



## **PRIMARY 4 END-OF-YEAR EXAMINATION 2013**

Name : \_\_\_\_\_ (    )

Date: 25 October 2013

Class : Primary 4 (    )

Time: 8.00 a.m. - 9.30 a.m.

Parent's Signature : \_\_\_\_\_

Marks: \_\_\_\_\_ / 40

## **SCIENCE BOOKLET A**

### **INSTRUCTIONS TO CANDIDATES**

Write your name, class and register number.

Do not turn over this page until you are told to do so.

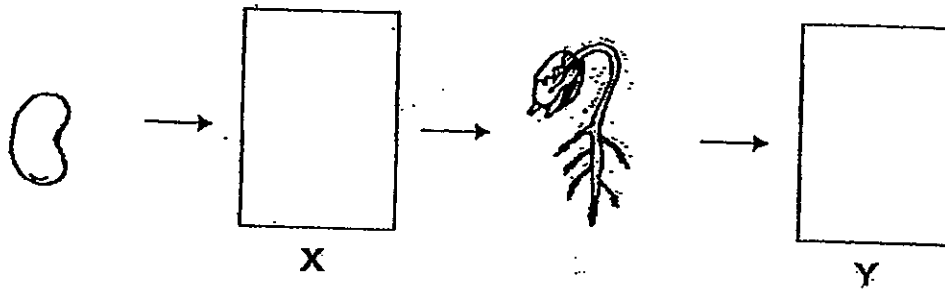
Follow all instructions carefully.

Answer all questions.

**Section A (20 × 2 marks)**

For each question, 1 to 20, choose the most suitable answer and shade its corresponding oval (1, 2, 3 or 4) in the optical answer sheet.

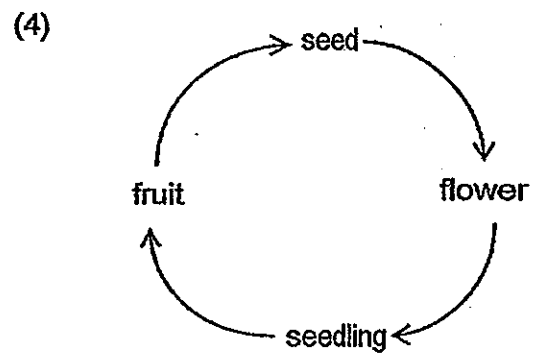
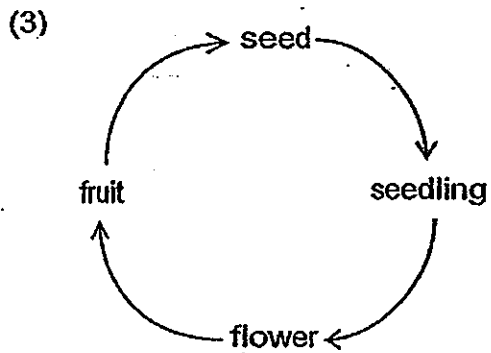
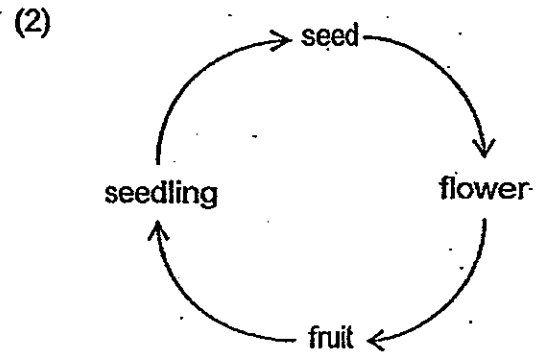
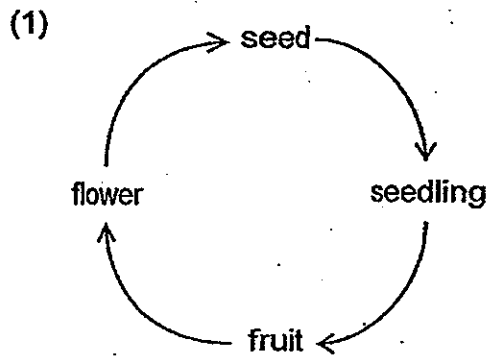
1. The diagram below shows the growth of a young plant with two missing stages, X and Y.



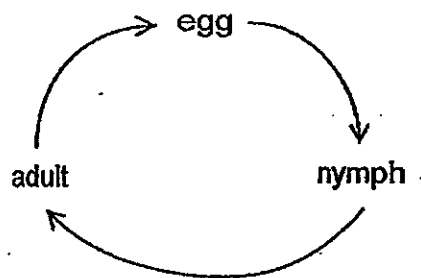
Which of the following shows the stages, X and Y?

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

2. Which diagram below shows the life cycle of a balsam plant?



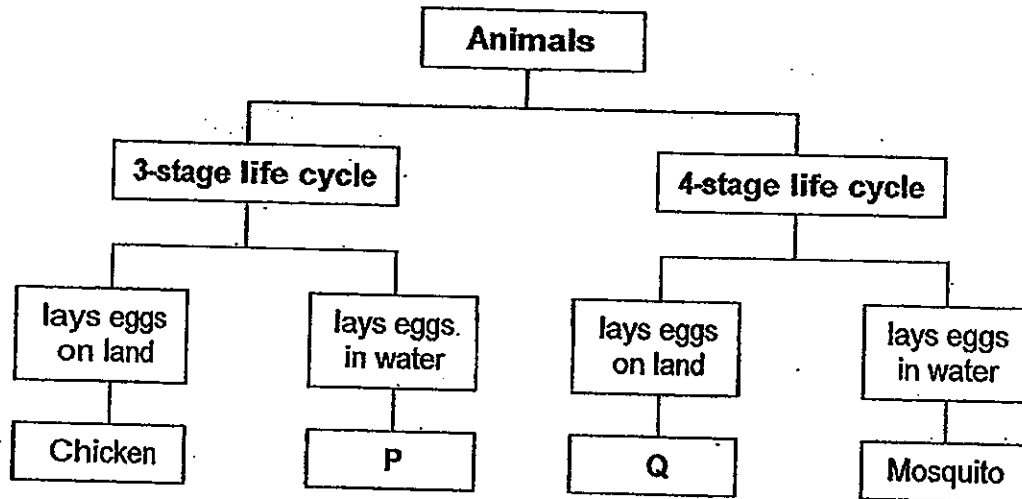
3. The diagram below shows the life cycle of an animal.



Which animal below has the life cycle shown above?

- (1) human
- (2) chicken
- (3) housefly
- (4) grasshopper

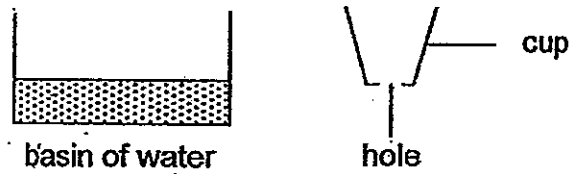
4. Study the classification chart below.



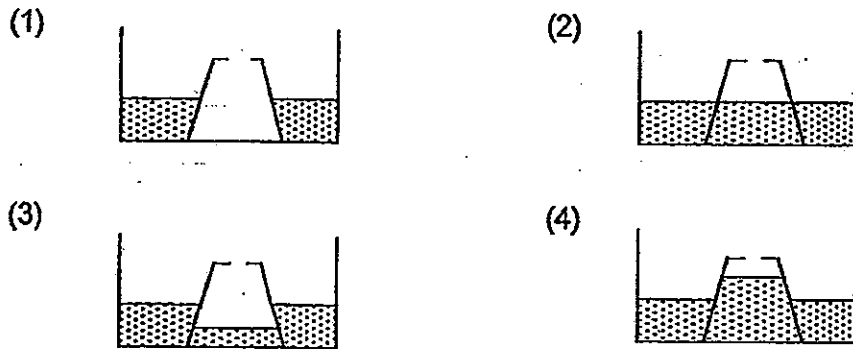
Which of the following are represented by P and Q?

