



## **PRIMARY 4 END-OF-YEAR EXAMINATION 2011**

Name : \_\_\_\_\_ (       ) Date: 31 October 2011

Class : Primary 4 (       )

Time: 8.00 a.m. - 9.15 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.

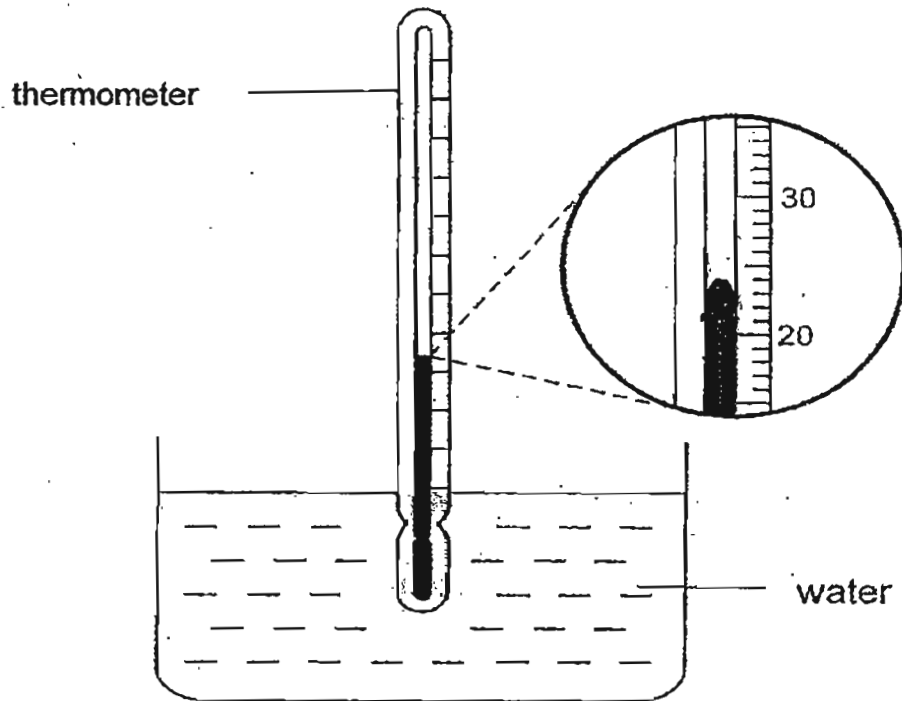
Answer all questions.

**Section A (20 x 2 marks)**

For each question, 1 to 20, four options are given. One of them is the correct answer. Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

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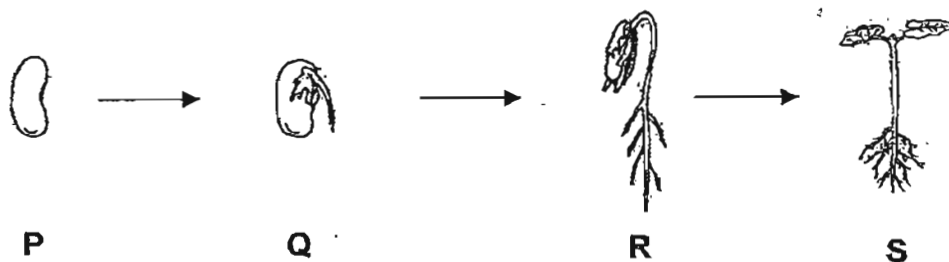
1. Jamil used a thermometer to measure the temperature of water in a trough shown below.



What is the temperature of the water in the trough?

- (1) 23°C
- (2) 24°C
- (3) 36°C
- (4) 37°C

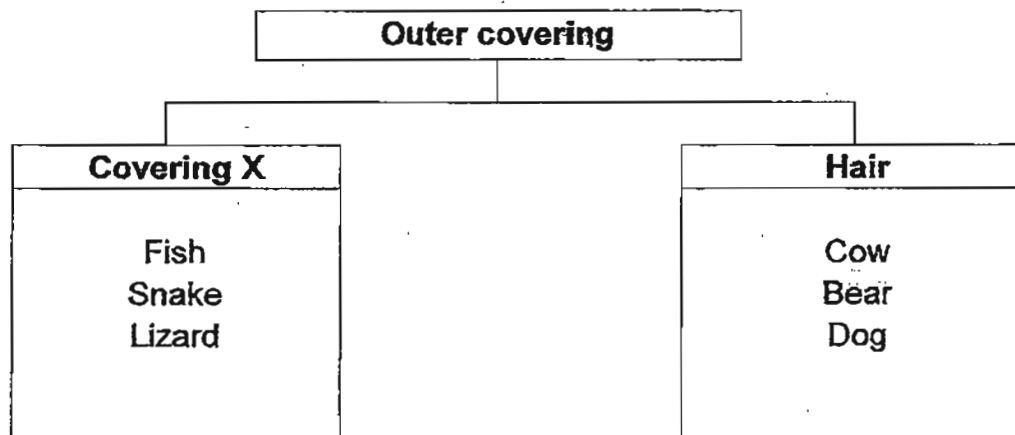
2. The diagram below shows the growth of a young plant.



At which stage, P, Q, R or S, does the plant require sunlight to make food?

- (1) P
- (2) Q
- (3) R
- (4) S

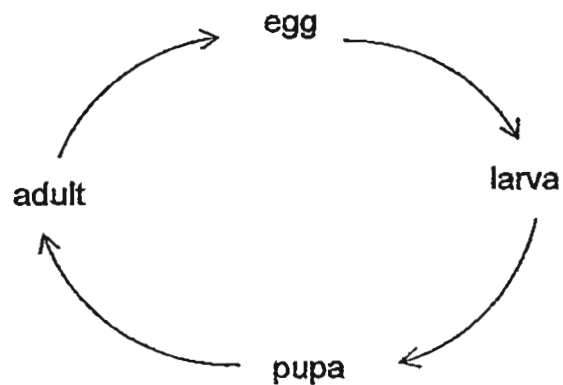
3. The table below shows how some living things can be grouped.



What is Covering X?

- (1) Fur
- (2) Shell
- (3) Scales
- (4) Feathers

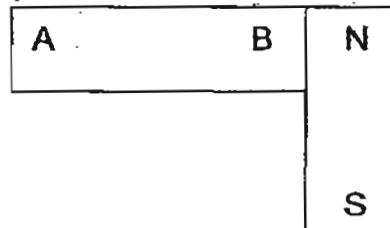
4. Study the life cycle diagram below carefully.



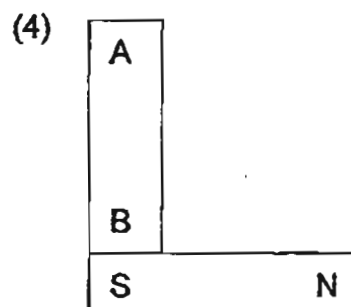
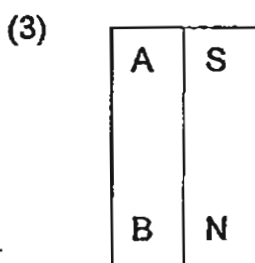
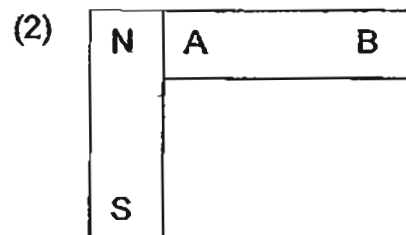
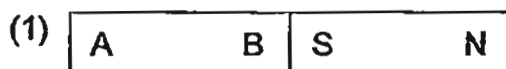
Which of the following organisms has a life cycle as the one shown above?

- (1) Cow
- (2) Butterfly
- (3) Dragonfly
- (4) Cockroach

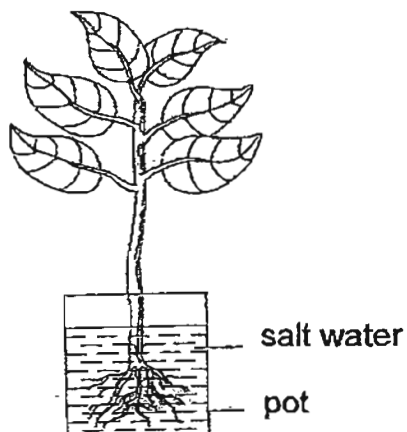
5. The diagram below shows two magnets attracted at each end.



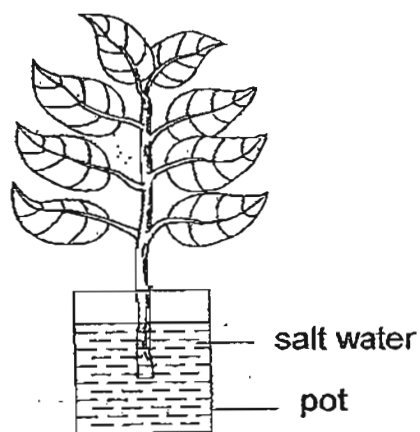
Which of the following is correct?



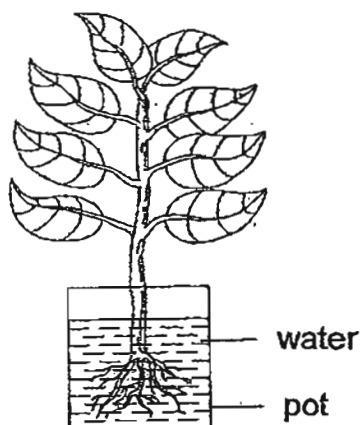
6. Ali was given four different set-ups shown below. His teacher asked him to conduct an experiment to show that roots of a plant take in water.



