

NAN HUA PRIMARY SCHOOL
END-OF-YEAR EXAMINATION 2006
PRIMARY FIVE
SCIENCE

Name : _____ () Section A : _____ / 60
Class : P5 _____ Section B : _____ / 40
Date : 1 November 2006 Marks : _____ / 100
Duration : 1 h 45 min

Booklet A

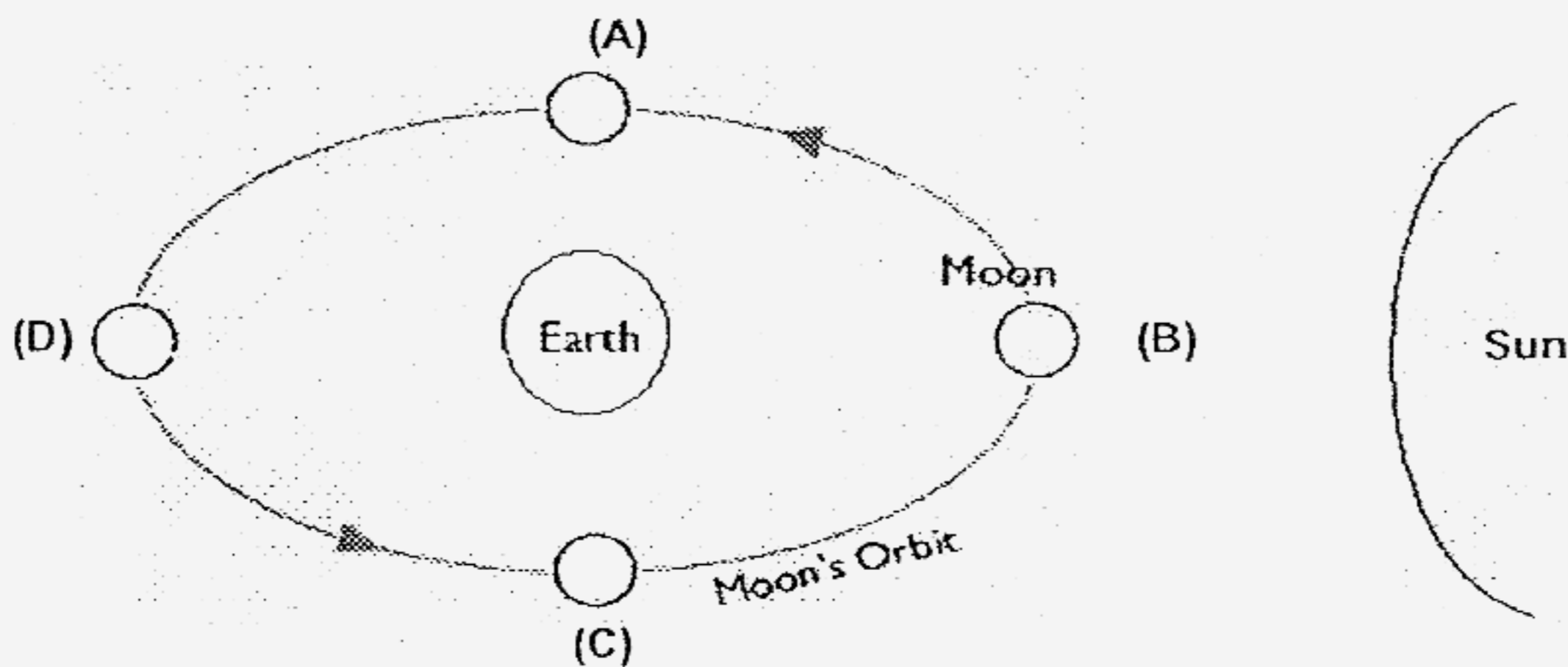
Section A (30 x 2) marks

Choose the most suitable answer and shade the corresponding oval in the Optical Answer Sheet (OAS) provided.

1. The picture below shows how the Sun appears in the sky during solar eclipse.



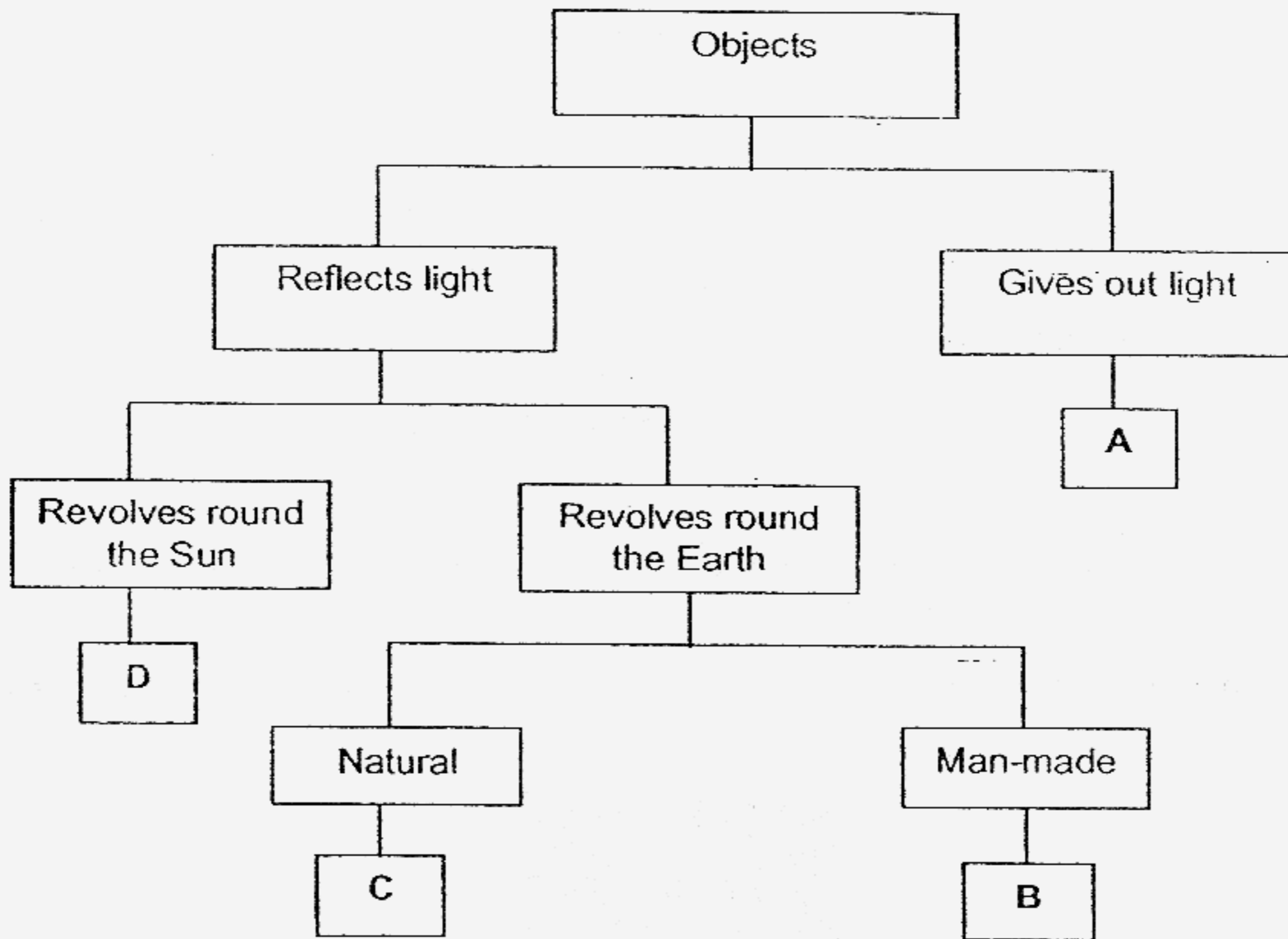
At which point would the Moon most likely be during the solar eclipse?



- (1) A
(3) C

- (2) B
(4) D

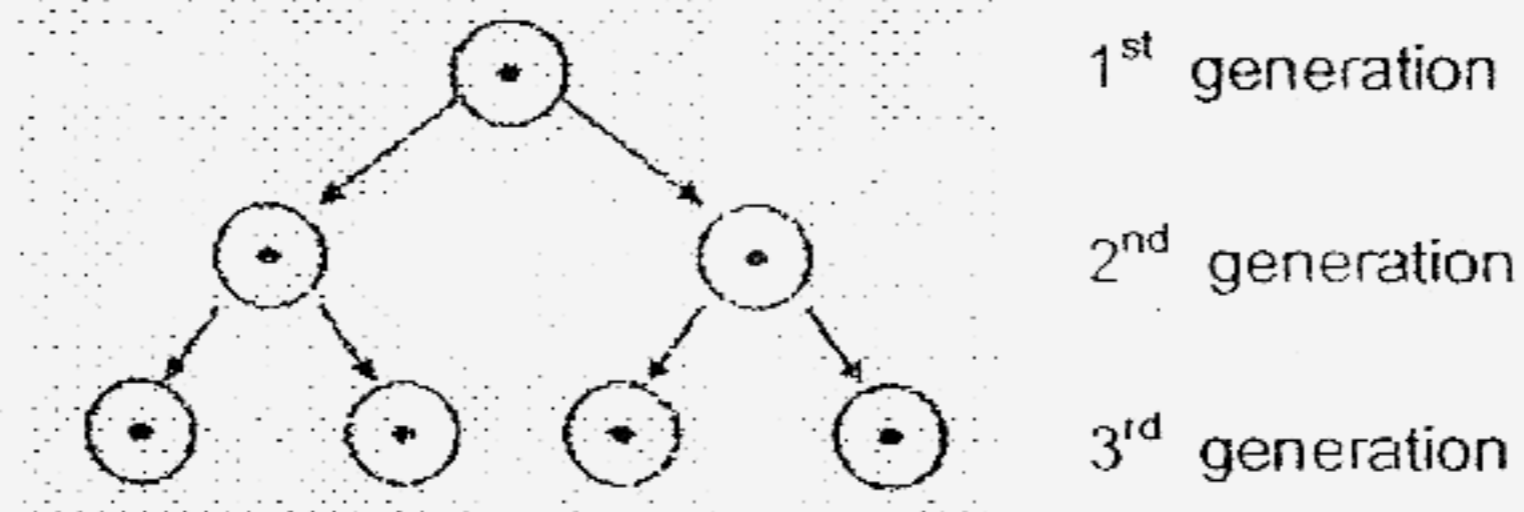
2. Study the diagram below.



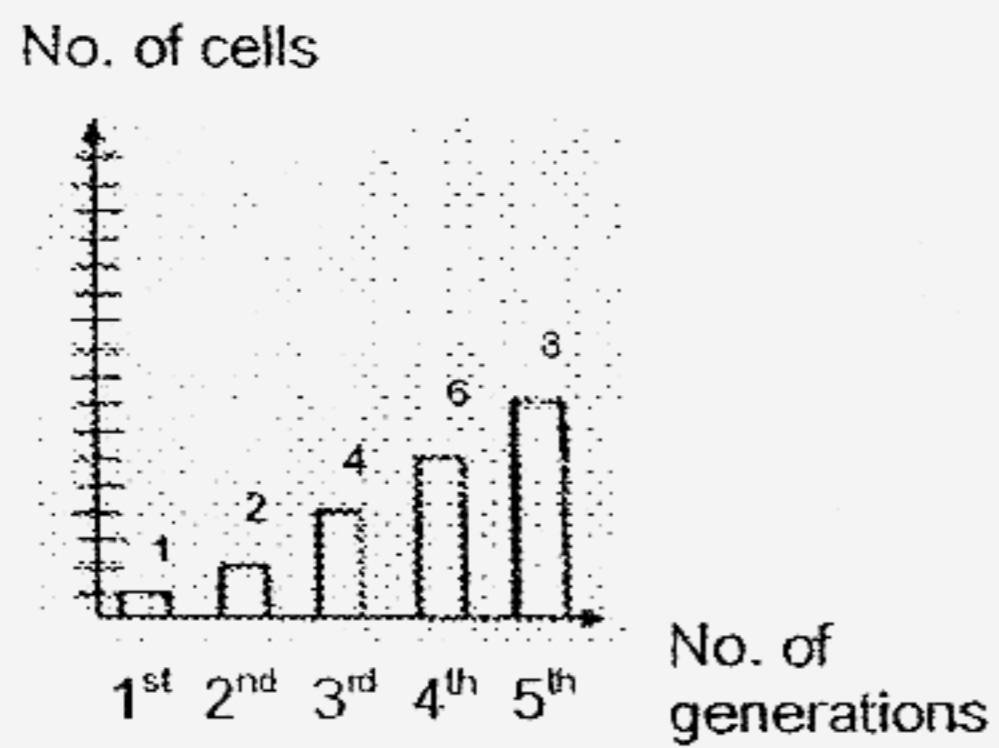
What objects do A, B, C and D represent ?

	A	B	C	D
(1)	Star	Communication Satellite	Moon	Venus
(2)	Star	Venus	Mars	Navigation Satellite
(3)	Sun	Star	Weather Satellite	Moon
(4)	Sun	Weather Satellite	Star	Mars

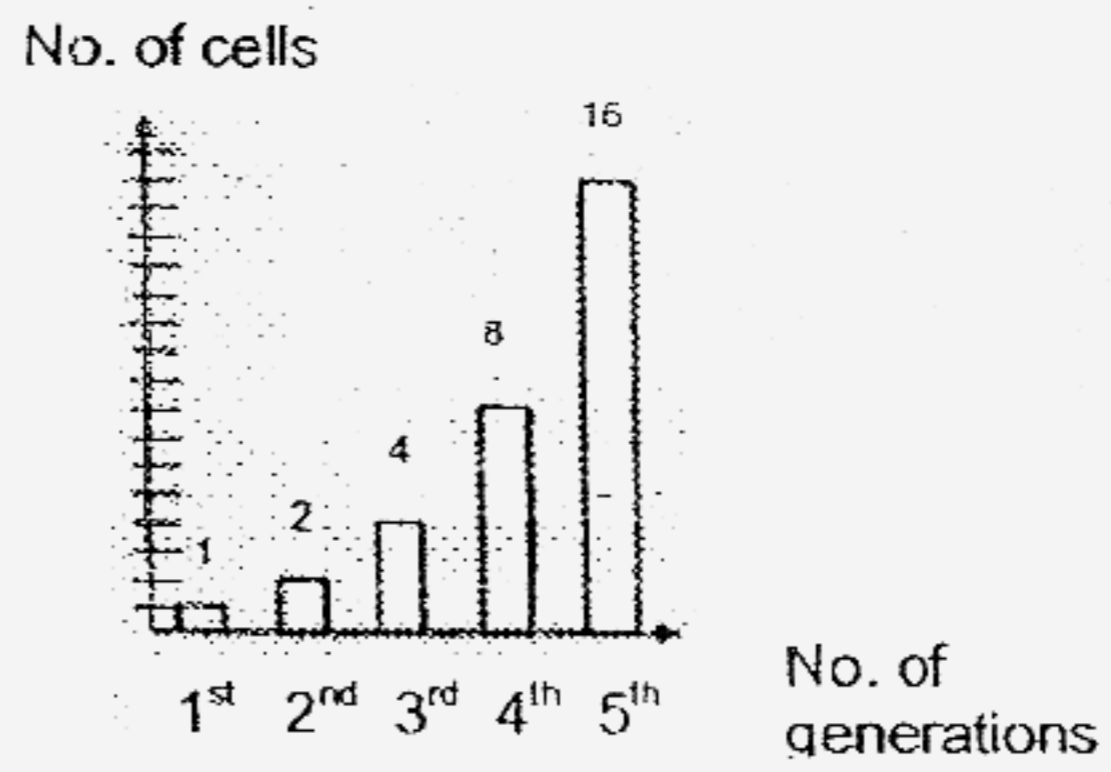
3.



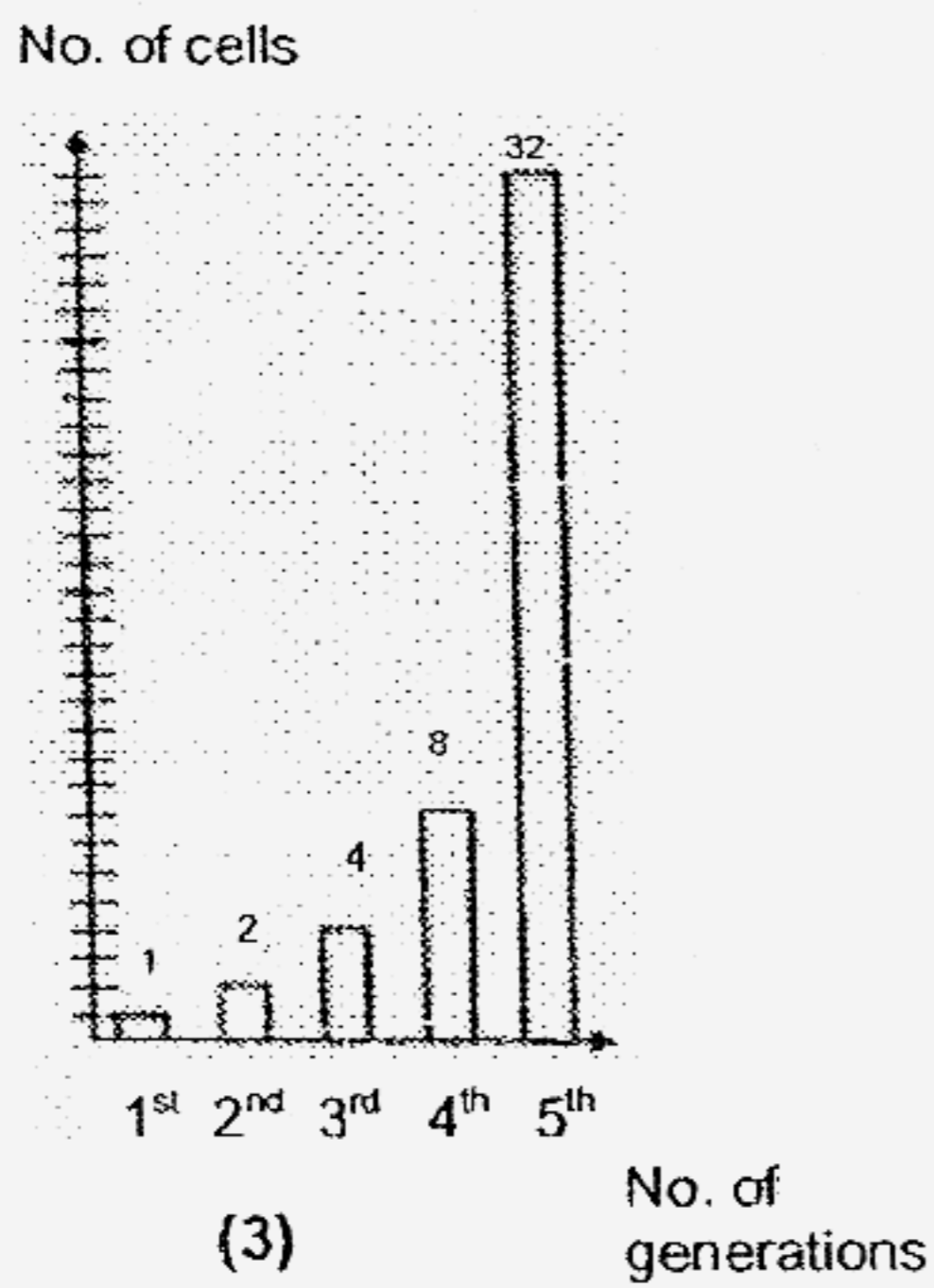
Which of the following bar graph best represents the cell division process above ?



