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SINGAPORE CHINESE GIRLS' SCHOOL  
PRELIMINARY EXAMINATION 2007  
PRIMARY 6 SCIENCE

Name: \_\_\_\_\_ ( . ) Date: \_\_\_\_\_

Class: Primary 6 SY / C / Q / SE / P

SCIENCE

BOOKLET A

30 questions

60 marks

Total Time For Booklets A & B : 1 h 45 min

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

**FOLLOW ALL INSTRUCTIONS CAREFULLY.**

**Part I (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) Which of the following organisms can make their own food?

- ~~A~~: Bread mould
- ~~B~~: Bird's nest fern

- ~~C~~: Rain tree
- ~~D~~: African violet

- 1) A and B only
- 2) C and D only

- 3) B, C and D only
- 4) A, B, C and D

2) Lisa tested the strength of <sup>4</sup> different strings by hanging weights on them gradually until the strings break. She recorded the results in the table below.

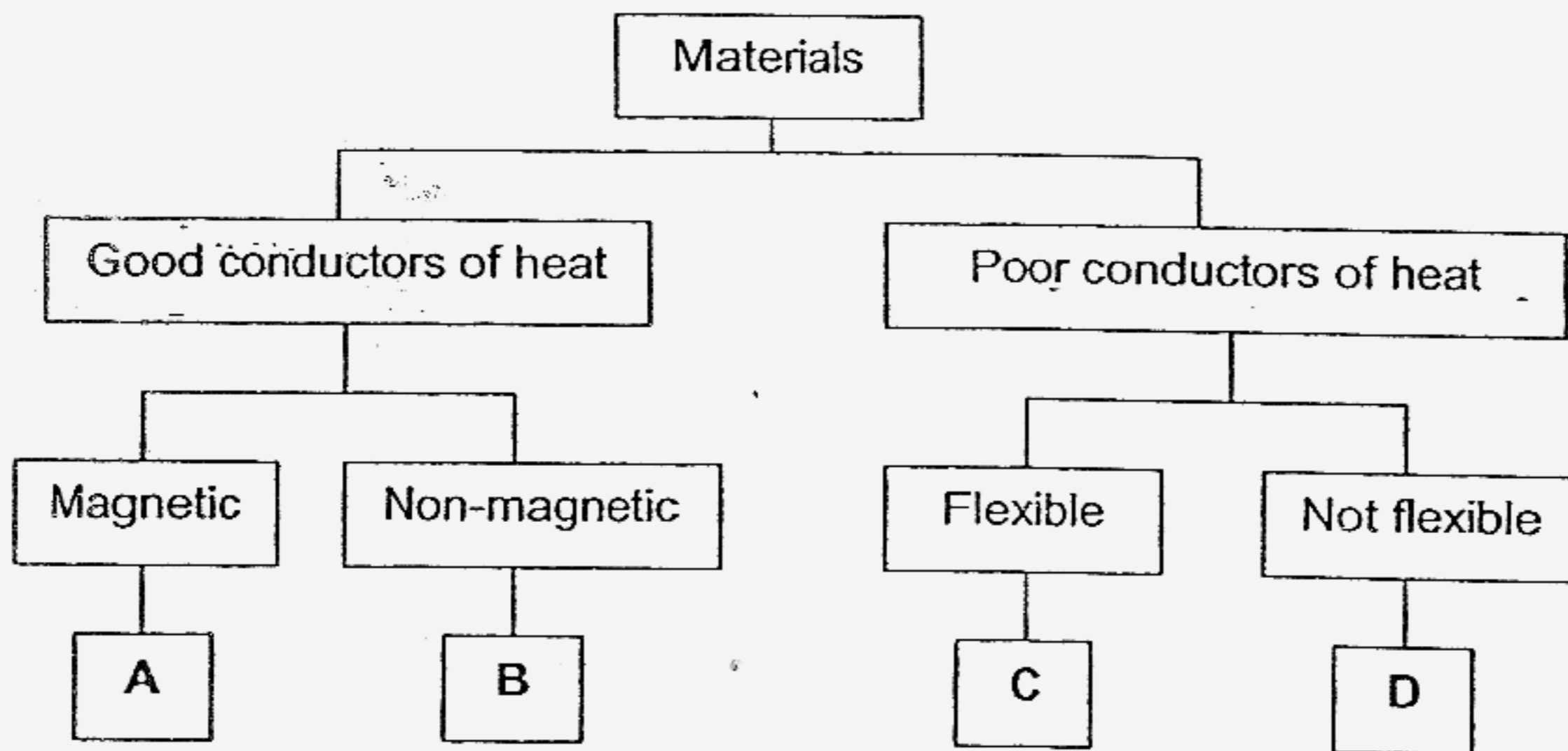
String	Mass of weights needed to break the string
W	820g
X	290g
Y	550g
Z	760g

Which is the strongest string?

- 1) W
- 2) X

- 3) Y
- 4) Z

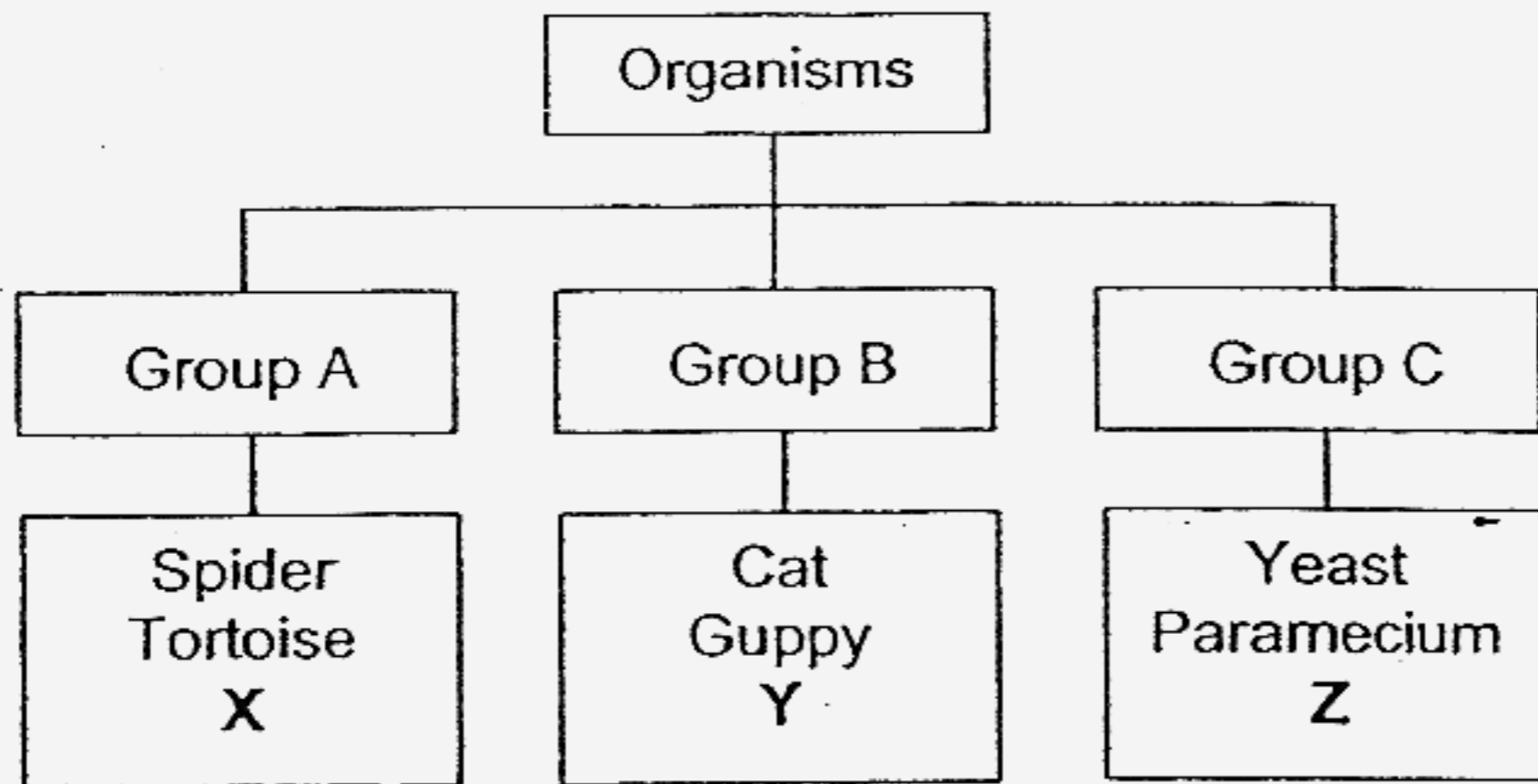
3) Which material/s is/are most likely to be suitable for making the handle of a frying pan?



- 1) D only
- 2) A and B only

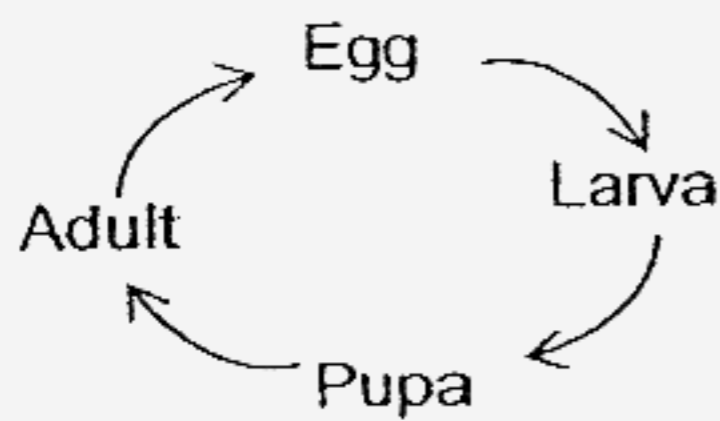
- 3) B and D only
- 4) C and D only

4) Which of the following animals are represented by X, Y and Z respectively?

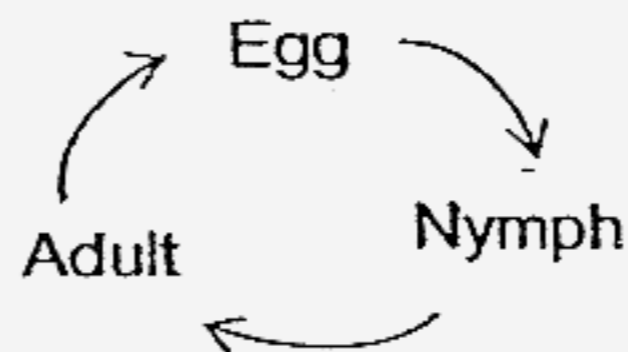


	X	Y	Z
<del>1)</del>	Crocodile	Salmon	Euglena
<del>2)</del>	Duck	Rabbit	Earthworm
<del>3)</del>	Elephant	Mudskipper	Hydra
<del>4)</del>	Cobra	Horse	Amoeba

5) Study the life cycles of Animal X and Y below.



Animal X



Animal Y

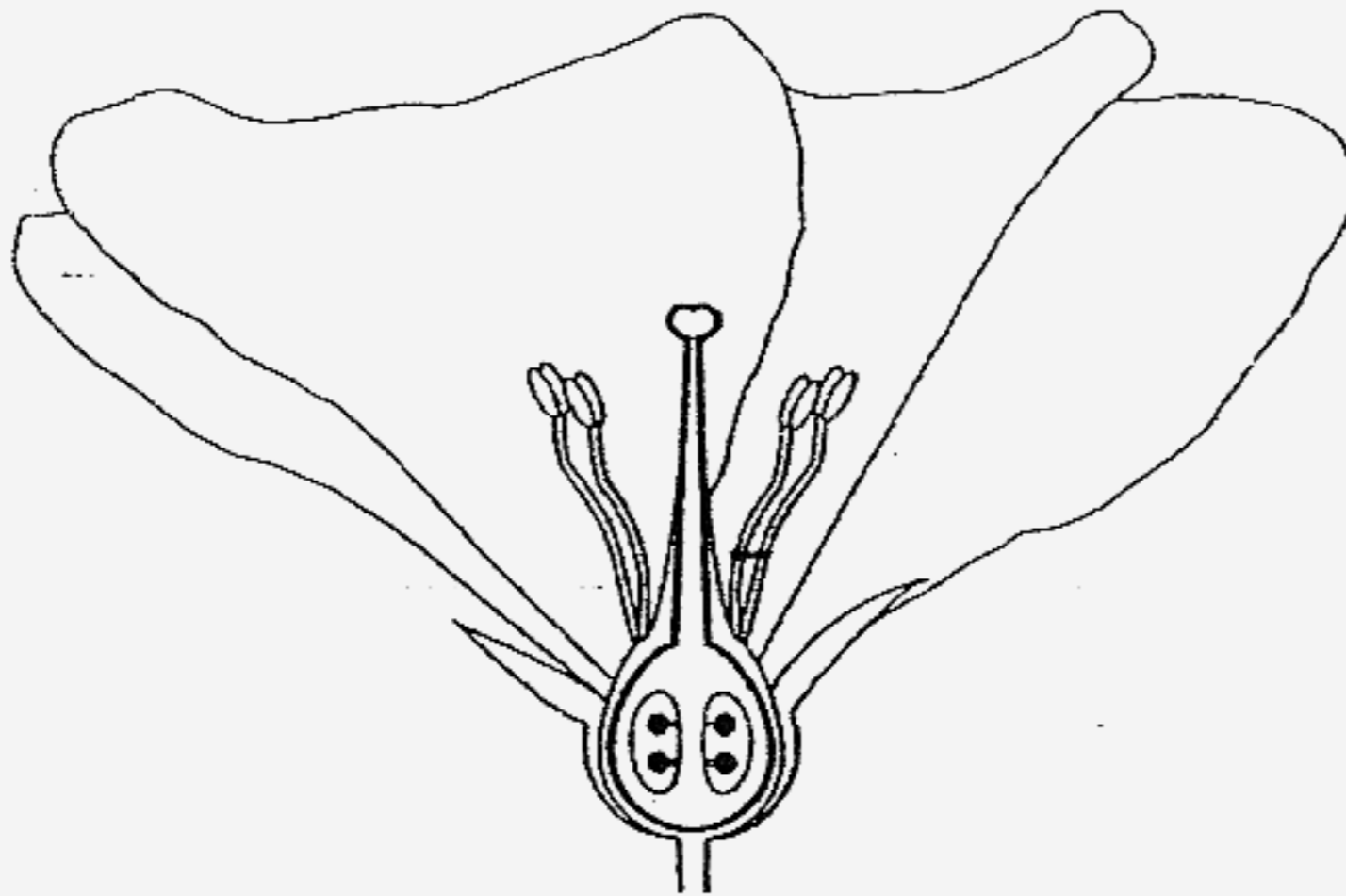
Based on the life cycles of Animal X and Animal Y, it can be inferred that

- ~~A.~~ Animal Y has 3 stages in its life cycle while Animal X has 4.
- ~~B.~~ Animal X lays eggs in water while Animal Y lay eggs on land.
- ~~C.~~ The young of Animal X looks like the adult but the young of Animal Y does not.
- ~~D.~~ Animal X takes a longer time than Animal Y to develop from an egg to an adult.

- ~~1)~~ A only
- ~~2)~~ B and D only

- ~~3)~~ A, B and C only
- ~~4)~~ A, B, C and D only

6) Observe the diagram of the cross-section of the flower below.



Which of the following statements can be deduced from the diagram?

- A: The flower has at least 4 anthers.
- B: The flower has both male and female parts.
- C: The fruit developed will have more than 1 seed.

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

7) Study the chart below.

Plant	Grows near parent plant	Produces seeds enclosed in pods	Edible
W	✓		✓
X	✓	✓	✓
Y	✓	✓	
Z		✓	

Which of the following plants are represented by W, X, Y and Z respectively?

	W	X	Y	Z
<del>X</del>	Ginger	Balsam	Green bean	Yellow flame
<del>X</del>	Bryophyllum	Peanut	Rubber	Lallang
<del>X</del>	Rambutan	Lady's finger	Shorea	Angsana
<del>X</del>	Banana	Long bean	Saga	African tulip

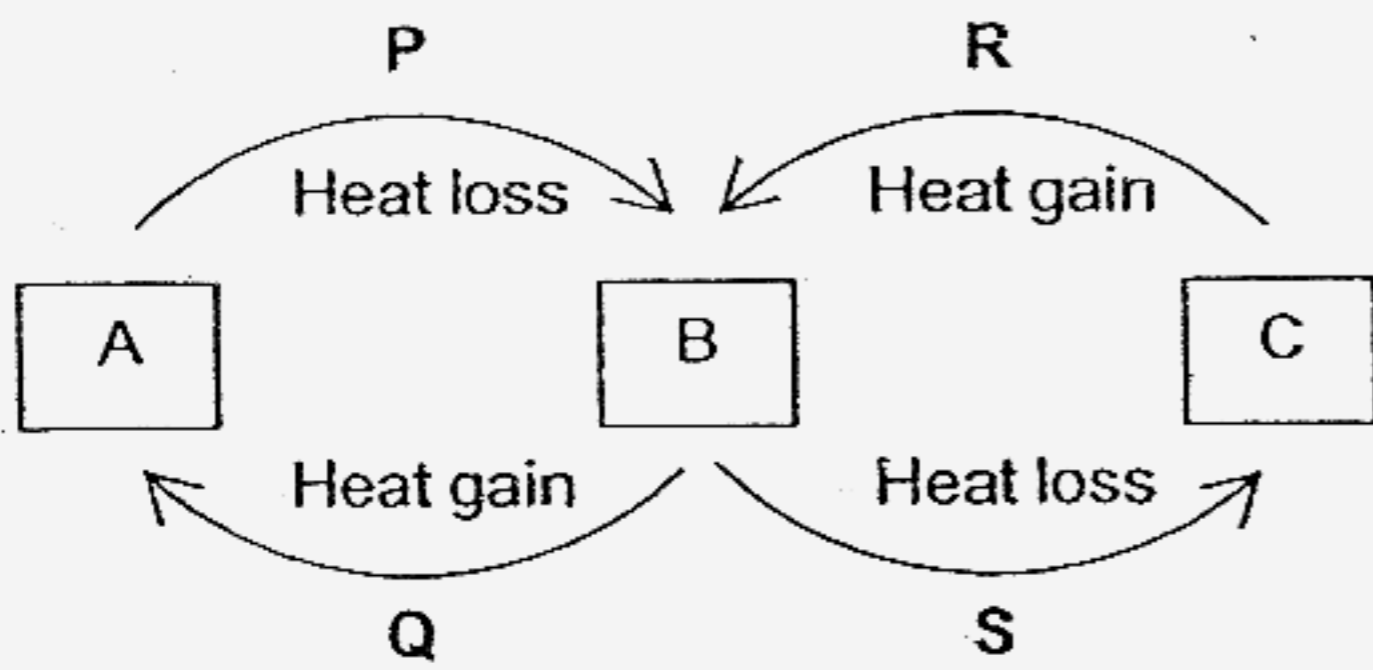
8) The following statements are some observations of matter made by Raja.

- A has a definite shape.
- B has a definite volume.
- C has no definite shape.
- D cannot be compressed.

Which of the following matter is definitely a solid?

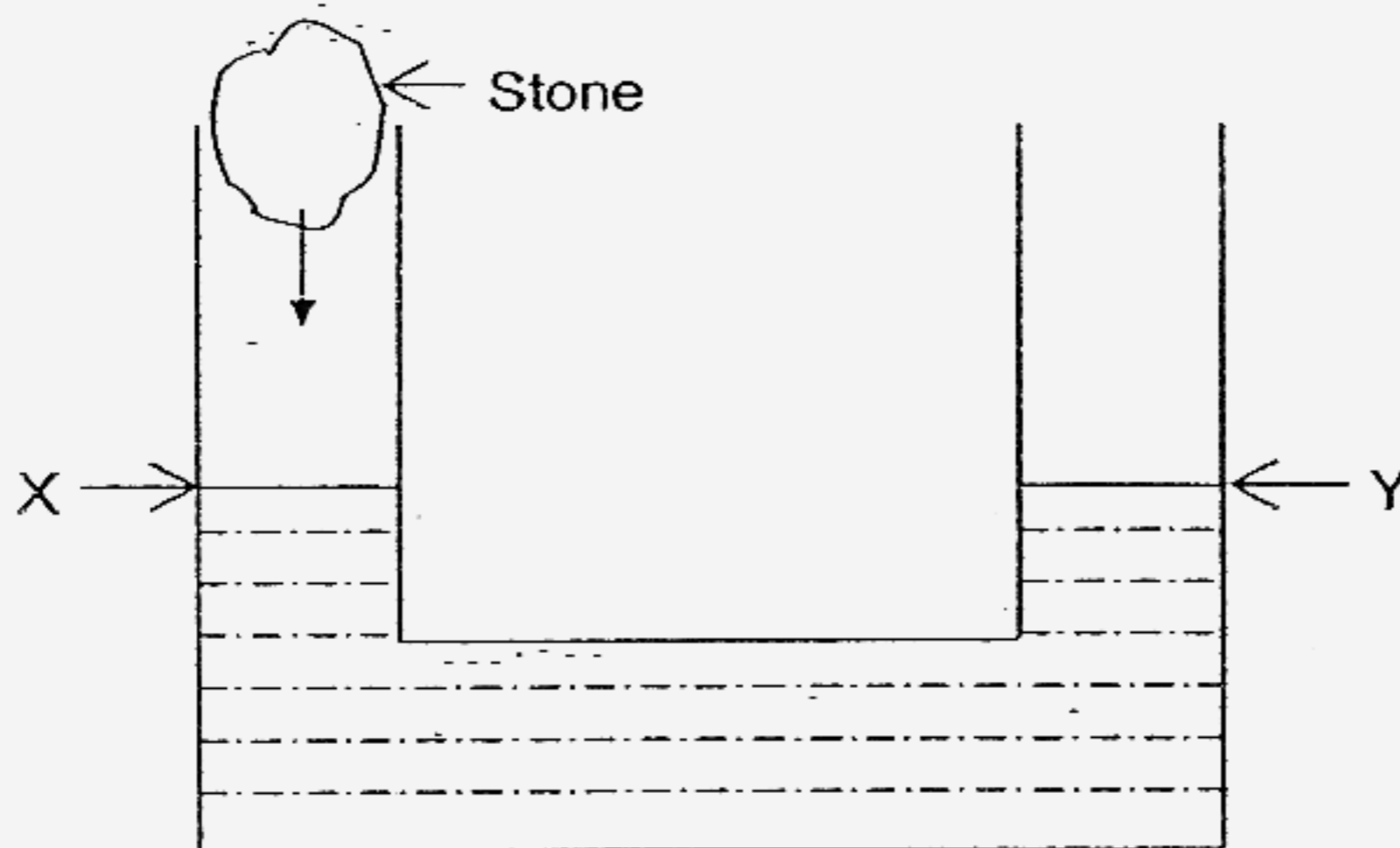
- 1) A only
- 2) A and C only
- 3) B and C only
- 4) A, B and C only

- 9) A, B and C represent the 3 states of water. Which 2 arrows indicate melting and freezing respectively?



