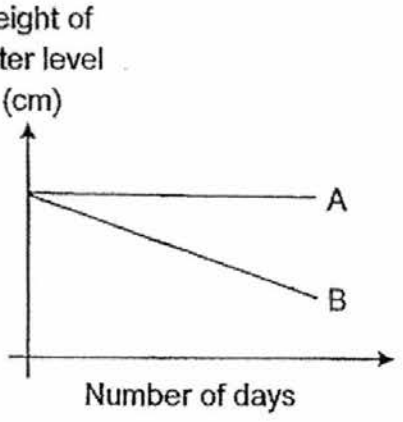
(1)



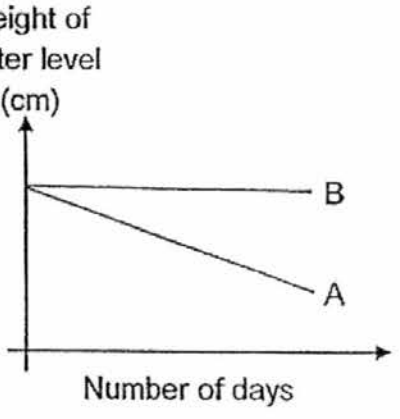
(2)



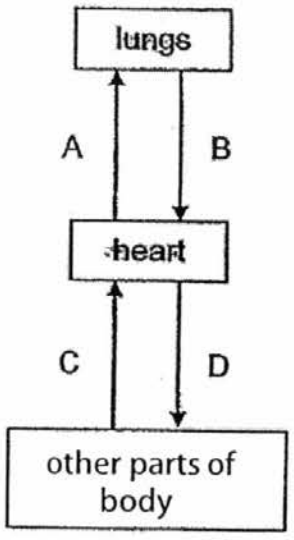
(3)



(4)

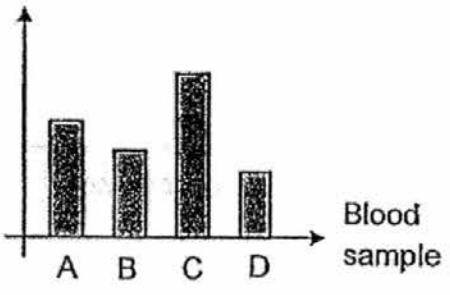


7. The diagram below shows the directions of blood flow in some parts of the body.

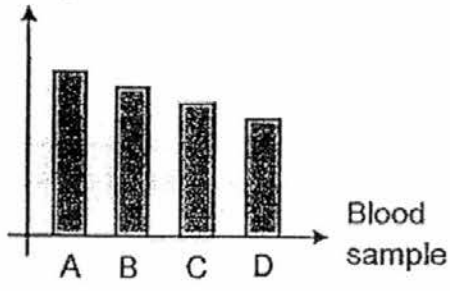


The same amount of blood was taken from A, B, C and D. Which chart shows the correct comparison of the amount of oxygen in the blood samples?

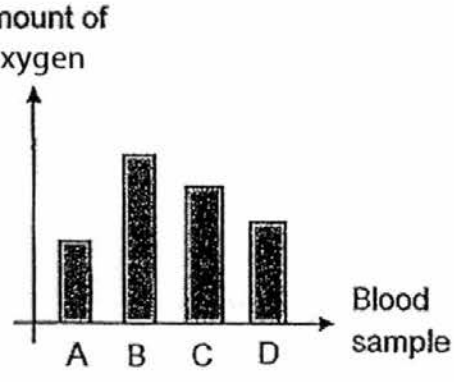
(1)



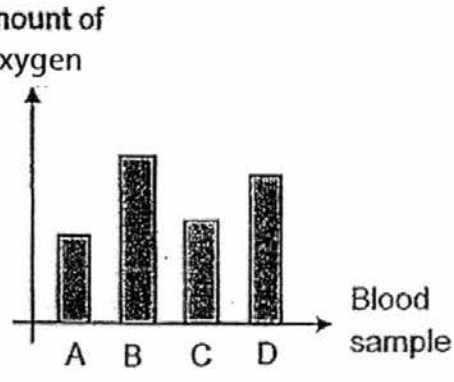
(2)



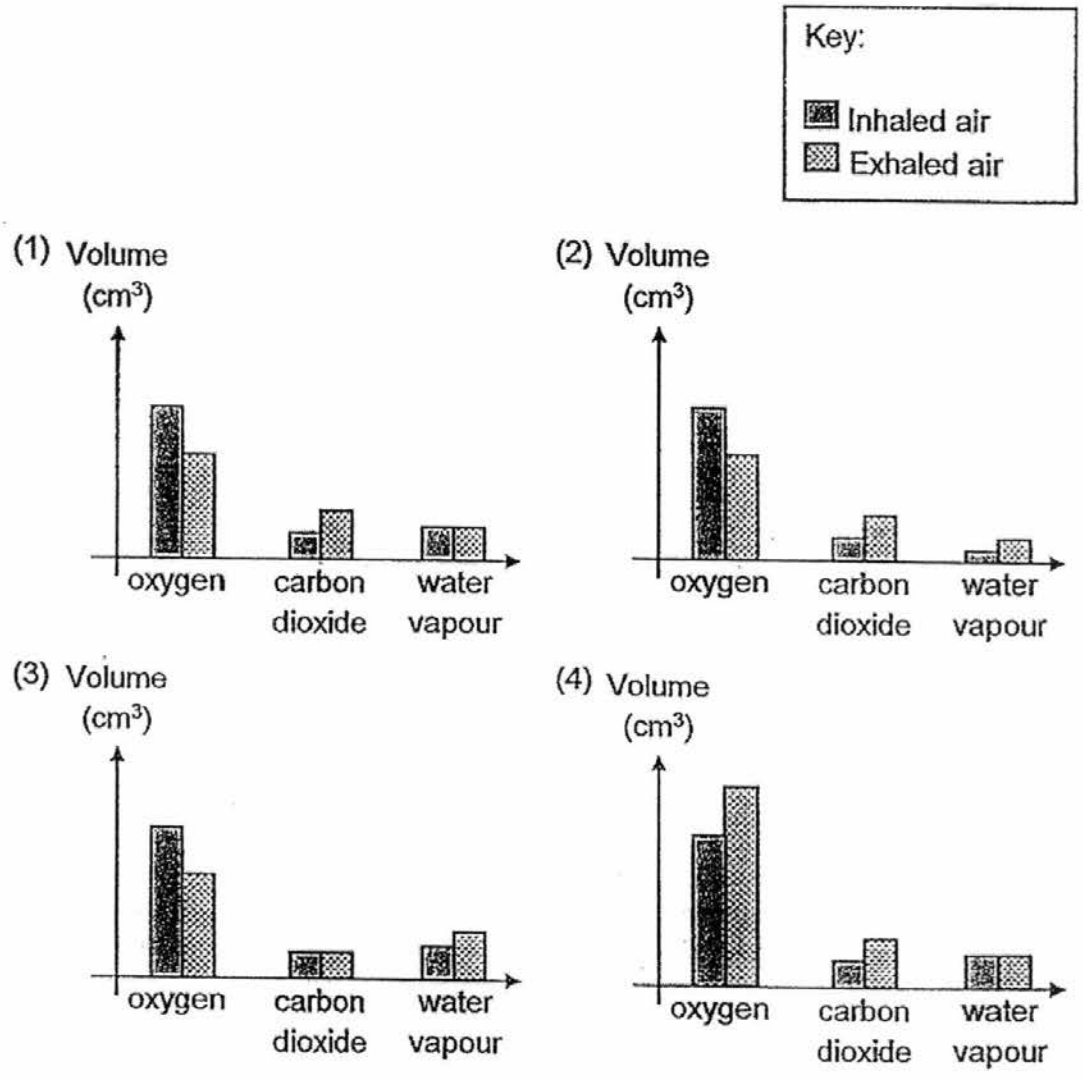
(3)