	P	Q
(1)	Butterfly	Toad
(2)	Cockroach	Moth
(3)	Duck	Fruit fly
(4)	Frog	Ladybird

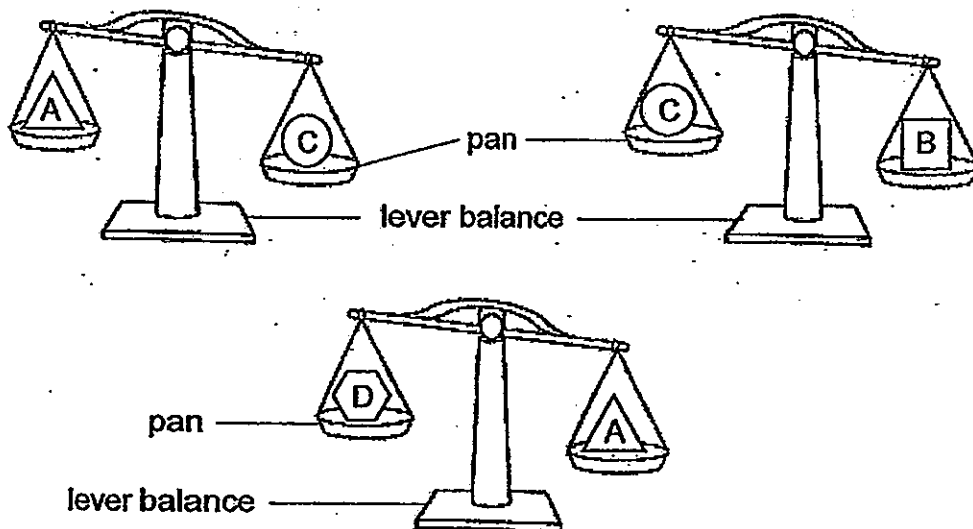
5. The diagram below shows a basin of water and a cup with a hole.



The cup is inverted and placed into the basin of water. Which of the following shows the water level in the cup?



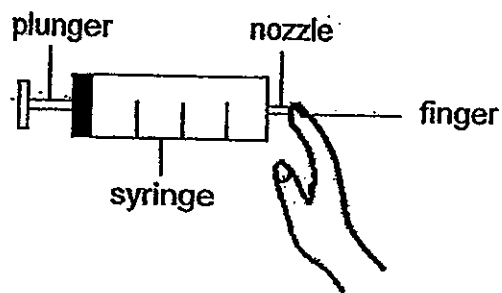
6. Jim placed the objects, A, B, C and D, on the pans of a lever balance. The diagrams below show the lever balance when two objects are placed on each pan.



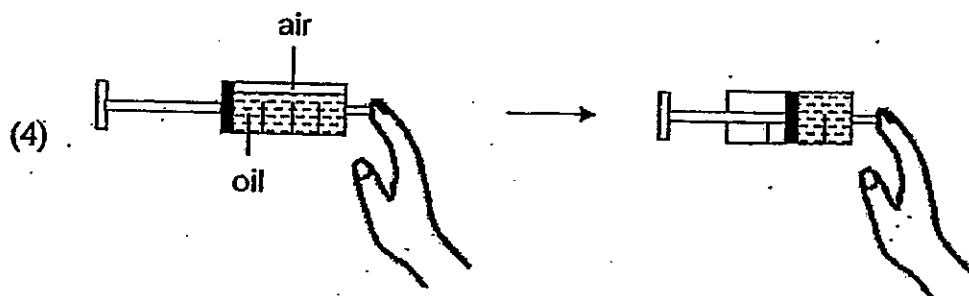
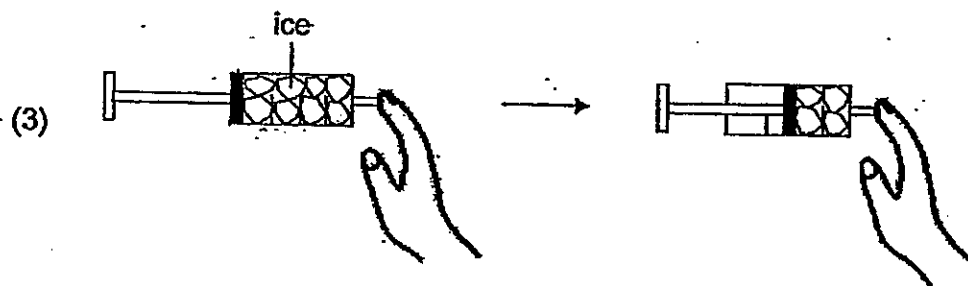
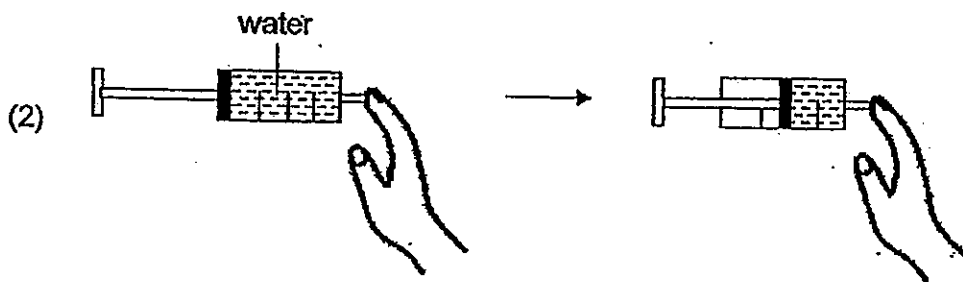
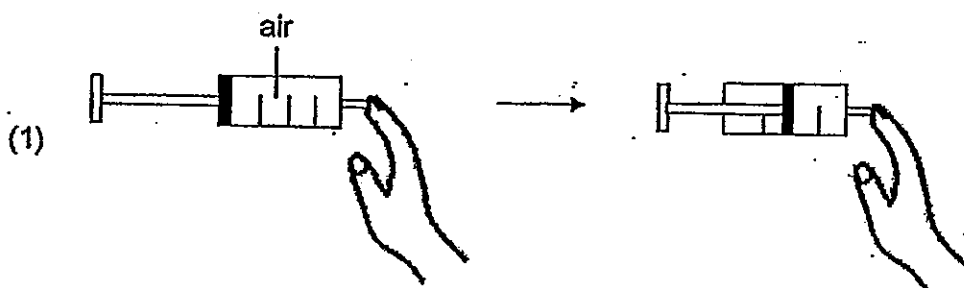
Arrange the objects, A, B, C and D, from the smallest mass to the greatest mass.

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

7. In an experiment, four identical syringes containing different matter are sealed by pressing a finger against their nozzles as shown below.



