



南洋小學
NANYANG PRIMARY SCHOOL

PRIMARY 5 SCIENCE
SEMESTRAL ASSESSMENT 2

BOOKLET A

Date : 30th October 2006

Duration : 1 h 45 min

Name : _____ ()

Class: Primary _____ ()

Marks Scored:

Booklet A:		60
Booklet B :		40
Total :		100


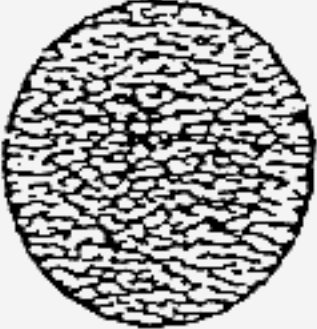

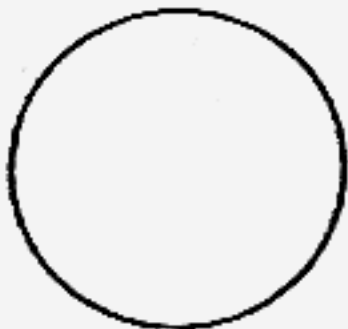

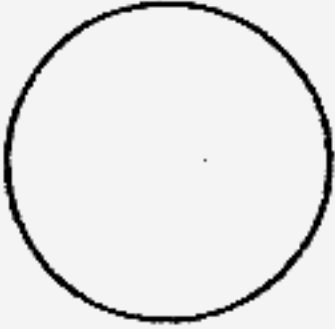

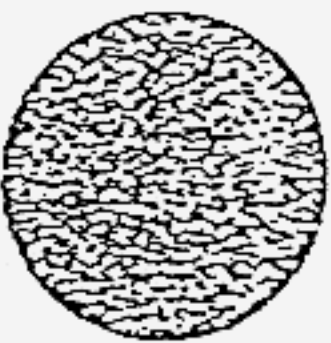
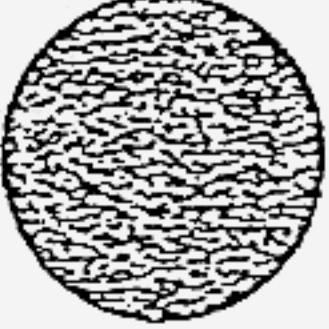

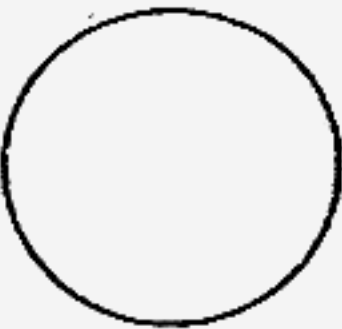
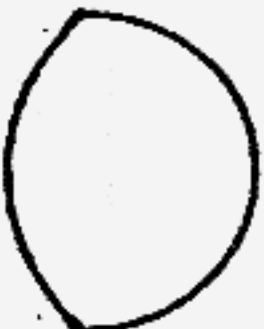
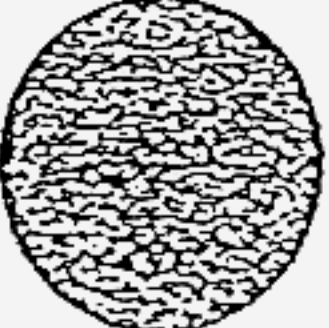

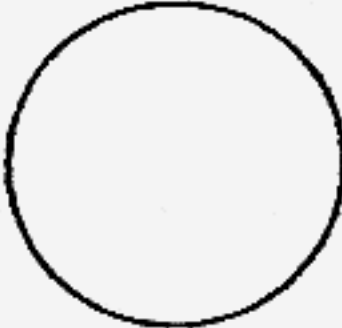

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

Booklet A consists of 14 printed pages including this cover page.

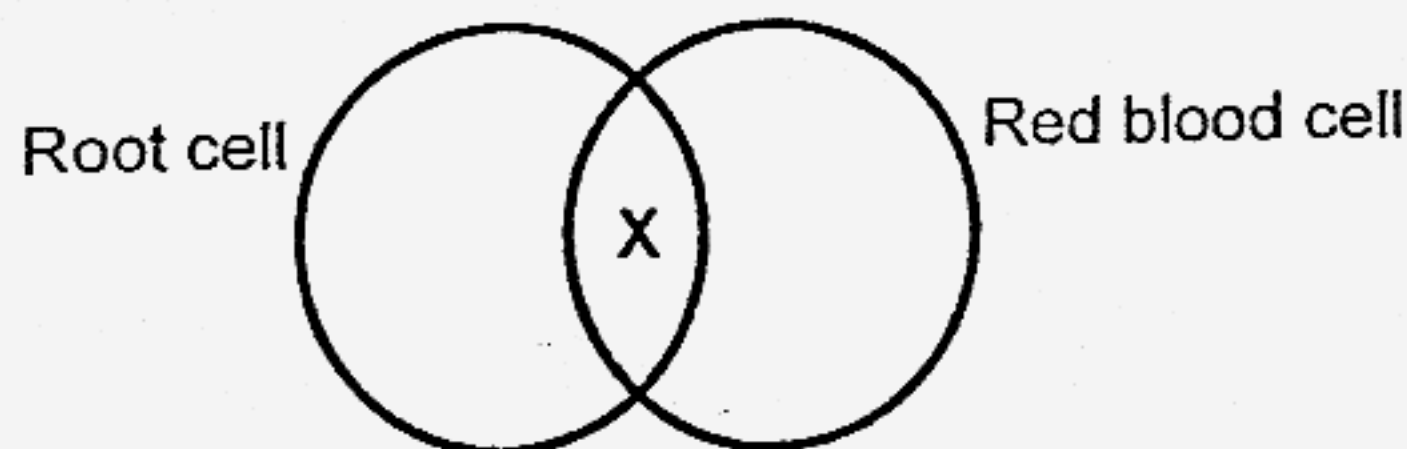
Section A (30 x 2 marks = 60 marks)

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 provided.

1. Ali observed that the shape of the moon changes over a period of time. Which one of the following is the most likely set of results that he recorded?

	7 July	12 July	16 July	28 July
(1)				
(2)				
(3)				
(4)				

2. Study the Venn diagram below.



Which of the following could represent "X"?

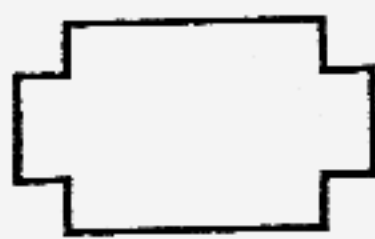
- A. nucleus
- B. cytoplasm
- C. chloroplast
- D. cell membrane