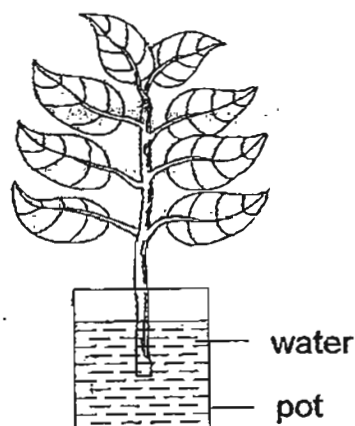
**Set-up A**



**Set-up B**



**Set-up C**

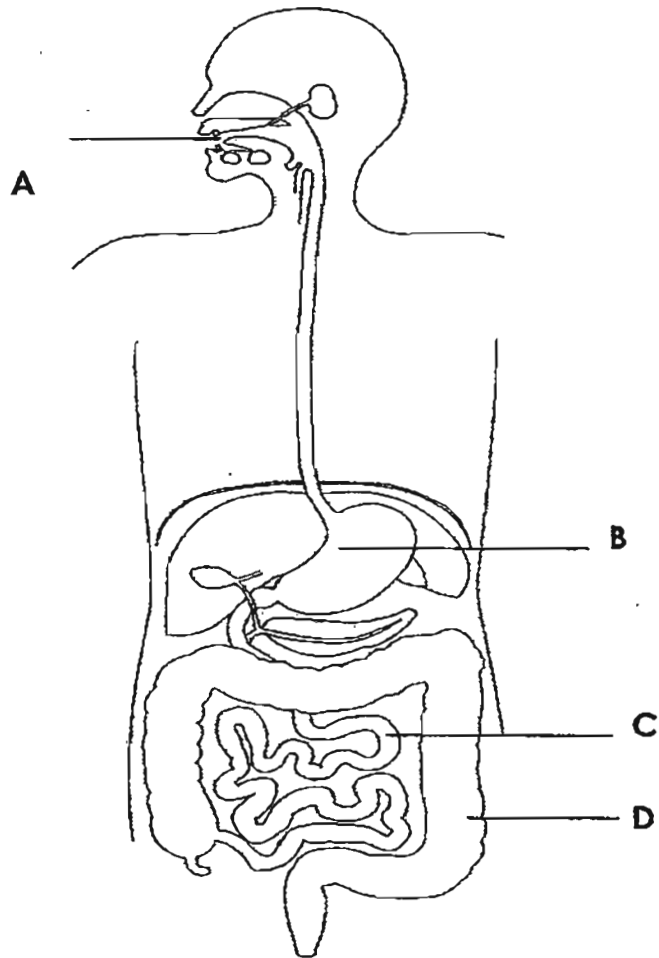


**Set-up D**

Which two set-ups should Ali use in his experiment to ensure that it is a fair test?

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

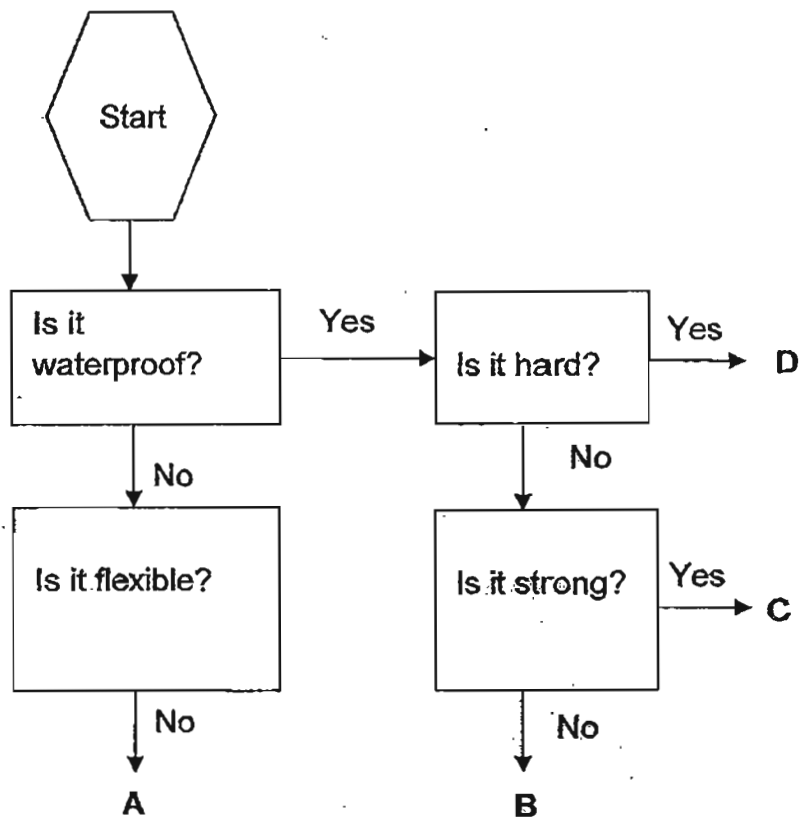
7. Dave ate a bowl of noodles for recess.



At which part, A, B, C or D, will the digested food be absorbed into the bloodstream?

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

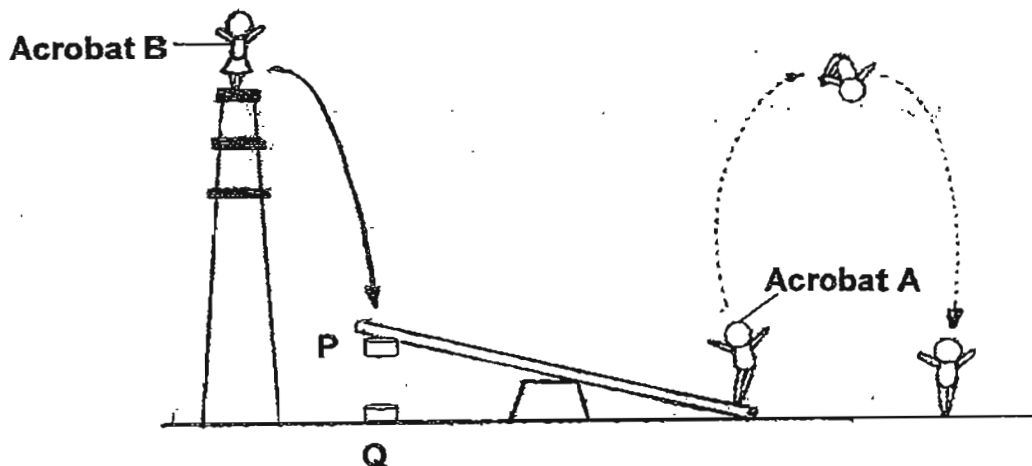
8. The flow chart below shows the characteristics of bags, A, B, C and D.



Mrs Singh bought a heavy bag of groceries. It was raining heavily outside the supermarket. Which bag, A, B, C or D, do you think Mrs Singh should choose so that she could reach home without getting her groceries wet?

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

9. In a circus show, acrobat B jumps onto a wooden plank and causes acrobat A to make a somersault as shown below. In order to lift acrobat A off the wooden plank in the shortest possible time, one object is attached to the underside of the wooden plank at point P and another at point Q on the ground as shown below.

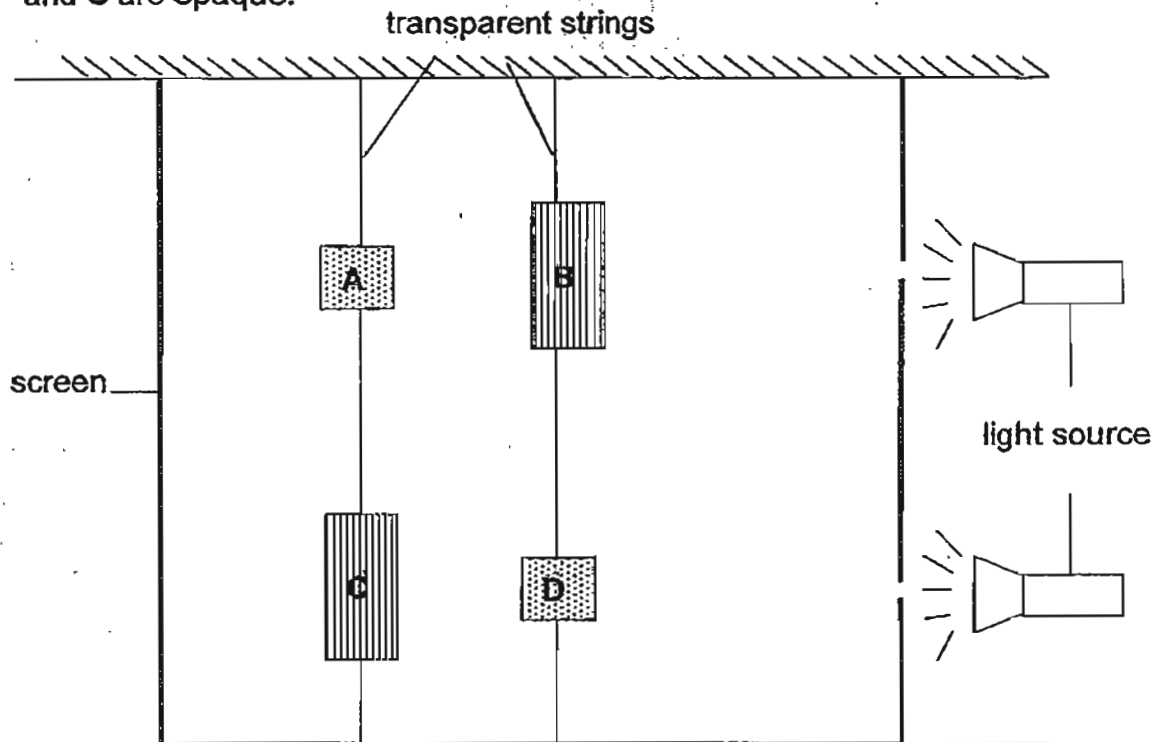


Which of the following best represents the objects used at points P and Q?

	Point P	Point Q
(1)	Steel block	Magnet
(2)	Iron block	Aluminium block
(3)	Steel block	Wooden block
(4)	Magnet	Copper block



10. Study the diagram below carefully. Four objects are hung from the ceiling as shown below. Similar objects A and D are translucent while similar objects B and C are opaque.

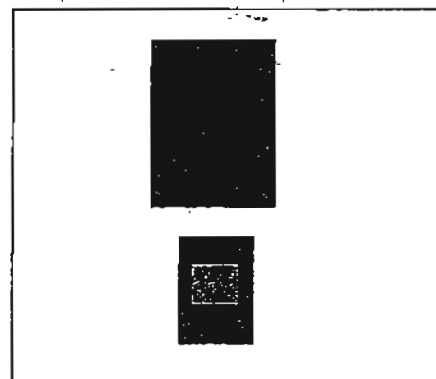


Which of the following correctly shows the shadows that will be formed on the screen?