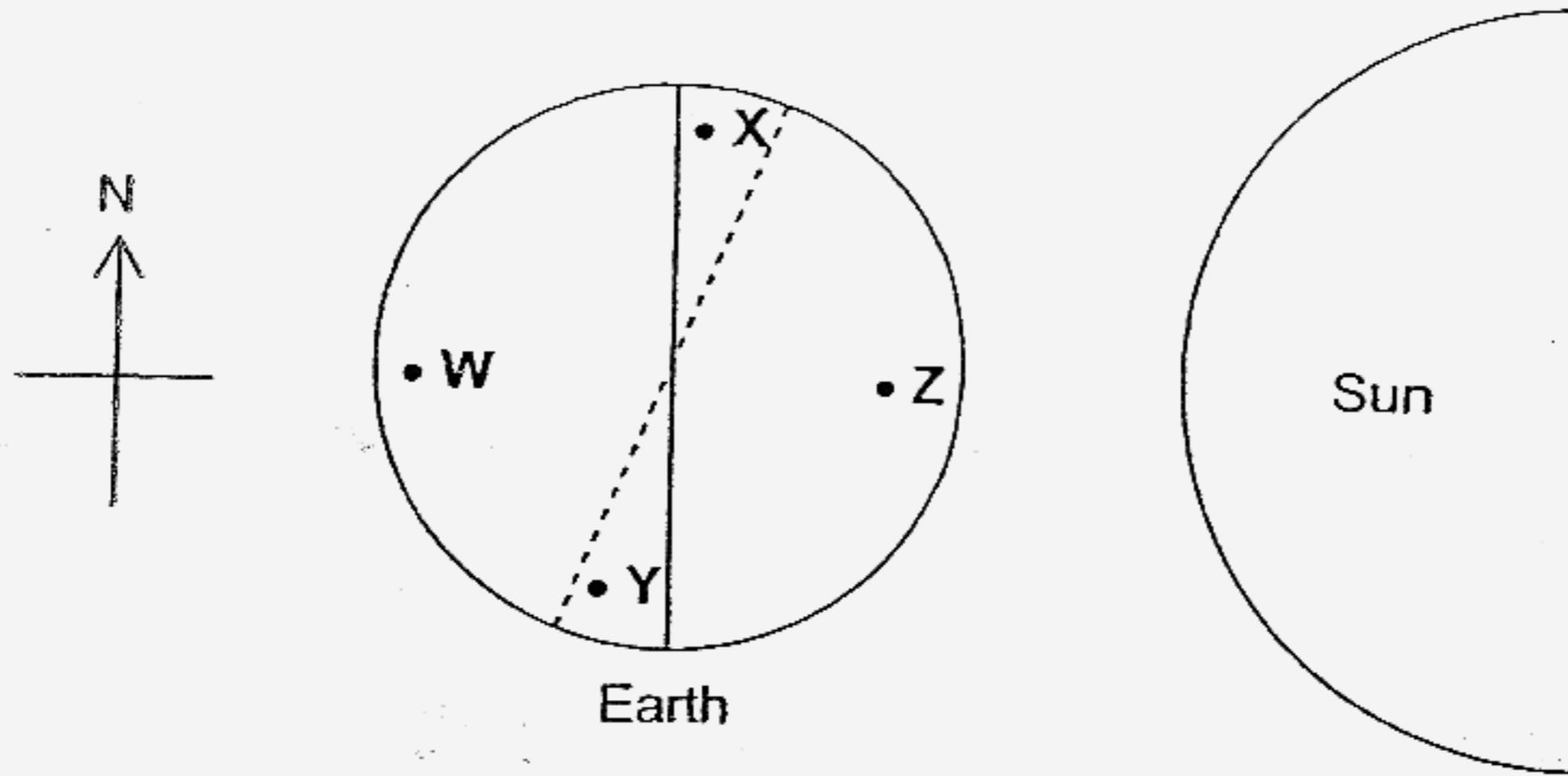
	Melting	Freezing
<del>1)</del>	P	Q
<del>2)</del>	Q	P
<del>3)</del>	R	S
<del>4)</del>	S	R

- 10) The container below has some water. What will happen to the water level at X and Y when the stone is placed into the container?



	Water level of X	Water level of Y
1)	Increase	Remains the same
2)	Decrease	Remains the same
3)	Increase	Increase
4)	Decrease	Increase

11) Ahmad is about to see the sunrise. At which position is he most likely at now?



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

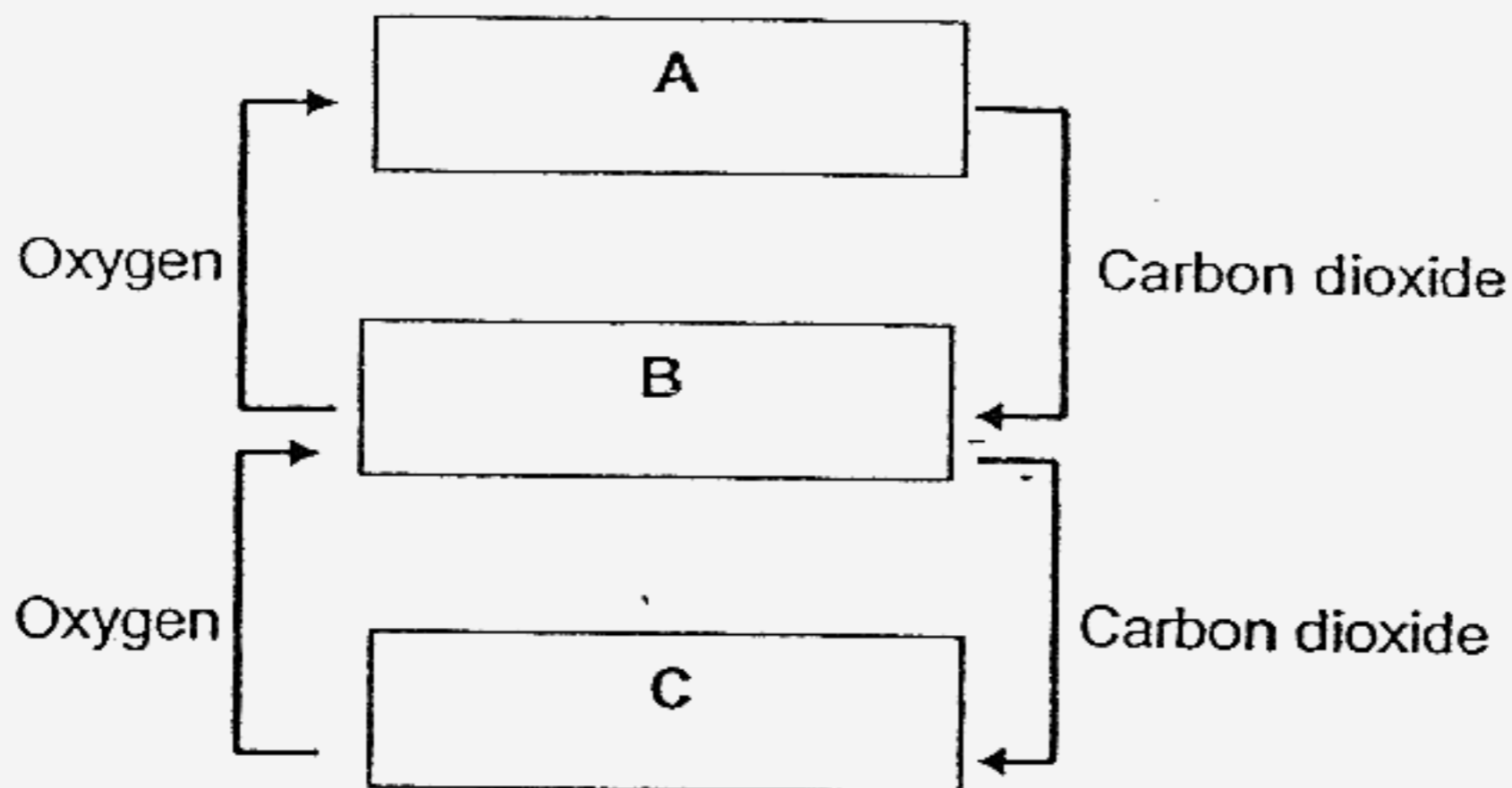
12) Which of the following parts of the body are able to move without the help of the skeleton?

- A: Head
- B: Eyelid

- C: Tongue
- D: Lower jaw

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

13) The diagram below shows the exchange of gases in our circulatory system.



Which of the following parts of the body are represented by A, B and C respectively?

	A	B	C
1)	Heart	Lungs	All parts of the body
2)	Heart	All parts of the body	Lungs
3)	All parts of the body	Heart	Lungs
4)	Lungs	Heart	All parts of the body



14) Which of the following are possible functions of the non-woody stems in plants?

- ~~A~~: transport food
- ~~B~~: transport water

- ~~C~~: support the plant upright
- ~~D~~: carry out photosynthesis

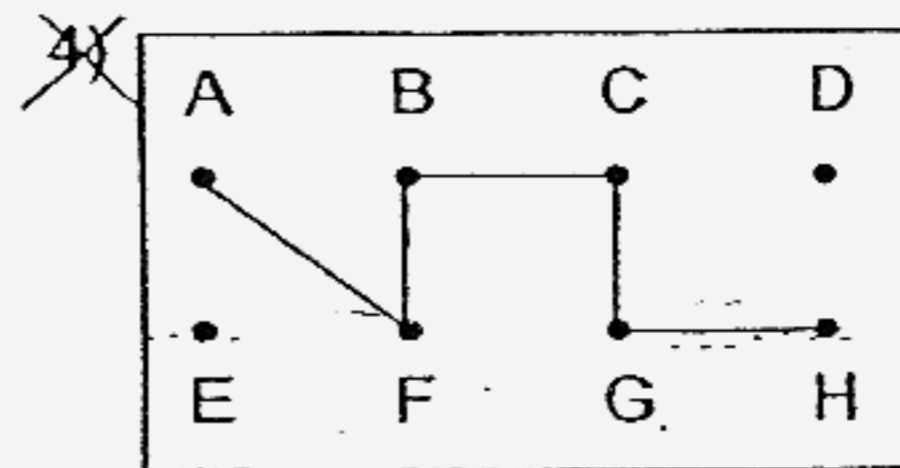
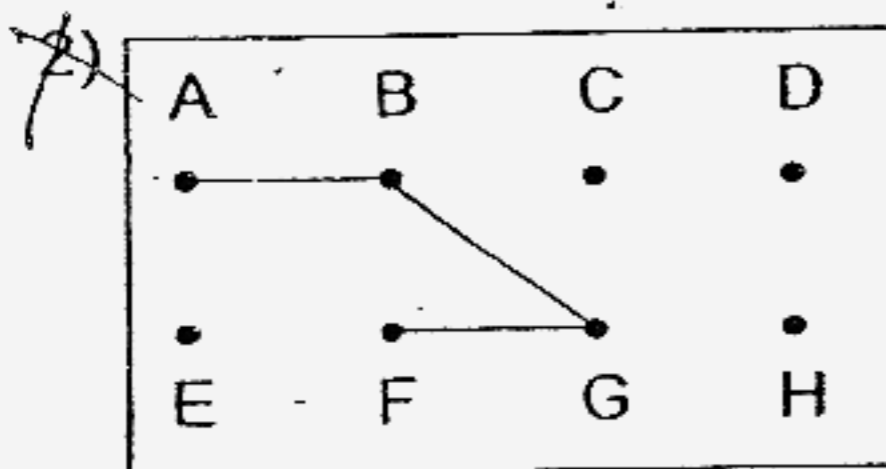
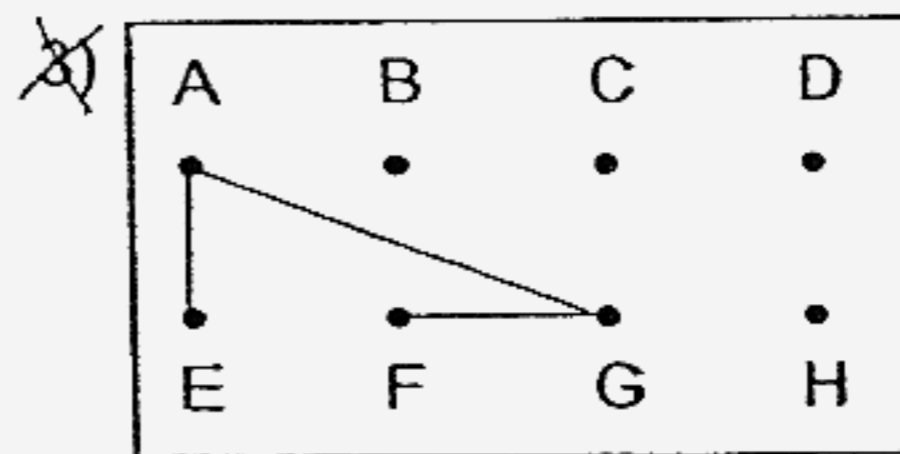
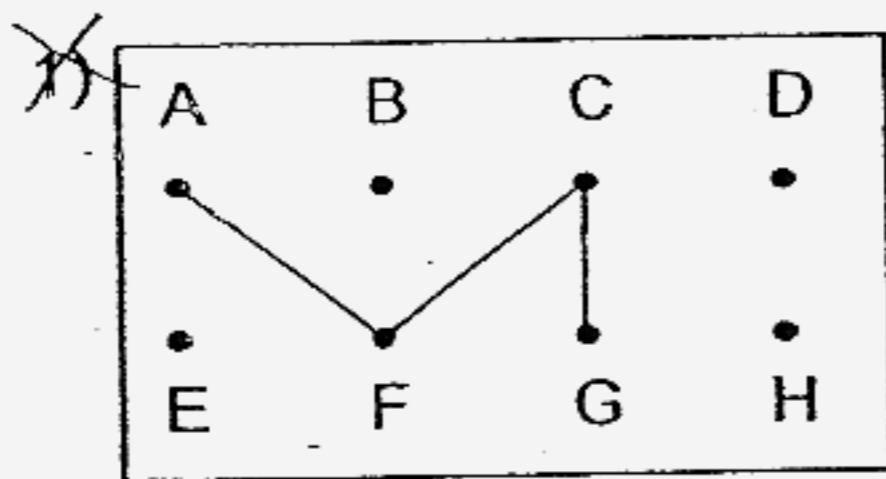
- ~~(T)~~ A and B only
- ~~(X)~~ C and D only

- ~~(S)~~ A, C and D only
- ~~(4)~~ A, B, C and D

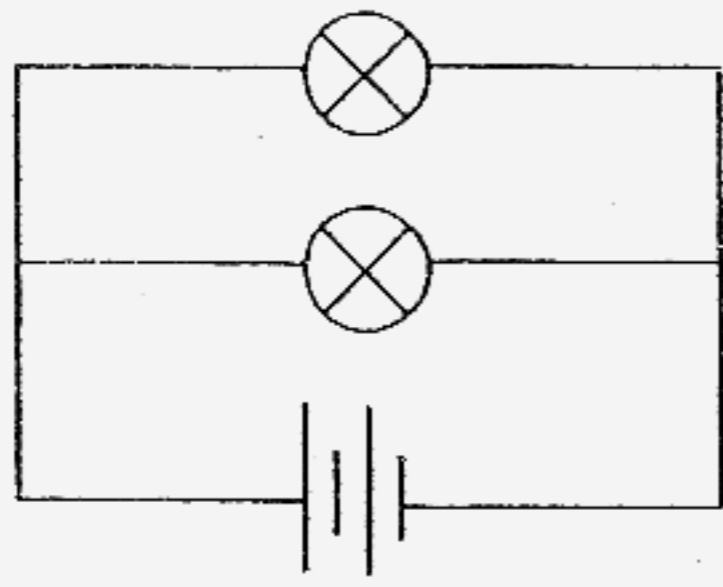
15) Halim used a circuit tester to test several points on a circuit card. He then recorded his findings in the table below.

Points	Does the bulb light up?
AE	No
BF	No
FG	Yes
AG	Yes
DE	No
CH	No

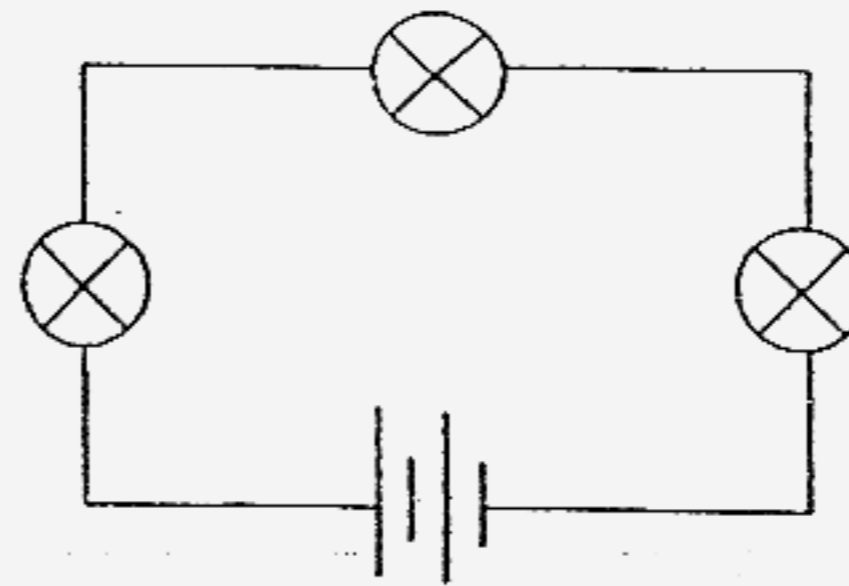
Which of the following circuit cards did Halim use?



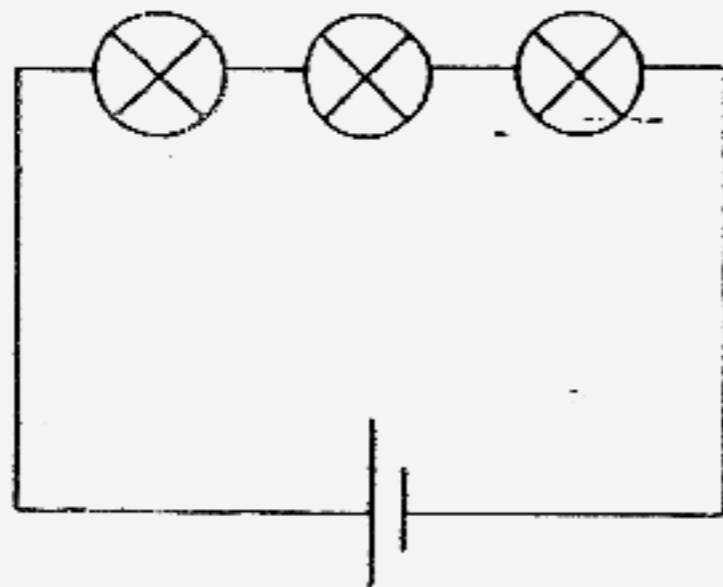
- 16) Sumei wanted to find out if the arrangement of bulbs would affect the brightness of the bulbs. Which set-ups should she use to ensure a fair test?



