FIRST SEMESTRAL ASSESSMENT 2016

PRIMARY 6

Duration of Paper: 1 h 45 min

100

Name: _____

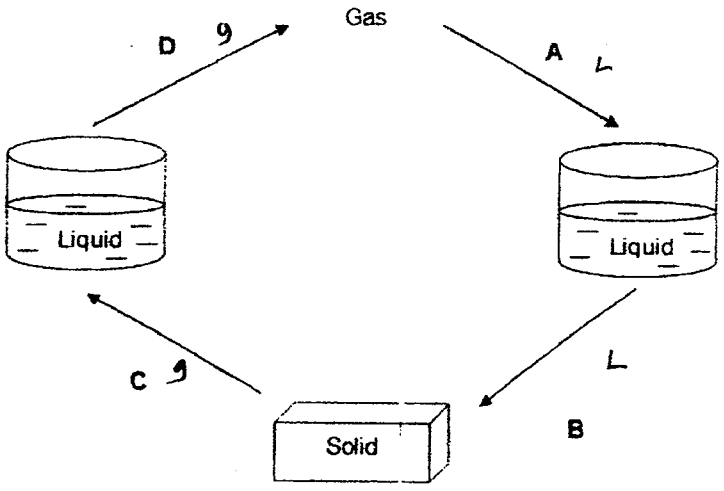
Parent's Signature: _____

Class: Primary 6

Part A: Multiple-Choice Questions (30 X 2 = 60 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 diagram below shows the three states of a substance.



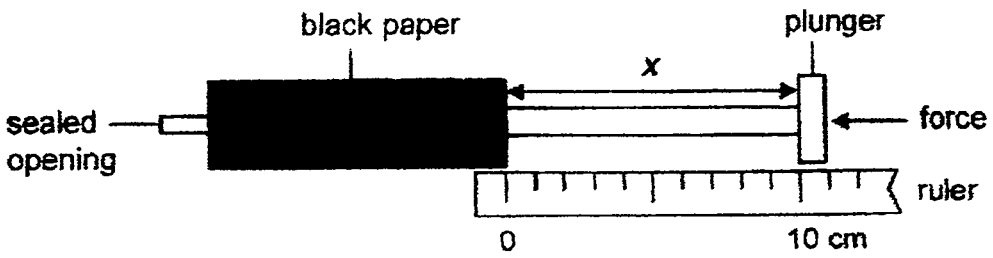
Arrows A, B, C and D represent whether heat is 'lost' or 'gained' by the substance during each change of state.

Which one of the following best represents the four arrows, A, B, C and D as shown in the diagram above?

	A	B	C	D
(1)	heat lost	heat gained	heat gained	heat lost
(2)	heat lost	heat lost	heat gained	heat gained
(3)	heat gained	heat gained	heat lost	heat lost
(4)	heat gained	heat lost	heat lost	heat gained

( )

2. Simon completely filled two identical syringes, one with air while the other with water, and covered them with black paper as shown in the diagram below.

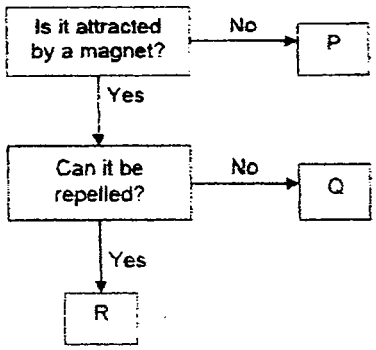


He then pushed each plunger as hard as he could and measured the distance, ***x***. Which one of the following shows the correct values of ***x***?

	Syringe with water x (cm)	Syringe with air x (cm)
(1)	10	0
(2)	0	10
(3)	10	7
(4)	7	10

( )

3. Study the diagram below.



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

A: P is a magnet.
B: Q can be magnetised.
C: R can attract iron nails.
D: P and Q are non-magnetic.

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

( )

4. The table below shows the state of four different substances, A, B, C and D, at different temperatures.

Substance	State of substance at 20°C	State of substance at 50°C	State of substance at 90°C
A	Liquid	Gaseous	Gaseous
B	Solid	Solid	Liquid
C	Liquid	Liquid	Gaseous
D	Solid	Liquid	Liquid

Which substance has the highest melting point?

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

( )

5. Study the properties of A and B below that represents two states of water.

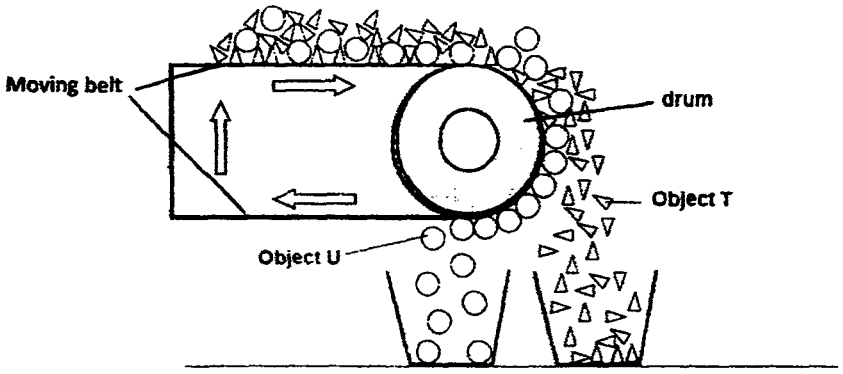
A	B
Has no definite shape and volume	Has no definite shape but has definite volume

What process takes place when A changes into B?

(1) Boiling
(2) Melting
(3) Evaporation
(4) Condensation

( )

6. The diagram below shows a way to separate magnetic metals from non-magnetic metals. Mr Tan poured objects T and U on the moving belt. The arrows show how the belt moves.



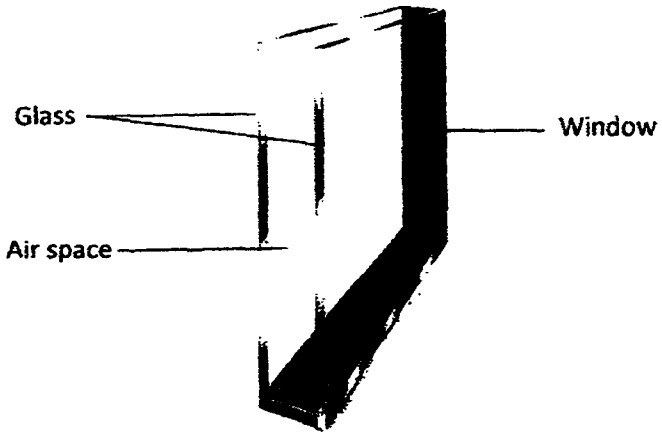
Based on the above diagram, which of the following are correct?

A: Object U is magnetic, but T is not.
B: Object U is made of nickel while object T is made of copper.
C: The moving belt is a strong magnet.

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

( )

7. Houses in cold countries often have windows that are constructed using two pieces of glass panes as shown below.

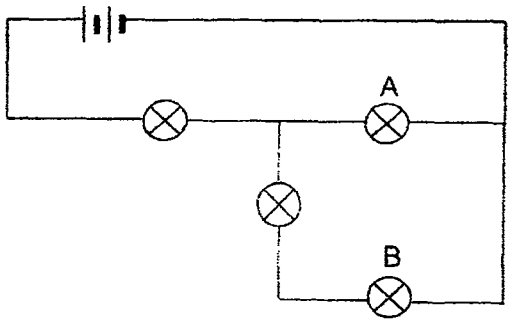


What is the advantage of having such windows in cold countries?

(1) As glass is a good conductor of heat, it quickly conducts heat away from the house.
(2) The air present in the gap allows heat to escape from the house into the surrounding.
(3) The air present in the gap is a poor conductor of heat, so it slows down heat from escaping from the house.
(4) The air present in the gap is a poor conductor of heat and quickly conducts heat away from the house.