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

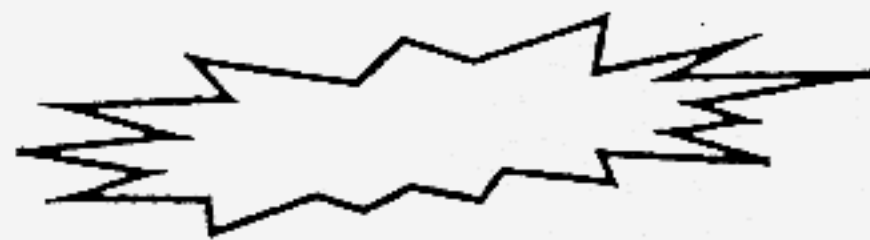
- (2) B and D only
- (4) A, B, C and D

3. Uma used equal amounts of plasticine to make 4 objects A, B, C and D. The objects are all 2 cm in height.

↑
2 cm



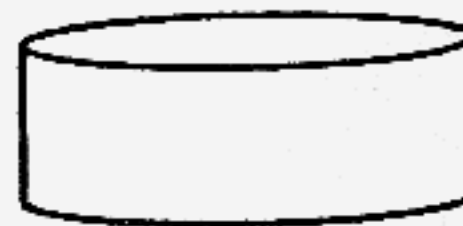
A



B



C

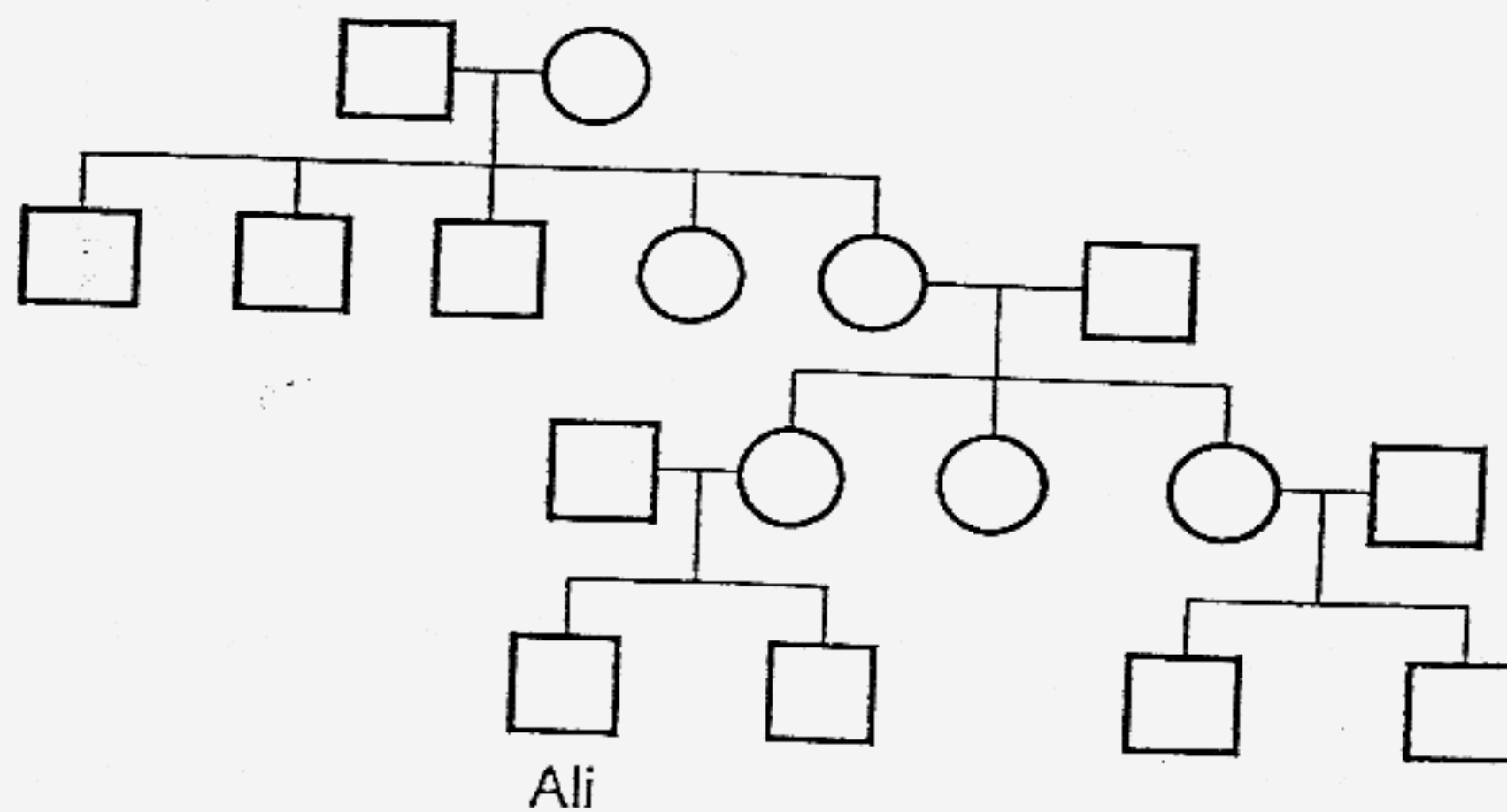


D

These objects were dropped onto the floor from a height of 5 metre. She then measured the time taken for the objects to reach the floor. What is a possible hypothesis of the above experiment?

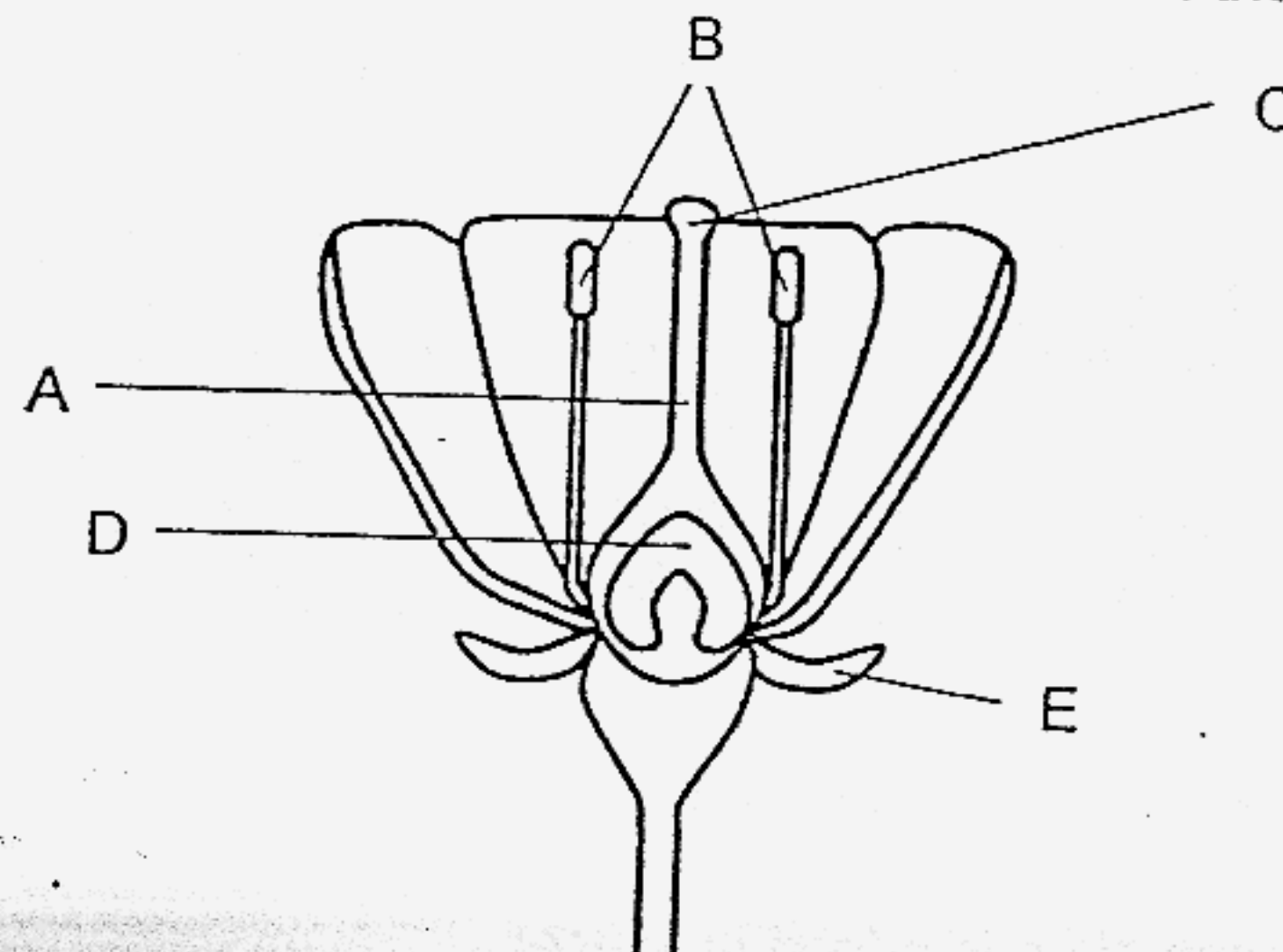
- (1) The mass of the object affects the time taken for it to reach the floor.
- (2) The height of the object affects the time taken for it to reach the floor.
- (3) The shape of the object affects the time taken for it to reach the floor.
- (4) The height from which the object drops affects the time taken for it to reach the floor.

4. Study the family tree below.



How many children does Ali's great - grandparents have?

- (1) 2
(2) 3
(3) 5
(4) 6
5. Nina conducted the following experiment:
- Step 1 : Remove some parts of an intact flower from a plant.
Step 2 : Place the plant in the garden with similar plants.
Step 3 : Water the plant daily and record observation over a period of time.
Step 4 : Repeat Steps 1 – 3 with other flowers of the same plant.