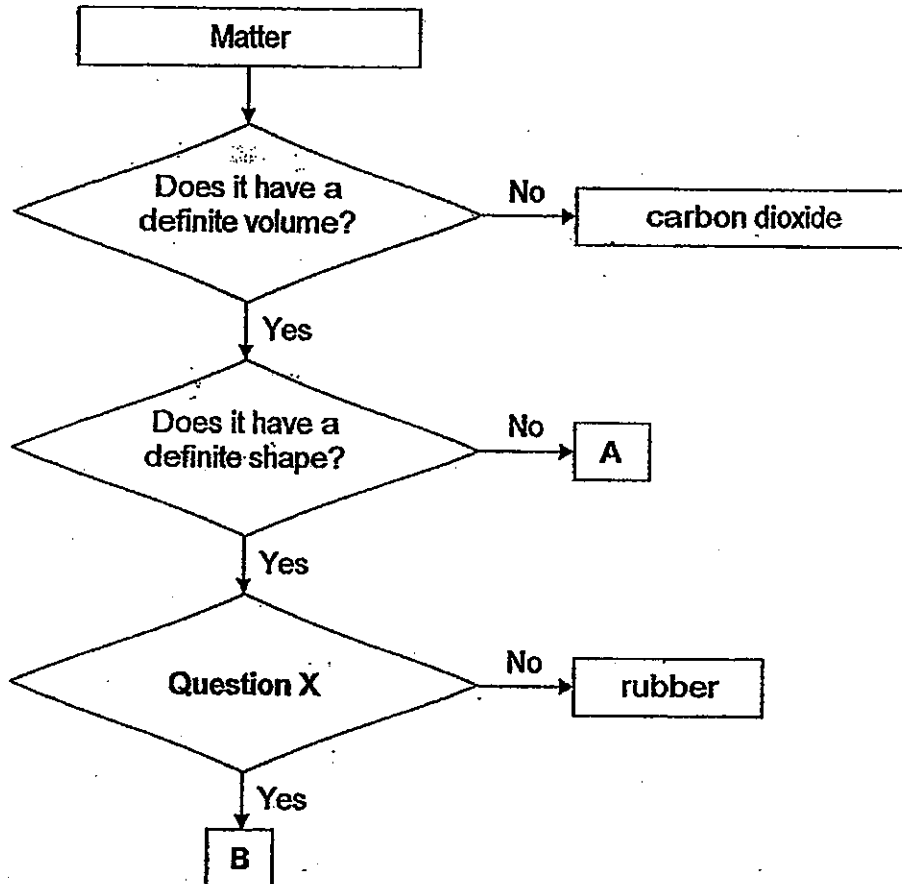
Which of the following shows the syringe when the plunger is pushed in?



8. Which of the following is a form of matter?

- (1) Air
- (2) Heat
- (3) Sound
- (4) Shadow

9. Study the flow chart below.



Which of the following represents A, B and Question X?

	A	B	Question X
(1)	air	iron	Is it a good conductor of heat?
(2)	water	steel	Is it a magnetic material?
(3)	oxygen	aluminium	Is it a good conductor of heat?
(4)	oil	copper	Is it a magnetic material?

10. Siti pours some hot coffee into an empty cup. After a while, the cup becomes hot. Which of the following explains this?



- (1) The cup loses heat to the hot coffee.
  - (2) The hot coffee loses heat to the cup.
  - (3) The cup loses heat to the surrounding air.
  - (4) The surrounding air loses heat to the cup.
11. Study the diagram below.

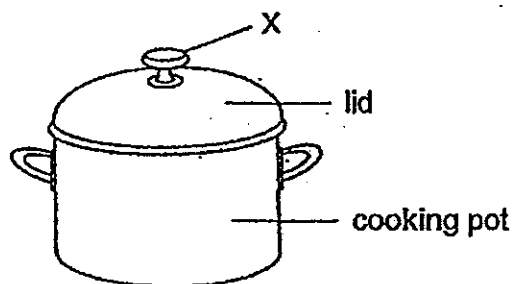


A, B and C are different states of water. Which of the following is A, B and C?

	A	B	C
(1)	Solid	Liquid	Gas
(2)	Liquid	Solid	Gas
(3)	Gas	Liquid	Solid
(4)	Solid	Gas	Liquid



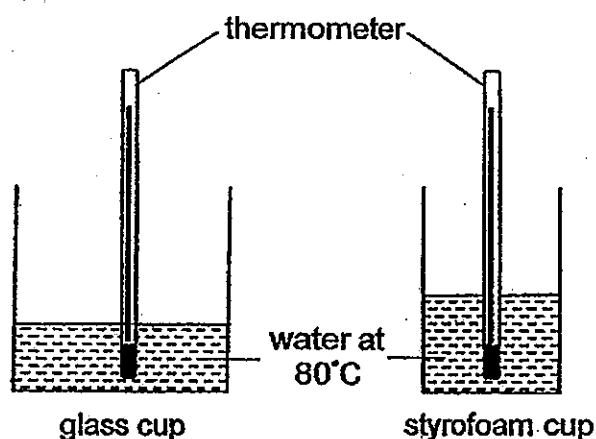
12. The drawing below shows a cooking pot covered with a lid.



To remove the lid safely when the pot is filled with hot soup, which material is better for making the part labelled X? Suggest a reason for this.

	Material	Reason
(1)	plastic	It is softer than metal.
(2)	metal	It is harder than plastic.
(3)	metal	It is a better conductor of heat.
(4)	plastic	It is a poorer conductor of heat.

13. Gopal wanted to find out whether glass or styrofoam is a better conductor of heat. He poured the same amount of water at  $80^{\circ}\text{C}$  into a glass cup and a styrofoam cup. Then, he measured the temperature of the water in each cup every minute.

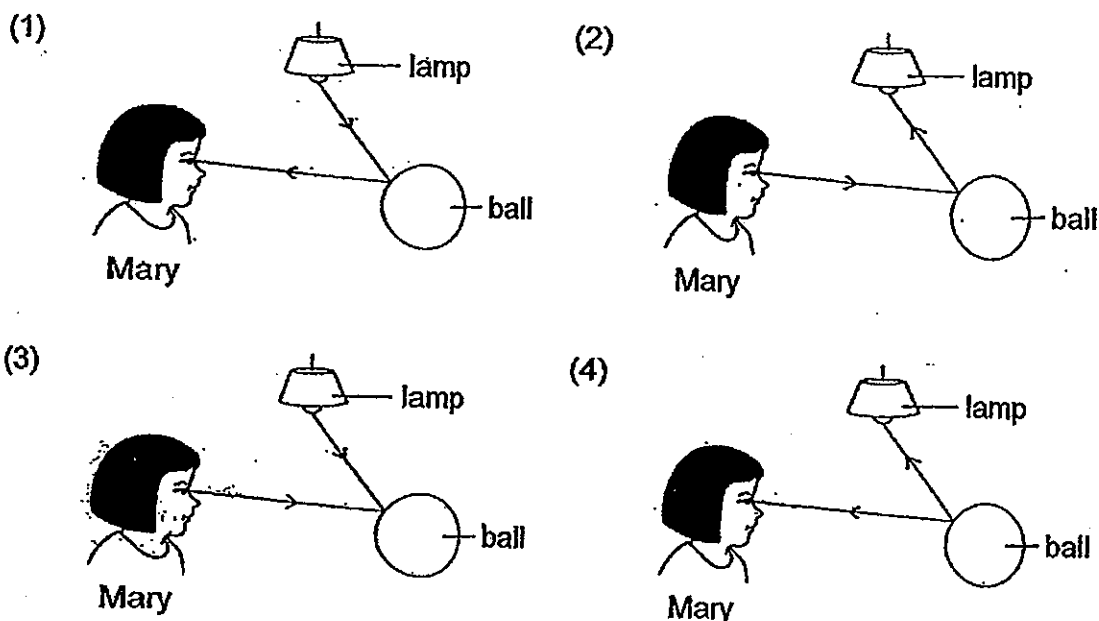
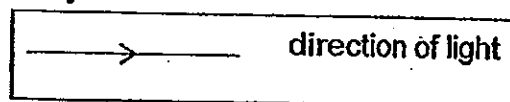


Gopal's teacher said that his experiment was not fair. Explain why.