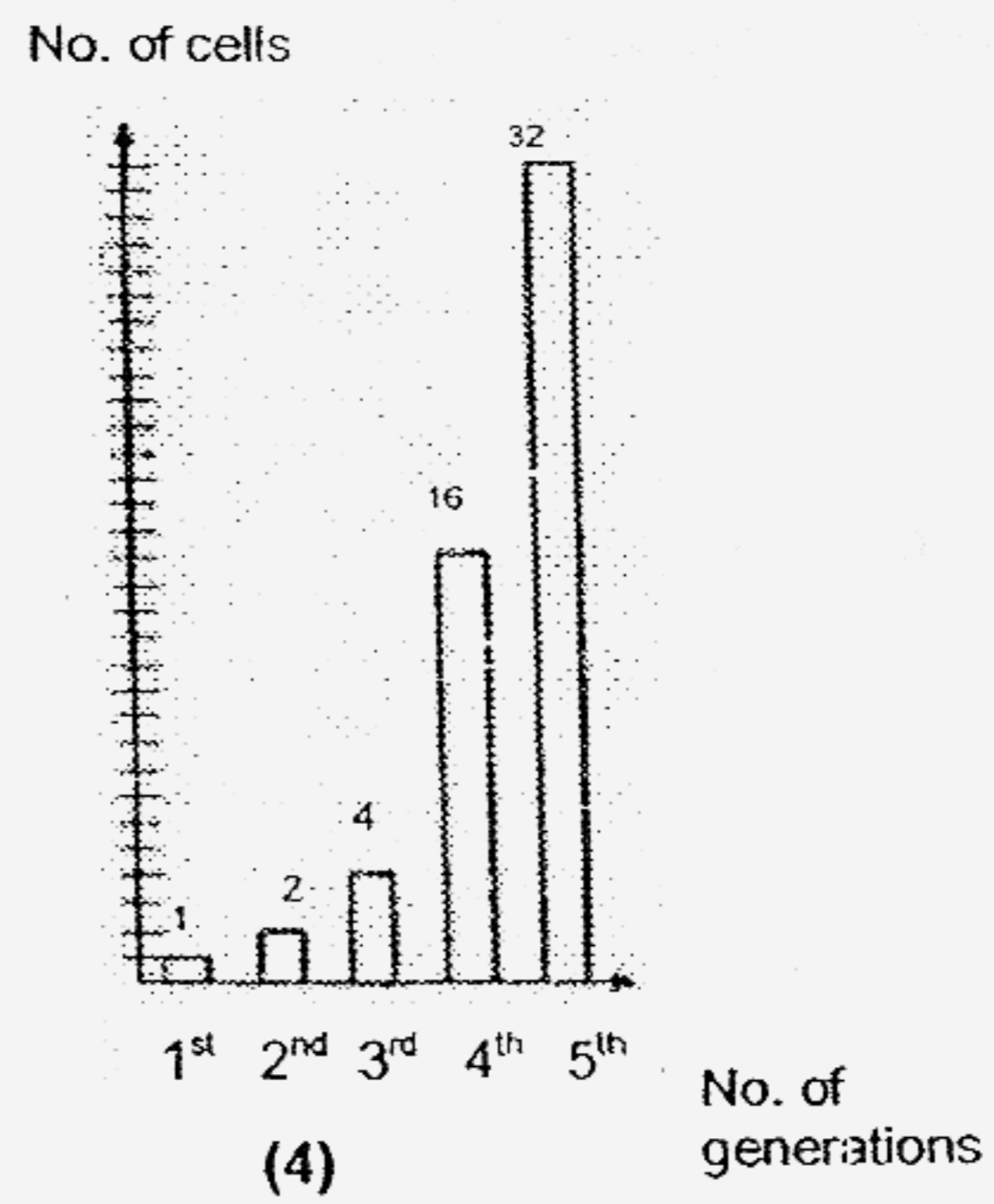
(1)



(2)

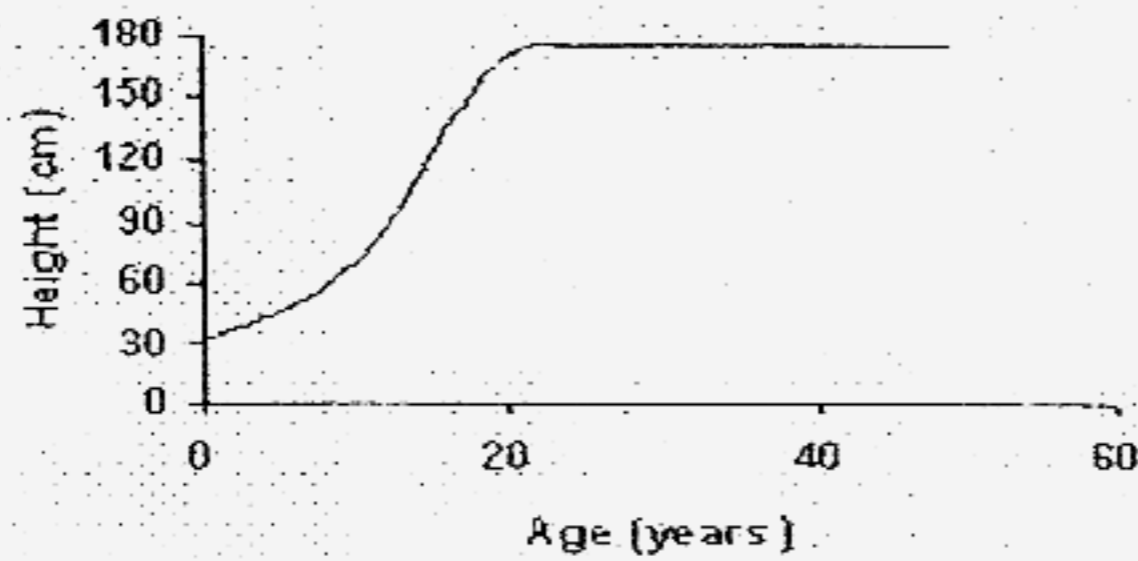


(3)



(4)

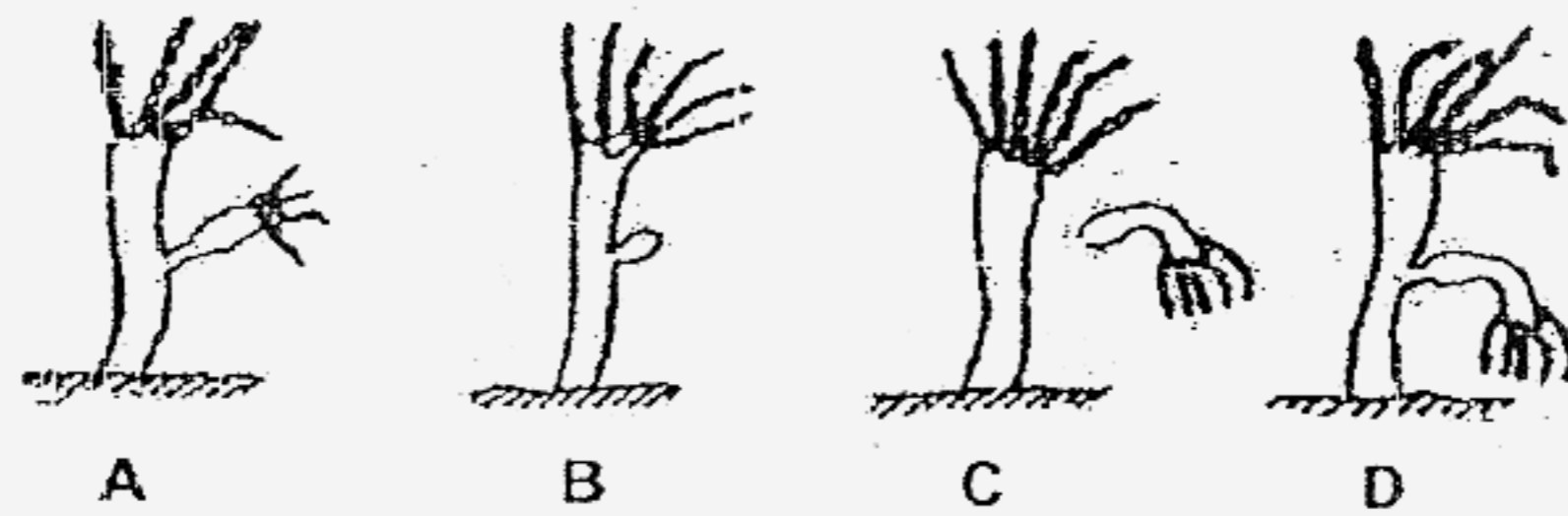
4. The graph below shows the changes in Jun Meng's height from birth till he reached the age of fifty.



What caused Jun Meng's height to remain at 170 cm after the age of twenty ?

- (1) His cells died out.
 - (2) His cells stopped dividing.
 - (3) His cells only divided until the age of 20.
 - (4) His cells continued dividing but only to repair old cells.
-
5. Which of the following is/are possible way(s) by which pollen grains can be carried from one flower to another ?
- | | |
|-------------|---------------|
| (A) Wind | (B) Water |
| (C) Insects | (D) Splitting |
- (1) A and C only
 - (2) B and D only
 - (3) A, B and C only
 - (4) A, B, C and D
6. Which one of the following stages of a plant life /germination is in the **correct** order ?
- (1) Seed → Adult Plant → Shoot → Root → Young Plant
 - (2) Adult Plant → Seed → Young Plant → Shoot → Root
 - (3) First root → Shoot → Young Plant → Adult Plant → Seed
 - (4) Young Plant → Adult Plant → Root → Shoot → Seed

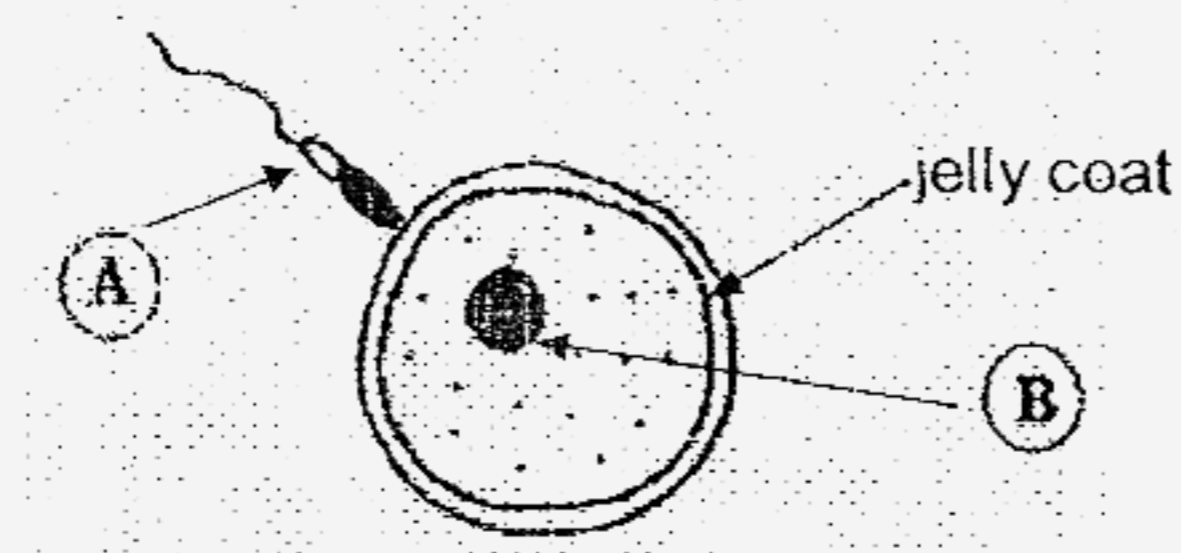
7. The following diagrams A to D show the stages of reproduction of an organism that is not in the correct sequence.



Which one of the following sequence shows the **correct** order ?

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

8.



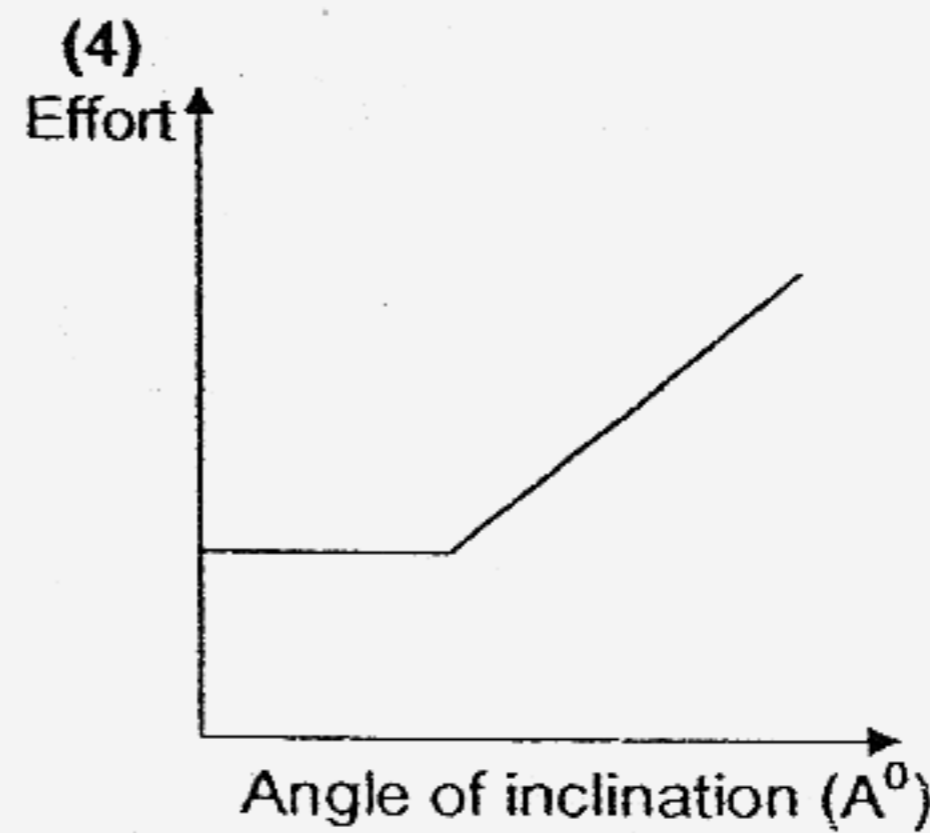
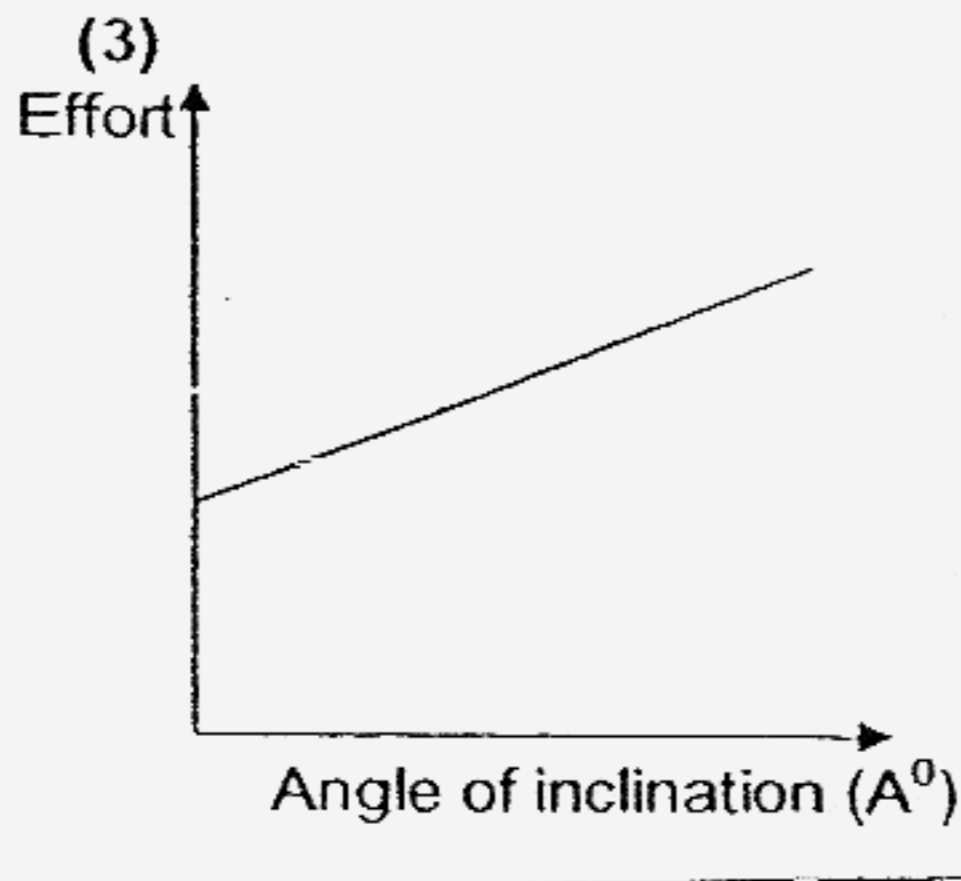
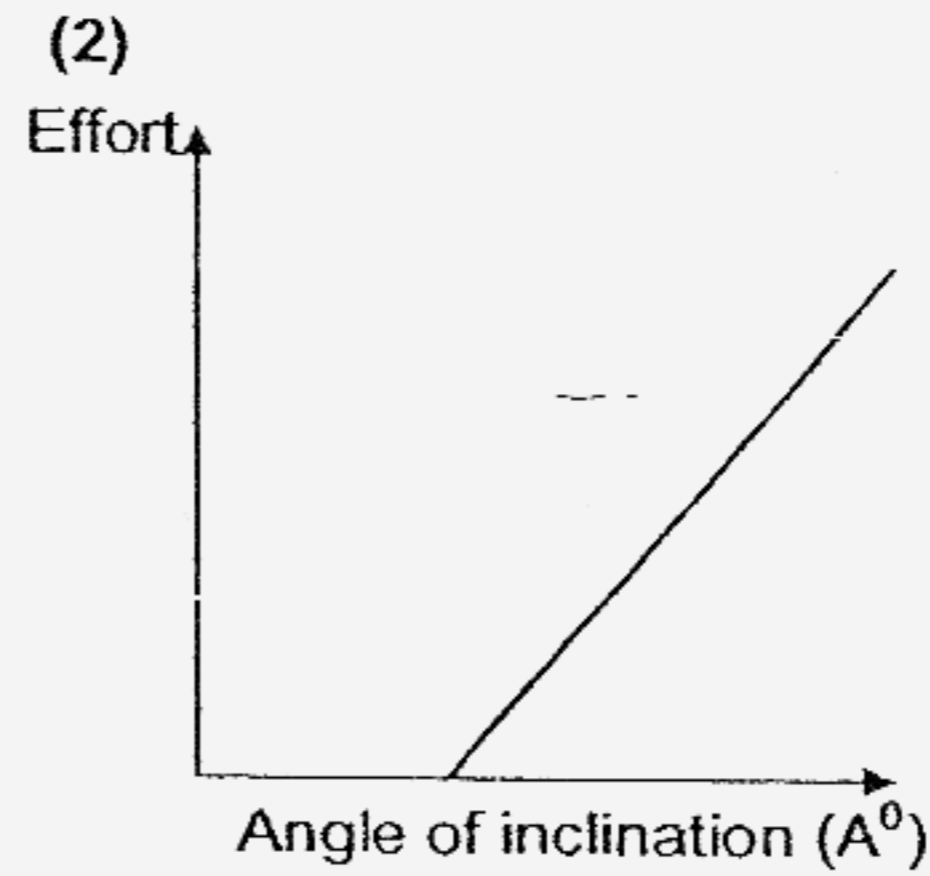
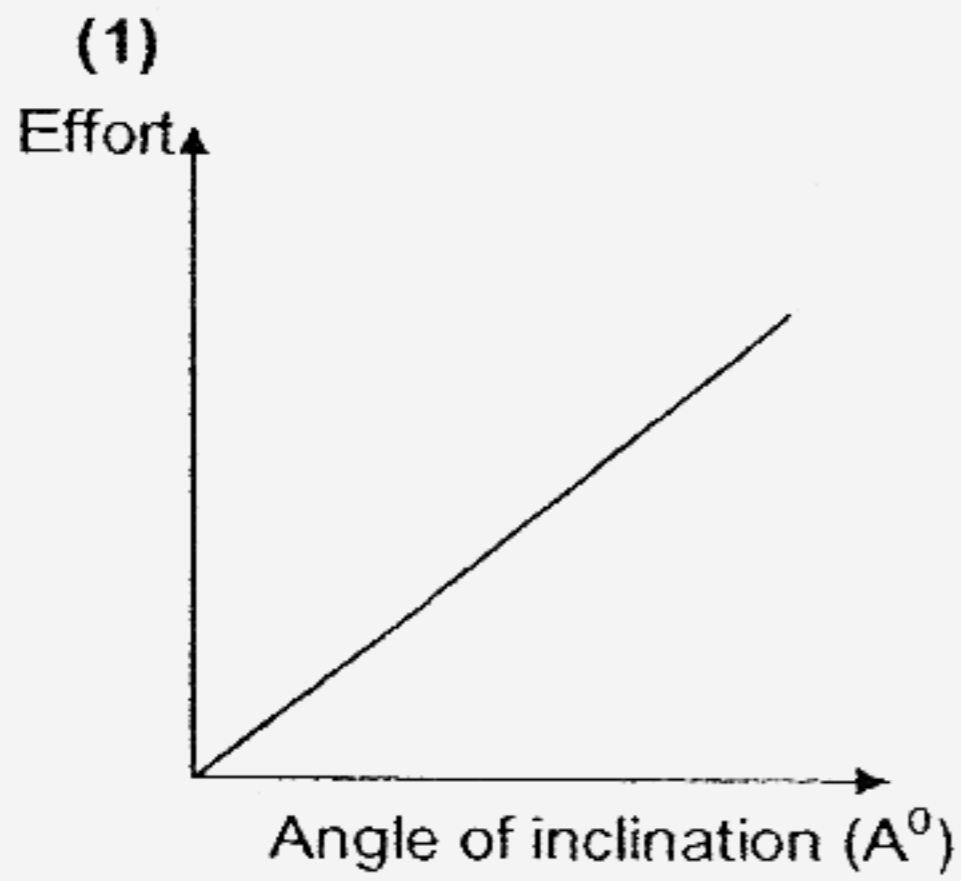
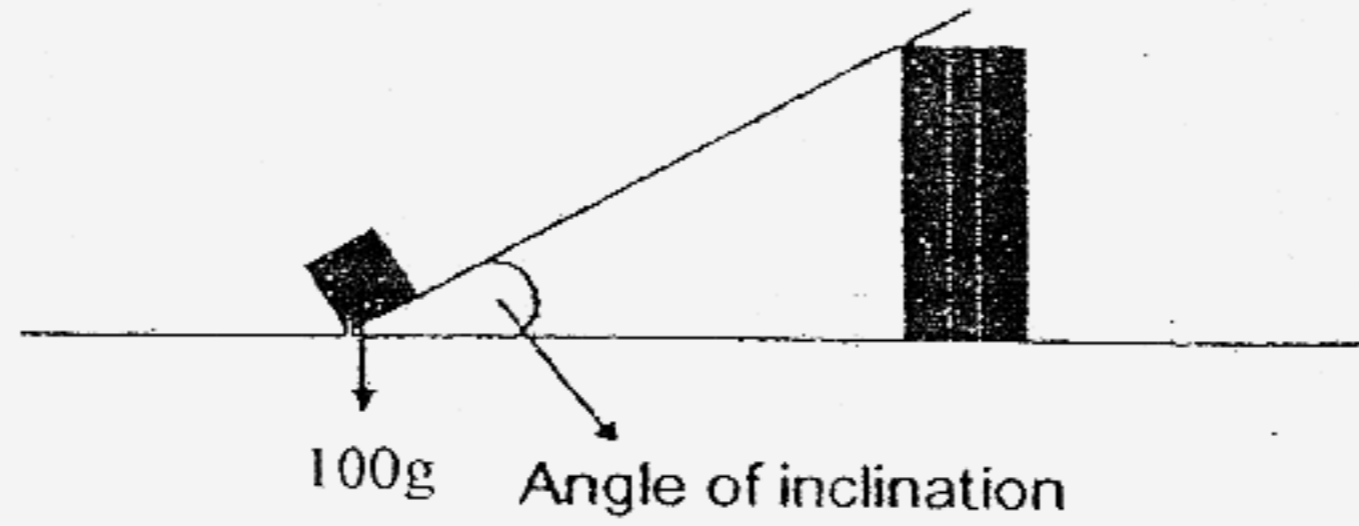
Which of the statement(s) above is/are correct ?