( )

8. The diagram below shows an electric circuit with four identical bulbs.

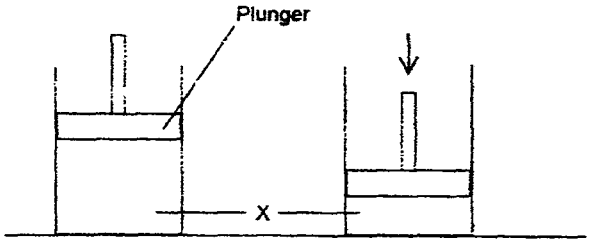


How many bulbs will remain lit in the circuit when bulb A or B is fused?

	Number of bulbs which remain lit when	
	Bulb A is fused	Bulb B is fused
(1)	0	2
(2)	1	3
(3)	2	3
(4)	3	2

( )

9. An air-tight container contains substance X and plunger is pushed down as shown below.



Which of the following statements about substance X are correct when the plunger is pushed down?

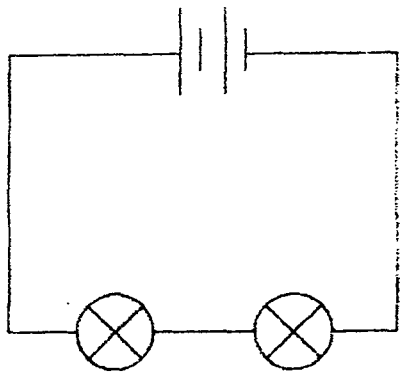
A: Volume of X decreased.
B: Volume of X remains the same.
C: Mass of X decreased.
D: Mass of X remains the same.

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

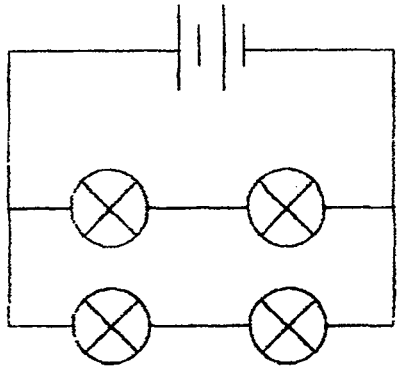
( )

10. Tim used some identical bulbs and some identical batteries in each of the set ups below.

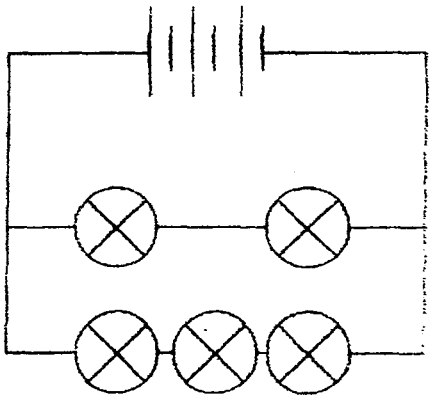
Set up A



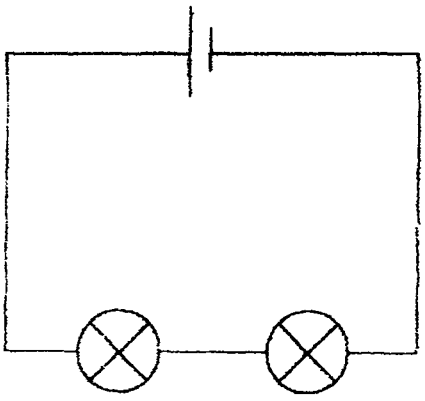
Set up B



Set up C



Set up D

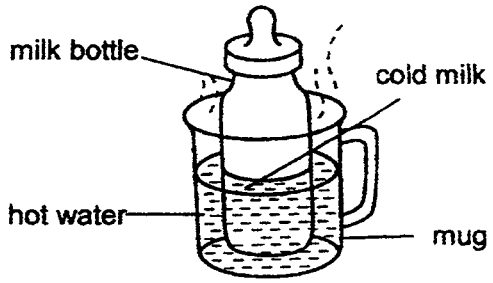


Which of the following set ups will have <u>all</u> the bulbs lighting up with the same brightness?

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

( )

11. Mrs Lim removed a bottle of milk from the refrigerator and placed the bottle in a mug containing hot water as shown below.



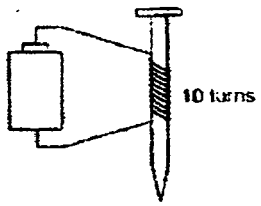
Which of the following statements are correct?

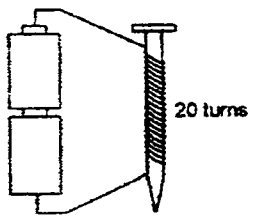
A: The cold milk loses heat to the hot water.
B: The mug gains heat from the hot water.
C: The hot water loses heat to the cold milk:
D: The temperature of the cold milk decreases.

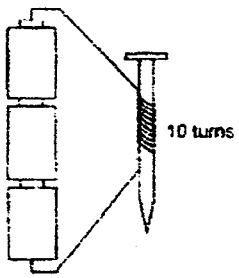
(1) A and B only
(2) A and D only
(3) B and C only
(4) C and D only

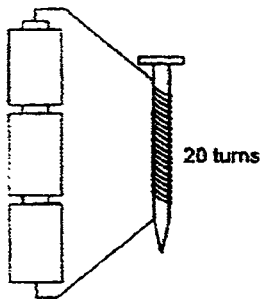
( )

12. Alan wants to find out whether the number of batteries affects the strength of an electromagnet.

A 

B 

C 

D 

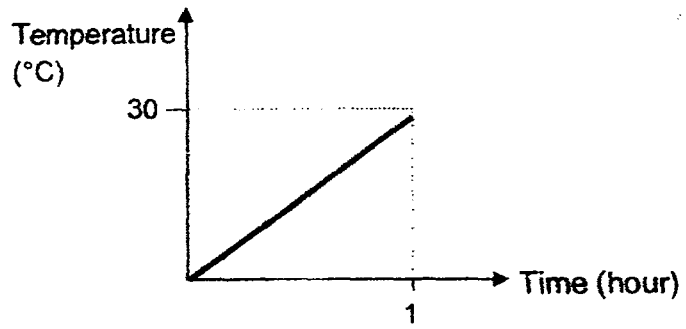
Which two arrangements below should he set up to conduct a fair test?

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

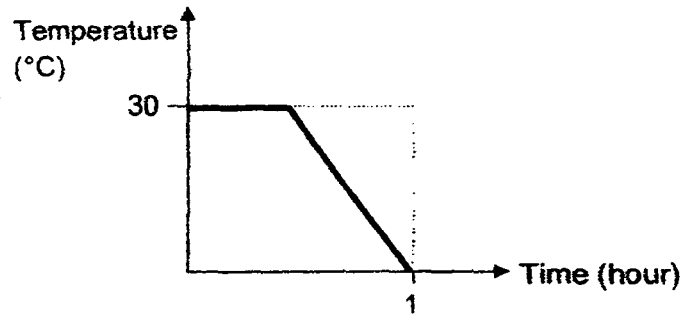
( )

13. Which of the following graphs below shows how the temperature of a block of ice placed at room temperature changes with time correctly?