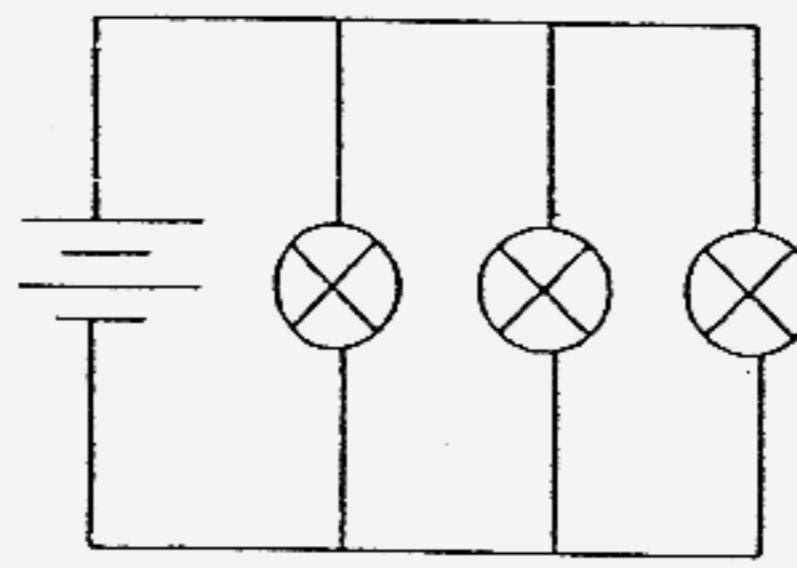
Set-up A



Set-up C



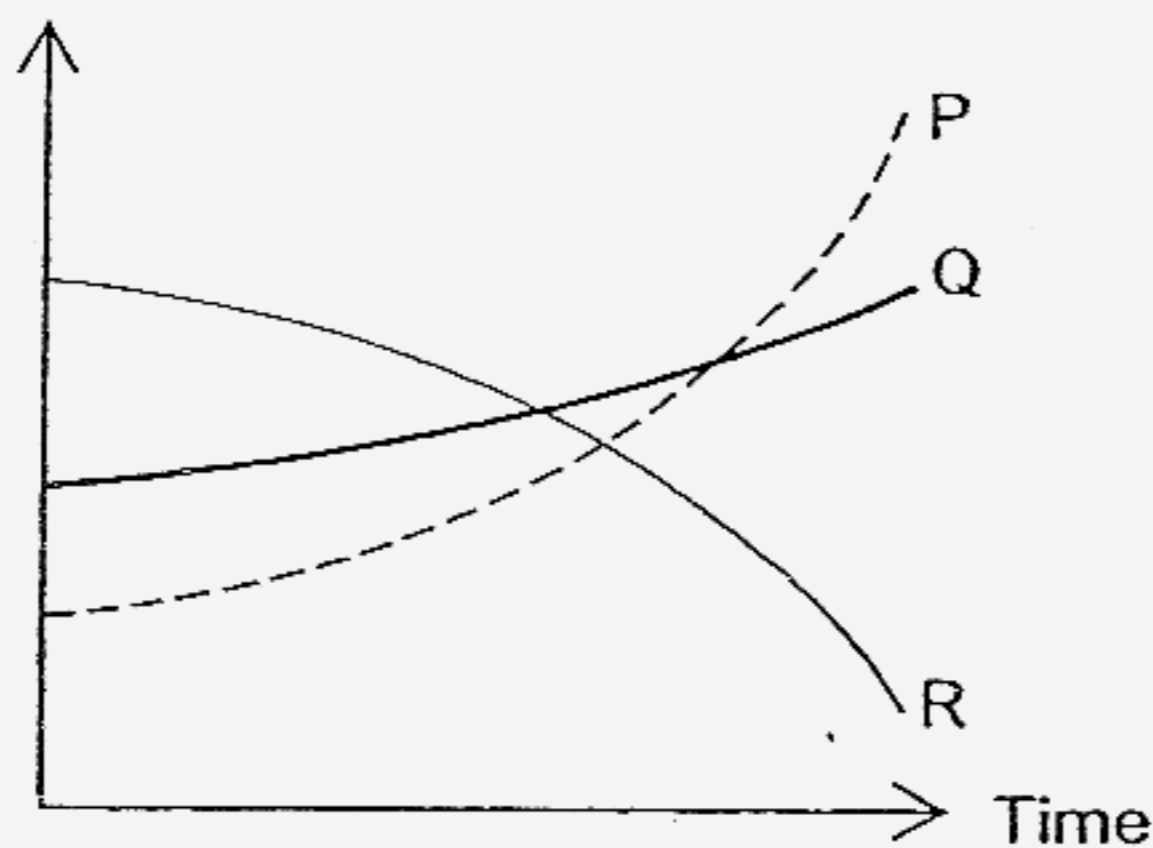
Set-up B



Set-up D

- 1) A and B only  
 2) C and D only  
 3) A, B and C only  
 4) B, C and D only
- 17) Populations of organisms P, Q and R are placed together in the same habitat. Only 1 of the organisms is prey to the other 2 organisms. The graph below shows the populations of P, Q and R over a period of time.

Population of organisms



Which of the following statements about the organisms are true?

- ~~A~~: R is the prey of Q.  
~~B~~: P reproduces faster than Q.  
~~C~~: There are more P than Q at the beginning.  
~~D~~: There are only 2 occasions when 2 of the organisms reach the same population.

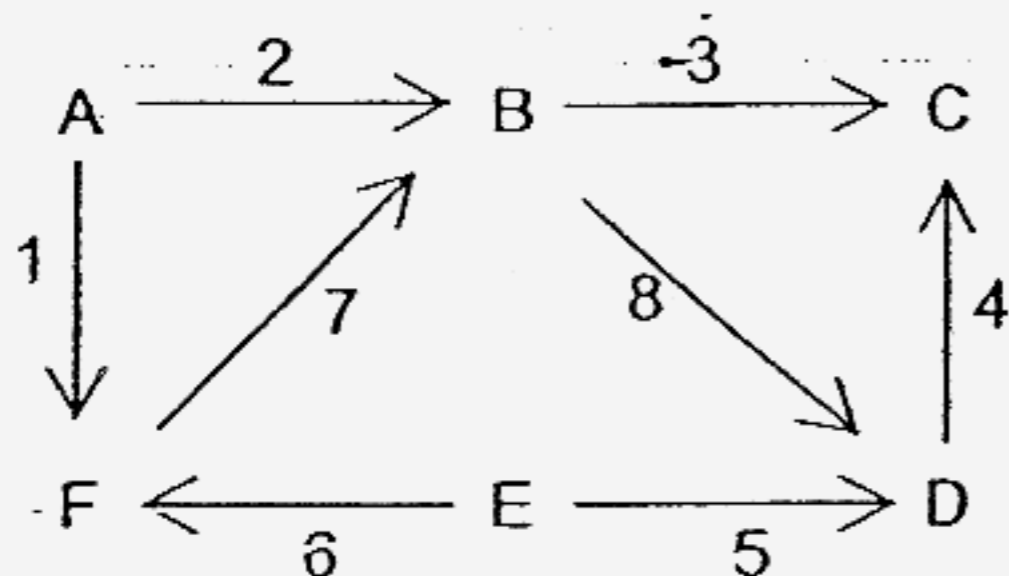
- ~~1~~ A and B only  
~~2~~ B and D only

- ~~3~~ A, C and D only  
~~4~~ A, B, C and D



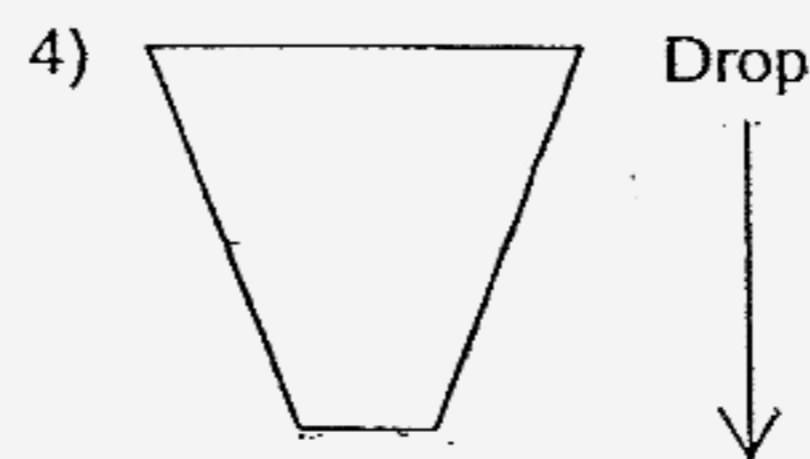
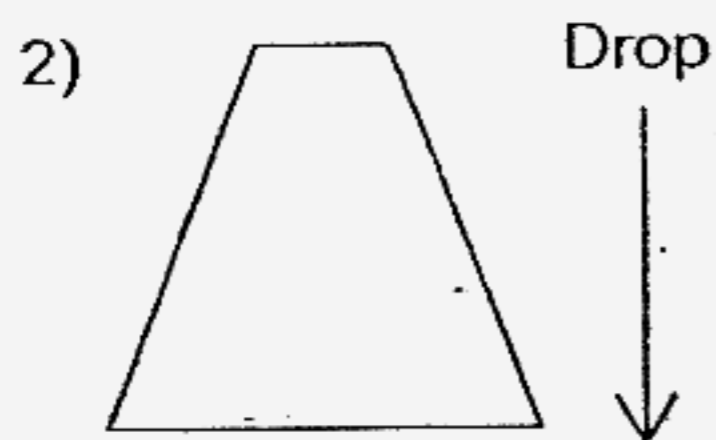
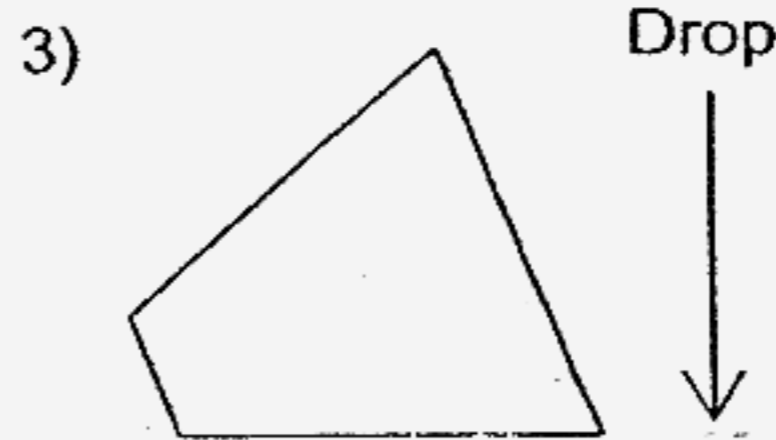
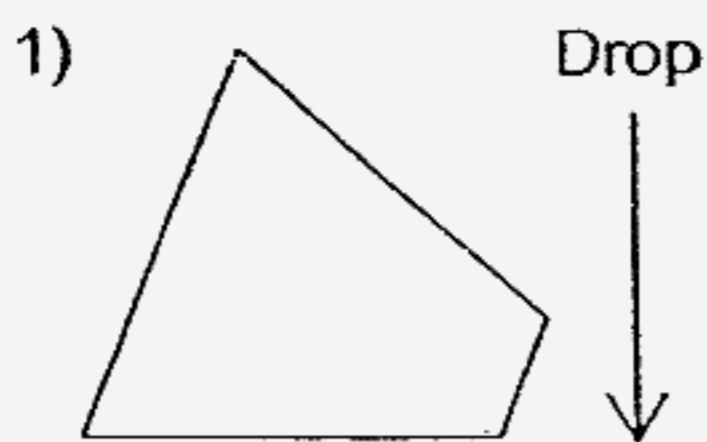
- 18) Ming Huat drew a food web based on the following information. However, 2 of the arrows have been drawn wrongly.

C is a carnivore.  
 D is an omnivore.  
 B is eaten by D only.  
 B and F are herbivores.  
 A and E are food producers.

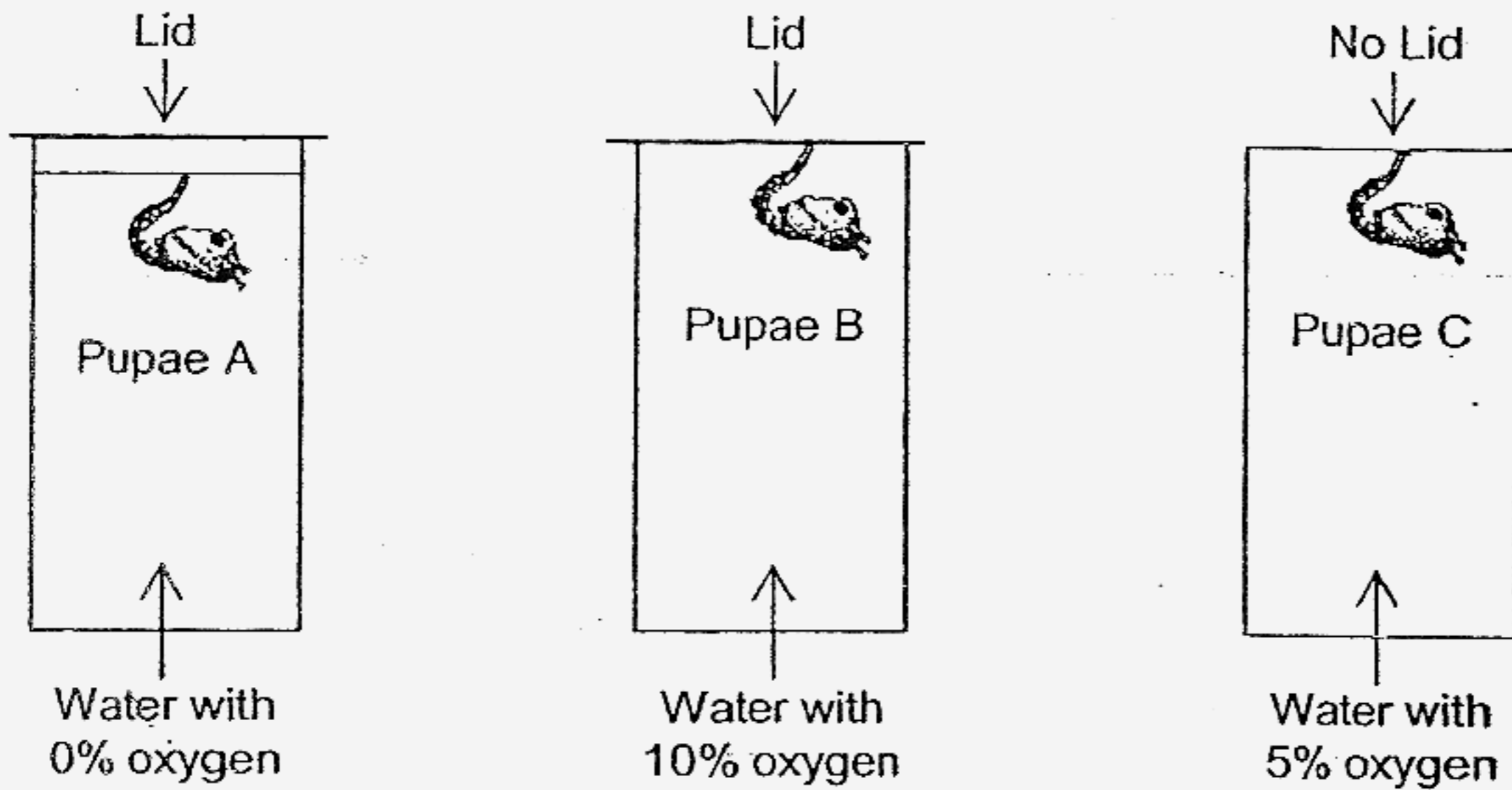


Which of the arrows have been drawn wrongly?

- 1) 1 and 6  
 2) 3 and 7  
 3) 2 and 4  
 4) 5 and 8
- 19) An object is dropped from the same height, each time using a different position viewed from the side, will the object make the deepest depression in the sand?



- 20) The set-ups below show the pupae of a mosquito placed in containers of the same size. All the set-ups are placed in the same location. Arrange the pupae in order, from the pupa that will survive the longest to the pupa that will survive the shortest.



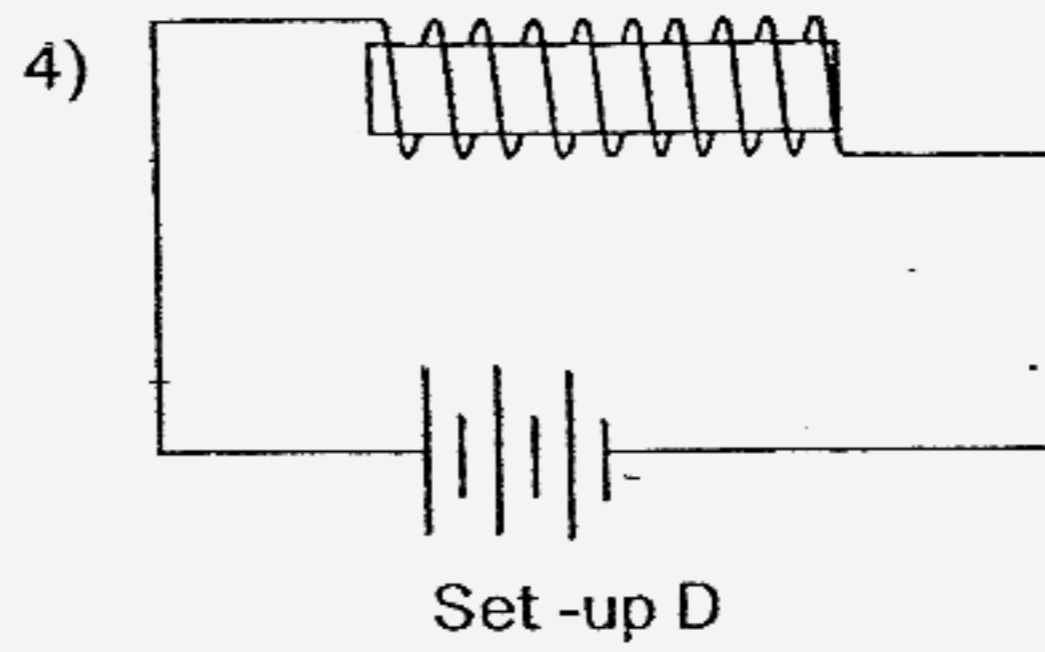
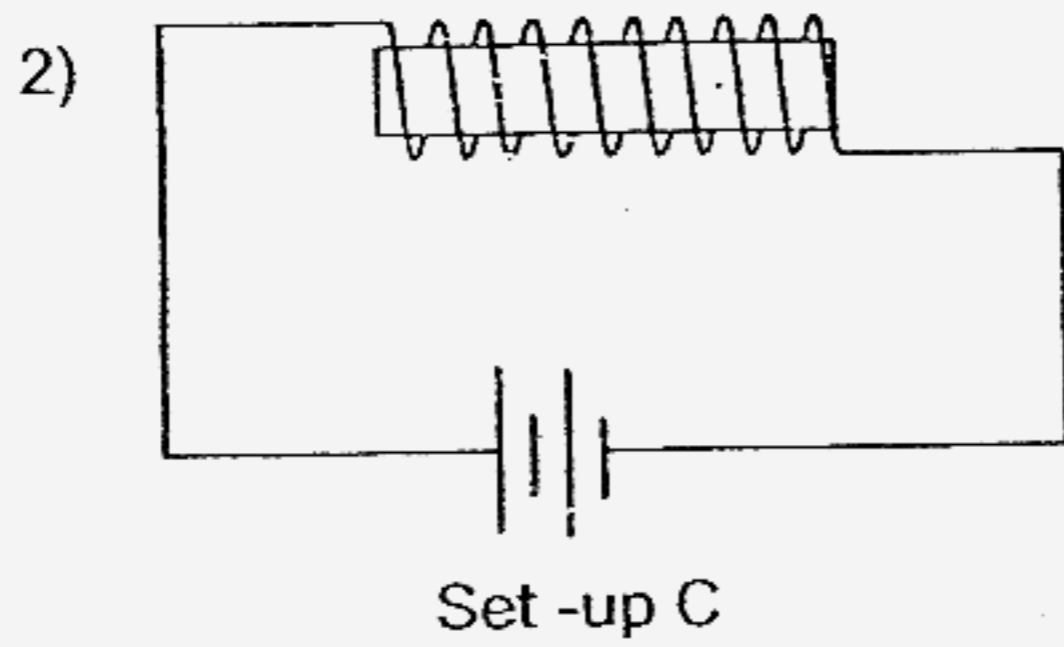
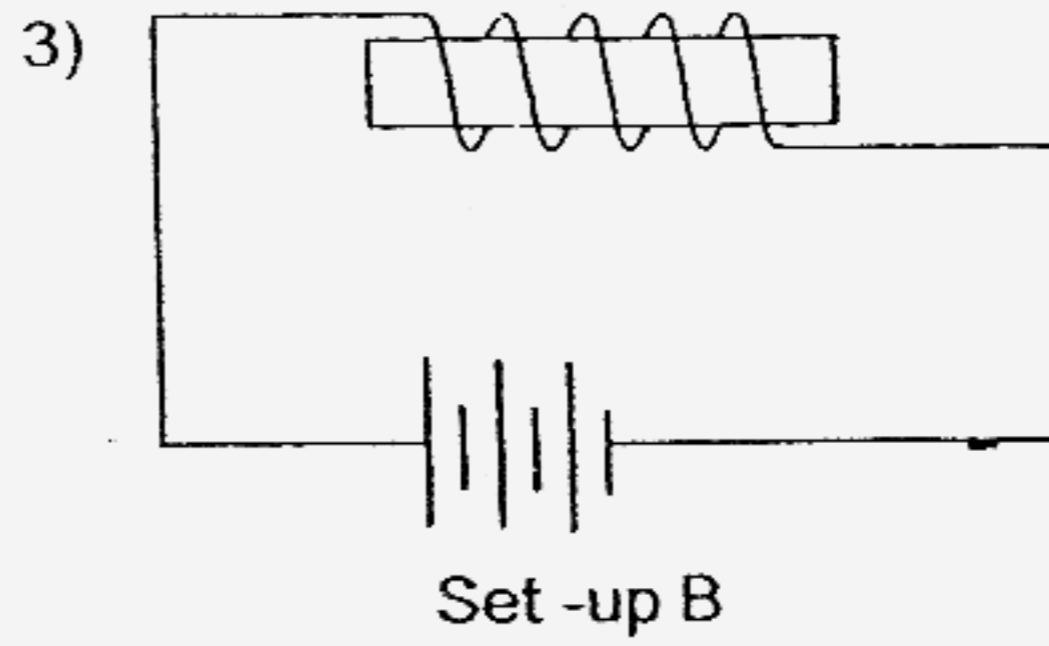
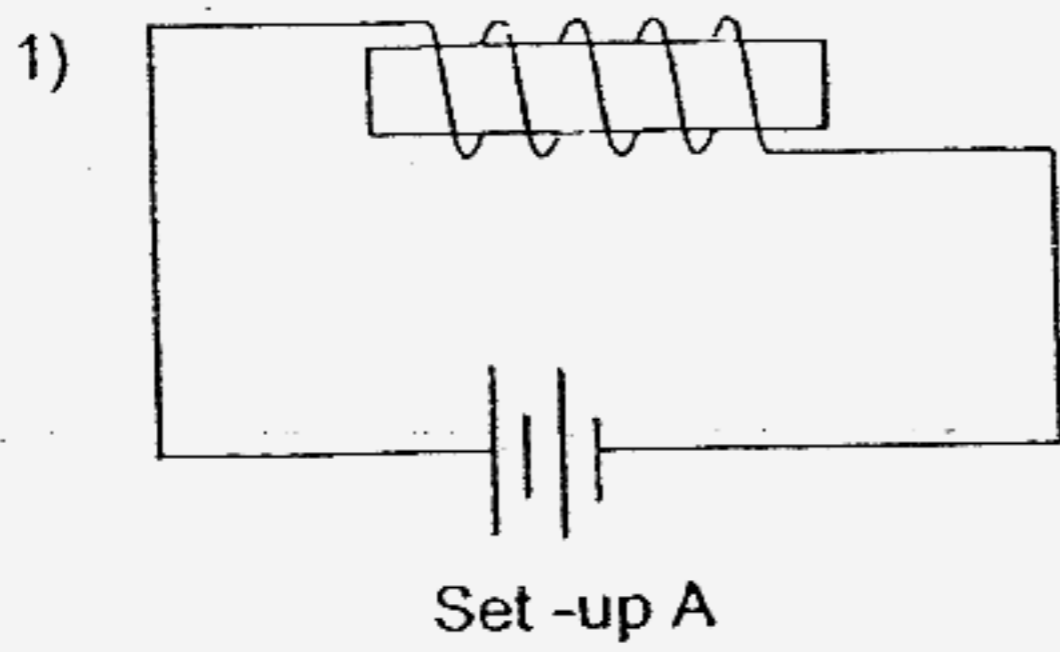
- 1) A, C, B                                      3) B, C, A  
 2) C, A, B                                      4) C, B, A
- 21) Bacteria X is added to milk to turn the milk into yoghurt. The table below shows the number of Bacteria X present in the milk at different temperatures over a period of time.