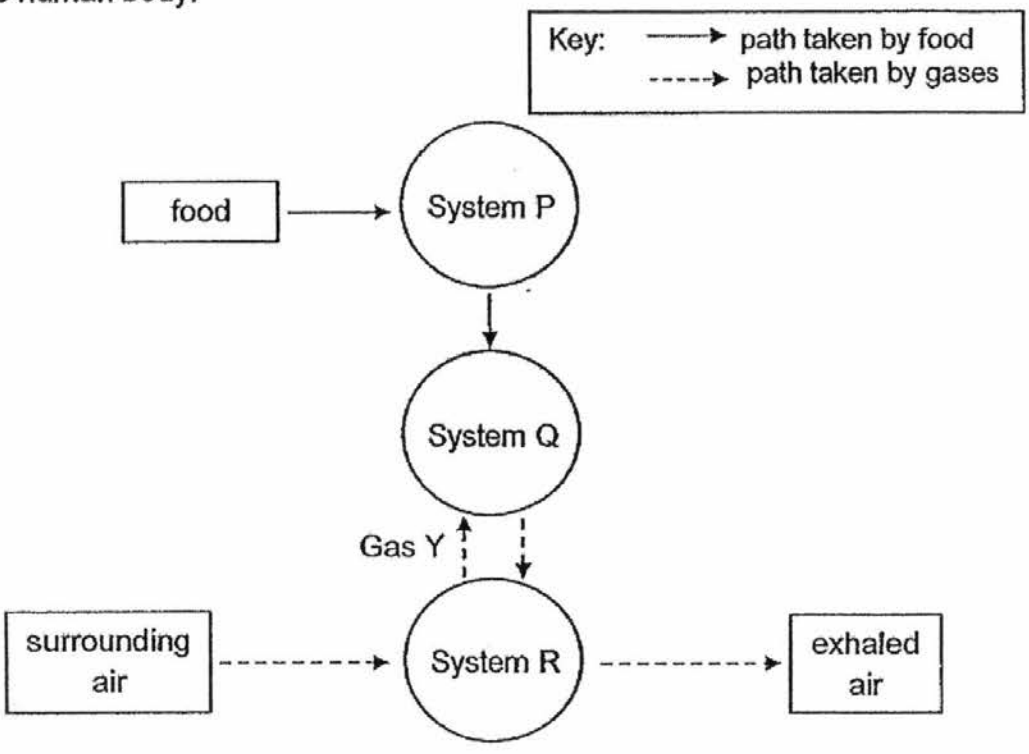
(4)



8. Which of the following bar graphs best represents the composition of oxygen, carbon dioxide and water vapour in inhaled and exhaled air?



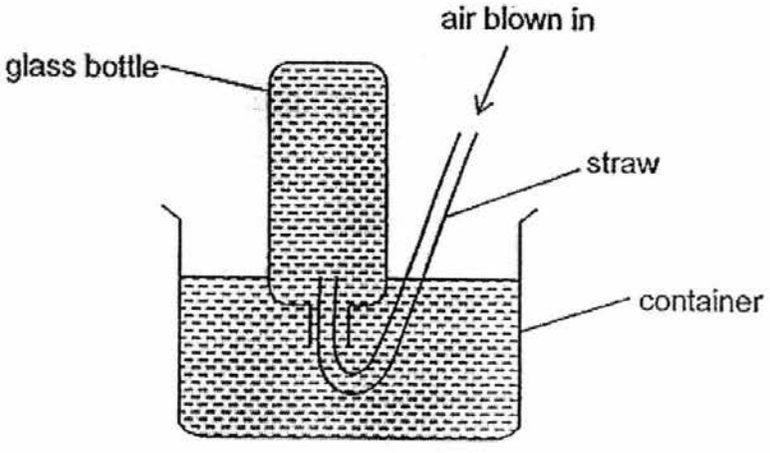
9. The diagram below shows how food and various gases are transported in the human body.



Which systems do P, Q and R represent and what is gas Y?

	System P	System Q	System R	Gas Y
(1)	circulatory	respiratory	digestive	carbon dioxide
(2)	digestive	respiratory	circulatory	carbon dioxide
(3)	circulatory	digestive	respiratory	oxygen
(4)	digestive	circulatory	respiratory	oxygen

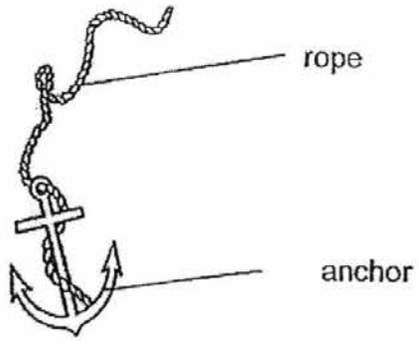
10. Donna set up a device to measure the lung capacity of a person as shown below. Lung capacity is the maximum amount of air the lung can take in a breath. When the bottle was completely filled with water, she asked her friend to take a deep breath and blow into the glass bottle using a straw.



Which one of the following will indicate the lung capacity of her friend?

(1) The volume of air in the straw.
(2) The volume of air in the glass bottle.
(3) The volume of water in the container.
(4) The volume of water left in the glass bottle.

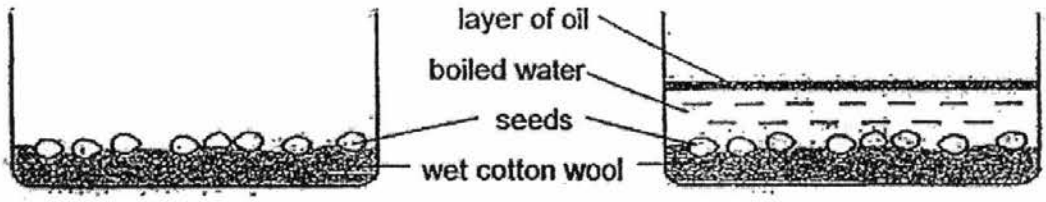
11. The device shown below is attached to a ship with a rope and thrown into the water to hold a boat in position.



Which of the following shows the most suitable material required to make the anchor and the rope respectively?

	Anchor	Rope
(1)	Wood	Fabric
(2)	Metal	Nylon
(3)	Metal	Cotton
(4)	Plastic	Fabric

12. Selvi carried out an experiment to investigate about germination of seeds using the following set ups. She placed both set ups next to each other in the same room.

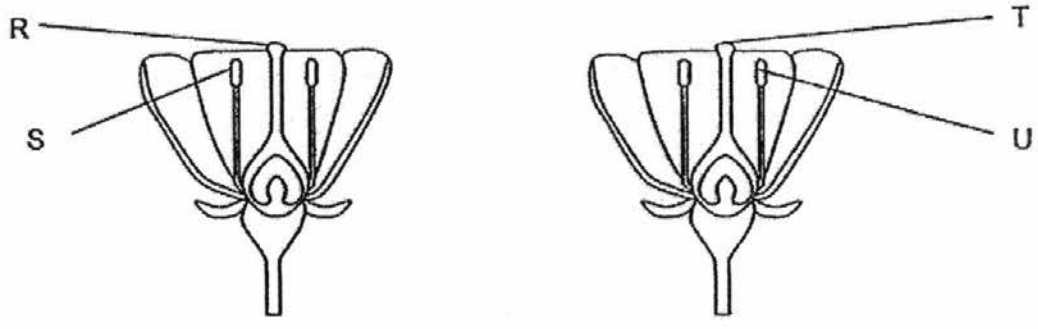


container W container X

Which of the following shows the most likely observation for her experiment and the reason for her observation?

	Container W	Container X	Reason
(1)	Seeds germinated	Seeds did not germinate	The seeds in container X did not received any light for germination.
(2)	Seeds did not germinate	Seeds germinated	The seeds in container W did not have enough water for germination.
(3)	Seeds germinated	Seeds did not germinate	The seeds in container X did not have any air for germination.
(4)	Seeds did not germinate	Seeds germinated	The seeds in container W did not receive enough warmth for germination.

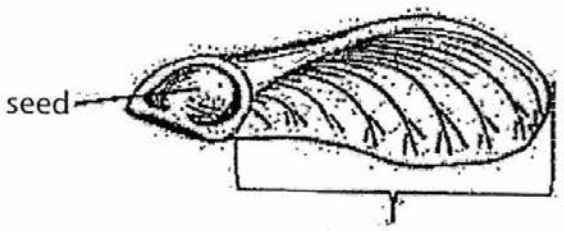
13. The diagram below shows two flowers from the same plant.



Pollination occurs when the pollen grains are transferred from _____.

(1) R to T
(2) R to U
(3) S to U
(4) S to T

14. Qingyi wanted to find out how the length of the wing-like structure would affect the distance travelled by a wind-dispersed seed when dropped from a certain height.



Which of the following should she keep constant in order to ensure a fair test?

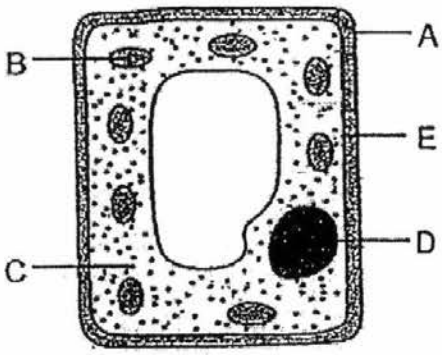
A Mass of seed
B Location of the experiment
C Length of wing-like structure
D Strength of wind blowing at the seed
E Height from which seeds were dropped

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

15. Which one of the following correctly matches the structure of a cell to its function?

	Cell structure	Function
(1)	Cell membrane	It gives the cell its shape.
(2)	Nucleus	It gives the cell energy to function.
(3)	Cytoplasm	It allows substances to move around within the cell.
(4)	Cell wall	It controls the substances that can enter or leave the cell.