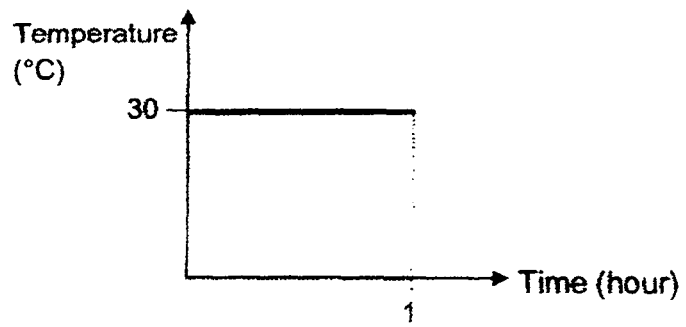
(1)



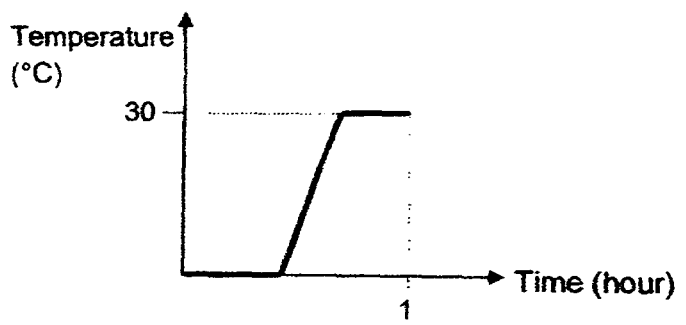
(2)



(3)

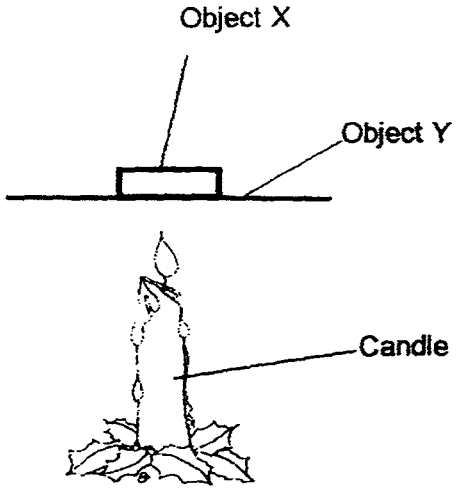


(4)

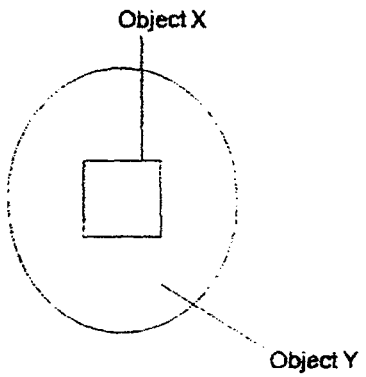


( )

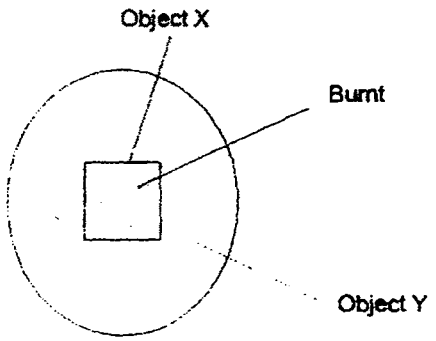
14. Kim placed object X on top of object Y and heated them over a candle flame as shown below.



The diagram below shows the appearance of objects X and Y before and after heating.



Top view of Object X and Object Y before heating



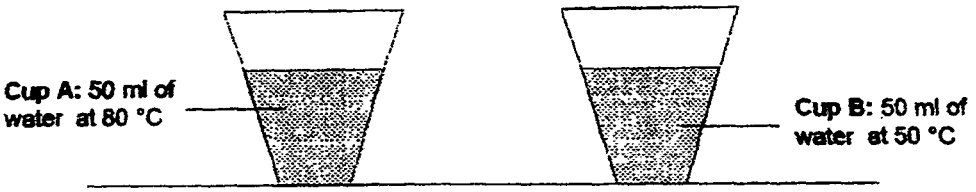
Top view of Object X and Object Y after heating

Only object X was burnt.
Which one of the following **correctly** shows properties of objects X and Y?

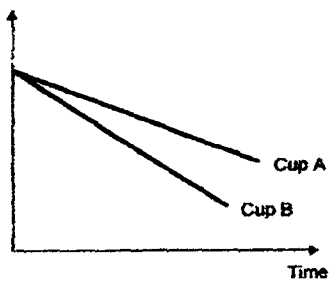
	Object X	Object Y
(1)	Good conductor of heat	Poor conductor of heat
(2)	Good conductor of heat	Good conductor of heat
(3)	Poor conductor of heat	Good conductor of heat
(4)	Poor conductor of heat	Poor conductor of heat

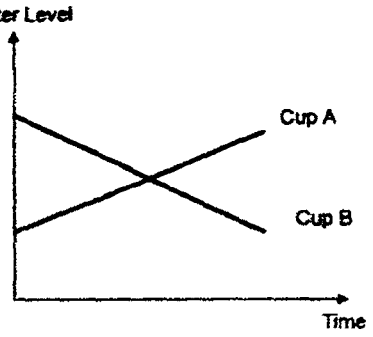
( )

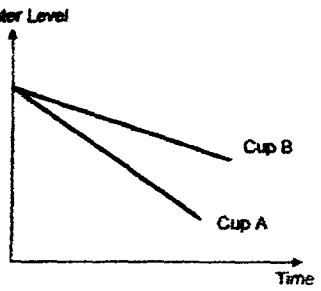
15. Bryan wanted to find out if water at different temperatures would evaporate at different rates. He set up the experiment as shown below and put them at the **same** place. He recorded the water level for both cups at regular intervals.

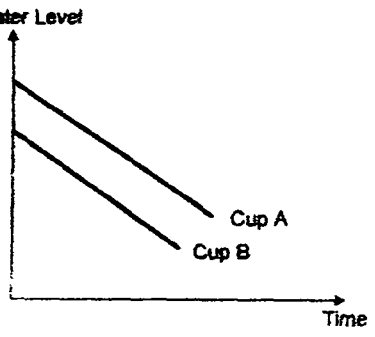


Which one of the following graphs **correctly** shows the change in water levels for both cups after ten minutes?

(1)


(2)


(3)


(4)


( )

16. Which of the following shows the correct order of processes observed in the reproduction and growth of flowering plants?

(1) Fertilization → Germination → Pollination → Seed dispersal
(2) Germination → Seed dispersal → Fertilization → Pollination
(3) Pollination → Fertilization → Seed dispersal → Germination
(4) Seed dispersal → Pollination → Germination → Fertilization

( )

17. The table below shows some of the physical characteristics of Jack and his parents.

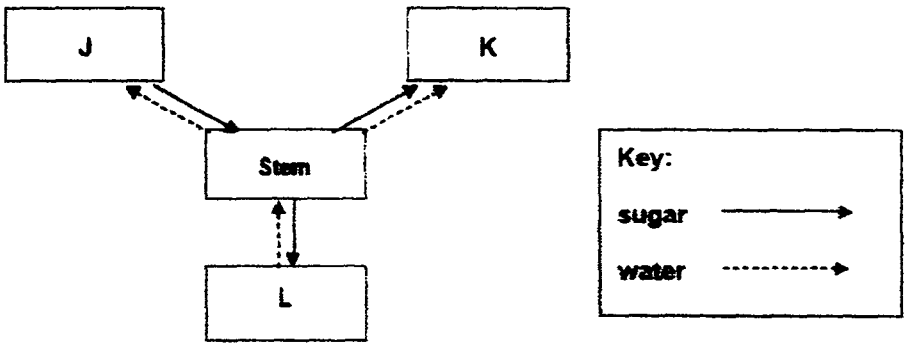
	Physical Characteristics		
	Eyes	**Eyelids**	**Earlobes**
Jack Lee	brown	single	detached
Mr Lee	brown	double	attached
Mrs Lee	grey	single	attached

Which one of the following statements is correct?

(1) He inherited all the characteristics from his father.
(2) He inherited one characteristic from his father and two from his mother.
(3) He inherited one characteristic from his father and one from his mother.
(4) He inherited two characteristics from his father and one from his mother.

( )

18. Brandon drew the diagram below to show how sugar and water are transported to and from different parts of the plant represented by J, K and L.