Temperature	Number of Bacteria X				
	0 min	5 min	10 min	15 min	20 min
20°C	10	12	17	25	33
25°C	10	14	19	27	36
30°C	10	14	20	31	40
35°C	10	21	34	50	73
40°C	10	23	39	58	80
45°C	10	22	36	54	76
50°C	10	18	24	33	43

Marie added some Bacteria X into a bottle of milk. Based on the table above, under which range of temperature should Marie keep the milk and bacteria mixture in order for the mixture to be turned into yoghurt in the shortest time?

- 1) 25°C - 30°C                                      3) 38°C - 42°C  
 2) 32°C - 36°C                                      4) 46°C - 50°C

22) The iron rods in each of the set-ups are of the same size. In which set-up will the iron rod attract the most number of iron pins?



23) Which of the following forces are able to act at a distance?

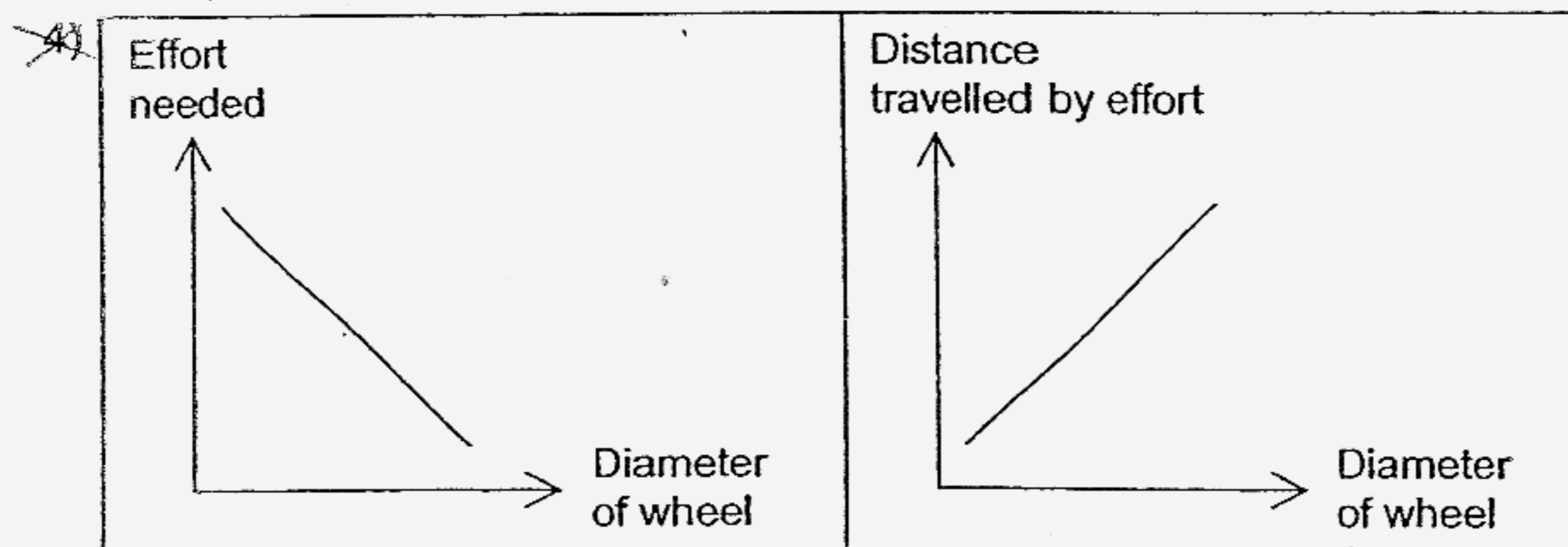
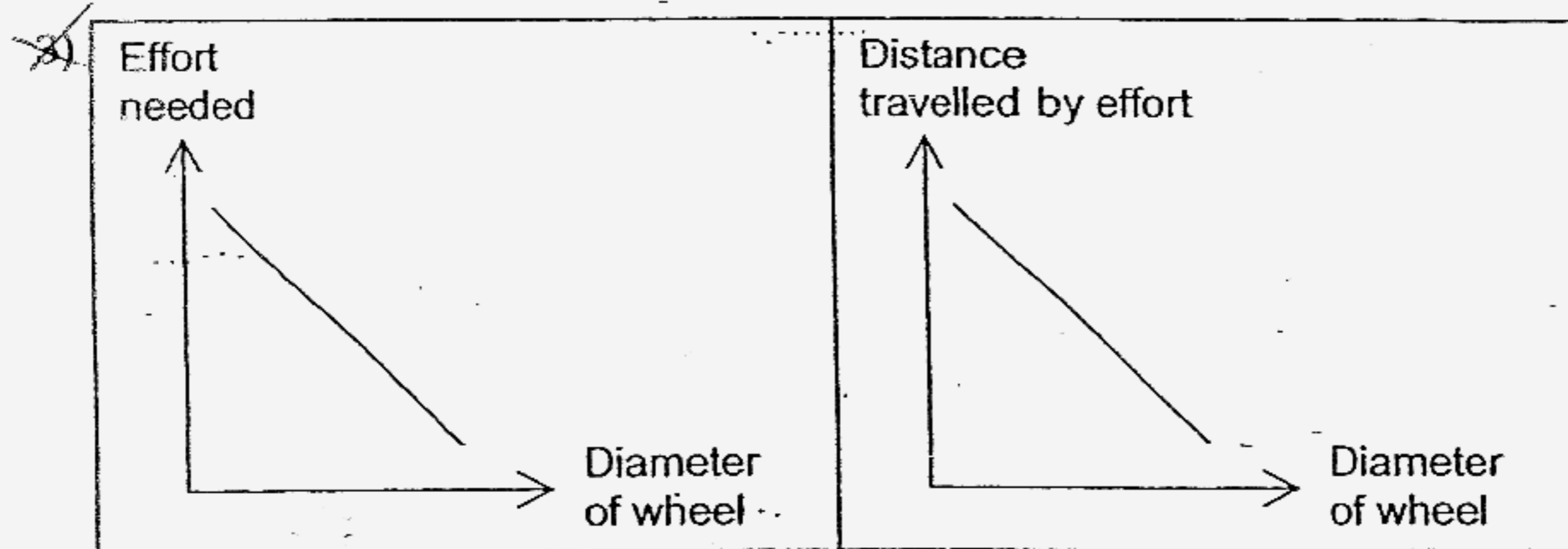
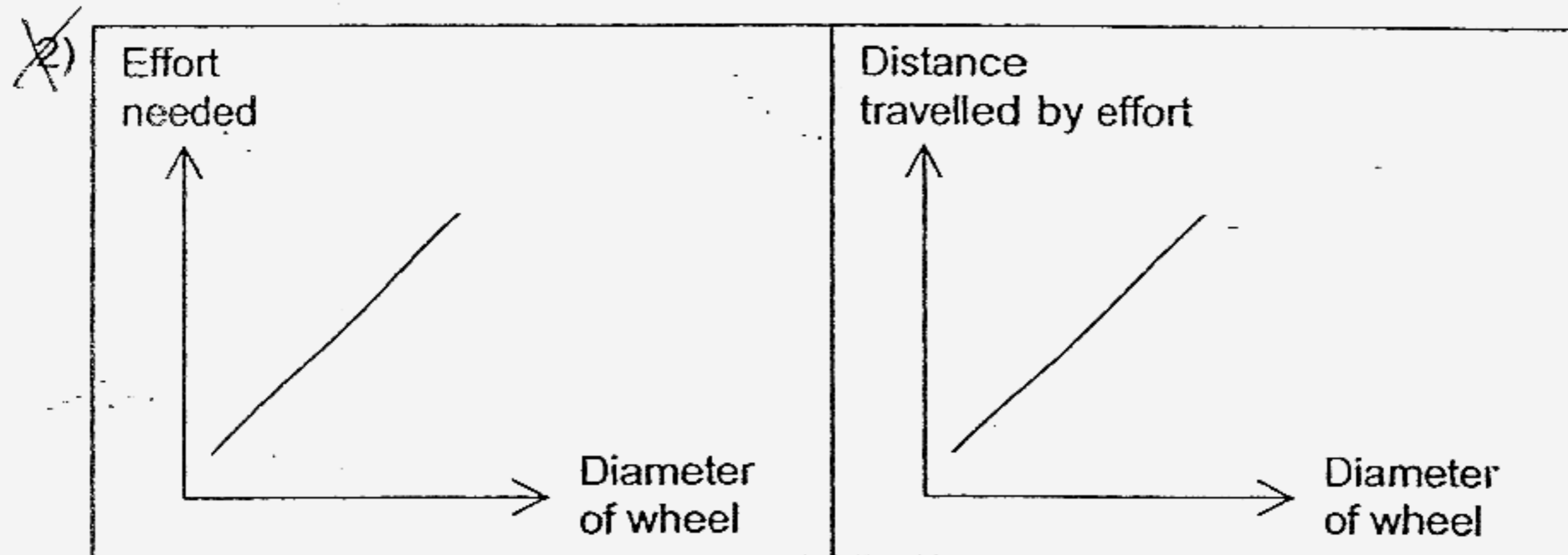
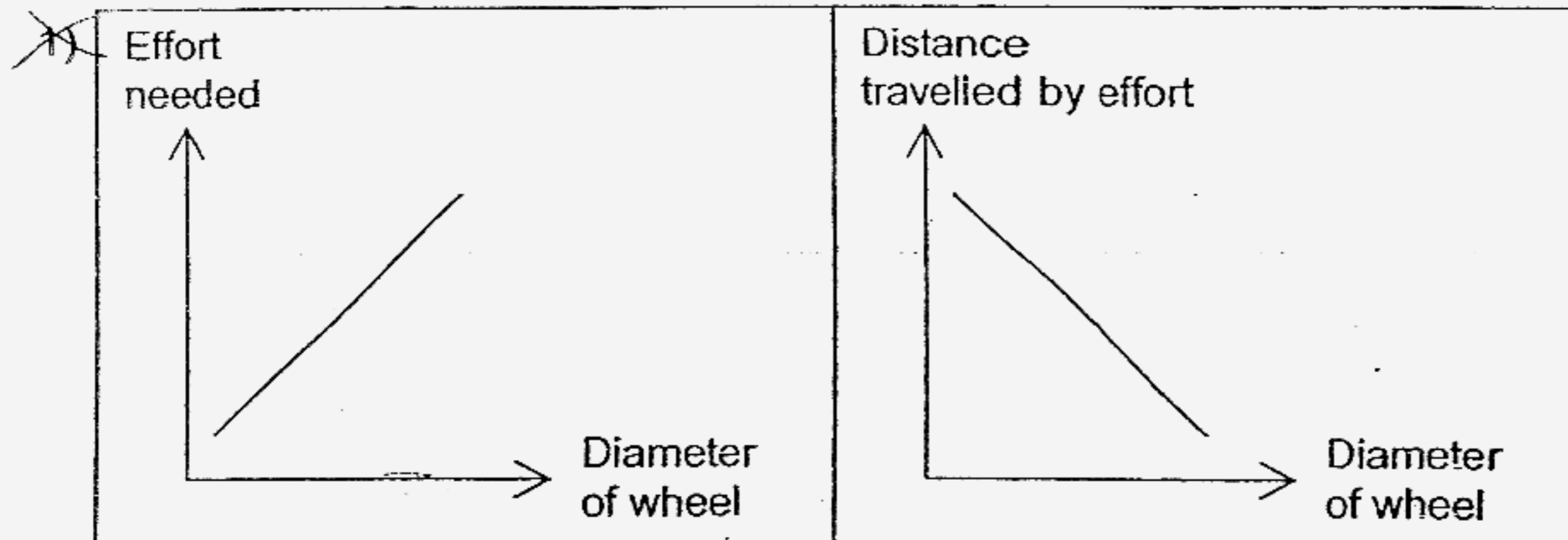
A: Frictional force  
 B: Magnetic force

C: Gravitational force  
 D: Elastic spring force

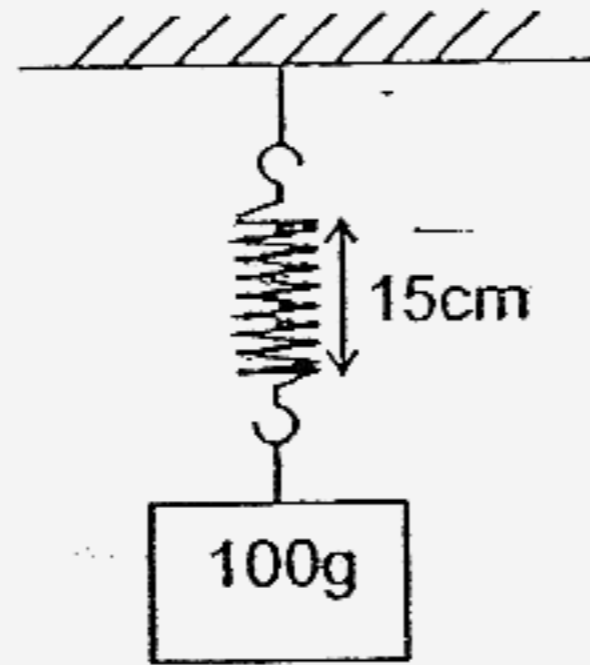
1) A and B only  
 2) B and C only

3) A, B and C only  
 4) A, B, C and D

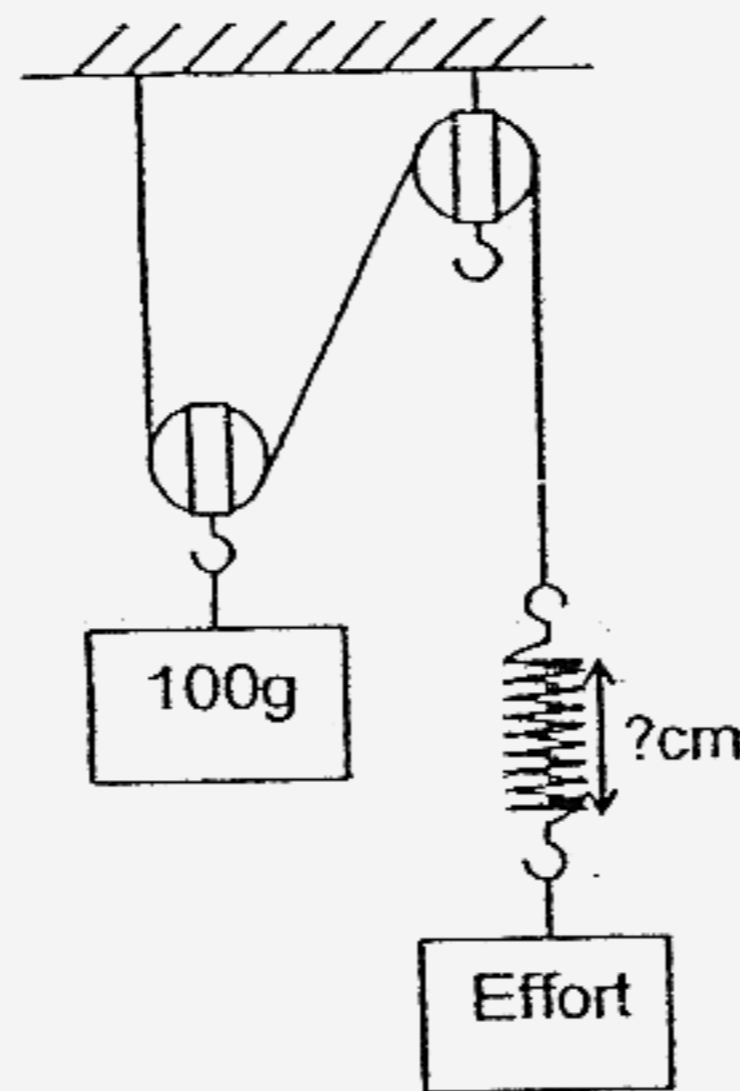
24) The wheel and axle is a type of simple machine. Which of the following pairs of graphs correctly shows the relationship between the diameter of the wheel and the effort applied and the relationship between the diameter of the wheel and the distance travelled by the effort?



- 25) A spring of original length of 10 cm is stretched to 15cm when a 100g load is hung on it.



The same spring is then hung on a pulley system as shown below. The effort applied is just enough to lift the 100g load.



What is the most likely length of the stretched spring in the pulley system? (The diagrams are not drawn to scale)

- 1) 10cm  
2) 13 cm  
3) 15cm  
4) 20cm
- 26) Which of the following are the results of the increase in the amount of carbon dioxide in the atmosphere?
- A: Acid rain  
B: Soil erosion  
C: Air pollution  
D: Global warming
- A and C only  
 A and D only  
 B, C and D only  
 A, B, C and D

27) Which of the following are necessary for photosynthesis to take place and are also released during respiration?

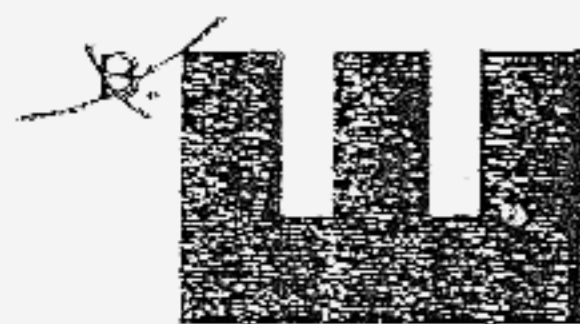
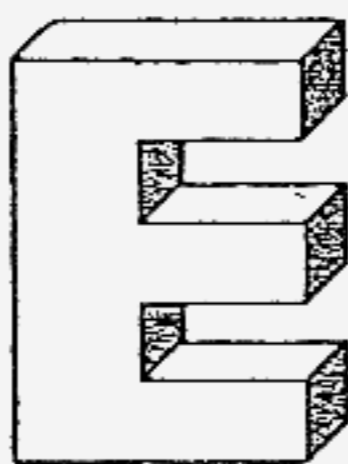
- ~~A~~: Sugar
- ~~B~~: Water
- ~~C~~: Oxygen

- ~~D~~: Energy
- ~~E~~: Carbon dioxide

- ~~1) B and E only~~
- ~~2) B, C and D only~~

- ~~3) A, C and E only~~
- ~~4) B, D and E~~

28) Which one of the following shadows can be formed by the object below?

