



AI TONG SCHOOL

**2012 SEMESTRAL ASSESSMENT (1)
PRIMARY FIVE SCIENCE**

DURATION : 1hr 45 min

DATE: 10 May 2012

INSTRUCTIONS

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

Name : _____ ()

Class : Primary _____

Parent's Signature : _____

Date : _____

MARKS	100
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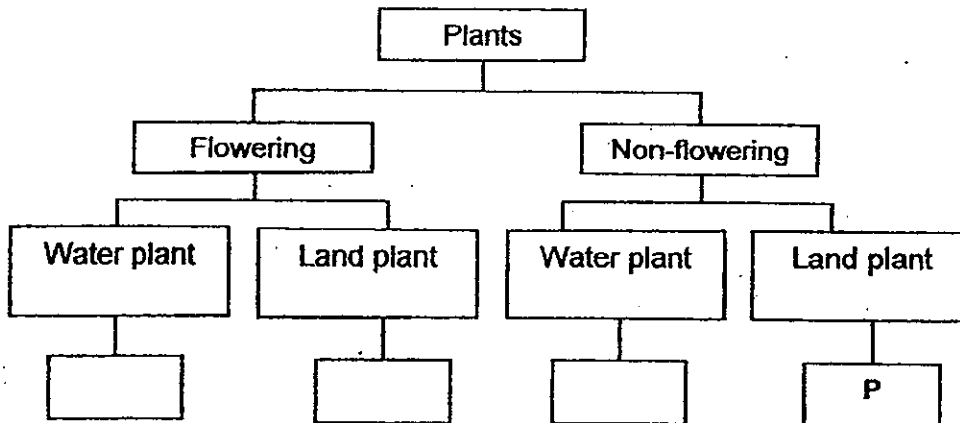
Section A (30 x 2 marks)

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 following table gives information on four plants W, X, Y and Z based on two characteristics.

Characteristics	Plant			
	W	X	Y	Z
Bears fruit(s)	No	Yes	No	Yes
Grows on land	No	Yes	Yes	No

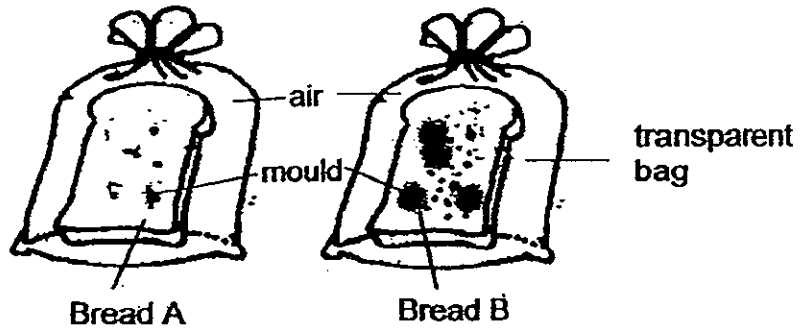
From the information in the table above, the plants are classified in the classification chart below.



Which plant can be classified under P?

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

2. In an experiment, Jamal kept 2 identical pieces of bread; A and B, in a dark cupboard as shown below.

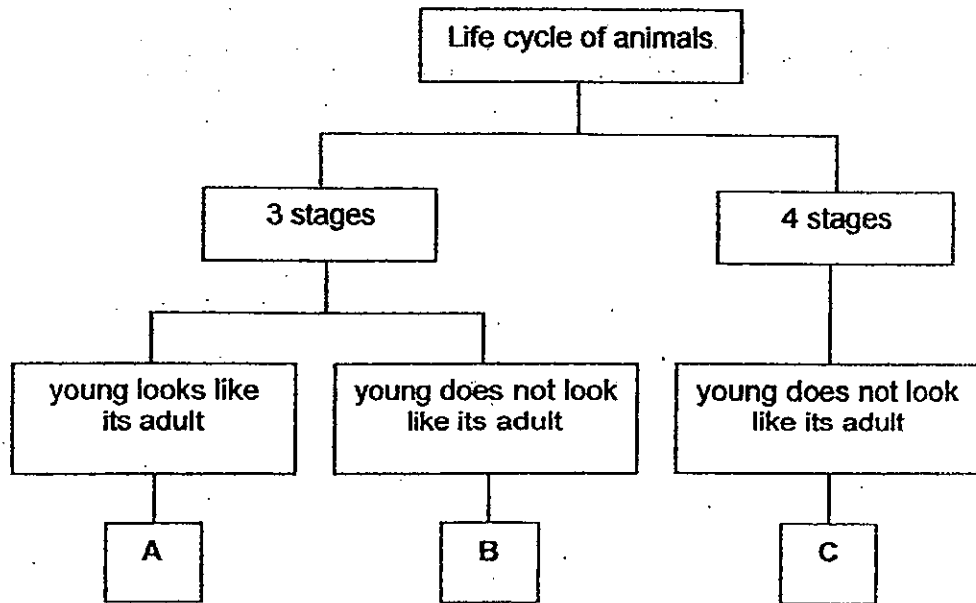


Jamal added some drops of water to Bread B but Bread A remained dry. Three days later, he observed that mould is present on both pieces of bread. However, there is more mould growing on Bread B than on Bread A.

Based on the above experiment, what would be Jamal's most likely conclusion on what happened to Bread A and B?

- (1) Mould needs air to grow.
- (2) Mould needs sunlight to grow.
- (3) Yeast in the bread causes the mould to grow.
- (4) Mould grows faster when there is more moisture.

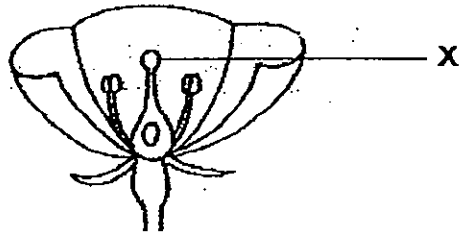
3. Study the diagram below.



Which one of the following represents A, B and C?

	A	B	C
(1)	grasshopper	housefly	cockroach
(2)	cockroach	frog	housefly
(3)	chicken	grasshopper	cockroach
(4)	frog	housefly	chicken

4. The diagram below shows the cross-section of an unfertilised flower.



If X is cut off, what effect will it have on the plant ?

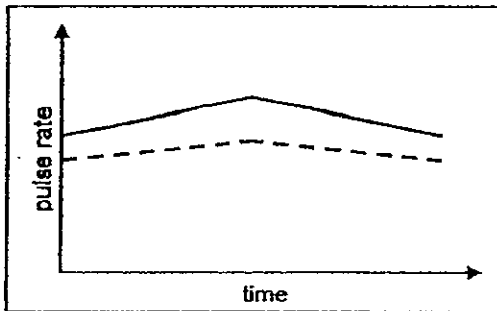
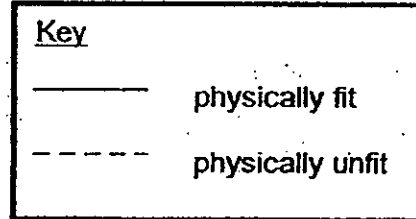
- A It will wither immediately.
- B It will not be able to reproduce.
- C It will not produce pollen grains.
- D It takes a longer time for the fruit to be formed.

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

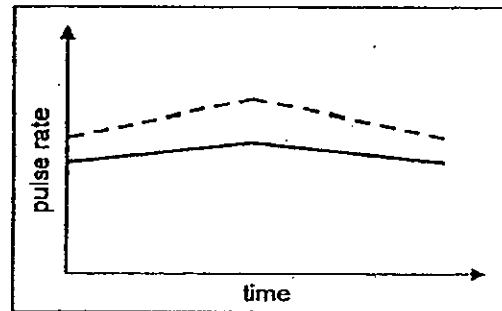
5. The number of times a heart beats per minute to pump blood in a body is known as the pulse rate. A more physically fit person pumps blood fewer times than a less physically fit person.

A physically fit and a physically unfit person ran up a steep hill. Next, they walked down the same hill.

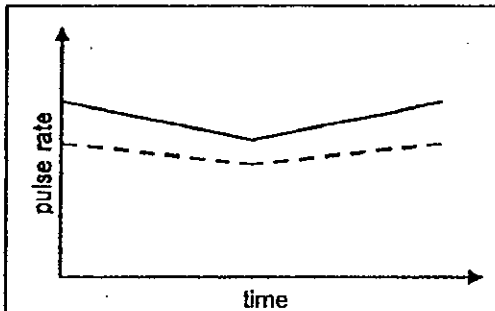
Which one of the following graphs shows the correct pulse rates of these two people?