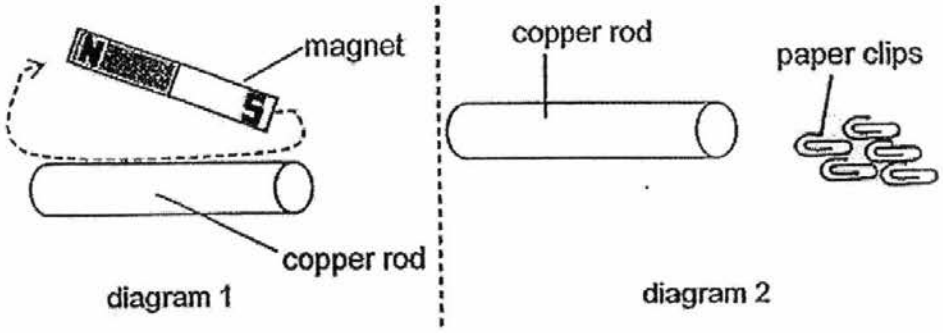
16. The diagram below shows the parts of a plant cell.



Based on the diagram above, which one of the following is correct?

	Parts found only in a plant cell	Parts found in both plant and animal cells
(1)	A, B	C, D, E
(2)	B, D	A, C, E
(3)	A, D	B, C, E
(4)	D, E	A, B, C

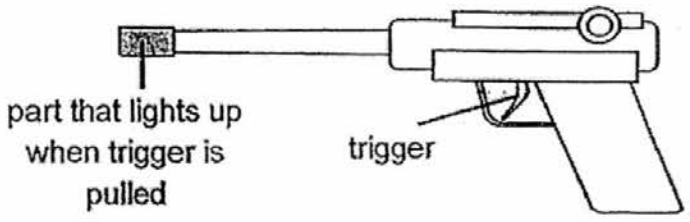
17. Melissa used a magnet to stroke a copper rod several times in the direction as shown in diagram 1. She then placed the copper rod next to some paper clips as shown in diagram 2.



She observed that the paper clips were not attracted to the copper rod. State a reason for this observation.

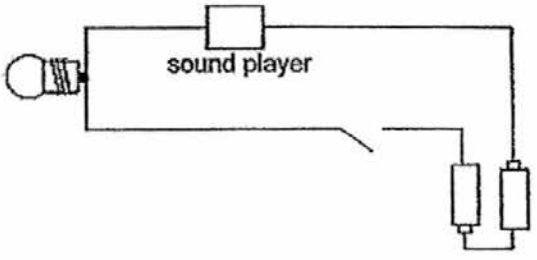
(1) The copper rod is not a magnetic material.
(2) Melissa did not stroke the copper rod enough to magnetise it.
(3) The magnet was not strong enough to magnetise the copper rod.
(4) Melissa did not use the same pole of the magnet to stroke the copper rod.

18. The diagram below shows a battery powered toy gun. When the trigger is pulled, the toy gun makes a sound and the tip of the gun lights up.

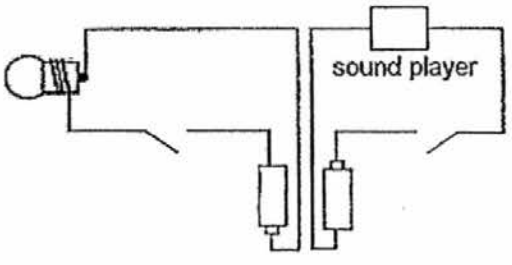


Which one of the following could be a possible circuit of the toy gun?

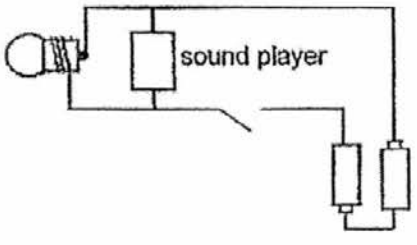
(1)



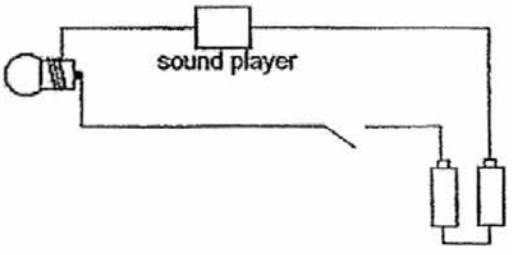
(2)



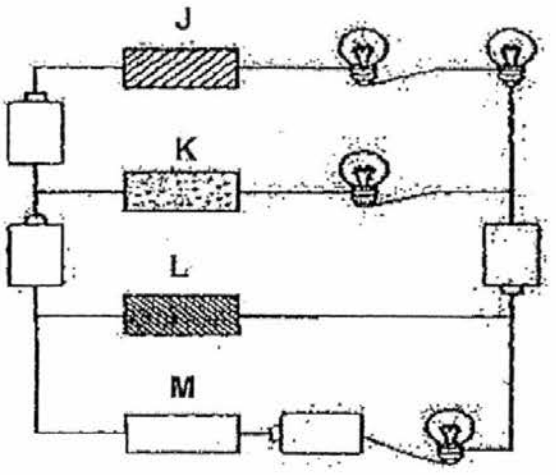
(3)



(4)



19. Four different materials, J, K, L and M, were connected in an electrical circuit as shown below.



Which one of the following represents the materials, J, K, L and M, in the electrical circuit such that only two of the bulbs will light up?

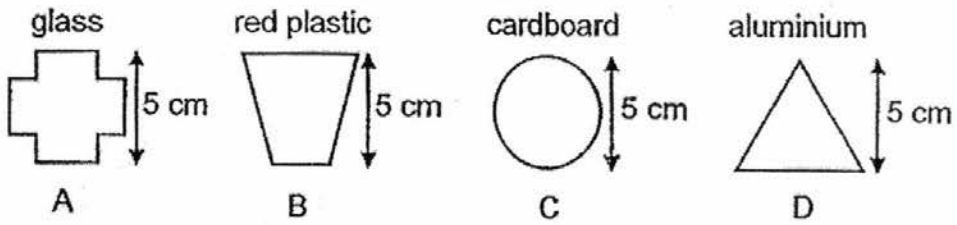
	Material J	Material K	Material L	Material M
(1)	Copper	Glass	Ceramic	Steel
(2)	Iron	Porcelain	Glass	Aluminium
(3)	Plastic	Rubber	Wood	Gold
(4)	Graphite	Plastic	Steel	Ceramic

20. A crow uses stones to raise the water level in the pitcher shown below so that it can reach the water to quench its thirst.

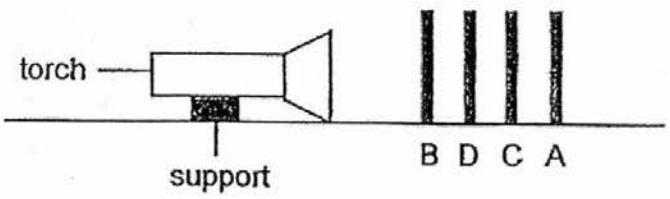
What property of the stone allow the crow to use the method shown above?

(1) The stone has mass.
(2) The stone occupies space.
(3) The stone has a definite shape.
(4) The stone cannot be compressed.

21. A, B, C and D are shapes that are cut out from different materials as shown in the diagram below.



Megan carried out an experiment in a dark room using shapes, A, B, C and D. She placed all the 4 shapes in a straight line in front of the torch as shown in the diagram below.



Which of the following shows the possible shadow that would be seen on shape C?

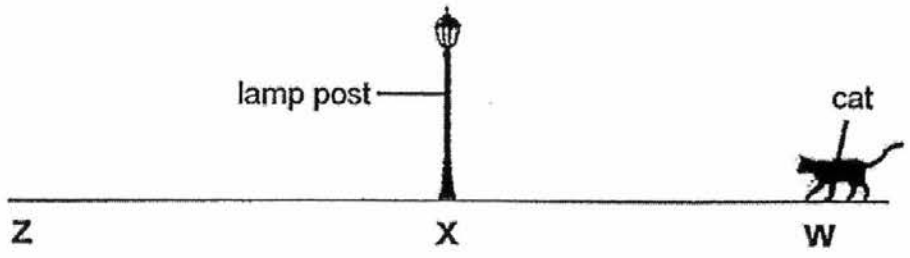
(1)

(2)

(3)

(4)

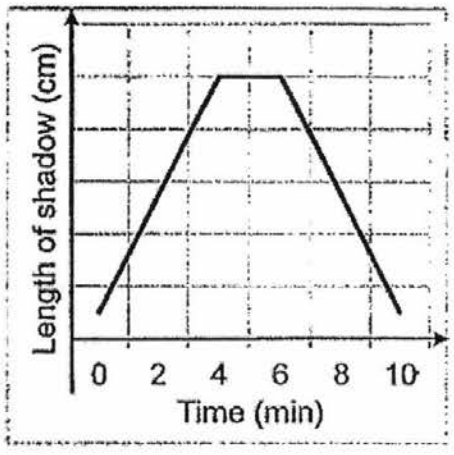
22. The diagram below shows a cat walking from point W to point Z, passing a brightly lit lamp post at point X.