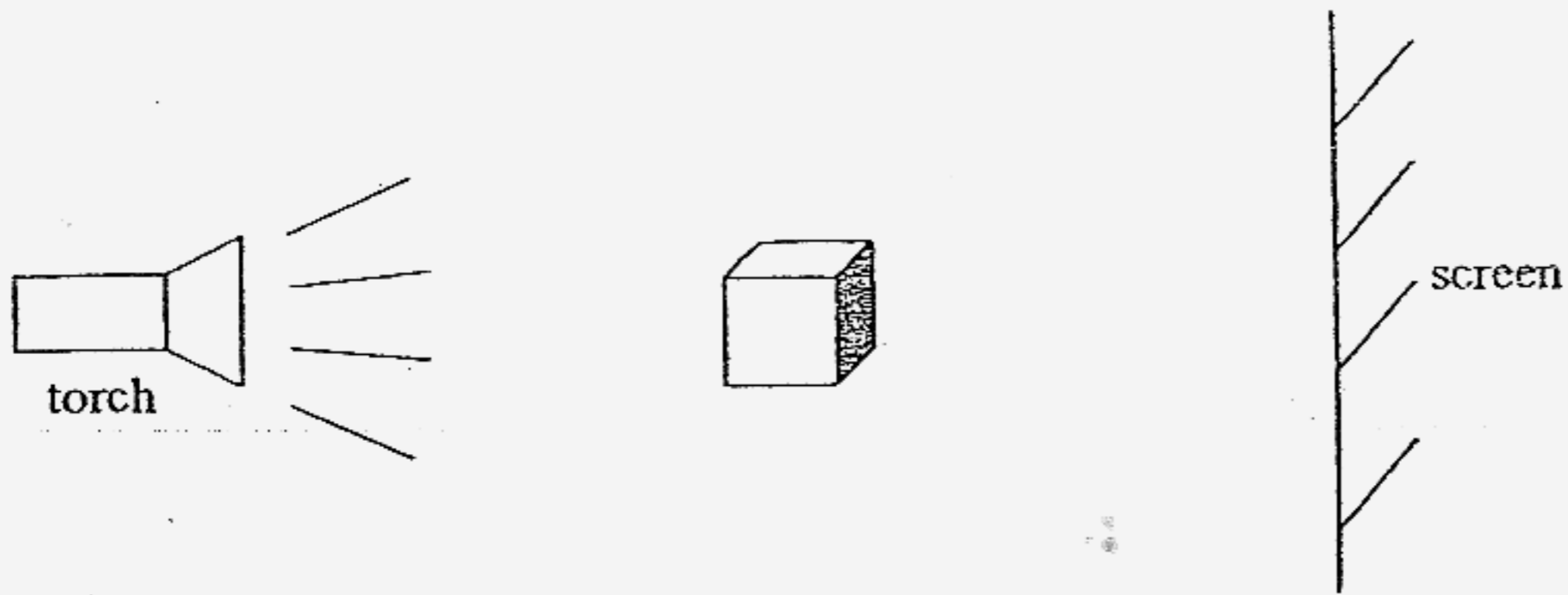


- 1) A and B only
- 2) B and C only

- 3) A, B and D only
- 4) A, B, C and D



29) Which of the following would result in a larger shadow to be cast on the screen?

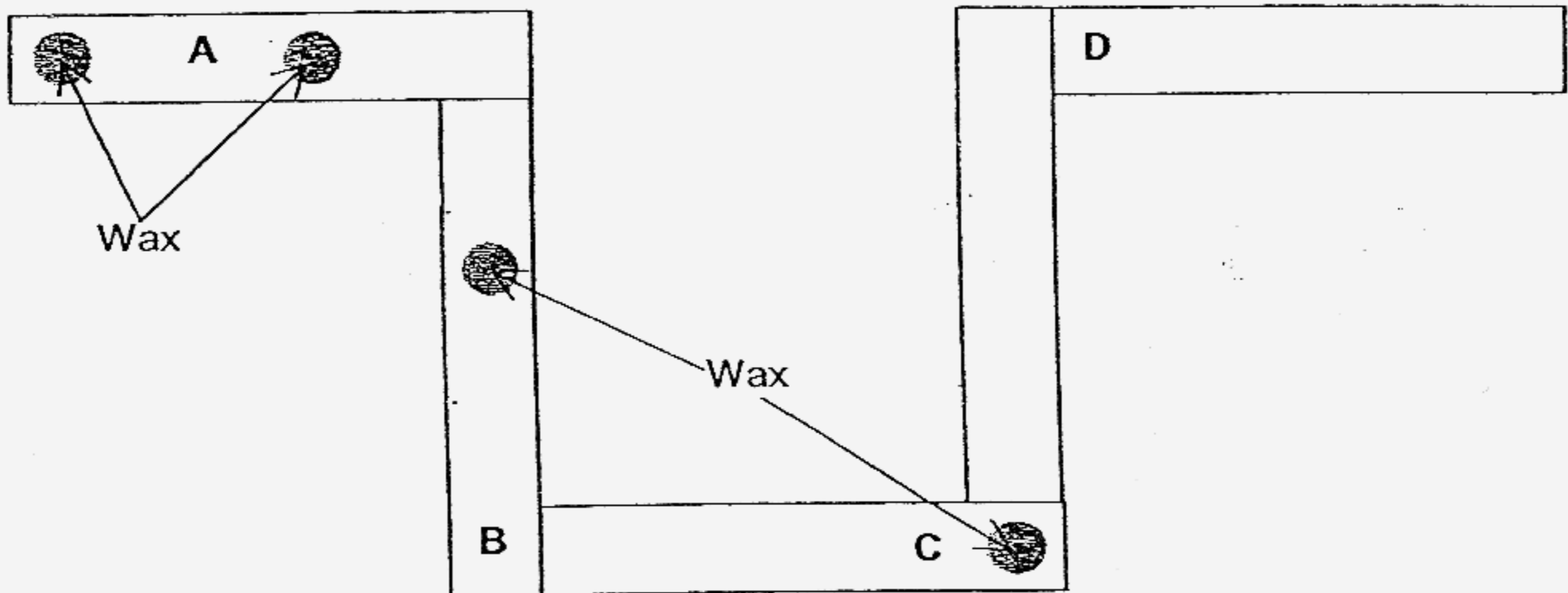


- A: Move the screen nearer the object.
- B: Move the screen away from the object.
- C: Move the light source nearer the object.
- D: Move the light source away from the object.

- A and C only
- A and D only

- B and C only
- B and D only

30) 5 pieces of iron rods of the same size are joined together to form a structure. 5 blobs of wax are stuck to different parts of the structure as shown below.



At which point should the flame be placed so that all the blobs of wax will melt in the shortest time?

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

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**SINGAPORE CHINESE GIRLS' SCHOOL  
PRELIMINARY EXAMINATION 2007  
PRIMARY 6 SCIENCE**

Name: \_\_\_\_\_ (      )      Date: \_\_\_\_\_

Class: Primary 6 SY / C / Ø / SE / P

Components	Marks Obtained	Total Marks
Booklet A		60
Booklet B		40
Total		100

_____ Parent's Signature
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**SCIENCE**

**BOOKLET B**

16 questions

40 marks

Total Time For Booklets A & B : 1 h 45 min

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

**FOLLOW ALL INSTRUCTIONS CAREFULLY**

Name: \_\_\_\_\_ ( )

Date: \_\_\_\_\_

Class: Primary 6

**Part II (40 marks)**

Answer all the following questions.

31. The diagram below shows 2 seeds. Seed A has 2 seed leaves while Seed B has only 1 seed leaf. Plants that produce seeds with 1 seed leaf are known as monocots. Plants that produce seeds with 2 seed leaves are known as dicots.



- a) What is the function of seed leaves? (1m)

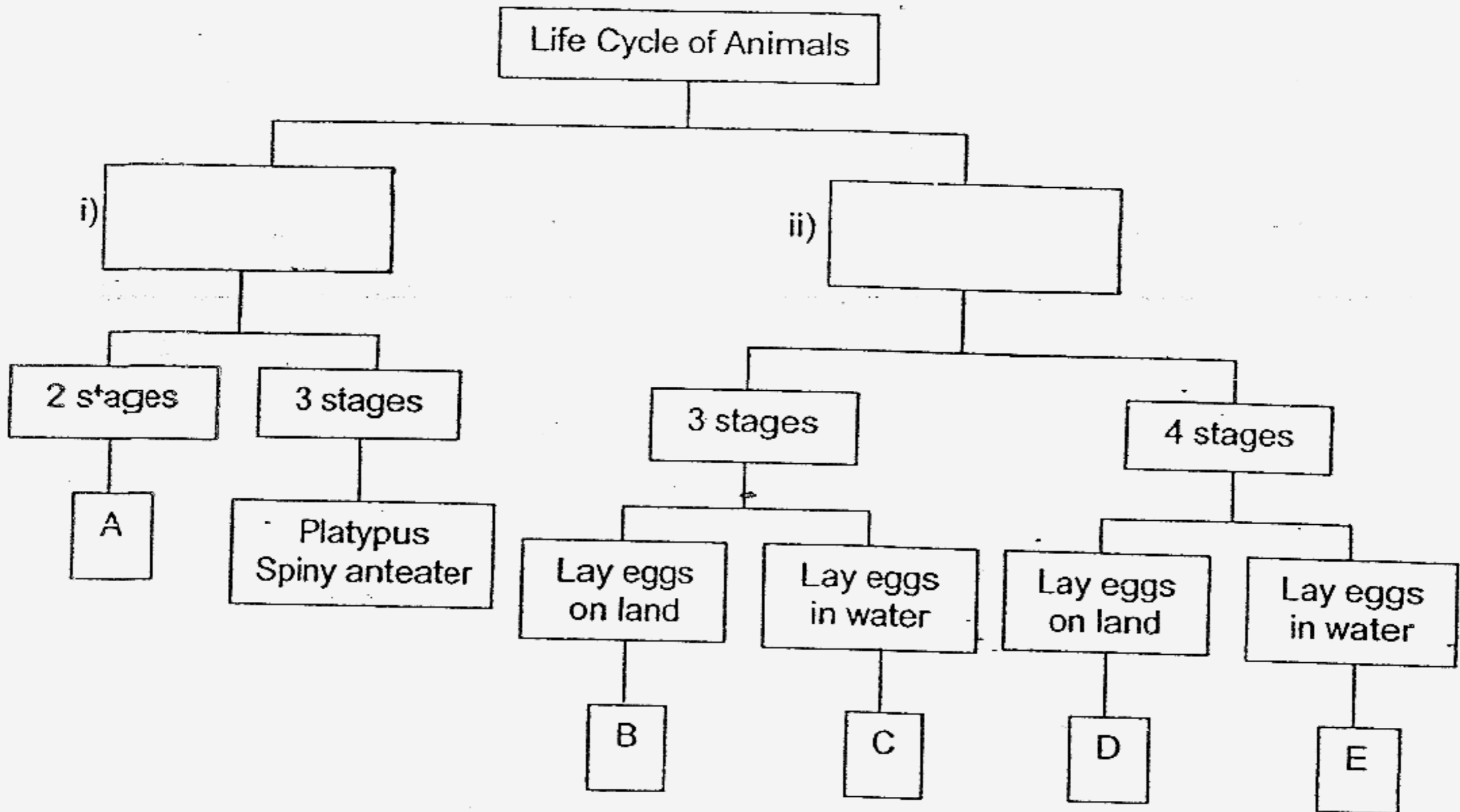
Ahmad made some observations on monocots and dicots and recorded his findings in the table below.

Plant	Number of seed leaves	Types of veins	Type of roots	Colour of flowers
A	2	network	taproots	red
B	1	parallel	fibrous roots	white
C	1	parallel	fibrous roots	yellow
D	2	network	taproots	white
E	1	parallel	fibrous roots	red
F	2	network	taproots	purple
G	2	network	taproots	pink
H	1	parallel	fibrous roots	white

- b) Based on Ahmad's findings, put a tick (✓) in the appropriate column to indicate if each of the following statement is 'True', 'False' or 'Not possible to tell'. (2m)

Statements	True	False	Not possible to tell
i) Dicots have fibrous roots.			
ii) Monocots have leaves with parallel veins.			
iii) Both monocots and dicots are flowering plants.			
iv) Dicots take a longer time to germinate than monocots.			

32. Study the classification chart below.



- Fill in suitable headings in the boxes labeled (i) and (ii) in the classification chart above. (1m)
- Name the method of reproduction for organisms in group A. (1m)

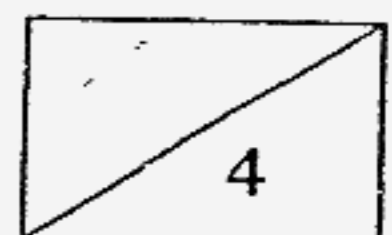
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- Which group, A, B, C, D or E, does the dragonfly belong to?. (1m)

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- Which group of organisms, A, B, C, D or E lay eggs on land and have 4 stages in the life cycle? (1m)

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33. Xiaoming tried to observe Cell X under a microscope but he could not see the cell very clearly as most parts of Cell X are colourless. He then put a drop of iodine onto Cell X and then washed off the iodine. He observed the cell under the microscope again and found that one part in the cell has been stained dark blue. Xiaoming deduced that some iodine solution must have entered into the cell.

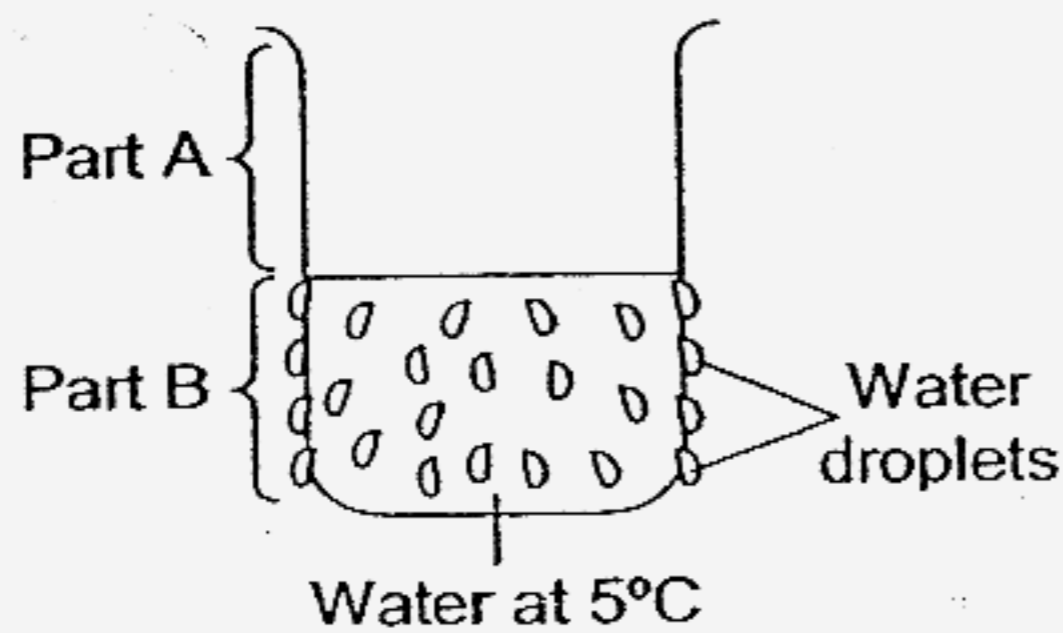
a) Is Cell X a plant cell or animal cell? (1m)

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b) Which part of the cell allowed the iodine solution to enter into the cell? (1m)

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34a. The beaker below contains some cold water.



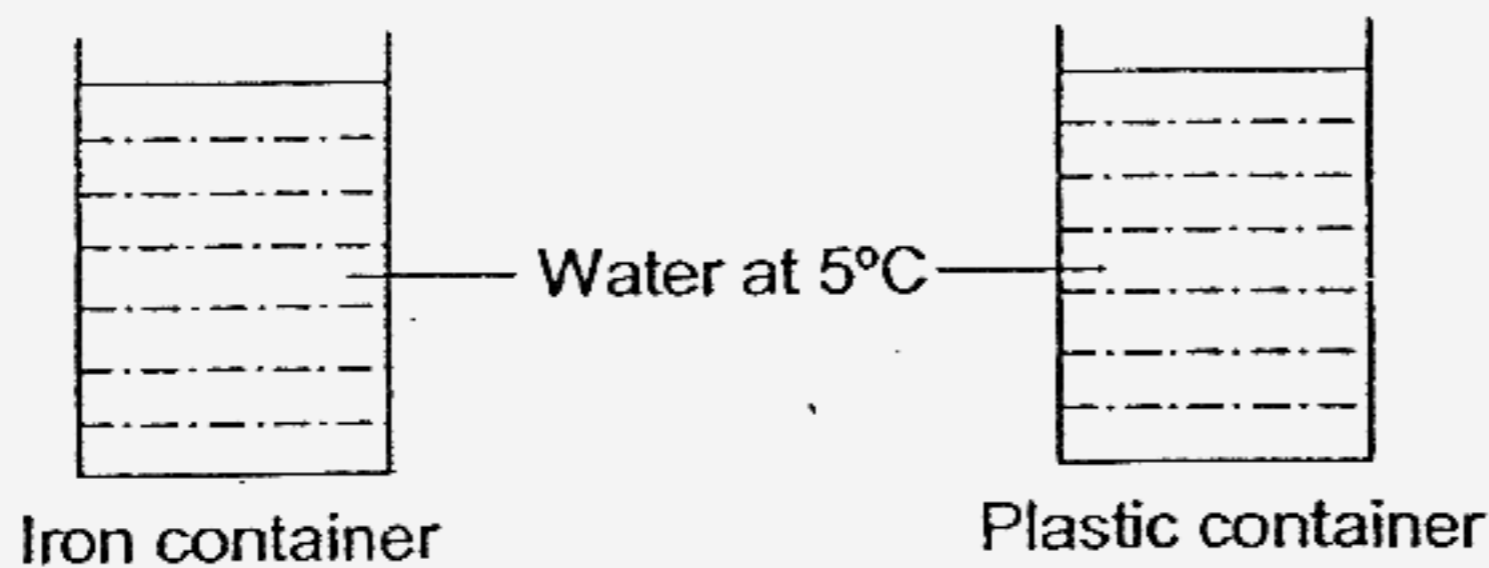
Why are water droplets formed on Part B of the beaker but not on Part A? (1m)

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b. The 2 containers below contain the same amount of water at the same temperature. They are placed on a table in a room.