- (A) B has to push its way through the jelly coat to join with A.
 (B) The fusion of A and B will lead to fertilisation.
 (C) The fertilized egg will develop into a fruit.
 (D) The process shown above is possible outside and inside the female's body.

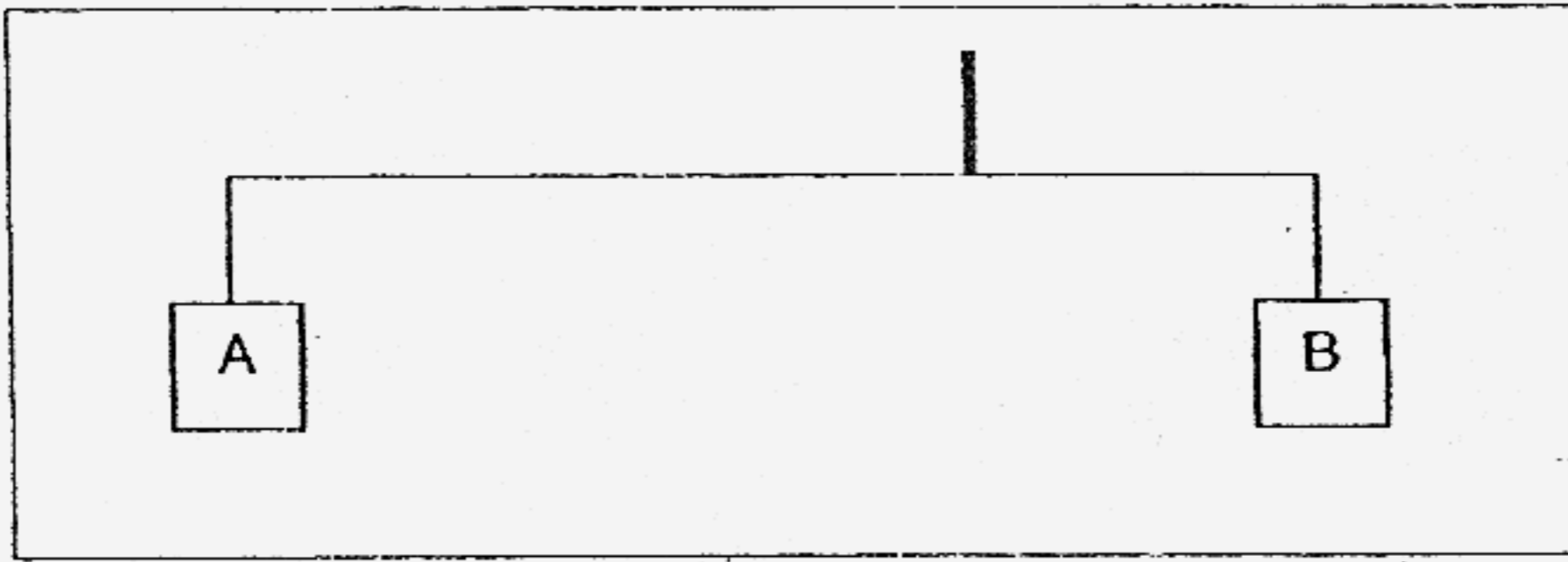
- (1) B only
 (2) B and D only
 (3) A, C and D only
 (4) A, B, C and D

9. A 100g load was pulled along a ramp using a spring balance. The force was then measured. The experiment was repeated but the angle of inclination (A°) was increased by 3° each time.

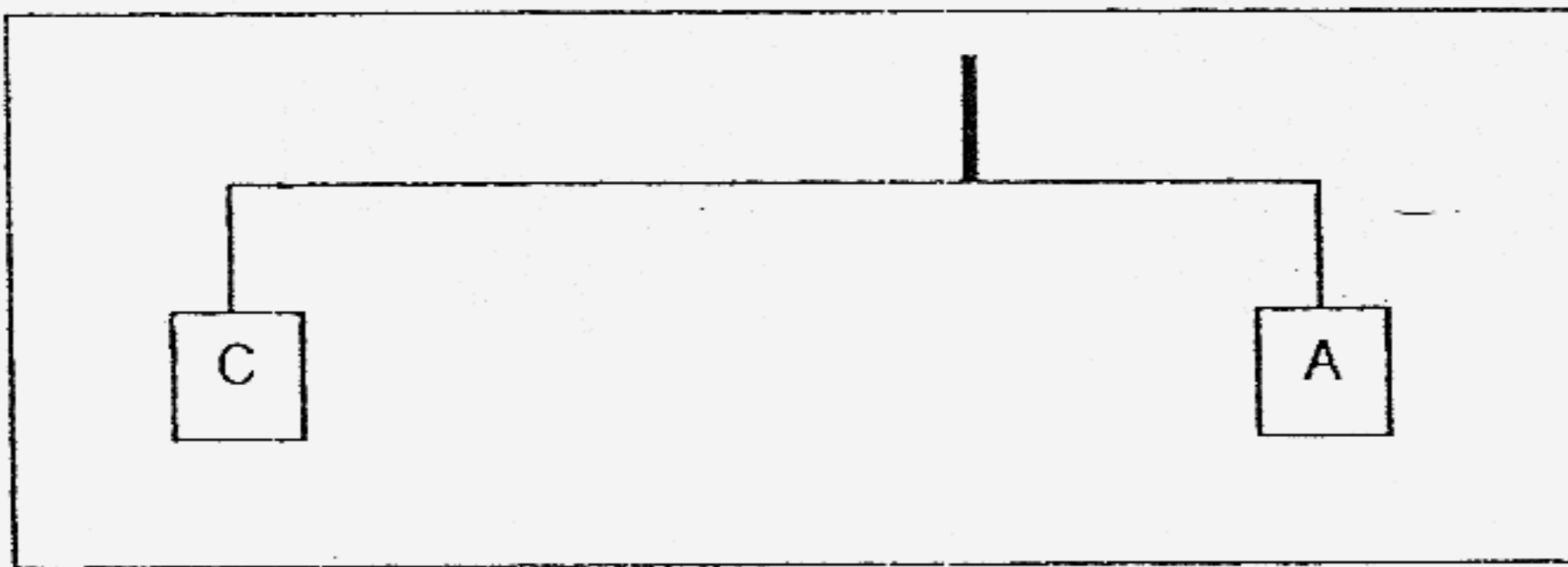
Which one of the following graphs shows the result of the experiment ?



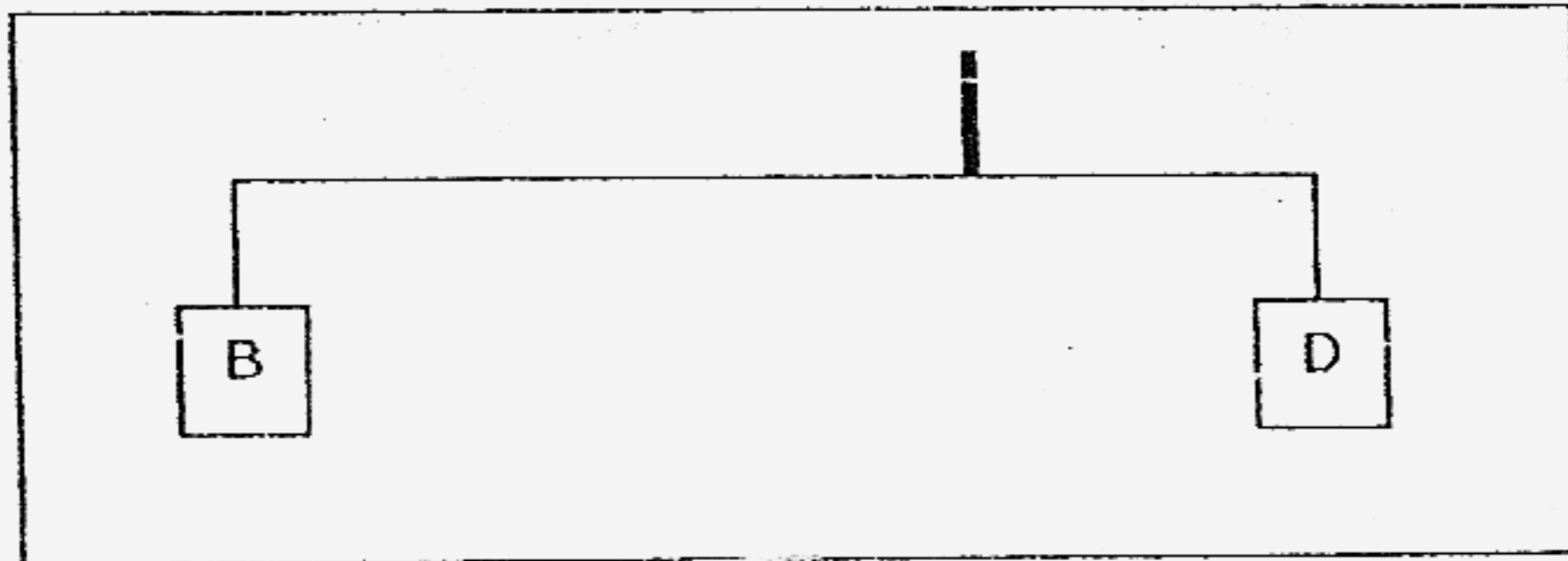
10. Objects A and B are balanced against each other as shown below.



Objects A and C are balanced against each other as shown below.



Objects B and D are balanced against each other as shown below.

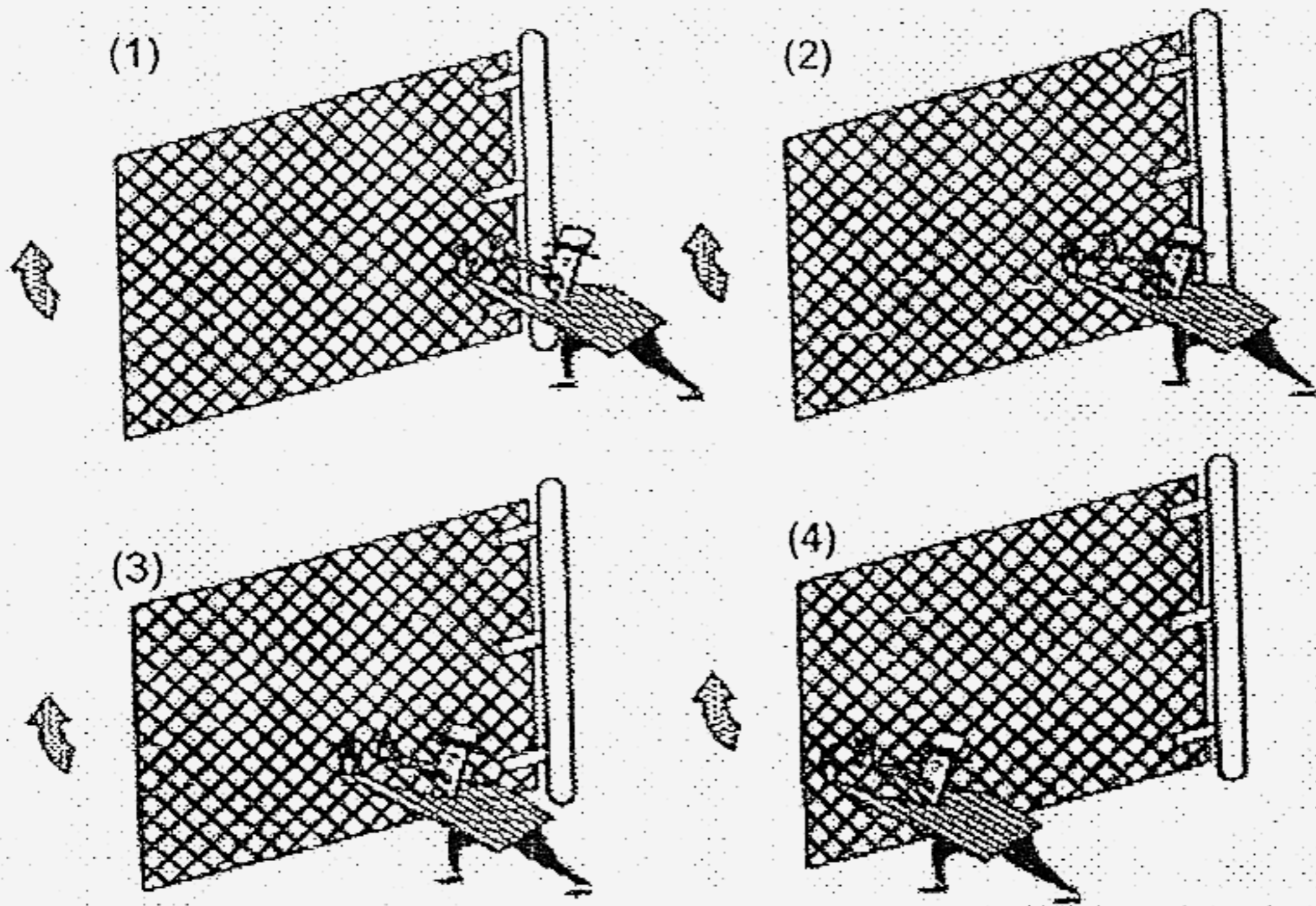


Arrange the 4 objects according to their mass from the **smallest to the biggest**.

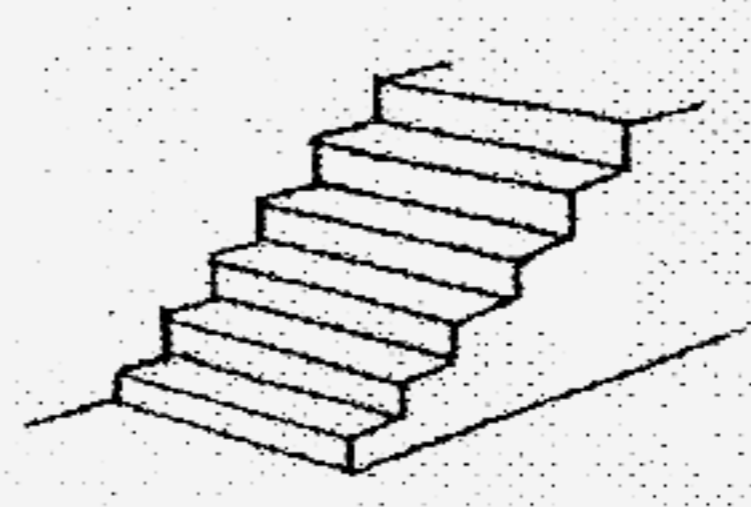
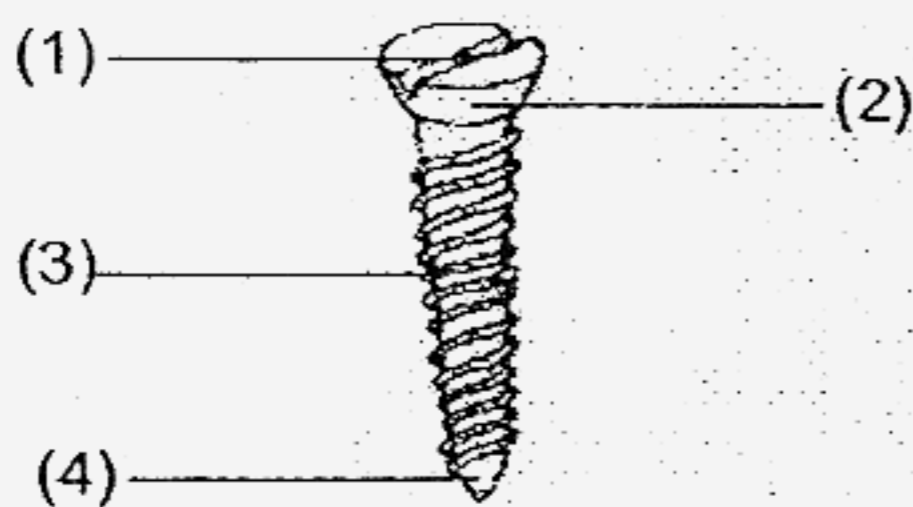
- (1) A, B, C and D
- (3) D, B, A and C

- (2) C, A, B and D
- (4) B, A, D and C

11. Study the diagram below carefully. In which of the following situations would the man need to use the least force to shut the gate ?



12. Which part of the screw is a simple machine that works similarly to the staircase ?



screw

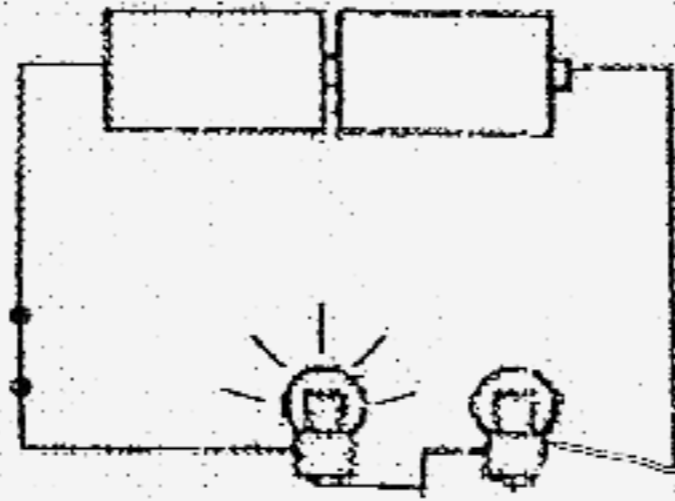
staircase

13. The table shows how objects can be grouped.

	Electrical conductors	Electrical insulators
Magnetic materials	(1)	(2)
Non-magnetic materials	(3)	(4)

In which box, (1), (2), (3) or (4) would you place an aluminium pot ?