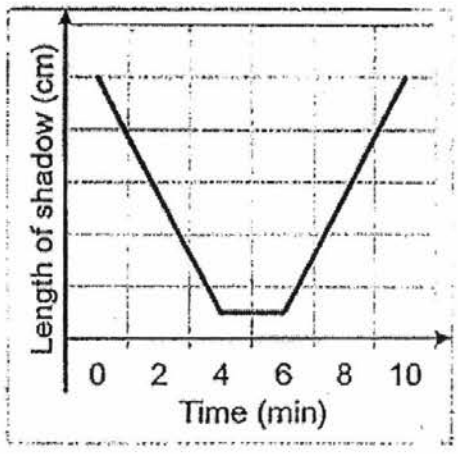
The cat took 10 minutes to walk from point W to point Z. Along the way, it sat down under the lamp post for about 2 minutes to rest.

Which one of the following graphs shows correctly how the length of the cat's shadow would change as it walked from point W to point Z?

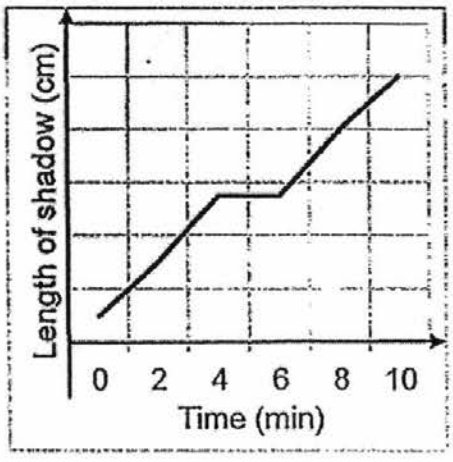
(1)



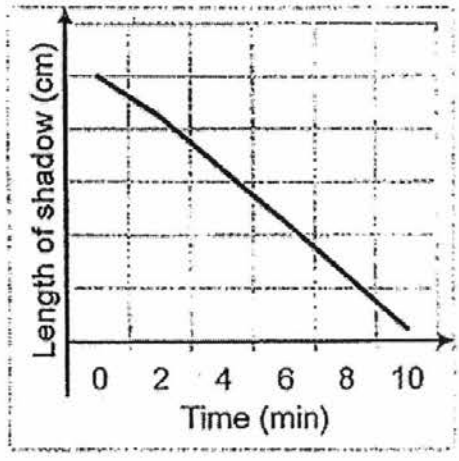
(2)



(3)



(4)



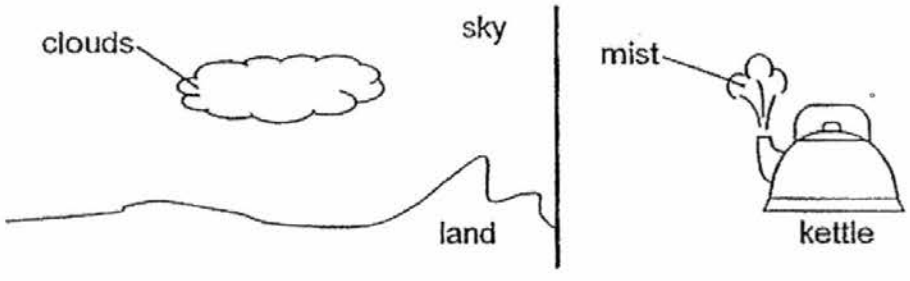
23. The table shows the melting points and boiling points of two substances, X and Y.

Substance	Melting point (°C)	Boiling point (°C)
X	140	180
Y	55	360

Which one of the following shows the correct states of X and Y at 100°C?

	X	Y
(1)	solid	liquid
(2)	liquid	liquid
(3)	solid	solid
(4)	liquid	solid

24. Study the diagram below.

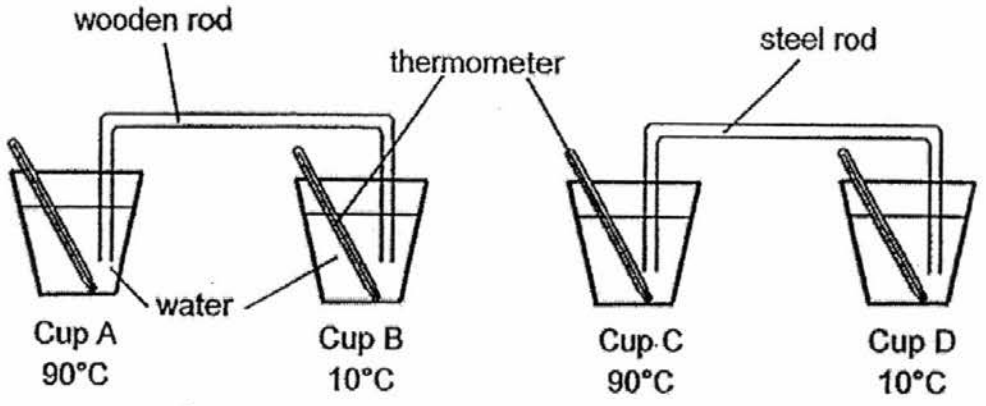


How are the clouds in the sky and the mist from a kettle of boiling water similar?

A Both are made up of water vapour.
B Both are made up of water droplets.
C Both are formed due to heat loss to the surrounding air.
D Both are formed due to heat gain from the surrounding air.

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

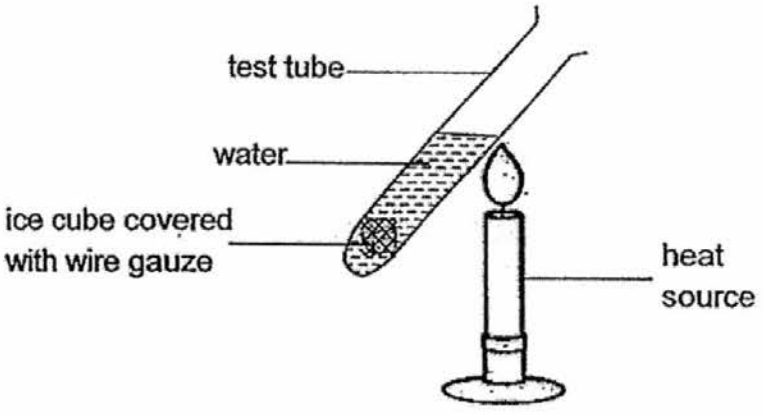
25. Rhea set up an experiment using four identical styrofoam cups with equal amount of water. The temperatures of the water in each cup are shown below.



After five minutes, she measured and recorded the temperatures of the water in each cup. Arrange the cups according to the temperature of the water in them, from the lowest to the highest.

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

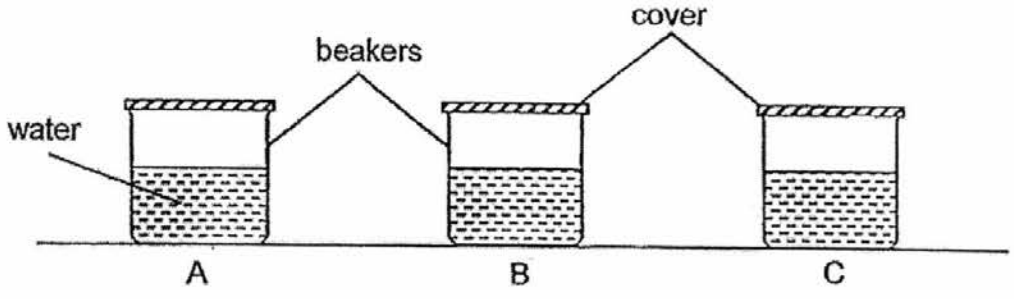
26. A piece of ice cube is wrapped in wire gauze to make it sink to the bottom of the test tube filled with water. The water surface is heated till it boils.



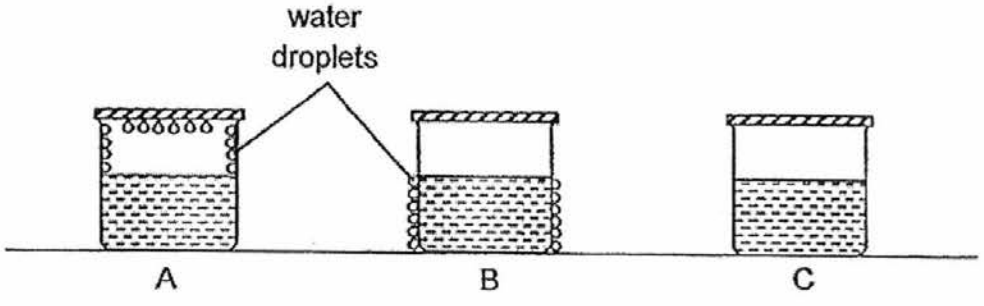
When the water on the surface boiled, the ice cube did not melt completely. What can be concluded from this experiment?