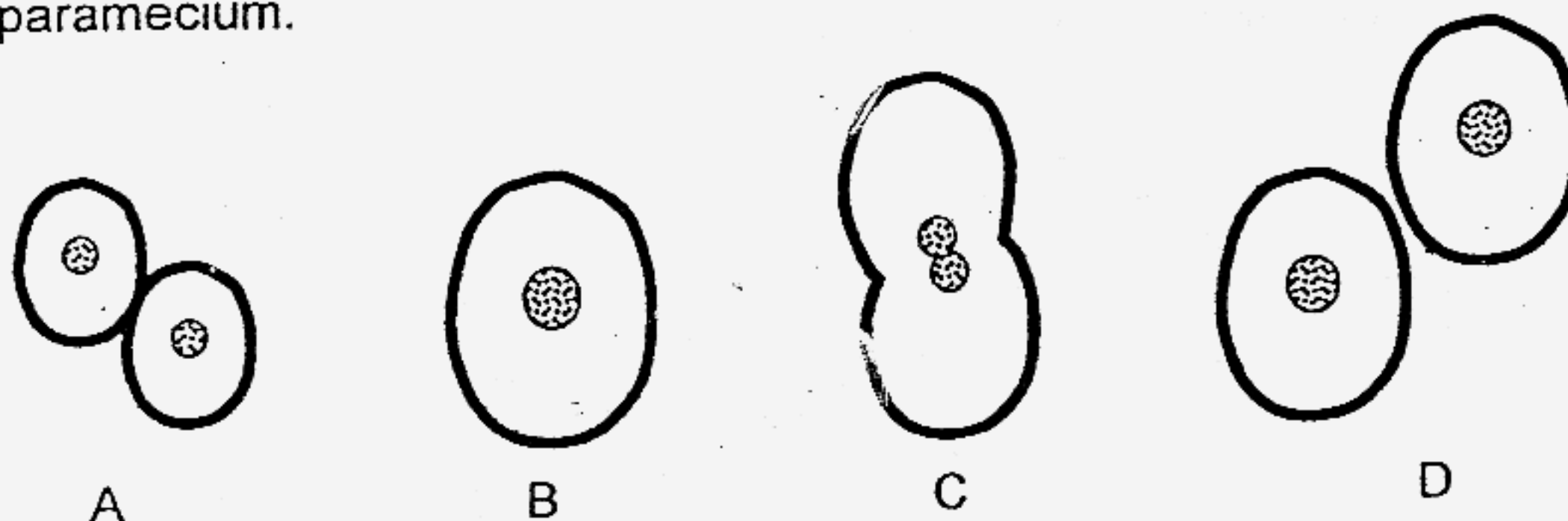


Which one of the following observations is **not** possible?

Parts removed	Observations
(1) A and B	Ovary developed into a fruit.
(2) B and D	The flower withered and died.
(3) B and E	Ovary developed into a fruit.
(4) A, C and E	The flower withered and died.

6

The diagrams below show the different stages of division of a paramecium.



Arrange the diagrams to show the correct order of cell division.

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

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

7. Zena carried out the iodine test on 4 different food items. He recorded the results of his experiment below.

Food	Did iodine solution turn dark blue?
A	Yes
B	No
C	Yes
D	No

Which one of the following is the most likely set of results that she recorded?

	Food A	Food B	Food C	Food D
(1)	porridge	hotdog	apple	bean sprout
(2)	mushroom	ginger	eggplant	milk
(3)	spinach	onion	yam	beef
(4)	tuna	cake	cheese	chilli

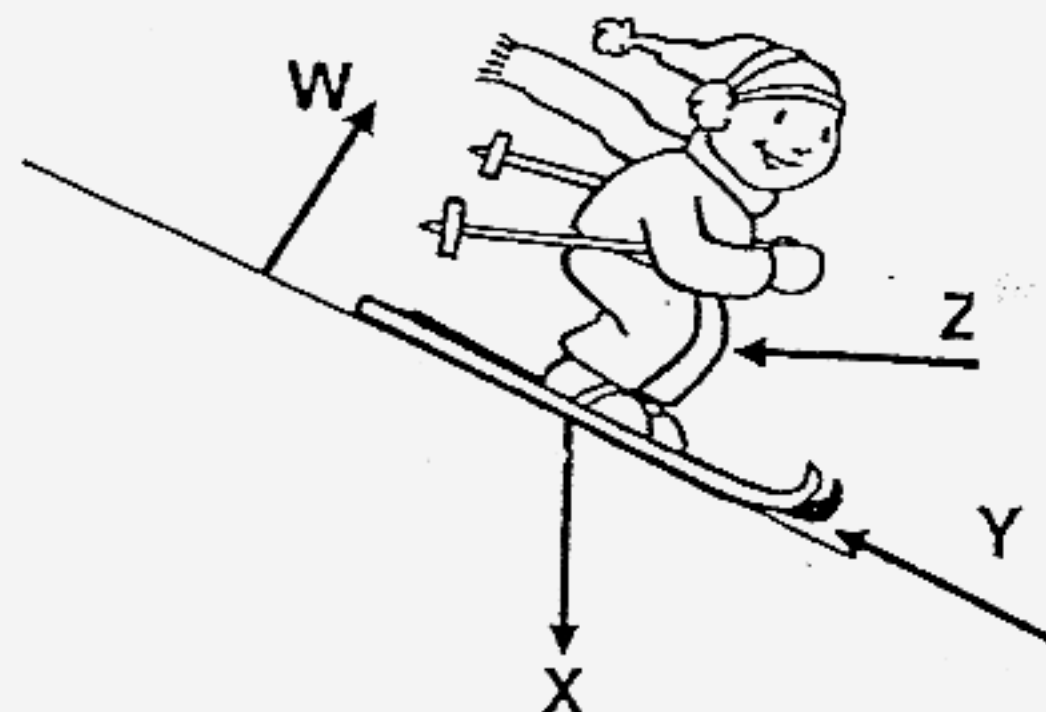
8. Which of the following statements are true?

- A. Dumb cane is a food producer.
B. Animals store starch in their bodies.
C. Starch can only be found in the underground roots of the sweet potato plant.
D. Fungi cannot make food and they get their nutrients from the remains of dead animals and plants.

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

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

9. The diagram below shows a person skiing down a slope.



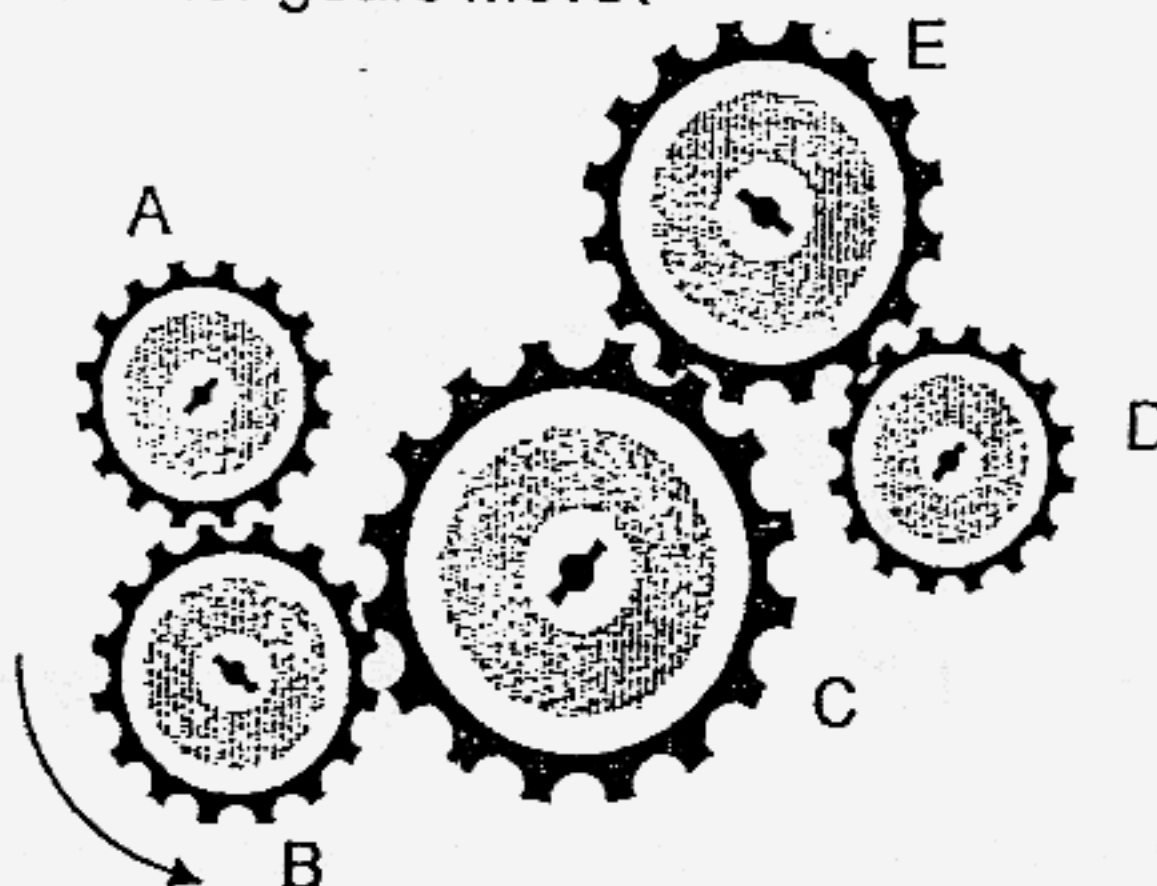
Which of the above arrows shows the direction of forces experienced by the skier?