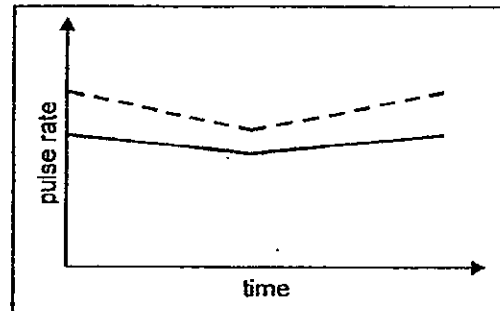
(1)



(2)

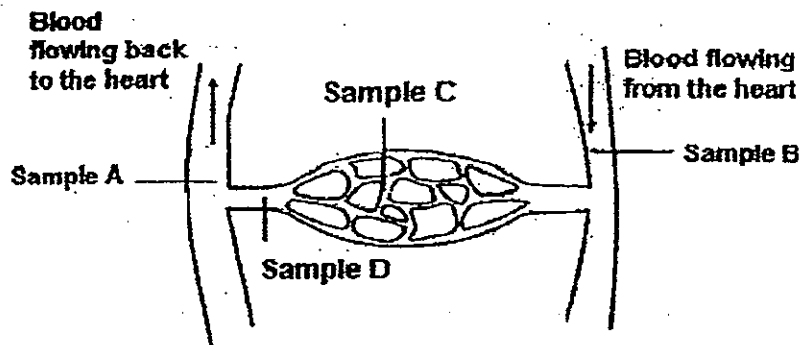


(3)



(4)

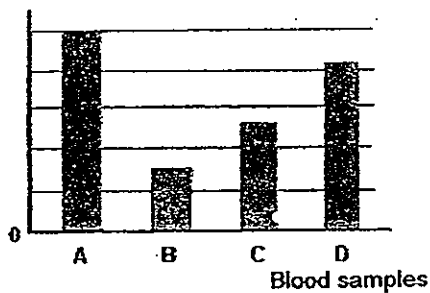
6. Study the diagram below carefully.



Blood samples (A, B, C and D) were taken from different blood vessels in the leg. Which graph most appropriately shows the amount of carbon dioxide in the blood samples?

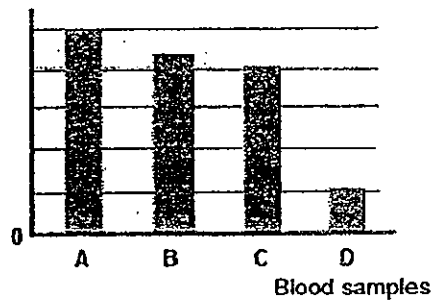
1)

Amount of carbon dioxide in ml



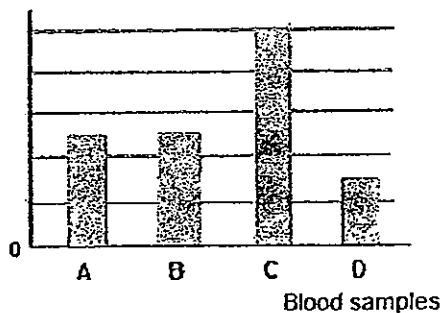
2)

Amount of carbon dioxide in ml



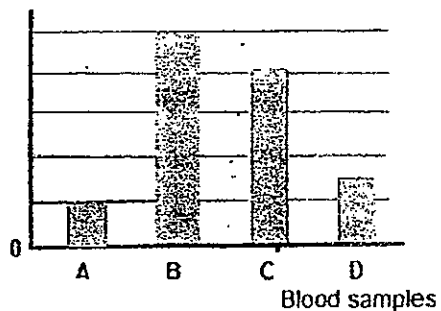
3)

Amount of carbon dioxide in ml



4)

Amount of carbon dioxide in ml



7. The table below shows the properties of cells P, Q and R.

	P	Q	R
Cytoplasm	✓	✓	✓
Cell membrane	✓	✓	✓
Nucleus	✓	✓	✓
Cell wall	✓	✓	
Chloroplasts	✓		

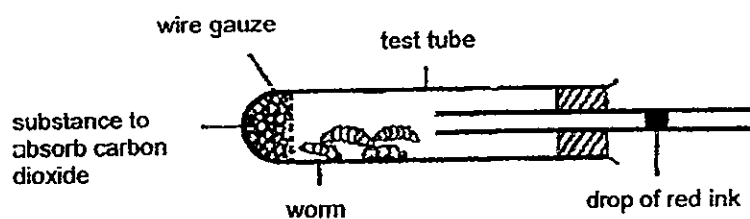
Some students made the following conclusions:

- A Cell P is a plant cell.
- B Cell Q is a plant cell.
- C Cell R is an animal cell.
- D Cell P and Q can make its own food.

Which of the statements are correct?

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

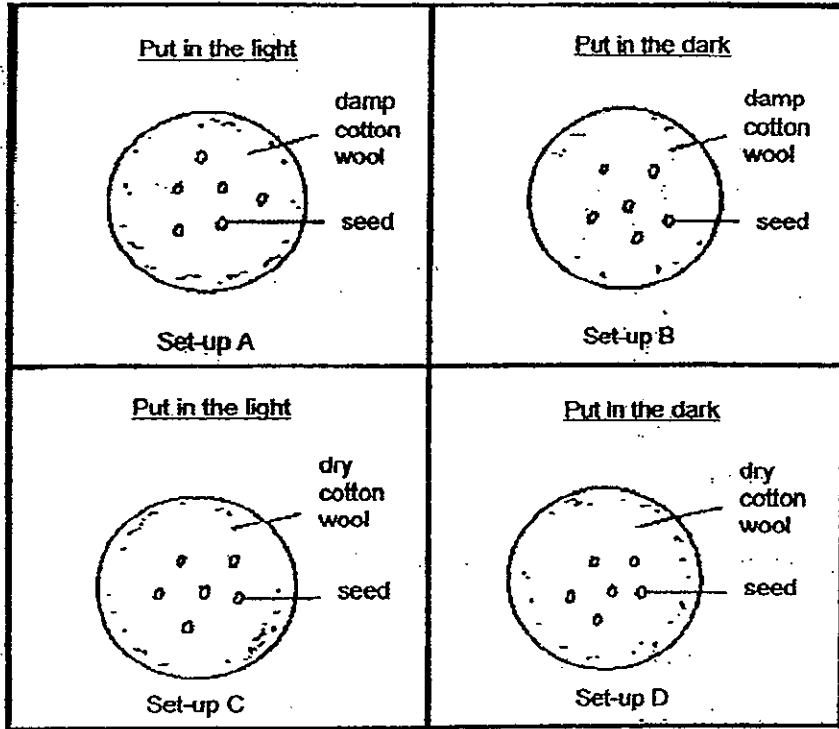
8. Nicholas sets up the apparatus as shown below. In the set-up, the drop of red ink prevents air from entering the test tube.



What happens to the drop of red ink when the worms breathe?

- (1) The drop of red ink becomes bigger in size.
- (2) The drop of red ink moves towards the worms.
- (3) The drop of red ink remains at the same position.
- (4) The drop of red ink moves further away from the worms.

9. Jason set up four similar dishes with different conditions as shown in the diagrams below.

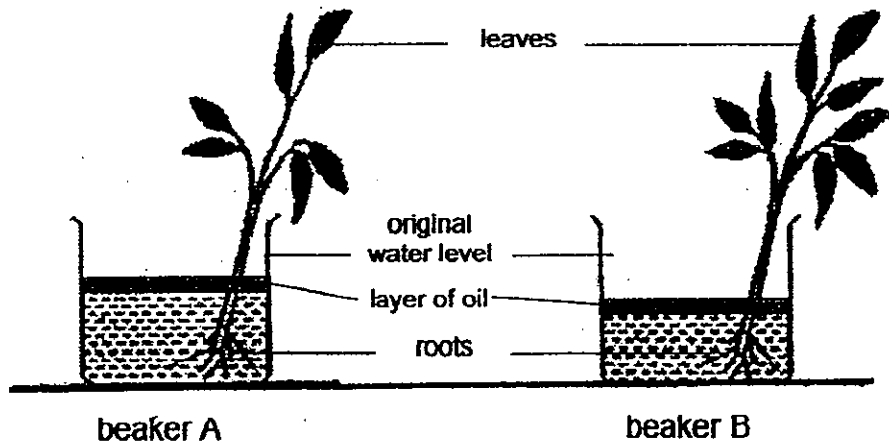


At the end of the experiment, it was observed that not all the seeds grew into seedlings.

In which set-up(s) did the seeds grow into seedlings?

- (1) Set-up A only
- (2) Set-ups A and B only
- (3) Set-ups A and C only
- (4) Set-ups B and D only

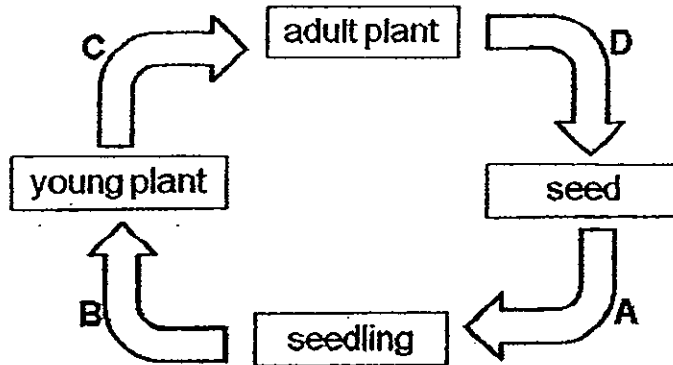
10. Two plants of the same type were left in a windowless room over a period of two days. At the end of the experiment, the water in beaker B was less than the water in beaker A.