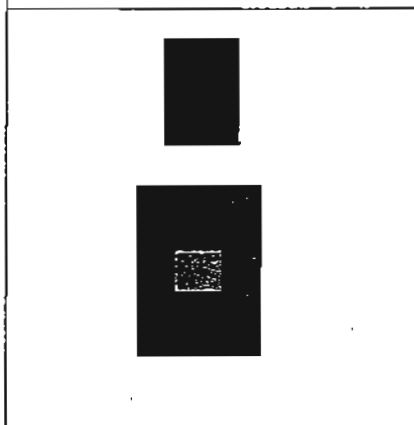
(1)



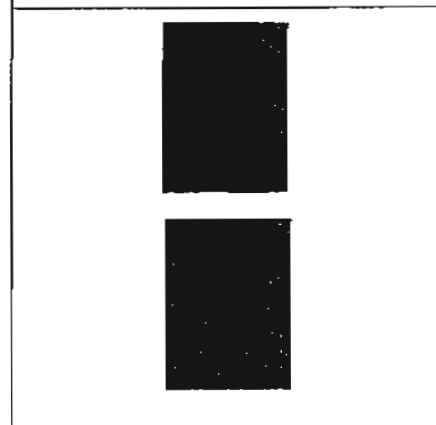
(2)



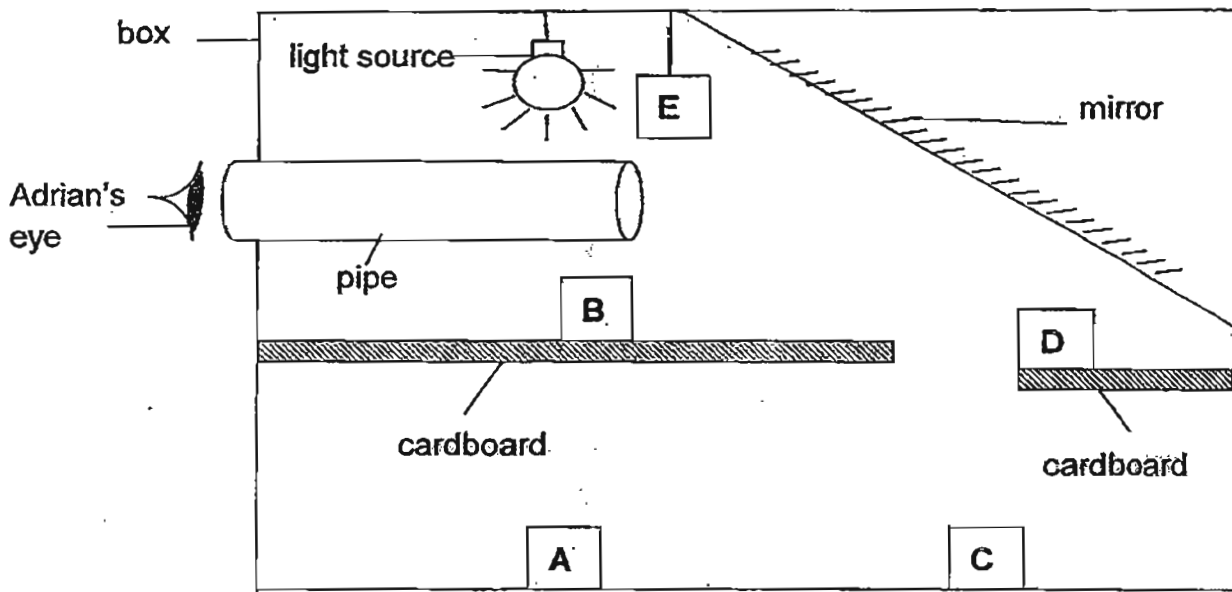
(3)



(4)



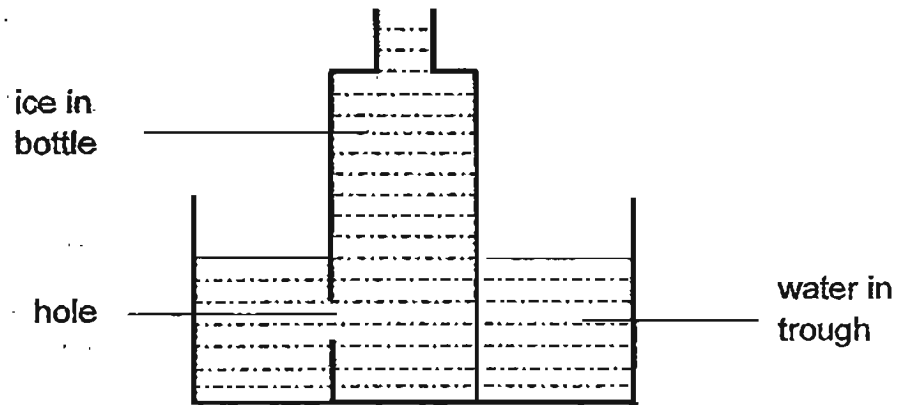
11. Adrian looks through a pipe into a box as shown below.



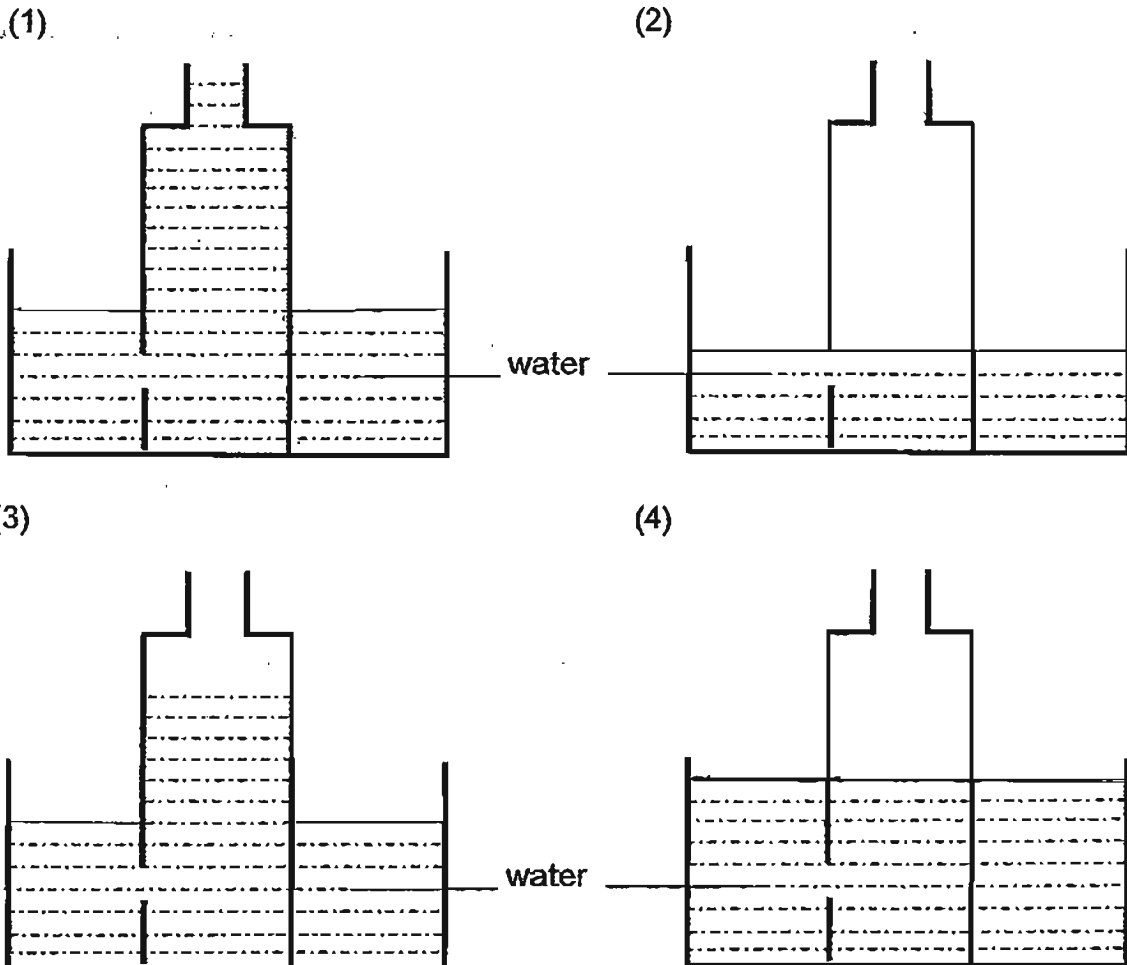
From the diagram above, which objects, A, B, C, D or E, will Adrian be able to see?

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

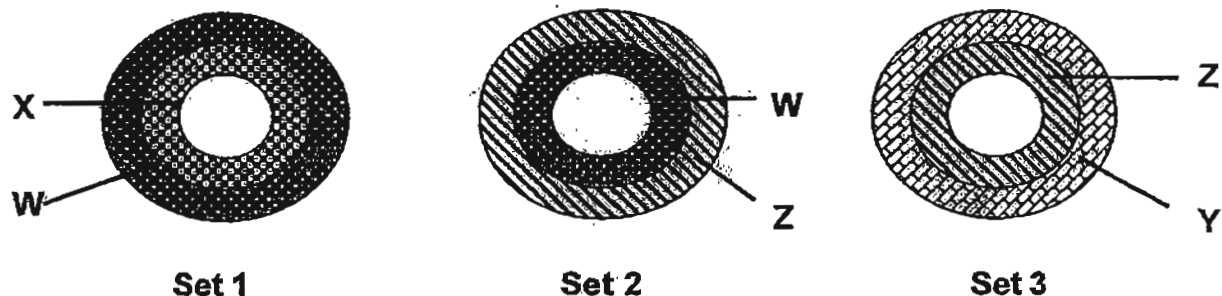
12. The diagram below shows a bottle of ice in a trough of water.



Which of the following correctly shows what will happen after the set-up was left in a room at room temperature until all the ice has melted?



13. Four different types of metals, W, X, Y and Z, were used to make three sets of rings as shown below. All the sets of rings were similar in size.