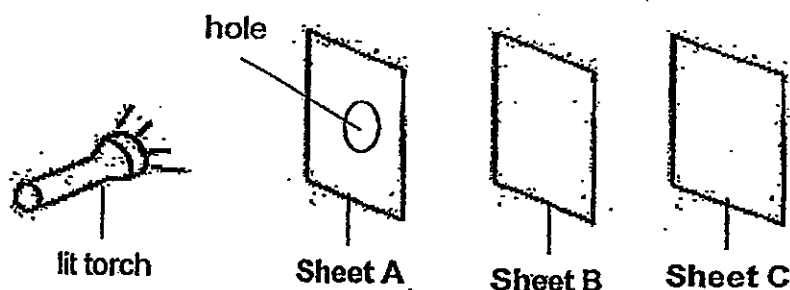
- (1) The size of the cups is different.
- (2) The material of the cups is different.
- (3) The water level in the cups is different.
- (4) The rate of heat flowing through the material of the cups is different.

14. Which of the following shows the direction of light that explains how Mary is able to see the ball?

Key



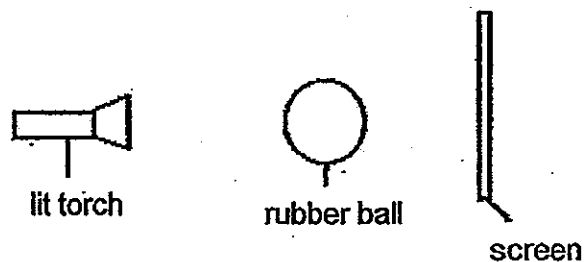
15. The experiment below is carried out in a dark room. Sheet A, Sheet B and Sheet C are arranged in a straight line.



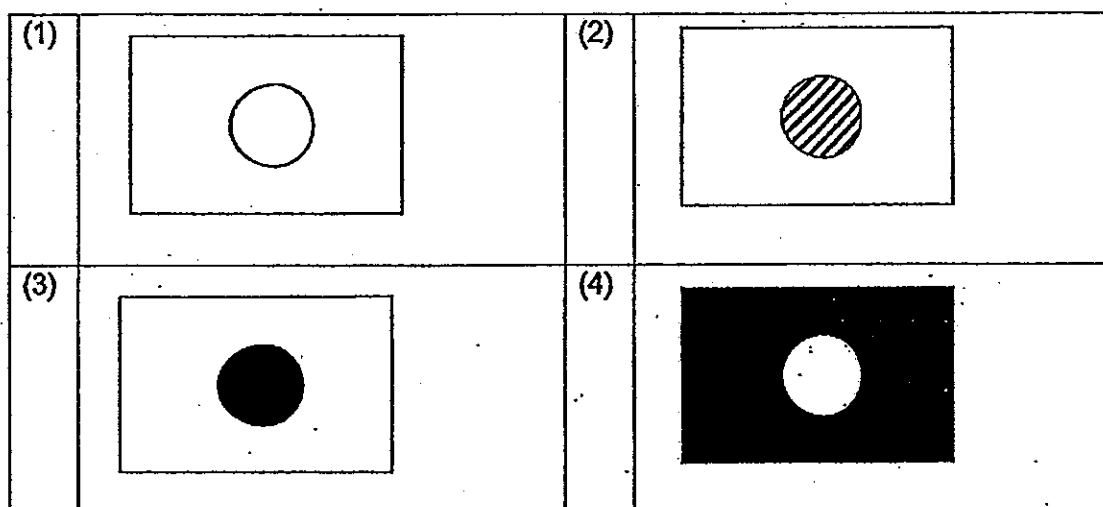
When the torch is switched on, a bright circular patch of light is seen on Sheet C only. Which of the following correctly classifies Sheet A, Sheet B and Sheet C according to their properties?

	Allows light to pass through	Does not allow light to pass through
(1)	Sheet A and Sheet B	Sheet C
(2)	Sheet A and Sheet C	Sheet B
(3)	Sheet B	Sheet A and Sheet C
(4)	Sheet C	Sheet A and Sheet B

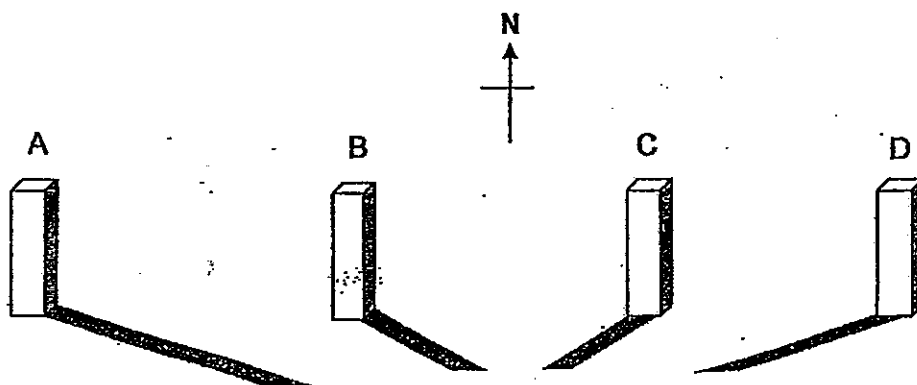
16. The set-up below shows a lit torch shining on a rubber ball.



Which of the following would be seen on the screen?

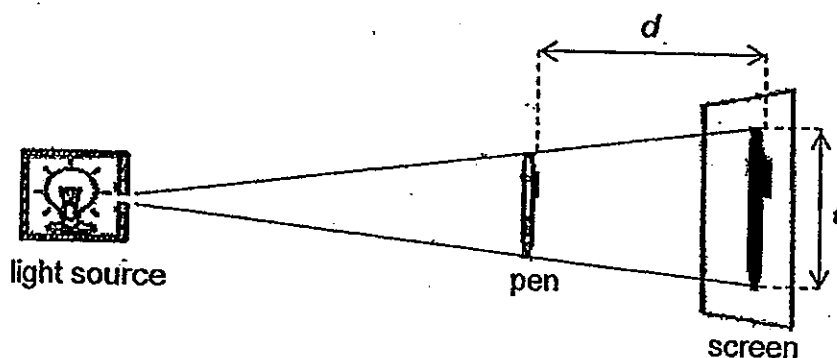


17. The diagram below shows the positions of the shadow cast by a stick at four different times during a day. Match each shadow to its time.