The most likely aim of the experiment was to find out if

- _____
- (1) water is needed to produce leaves
 - (2) roots transport water to the rest of the plant
 - (3) the roots affect the number of leaves grown on a plant
 - (4) the number of leaves affects the amount of water absorbed

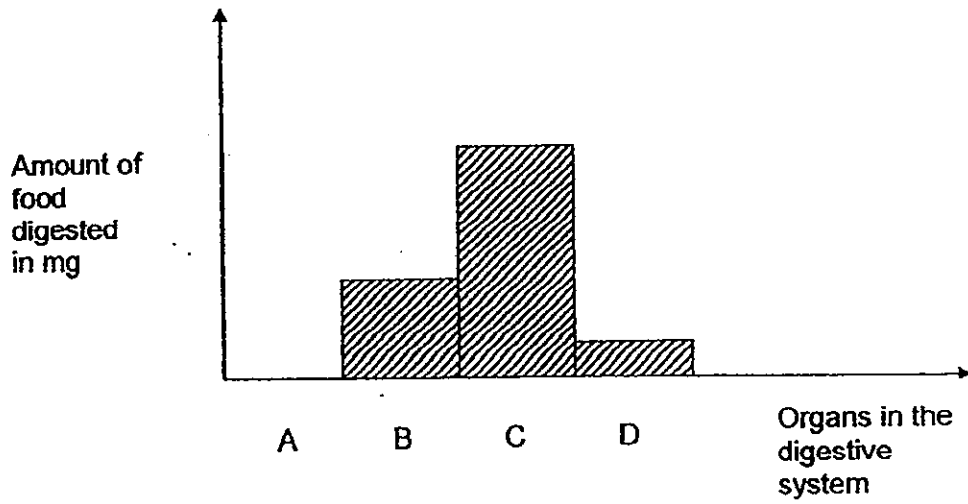
11. Insects X and Y feed on the nectar produced by the flowers of a certain plant while Insect Y also feeds on the fruits of this plant. The diagram below shows the life cycle of this plant.



At which stage (A, B, C or D) is there likely to be an increase in the number of Insect X and Insect Y visiting this plant?

	Stage at which there is an increase in the number of Insect X	Stage at which there is an increase in the number of Insect Y
(1)	C	D
(2)	B	D
(3)	B	A
(4)	D	D

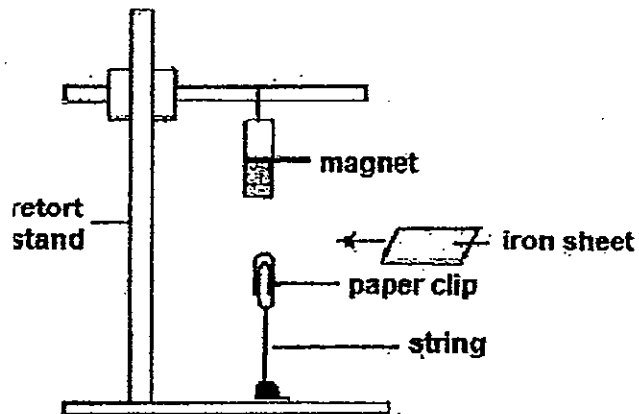
12. The graph below shows the amount of food digested by a human body. A, B, C and D are different organs in the digestive system.



Identify organs A, B, C and D.

	A	B	C	D
(1)	Stomach	Mouth	Small intestine	Large intestine
(2)	Mouth	Large intestine	Small intestine	Stomach
(3)	Large intestine	Stomach	Small intestine	Mouth
(4)	Small intestine	Large intestine	Mouth	Stomach

13. Study the experimental set-up shown below.



What will happen to the paper clip if James places an iron sheet between the magnet and the paper clip?

- (1) The paper clip will drop as magnetism cannot pass through the iron sheet.
- (2) The paper clip will remain suspended as magnetism can pass through the iron sheet.
- (3) The paper clip will drop as magnetic force is weak and is not able to overcome the pull of gravity.
- (4) The paper clip will remain suspended as magnetic force is strong and is able to overcome the pull of gravity.

14. Khin Khin observed 3 substances, X, Y and Z. She recorded her findings in the table below.

Substance	Takes up space	Can be seen	Fixed Shape	Fixed Volume
X	✓	X	X	X
Y	✓	✓	✓	✓
Z	✓	✓	X	✓

From her observations, what could substances X, Y and Z be ?

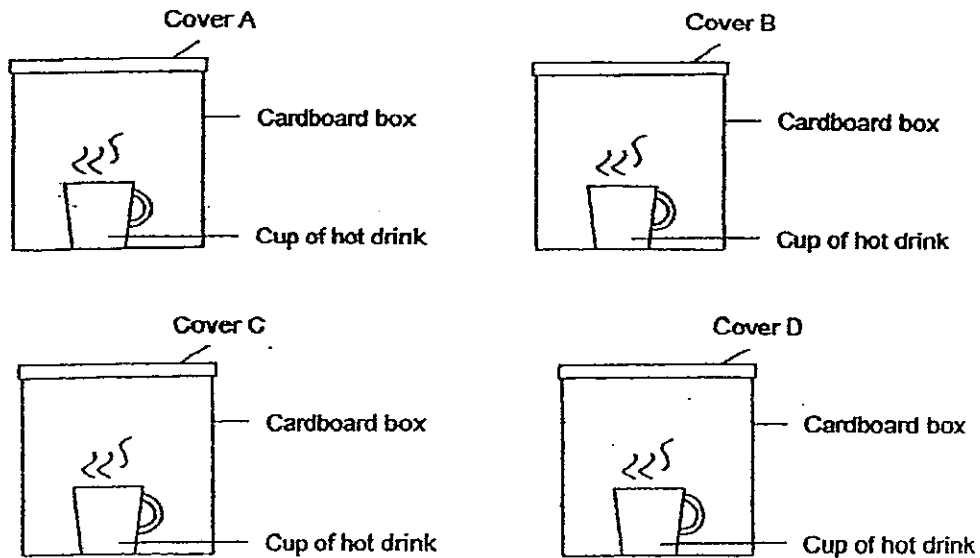
	Substance X	Substance Y	Substance Z
(1)	Carbon dioxide	Honey	Plasticine
(2)	Nitrogen	Ice	Fruit Juice
(3)	Water vapour	Ink	Stone
(4)	Plasticine	Sponge	Steam

15. Zahir wants to find out how temperature affects the rate of evaporation of water. In planning a fair test, which two set-ups should he use?

Set-up	Thickness of the face towel	Exposed surface area of the towel	Where the towel is placed	Colour of the face towel
A	3 mm	100 cm ²	Near the windows	Pink
B	4 mm	120 cm ²	Near the windows	Blue
C	3 mm	100 cm ²	Near the windows	Pink
D	4 mm	120 cm ²	Away from the windows	Blue

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

16. Four cups of hot drink of the same temperature are placed inside four identical boxes made of cardboard as shown in the diagrams below. Covers made of four different materials (A, B, C and D) are used to cover the boxes.



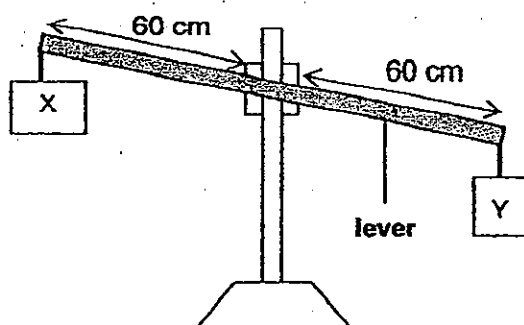
The time taken for the hot drink to reach room temperature at 30°C is recorded in the table below.

Materials	Time taken to reach room temperature (min)
A	52
B	43
C	31
D	20

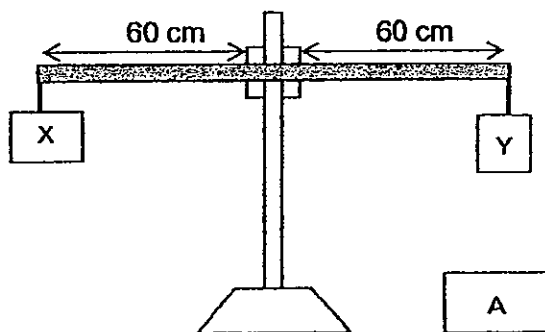
Which material would you choose to make a container so that it can keep ice cream frozen for a longer time?

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

17. Joy placed objects X and Y on both ends of a lever. The lever slanted to one end as shown below.



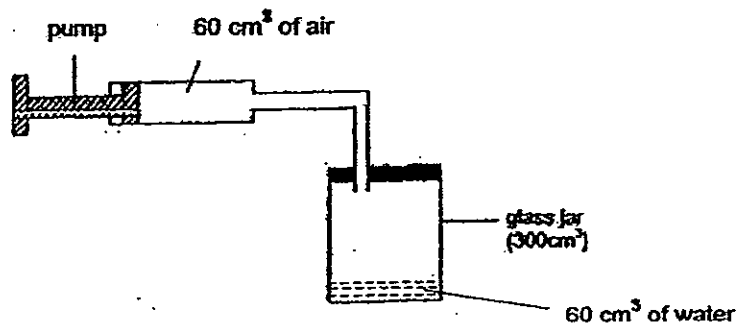
Next, Joy placed object A directly below object Y and observed that the lever balanced as shown in the diagram below.