(1) Water is a poor conductor of heat.
(2) The wire gauze is a poor conductor of heat.
(3) The heat source was not strong enough to melt the ice cube.
(4) The wire gauze conducts heat from the heat source to the ice cube slowly.

27. 3 identical beakers, A, B and C, contain water at different temperatures. They are placed in the same location with a room temperature of 28°C.



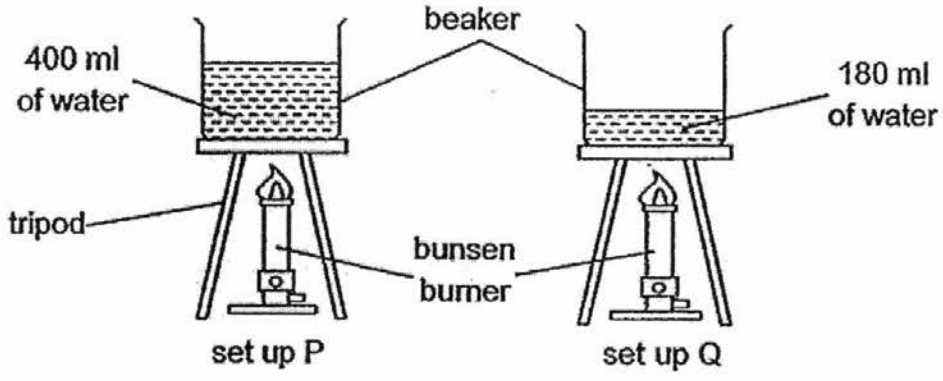
The diagram below shows what happened after some time.



Which of the following shows the temperature of the water in each beaker at the start of the experiment?

	Beaker A	Beaker B	Beaker C
(1)	80°C	10°C	30°C
(2)	80°C	30°C	10°C
(3)	10°C	80°C	30°C
(4)	30°C	10°C	80°C

28. Cassandra heated two beakers of water at room temperature until they boiled as shown in the diagram below.



Which of the statements about the two beakers of water are true?

A Both beakers of water boiled at the same time.
B Both beakers of water have the same temperature when they boiled.
C The temperature of boiling water in P is higher than temperature of boiling water in Q.
D The boiling water in set up P would have more amount of heat than the boiling water in set up Q.

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

End of Booklet A

Name : _____ ( )

Class : Primary 5 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL

Primary 5

Semestral Assessment 2 – 2016
SCIENCE

BOOKLET B

27 October 2016

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

13 questions
44 marks

Do not open this booklet until you are told to do so.
Follow all instructions carefully.
Answer all questions.

This paper consists of 15 printed pages.

Booklet A	56
Booklet B	44
Total	100

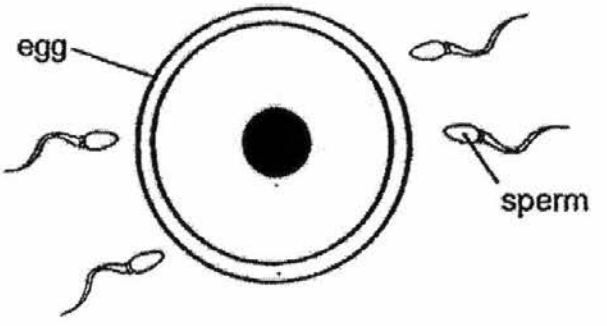
_____

Parent's Signature

Section B (44 marks)
For questions 29 to 41, write your answers in this booklet.

The number of marks available is shown in the brackets at the end of each question or part question.

29. The diagram below shows the male and female reproductive cells in humans.

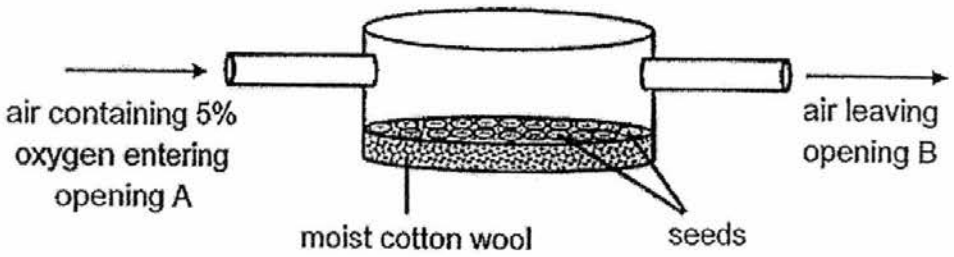


State whether each of the following statements is True (T) or False (F).

[2]

	Statements	True or False
(a)	Fertilisation takes place outside the female's body.	
(b)	Fertilisation takes places when the nucleus of the sperm fuses with the nucleus of the egg.	
(c)	The egg will move towards the sperms in order for fertilisation to take place.	
(d)	All the nuclei of the four sperms will be able to fuse with the nucleus of the egg.	

30. Lenny wanted to find out if the amount of oxygen in the air would affect the number of seeds that would germinate. He planted 50 seeds of plant P on a layer of cotton wool moistened with 80ml of water in a large container with two openings, A and B, as shown below. Air containing 5% oxygen was continuously pumped in from one end of the container. After 1 week, he recorded the number of seeds that had geminated.



He repeated the experiment with air containing 0%, 10%, 15% and 20% oxygen and recorded the number of seeds that germinated.

The table below shows his results.

Amount of oxygen in container (%)	0	5	10	15	20
No. of seeds germinated	0	9	20	31	40

a) Based on Lenny's results, what is the relationship between the amount of oxygen and the number of the seeds germinated? [1]

_____

_____

b) Why did Lenny use 50 seeds instead of 5 for each of the experiment? [1]

_____

c) Why are openings, A and B, important to the experiment? [1]

_____

_____

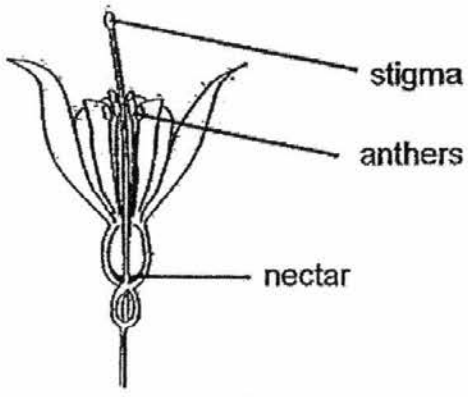
d) Based on Lenny's experiment, state one other variable that he has to keep constant in order for this experiment to be a fair one. [1]

_____

31. The diagram below shows two animals, H and J, and plant A.

animal H

animal J

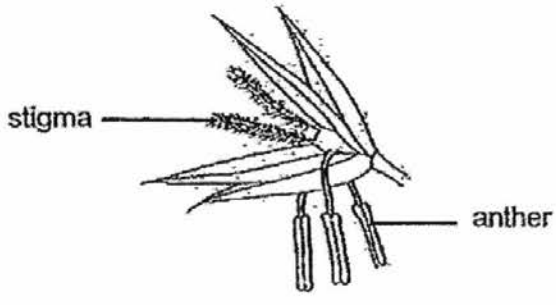


flower of plant A

a) Which of the animal, H or J, is more likely to feed on the nectar of flower A? Give a reason for your answer. [1]

b) How do animals, H and J, help the plants in their reproduction process? [1]

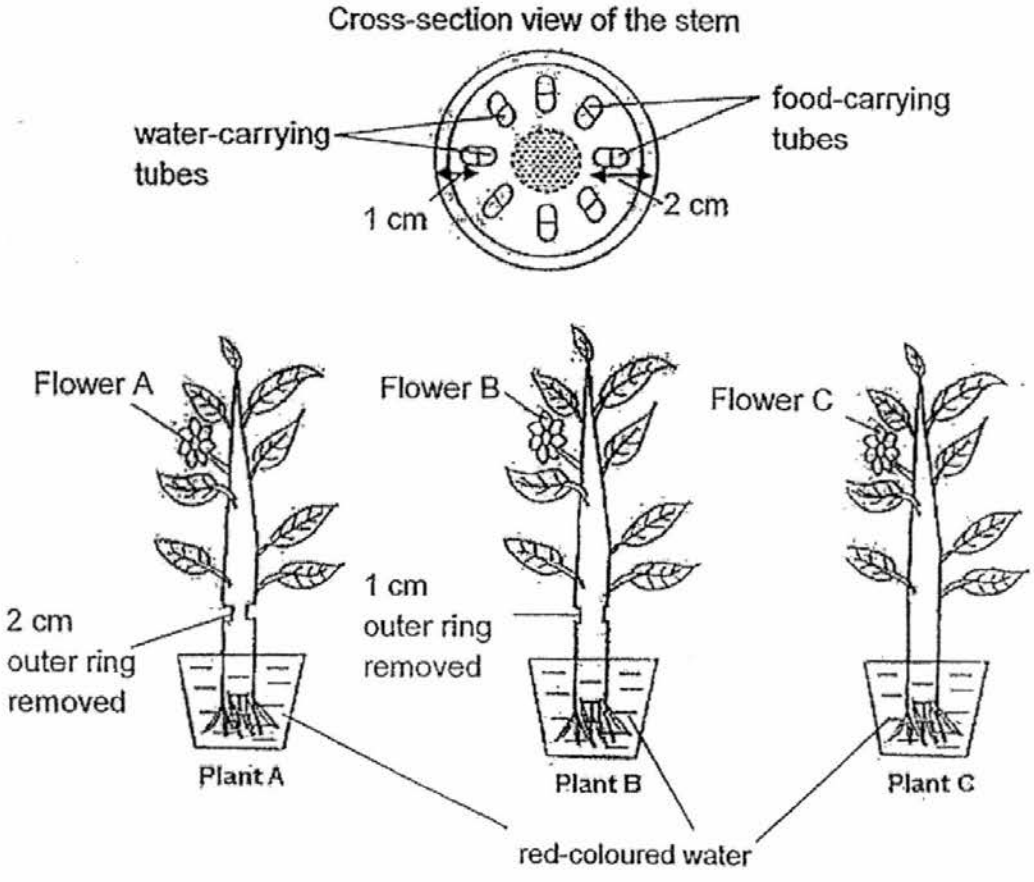
c) The diagram below shows a flower from another plant B.