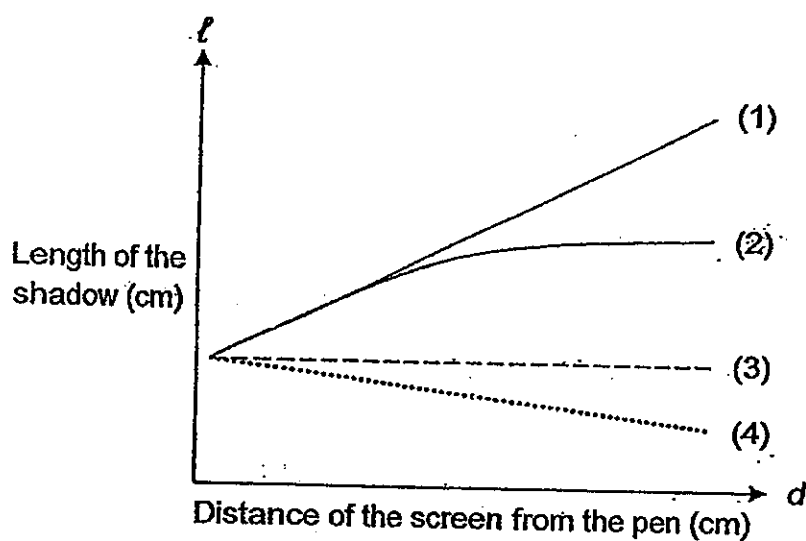


	9 a.m.	11 a.m.	2 p.m.	6 p.m.
(1)	A	B	C	D
(2)	B	C	D	A
(3)	C	D	A	B
(4)	D	C	B	A

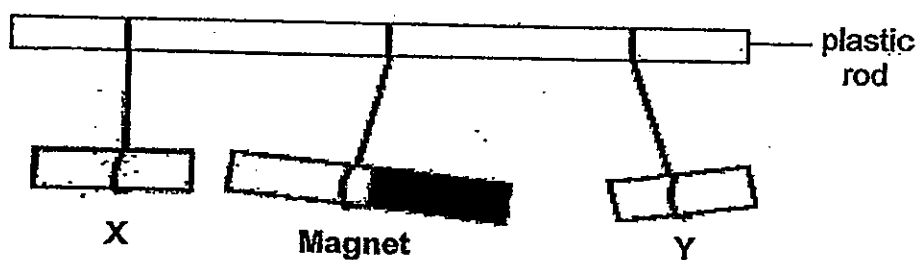
18. Study the set-up below.



Which of the following shows the relationship between the distance,  $d$ , of the screen from the pen and the length,  $l$ , of the shadow?



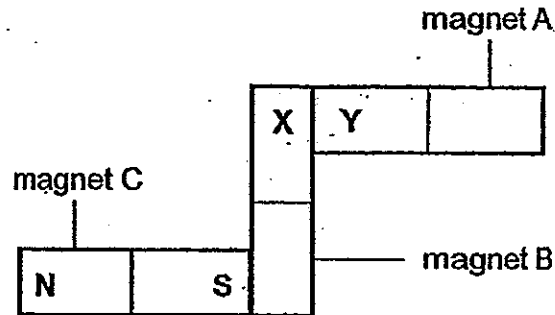
19.



Two pieces of unknown metals, X and Y, and a bar magnet are hung on a plastic rod as shown above. Which of the following is most likely true about X or Y?

- (1) X is a magnet.
- (2) X is made of copper.
- (3) Y is a magnet.
- (4) Y is made of aluminium.

20. The diagram below shows magnet A, magnet B and magnet C.



Based on the diagram, what are the poles at X and Y?

	X	Y
(1)	North-seeking pole	North-seeking pole
(2)	North-seeking pole	South-seeking pole
(3)	South-seeking pole	North-seeking pole
(4)	South-seeking pole	South-seeking pole



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Parent's Signature : \_\_\_\_\_

Marks: \_\_\_\_\_ / 40

## **SCIENCE BOOKLET B**

### **INSTRUCTIONS TO CANDIDATES**

Write your name, class and register number.

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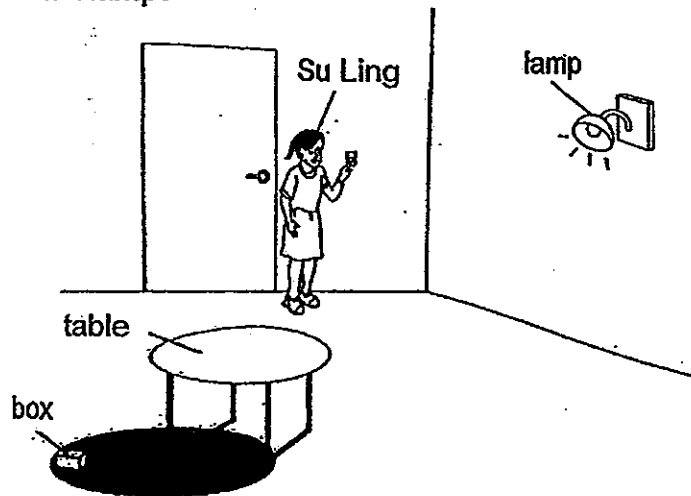
Follow all instructions carefully.

Answer all questions.

**Section B (40 marks)**

**For the questions, 21 to 34, write your answers in the spaces provided.**

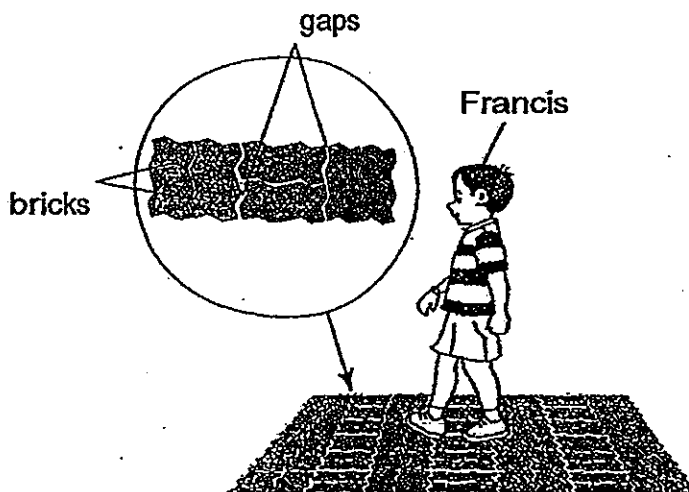
21. When Su Ling entered a dark room, she could not see anything. She then switched on a lamp.



Su Ling was able to see the table because it \_\_\_\_\_ light. [1]

She was not able to see the box clearly because it was hidden in the \_\_\_\_\_ of the table. [1]

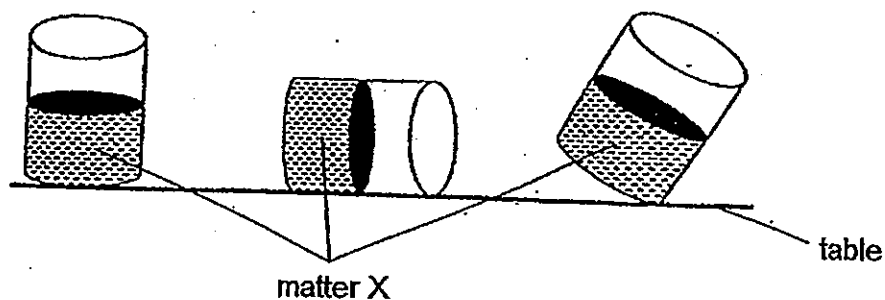
22. Francis saw many gaps between the bricks on a road.



The purpose of the gaps is to allow spaces for the bricks to \_\_\_\_\_ on a hot day. [1]

At night, the temperature \_\_\_\_\_ and the bricks will \_\_\_\_\_ [2]

23. The diagram below shows matter X in a container. The container is placed in three different positions on a table.



- (a) Based on the diagram, what is the state of matter X? [1]

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- (b) Based on your answer in (a), state two properties of matter X. [2]