Which one of the following best explains Joy's observation?

- (1) Object Y was lighter than object X.
- (2) Objects A, X and Y were magnets.
- (3) Objects X and Y were of the same mass.
- (4) Objects A and Y were magnets with like poles facing each other.

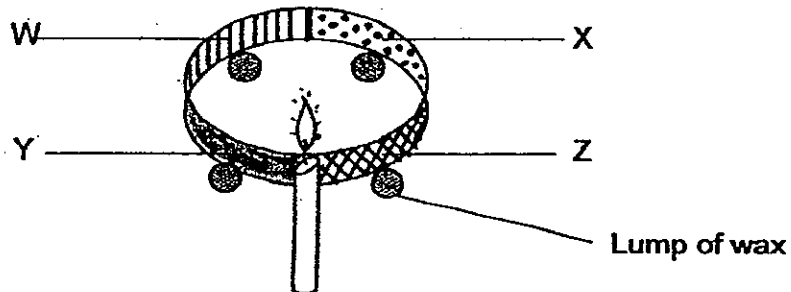
18. Min connected a pump to a glass jar with a capacity of 300 cm^3 .



When Min pushed the pump in completely, 60 cm^3 of air is forced into the glass jar. Which of the following correctly shows the volume of air in the glass jar after two pumps?

	Volume of air
(1)	120 cm^3
(2)	240 cm^3
(3)	300 cm^3
(4)	360 cm^3

19. Angeline placed a lighted candle in the middle of a ring. The ring is made up of four parts, which are made of different materials, W, X, Y and Z. She placed a lump of wax in the middle of each part, as indicated in the diagram below.



She wanted to find out which material would cause the lump of wax to fall off within the shortest time. The table below shows her findings.

Materials	Time taken for wax to fall off (minutes)
W	16
X	5
Y	11
Z	3

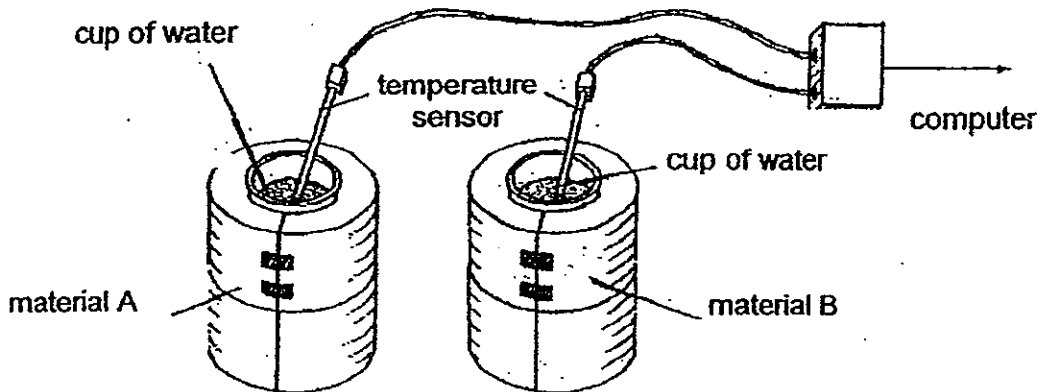
She wrote four statements to conclude the findings of her investigation.

- A Material W is the best conductor of heat.
- B Material W is a better conductor of heat than Material Y.
- C Materials X and Z could be used to make the base of a cooking pot.
- D Materials W and Y could be used to make handles of a cooking pot.

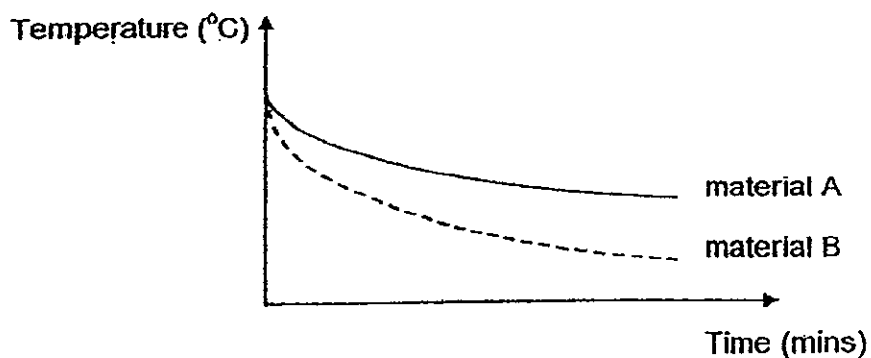
Which statement(s) above is/are true?

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

20. Eunice conducted an investigation to find out whether material A or B was a poorer conductor of heat. She wrapped two identical cups, filled with the same amount of water at the same temperature, with the two materials.



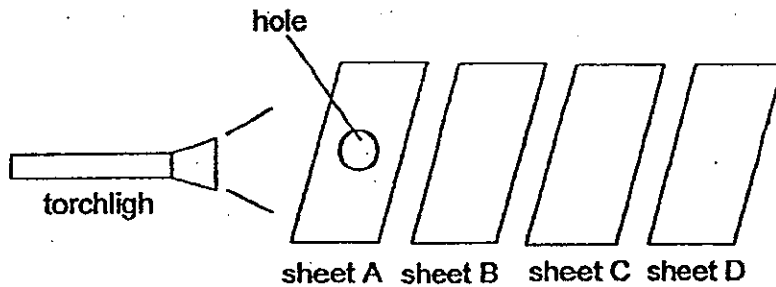
She used temperature sensors to determine which cup of water cools down to room temperature in a shorter period of time. The results are as shown in the graph below.



Which material(s) would you choose to keep hot tea warm and a cold drink cool for the longest time?

	To keep hot tea warm	To keep a cold drink cool
(1)	Material A	Material B
(2)	Material B	Material A
(3)	Material A	Material A
(4)	Material B	Material B

21. Ali carried out an experiment in a dark room as shown below. He placed four sheets (A, B, C and D) neatly in a straight line. Sheet A has a hole in it.

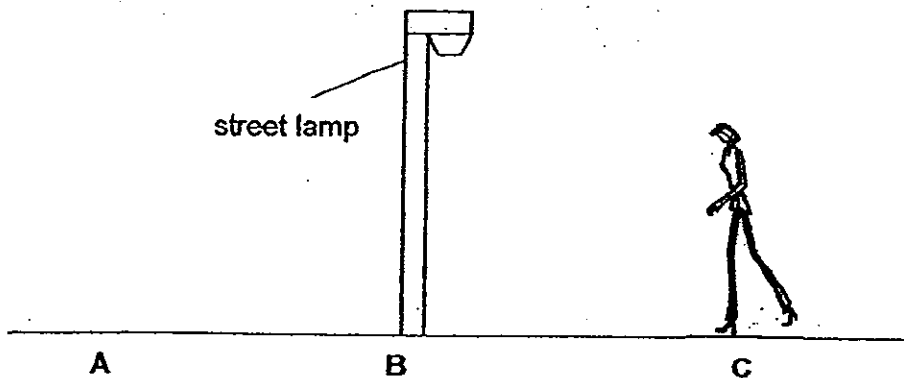


When the torch was switched on, a bright and clear circular patch of light was seen only on sheet C.

Which one of the following shows a possible arrangement of the sheets?

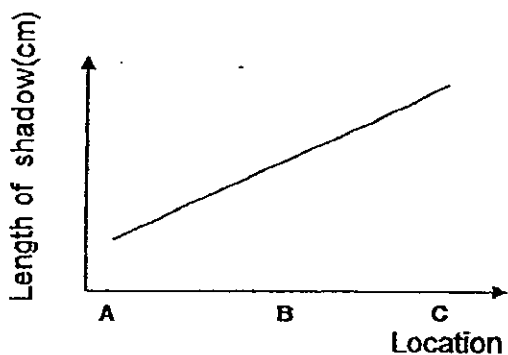
	A	B	C	D
(1)	Copper sheet	Tracing paper	Clear plastic	Cardboard
(2)	Cardboard	Clear plastic	Copper sheet	Clear glass
(3)	Clear glass	Cardboard	Tracing paper	Copper sheet
(4)	Tracing paper	Copper sheet	Cardboard	Clear plastic

22. Maggie was walking home one night along a street. She noticed that the length of her shadow changed as she walked towards and away from the street lamp.

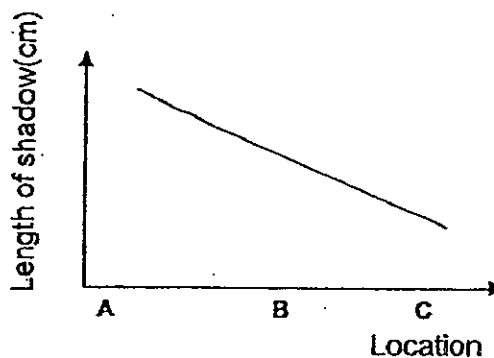


Which one of the following graphs shows the correct length of her shadow as Maggie walked from Point C to Point A?