flower from plant B

Explain how the flowers of plant B are pollinated. [1]

32. In an experiment, Mazlan placed three similar plants, A, B and C, in three identical pots containing the same amount of red-coloured water. He made a 2 cm cut to the stem of plant A and a 1 cm cut to the stem of plant B.



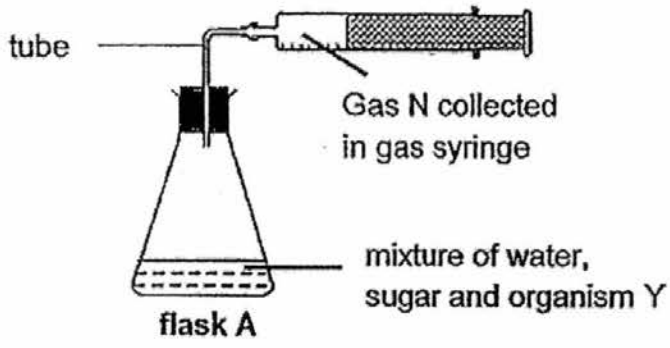
A day later, he noticed that flower A remained white while flowers B and C had turned red.

(a) Give a reason why flower A remained white. [1]

(b) Mazlan also found that the stem below the cut section of plant A and B shrivelled after a few days. Explain why this is so. [1]

(c) What is the purpose of having plant C? [1]

33. Study the set up below. flask A contains a mixture of 150 ml of water, 2g of sugar and a teaspoon of organism Y. Flask A is attached to a gas syringe and gas N is collected in the syringe.



Four similar set ups were used, each containing a different amount of sugar. The amount of gas N collected in each of the gas syringe after 15 minutes was recorded as shown below.

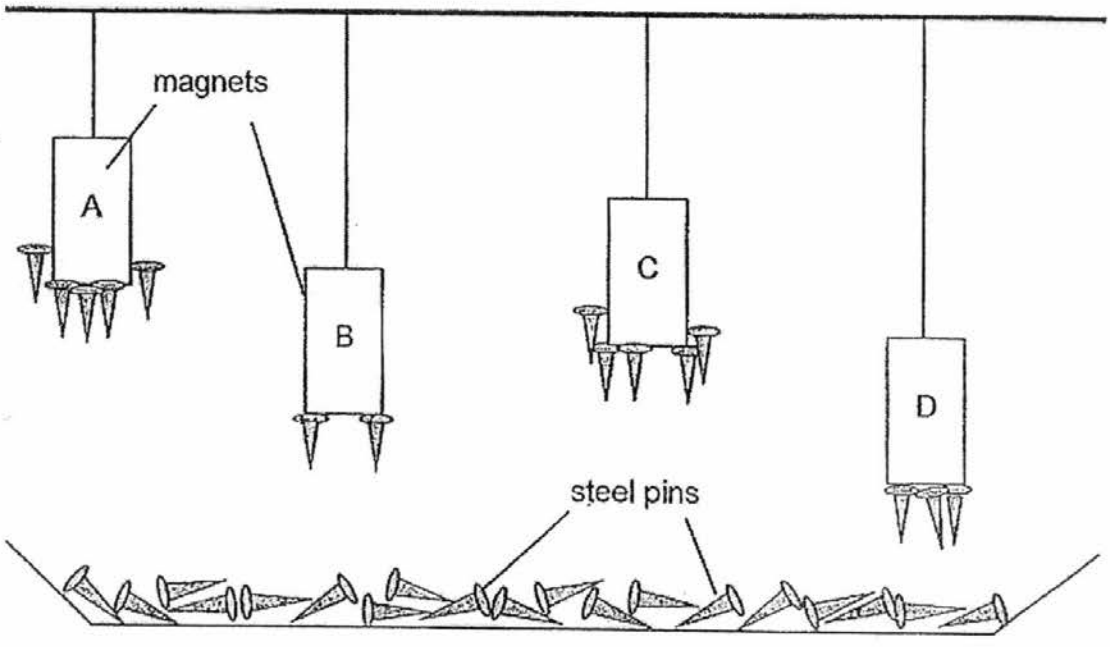
Flask	Mass of sugar used (g)	Amount of gas collected after 15 mins (cm^3)
A	2	5
B	8	12
C	14	25
D	20	30
E	24	22

a) What is the aim of the experiment? [1]

b) Based on the results above, what is the most favourable mass of sugar required to obtain the maximum amount of gas N? [1]

c) Suggest a control set up for the experiment. [1]

34. Chelsea hung 4 magnets, A, B, C and D, above a tray of identical steel pins. Her observation is shown below.

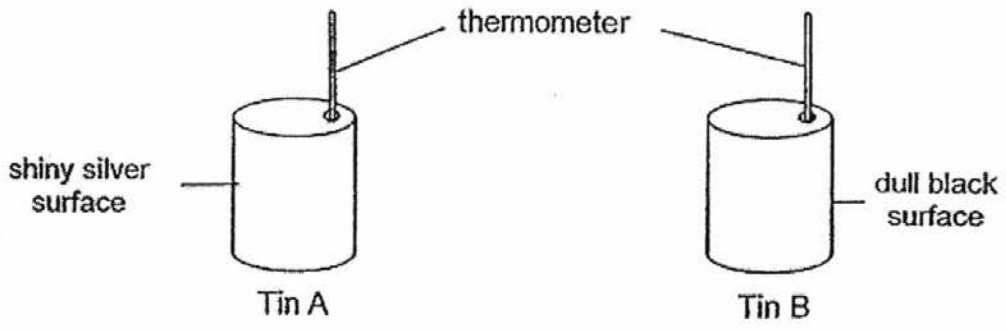


(a) Based on her observation, name the strongest magnet. Explain how you arrived at your answer. [1]

(b) Based on her observation, can you tell which magnet is the weakest? Explain why. [2]

(c) Using the same set up shown in the diagram above, Chelsea replaced magnet A with another magnet Y of the same size.
State one possible observation that Chelsea would make if magnet Y is a much stronger magnet than magnet A. [1]

35. Two similar empty tins, A and B, were placed under the hot sun. The surface of tin A was shiny silver while the surface of tin B was dull black. A thermometer was placed in each tin as shown in the diagram below.



Temperature of the air in each tin was recorded every two minutes. The results are shown in the table below.

Time (min)	0	2	4	6	8	10
Temperature in tin A (°C)	24	25	26	27	28	29
Temperature in tin B (°C)	24	26	28	30	32	34

(a) What is the relationship between the temperature of the air in the tins and the duration the tins are placed in the sun? [1]

_____

_____

(b) Which tin had gained more heat after 10 minutes? Explain your answer. [1]

_____

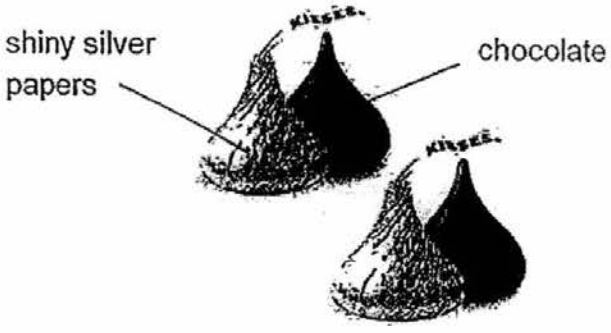
_____

(c) Based on the results shown above, what can you conclude about the type of surface and the amount of heat gained by the tins? [1]

_____

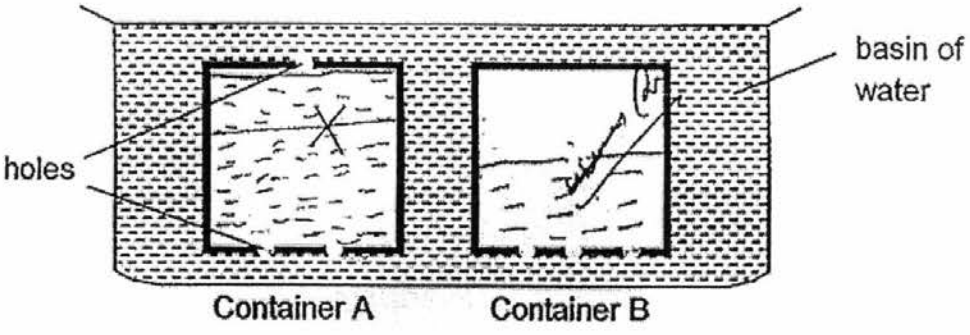
_____

Most chocolates are wrapped in thin shiny silver papers as shown in the diagram below. The shiny silver paper helps to prolong the freshness of the chocolates.