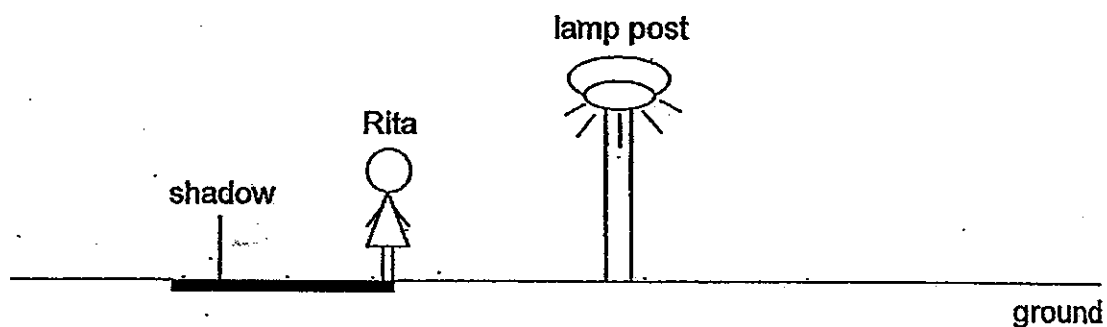
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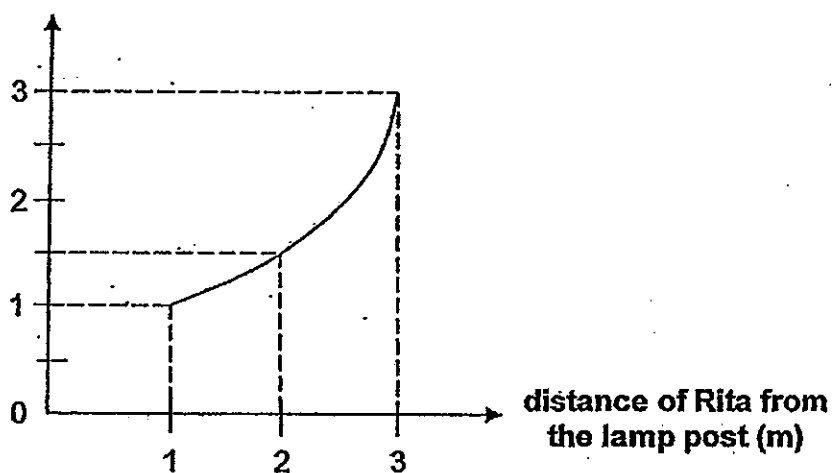


24. The picture below shows Rita standing near a brightly lit lamp post.



When Rita begins to walk, the length of her shadow changes. The graph below shows the distance of Rita from the lamp post and the length of her shadow.

length of shadow (m)



- (a) Based on the graph, when Rita is 2m from the lamp post, what is the length of her shadow? [1]

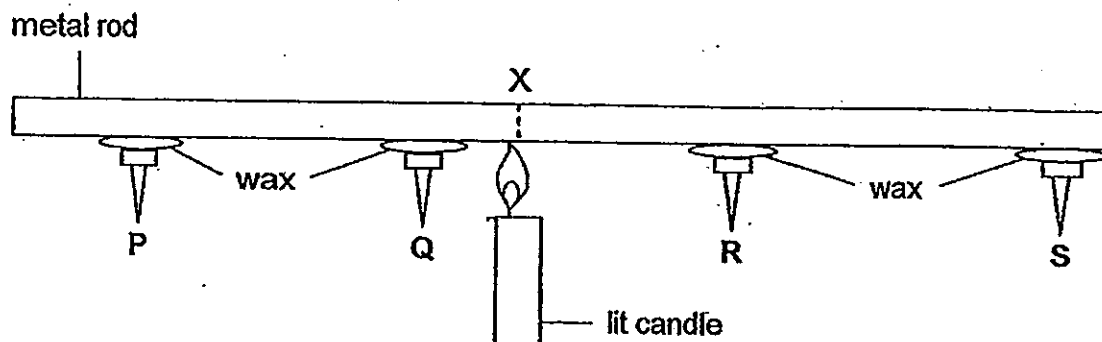
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- (b) What is the relationship between the distance of Rita from the lamp post and the length of her shadow? [1]

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25. Fiona set up an experiment as shown below. Four iron nails, P, Q, R and S, are held onto a metal rod by wax. She lit a candle and placed it at position X.



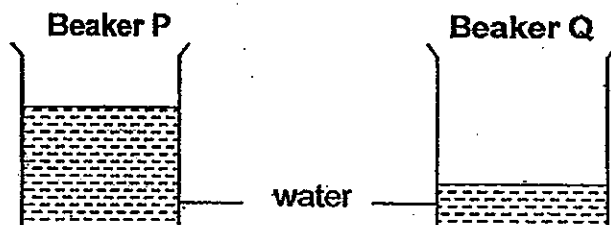
- (a) After 5 minutes, Fiona observed that all the iron nails had dropped. Based on the above, in which order would the iron nails drop?

Write the letters representing the iron nails in the boxes below to show the order of how the iron nails dropped. [1]

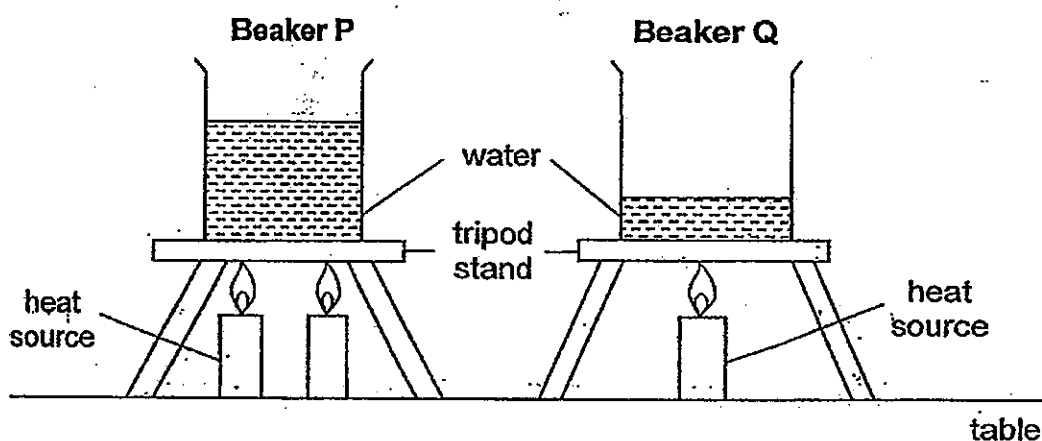
<div style="border: 1px solid black; width: 60px; height: 60px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 60px; height: 60px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 60px; height: 60px; margin: 0 auto;"></div>	<div style="border: 1px solid black; width: 60px; height: 60px; margin: 0 auto;"></div>
First iron nail to drop	→		Last iron nail to drop

- (b) Fiona repeated the experiment but she replaced the metal rod with a ceramic rod. She observed that it took more than 5 minutes for all the iron nails to drop. Explain why. [2]

26. Alice conducted an experiment to find out how the amount of heat would affect the temperature of water. She poured different amounts of water with the same temperature into two identical beakers, P and Q.



Alice then heated the beakers at the same time as shown below.



- (a) However, Alice's teacher informed her that it was not a fair test. Based on the diagram, what change should Alice make so that the experiment is a fair test? [1]

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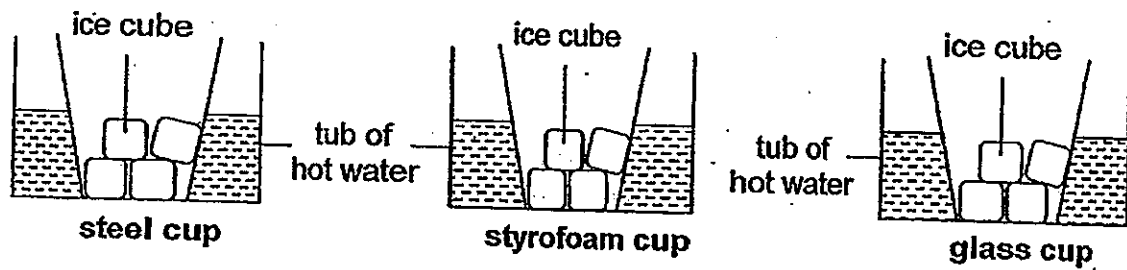
- (b) After the change made in (a), Alice heated the beakers over a period of time. Which beaker, P or Q, would have a higher temperature of water first? Explain why. [2]

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27. In an experiment, three similar cups of different materials were placed into a tub of hot water as shown below.