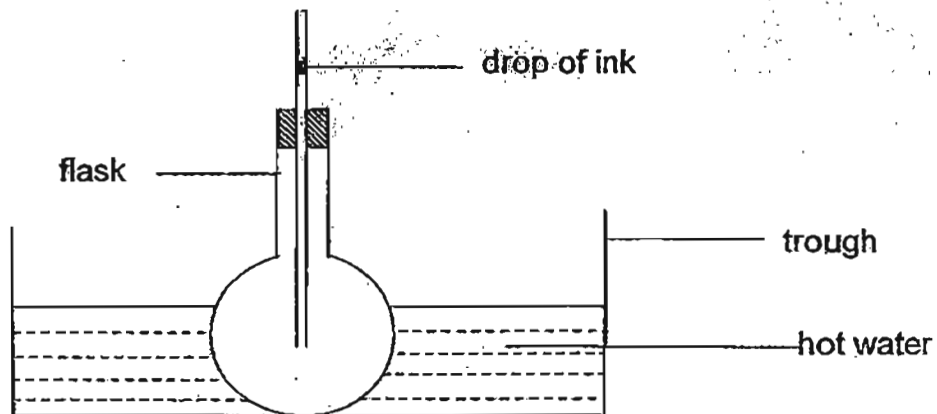
At 25°C, the inner ring of each set fits into the outer ring and could still be pulled out without much effort. After heating the sets of rings to about 50°C, the following observations were recorded in the table below:

Observations at 50°C		
Set 1	Set 2	Set 3
Ring X could not be pulled out of Ring W even with a lot of effort.	Ring W fell out of ring Z.	Ring Z fell out of Ring Y.

Based on the observations above, which of the following is **definitely true** about the metals?

- (1) Metal Y expanded the most.
- (2) Metal W expanded the least.
- (3) Metal Z conducted more heat than metal Y.
- (4) Metal X conducted more heat than metals Y and Z.

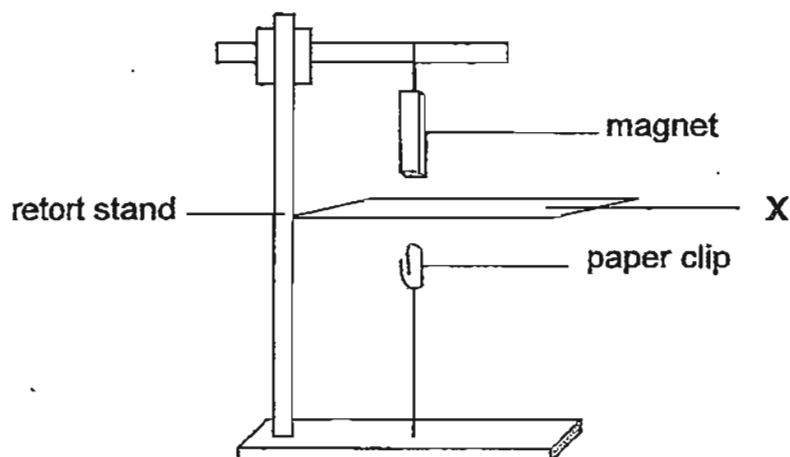
14. In the experiment set-up shown below, when the flask was immersed in hot water, the drop of ink in the tube dropped slightly first before it rose.



What could have caused the ink to drop first before rising?

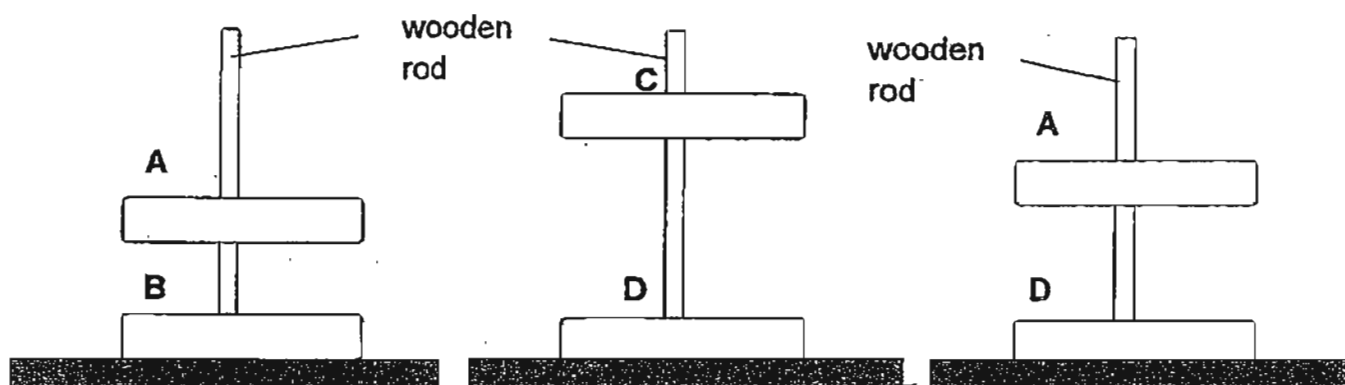
- (1) The flask expanded first followed by the air.
- (2) The flask expanded first followed by the drop of ink.
- (3) The drop of ink expanded first followed by the flask.
- (4) The air in the flask expanded first followed by the flask.

15. The experimental set-up below shows a steel paper clip attracted to a magnet with a piece of material 'X' placed in between.



Which of the following materials could 'X' be made of?

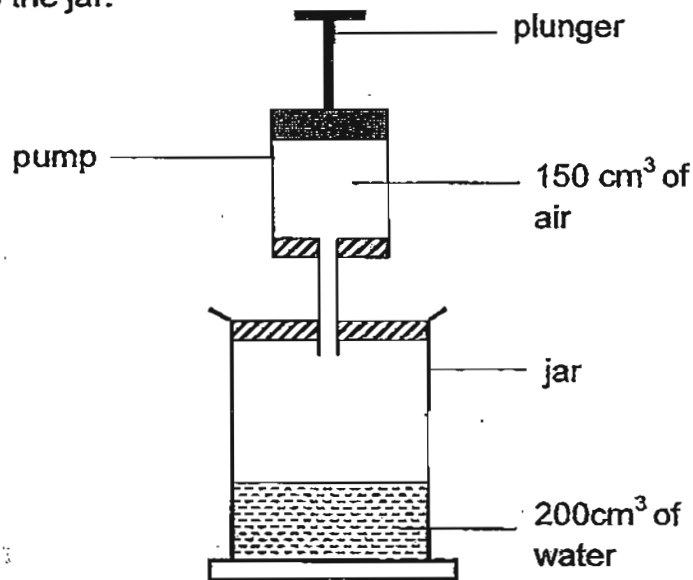
- (1) Iron
  - (2) Steel
  - (3) Nickel
  - (4) Copper
16. The diagram below shows three sets of different ring magnets. The mass of each ring magnet is the same.



Based on the set-ups given, which one of the following statements is most likely to be correct?

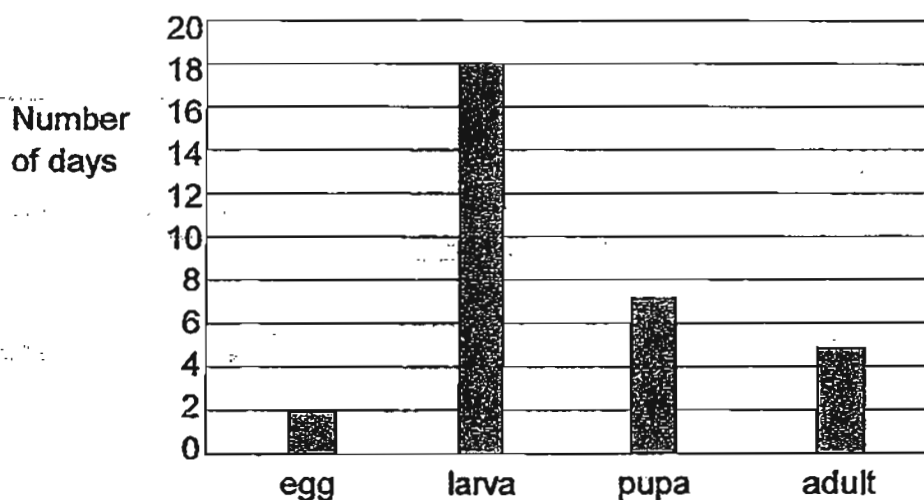
- (1) Magnet A is stronger than magnet B.
- (2) Magnet C is stronger than magnet A.
- (3) Magnet C is stronger than magnet D
- (4) Magnet B is stronger than magnets A and D.

17. The diagram below shows a 500 cm<sup>3</sup> jar containing 200 cm<sup>3</sup> of water and a pump containing 150 cm<sup>3</sup> of air. When the plunger is pushed all the way down, the air in the pump goes into the jar.



What is the volume of the air in the jar after the plunger is pushed down?

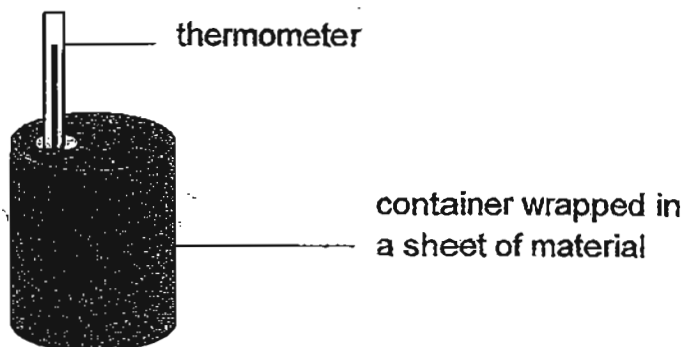
- (1) 150 cm<sup>3</sup>  
 (2) 300 cm<sup>3</sup>  
 (3) 450 cm<sup>3</sup>  
 (4) 500 cm<sup>3</sup>
18. The graph below shows the stages in the life cycle of a beetle and the length of time it remains at each stage.