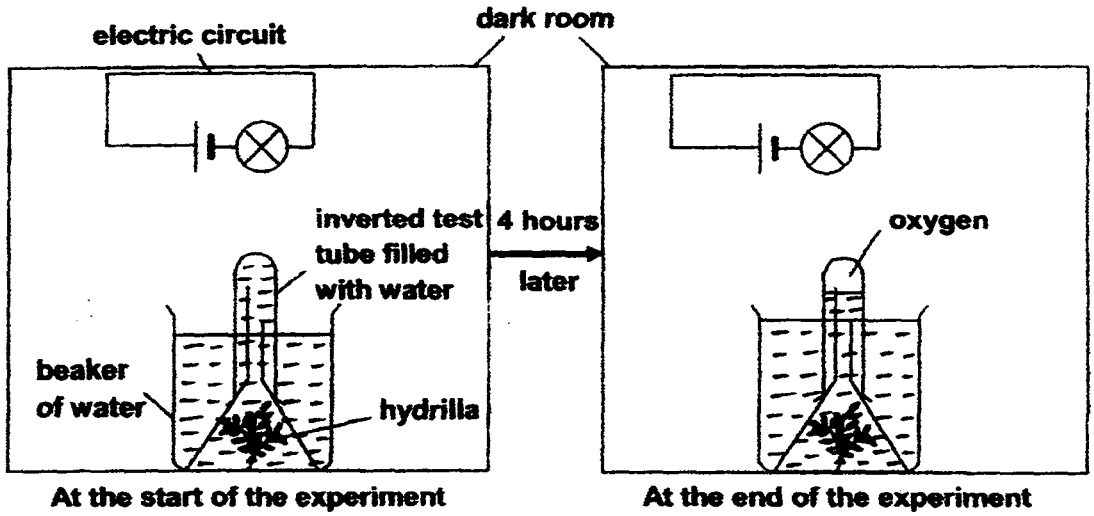


Which of the following parts of the plant are best represented by J, K and L?

	J	K	L
(1)	fruits	leaves	roots
(2)	leaves	roots	fruits
(3)	roots	leaves	fruits
(4)	leaves	fruits	roots

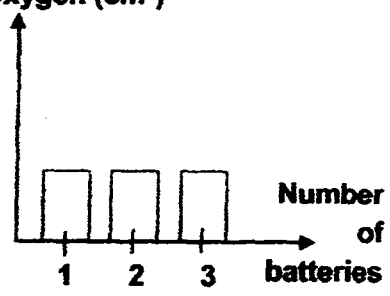
( )

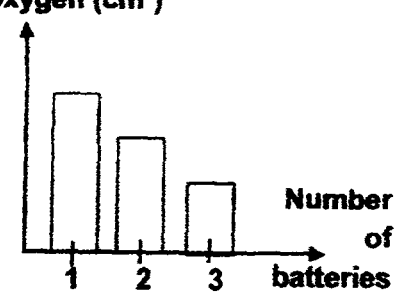
19. Alexander carried out an experiment in a dark room as shown in the diagram below. He first exposed a stalk of hydrilla to a lit light bulb connected to 1 battery. After 4 hours, he measured the volume of oxygen collected in the test-tube.

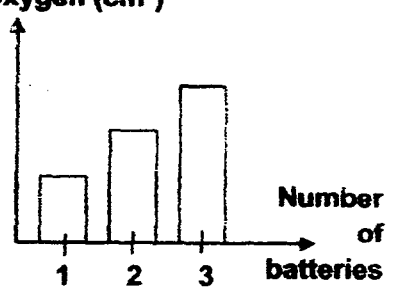


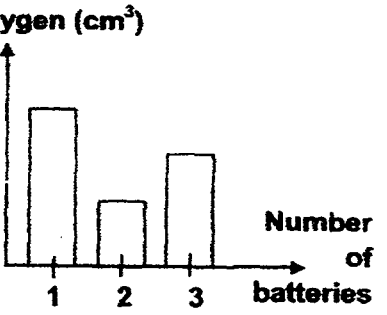
He then repeated the whole experiment using different number of batteries. The batteries used were new and identical and they were arranged in series.

Which one of the following graphs best represents the amount of oxygen collected when using different number of batteries?

(1)


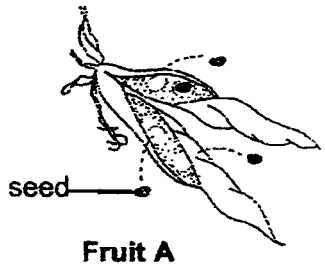
(2)


(3)


(4)


( )

20. Compare the two fruits below.



Fruit A

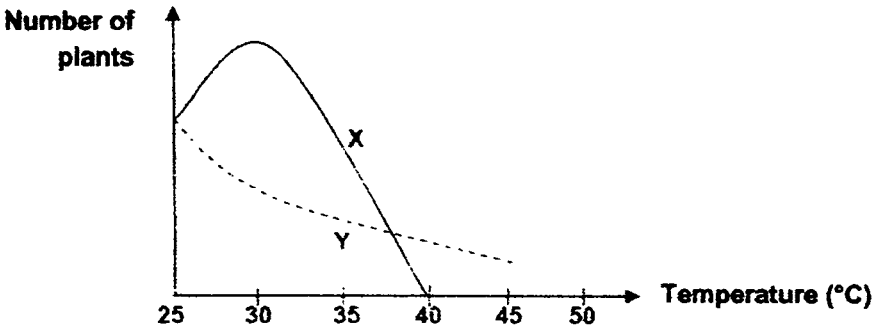
Fruit B

Based on your observation of the characteristics of the fruits shown above, which of the following shows how the fruits are dispersed?

	Fruit A	Fruit B
(1)	animal	wind
(2)	splitting	wind
(3)	wind	water
(4)	water	splitting

( )

21. The graph below shows how temperature affects the number of 2 types of plants, X and Y.



Based on the information given in the graph, 4 pupils made the following conclusions.

Wei En	X reproduces most at 30°C.
Ritvik	The higher the temperature, the fewer Y.
Alvin	The higher the temperature, the fewer X.
Raju	There are more Y than X between 25°C and 40°C.

Who made the correct conclusion?

(1) Alvin and Raju only
(2) Alvin and Ritvik only
(3) Wei En and Raju only
(4) Wei En and Ritvik only

( )

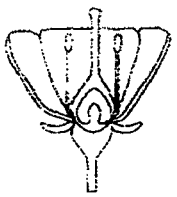
22. Which of the following comparison(s) about plants is/are correct?

	When plants carry out photosynthesis	When plants respire
A	Light is needed	Light is not needed
B	Carbon dioxide is taken in	Carbon dioxide is given out
C	Oxygen is taken in	Oxygen is given out
D	Takes place in the presence of light only	Takes place in darkness only

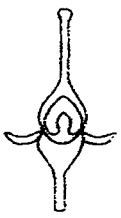
(1) A only
(2) A and B only
(3) B and D only
(4) C and D only

( )

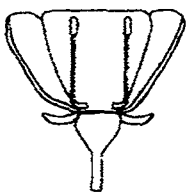
23. Jerry has two flowers, X and Y, of the same species.
The diagram below shows one of the flowers.



Some parts of the flowers were removed. The diagram below shows the two flowers with some parts removed.



Flower X



Flower Y

Explain why pollination could take place between flowers X and Y.

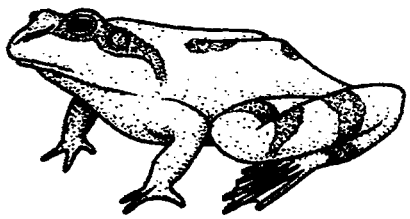
(1) Flower Y has both the female and male reproductive parts in it.
(2) The petals of flower X were removed.
(3) Flowers X and Y have both the female and male reproductive parts.
(4) Each flower has only either the female reproductive part or the male reproductive part.

( )

24. The table below shows the characteristics of living things, X, Y and Z.

X

Y



Z

		Living Things		
		X	Y	Z
A	Makes its own food	Yes	No	No
B	Reproduce by seeds	No	No	No
C	Breaks down dead matter	No	Yes	No
D	Responds to changes	Yes	No	Yes

Which of the above statements are correct?

(1) A and B only

(2) A and C only

(3) B and C only

(4) C and D only

( )

25. Janice had two similar pots of soil (Y and Z).
She placed ten maize seeds in each pot.
She placed Pot Y in a cupboard and Pot Z near the window.
She watered the pots of plants with an equal amount of water daily.

The average heights of the plants were recorded in the table below.