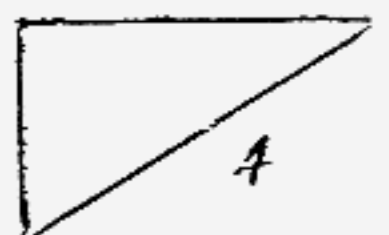


On which container will water droplets appear sooner on the outer side of the container? Give a reason for your answer. (1m)

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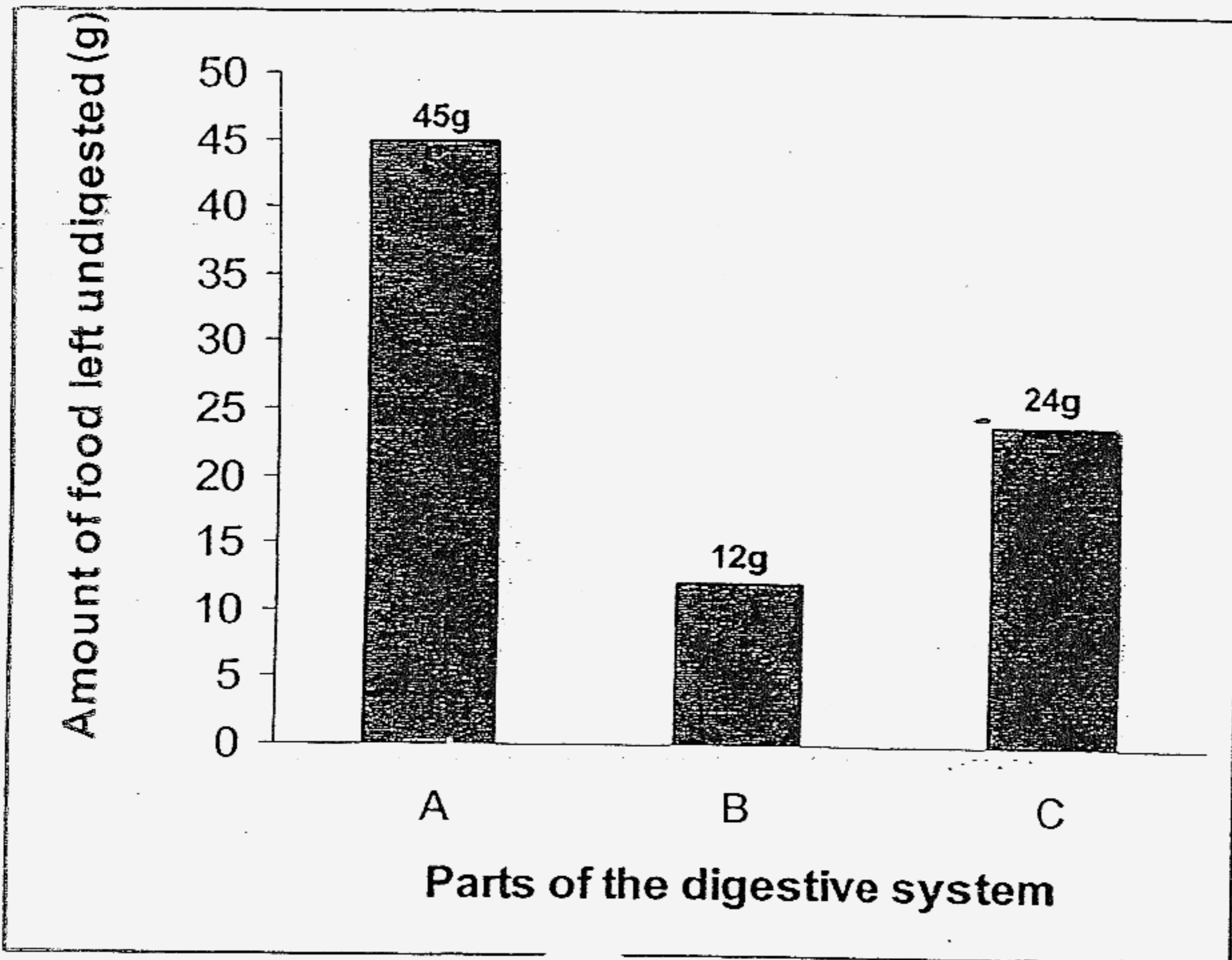


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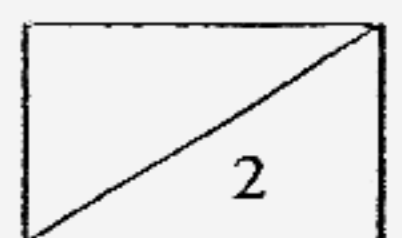




35. Linda ate 50g of food during her tea break. The graph below shows the amount of food left undigested by 3 different parts of the digestive system, the small intestine, stomach and mouth.



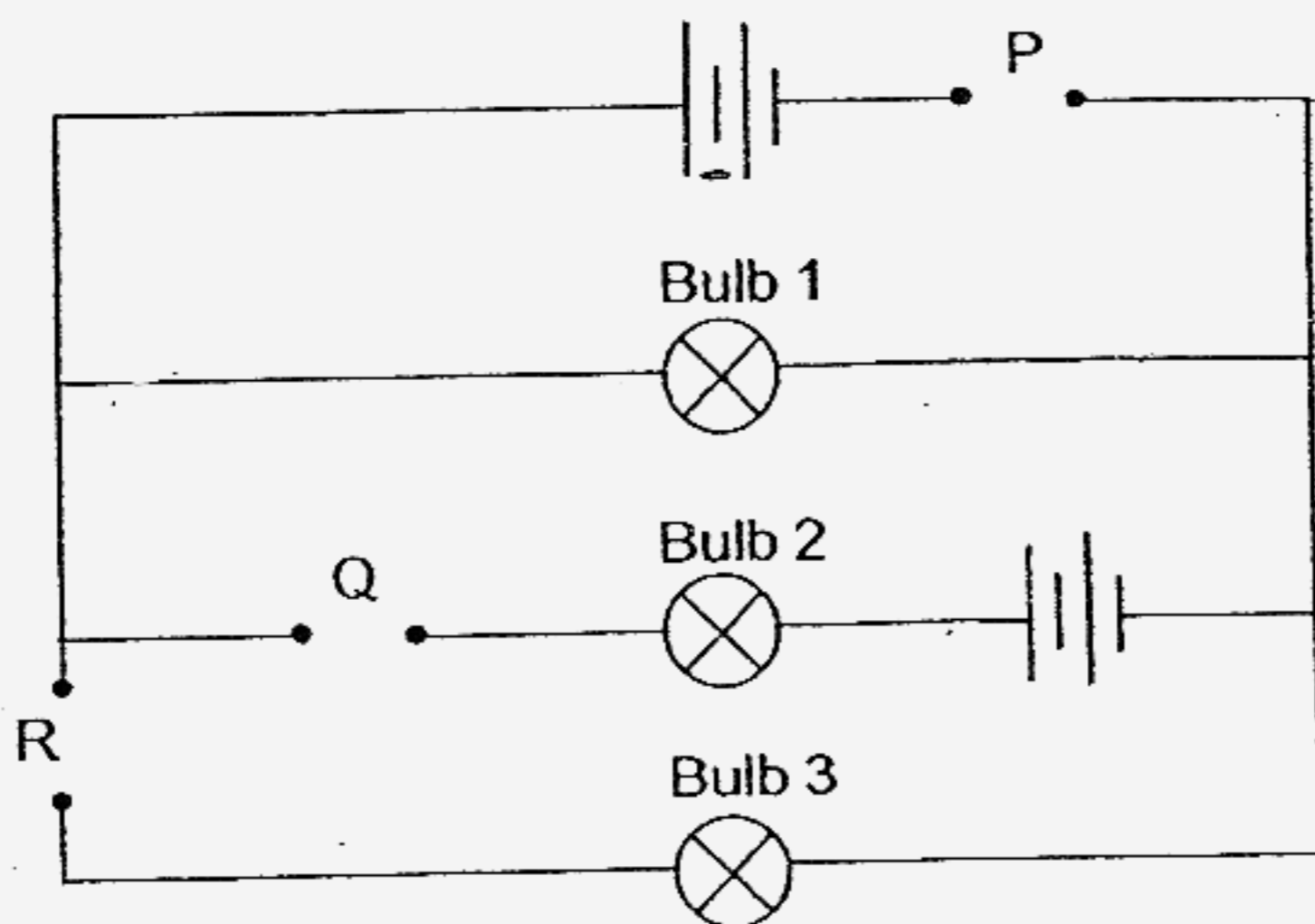
- a) Which part of the digestive system, the small intestine, stomach or mouth, does C most likely represent? (1m)
- 
- b) In which part, A, B or C is digested food absorbed? (1m)
- 





36. Sam used the circuit below to test if Objects A, B, C, D and E are made of conductors of electricity. He connected different objects to the circuit at testing positions P, Q and R and recorded his findings in the table below.

Objects placed at			Does the bulb light up?		
P	Q	R	Bulb 1	Bulb 2	Bulb 3
A	B	C	✓	✓	✓
E	D	A	✓	✓	
C	D	E	✓	✓	
E	A	B		-	
B	C	D	✓	✓	✓

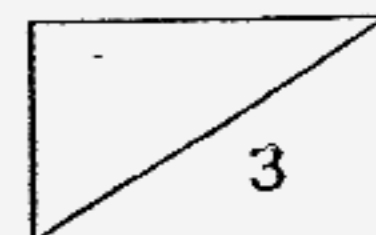


One of the testing positions that Sam has chosen is unsuitable in determining if all the 3 objects tested at the **same time** are conductors of electricity.

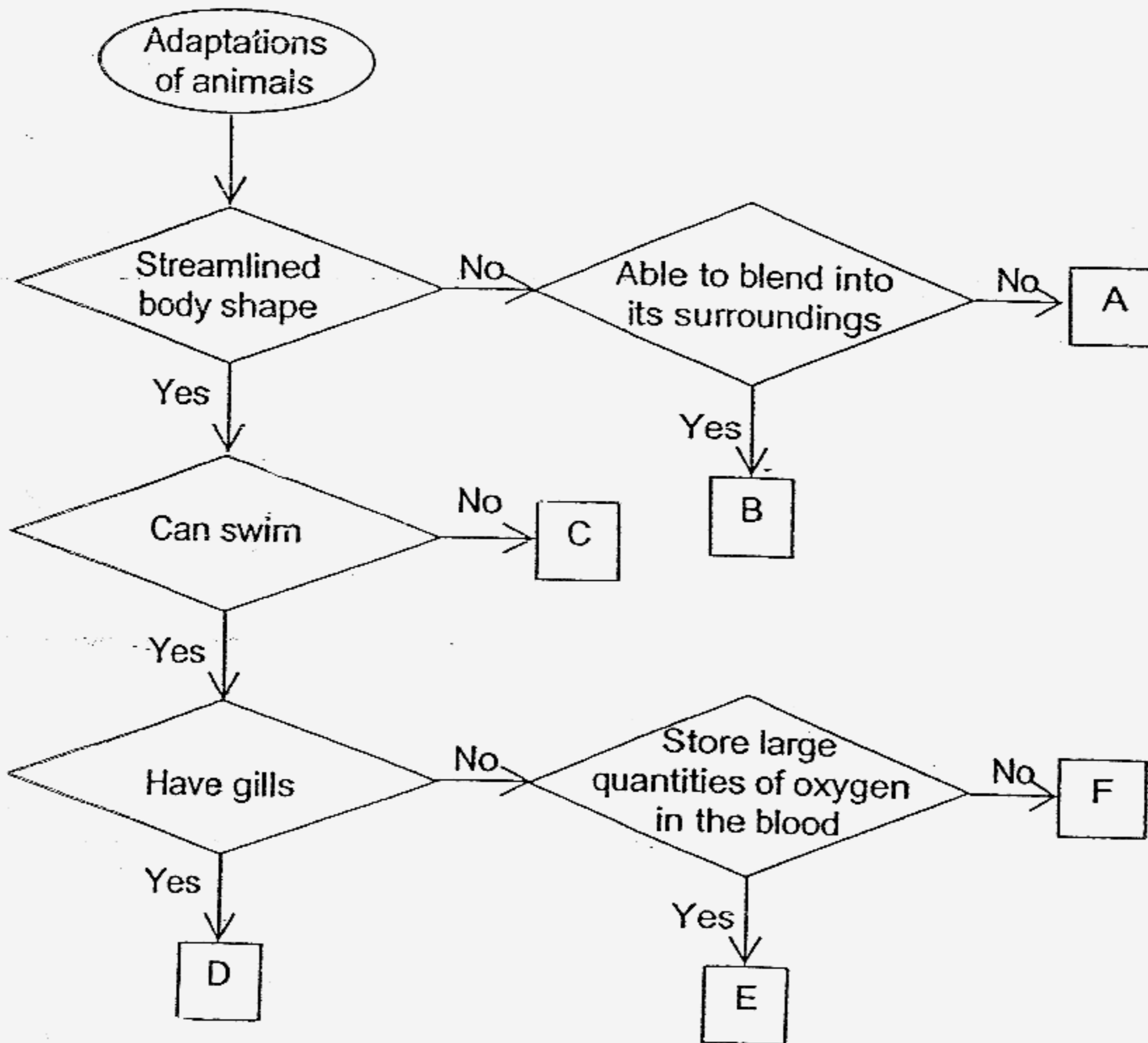
ai) Which testing position, P, Q or R is unsuitable?. (1m)

aii) In the circuit diagram above, mark an 'X' on the circuit to indicate where Sam should place the new testing position so that it will be suitable to determine if all the 3 objects tested at the **same time** are conductors of electricity. (1m)

b) Which of the material/s is/are non-conductors of electricity? (1m)



37. Study the flowchart below. A, B, C, D, E and F represent different groups of animals. Answer the questions based on the flowchart.



a) Give an example of an animal in group E. (1m)

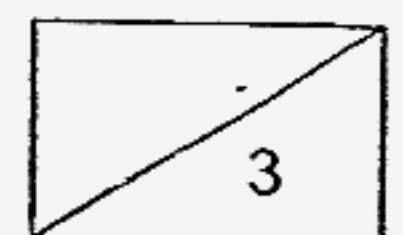
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b) List all the characteristics of animals in group B. (1m)

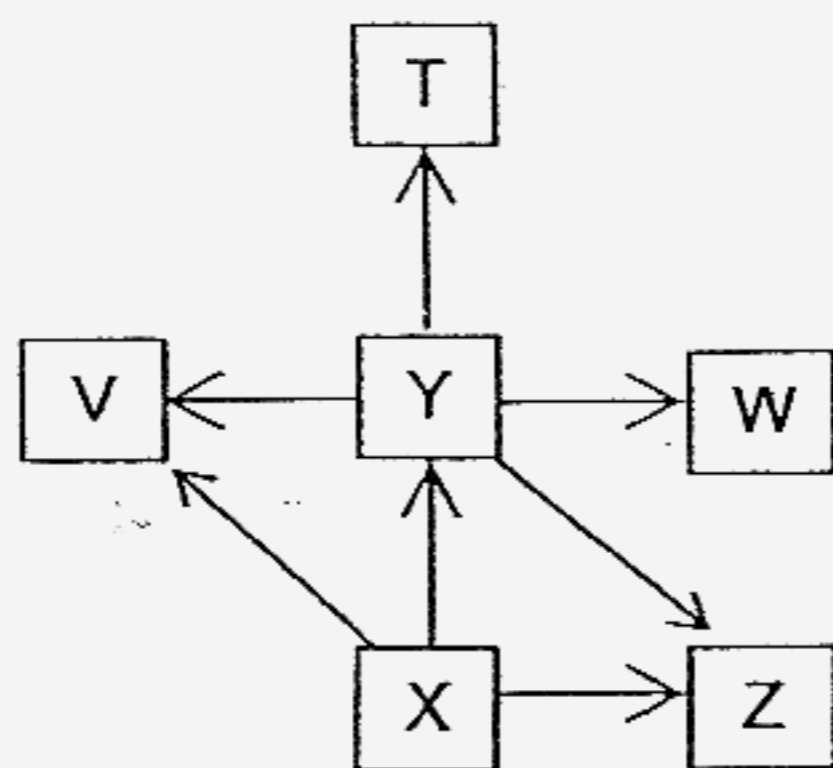
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c) Animal X has hollow bones. In which group does Animal X most likely belong to? (1m)

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38. Mr Tan is a farmer. His crop, X has been attacked by pest Y. He wants to get rid of pest Y with the help of their natural predators instead of using pesticide. Study the food web below.



Which predator/s of Y should Mr Tan introduce into his farm so that he can have the best harvest of his crops? Give a reason for your answer. (2m)

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39. Devi wanted to find out if a ball can bounce higher if water is added to the surface on which the ball bounces. She put some water on a concrete surface and dropped the ball from a height. She then dropped the ball 2 more times from the same height and each time recorded her findings in the table below.

1 <sup>st</sup> Try	2 <sup>nd</sup> Try	3 <sup>rd</sup> Try	Average
19cm	21cm	23cm	21cm

- a) Why does she have to drop the ball from the same height each time? (1m)

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- b) What is the purpose of carrying out 3 trials for her experiment? (1m)

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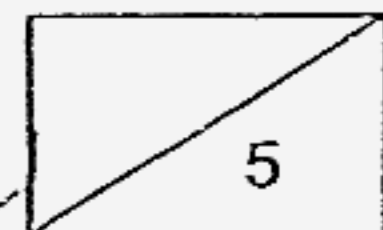
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- c) She is unable to form any conclusion from her experiment. What must she do so that she can form a conclusion? (1m)