	Friction	Gravity
(1)	W	Z
(2)	X	W
(3)	X	Y
(4)	Y	X

10. Gear A has 64 teeth and Gear B has 16 teeth. When Gear B makes two complete rounds, how many rounds will Gear A make?

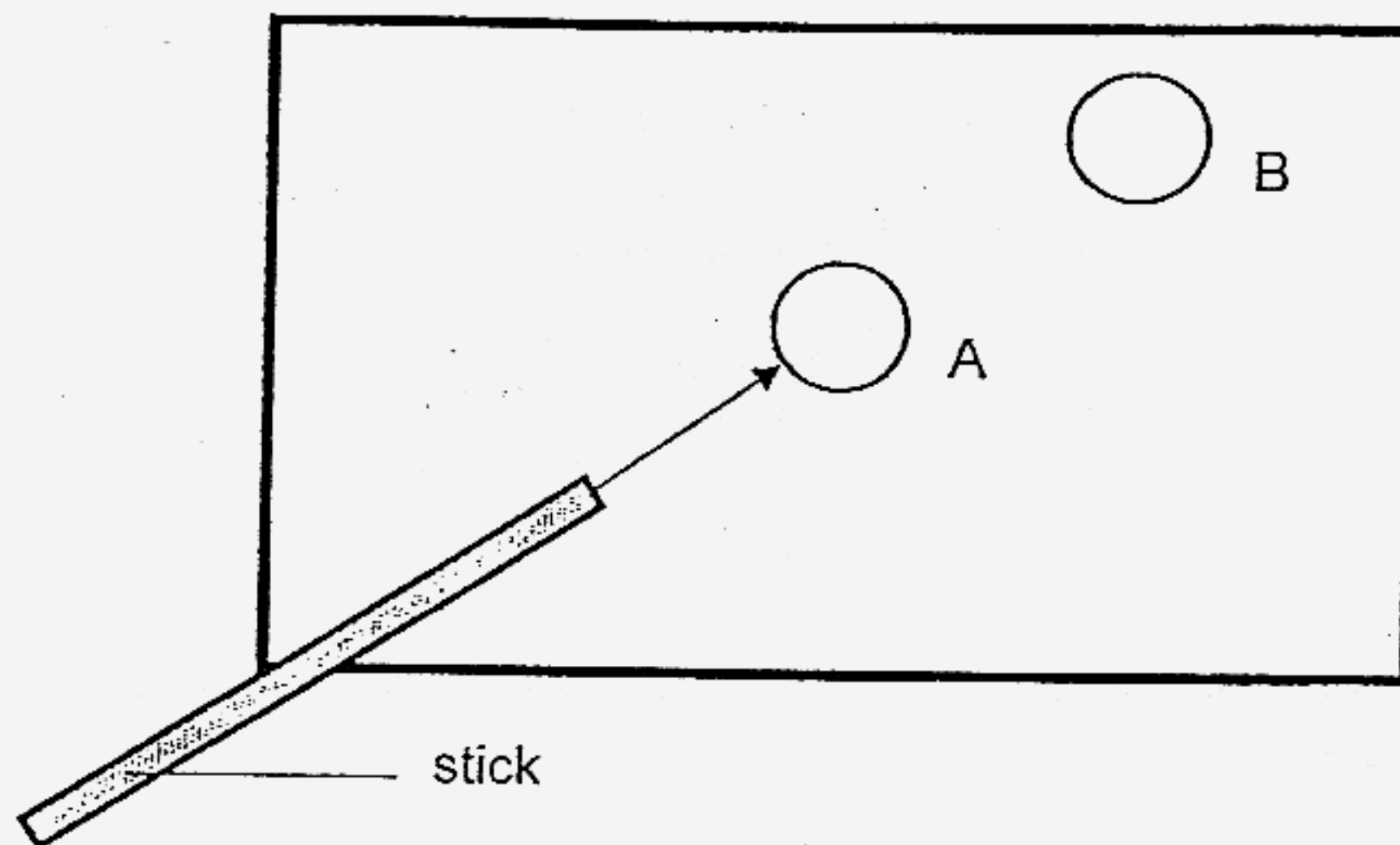
- | | | | |
|-----|------|-----|-----|
| (1) | 0.25 | (2) | 0.5 |
| (3) | 4 | (4) | 8 |

11. A toy consists of 5 gears, A, B, C, D and E. When Gear B turns in the direction as shown below, which one of the following shows the direction that the other gears move?



	A	C	D	E
(1)	anti-clockwise	clockwise	anti-clockwise	clockwise
(2)	clockwise	clockwise	clockwise	anti-clockwise
(3)	clockwise	anti-clockwise	clockwise	anti-clockwise
(4)	anti-clockwise	anti-clockwise	anti-clockwise	clockwise

12. The diagram shows 2 similar balls which were placed in a big tray.

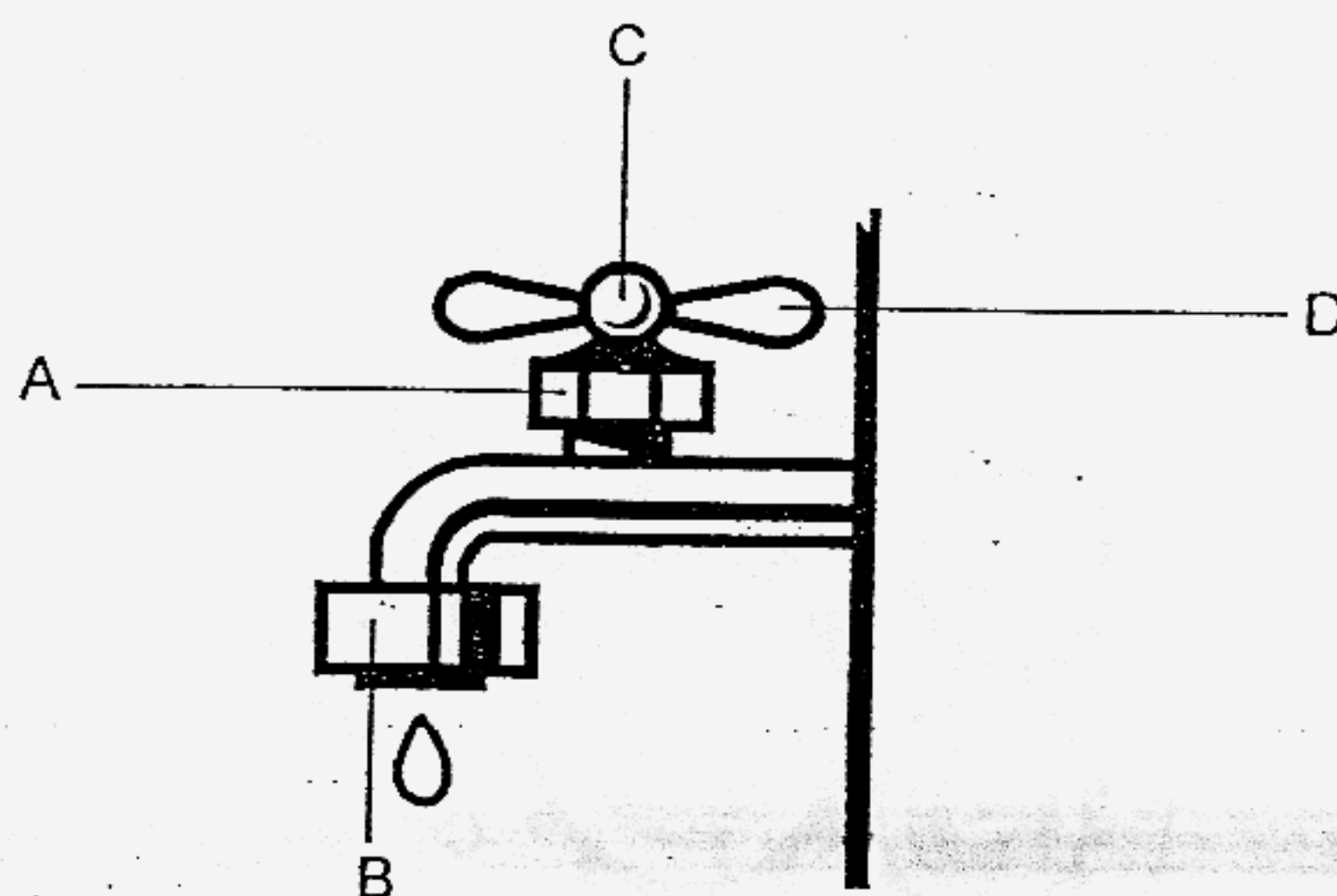


What would most likely happen when Ball A was pushed towards Ball B with a stick?

- A. Ball B would move and hit the edge of the tray.
- B. Ball A would hit Ball B then Ball A stopped moving soon after.
- C. Ball B and Ball A would move in the same direction after Ball B was hit by Ball A.