Day	Average height of plants (cm)	
	Pot Y (In the cupboard)	Pot Z (Near the window)
1	0	0
2	0	0
3	0	0
4	1	1
5	3	2
6	5	3
7	7	4

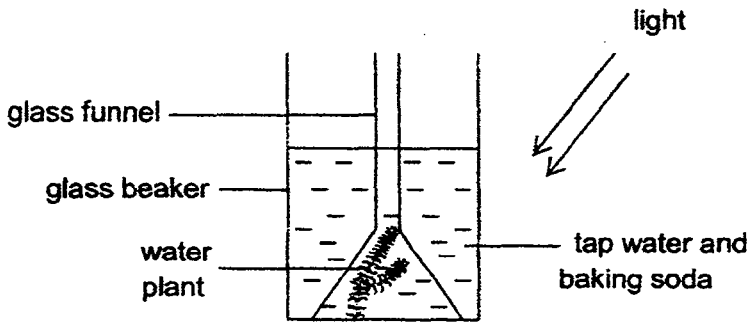
Based on the information provided, which of the following statement(s) is/are true?

A: All the seeds started to germinate on the 4th day.
B: There is an increase in the average height of the plants in Pot Y and Z over 7 days.
C: The average height of the plants grown in the bright area was taller than those grown in the dark.

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

( )

26. Jenny wanted to find out how the amount of carbon dioxide would affect the rate of photosynthesis. She set up her experiment as shown below.



Adding baking soda increases amount of carbon dioxide in the water.

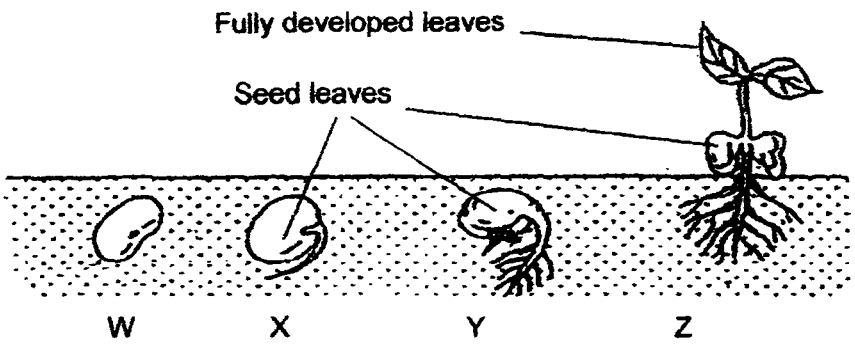
Which of the following variables should she keep the same for a fair test?

A: The type of funnel
B: The amount of light
C: The amount of water plant
D: The amount of baking soda

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

( )

27. Below are the early stages (W, X, Y and Z) of plant growth.



Which of the following describes the early stages of plant growth correctly?

A: Seed leaves provide food for the seed at stages X and Y
B: The seedling is able to make food at Stage Z
C: Shoots appear before the roots at stage X

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

28. Nemo used a leaf as shown in Diagram A for an investigation on photosynthesis. The leaf was de-starched before the start of the experiment.

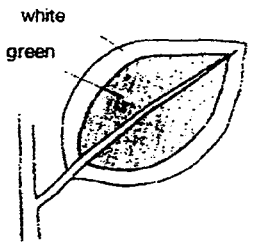


Diagram A

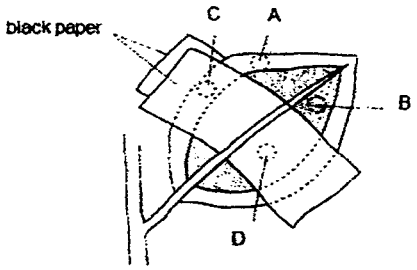


Diagram B

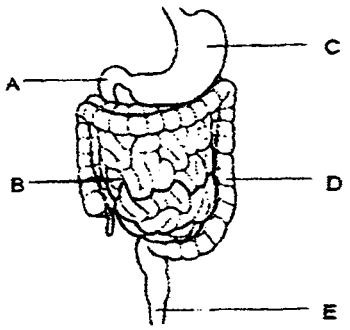
He then covered part of the leaf with black paper as shown in Diagram B. He put the plant under the Sun. Two days later, he plucked off the leaf and removed the black paper. He used iodine to test for starch in the leaf.

In which area A, B, C or D was most starch found?

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

( )

29. The diagram below shows the human digestive system.



Goofy, Harry and Sammy each made a statement about the digestive system.

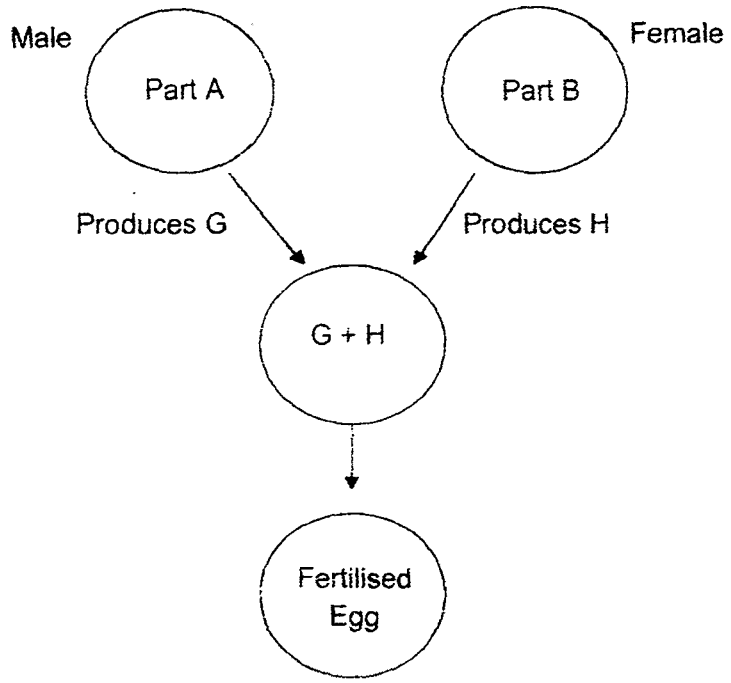
Goofy: Solid waste is stored here.
Harry: Digestion is completed here.
Sammy: Digestive juices are added here.

Which one of the following correctly matches each statement made by each boy to the corresponding labelled parts of the digestive system above?

	Goofy	Harry	Sammy
(1)	D	E	A
(2)	D	B	E
(3)	E	D	A
(4)	E	B	C

( )

30. In animal reproduction, fertilization takes place when G from Part A fuses with H from Part B to form a fertilised egg.



Which of the following correctly represent A, B, G and H from the diagram above?

	Part A	Part B	G	H
(1)	ovary	egg	testes	sperm
(2)	sperm	testes	egg	ovary
(3)	egg	sperm	ovary	testes
(4)	testes	ovary	sperm	egg

( )

End of Booklet A

HENRY PARK PRIMARY SCHOOL
FIRST SEMESTRAL ASSESSMENT 2016

PRIMARY 6
STANDARD SCIENCE

40

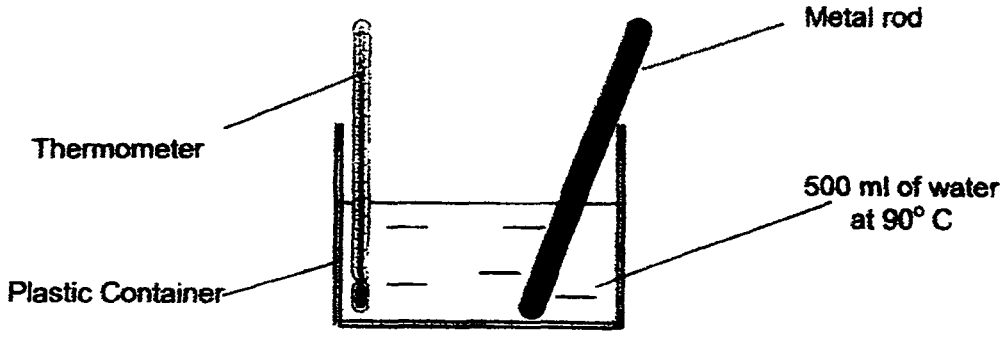
Name:_____ Class: Primary 6

Section B: Open-Ended Questions (40 marks)

Write your answers to questions 31 to 44 in the spaces given.