(d) Explain how wrapping the chocolate with shiny silver paper helps the chocolate to stay fresh longer. [2]

36. Shawn was given two identical containers, A and B. There were holes of the same size at the sides of each of the containers. He pushed both containers into a basin of water as shown in the diagram below.

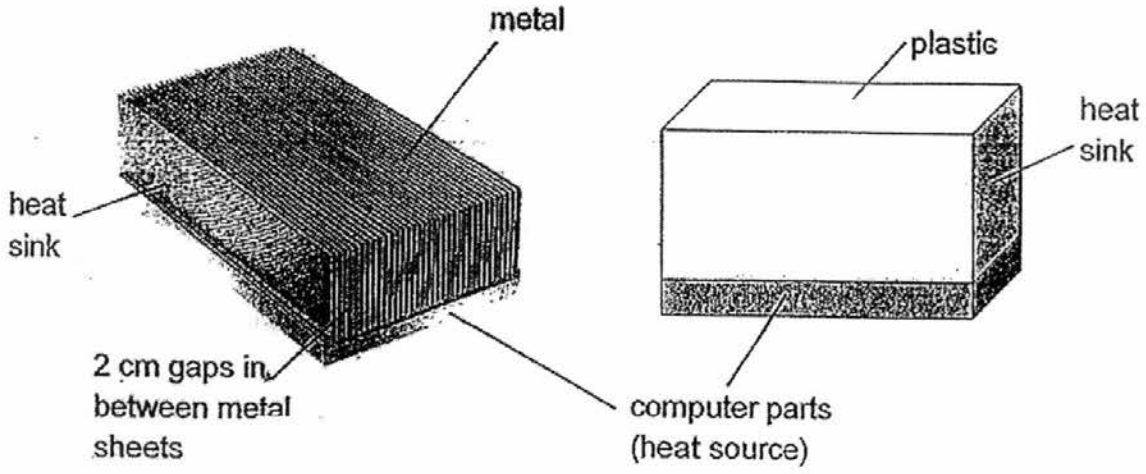


(a) Draw the water level in each of the containers, A and B, shown above. [1]

(b) Explain your answer for container A in part (a) above. [2]

Container A:

37. Heat sinks are used in computers to prevent the parts inside the computers from overheating.
The diagram below show two designs of heat sinks, P and T.

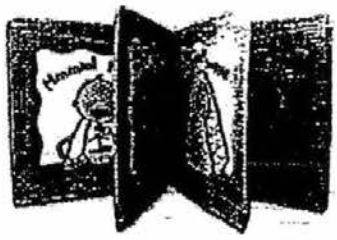


heat sink P

heat sink T

Which heat sink, P or T, would be more efficient in preventing the parts inside the computers from overheating? Explain your answer. [2]

38. Li En wants to find out which material is suitable for making a bath book for babies as shown below.



bath book for babies

She tested four different materials, A, B, C and D, and recorded her observations as shown below.

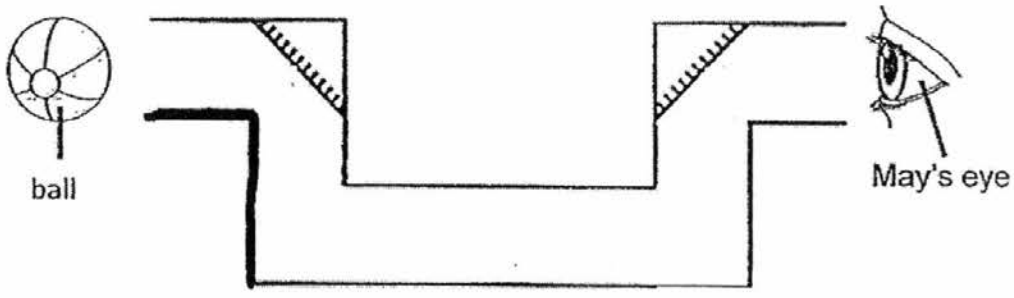
Materials	Is it waterproof?	Does it break easily?	Can it float on water?	Does it bend easily without breaking?
A	No	Yes	No	Yes
B	Yes	No	No	No
C	Yes	Yes	Yes	No
D	Yes	No	Yes	Yes

(a) Based on her observations, which is the best material to make a bath book for a baby? Give two reasons to explain your choice. [2]

(b) The diagram below shows a baby bathtub seat.

Based on Li En's observations, she chose Material C as the best material to make Part X of the bathtub. Do you agree with her choice? Give a reason for your answer. [1]

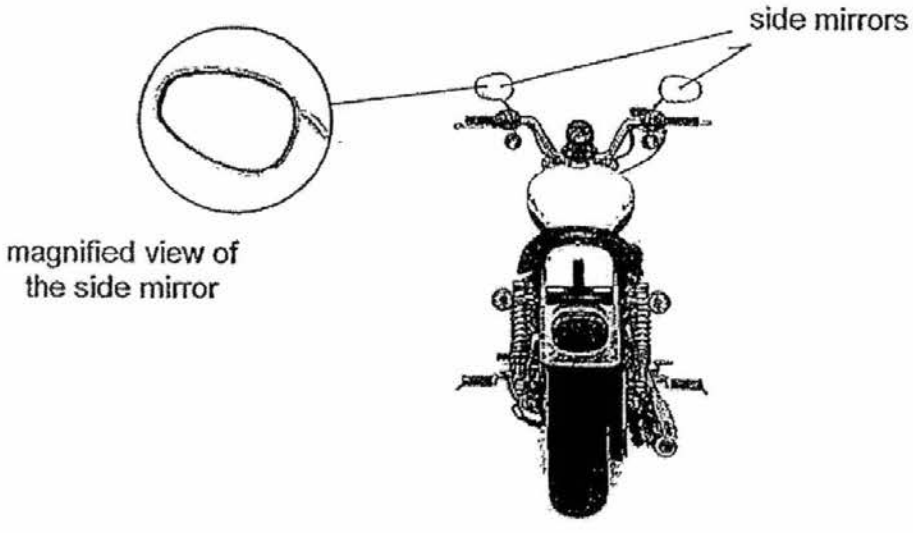
39. An experiment was set up as shown below.



a) Draw 2 more mirrors in the set up above so that May can see the ball at the other end of the tube. [1]

b) Draw arrows to show the path of light that enables May to see the ball. [1]

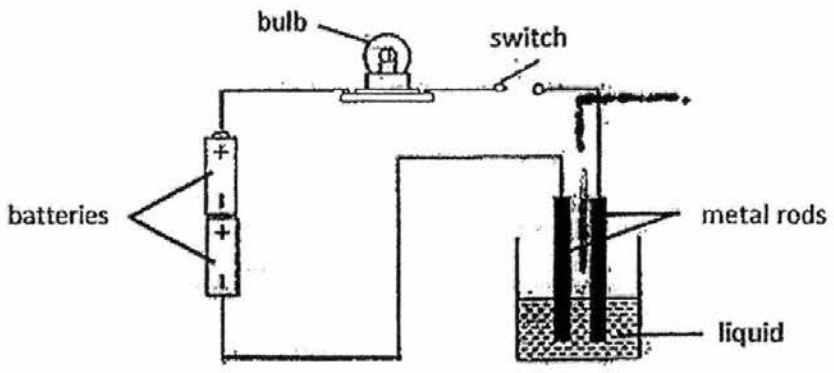
c) The diagram below shows a motorcycle.



motorcycle

Based on the diagram above, explain how the side mirror would enable a motorist driving the motorcycle to see a car behind him. [2]

40. Ali used the following set up to conduct an experiment.



He poured different liquids, D, E, F and G, one at a time, into the beaker and closed the switch to observe the brightness of the bulb. He then recorded his results in a table below.