The number and size of ice cubes in each cup were the same.

- (a) In which cup, steel, styrofoam or glass, would the ice melt the fastest? [1]

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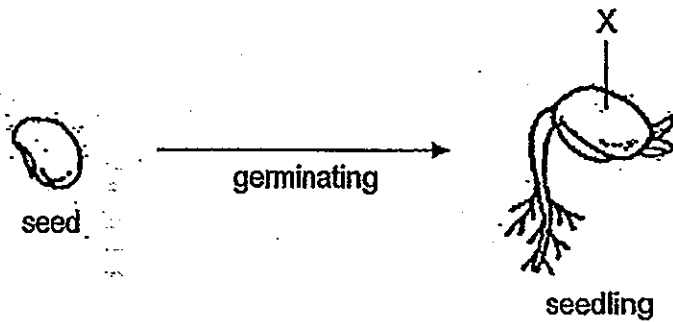
- (b) Explain your answer in (a). [2]

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28. Sally carried out an experiment on a seed germinating into a seedling as shown below.



- (a) Name part X. [1]

\_\_\_\_\_

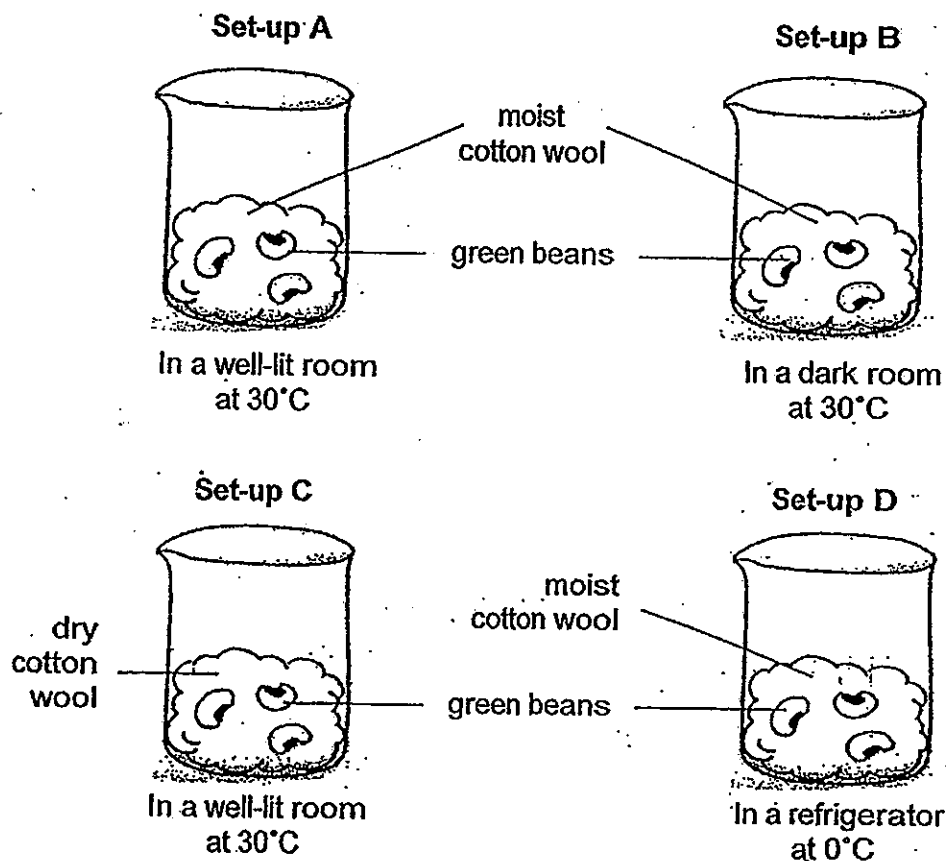
- (b) As the seed was germinating into a seedling, would the mass of part X increase or decrease? Explain your answer. [2]

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- (c) If Sally removed part X, would the seedling continue to grow? Explain why. [1]

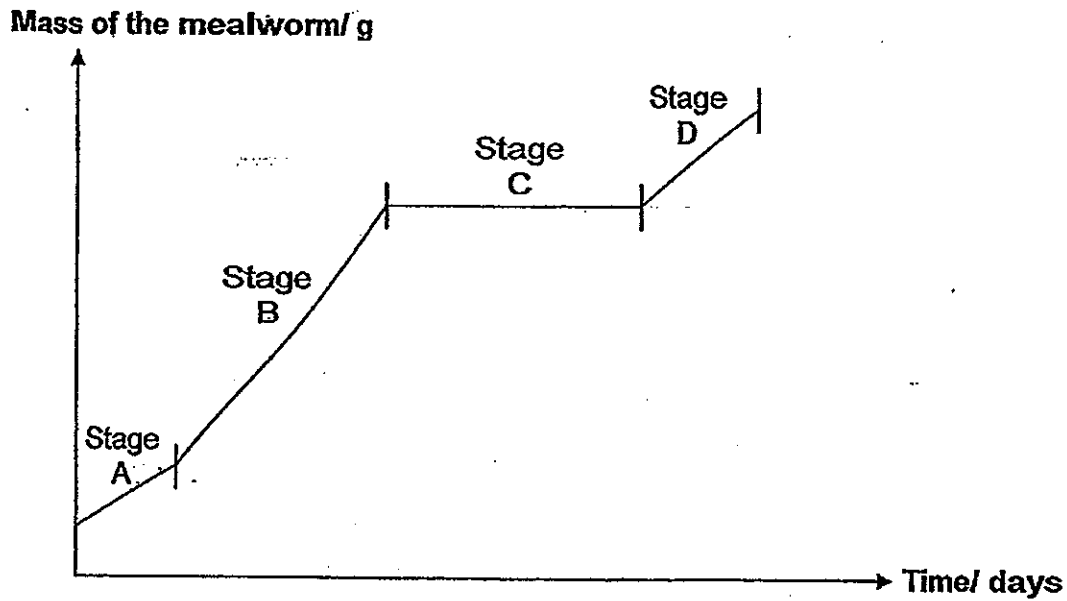
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

29. In an experiment, Ahmad prepared four set-ups, A, B, C and D. He placed some green beans into four identical glass beakers under different conditions as shown below.



- (a) Based on the experiment, in which set-ups, A, B, C, and D, would the seeds germinate? [1]
- 
- (b) Which two set-ups should Ahmad use to find out how the presence of water affects the growth of the green beans? [1]
- 
- (c) Based on your answer in (b), state one variable that Ahmad should keep unchanged in his two set-up. [1]
- 
-

30. The line graph below shows the mass of a mealworm during different stages of its life cycle.



- (a) Identify the stages in the mealworm's life cycle that are labelled on the line graph. [2]