14. A switch, two new dry cells, two new bulbs and some wires were used to set up a circuit below.

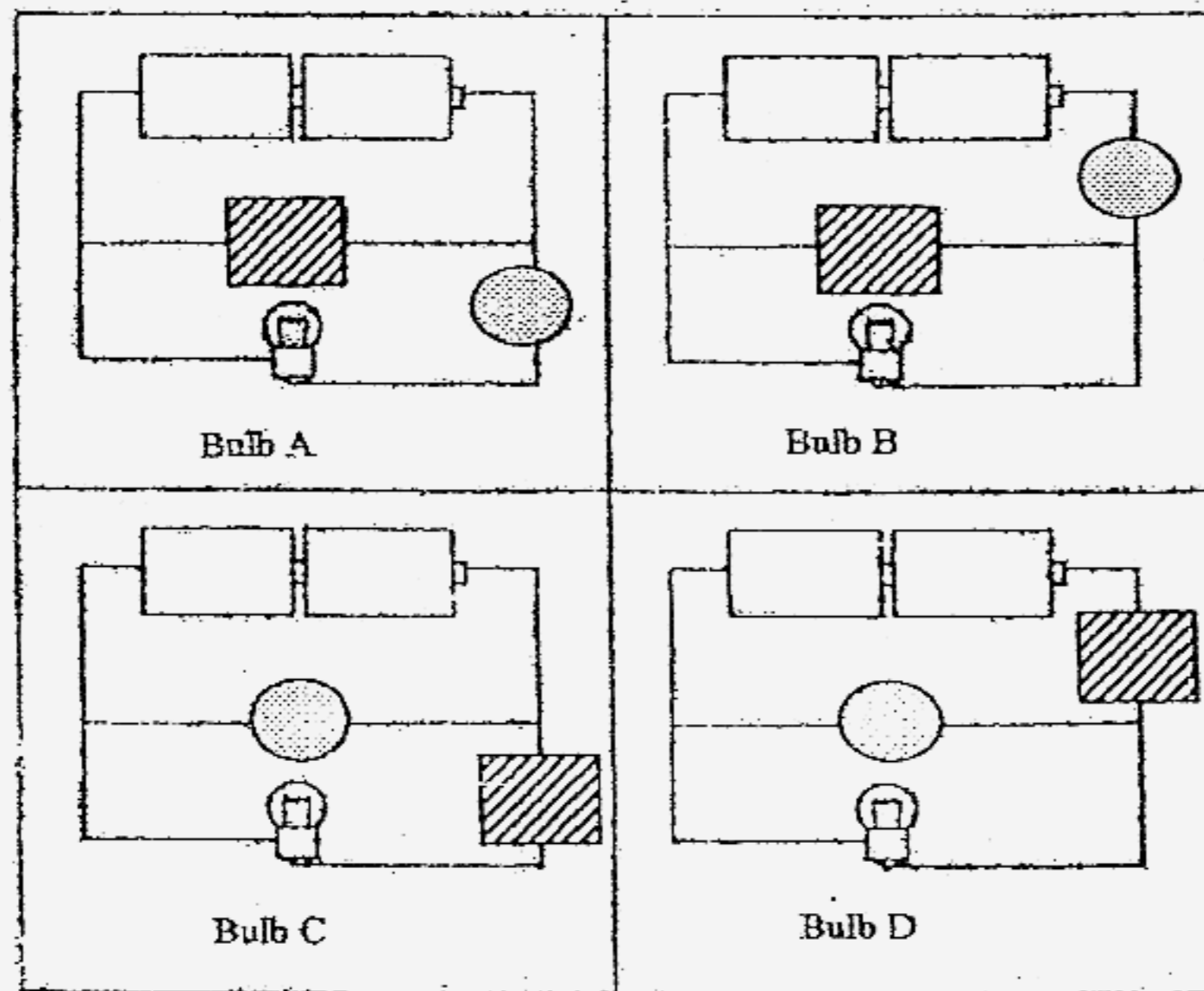


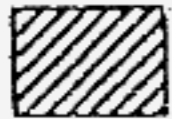

In the set-up above, only one bulb lights up. Which of the following statement(s) is/are possible reason(s) for the bulb not lighting up.

- (A) One of the bulbs is fused.
- (B) The dry cells are arranged incorrectly.
- (C) The switch is an electrical insulator.
- (D) One of the bulbs acts only as an electrical conductor.

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

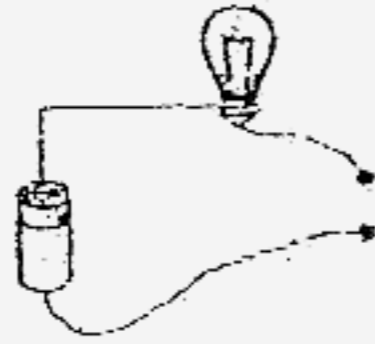
15. The diagram below shows 4 electrical circuits.



 represents a good conductor of electricity and  represents an insulator of electricity. Which bulb(s) in the circuits above will light up ?

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

16. The diagram below shows a circuit tester.



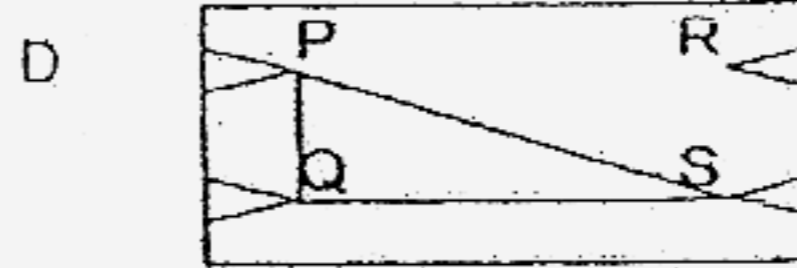
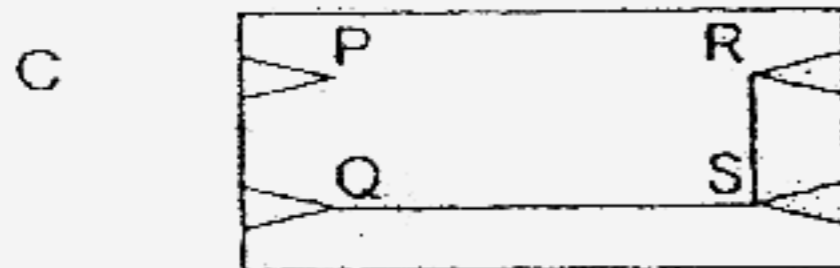
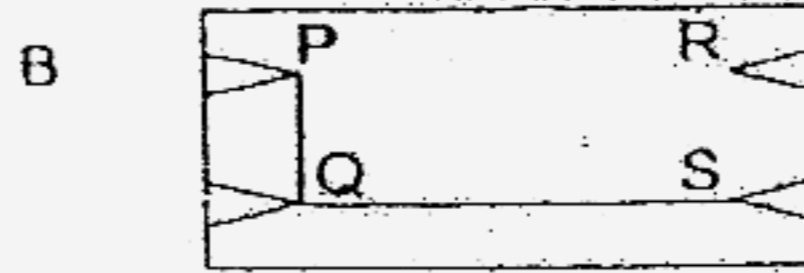
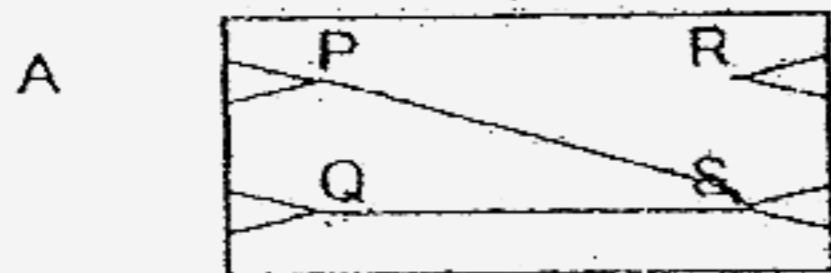
The circuit card shown below has a metal clip at each of the points P, Q, R and S.



The circuit tester is used to test the circuit card and the results are recorded in the table below.

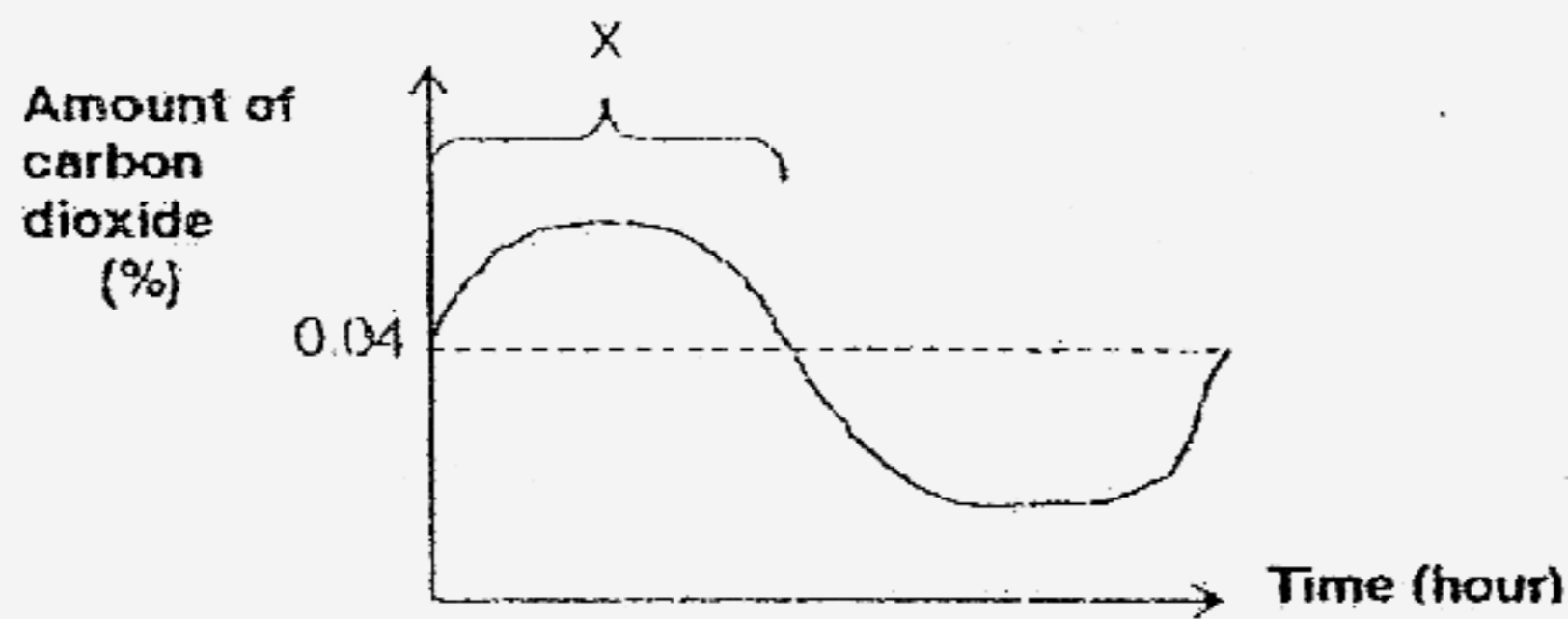
Clips connected	Does the bulb light up?
P and Q	Yes
P and R	No
P and S	Yes
Q and R	No
Q and S	Yes
R and S	No

Which of the diagrams below show the possible connections of the clips by wires ?



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

17. A healthy plant was placed inside a bell jar to investigate the uptake and release of carbon dioxide by green plants. The concentration of carbon dioxide in the air surrounding the plant was measured over a 24-hour period. The changes in carbon dioxide concentration are illustrated in the graph below.

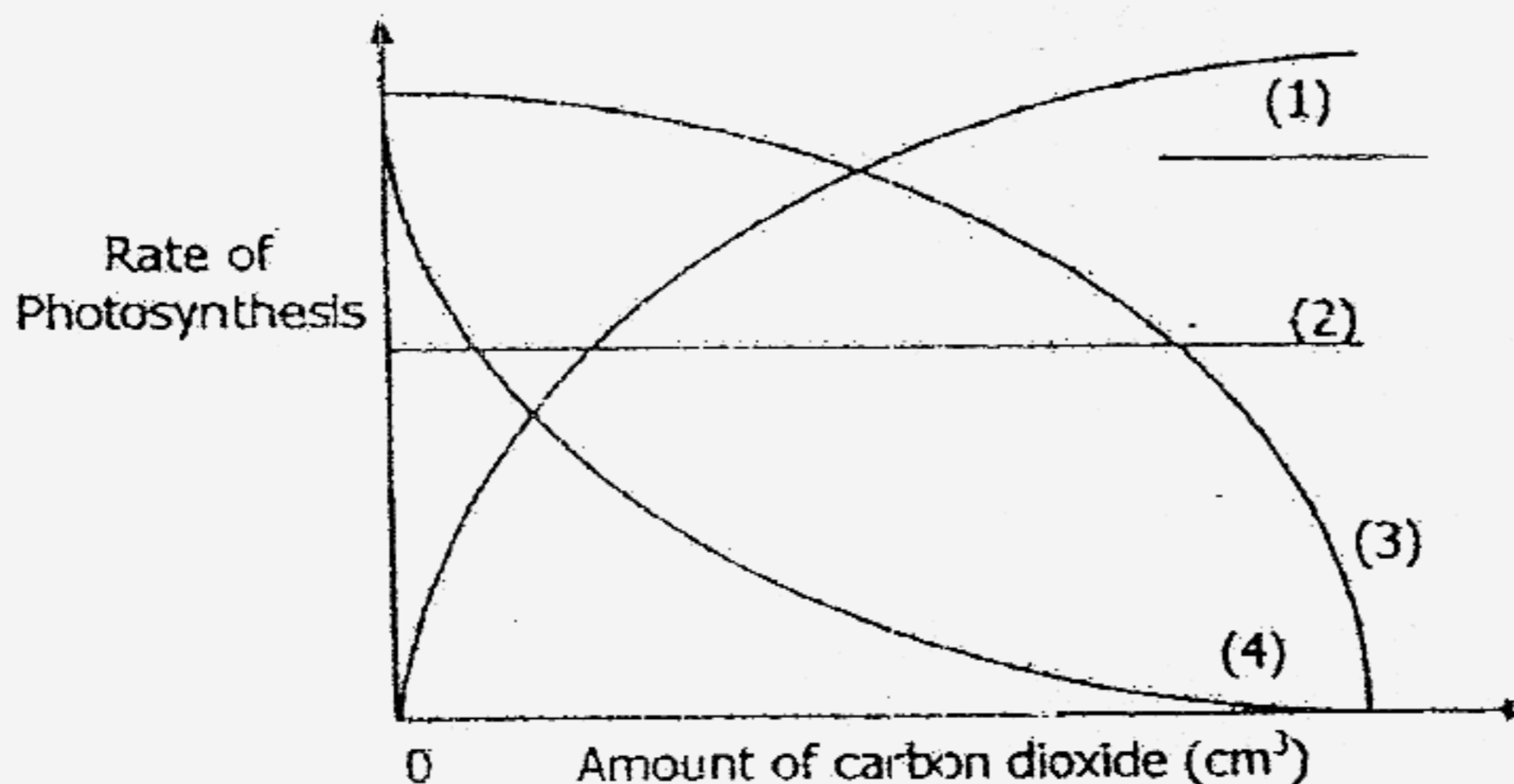


Which one of the following explains the increase in carbon dioxide concentration during period X?

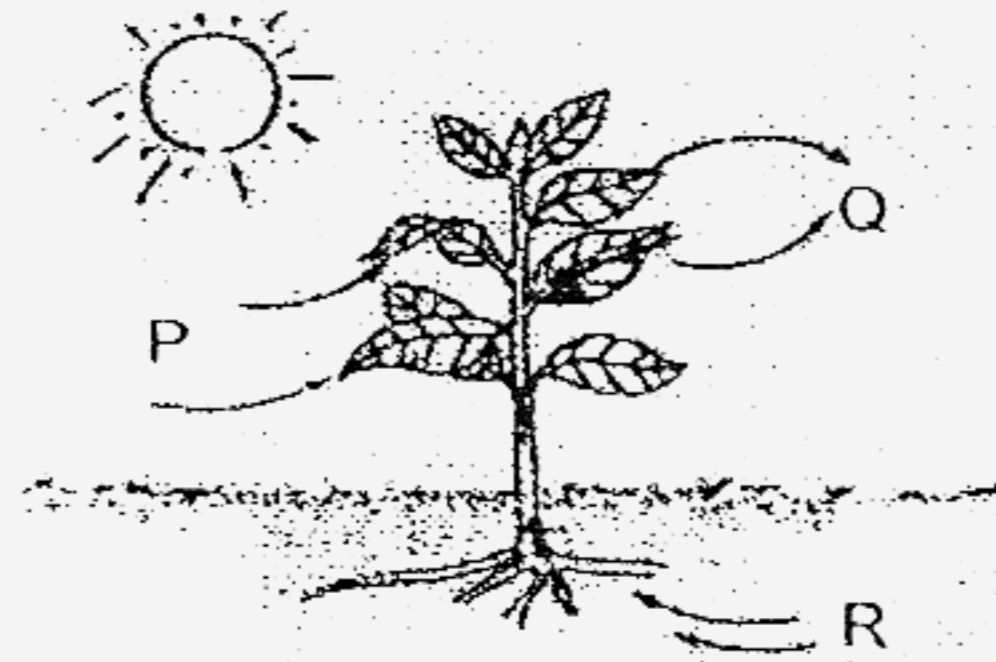
	<u>Condition</u>	<u>Process Involved</u>
(1)	Daylight	Photosynthesis
(2)	Daylight	Respiration
(3)	Darkness	Transpiration
(4)	Darkness	Respiration

18. Ruby carried out an experiment to see how the amount of carbon dioxide affects the rate of photosynthesis.

Which one of the following **correctly** shows her results if she had carried out a fair test?



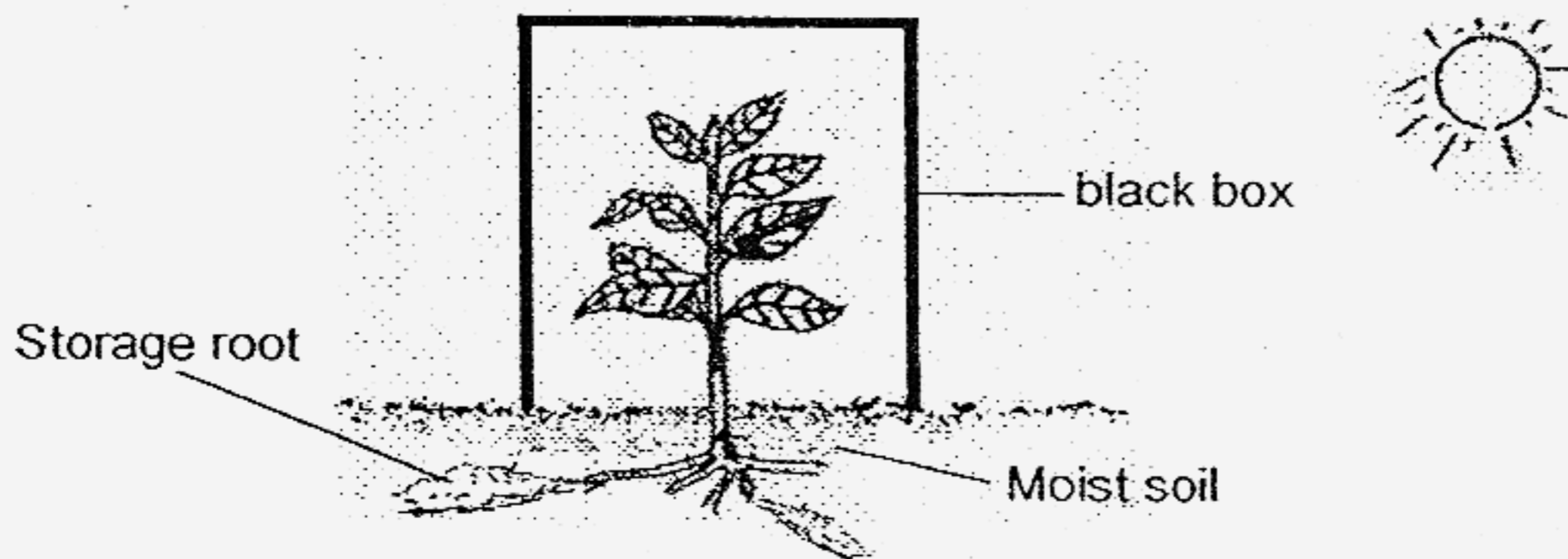
19. Study the diagram carefully.



Which one of the following correctly shows what P, Q and R stand for ?

	P	Q	R
(1)	Oxygen	Carbon Dioxide	Water vapour
(2)	Carbon Dioxide	Oxygen	Water
(3)	Water vapour	Carbon Dioxide	Oxygen
(4)	Oxygen	Water vapour	Carbon Dioxide

20. Study the diagram carefully.



It was observed that the plant in the black box did not die, even though it was covered in a black box for several days.

Where did the plant get its food from ?

- (1) The plant gets its food from the stem.
- (2) The plant gets its food from the leaves.
- (3) The plant gets its food from the seed leaves.
- (4) The plant gets its food from the storage root.

21. The following changes take place in an athlete's body during a race.

- (A) Increased availability of oxygen to muscles.
- (B) Increased breathing rate.
- (C) Increased carbon dioxide concentration in the blood.
- (D) Muscular activity produces carbon dioxide.

In which order do these changes occur ?

First \longrightarrow Last

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

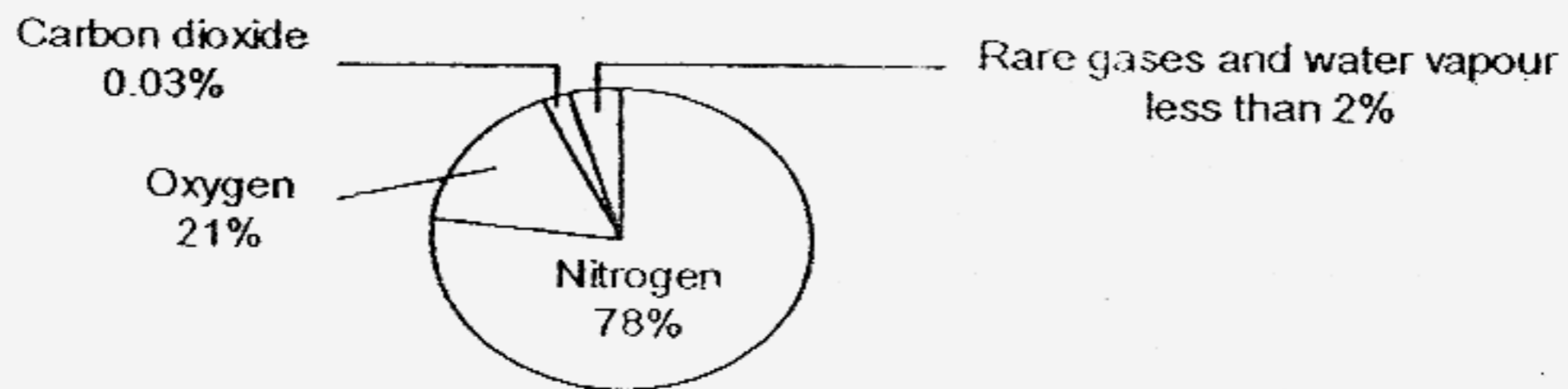
22. May carried out different activities and measured her pulse rate for each activity. The results are recorded in the table below.