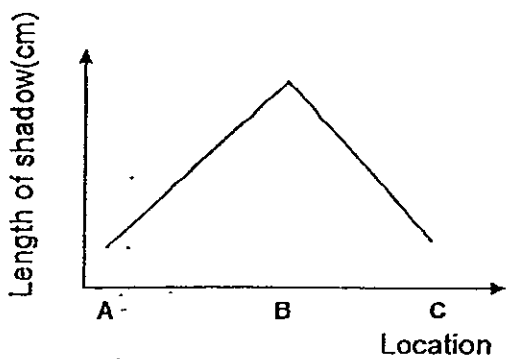
(1)



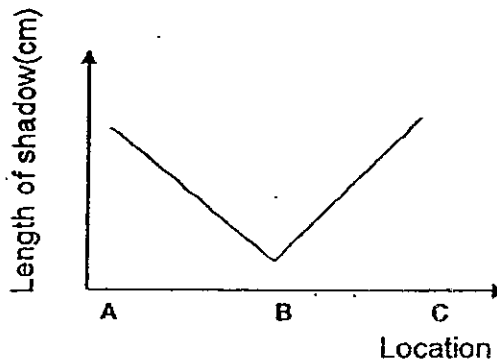
(2)



(3)



(4)

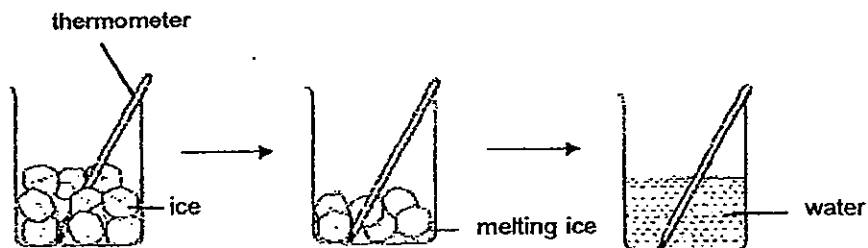


23. The table below shows the freezing point of three substances, P, Q and R.

Substance	Freezing Point (°C)
P	6
Q	31
R	122

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

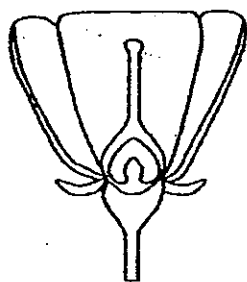
- (1) P is a solid at 4°C.
 - (2) P and Q are both liquids at 25°C.
 - (3) Q and R are both gases at 140°C.
 - (4) R can be a liquid or a gas at 122°C.
24. Kenneth put some ice in a beaker. He then placed a thermometer in the beaker until all the ice had completely melted as shown in the diagram below. The temperature recorded by the thermometer at the beginning of the experiment was X. When about half of the amount of ice had melted, the temperature was Y. Fifteen minutes after all the ice had melted, the temperature recorded was Z.



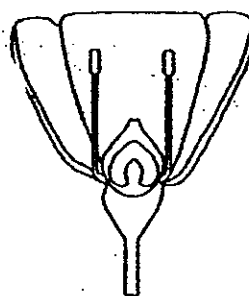
Which of the following correctly describes the relationship among X, Y and Z?

- (1) X is lower than Y and Y is lower than Z.
- (2) X, Y and Z are of the same temperature.
- (3) X is higher than Y and Y is higher than Z.
- (4) X and Y are of the same temperature but Z is higher than X and Y.

25. Study the diagrams as shown below.



flower A

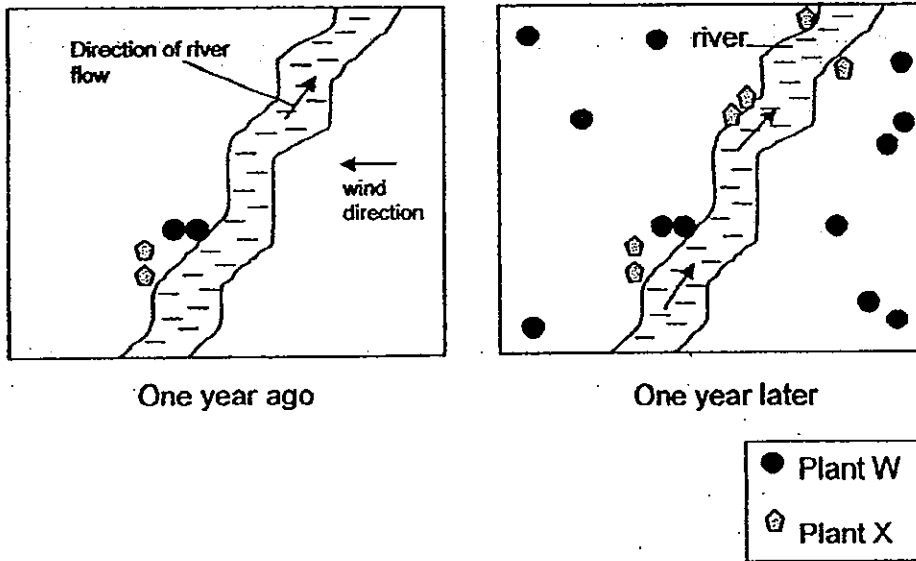


flower B

Which one of the following statements correctly explains how pollination can take place between flowers A and B?

- (1) The pollen grains from the stigma of flower A are carried by insects and transferred to the anther of flower B.
- (2) The pollen grains from the anther of flower B are carried by insects and transferred to the stigma of flower A.
- (3) The pollen grains from the stigma of flower B are carried by wind and transferred to the anther of flower A.
- (4) The pollen grains from the anther of flower A are carried by wind and transferred to the stigma of flower B.

26. The following pictures were taken at a river bank within a span of one year.



Based on the above diagrams, which of the following shows the possible characteristics of the fruits of Plants W and X?

	W	X
(1)	wing-like structure	stiff hairs
(2)	brightly coloured and juicy	fibrous husk
(3)	fibrous husk	small and light
(4)	hooks	wing-like structure

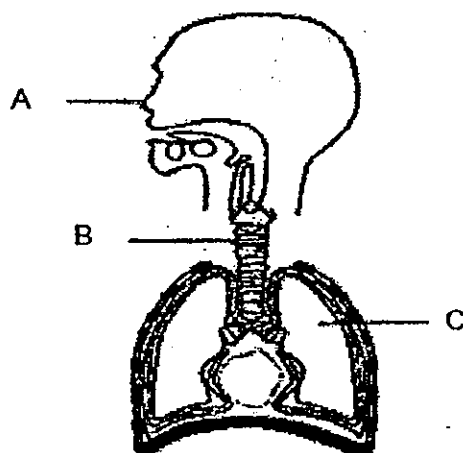
27. Fred set up the following experiment to find out more about the function of stomata. He used oil to paint the entire surface of leaf M and the top surface of leaf N but did not do anything to leaf O. He wrapped each leaf with a clear plastic bag. He placed the set up in the science laboratory.



What would he observe after three hours?

	Leaf M	Leaf N	Leaf O
(1)	Water droplets found on the inside of the plastic bag.	The leaf withered.	The leaf withered.
(2)	The leaf withered.	The leaf withered.	Water droplets found on the inside of the plastic bag.
(3)	Water droplets found on the inside of the plastic bag.	The leaf withered.	Water droplets found on the inside of the plastic bag.
(4)	The leaf withered.	Water droplets found on the inside of the plastic bag.	Water droplets found on the inside of the plastic bag.

28. The diagram below shows parts of the human respiratory system.



Four pupils commented on the diagram.

Abby : Part A allows air to enter and leave the body system.

Brian : There is more water vapour in the air entering Part A compared to the air leaving it.

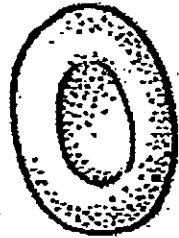
Carina: Part B is the main pipe that air enters and leaves.

Daniel: Part C contains tiny air sacs surrounded by many tiny blood vessels.

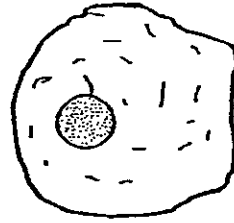
Who made the correct statements?

- (1) Abby and Brian only
- (2) Brian and Carina only
- (3) Abby, Brian and Carina only
- (4) Abby, Carina and Daniel only

29. Bala was examining a cheek cell and a red blood cell under a microscope as shown below. He noticed that the two cells looked different.