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

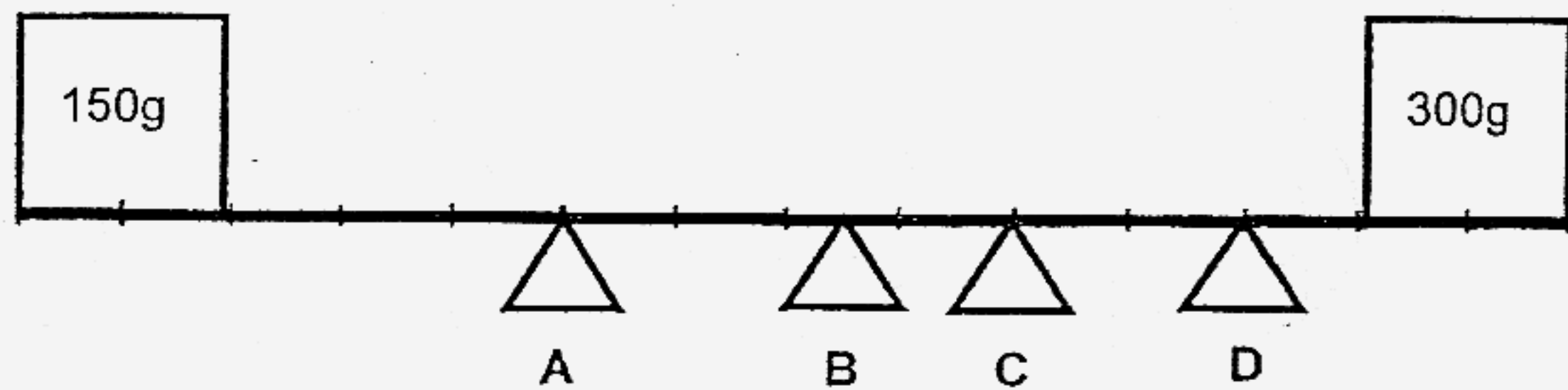
13. The diagram below shows a tap.



Identify the wheel and axle part of this simple machine.

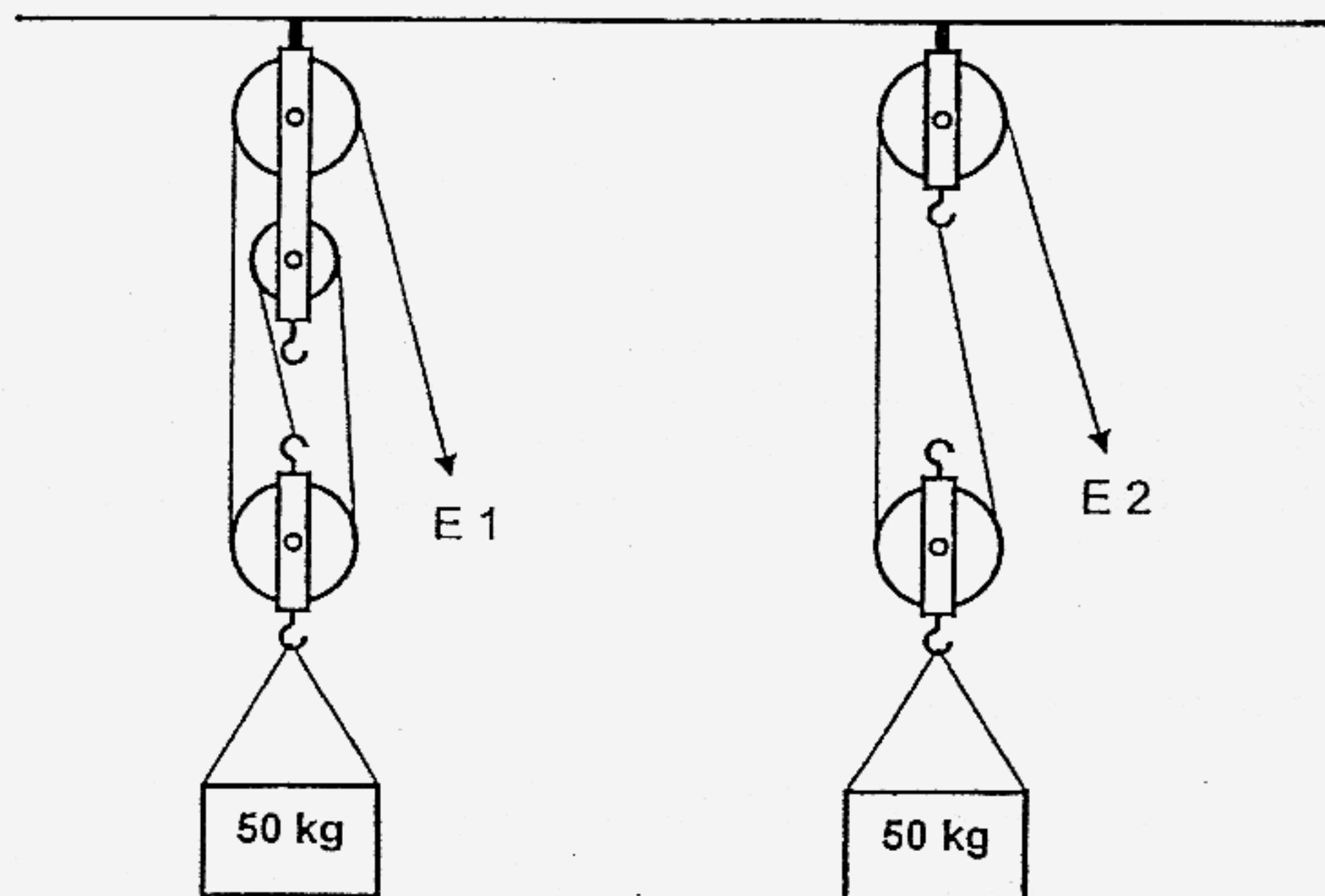
	Wheel	Axle
(1)	A	B
(2)	A	C
(3)	D	B
(4)	D	C

14. Two loads are balanced on a lever as shown below.



Where should the fulcrum be placed in order to balance the loads?

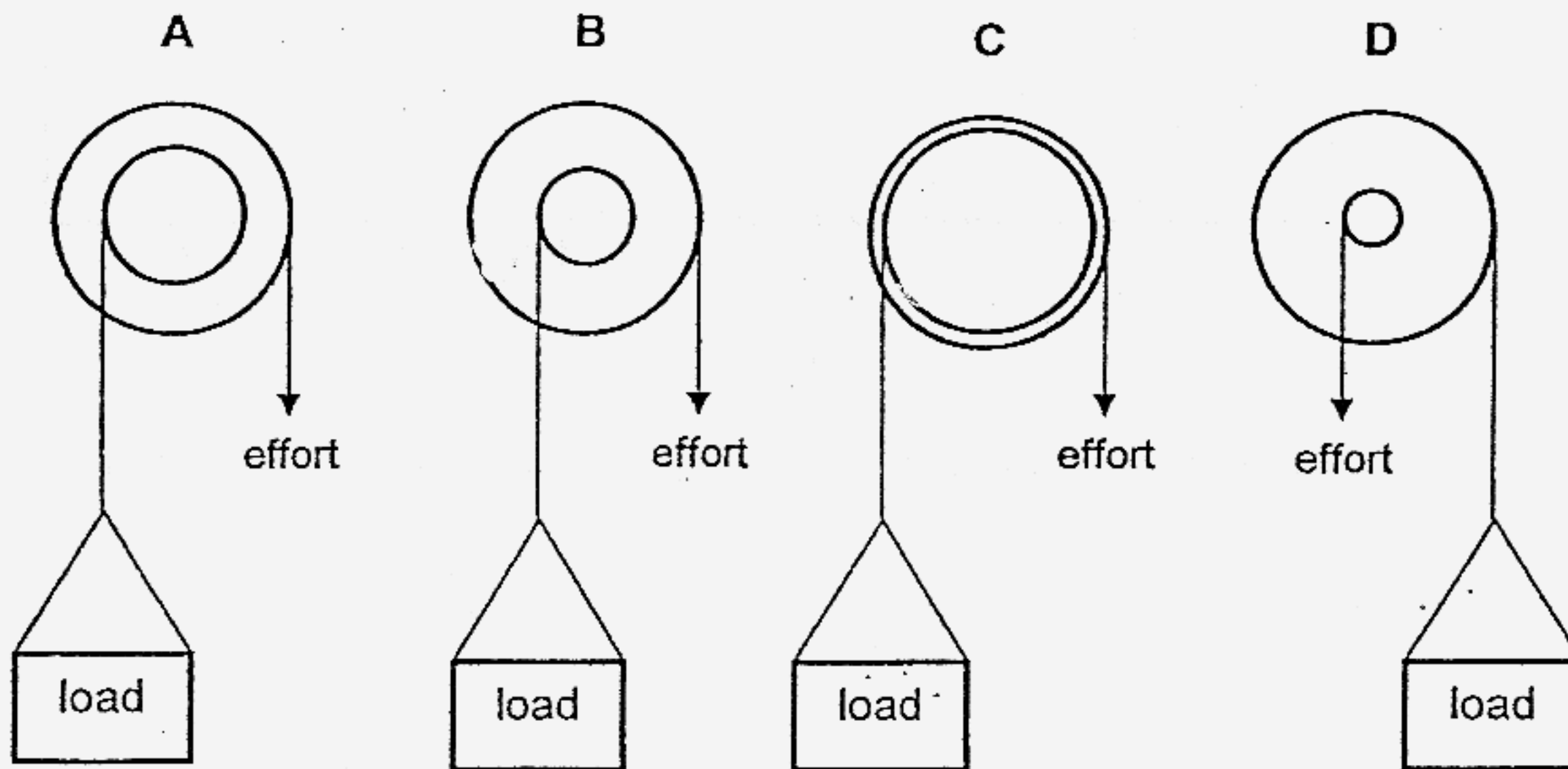
- (1) A (2) B
(3) C (4) D
15. Lila conducted an experiment with 2 different pulley systems to find out the amount of effort needed to lift a 50 kg load.