31 (a) John wanted to find which metal rod, A, B or C is a better conductor of heat. He used three metal rods of the same size and thickness. The experiment was conducted at a room temperature of 32° C.

He placed metal rod A in the container as shown below and recorded the change in the temperature of water in the container over 30 minutes. The steps were repeated with metal rods B and C.



The result of his experiment is shown in the table Y below:

TABLE Y

	Temperature of Water in Container (° C)		
Time (min)	**With Rod A**	**With Rod B**	**With Rod C**
0	90° C	90° C	90° C
10	82° C	81° C	87° C
20	75° C	71° C	82° C
30	68° C	52° C	76° C

(Question 31 continued)

Study table **Y** carefully.

(i) Based on table **Y**, state one step John has taken to ensure that the experiment is carried out fairly. Explain why this step is important. [2]

_____

_____

_____

(ii) If the plastic container is replaced by a metal container of the same thickness, explain the difference in the temperature of water over the 30 minutes. [1]

_____

_____

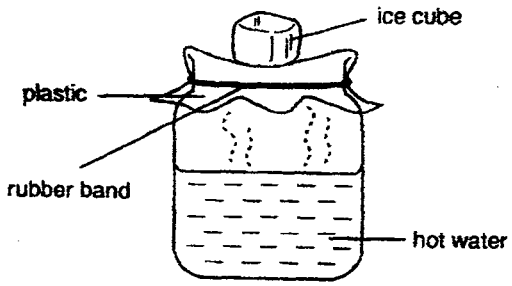
(b) Meena poured different amounts of water in four identical beakers and heated the water until it started to boil. She observed and recorded the time taken for water in each container to boil. Her findings are given below.

Amount of water in Container (ml)	150	450	350	250
Time taken for water to boil (min)	3	11	8	5

The following statements are made based on the above table.
Put a tick (✓) in the boxes below against statements that are correct. [1]

(i) Amount of water in each beaker affects its boiling point.	
(ii) Amount of heat in each beaker, as the water boils, is different.	
(iii) Amount of water in each beaker affects how fast the water boils.	
(iv) Temperature of water in each beaker, as the water boils, is different.	

32. Christopher set up a model of the water cycle as shown below.



a) What was the purpose of putting an ice cube on top of the plastic sheet? [1]

_____

_____

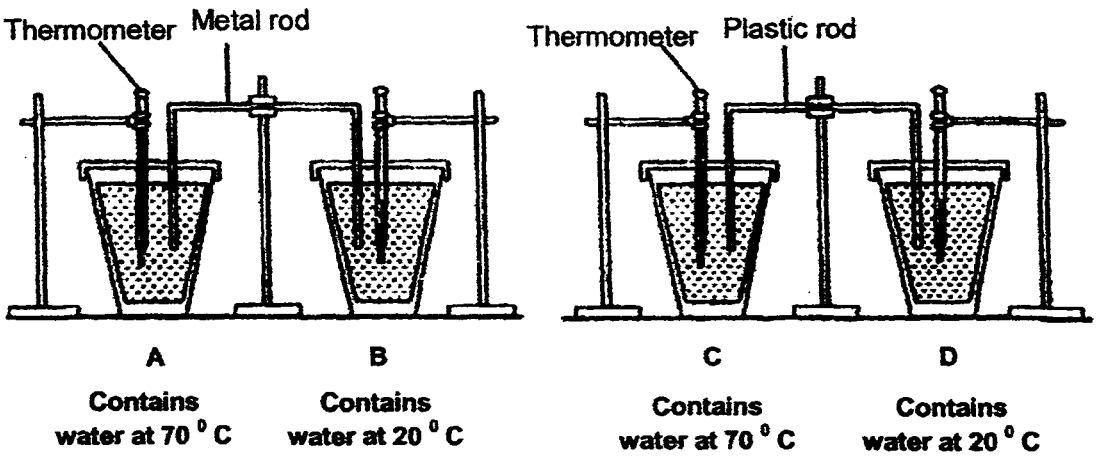
b) After a few minutes, he noticed water droplets on the bottom of the plastic sheet. Explain how the water droplets were formed. [2]

_____

_____

_____

33. Mei Chen set up the experiment shown below using four identical insulated cups, A, B, C and D. The diagram below shows the set-ups at the start of the experiment.



a) Mei Chen observed and recorded the temperature of the water in each cup after 10 minutes.

Which cup, B or D, would have water with the higher temperature after 10 minutes? Explain your answer. [2]

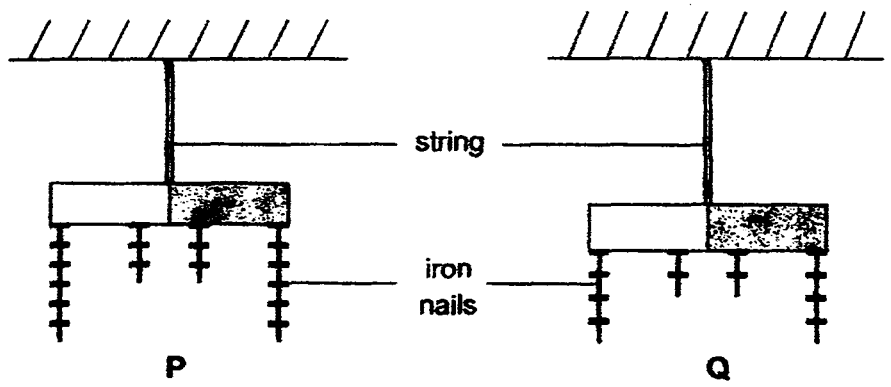
_____

_____

b) After 15 minutes, will the **difference in temperature** between the water in cups A and D be **greater** or **smaller**? [1]

_____

34. Asif carried out an experiment with two bar magnets, P and Q, and some iron nails. The diagram shows the maximum number of iron nails that can be attracted by each magnet.



Based on the diagram, answer the following questions.

a) What common property about the strength of the poles could Asif observe about the 2 magnets? [1]

b) What can be concluded about the difference in the strength of the two magnets?
Explain how you arrived at the answer. [2]

35. The table below shows the amount of digested food and whether the digestive juice is produced in different parts (A, B, C, D and E) of the human digestive system during an experiment.

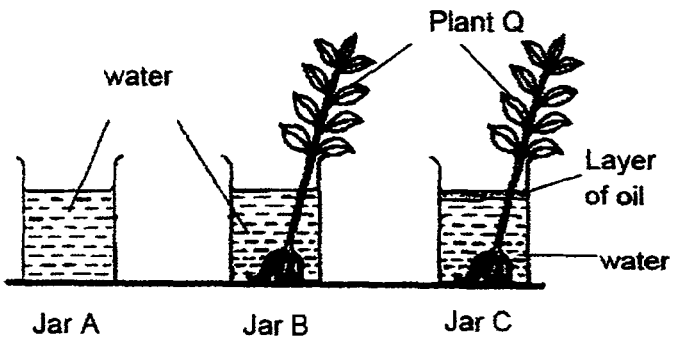
Part	Amount of digested food at each part	Does it produce digestive juice?
A	None	No
B	A small amount	No
C	A large amount	Yes
D	A very small amount	Yes
E	Almost all	Yes

Based on the information from the table, which part (A, B, C, D or E) represents the **gullet** in the human digestive system? Explain why. [2]

_____

_____

36. Tom filled 3 identical jars with the same amount of water. He put a plant of similar size each in Jar B and Jar C. He poured a layer of oil on the water surface of Jar C. The 3 jars were placed next to an open window.