Activity	Pulse rate per minute
A	65
B	80
C	110
D	135

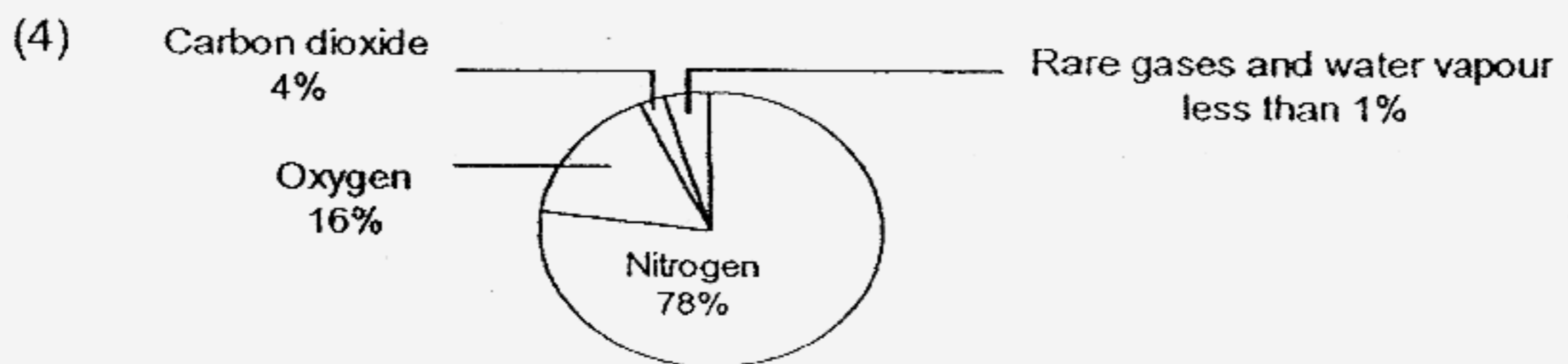
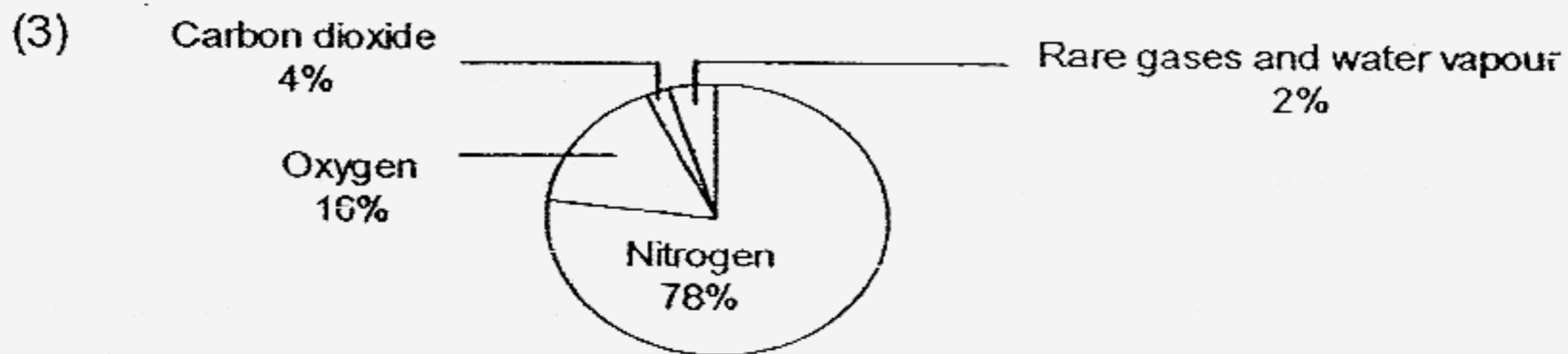
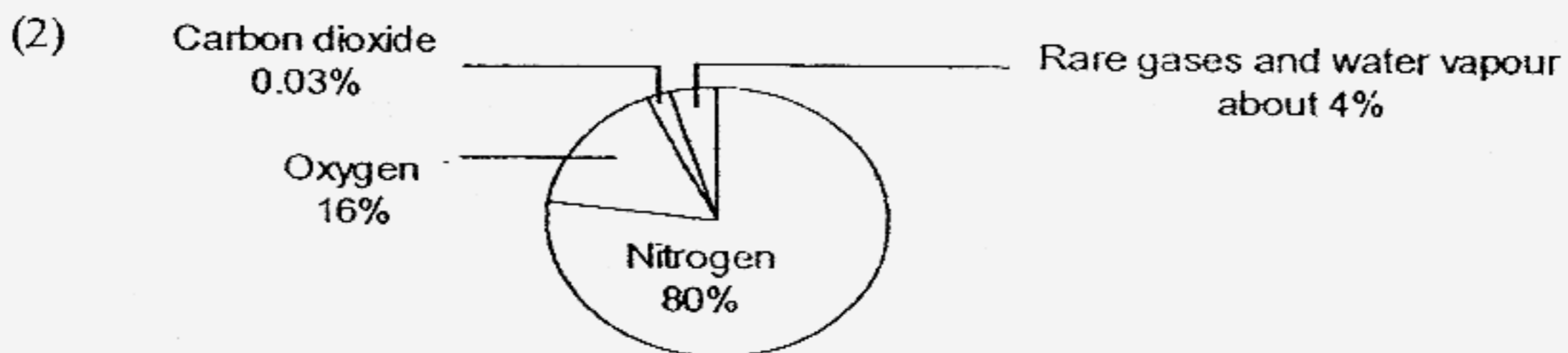
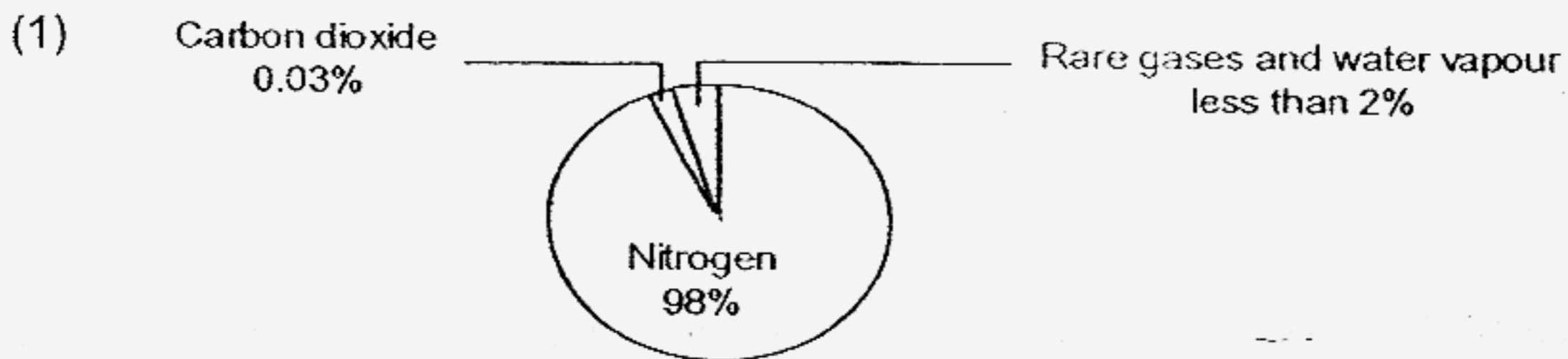
Which letter correctly represents the activities she was engaged in ?

	Strolling	Jogging	Reading	Brisk walking
(1)	A	B	C	D
(2)	A	D	B	C
(3)	B	D	A	C
(4)	C	B	A	D

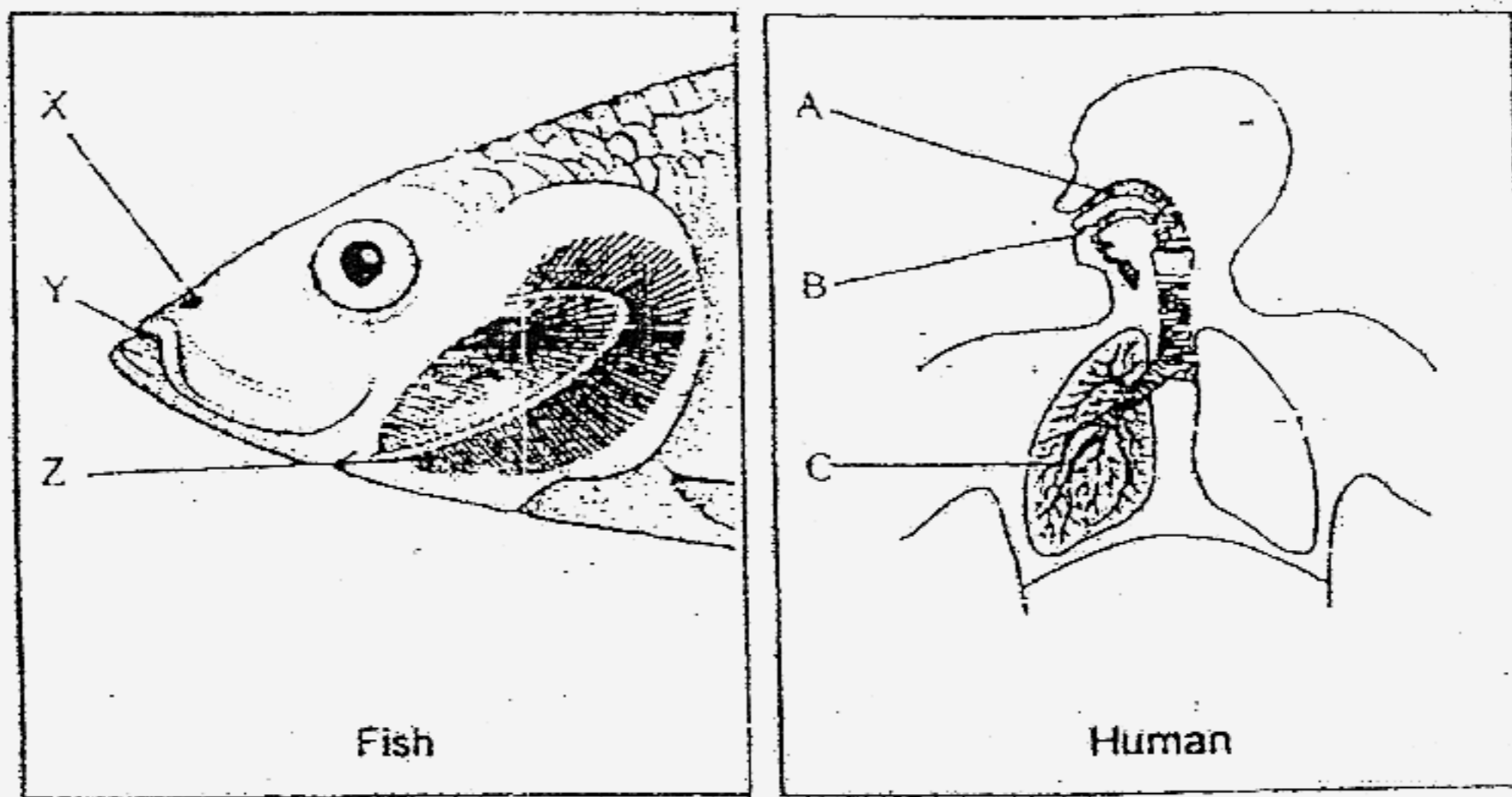
23. Refer to the diagram below.



The above pie chart shows the composition of the air that we breathe in. Which of the following pie charts below shows the composition of air that we breathe out ?



26. The diagrams below show the respiratory systems of 2 organisms.



Which part of the respiratory system of the fish and human allow exchange of gases to take place.

	Fish	Human
(1)	X	A
(2)	Y	A
(3)	Y	B
(4)	Z	C

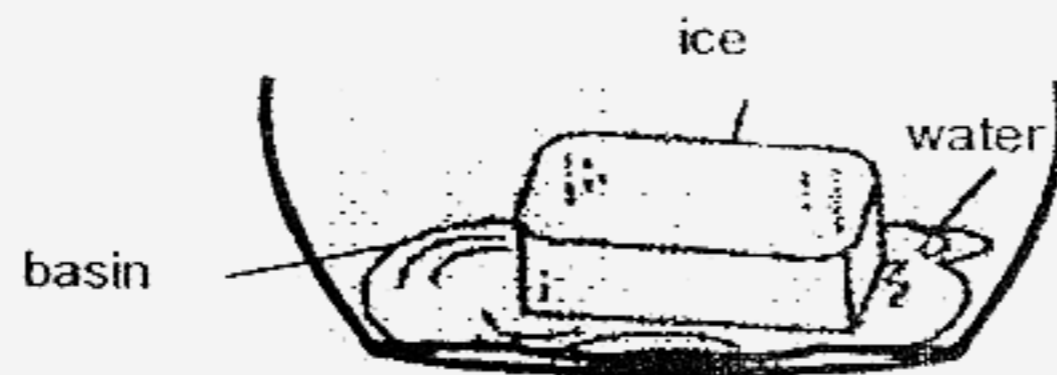
27. Which of the following statement(s) is/are correct ?

- (A) Steam is visible.
- (B) Steam is a matter.
- (C) Steam is a liquid.
- (D) Steam has a temperature of 100°C.

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

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

30.



Ali placed a big block of ice and some water in a basin as shown above. He took the temperature of the ice and water immediately. He left the ice in the room to melt. After five minutes, Ali took the temperature of the ice and the water.

Which one of the following statements **correctly** describes what Ali found ?

- (1) The temperature of the ice and water increased.
- (2) The temperature of the water remained the same but the temperature of the ice increased.
- (3) The temperature of water decreased but the temperature of the ice remained the same.
- (4) The temperature of water decreased but the temperature of the ice increased.

End of Booklet A

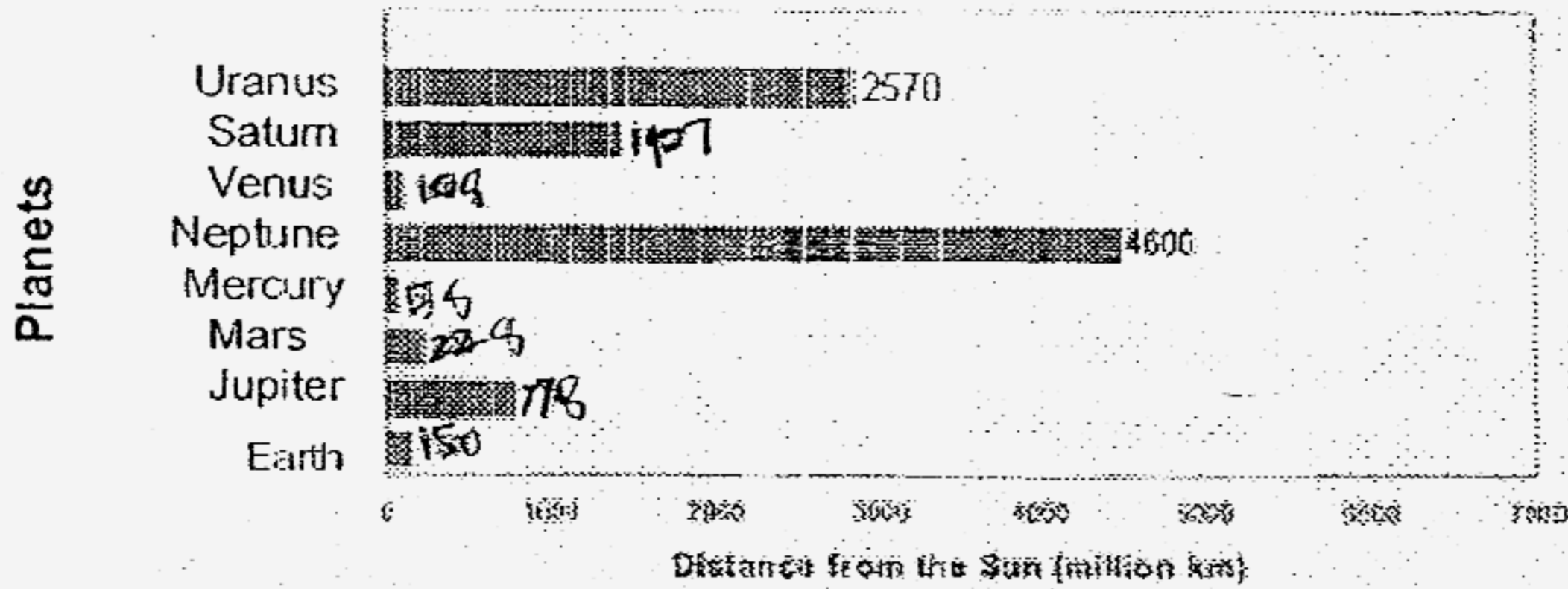
End-of-Year Examination 2006
Science

Name : _____ () Class : P5 _____ Marks : _____ /40

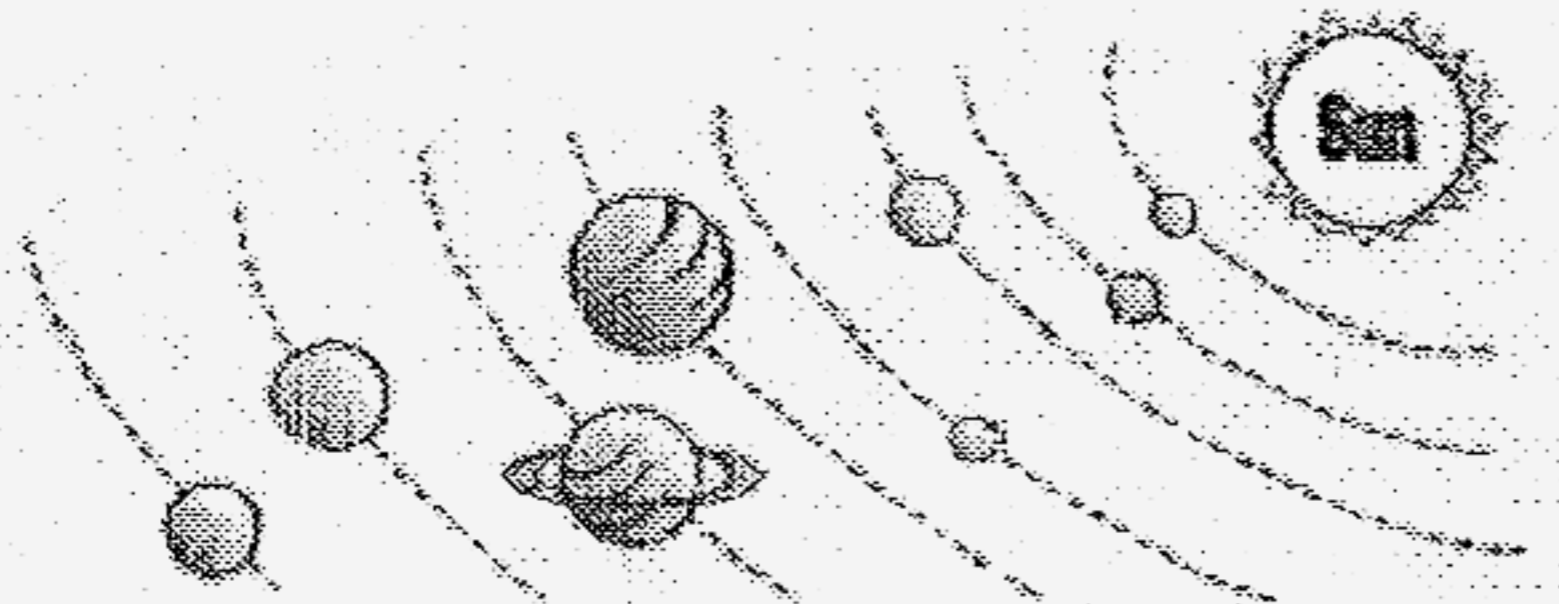
Section B (40 marks)

Write your answers from questions 31 to 46 in this booklet.

31. The graph below shows the distance between each planet and the Sun in the Solar System.



The diagram on the Solar System below is not drawn to scale.



A new planet, Planet X, is discovered in the Solar System.