Liquid	Brightness of bulb			
	Very dim	Dim	Bright	Very bright
D			✓	
E	✓			
F		✓		
G				✓

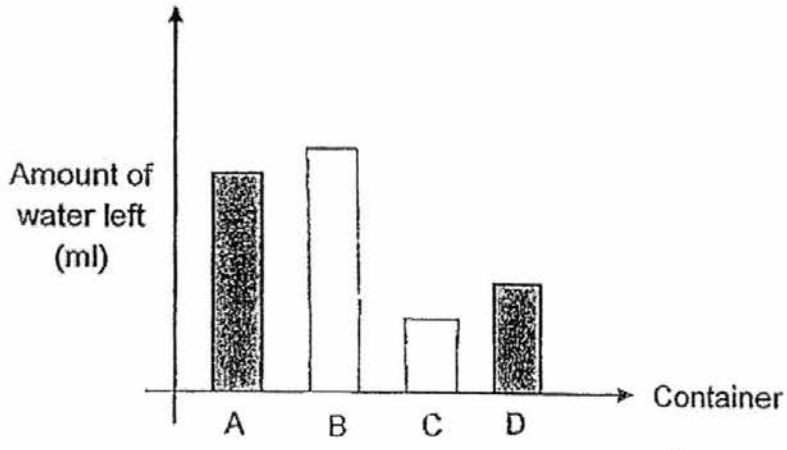
a) State the property of the rods used above that allows the above observations to be made. [1]

b) Using the results above, if liquid G is seawater, give a reason why it is dangerous to swim in the sea during a lightning storm. [2]

41. Four identical containers, A, B, C and D, were filled with same volume of water. They were placed in four different places with different conditions for 3 hours as shown in the table below.

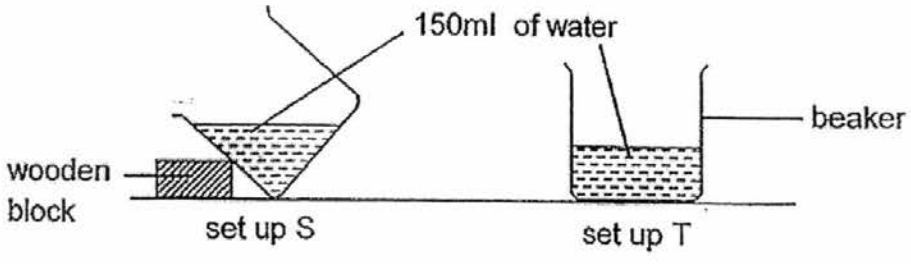
Container	A	B	C	D
Conditions	No wind Sunny	No wind Cloudy	Windy Sunny	Windy Cloudy

(a) Complete the bar graph below to show the volume of water left in containers, B and C, after 3 hours. [2]



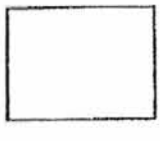
(b) List one other variable that must be kept constant in this experiment. [1]

(c) James set up an experiment as shown below to find out how the exposed surface area of water affect the rate of evaporation.



(c) Explain why the experiment was not a fair test. [2]

End of Paper



EXAM PAPER 2016 (P5)

SCHOOL : CHIJ

SUBJECT : SCINECE

TERM : SA2

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

29)a)False b)True c)False d)False

30)a)The more the amount of oxygen in the container, the more number of seeds that germinated.

b)If too few seeds are used, the results will not be reliable.

c)Openings A and B control the gaseous exchange in and out of the container so the amount of oxygen in the container can be controlled.

d)Temperature of the water.

31)a)Animal J. It has a long and thin beak so its beak can reach the nectar in the bottom of flower A.

b)They help to carry pollen grains from an anther of a flower to a stigma of the same flower or another flower of the same kind.

31)c)The anthers of plant B are hanging out of the flower. When the wind blows, the pollen grains from the anther will be carried by the wind to the stigmas of other flowers of the same type of plant.

32)a)As plant A's water-carrying tubes were cut off, the red water absorbed by the roots of the plant could not be transported to the stem, leaves and flower above the 2cm cut.

b)Food made by the leaves above the cuts could not be transported to the parts below the cuts as the food-carrying tubes were being cut off.

c)Plant C is a control set-up to show that the change in the colour of the flowers is solely due to the stem that was removed.

33)a)To find out how the mass of sugar used affects the amount of Gas N collected after 15 minutes.

b)20g.

c)An identical conical flask, 150ml of water, a teaspoon of Y and a gas syringe.

34)a)A. It could attract the most amount of steel nails at the furthest distance from the steel pins.

b)Magnet D is the weakest. Even though at a nearer distance from the steel pins, not the least. As compared to the other magnets, D is the weakest to the pins and should attract more pins than the rest. Therefore D is the weakest .

c)Magnet Y would attract more steel pins than magnet A.

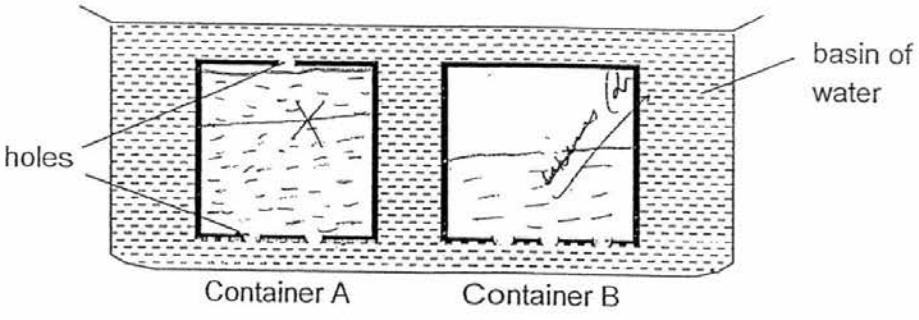
35)a)The longer the duration the tins are placed in the sun, the hotter the temperature of the air in the tins.

b)Tin B. The temperature of Tin B was higher than Tin A after 10 minutes.

c)Dull colours absorbs more heat than shiny colours.

d)The shiny silver wrapper will slow down the heat gained by the dark-coloured chocolate from the surrounding. Chocolates will not melt easily.

36)a)



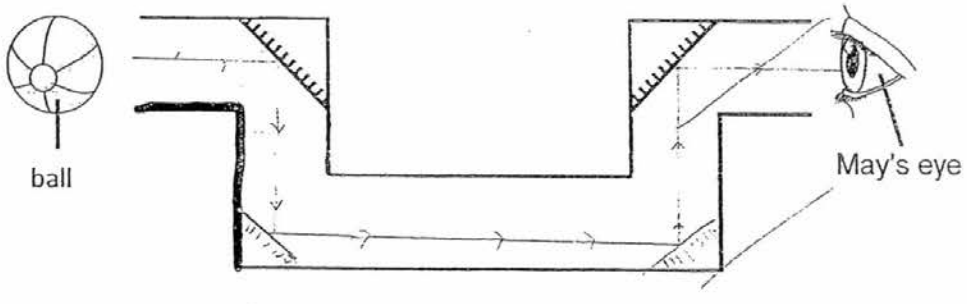
b)There was a hole on the top of A and it allowed the air previously trapped in the container, allowing more water to displace the air.

37)P. Metal is a better conductor of heat and P also has a greater exposed surface area which allows heat to be conducted away from the computer parts at a faster rate compared to plastic.

38)a)Material D. D is the best material to make the book as it is water proof and will not be damaged by water.

b)No. C breaks easily and would hurt the baby and cannot withstand the weight of the body.

39)a)b)

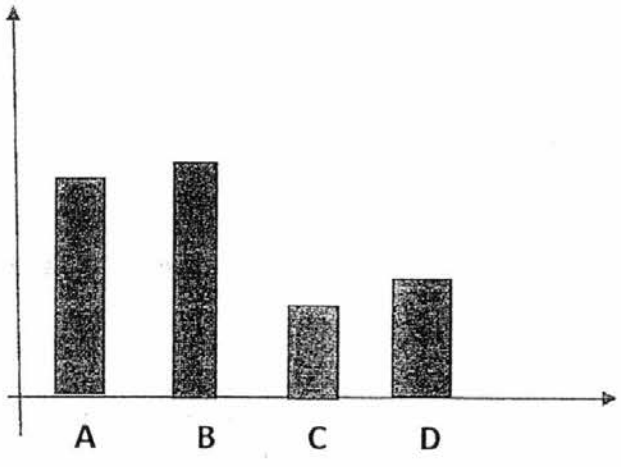


c)Light reflected off the car behind reaches the side mirror of the motorcycle and if reflected off the side mirror into the eyes of the motorist.

40)a)They must be conductor of electricity .

b)From the result when G was used the bulb shone the brightest, showing that it is the best conductor of electricity. Hence, during a lightning storm, a person could be easily electrocuted if lightning strikes the water.

41)a)



b)The temperature.

c)The amount of exposed surface area was not equal with each other in the set-up. Hence the rate of evaporation will not be constant, Since there is more one changed variable, the experiment was not a fair test.