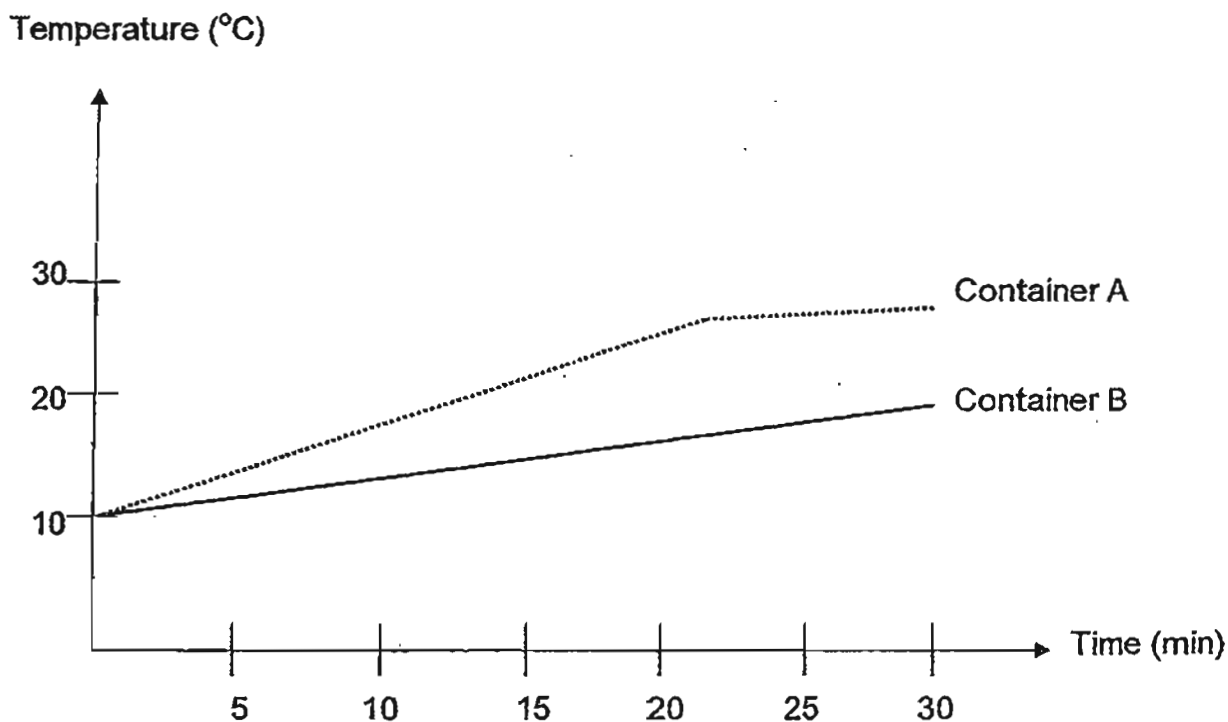
How many days did the organism eat a lot before growing into an adult?

- (1) 7  
 (2) 18  
 (3) 25  
 (4) 27

19. Chris poured the same amounts of cold water into two similar metal containers, A and B. Each container was wrapped around with a sheet of different material as shown below.



He inserted a thermometer into each container and recorded the change in temperature over 30 minutes when the containers were left in a room at room temperature.



Based on the graph above, which of the following are the materials wrapped round each container?

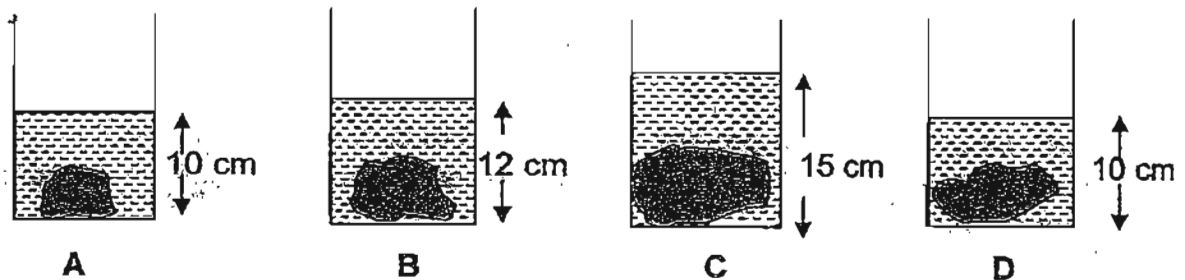
Material wrapped around container	
A	B
(1) Aluminium	Styrofoam
(2) Plastic	Cloth
(3) Cloth	Plastic
(4) Styrofoam	Aluminium



20. Xiao Yong was given four irregular objects, A, B, C and D, of different shapes and sizes.



He placed the four objects into four identical beakers which were filled with the same amount of water.



What can Xiao Yong conclude from the above?

- (1) Object C has the greatest mass.
- (2) Object A has the smallest volume.
- (3) The volumes of objects A and D are the same.
- (4) The mass of water in the beaker with Object A is the greatest.



## **PRIMARY 4 END-OF-YEAR EXAMINATION 2011**

Name : \_\_\_\_\_ (     ) Date: 31 October 2011

Class : Primary 4 (     )

Time: 8.00 a.m. - 9.15 a.m.

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

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

## **SCIENCE BOOKLET B**

### **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 B (40 marks)**

For each question, 21 to 34, write your answers in the spaces provided.

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21. Look at the picture of an organism below.



Based on the picture, the organism \_\_\_\_\_ [2m]

Tick the correct box (es).

- |                          |                     |
|--------------------------|---------------------|
| <input type="checkbox"/> | can sting           |
| <input type="checkbox"/> | can lay eggs        |
| <input type="checkbox"/> | has two antennae    |
| <input type="checkbox"/> | has 3 pairs of legs |

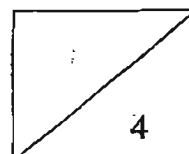
22. The table below shows how some animals have been grouped.

Group P	Group Q
Frog	Butterfly
Mosquito	Chicken
Damselfly	Cockroach

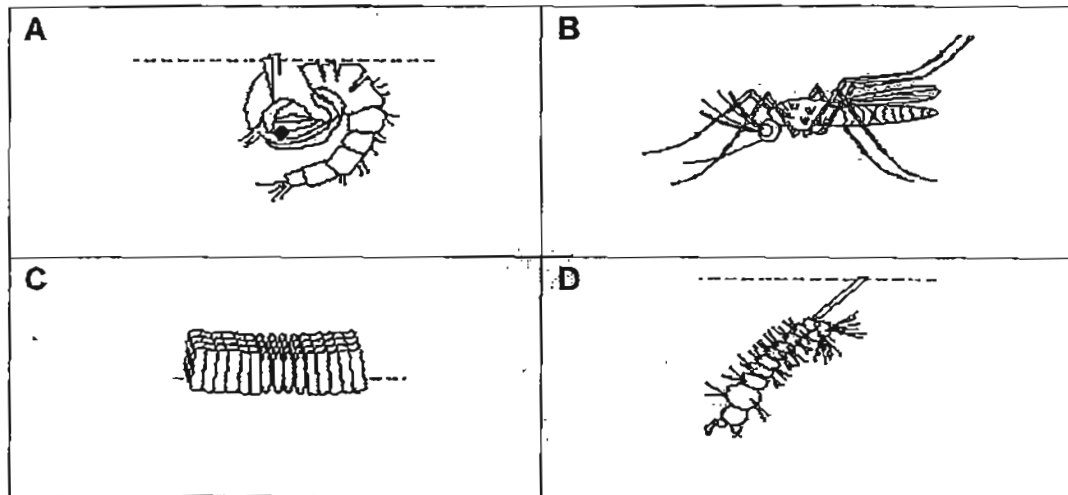
Give a suitable heading for groups P and Q.

(a) Group P: \_\_\_\_\_ [1m]

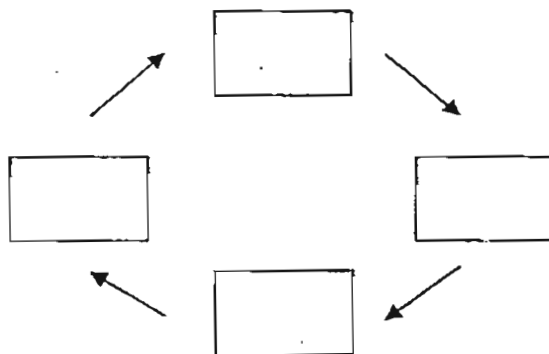
(b) Group Q: \_\_\_\_\_ [1m]



23. The pictures below show the stages in the life cycle of a mosquito. The pictures are not arranged in order.



- (a) Arrange the stages in the life cycle of a mosquito in the correct order, by writing A, B, C and D, in the boxes provided. [1m]

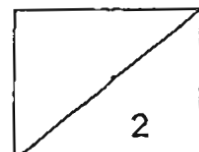


- (b) At which stage of the life cycle, A, B or D, would killing of the mosquito be most difficult? Explain your answer. [1m]

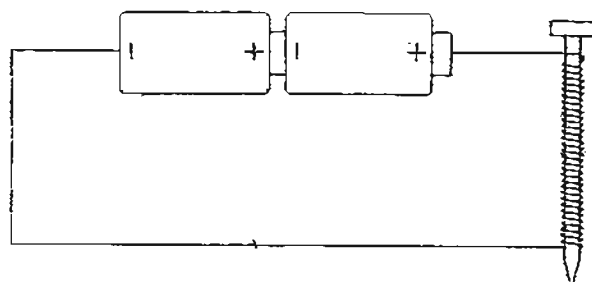
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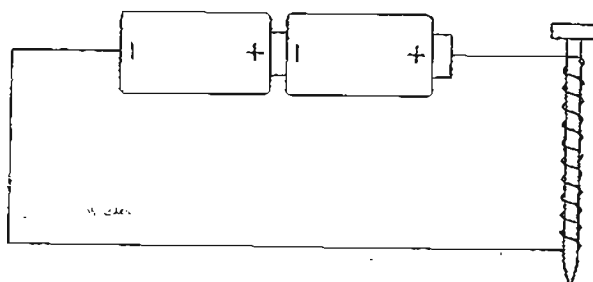
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24. The diagram below shows two electromagnets.