Which one of the following is the most likely set of results recorded?

	E 1 (kg)	E 2 (kg)
(1)	17	26
(2)	15	24
(3)	25	25
(4)	25	20

16. Which one of the following requires the least effort to raise a similar load?



- (1) A
(3) C

- (2) B
(4) D

17. Zhihui just had his shower and he switched off the bathroom light. What happened when the bathroom light was switched off?

- (1) There would be no more power supply in the house.
(2) Electrical wires in the power station would be disconnected.
(3) There would be no electric current passing through the bathroom light.
(4) Electricity would be stored in the bulb until the bathroom light is switched on again.

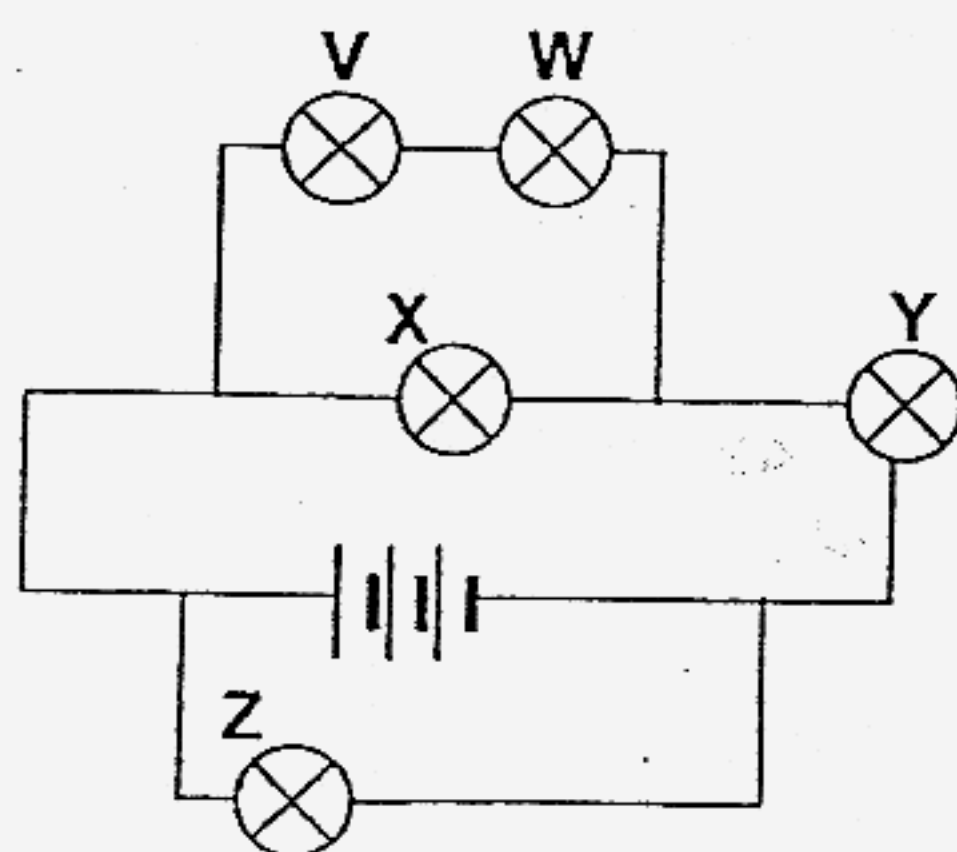
18. Study the table below.

	Electrical Appliances	Electrical Energy Used (units per hour)	Heat Energy Released (units per hour)
A.	air-conditioner	96	70
B.	hair-dryer	50	40
C.	electric iron	100	95
D.	fluorescent lamp	4	3

An electrical appliance is efficient when most of the electrical energy is used to carry out its function. Which of the following are efficient electrical appliances?

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

Study the circuit below and answer questions 19 and 20.



19. Which bulb is the brightest?

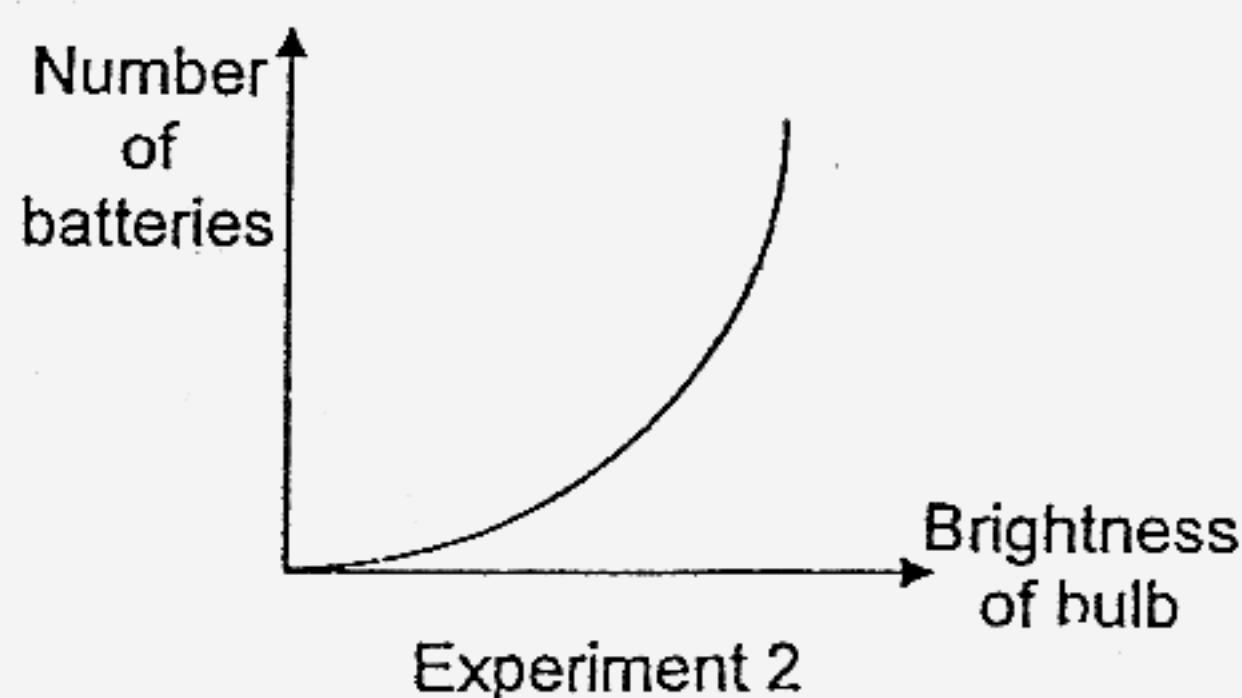
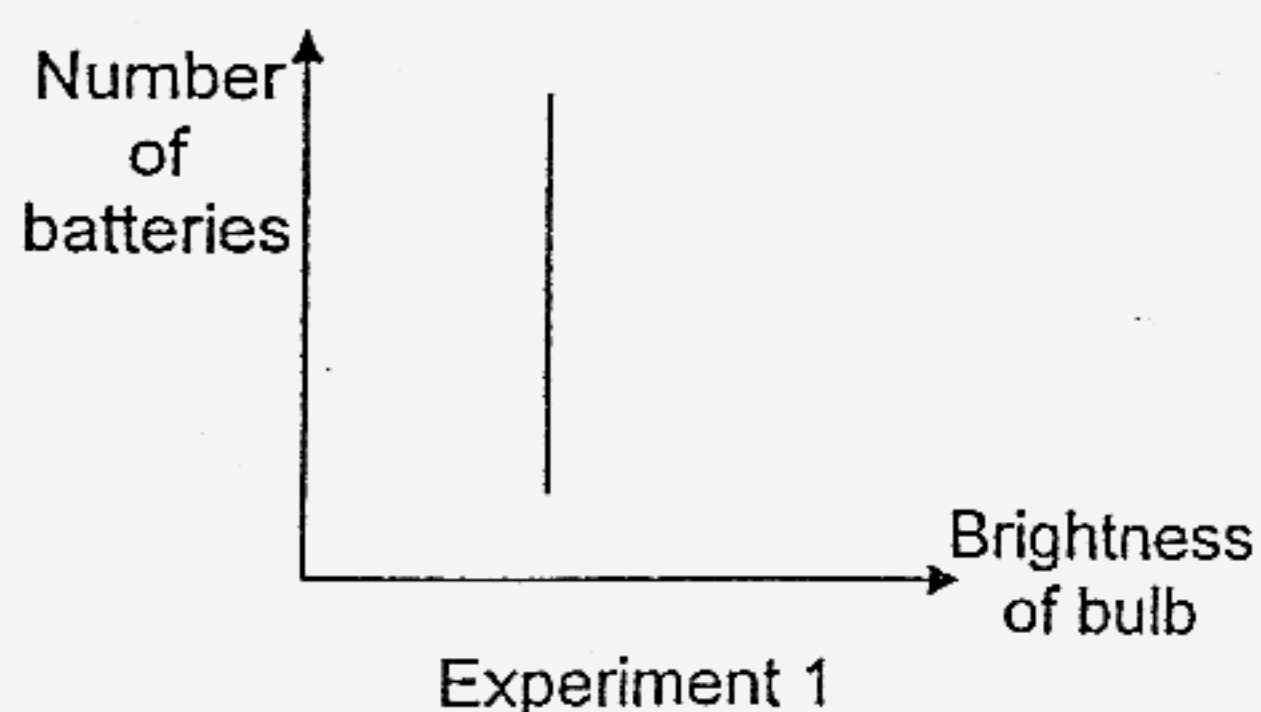
- | | |
|-------|-------|
| (1) W | (2) X |
| (3) Y | (4) Z |