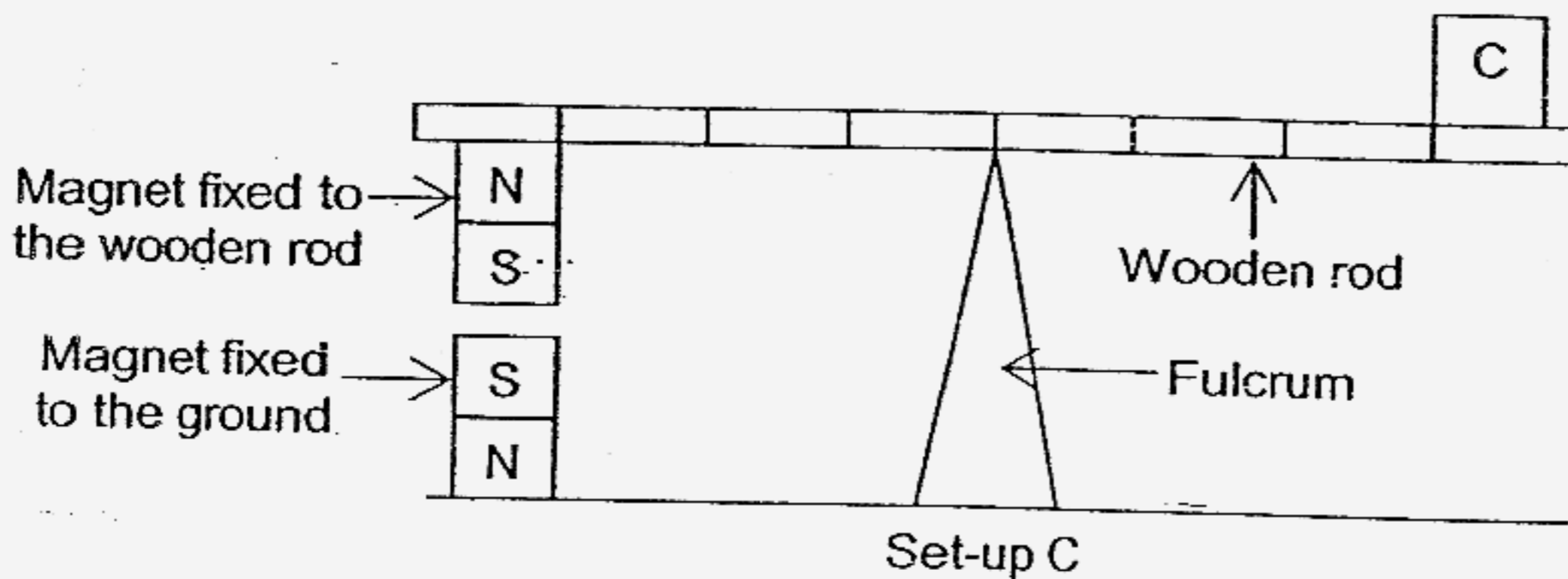
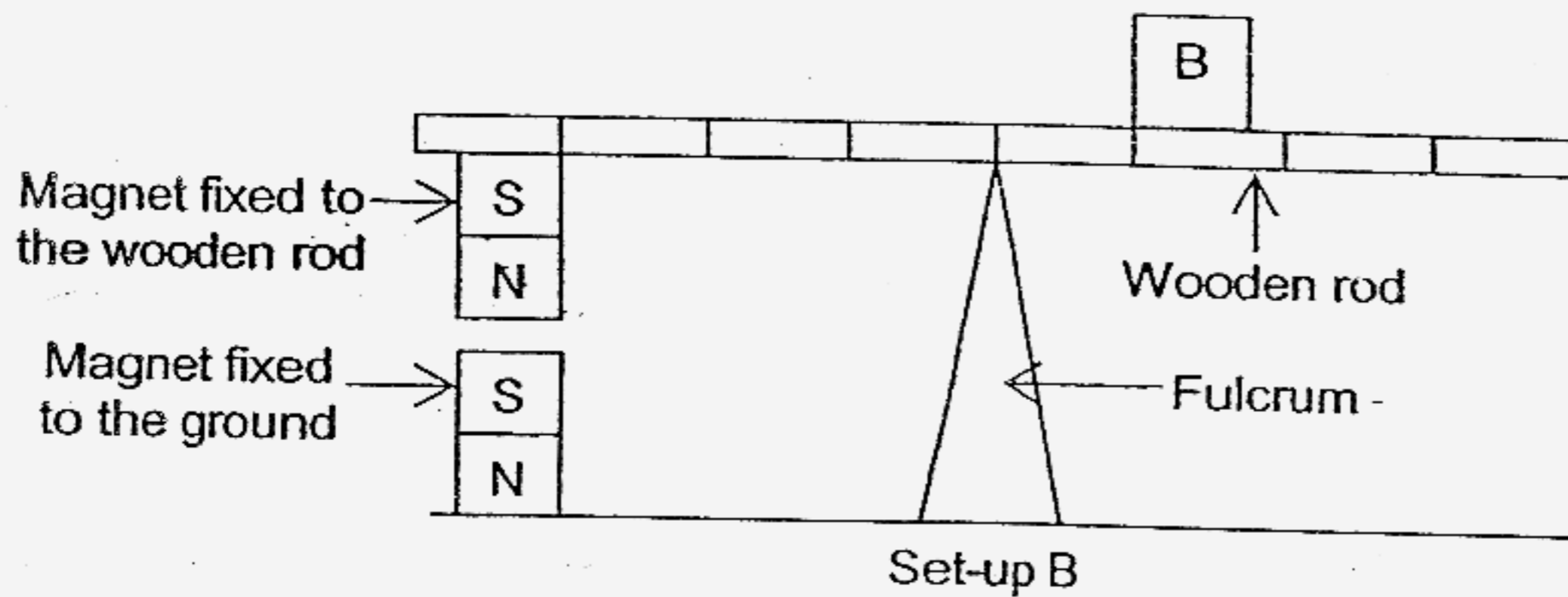
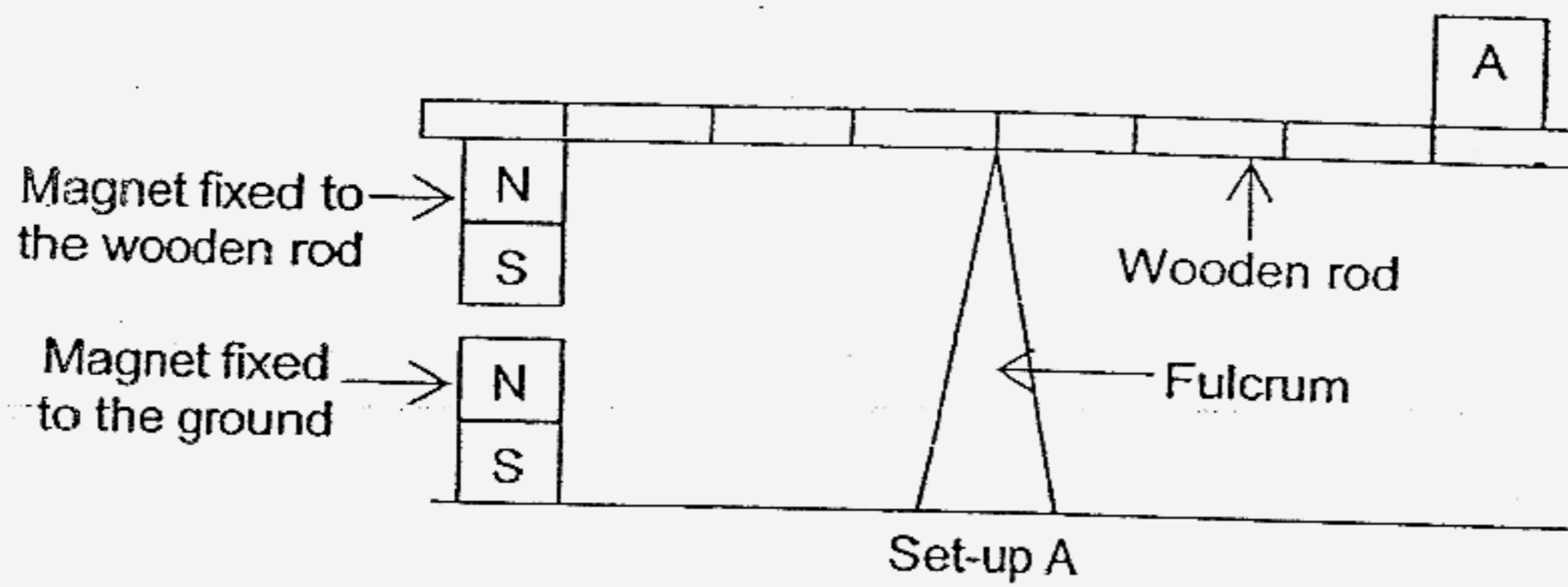
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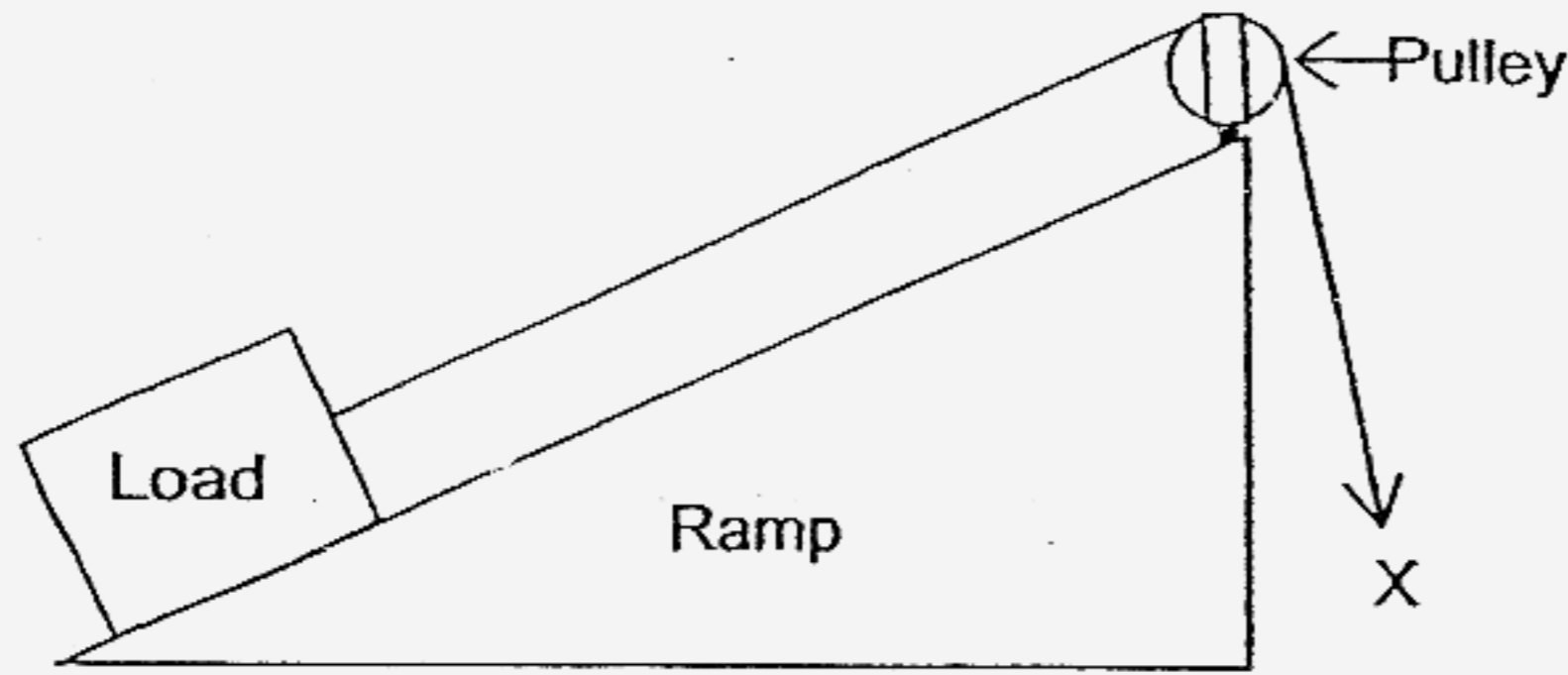
40. The diagrams below show 3 set-ups, A, B and C. All the magnets have the same mass and the same magnetic force.



- a) Which objects/s is/are heavier than the magnet? (1m)
- 
- b) Arrange the objects A, B and C from the smallest mass to the largest mass. (1m)
- 
- c) Indicate in the table below with a tick (✓) in the appropriate column, what would happen if the magnets fixed to the ground are removed from set-ups B and C. (1m)

Set-up	Wooden rod will tilt up at the end with the magnet.	Wooden rod will tilt up at the end with the load.
i) B		
ii) C		

41. Mr Lim wanted to lift up a load. He attached a string to the load and pulled it from position X as shown below.



- a) What is Mr Lim's purpose of using the pulley here? (1m)

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- b) What is the purpose of using the ramp? (1m)

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42. Impurities A, B, C, D, E and F are contaminants that may be found in the water. The table below show the types of impurities that Filter V, W, X, Y and Z can filter water to make it safe for human consumption. Each filter cost \$10 000.

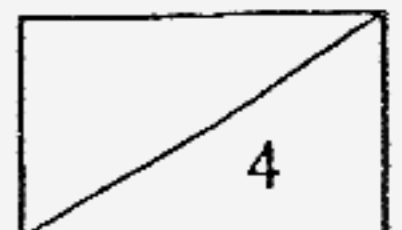
Filter	Impurities
V	A and E
W	A and B
X	A and F
Y	D and E
Z	C and E

- a) Water Treatment Plant P treats water from a river that contains Impurities A, B, C and D. Which are the filters that Water Treatment Plant P must have in order to filter the water from the river safe enough for human consumption without incurring unnecessary cost? (1m)

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- b) Water Treatment Plant Q has Filters V, W, X and Z. It treats water that contains impurities A, B, C, E and F. One of the filters is damaged. Fortunately, Water Treatment Plant Q is still able to remove all the impurities from the water. Which of the Filters V, W, X or Z is damaged? (1m)

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43. Ah Seng wanted to find out if the amount of water given to plants would affect the number of leaves they grew. He took 4 plants of similar size and the same type. Each plant had the same number of leaves at the start of the experiment. The amount of water given daily was different for Plant A, B, C and D. He recorded the number of leaves each plant had at the end of each week in the table below.

Plant	Amount of water given to the plant daily	Number of leaves on the plant at the end of each week					
		Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
A	100 ml	22	23	25	28	30	33
B	150 ml	23	26	30	33	37	40
C	200 ml	23	27	32	36	39	44
D	250 ml	24	29	34	39	45	50

- a) What is the relationship between the amount of water given to the plants and the number of leaves they grow? (1m)

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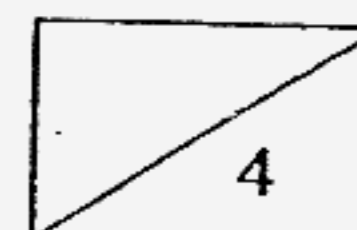
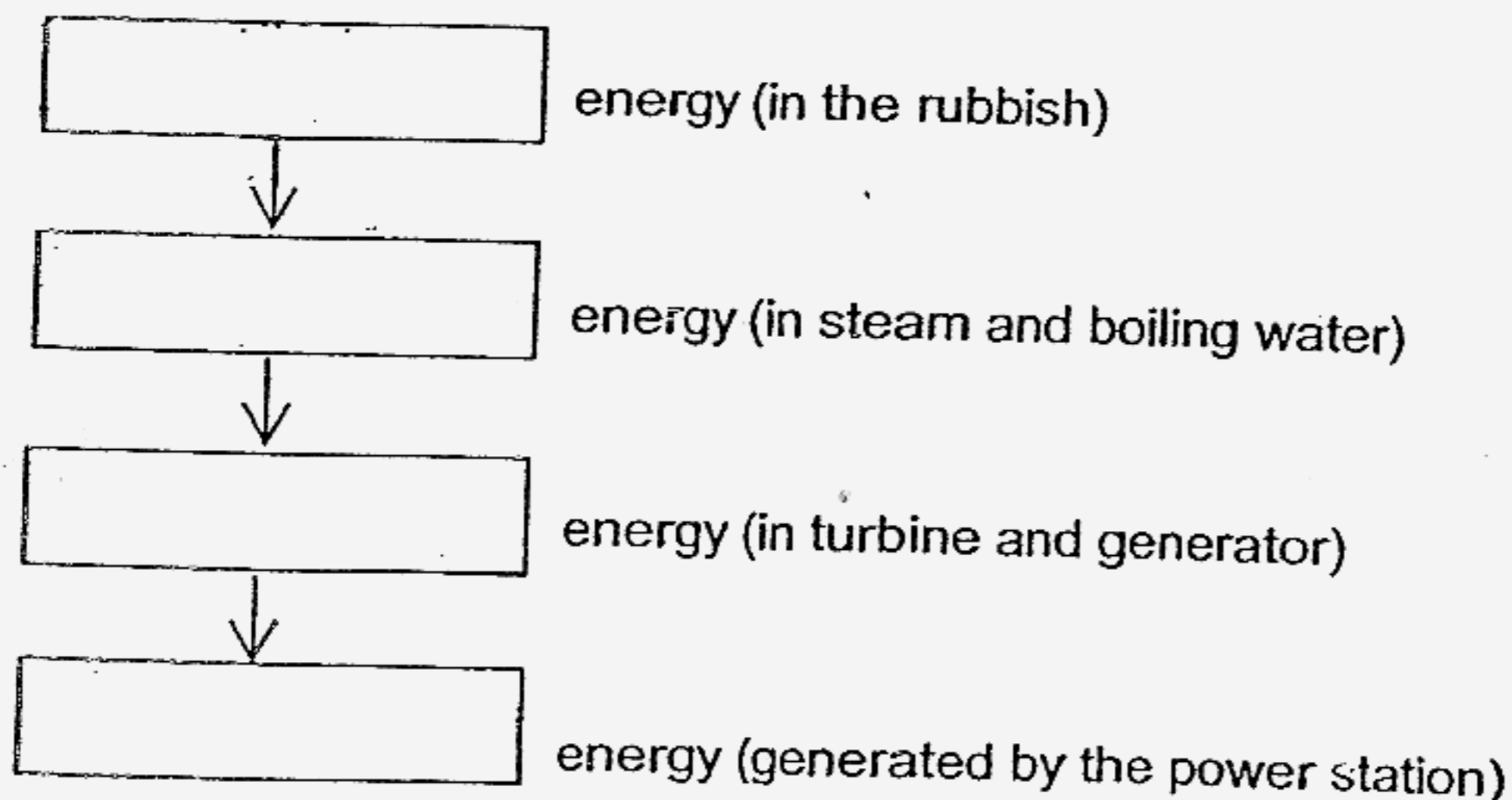
- b) At the start of Week 7, Ah Seng gave plant A and D the same amount of water daily. Which plant would be able to carry out photosynthesis at a faster rate? Explain how the chosen plant was able to carry out photosynthesis at a faster rate. (1m)

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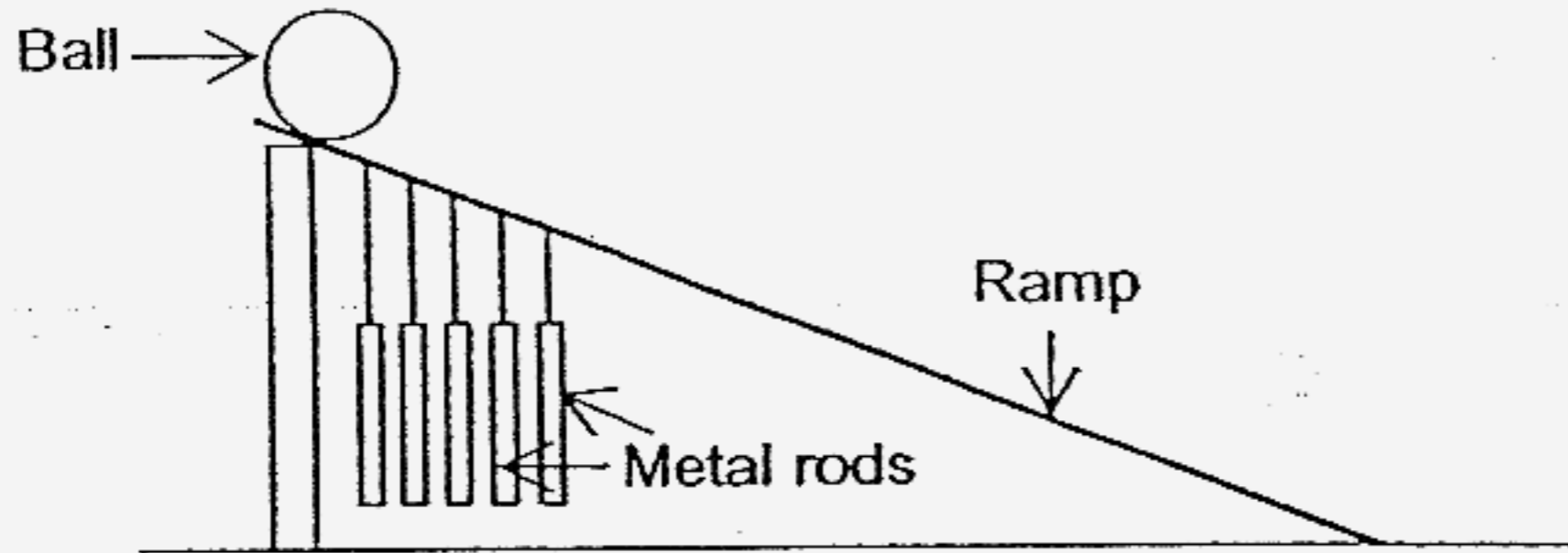
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44. A power station uses rubbish instead of fossil fuel to generate electricity. Complete the boxes with the main forms of energy to show the conversion of energy that takes place in the power station. (2m)

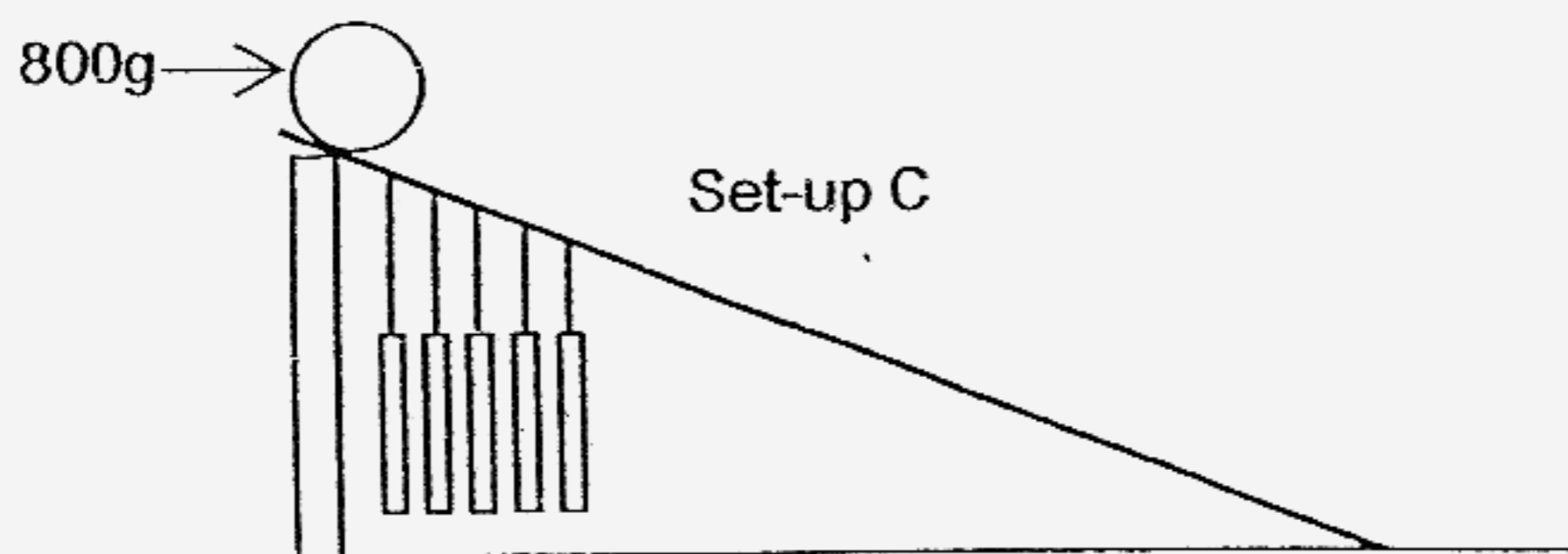
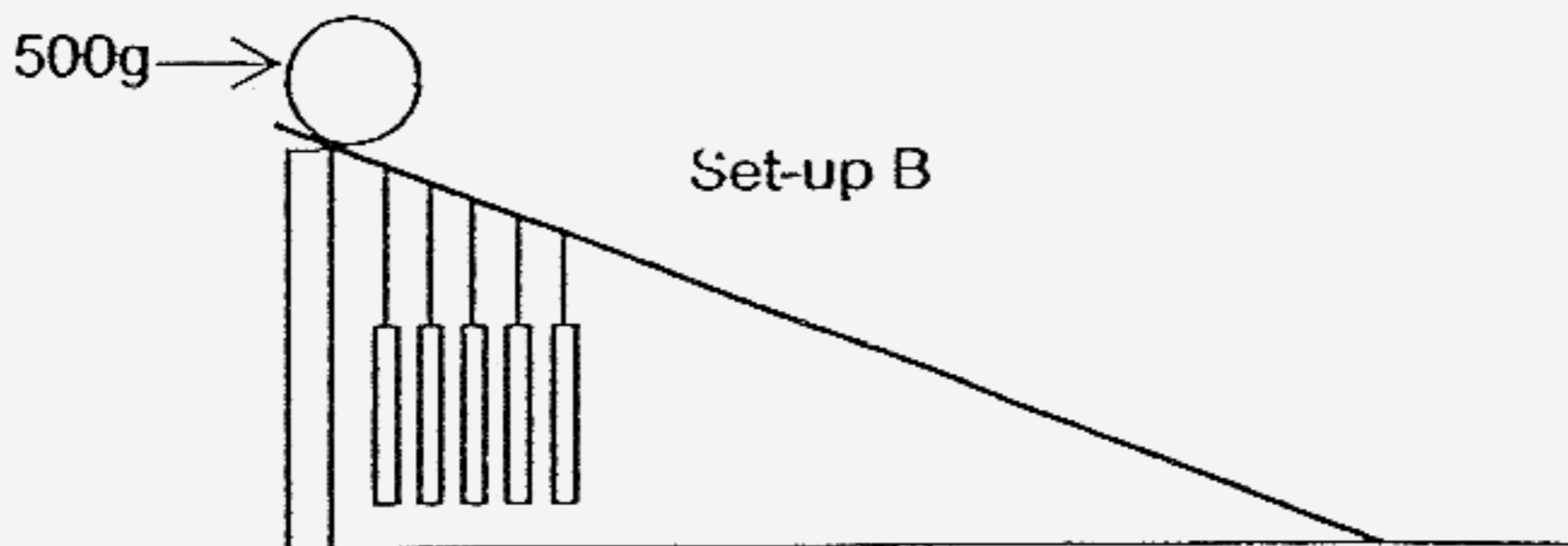
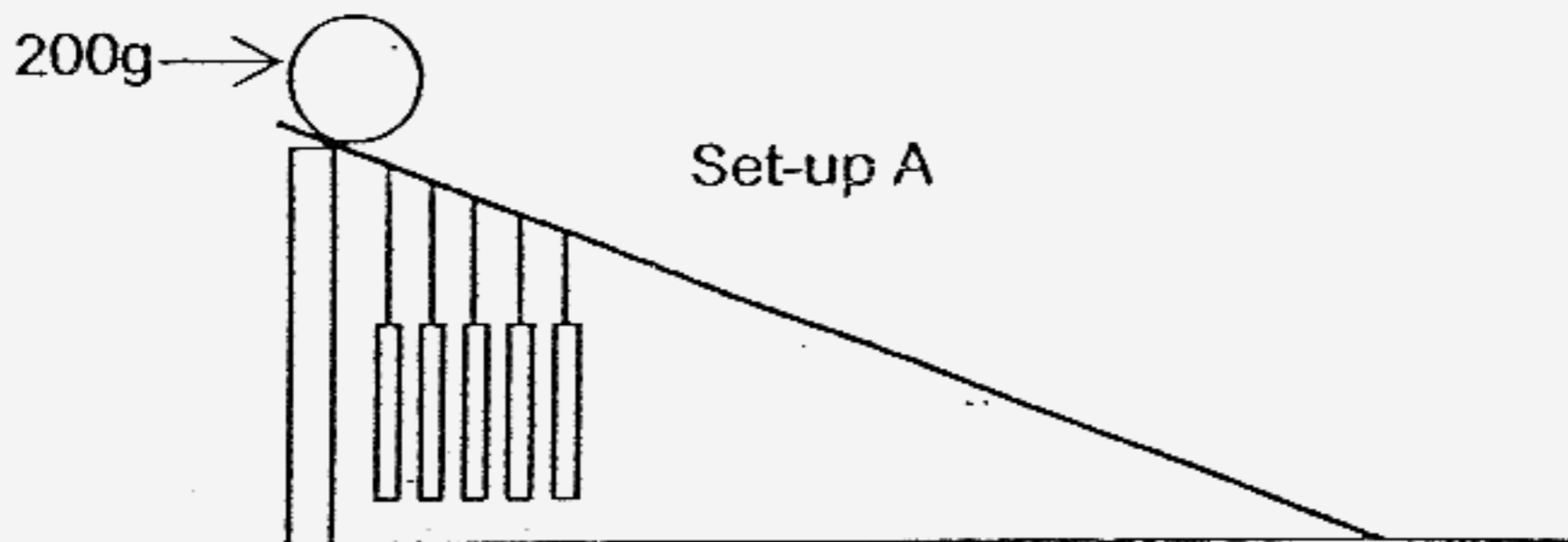