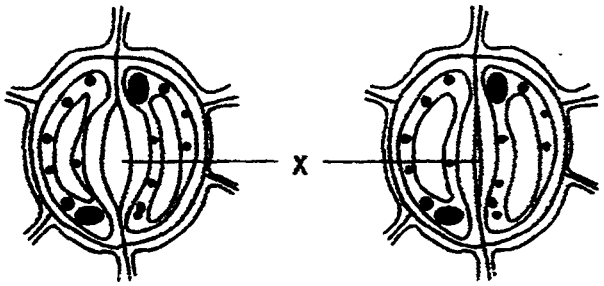


a) He recorded the results of his experiment in the table below. [2]

	Jar A	**Jar B**	**Jar C**
Volume of water at the start of experiment		300ml	300 ml
Volume of water after 2 days	275ml	225ml	

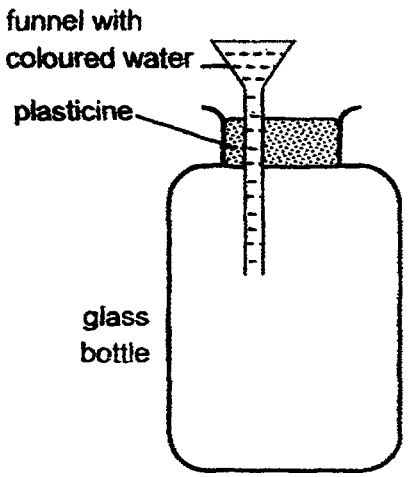
(Question 36 continued)

The diagrams below show the changes that occur in a leaf seen under a microscope.



b) X is a tiny opening found in leaves. When the plant is placed under strong light, it is observed that the size of X increases.
Explain why X becomes larger. [2]

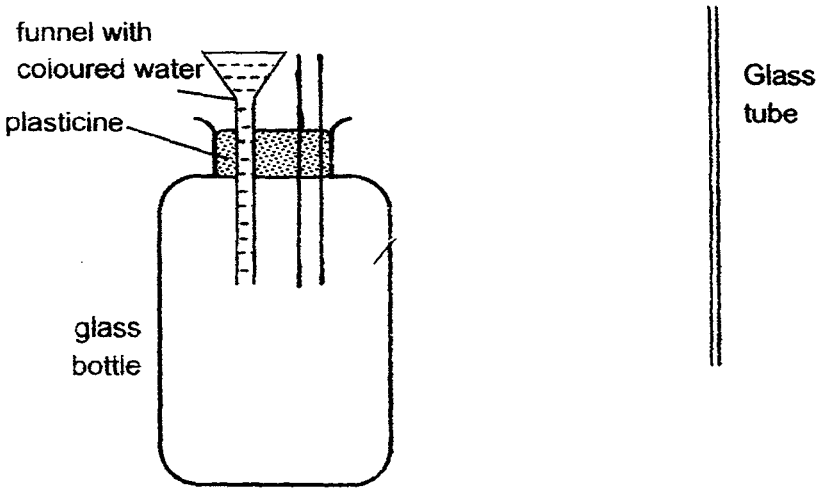
37. Beng Lee fitted a bottle with a funnel using plasticine as shown below.



a) He poured coloured water into the funnel and realised that the water did not flow into the bottle. Give a reason for this. [1]

(Question 37 continued)

b) A glass tube was given as shown in the diagram below. Using the diagram below, **draw** how the glass tube should be placed to allow more coloured water to enter the glass bottle. [1]



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

38. The diagram below shows a rice weevil which is often found in rice.
Rice weevils feed on rice and they pose a problem to people as they are often found in large numbers.

Amy made this hypothesis:

The presence of pandan leaves keeps rice weevils away from rice bins.

She planned an investigation using only the following items:

- 600 g of uncooked rice
- 3 stalks of pandan leaf
- 20 rice weevils
- 1 large tray divided into 2 parts

a) The following steps show how Amy carried out the experiment.
Write down the 3rd step. [1]

Step 1: Fill each part of the tray with 300 g uncooked rice.

Step 2: Put in10 rice weevils in each part of the tray.

Step 3: _____

_____

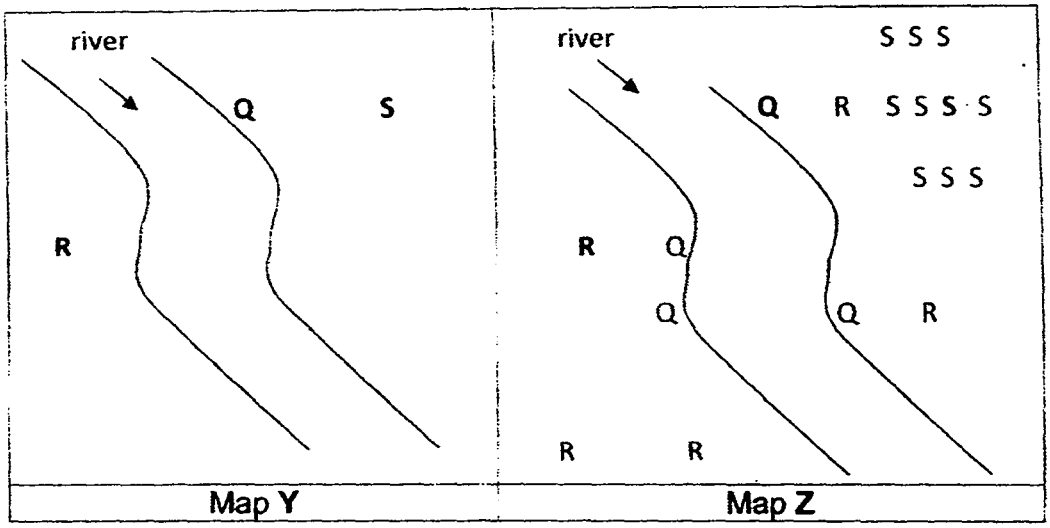
Step 4: Compare the number of weevils in each part of the tray at the end of the experiment.

b) At the end of the experiment, Amy concluded that her hypothesis is correct.
What observation had she made that caused her to make this conclusion? [1]

_____

_____

39. Three plants Q, R and S are planted along a river as shown on Map Y. Map Z shows the same piece of land 2 years later.



a) Which plant, Q, R or S is most likely to be dispersed by the explosive action of its fruits? Explain your answer. [1]

_____

_____

b) How are the fruits of Plant Q likely to be dispersed? [1]

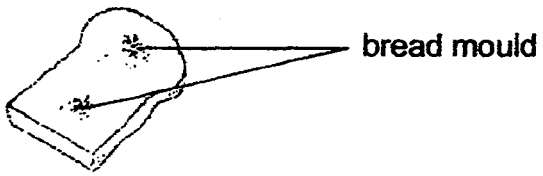
_____

c) Based on your answer in (b), give <u>two</u> characteristics that the fruits of Plant Q may possess. [2]

i) _____

ii) _____

40. Muthu left a slice of bread on top of a table in the kitchen. After a few days, he noticed that there were dark patches of bread mould on the bread.



a) Bread mould belongs to a group of living things.
Name the group. [1]

_____

b) How does the bread mould reproduce? [1]

_____

_____

41. The table below shows the freezing point and boiling points of three substances, X, Y and Z.

Substance	Freezing Point (°C)	Boiling Point (°C)
X	29	678
Y	17	118
Z	-7	59

a) What are the states of substances, X and Y, at 20°C?
Write your answers in the boxes of the table below. [2]

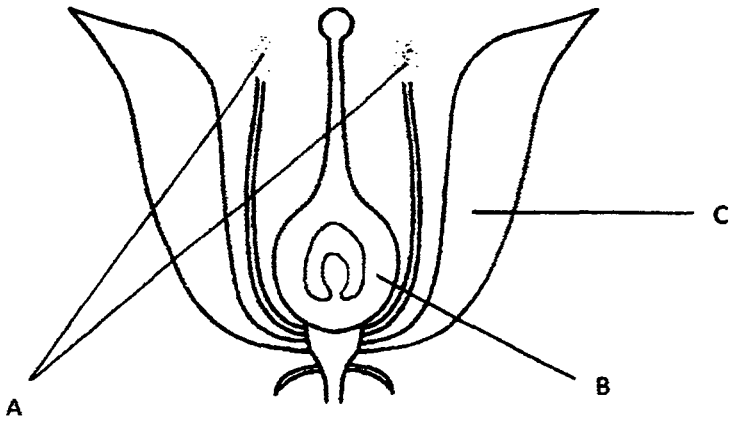
Substance	State of substance
X	
Y	

b) Other than having mass and occupying space, state another property of substance Z when it is at 100°C. [1]