Stage A: \_\_\_\_\_

Stage B: \_\_\_\_\_

Stage C: \_\_\_\_\_

Stage D: \_\_\_\_\_

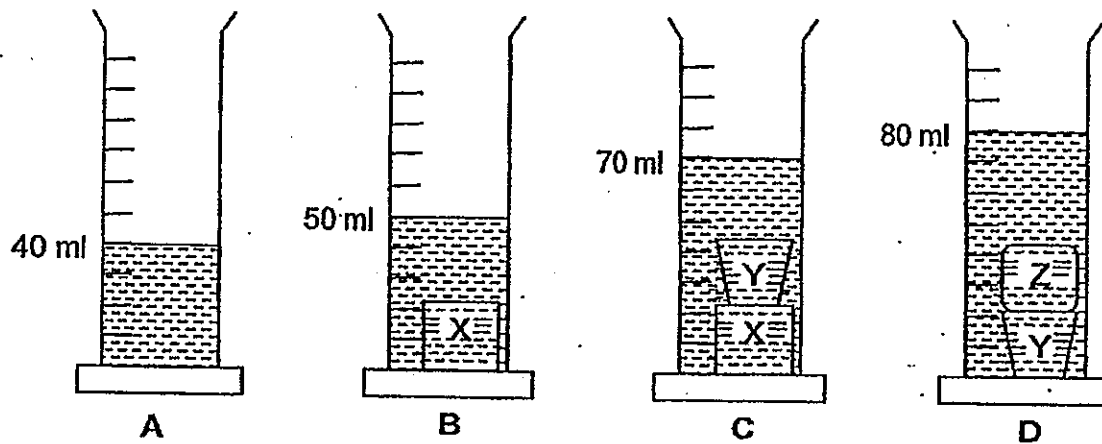
- (b) At which stage of its life cycle did the mass of the mealworm increase the most? Explain why. [2]

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31. Sam prepared four identical measuring cylinders, A, B, C and D. He poured equal amounts of water into each cylinder. He then placed the blocks, X, Y and Z, in the cylinders as shown below.

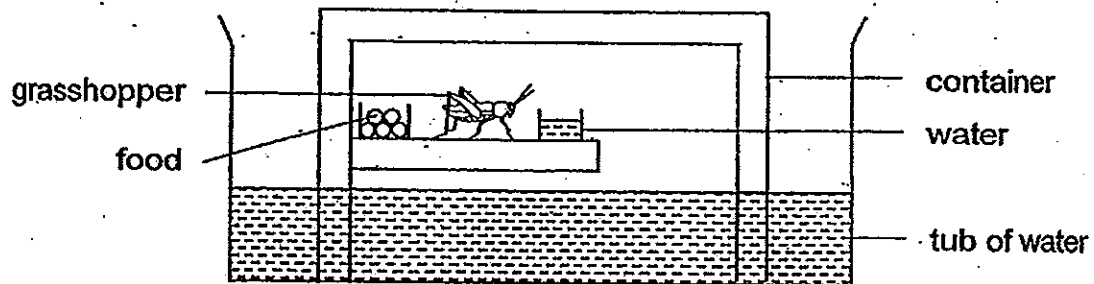


Based on the above, for each of the following, put a tick (✓) in the appropriate boxes to indicate if it is True, False or Not possible to tell. [2]

		True	False	Not possible to tell
(a)	The height of the water level in A is 4 cm.			
(b)	The mass of block X is 20 g.			
(c)	The volume of block X is greater than the volume of block Y.			
(d)	The volume of block Y is equal to the volume of block Z.			



32. Joe placed a grasshopper into a container. Next, he placed the container into a tub filled with water as shown below.



- (a) Based on the above, would the grasshopper be able to live after the container was placed into the tub of water? Explain your answer. [2]

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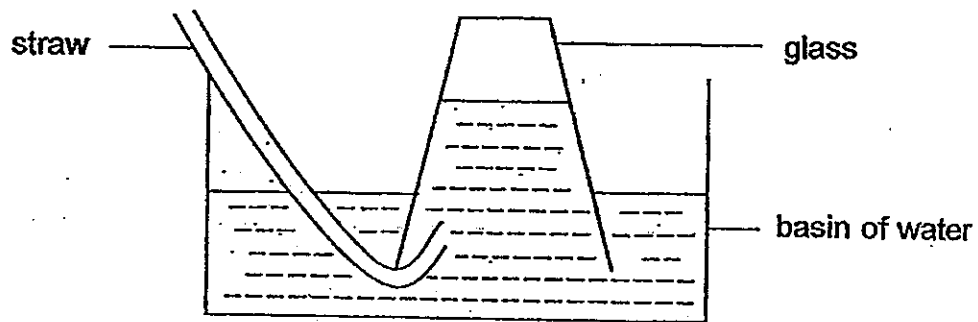
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- (b) Without removing the container, what could Joe do to the container to keep the grasshopper alive for a week? [1]

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33. Sam set up an experiment as shown below.



He then blew air into the glass through a straw. While blowing, Sam observed that there were bubbles in the glass. Write down two other observations that Sam would be able to see in the set up. [2]

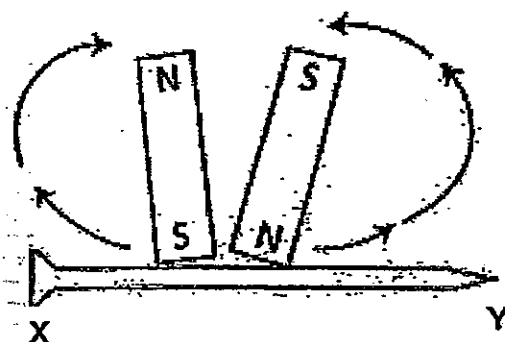
Observation 1:

The water level in the glass \_\_\_\_\_  
\_\_\_\_\_

Observation 2:

The water level in the basin \_\_\_\_\_  
\_\_\_\_\_

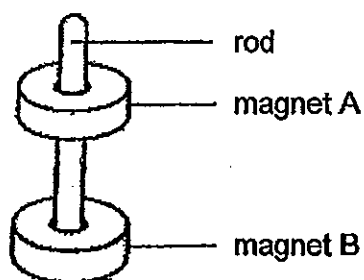
34. Two bar magnets were used to stroke an iron nail as shown in the diagram below. After some time, the nail became a magnet.



- (a) Put a tick (✓) in the appropriate boxes to indicate what poles X and Y would become.  
[1]

	North-seeking pole	South-seeking pole
X		
Y		

- (b) Two ring magnets, A and B, were put through a rod as shown below.



Give a reason why the magnets did not touch each other.

[1]

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- (c) If magnet A is flipped to its other side and put through the rod as shown above again, what will happen to the two magnets? [1]

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# Answer Ke

**EXAM PAPER 2013**

**SCHOOL : TAO NAN**

**SUBJECT: PRIMARY 4 SCIENCE**

**TERM : SA2**

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

Q18	Q19	Q20
1	3	3

21)reflects / shadow

22)expand / decreases / contract

23)a)Solid.

b)1)It has a definite shape.

2)It has a definite volume.

24)a)1.5m

b)As the distance of Rita from the lamp post increases, the length of her shadow increases.

25)a)Q, R, P, S

b)Ceramic is a poorer conductor of heat than metal and will conduct heat to the wax more slowly.

26)a)Alice should pour an equal amount of water in each beaker.

b)Beaker P. It has more heat energy than Beaker Q.

27)a)The steel cup.

b)Steel is a better conductor of heat than Styrofoam and glass so, it would conduct heat faster to the ice cubes thus making them melt first.

28)a)It is the seed leaf.

b)The mass would decrease. As the seedling grows, it would need the food stored in the seed leaf and eventually the seed leaf would lose weight and shrivel-up.

c)No it would not continue to grow. It needs the food in it to grow and cannot grow without it.

29)a)It would germinate in set-ups A and B.

b)Set-up A and C.

c)The number of green beans in the two beakers.

30)a)A: Egg      B: Larva      C: Pupa      D: Adult

b)At stage B. It would need all the energy it could get to prepare for the pupa stage where it does not eat.

31)a)Not      b)Not      c)F      d)T

32)a)Yes it would as there is still air, food and water in the container for the grasshopper to survive for a period of time.

b)He could make a hole at the bottom of the container and give it more food and water.

33)1) would decrease.

2)would increase

34)a)X: North-seeking pole

Y: South-seeking pole

b)The like poles of the magnets were facing each other and they repelled.

c)The two magnets will attract each other.