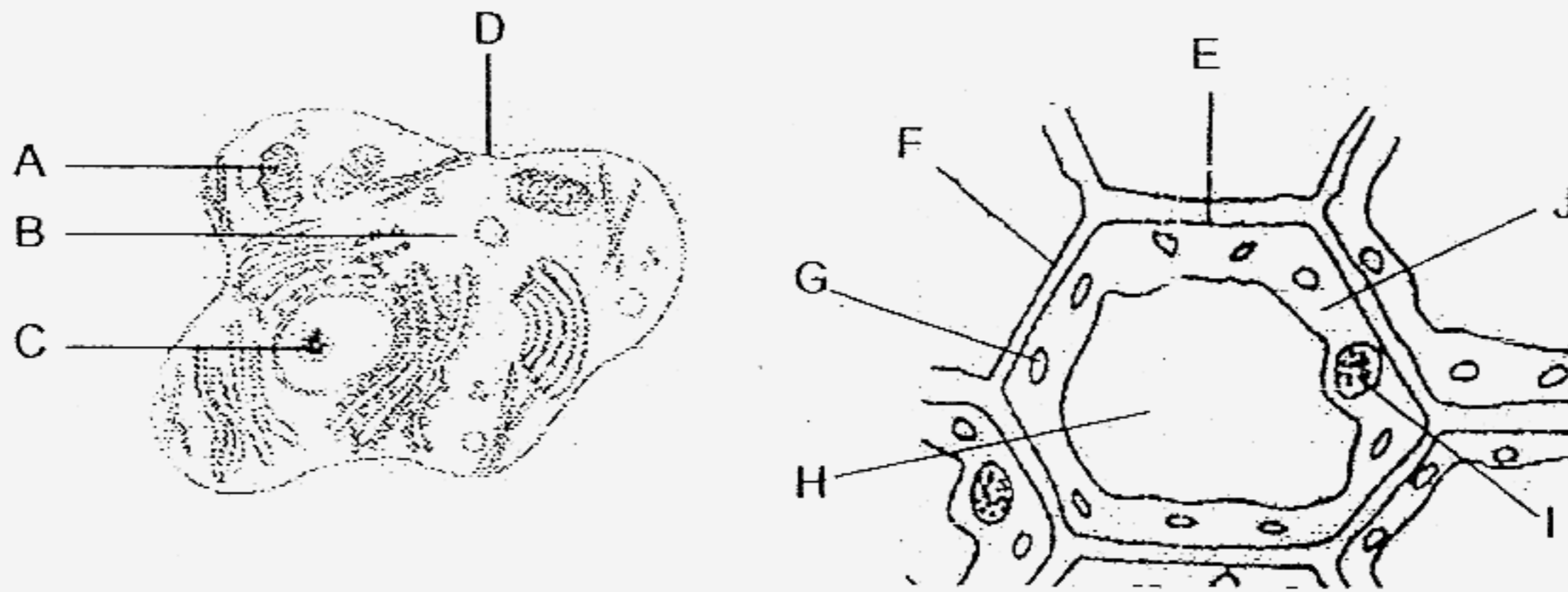
(a)

(1m)

(b)

To date, Earth is the only planet known to be able to support life. Based on the data shown in the graph, do you think Planet X is able to support life? Explain your answer. (2m)

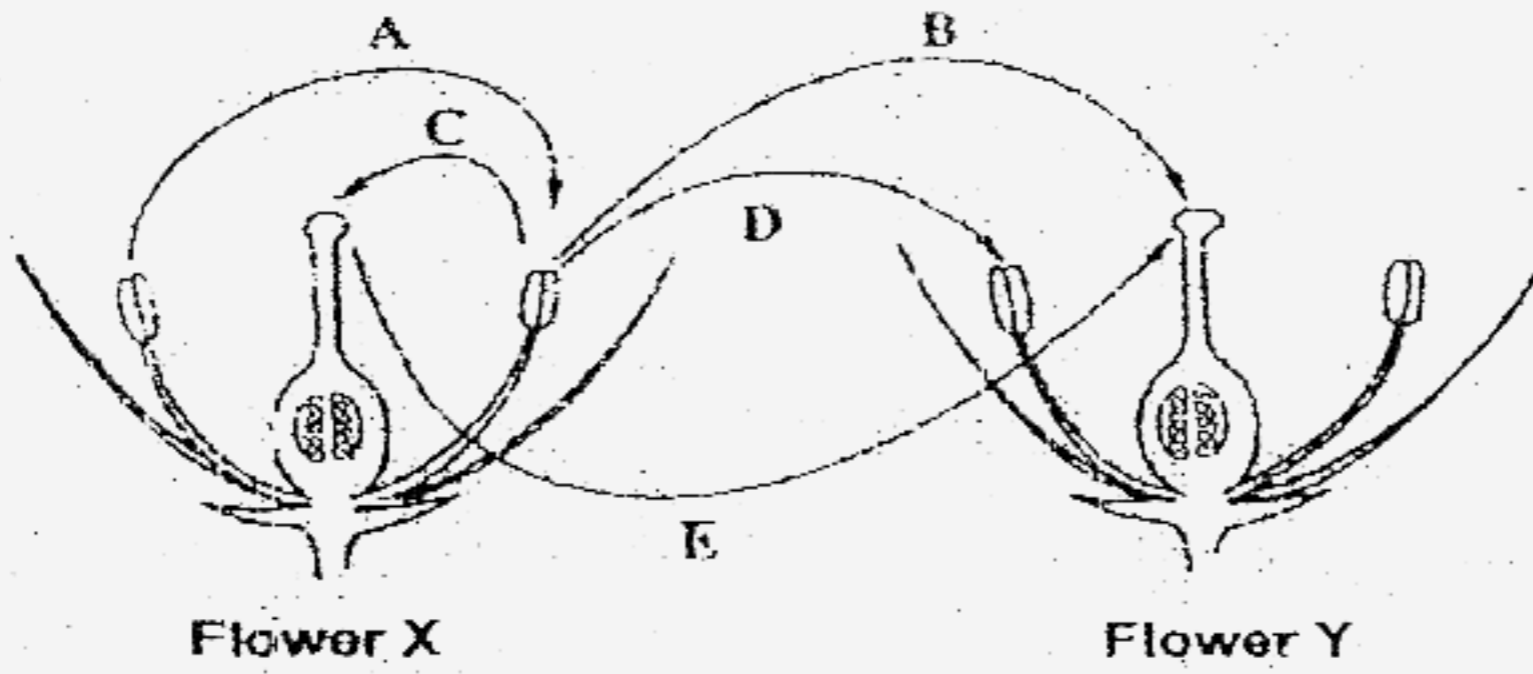
32. Two different types of cells were observed using a microscope. The cells are shown below. Parts of both cells are labelled A to J.



Complete the table below. Write the correct letter next to the statement. (2 m)

Statement	Part(s)
(a) This is the region where we can detect if an embryo has Down Syndrome by checking the genetic information.	
(b) This is the region where light energy is converted into chemical energy.	
(c) This layer of cellulose fibre gives the cell most of its support and structure.	
(d) This is a region which is made up mostly of water and contains the rest of the organelles.	

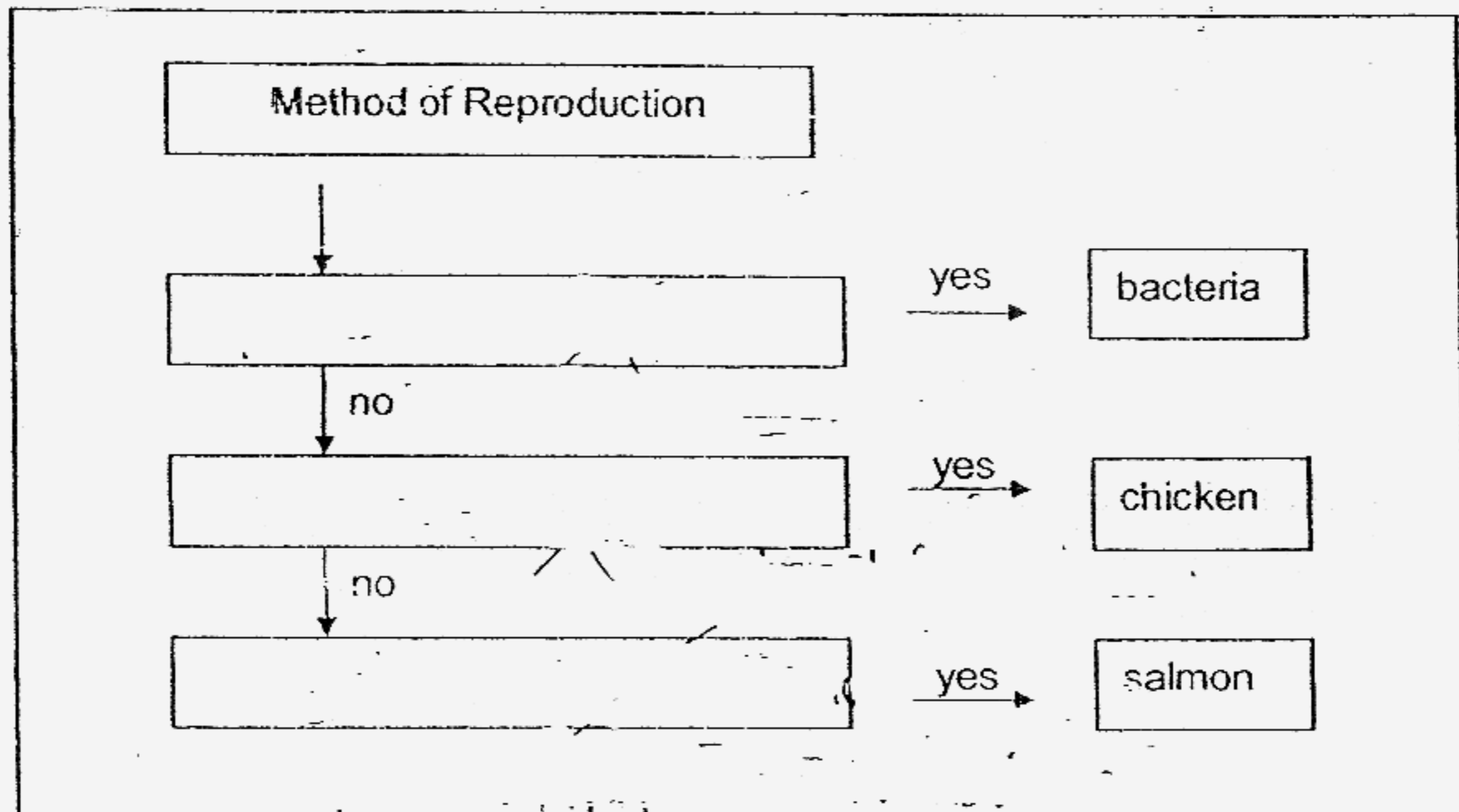
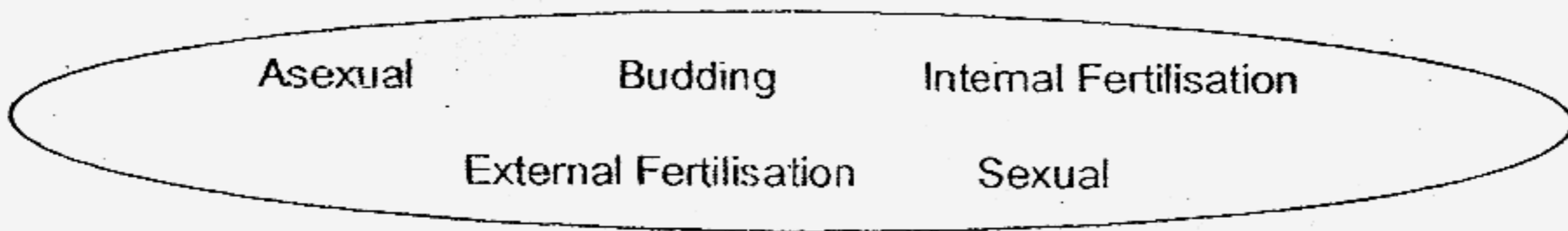
33. Study the diagram below carefully.



(a) Which arrow(s) will allow pollination to occur? (1m)

(b) Explain your answer for part (a). (1m)

34. Draw a flow chart in the space to show how the organisms reproduce. (3m)
Use the correct words below to fill in the blanks.

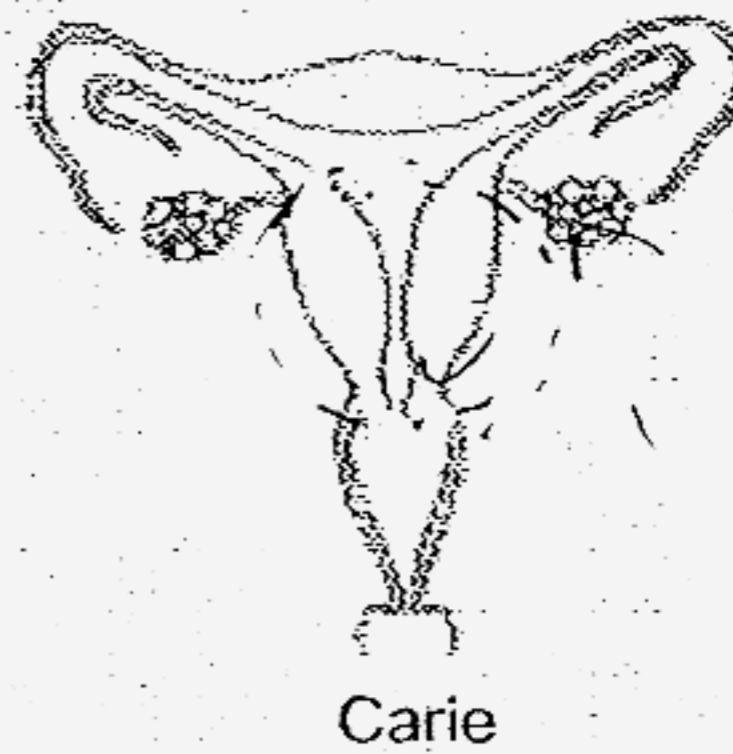
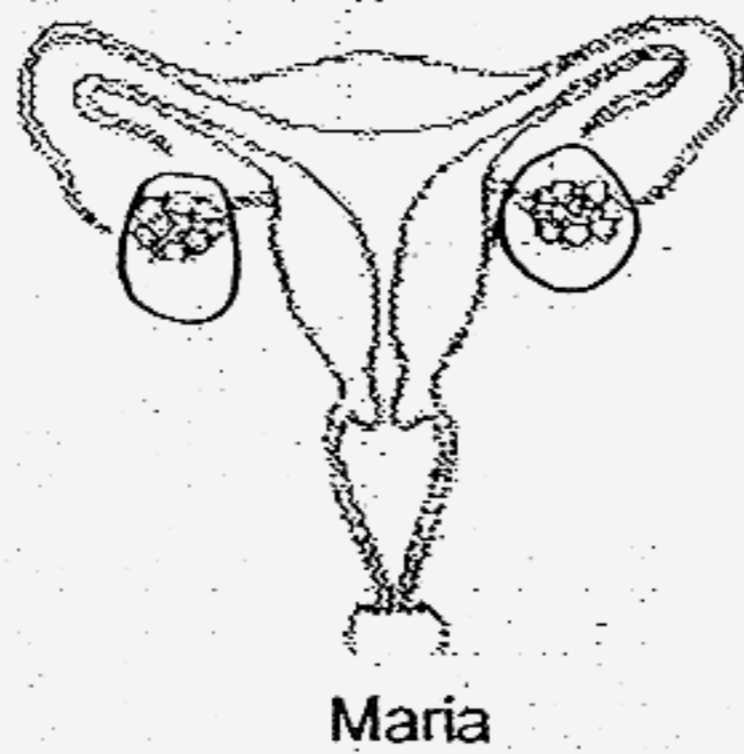


35. 2 females undergoing infertility treatment wished to have their husband's sperms transferred to their body by doctors.

Before the treatment, the ladies went for a medical examination. Two critical points from their medical examination are shown below.

Maria	Both ovaries were removed.
Carie	Entire uterus was removed.

- (a) Circle on the diagram below the part(s) that was/were removed. (2m)

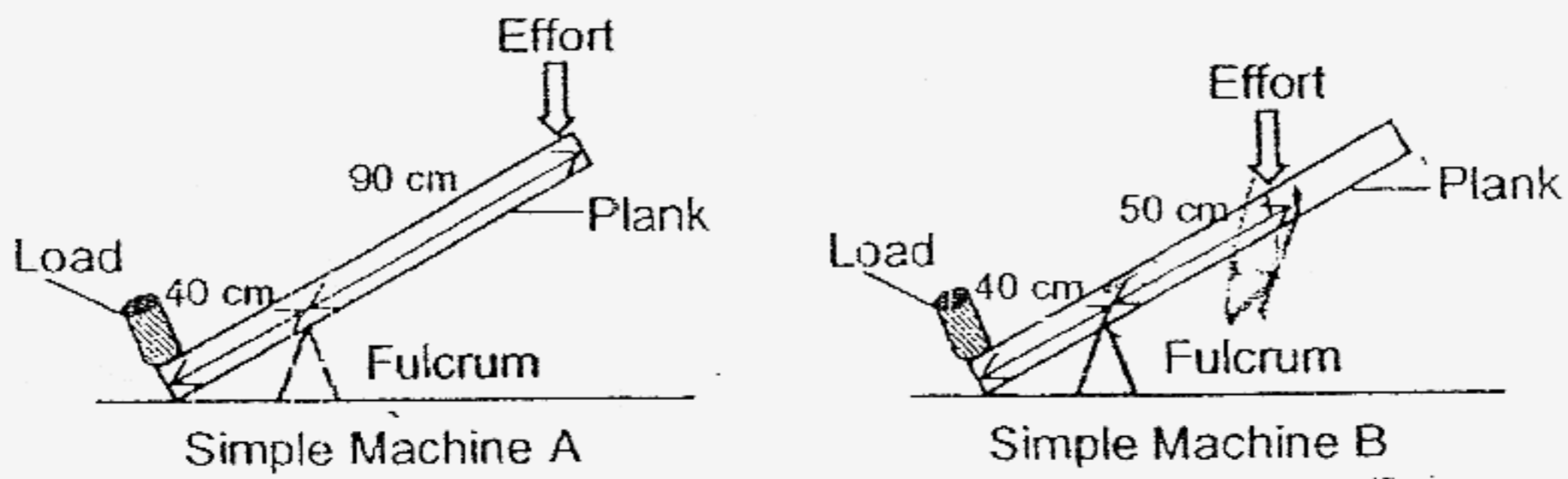


- (b) Based on what is reflected in the medical report above, the doctors told both Maria and Carie that they would not be pregnant if they had sperms transferred into their body. Explain clearly why they would not be pregnant. (2m)

Maria - _____

Carie - _____

36. Tom has two experiment set-ups using the same load, fulcrum and plank.



(a) What is the aim of his experiment? (1m)

(b) Tom wants to find out if the distance between the load and fulcrum affects the effort needed to lift the load.

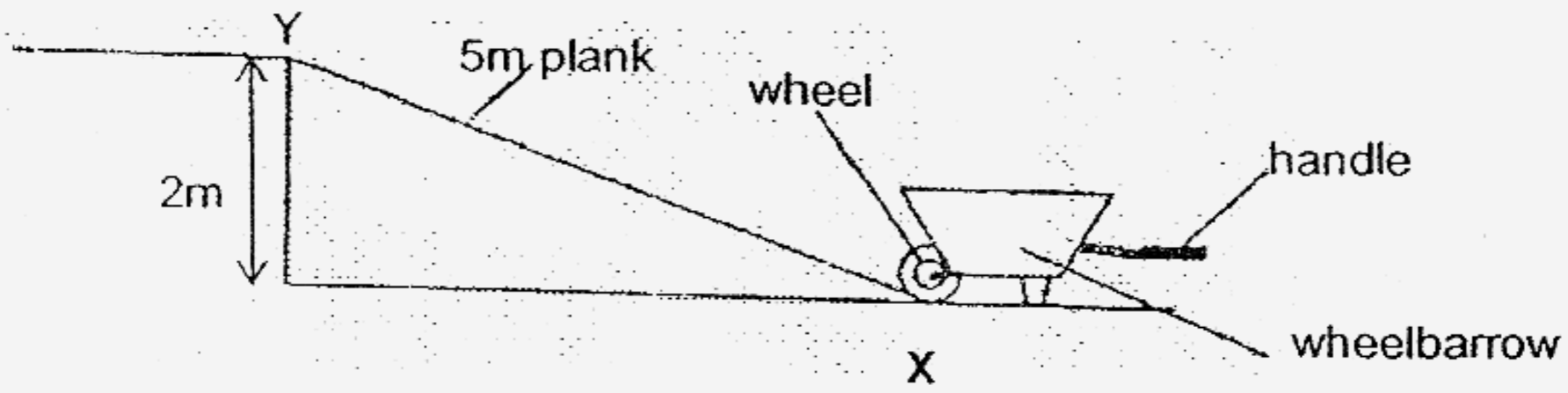
Draw and label the diagrams in the box below to show how he should conduct his experiment using the apparatus given above. (2m)

Consider the distance between the effort and fulcrum as well as the distance between the load and the fulcrum on the diagram

Simple Machine A

Simple Machine B

37. A gardener used a plank and a wheelbarrow to move some potted plants from point X to Y.



(a) Which type(s) of simple machines did he use to help him move the potted plants ? (1m)

(b) What is the distance moved by the load ? (1m)

(c) The gardener has to move many tonnes of bricks to higher ground, 6 m. He was given 2 planks.



i) Which one of the planks should he use in order to move the bricks with less effort?(1/2m)

ii) Explain your choice. (1/2 m)

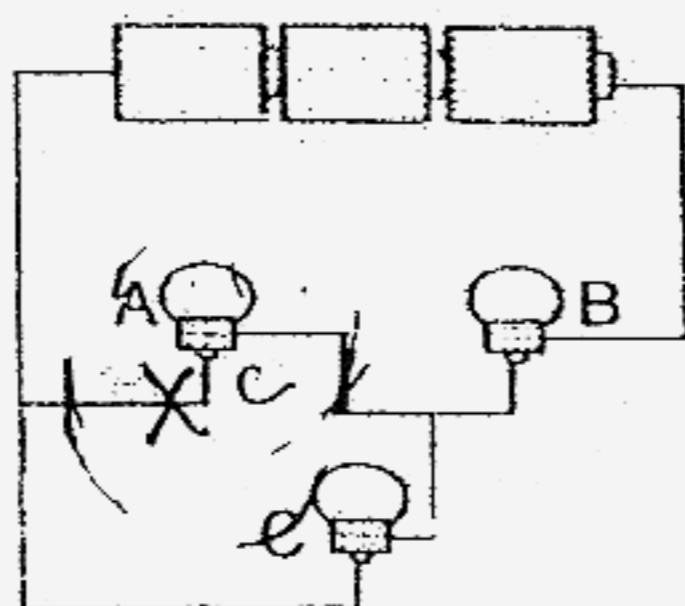
38. Sue was given 6 set-ups of a wheel and axle system. She wanted to find out if the size of an axle affects the amount of effort needed to lift a 50g load.