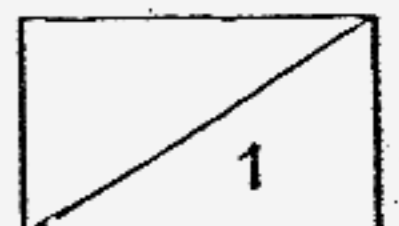
45. Susan sets up the experiment as shown below. When the ball rolls down the ramp, the metal rods hung below the ramp will clink against each other. She notices that if the ball has more kinetic energy, the metal rods will clink against each other more forcefully, producing louder sound.



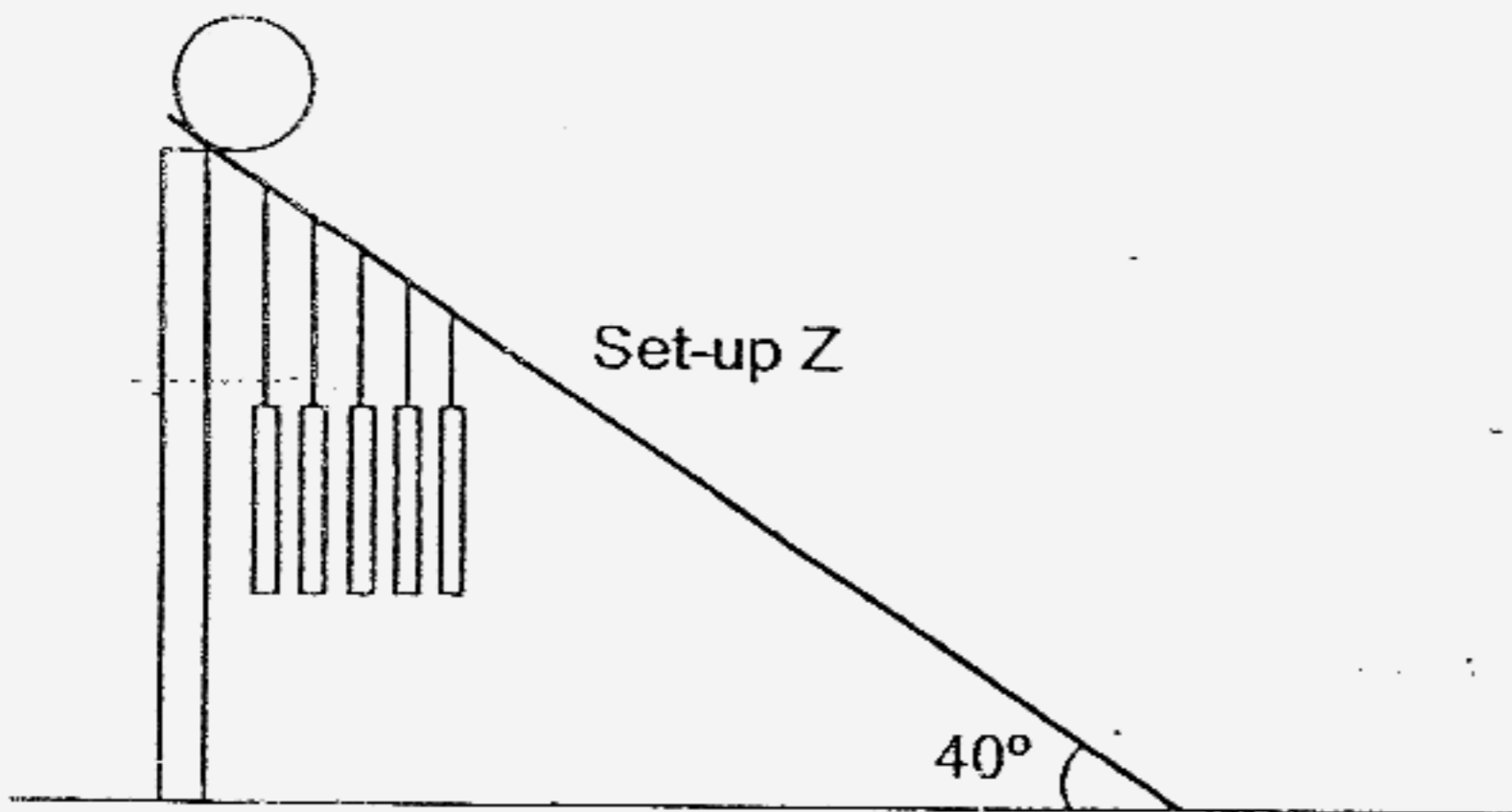
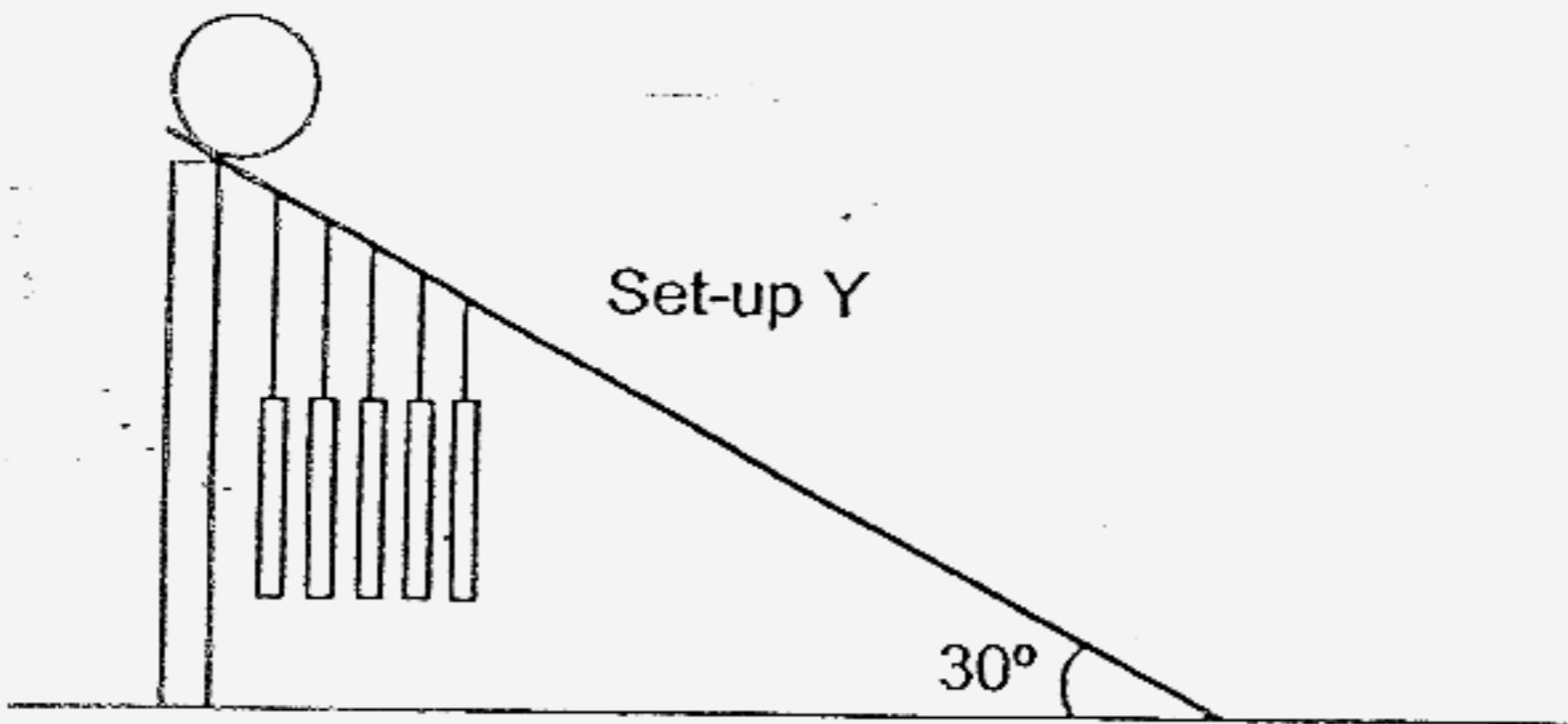
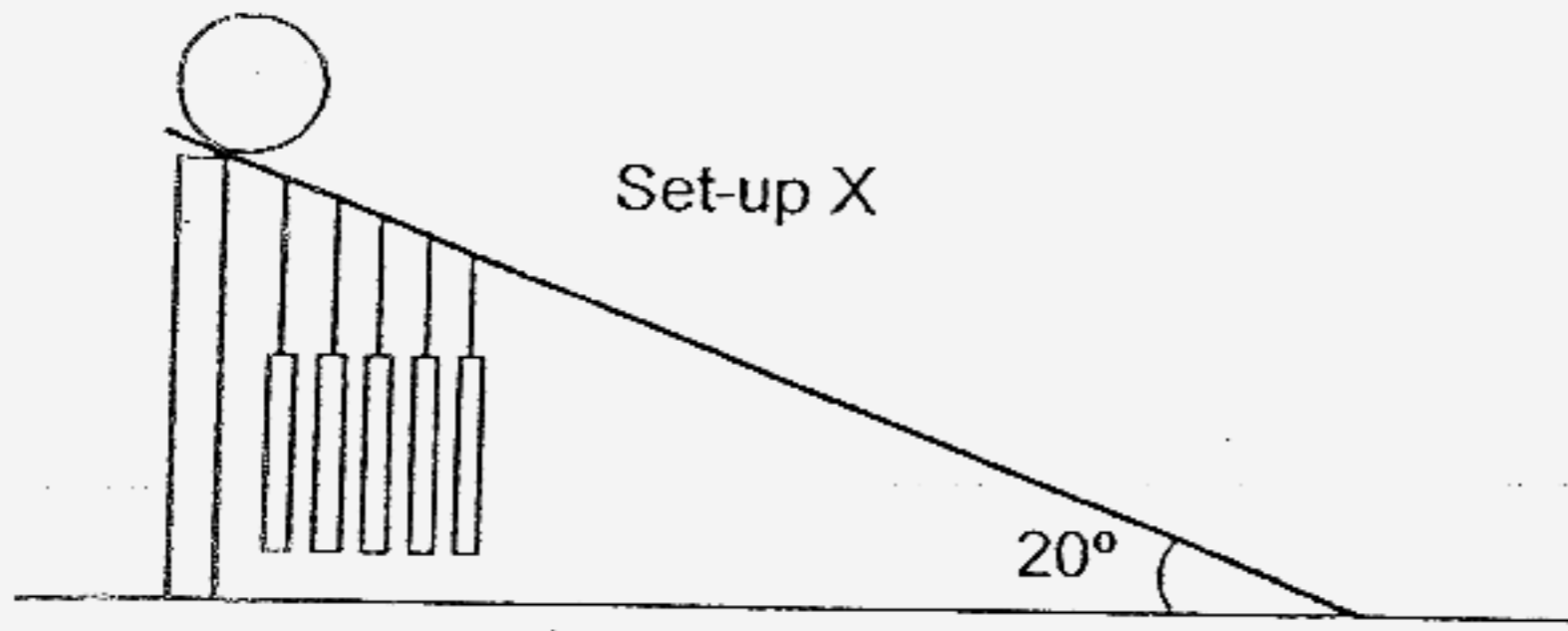
She then repeats the experiment using the same ramp but with balls of different masses.



- a) Which of the set-ups above would result in the metal rods making the loudest sound when the balls rolls down the ramps? (1m)

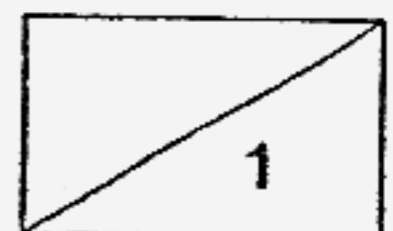


45b. In the next experiment, she uses balls of the same mass but ramps of different steepness.

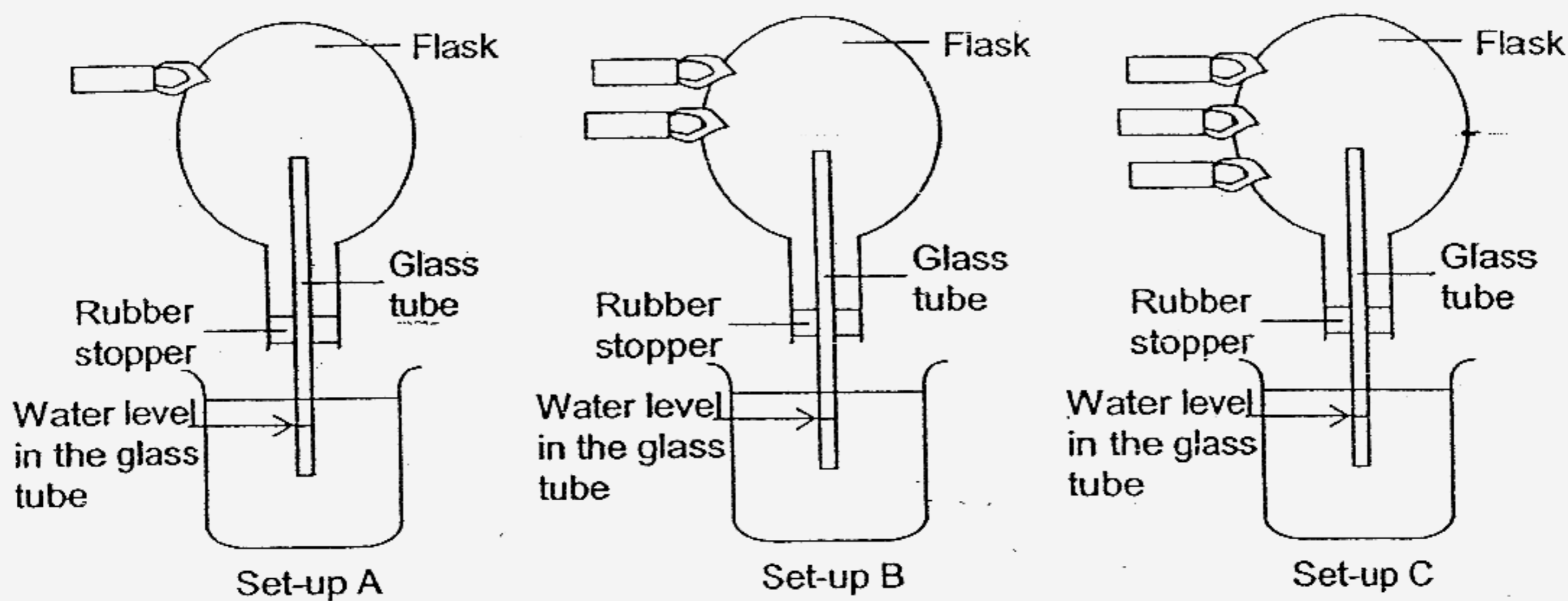


b) Which of the above set-ups will result in the loudest sound when the balls roll down the ramps? (1m)

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46. Jane inserted a glass tube into a flask and secured the glass tube with a rubber stopper. She then inverted the flask with the glass tube and place one end of the glass tube into a beaker of water. She then prepared another 2 similar set-ups using the same type of apparatus. She noticed that the water levels in the 3 glass tubes were the same at the start of the experiment.



She then heated each of the flasks with different amount of heat for 2 minutes. After that, she let the containers cool down. As the flasks were cooling down, she noticed that the water level in the glass tube was higher than the water level at the start of the experiment.

- a) Explain why the water level in the glass tube increased as each flask was cooled down. (2m)

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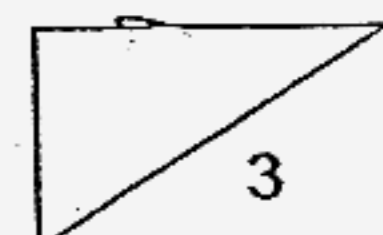
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- b) After the flasks have cooled down to room temperature, in-which set-up would the water level in the glass tube be the highest?

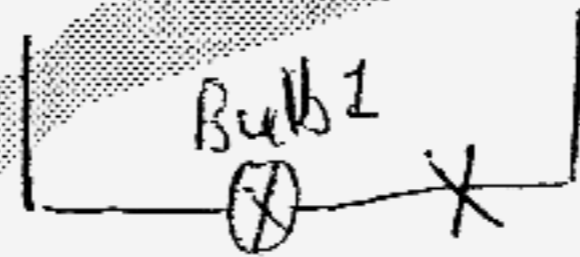
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SCGS PRIMARY SCHOOL - PRIMARY 6 SCIENCE 2007  
 SEMESTRAL ASSESSMENT (2)

1. 3 31) a) It provides food for the baby plant  
 2. 1 b) i) False ii) True  
 3. 1 iii) True iv) Not  
 4. 4  
 5. 1 32) a) i) Mammals ii) insects  
 6. 4 b) Give birth to young.  
 7. 4 c) C  
 8. 1 d) D  
 9. 3  
 10. 3 33) a) Plant cell.  
 11. 3 b) Cell membrane.  
 12. 2  
 13. 3 34) a) Part B is of a lower temperature  
 14. 4 than the water vapour in the  
 15. 1 surrounding air but part A is the  
 16. 2 same temperature as the water  
 17. 1 vapour in the surrounding air.  
 18. 2 b) Iron container. Therefore, the water  
 19. 4 in the iron container will gain  
 20. 2 heat faster than the water in the  
 21. 3 plastic container.  
 22. 4  
 23. 2 35) a) Stomach  
 24. 4 b) B  
 25. 2  
 26. 2 36) ai) P  
 27. 4 aii)  
 28. 1  
 29. 3  
 30. 2



b) E and A



37) a) dolphin.

b) It has no streamlined body shape and it is able to blend into its surroundings.

c) C.

38) He should introduce predators T and W. T and W does not eat X. Therefore, when T and W attack Y, Y will decrease and gradually die. When Y dies, nothing will attack X.

39) a) To make it a fair test.

b) To ensure accuracy result.

c) Bounce the ball at the same height on a concrete surface without water.

40) a) A and B

b) C, A, B

c) i)  X

ii) X

41) a) To use a smalls effort to overcome the load.

b) To lift the load with less effort.

42) a) W, Y and Z

b) V

43) a) The amount of water given to the plant daily, the greater number of leaves on the plant at the end of each week.

b) D. It has more leaves to capture more light energy to photosynthesis.

44) Potential → heat → kinetic → electric

45) a) set-up C.

b) Z.

46) a) Air expanded and escaped when the container is being heated.

b) Set-up C.

---end---