Red Blood Cell

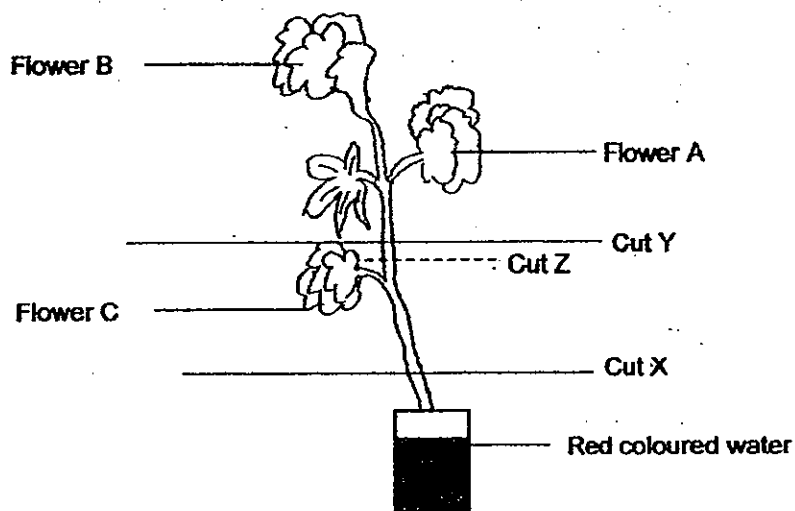


Cheek Cell

Which one of the following statements about the above two cells is false?

- (1) Both red blood cell and cheek cell have cytoplasm.
- (2) Red blood cell has no nucleus but cheek cell has.
- (3) Both red blood cell and cheek cell have cell membrane.
- (4) Red blood cell has a cell wall but cheek cell does not have.

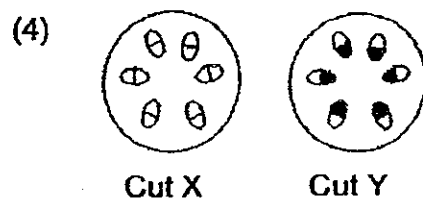
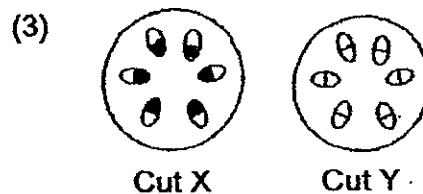
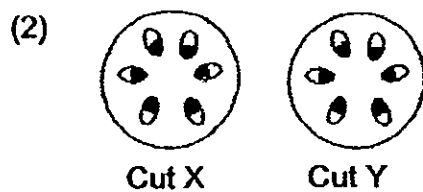
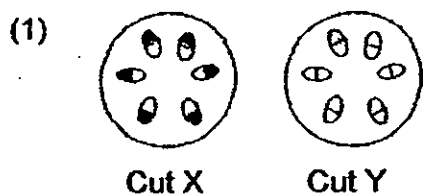
30. Kate set up the experiment shown below. She cut out a deep ring of stem at Z before she placed the stem into some red-coloured water for thirty minutes.



She observed that Flower C turned red while Flowers A and B remained white.

She made a cut at X as well as at Y to look at the cross sections of the stem.

What would the cross sections of the stem in cut X and Y look like?

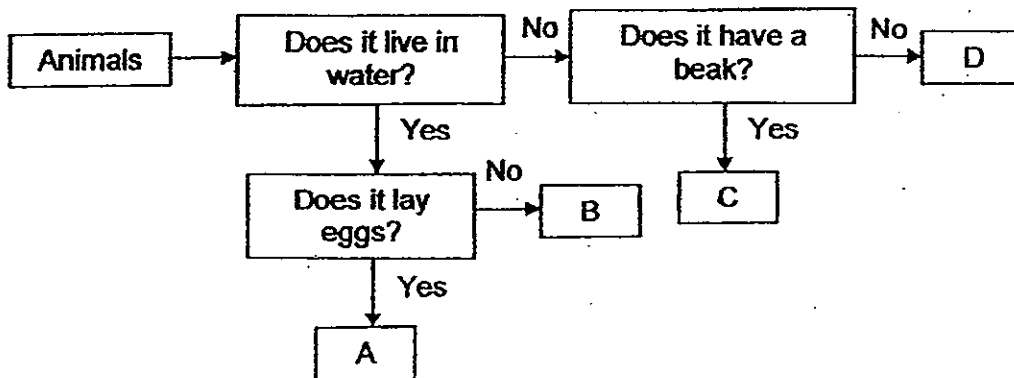


Name: _____ ()
 Class P5 ()

Section B (40 marks)

For question 31 to 44, read the questions carefully and write your answers in the spaces provided.

31. Study the flowchart below.



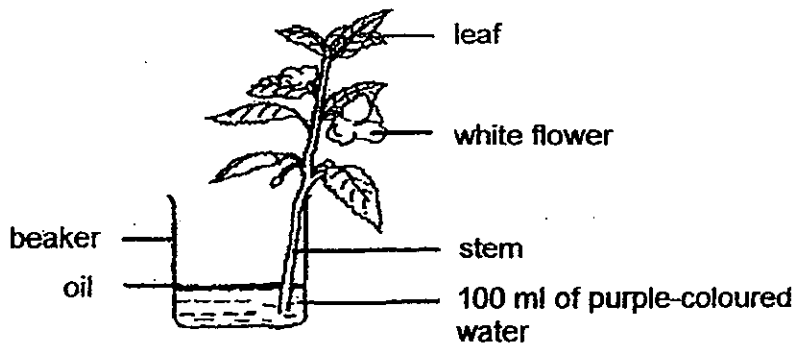
(a) Based only on the information given in the flowchart, what is/are the characteristic(s) of Animal A? [1]

(b) Identify the letters in the flowchart that represent each of the following animals. [2]

Animal	Letter
Deer	
Dolphin	
Goldfish	
Ostrich	

Score	3
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32. Devi set up an experiment where she placed a plant in a beaker which was filled with 100 ml of purple-coloured water. She poured a layer of oil on the surface of the purple-coloured water. She left the set-up in the classroom overnight.

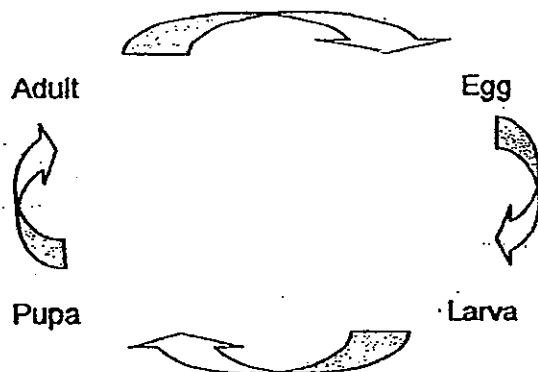


- (a) What would Devi observe of the white flower the next day? [1]

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

Score	2
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33. The diagram below shows the stages in the life cycle of animal X.

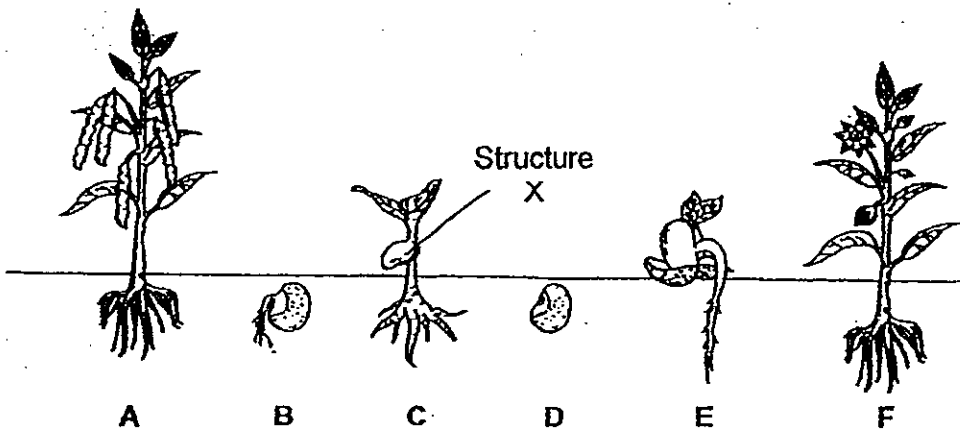


(a) Name an animal which has a similar life cycle as animal X. [1]

(b) At which stage does animal X go through moulting? [1]

Score	/
	2

34. The diagram below shows the different stages of a bean plant's life cycle.



(a) Arrange the letters in the boxes below to depict the life cycle of a bean plant from a seed to an adult plant. [2]

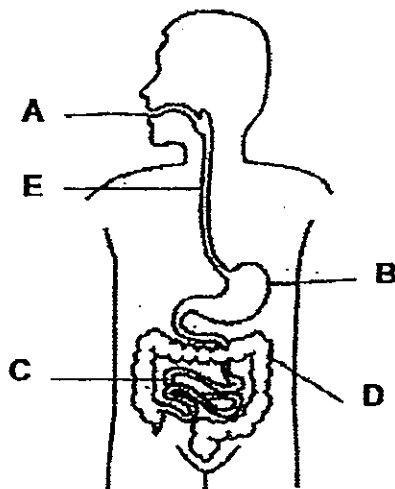


(b) Name the part labelled X. What is its function? [1]

(c) Tom mentioned that the bean plant must be placed in the sunlight the moment the seed is planted in order for it to germinate. His teacher said that it is not true. [1]

State the reason why it is not true.