Wheel and axle	Diameter of axle	Diameter of wheel	Effort needed
A	2 cm	7 cm	42g
B	2 cm	13 cm	40g
C	4 cm	7 cm	43g
D	4 cm	13 cm	45g
E	5 cm	13 cm	48g
F	5 cm	15 cm	39g

- (a) Which 3 wheel-and-axle setups should she use to ensure a fair test? (1m)

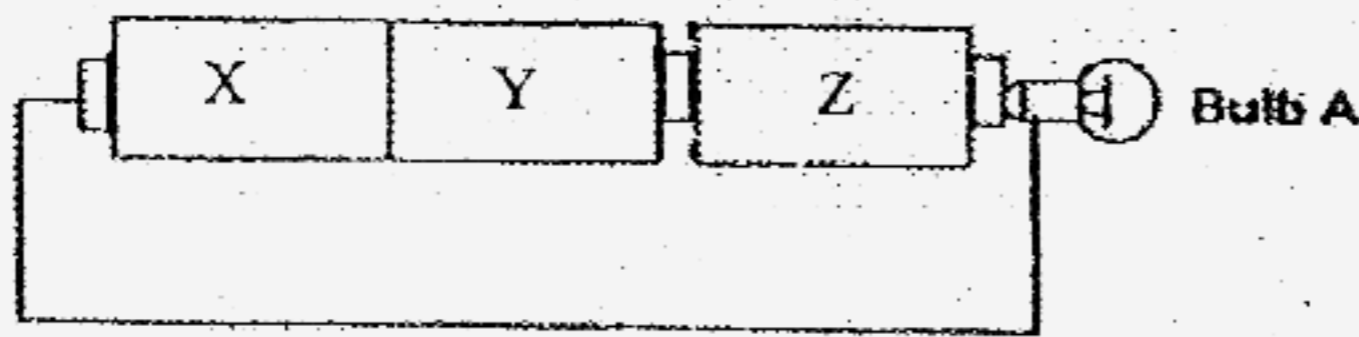
- (b) What is the conclusion of her experiment? (1m)

39. The diagram below shows a circuit with 3 bulbs, A, B and C.



- (a) If a switch is placed in the circuit so that it controls only bulb A, **mark a cross (X) on the circuit** in the diagram to show where the switch should be placed. (1m)
- (b) What is the advantage of connecting Bulbs A and C in the manner shown in the diagram above? (1m)

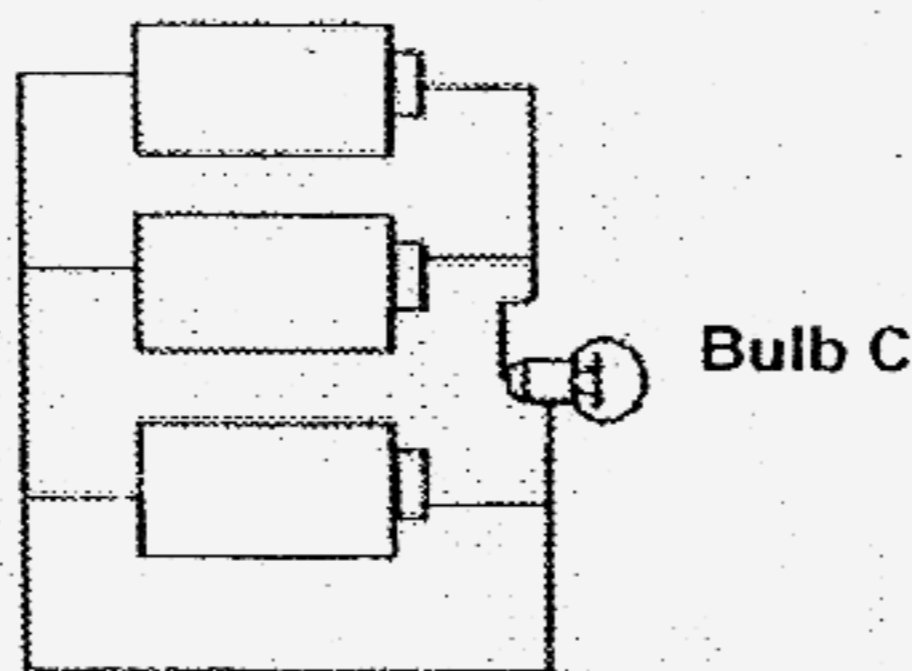
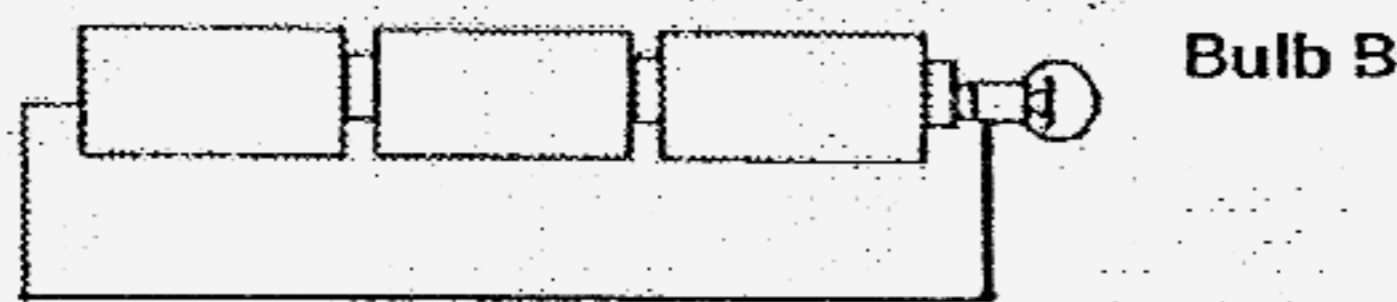
40. A bulb and three new dry cells , X, Y and Z are used to form the following circuits.



- (a) Tom told the teacher that the closed circuit above will not light up because the dry cells are not arranged correctly. Mary disagreed and said that the closed circuit would light up.

Will bulb A light up ? Explain your answer. (1m)

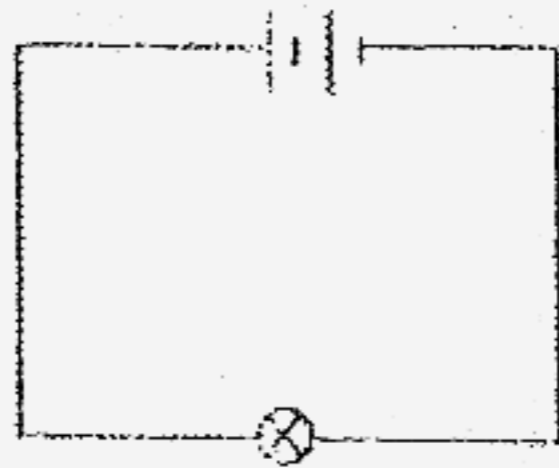
(b)



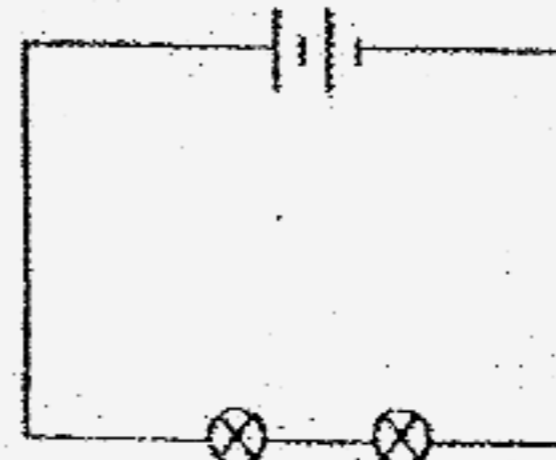
bulb

Will bulbs B and C be equally bright as each other or will one be brighter than the other? Explain your answer. (1m)

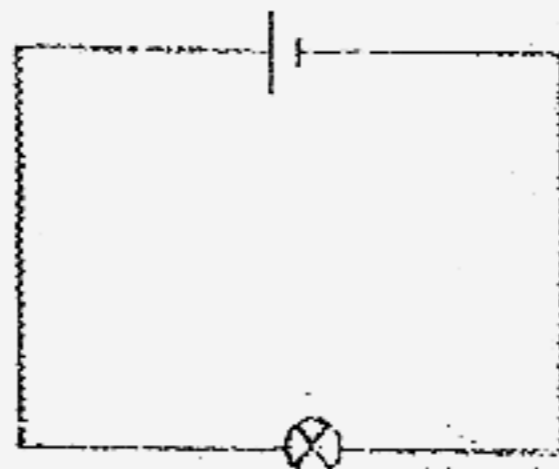
41. Four electrical setups are shown below. Ken uses it to conduct two experiments on electricity.



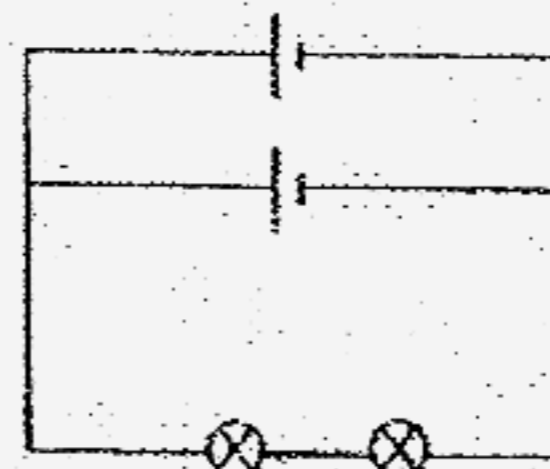
Set-up A



Set-up B



Set-up C



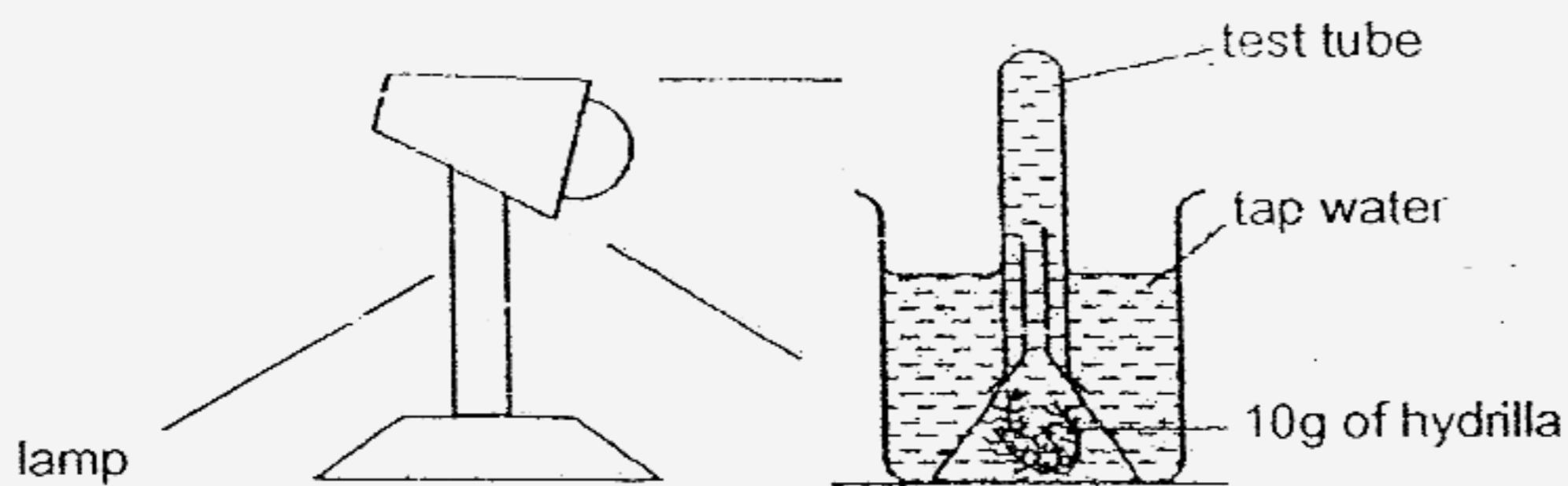
Set-up D

- (a) For the first experiment, Ken wants to find out how the number of dry cells will affect the brightness of a bulb. Which two of the circuits should he use? (1m)

- (b) The other two circuits can then be used to conduct the second experiment. What will be the aim of the second experiment? (1m)

- (c) What will be the result of the second experiment? Explain your answer. (1m)

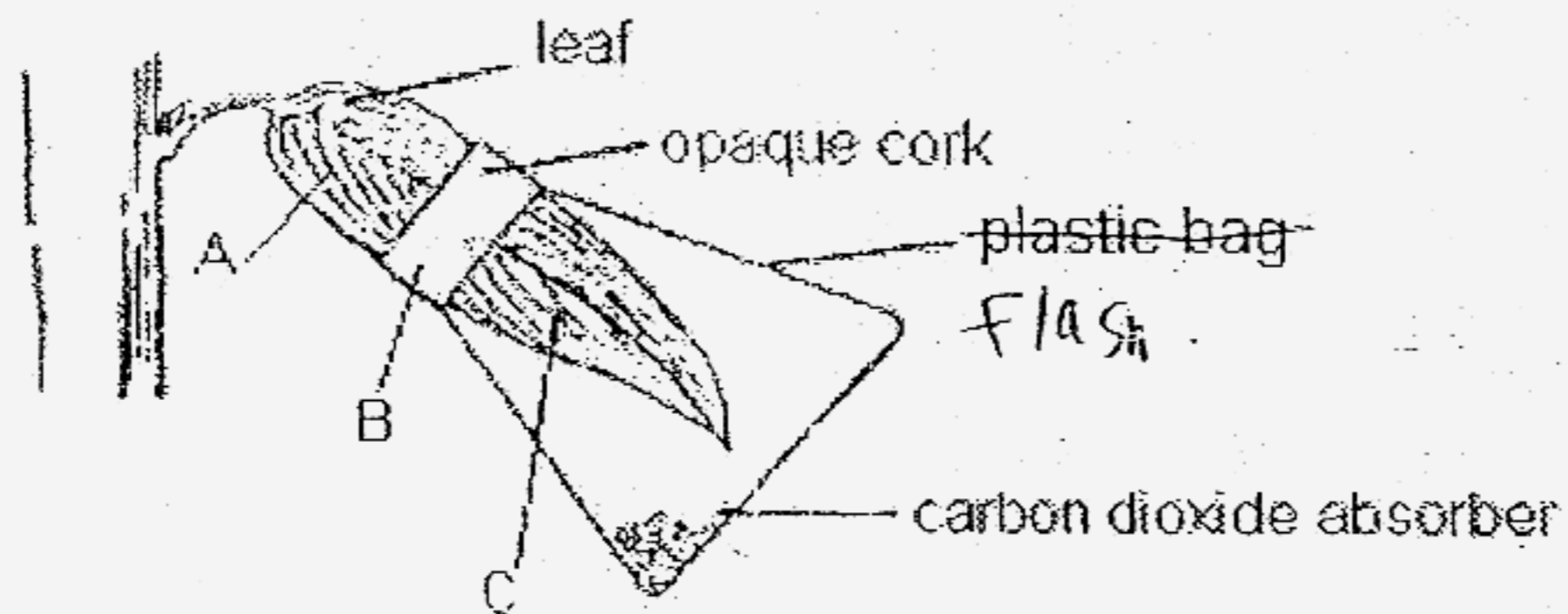
42. Wen Wen set up an experiment as shown in the diagram below. He wanted to test if the plant gave out gases in the presence of light. After some time, he noticed bubbles rising to the top of the test tube.



- (a) Explain how these bubbles were formed. (1m)

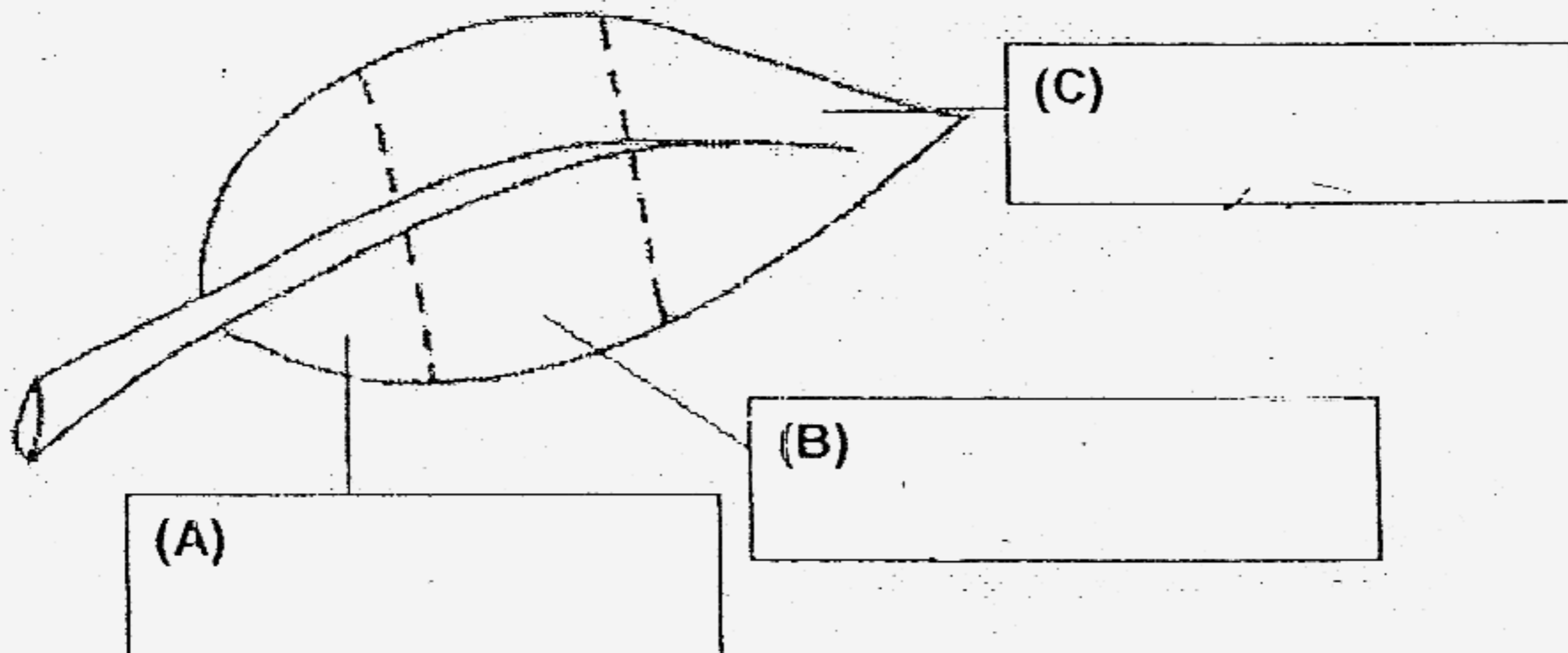
- (b) As the bubbles rose to the top of the test tube, the water level in the test tube decreased. Explain the change in the water level. (1m)

43. Brendan carried out an experiment on plants making food. He enclosed a leaf of a plant in a flask as shown in the diagram below. The plant was then left in the dark for two days. Then it was placed in the sunlight for 8 hours.