20. Which of the following is true?

	Faulty bulb	Light up	Did not light up
<input checked="" type="checkbox"/> A	V	Y, Z	W, X
<input type="checkbox"/> B	X	V, W, Y, Z	-
<input type="checkbox"/> C	Y	V, W, Z	X
<input type="checkbox"/> D	Z	V, W, X, Y	-

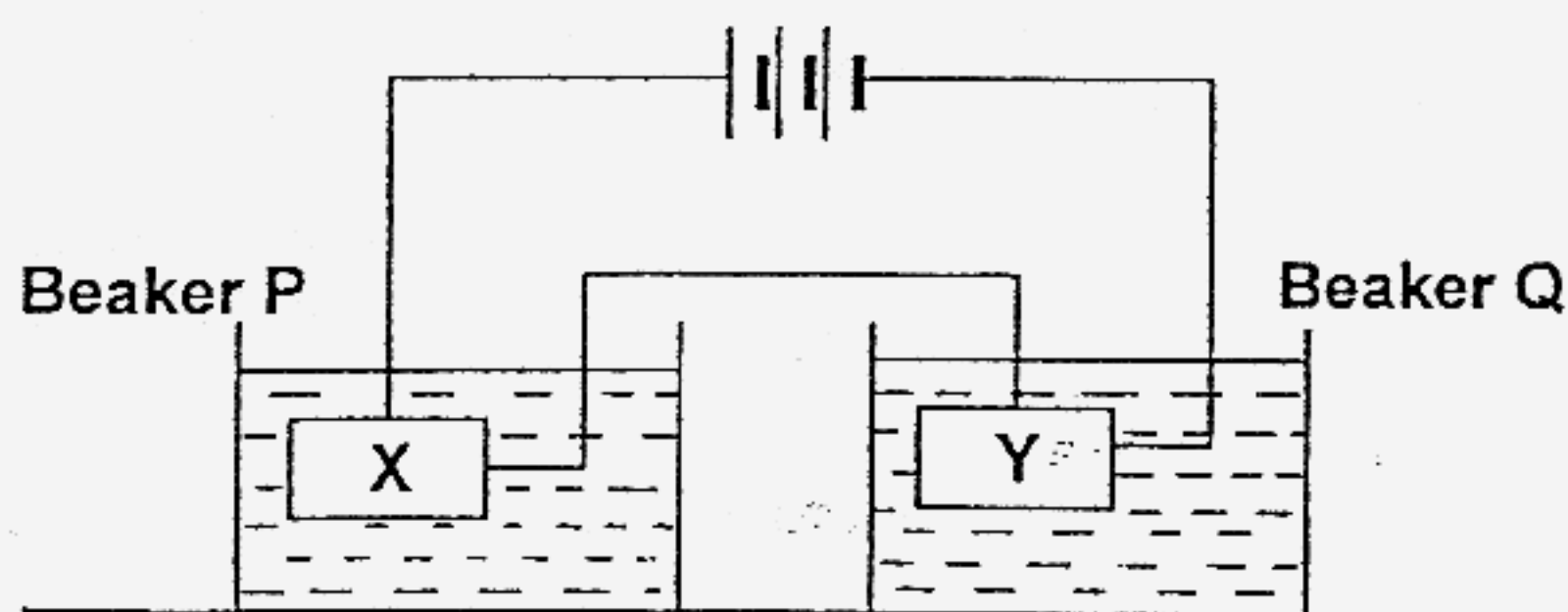
- | | |
|------------------|------------------|
| (1) D only | (2) A and C only |
| (3) B and C only | (4) B and D only |

21. Tom carried out two experiments using two closed electrical circuits. Batteries were arranged differently in both experiments and he recorded his results in the graphs below.



If similar batteries and bulbs were used, which one of the following statements is true?

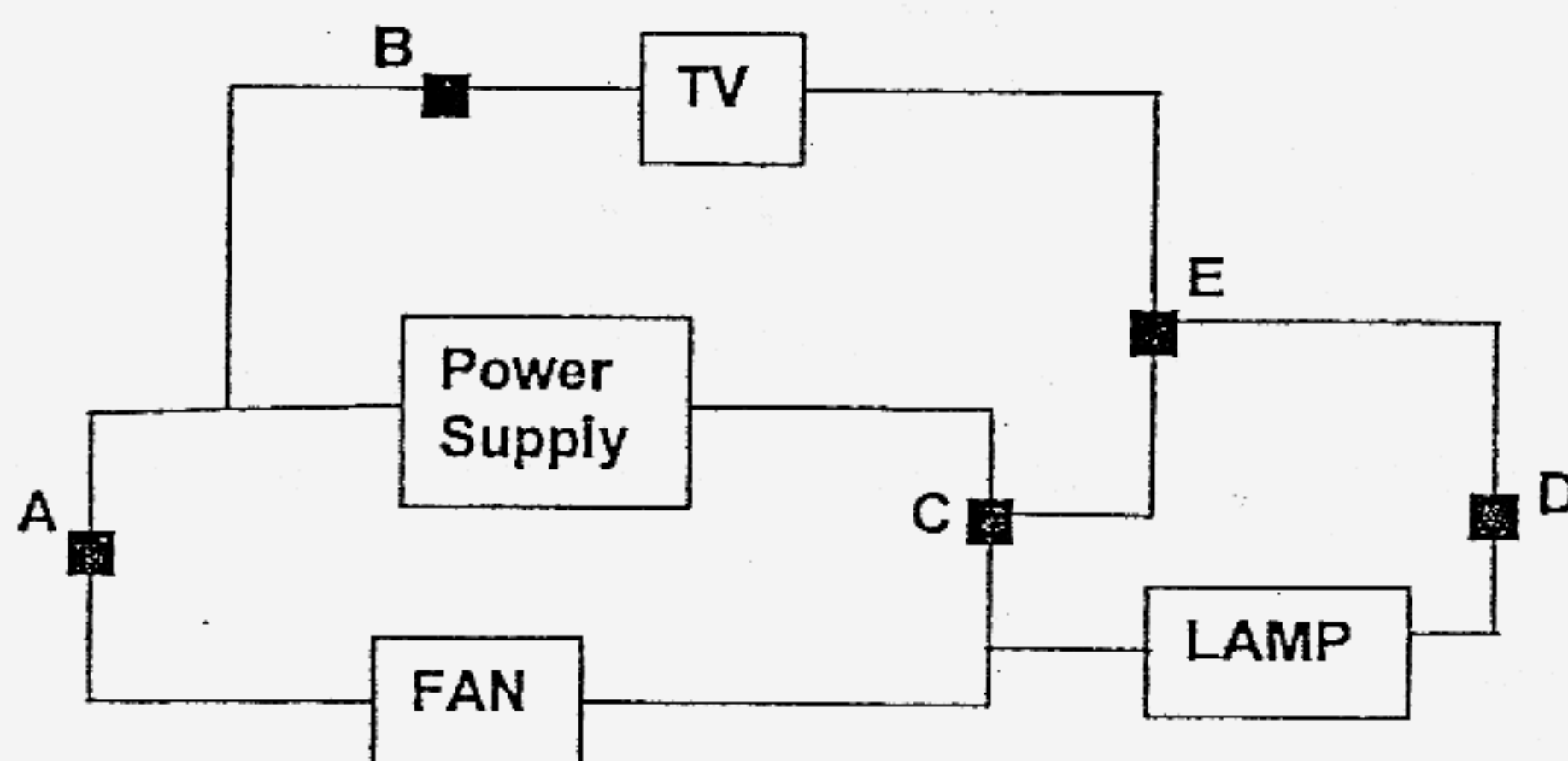
- (1) The bulb in Experiment 1 was faulty.
 - (2) The batteries in Experiment 2 were connected in parallel.
 - (3) The bulb would be brighter if a few batteries were added in Experiment 1 in the same arrangement.
 - (4) The current flowing through the circuit in Experiment 2 increased when more batteries were added in the same arrangement.
22. Study the setup below.