35. The diagram shows a human digestive system.



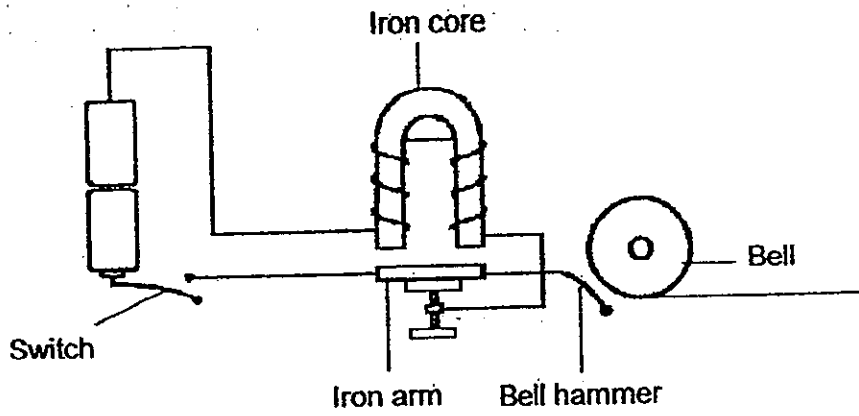
(a) Name the part(s) (A, B, C, D or E) of the human digestive system where digestion is completed. [1]

(b) Name the part(s) (A, B, C, D or E) where digestion does not take place. [1]

(c) Name the body part in the human digestive system that is similar to the plant transport system. Explain your answer. [2]

Score	4
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36. The diagram below shows a door bell system.



What happens when the switch is turned on? Explain your answer.

[2]

Score	2
-------	---

37. Look at the diagrams below.

Diagram A shows the water level in a displacement can.

Diagram A also shows the water level in the displacement can when a piece of plasticine is dropped into it. The beaker shows the amount of water that flows out from the displacement can after the plasticine is dropped into it.

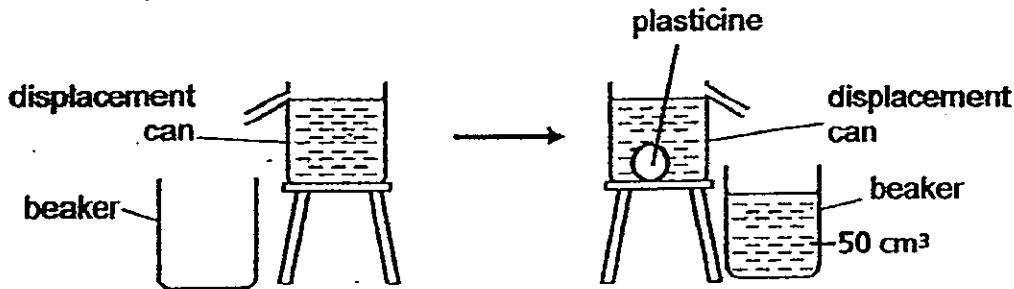
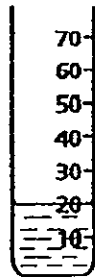


Diagram A

The plasticine was then removed and cut into two halves.

The two halves were then dropped into a measuring cylinder containing 20ml of water.



Draw the correct water level in Diagram B below when the two halves were dropped into it. [1]

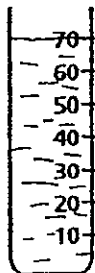
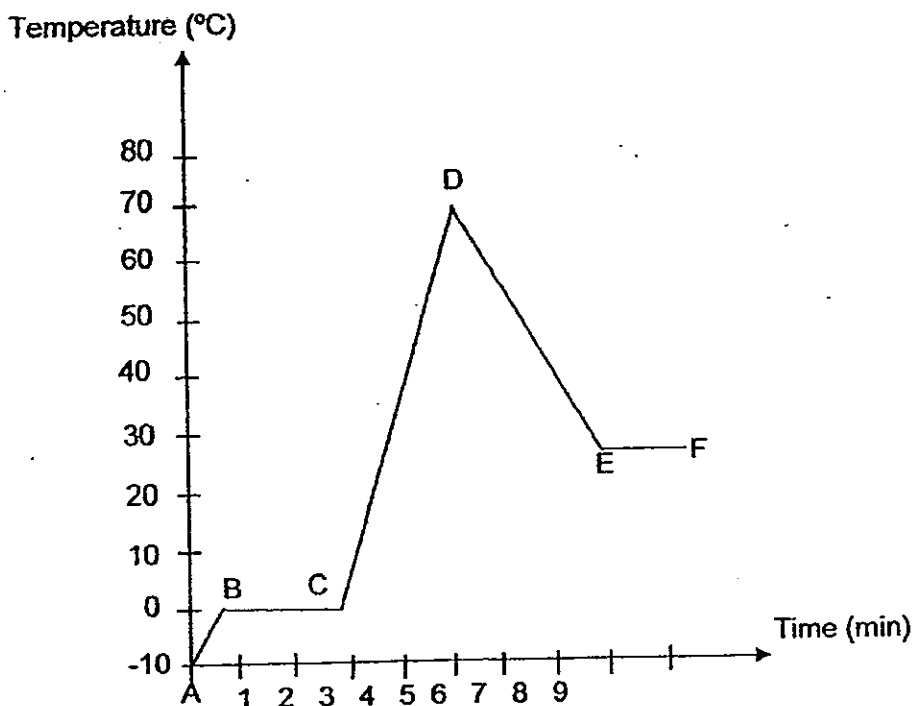


Diagram B

Score	1
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38. Amelia took some ice cubes from the freezer and put them in a beaker. She heated the ice cubes. After a while, the beaker was left to cool down in a room. The room temperature is 30 °C. She plotted a graph to show the changes in the temperature of the content in the beaker over time.



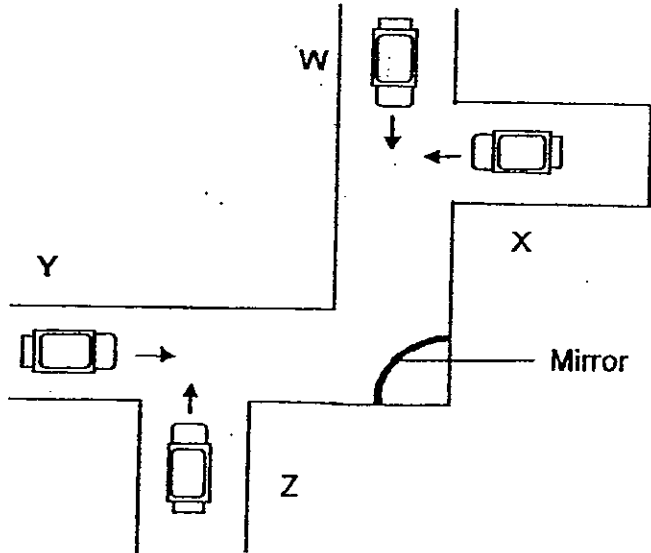
- (a) Which part of the graph, AB, BC, CD or DE shows the melting of ice ? [1]

- (b) Which part of the graph, AB, BC, CD or DE shows the cooling of hot water to room temperature ? [1]

- (c) What was the maximum temperature reached by the water during the experiment ? [1]

- (d) Why was the temperature constant from E to F? [1]

39. The diagram below shows four cars, W, X, Y and Z. They are travelling in the directions shown by the arrows.



(a) Which two drivers can see each other in the mirror? [1]

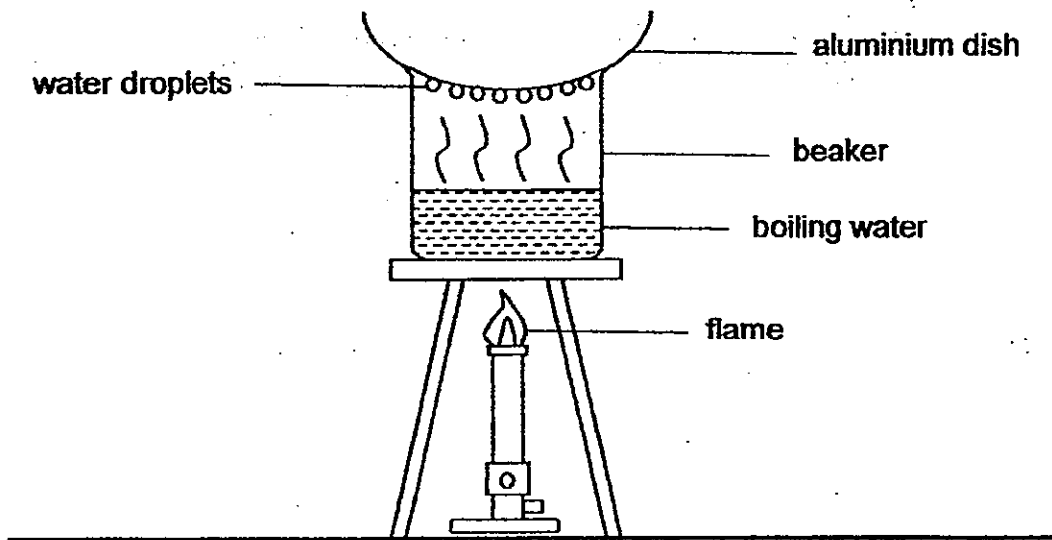
(b) State two properties of light shown in the situation shown above. [2]

Property 1: _____

Property 2: _____

Score	3
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40. The diagram shows a set-up that represents the water cycle.