_____

_____

42. The figure below shows the cross section of a flower.



Describe what will happen to Parts B and C after fertilisation. [2]

(a)

Part B - _____

Part C - _____

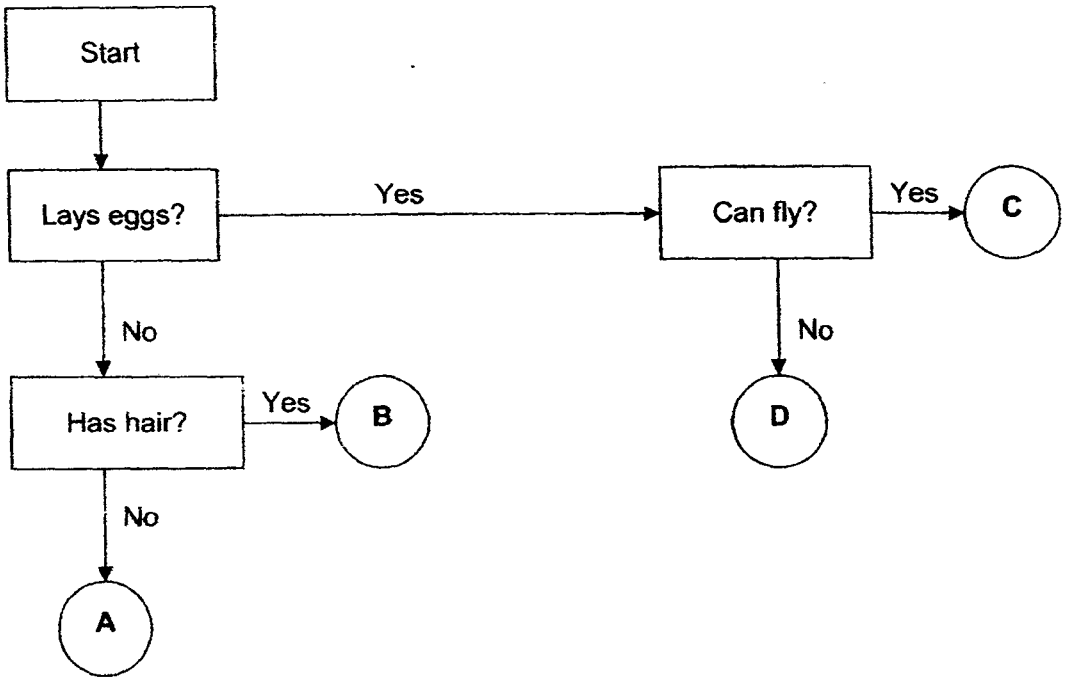
(b)

Can fertilisation occur if Part A is removed? Explain your answer. [1]

_____

_____

43. Study the following diagram about organisms, A, B, C and D carefully.



Use information from the diagram to answer the following questions.

(a) Jane concluded that organism C is definitely a bird. [1]

Do you agree? Give a reason for your answer.

_____

_____

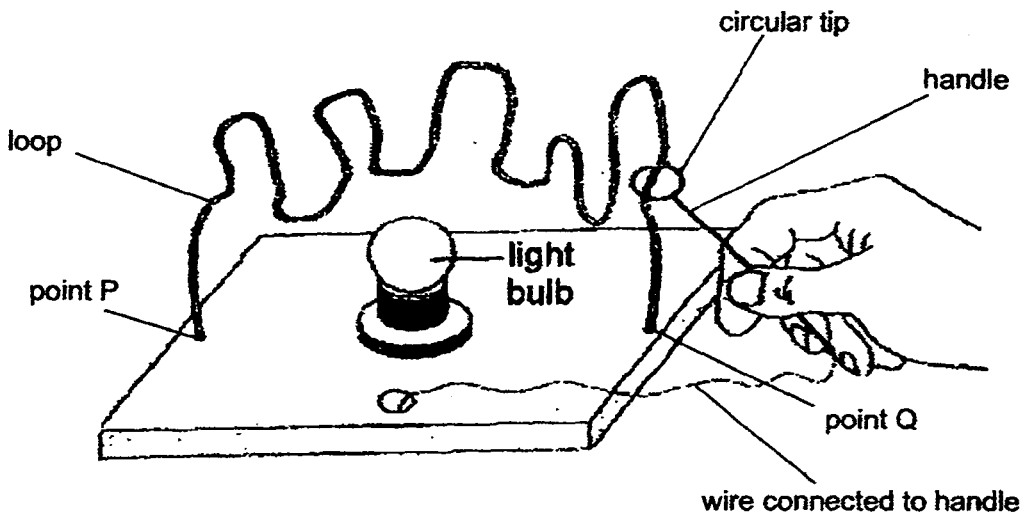
(b) Name one difference between organisms A and B. [1]

_____

44. The diagram below shows a toy which Tom has built.

The player has to guide the circular tip from point P to point Q without touching the loop.

The bulb lights up when the circular tip touches any part of the loop.



a. What is the component which is not shown in the diagram above that enables the bulb to light up? [1]

_____

b. Explain why the bulb lights up when the circular tip touches any part of the loop. [1]

_____

_____

End of Booklet B

EXAM PAPER 2016
LEVEL : PRIMARY 6
SCHOOL : HENRY PARK
SUBJECT : SCIENCE
TERM : SA1

Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q9	Q 10
2	**3**	**2**	**2**	**4**	**1**	**3**	**4**	**2**	**1**
Q 11	Q 12	Q 13	Q 14	Q 15	Q16	Q17	Q18	Q19	Q20
3	**2**	**4**	**1**	**3**	**3**	**3**	**4**	**3**	**2**
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
4	**2**	**4**	**2**	**3**	**2**	**1**	**2**	**4**	**4**

Booklet B Answers for CORRECTION

Name _____

Q	Answer	Correction
31.	(a)(i) Temperature of water in each container at the start of the experiment is the same. (1) This ensures that the changes in the temperature of water is due to the material of the rod used.(1) ii) Temperature of water will decrease more/lose heat faster quickly as the metal container will conduct heat away/ better conductor of heat from the water more quickly b) ii, iii (½ each)	
32.	a) To lower the temperature of plastic b) **Water vapour/** Hot water evaporated in the container **lose heat** to the **cooler surface** of the plastic sheet and **condense**	
33.	a) B as the metal rod will conduct heat away more / better conductor quickly from the water in cup A to water in cup B. b) Smaller	
34.	a) Poles of the magnet are strongest b) P is a stronger magnet as more iron nails are attracted to P	
35.	B. (1) Some food has been digested (in the mouth) before entering the gullet.	
36.	a) Jar A - 300 ml (1), Jar C – 226-274 ml b) It is to take in more carbon dioxide to make more food.	
37.	a) Air occupies space inside the sealed bottle preventing water from flowing in. c) Put glass tube through the plasticine . b) Air is allowed to escape through the tube and water is able to flow in.	

38.	a) Place 3 stalks of pandan leaves on one part of the tray. b) There are **less** or **no** weevils on one (part of the) tray with pandan leaves	
39.	a) S as the seeds are dispersed closely around/near/cluster together the parent plant. b) Water c) i) Q has waterproof outer covering / can float ii) Q has fibrous husk/hair	
40.	a) Fungi (b) By spores	
41.	a) Solid , Liquid b) It does not have definite shape.	
42.	a) It will /swell/swollen/become bigger/become the fruit (1), It will wilt/fall off b) Yes, pollen grains from another flower of the same species can still be transferred to the stigma. Yes, pollination has taken place before A is cut No, pollination cannot take place because the anther which carry the pollen grains are cut and cannot be transferred to the stigma.	
43.	a) No, as (some) insects also lay eggs and can fly (½). b) A does not have hair but B has.	
44	a) Battery b) The tip is a conductor of electricity that creates a closed circuit upon touching the loop.	

4
END.