**Electromagnet X**



**Electromagnet Y**

- (a) The table below shows the maximum distance at which the magnet could attract a paper clip. Fill in the blanks with letters X and Y to represent the electromagnets. [1m]

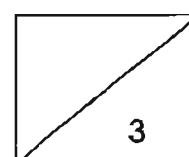
Electromagnet	Maximum pulling distance (cm)			
	1 <sup>st</sup> reading	2 <sup>nd</sup> reading	3 <sup>rd</sup> reading	Average reading
	3	5	4	4
	5	6	7	6

- (b) Write down **two ways** in which the pulling distance can be increased for both the electromagnets. [1m]

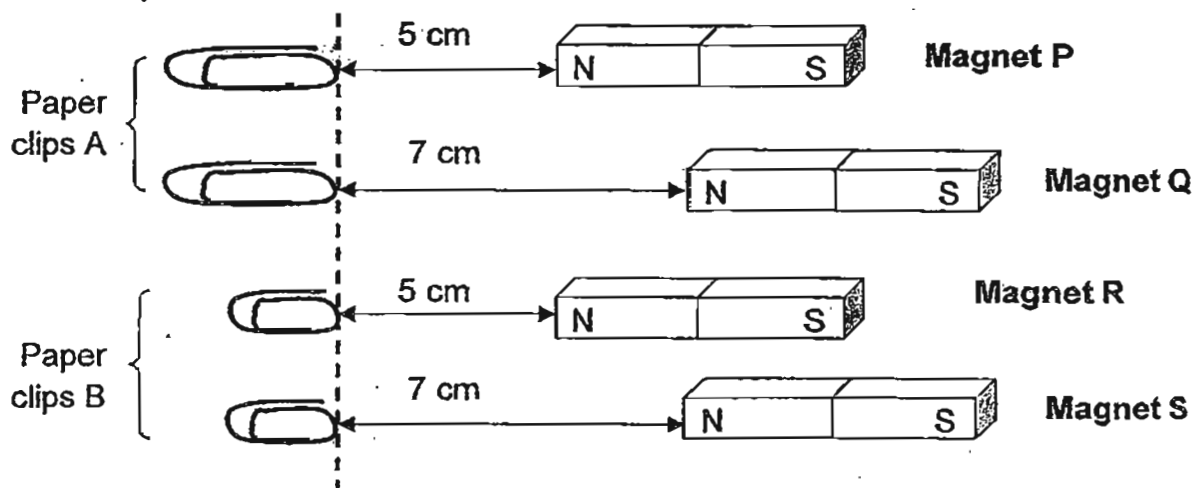
- (i) \_\_\_\_\_
- (ii) \_\_\_\_\_

- (c) Explain why three readings were taken to calculate the average reading for the experiment. [1m]

\_\_\_\_\_



25. The diagram below shows the greatest distance at which the magnets, P, Q, R and S, will attract paper clips A and B. Paper clip A is twice as heavy as paper clip B.



- (a) Which of the magnets is the strongest? Explain why.

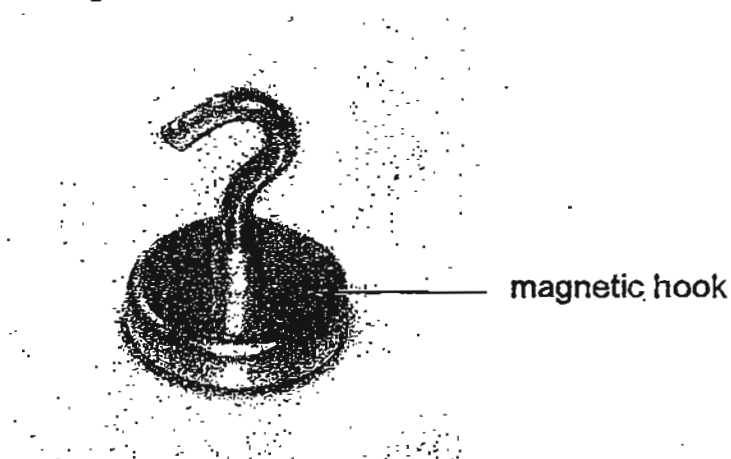
[2m]

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Magnets are used in many ways in our daily lives. One simple use of magnets can be in the form of magnetic hooks as shown below.



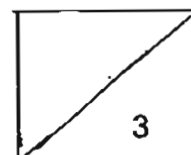
- (b) Which magnet, P, Q, R or S, should be used to make the hook so that a heavy bag could be hung from the hook? Explain why.

[1m]

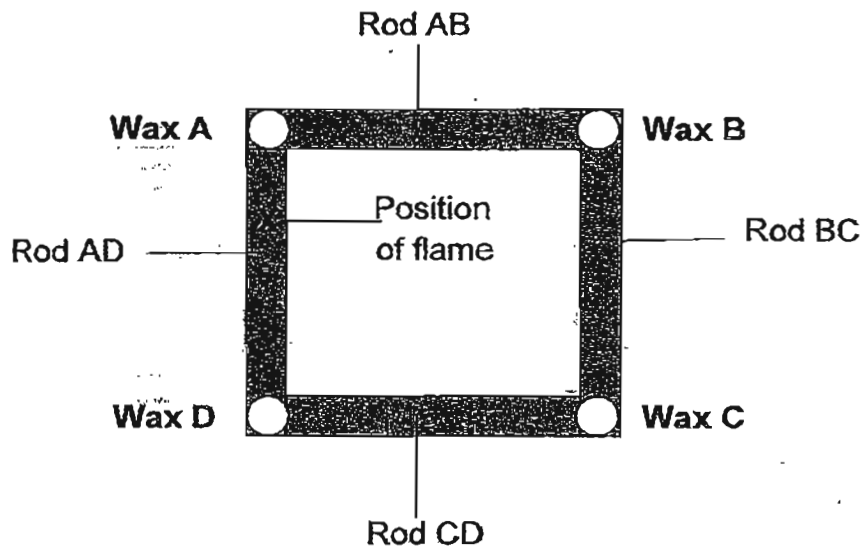
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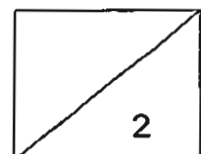


26. Andy placed four balls of wax, A, B, C and D, at the four corners of a square metal frame made of four rods of the same material as shown in the diagram below.

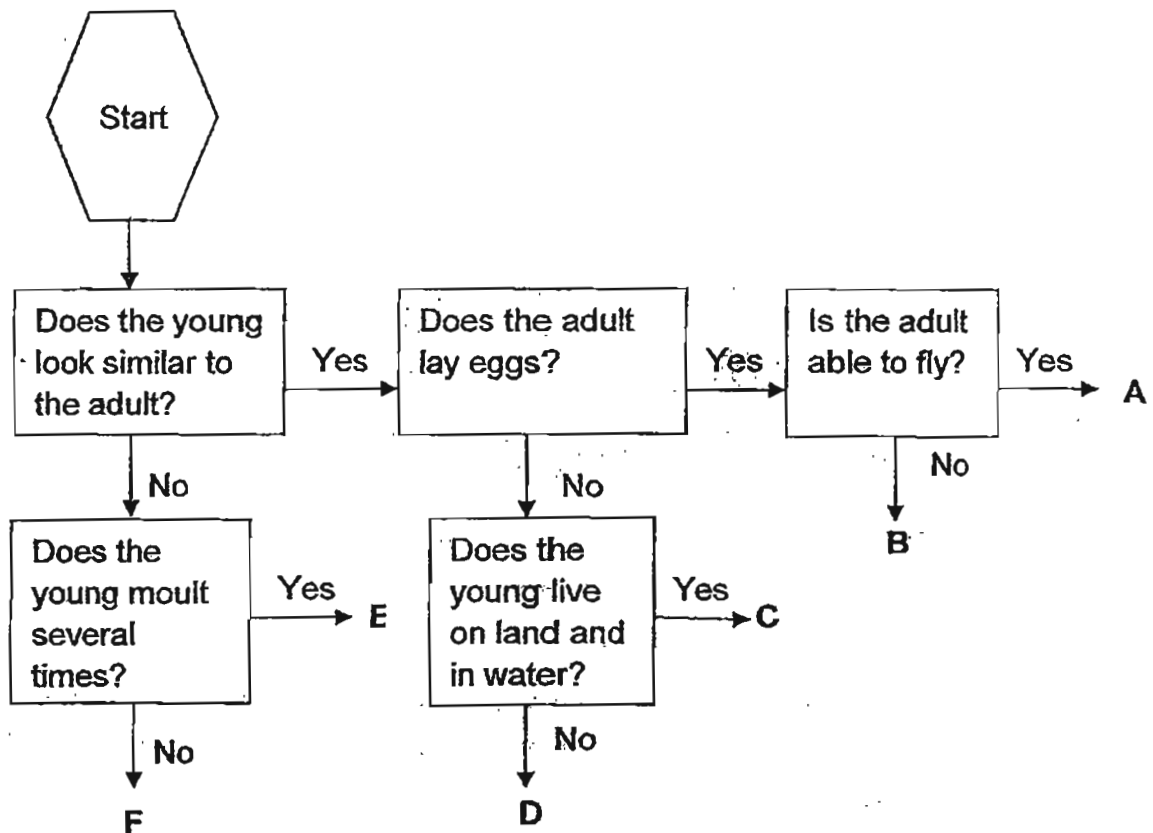


- (a) 'X' represents the position of the flame that heated the square metal frame. Write down the order in which the balls of wax melted, starting from the one that melted first. [1m]
- 

- (b) What could Andy do so that Wax B may melt before Wax D? (Do not change the position of the flame and the length of the rods.) [1m]
- 



27. Study the characteristics of 6 organisms, A, B, C, D, E and F, found in a park in the flowchart below.



- (a) Based on the flowchart, write down the characteristics of organism E. [2m]

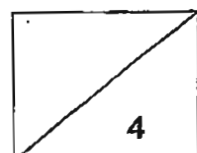
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- (b) Based on the flowchart, write down two similarities between organisms C and D. [2m]

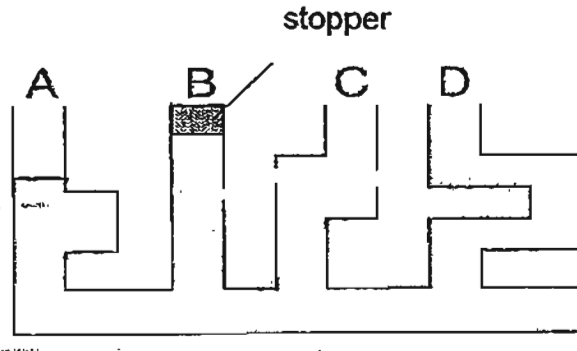
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28. The diagram below shows a communicating vessel with a capacity of 1000ml. The opening at B is covered with a stopper. 800ml of water is poured into the opening at A. The level of water at A is drawn as seen below.



- (a) Draw in the diagram above, the level of water in the communicating vessel. [1m]

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

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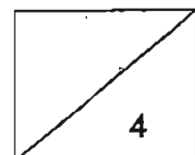
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- (c) Describe in detail what will happen to the water level when the stopper is removed. [1m]

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29. Rajah wants to find out which of the following stones, A or B, has a greater volume.



Stone A



Stone B

He is only given two identical containers of capacity 500ml, 1000ml of water and two strings.