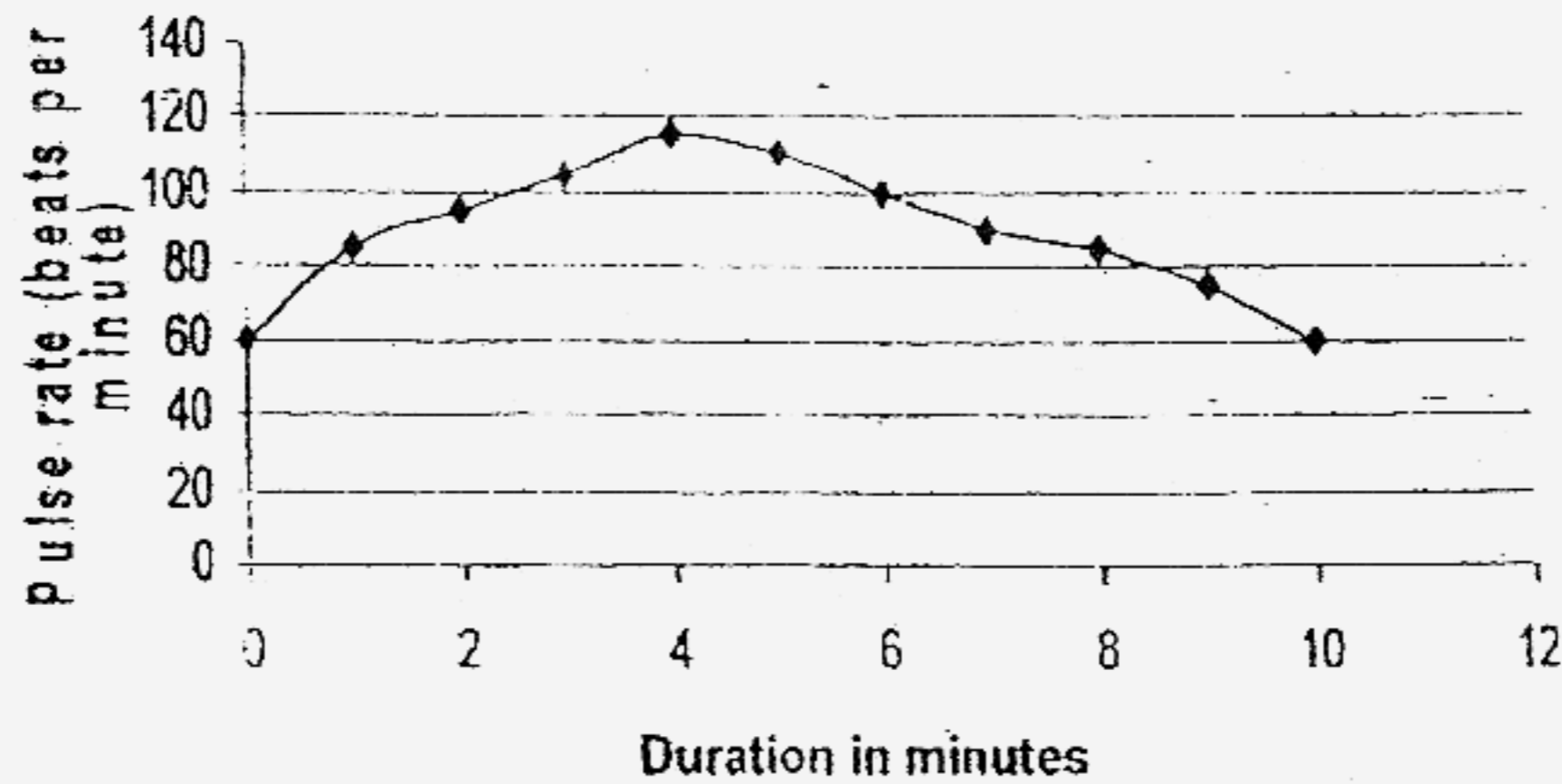


- (a) Study the diagram carefully. Which part of the leaf was the control? (1m)

- (b) After 8 hours, the leaf was then plucked and tested for starch. **Label the colours** of the 3 sections of the leaf after the starch test in the diagram below. (1m)



44. Susan wanted to find out what happens to her pulse rate when she jogs. She measured her pulse rate every minute for 10 minutes and she drew the following graph.



- (a) Susan's pulse rate increases when she jogs. Why is this so? (2m)

- (b) Based on the graph, what is her normal pulse rate? (1m)

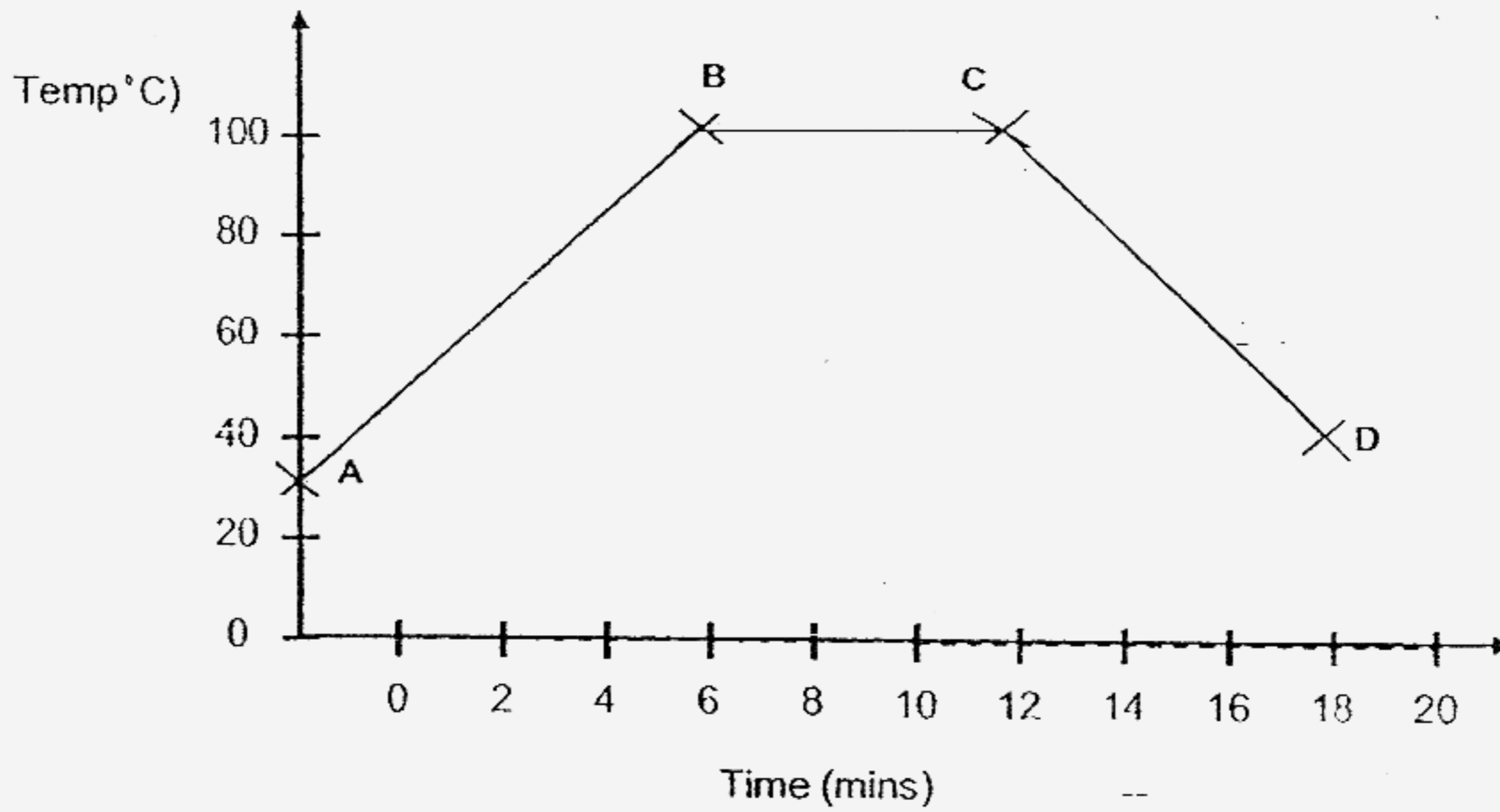
45. Read the following statements carefully.

- A : The lungs expand.
- B : The air goes into the lungs.
- C : Air goes through the nose.
- D : The air goes into the windpipe.
- E : Hairs in the nose trap dust and dirt present in the air.

Arrange them in the correct order to describe what happens during physical breathing. The first one has been done for you. (2m)



46. Sue heated some water in a beaker at room temperature until it boiled. It was then left on the kitchen table to cool. She recorded her results in the graph as shown below.



Below are four sentences based on her results. Indicate whether each of the statements is true, not true or not possible to tell by putting a tick in (\checkmark) in the correct column. (2m)

Statements	True	Not True	Not Possible to tell
(i) The flame was turned off after 12 minutes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(ii) Water only evaporates during period CD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(iii) The room temperature is 40°C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(iv) The rate of evaporation is higher during BC than CD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

End of Booklet B

- 1)2 2)1 3)2 4)4 5)1 6)3
- 7)3 8)2 9)3 10)2 11)4 12)3
- 13)3 14)2 15)3 16)3 17)4 18)1
- 19)2 20)4 21)1 22)3 23)3 24)4
- 25)1 26)4 27)2 28)4 29)4 30)3

31)a. Planet X is found midway between the nearest and the furthest planet from the sun which planet is planet X's nearest neighbour Uranus.

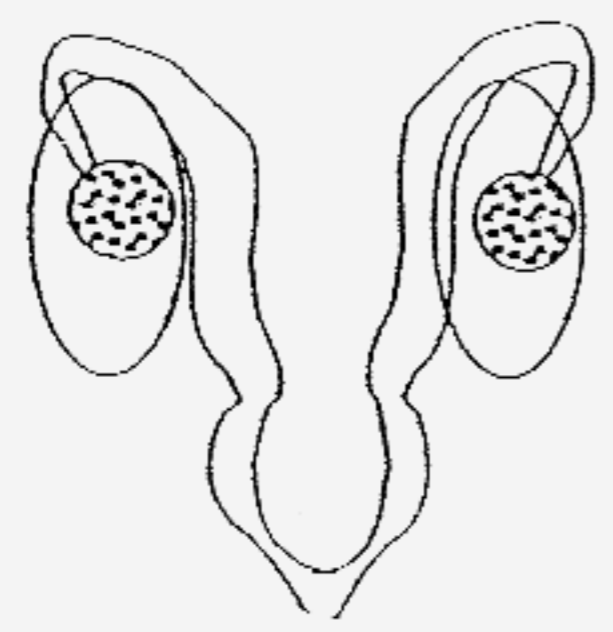
31)b. No, planet X does not have the right temperature to provide warmth, will not receive the appropriate amount of warmth for the living things as it is far away from the sun.

- 32)a.C b.G c.F d.B

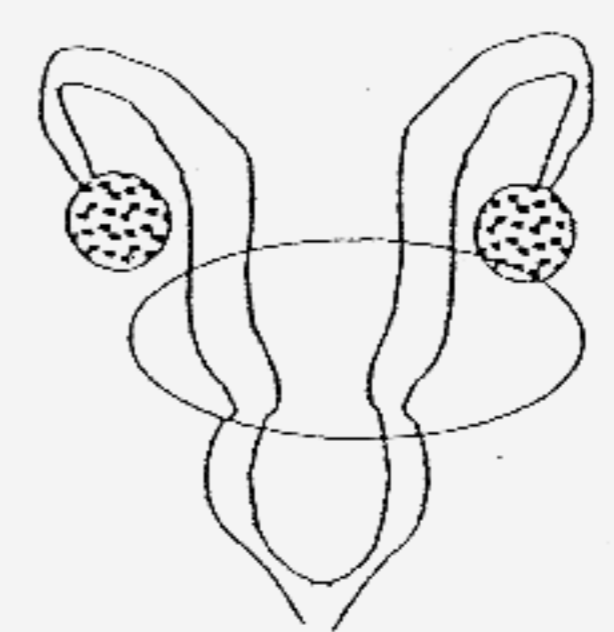
33)a. arrows B and C b. For arrows B and C, pollen grains from the anther was transported to the stigma, thus allowing pollination to occur.

34)Method of production → Asexual → internal fertilization → External Fertilisation

35)



Maria

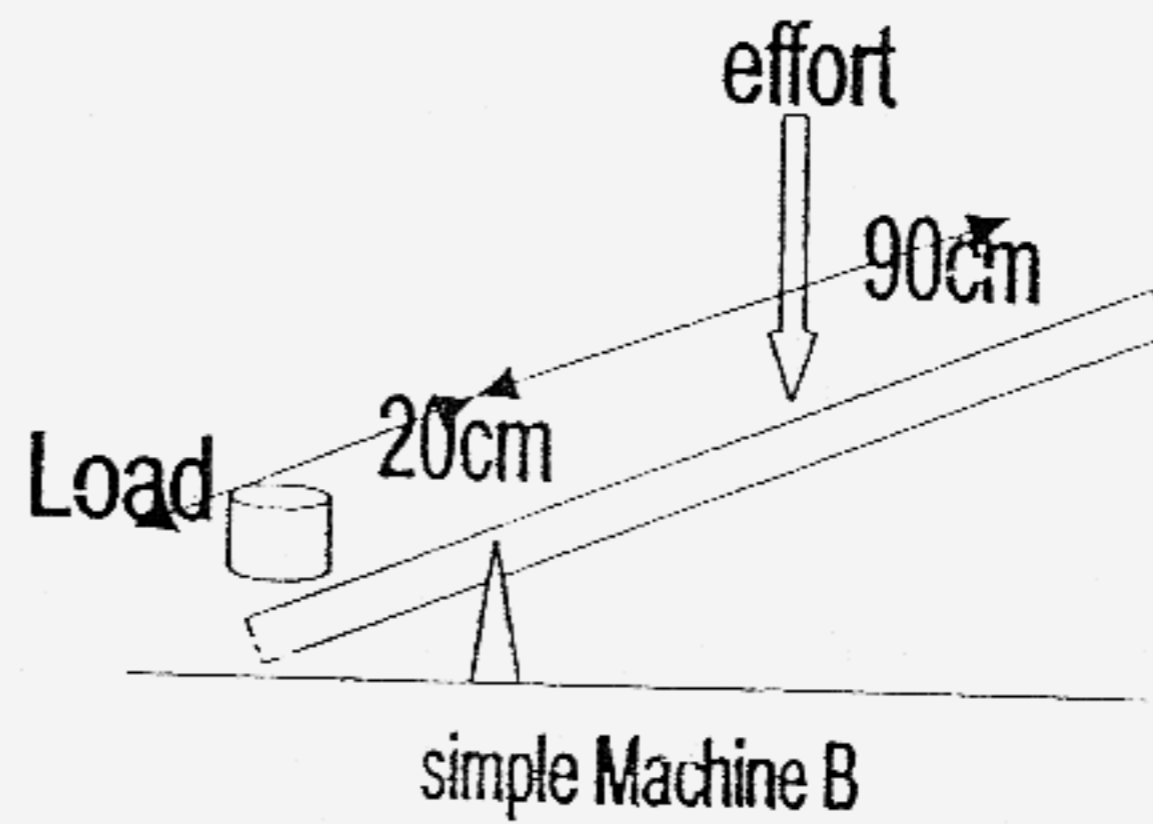
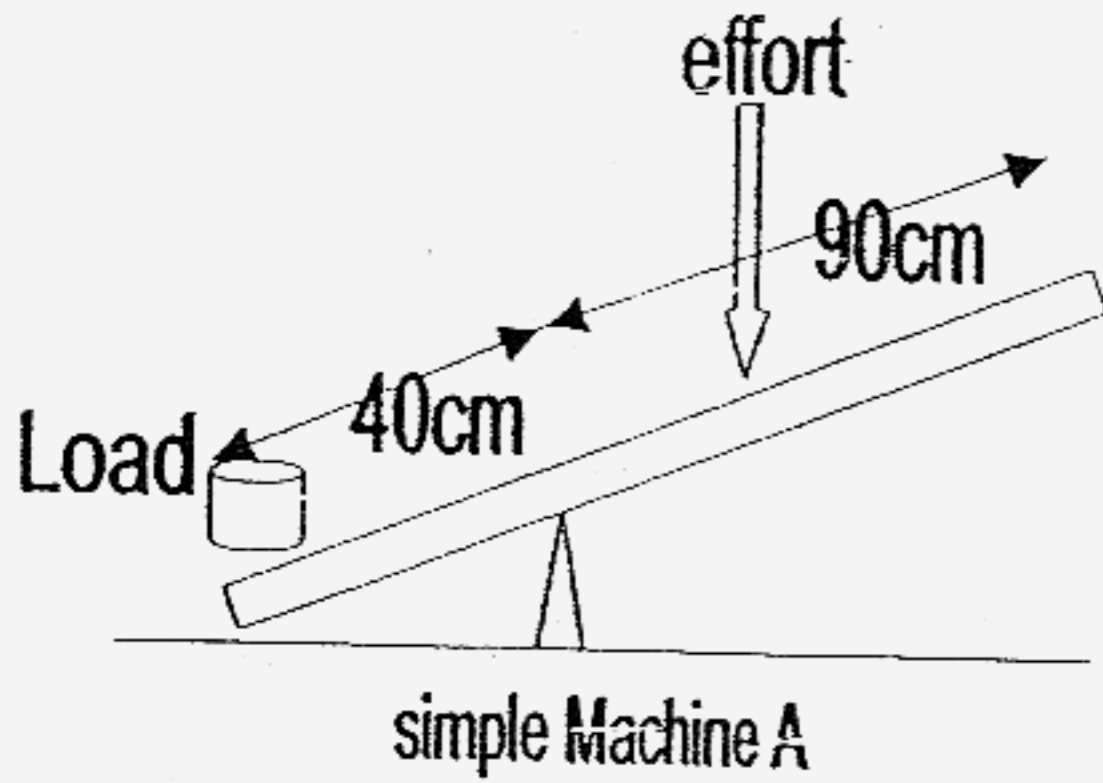


Carie

35)b. Maria-since both ovaries are removed , no eggs will be produced and fertilization will not be possible.

35)Caie-development of the embryo will not be possible since the uterus is removed.

36)a. To find out if the distance between the effort and the fulcrum affects the effort needed to lift the load.



37)a. Lever and inclined Plane/Ramp .

b. It is 2m.

37)c.i. 8m plank

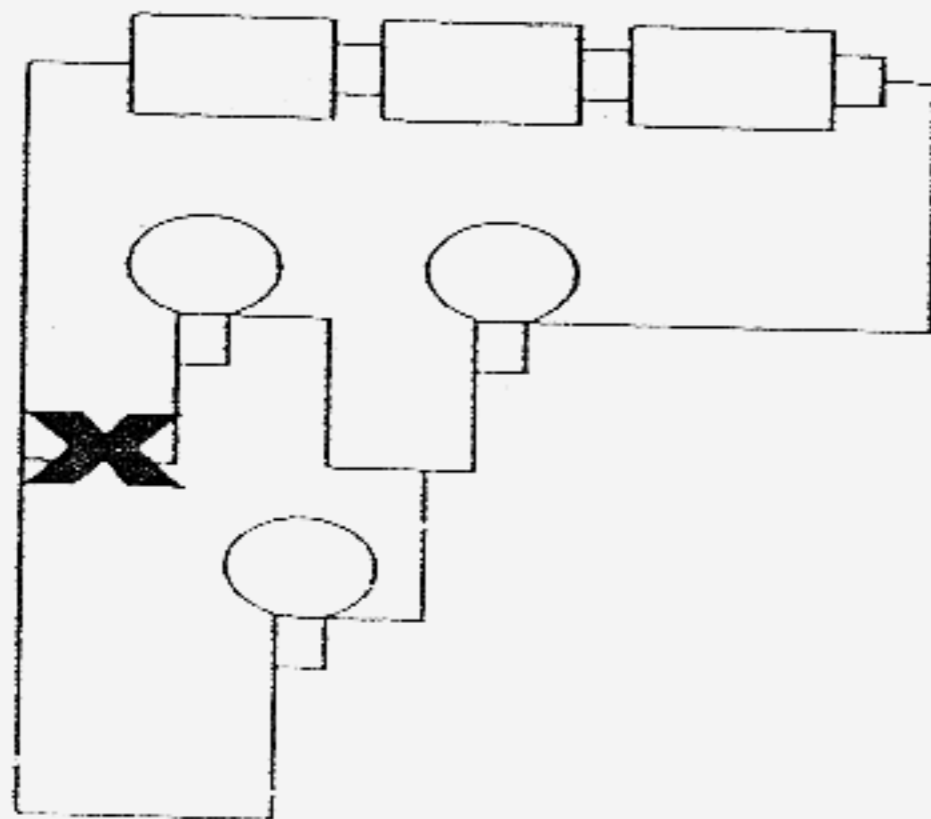
ii. The angle of inclination between the plank and the ground will be smaller, thus less effort is needed to move the bricks.

38)a. Setups B, D & E

b. The smaller the size of the axle, the smaller the amount of effort needed to lift a load.

39)a.

39b. Each bulb can function independently.



40)a. yes, Cells X & (Y) acts as a conductor of electricity.

40)b. Bulb B will be brighter than the other because the batteries are arranged in series and there is more electrical current flowing through it. The batteries in Bulb C are arranged in Parallel so there is less electrical current (flowing through it).

41)a. set-ups A & C.

b. To find out if the arrangement of the batteries will affect brightness of the bulb.

41)c. The bulbs in set-up B will be brighter because the batteries are arranged in series.

42)a. Those are oxygen (Bubbles) produced during photosynthesis.

42)b. The bubbles of air occupies space so water will be pushed out of the test tube.

43)a. Part A b. a. dark blue b. Brown c. Brown

44)a. Susan's pulse's rate increased so that digested food will be broken down in the presence of oxygen so that more energy is released to the muscle/body more quickly.

44)b. It is 60 beats per minute.

45) A → C → E → D → B

46) i. T ii. Not True iii. Not True iv. T