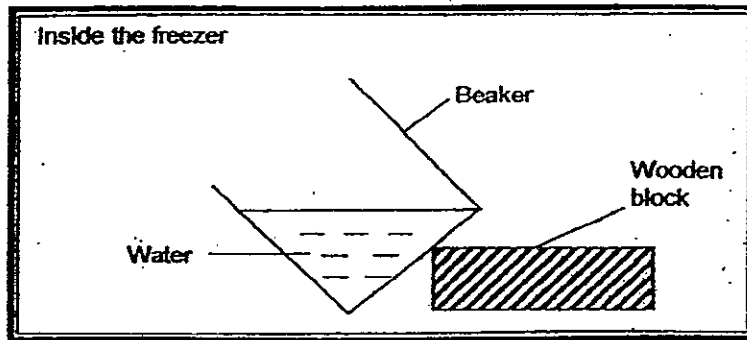


(a) Explain how the water droplets are formed on the aluminium dish. [2]

(b) What can be done to the set-up to increase the amount of water droplets formed? Explain how this change increases the amount of water droplets formed. [2]

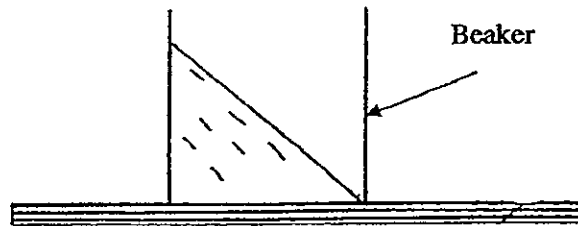
Score	4
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41. A beaker of water was left in a freezer (-5°C) as shown in the diagram below.



After 4 hours, the beaker was taken out from the freezer and left on a table.

- (a) Draw in the diagram below what you would observe about the water level in the beaker immediately after it is removed from the freezer and placed on the table. [1]

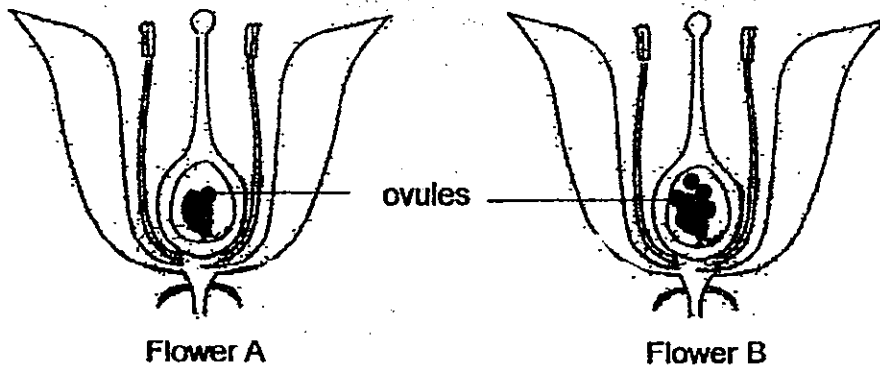


On the table

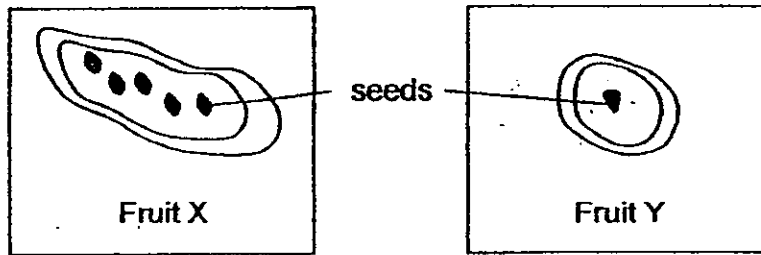
- (b) From the experiment, list one change that has taken place to the water while it was in the freezer. [1]

Score	2
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42. Jenny collected two flowers that looked similar but actually come from different plants.



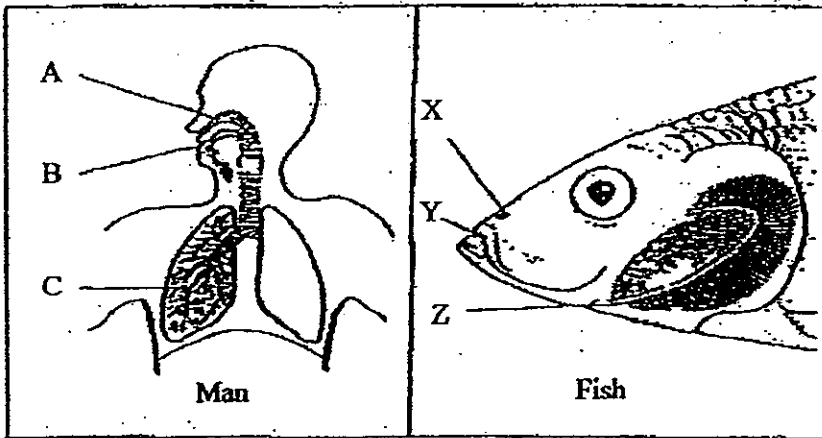
The flowers turned into two different types of fruit as shown below.



(a) Which flower would belong to X? [1]

(b) Give a reason for your answer in (a). [2]

43. The diagram below shows the respiratory systems of man and fish



- (a) Parts A, B and C and parts X, Y and Z work together to enable respiration to take place in man and fish respectively. [2]

State the part in which the exchange of gases takes place in each of the following organisms.

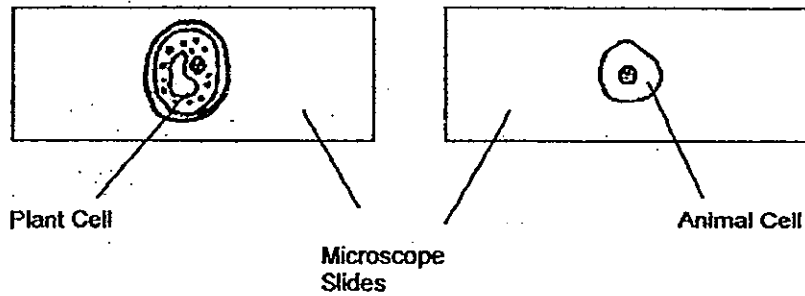
Man (A, B or C) : _____

Fish (X, Y or Z) : _____

- (b) Explain how exchange of gases takes place in a fish. [2]

Score	4
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44. Kianna carried out an investigation with a plant cell and an animal cell. She mounted the animal cell and the plant cell onto two separate microscope slides and added ten drops of water to each of the slides. Then she observed them under a powerful microscope.



- (a) Kianna observed that the animal cell burst but not the plant cell. [1]
What would be a possible explanation for this?

- (b) What do you think is the aim of the experiment? [1]

End of Booklet B

Score	2
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ANSWER SHEET

EXAM PAPER 2012

SCHOOL : AITONG
SUBJECT : PRIMARY 5 SCIENCE

TERM : SA1

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

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

31)a)Animal A lives in water and lays eggs.
b)D, B, A, C

32)a)It would turn into a purple flower.
b)The stem of the plant took in purple-coloured water and transported it all around the plant so the flower will appear purple in colour.

33)a)A Mealworm.
b)The Larva stage.

34)a)D→B→E→C→F→A
b)It is the seed leaf and it provides the seedling food before it develops leaves that contain chlorophyll.
c)The seed only needs air, water and warmth to germinate.

35)a)Part C.
b)Parts E and D.
c)The gullet. It is similar to the food-carrying tubes in a plant as both of them carry food and does not digested food.

36) When the switch is turned on, electricity flows through the circuit. The iron core becomes an electromagnet and attracts the iron arm. The bell hammer will hit the bell and the door bell rings.

37)

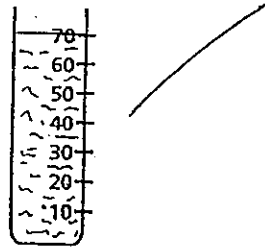


Diagram B

38)a) B C

b) D E

c) 70°C

d) There was no more heat transfer between the water and the surroundings.

39)a) Drivers Y and Z.

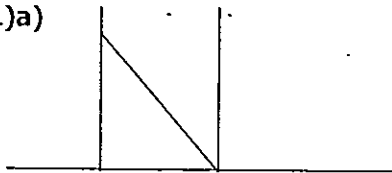
b) 1) Light travels in a straight line.

2) Light can be reflected.

40)a) The steam from the boiling water that evaporated condensed on the cool surface of the aluminium and formed tiny water droplets.

b) Place ice-cubes on the aluminium dish. It makes the aluminium dish colder and therefore more steam will lose heat and condense on it, increasing the amount of water droplets formed.

41)a)



b) The water had changed its state from a liquid to a solid.

42)a) Flower B.

b) Flower B contains more ovules which will develop into seeds of Fruit X.

43)a)Man: C
Fish: Z

b)Water containing dissolved oxygen enters the mouth of the fish. When the fish closes its mouth, the water is forced out through the gills. The gills trap the oxygen which passes into the blood vessels and the water carries away the dissolved carbon dioxide.

44)a)The plant has a cell wall which helps to maintain the shape of the cell.
b)To find out the effect of water on plant and animal cell.