Two identical containers

Two strings

1000ml of water

- (a) Rajah is told to use all the water in his experiment. Order the steps he needs to take to conduct the experiment. [2m]

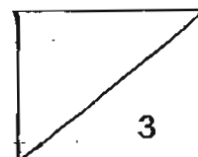
Description	Step
Lower one stone into each container of water until the water stops overflowing.	
Tie each stone using the string.	
Lift up the stones using the strings.	
Fill each container with water till the brim.	

- (b) Explain how Raja would find out which stone has a greater volume. [1m]

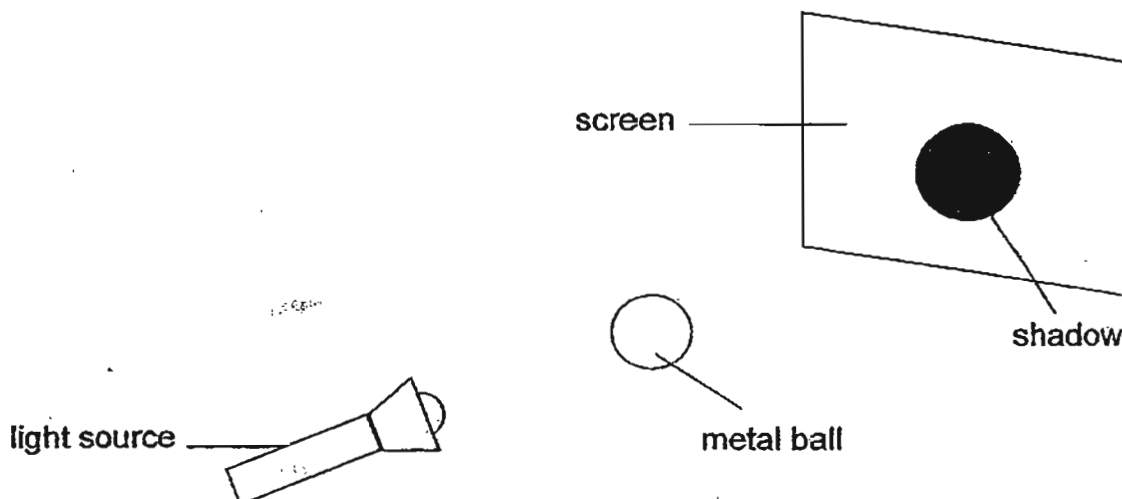
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30. In the experimental set-up below, Siti placed a metal ball between the light source and the screen. A shadow is formed on the screen as shown.

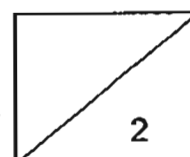


Then Siti placed the light source at different distances from the screen. She recorded the results in the table below.

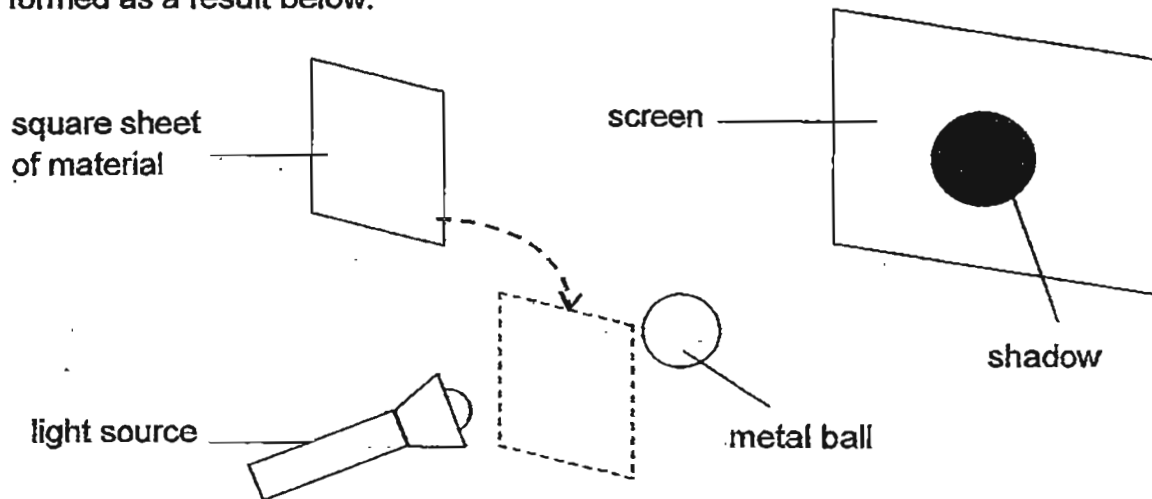
Distance between the light source and metal ball (cm)	Distance between the metal ball and screen (cm)	Height of shadow (cm)
15	15	20
P	15	22
Q	15	24
R	15	26

- (a) Based on the information in the table, arrange the distance between the light source and the metal ball, P, Q and R, in ascending order. [1m]

- (b) Write down one similarity between the shadows of heights 20 cm and 26 cm. [1m]



In another experiment, Siti placed three square sheets of different material, A, B and C, between the light source and the metal ball. She drew the three shadows formed as a result below.

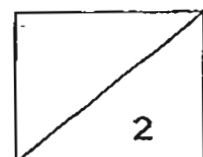


Material A	Material B	Material C

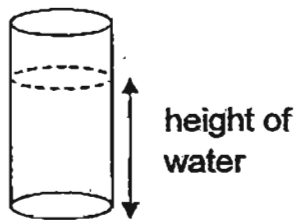
(c) Based on the shadows formed, write the letters, A, B and C, in the table below which shows the amount of light that can pass through each material.

[2m]

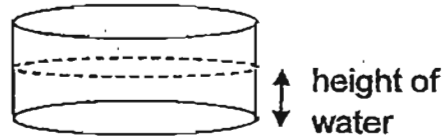
Amount of light that can pass through	Material
0 unit	
550 units	
5000 units	



31. Ah Meng poured  $250 \text{ cm}^3$  of water at  $85^\circ\text{C}$  into each of the two metal containers, A and B, as shown below. The containers of water were left in a room with temperature  $25^\circ\text{C}$ .



Container A



Container B

After 15 minutes, he realised that the temperature of water in Container A was higher than that in Container B.

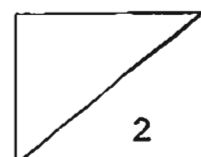
- (a) What can you say about the amount of heat in the water in each of the containers, A and B, at the start of the experiment? [1m]

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- (b) After the containers of water were left in the room for 15 minutes, water in which container, A or B, will contain more heat? Explain why. [1m]

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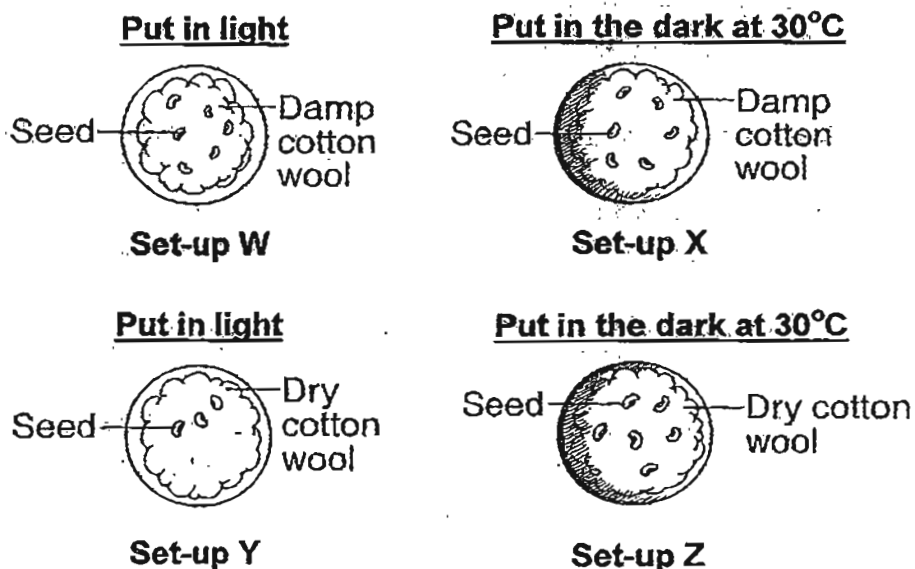
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32. Lina wanted to find out if the presence of water is a condition needed for germination. She planted an equal number of green bean seeds in two similar dishes, A and B. Then, she recorded observations only when a new part of the seed appears in each dish, over two weeks, in the table below.

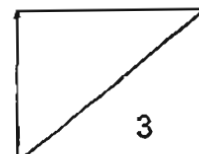
Day	Seeds in dish A	Seeds in dish B
1	Seeds planted	Seeds planted
4	Roots appeared	Remained the same
8	First shoots appeared	Remained the same
14	Leaves appeared	Remained the same

- (a) Based on the information above, which seeds germinated and when did it take place? [1m]

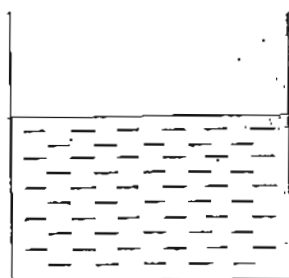
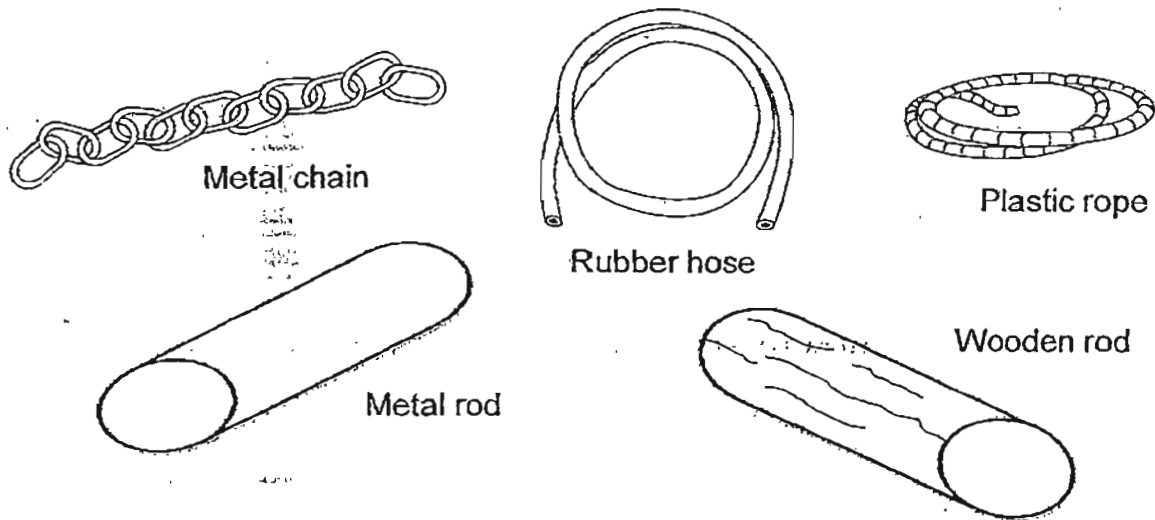


- (b) Based on the results in the table, which two set-ups above did Lina use for her experiment? [1m]

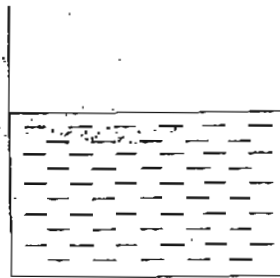
- (c) Explain your answer in (b). [1m]



33. You are given the following materials and two containers of water at different temperatures.



**Container A**  
**Water at 100°C**

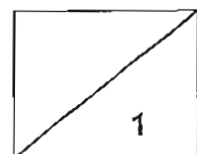
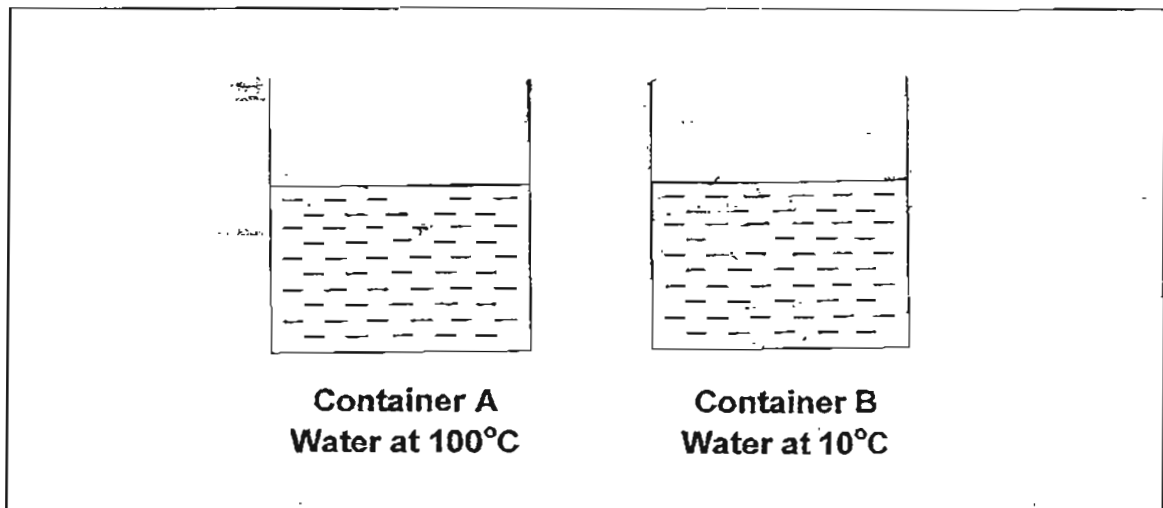


**Container B**  
**Water at 10°C**

- (a) In the diagram below, draw the material(s) to show how heat can be transferred from one container to another, without pouring any water over.

**You need not use all the materials.**

**[1m]**



(b) Why did you choose the material(s) in your answer (a)?

[2m]

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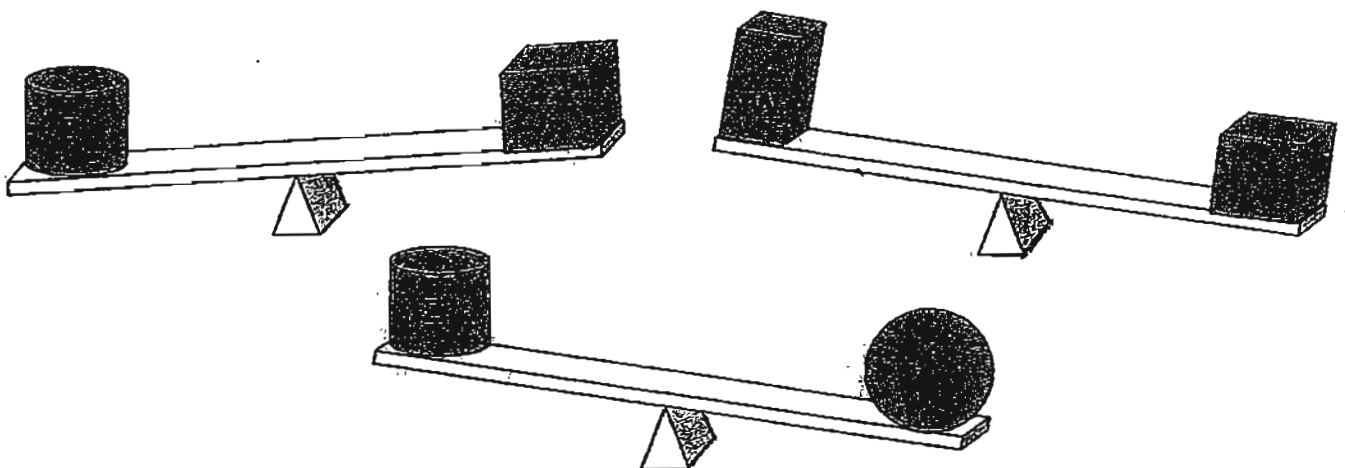
(c) Explain how heat is transferred between the containers in the method drawn above.

[1m]

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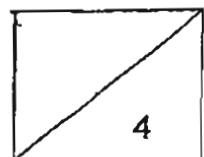
34. Study the diagram of four objects of equal volume.



(a) Arrange the objects, W, X, Y and Z, according to their masses starting from the largest mass to the smallest mass.

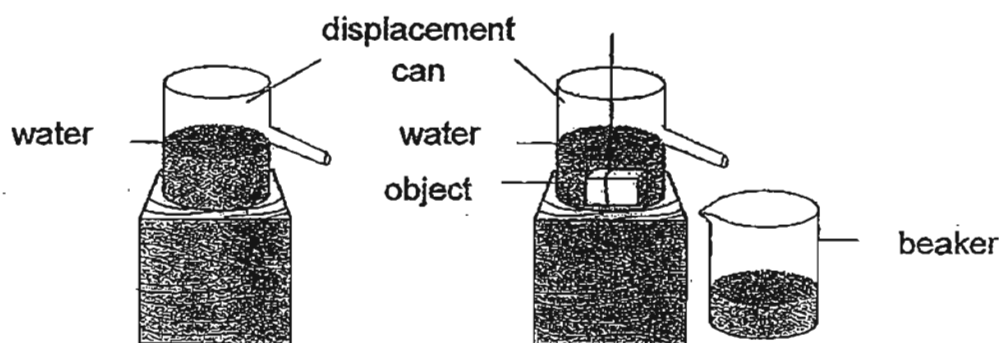
[1m]

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A displacement can is filled with water. Water flows from the can into the beaker when each of the objects, W, X, Y and Z, is lowered into the can.

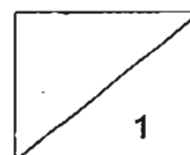


(b) What can you conclude about the water level in the beaker as each of the objects is lowered into the can? [1m]

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End-of-Paper





# Answer Ke

## EXAM PAPER 2011

**SCHOOL : TAO NAN**

**SUBJECT : PRIMARY 4 SCIENCE**

**TERM : SA2**

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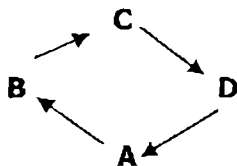
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
2	4	3	2	3	4	3	3	1	4	2	4	2	1	4	2	2

Q18	Q19	Q20
2	1	3

21)has two antennae  
Has 3 pairs of legs

22)a)Young live in water.  
b)Young live on land.

23)a)



b)It is able to fly to escape whereas in stages A and D, it is not able to fly and escape easily.

24)a)Y, X

- b)i)To crease the number of batteries.
- ii)Coil more wires around the nail.
- c)It is too ensure that the result are reliable.

25)a)Magnet Q, it is able to attract the heavier paper at a greater distance.

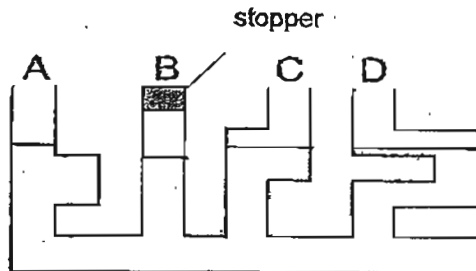
b)Magnet Q, should be used as it is the strongest and would be the best of the four to hold a heavy bag.

26)a)A,D,B,C

b)Change Rod AD to poor conductor of heat.

- 27)a)The young does not look similar to the adult but the young moult several times.  
 b)Both young of C and D looks similar to the adult and both adults does not lay egg.

28)a)



- b)For vessel B, the water be lesser as air cannot escape and air occupies space.  
 c)The water level in B would rise whereas the level for A,C,D will drop. The water water level in A,B,C,D will be the same.

29)a)4132

- b)The stone that displaced more water is the one with the greater volume.

30)a)R,Q,P

- b)Both the shadows are of the same shape.  
 c)B,C,A

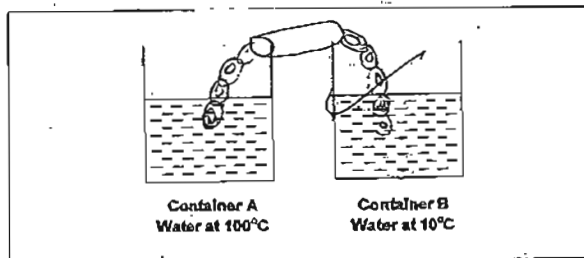
31)a)The amount of heat in A and B is the same.

- b)Water in container A will contain more heat that water in container B. The opening of A is smaller than that of B. Larger surface area without A has a smaller surface.

32)a)Seeds in dish A and Day 4.

- b)Set-up X and Z.  
 c)They have only one changed variable which is the presence of water.

33)a)



- b)The metal chain and metal rod are a good conductors of heat.  
 c)Heat travels from a hotter to a colder region via the metal chain.

34)a)X,Z,Y,W

- b)The water level will be same for all the object.