Before objects X and Y were placed into the water, the temperature of both beakers of water is 30°C . Which one of the following shows the observation made after 15 minutes?

	Object X	Temperature of water in P ($^{\circ}\text{C}$)	Object Y	Temperature of water in Q ($^{\circ}\text{C}$)
(1)	satay stick	30	steel rod	50
(2)	metal spoon	45	plastic fork	45
(3)	iron plate	40	nichrome rod	60
(4)	wooden chopstick	30	toothpick	40

Study the circuit below and answer questions 23 and 24.



The switches at points A, B, C, D and E were closed and all three electrical appliances were working.

23. Opening the switch at point _____ would allow both the TV and the lamp to work only.

(1) A
(3) C

(2) B
(4) E

24. Opening the switch at point _____ would allow only one of the above electrical appliances to remain working.

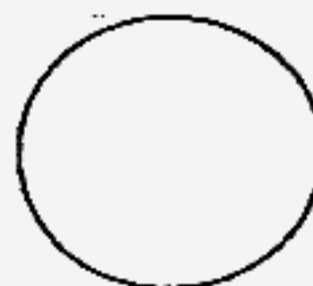
(1) A
(3) D

(2) C
(4) E

25. The circles below represent the sizes of a blood vessel in the surface of the skin at normal body temperature and when the body temperature rises.



Normal Body Temperature

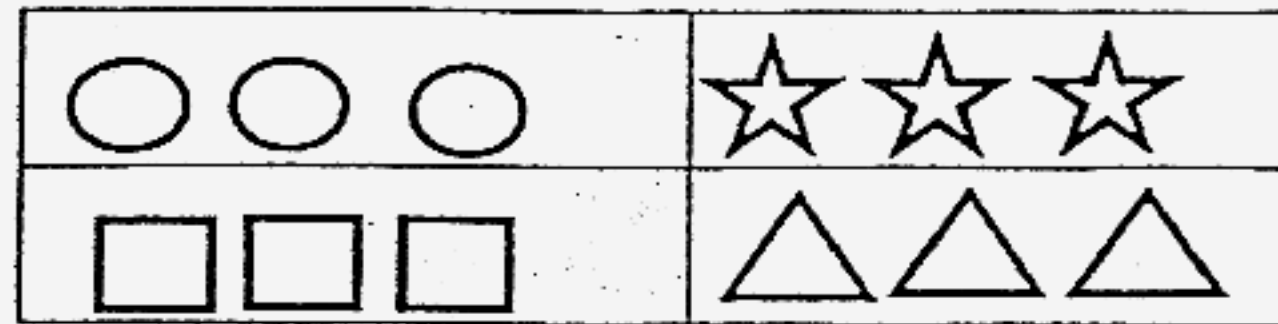


Body Temperature Rises

Which one of the following explains the change in size of the blood vessel when the body temperature rises?

- (1) Less carbon dioxide can be transported to the lungs.
- (2) Less oxygen will be supplied to all body cells for respiration.
- (3) More blood is produced when there is a rise in body temperature.
- (4) More blood in the blood vessel allows more heat to escape through the skin.

26. The diagram below shows how different wooden solid toy blocks made of the same material were arranged.



Which of the following sense(s) would a person most likely use to carry out the arrangement?

- A Sight
- B Taste
- C Touch
- D Hearing

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

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

27. Which one of the following plant parts has a similar function as the ribcage in a human body?

- (1) Fruits
- (3) Leaves

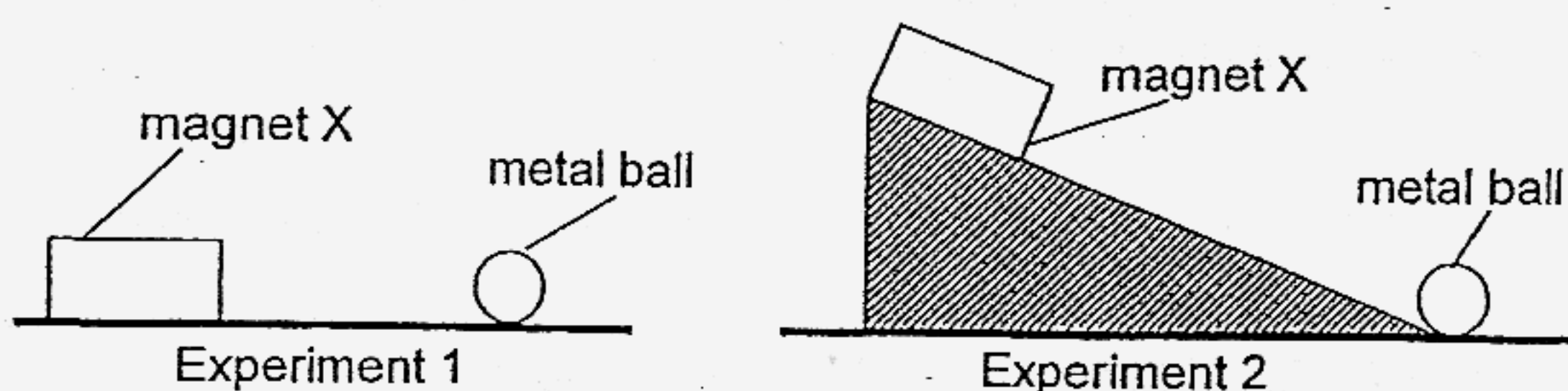
- (2) Roots
- (4) Flowers

28. As a food substance travels through the digestive system, its water content would change. At which part of the digestive system does the food substance contain the least amount of water?

- (1) Mouth
- (3) Small intestine

- (2) Stomach
- (4) Large intestine

Study the two experiments below and answer questions 29 and 30.



Zhi Yang carried out Experiments 1 and 2 as shown above using magnet X and a metal ball. He repeated the two experiments using another magnet, Y, which has the same size as magnet X. The tables below show his observations.

Experiment 1		Experiment 2	
Magnet	Time taken for metal ball to be attracted to magnet (seconds)	Magnet	Time taken for metal ball to be attracted to magnet (seconds)
X	5	X	Metal ball did not move
Y	2	Y	6

29. What was the common aim of both Experiment 1 and Experiment 2?

- (1) To find out how heavy the metal ball was.
- (2) To find out which magnet had lost its magnetism.
- (3) To find out if the metal ball was a magnetic material.
- (4) To find out which magnet had a larger magnetic strength.

30. Which of the following statements are true?

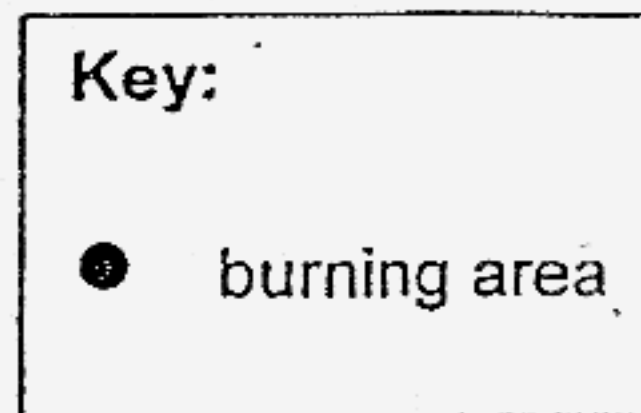
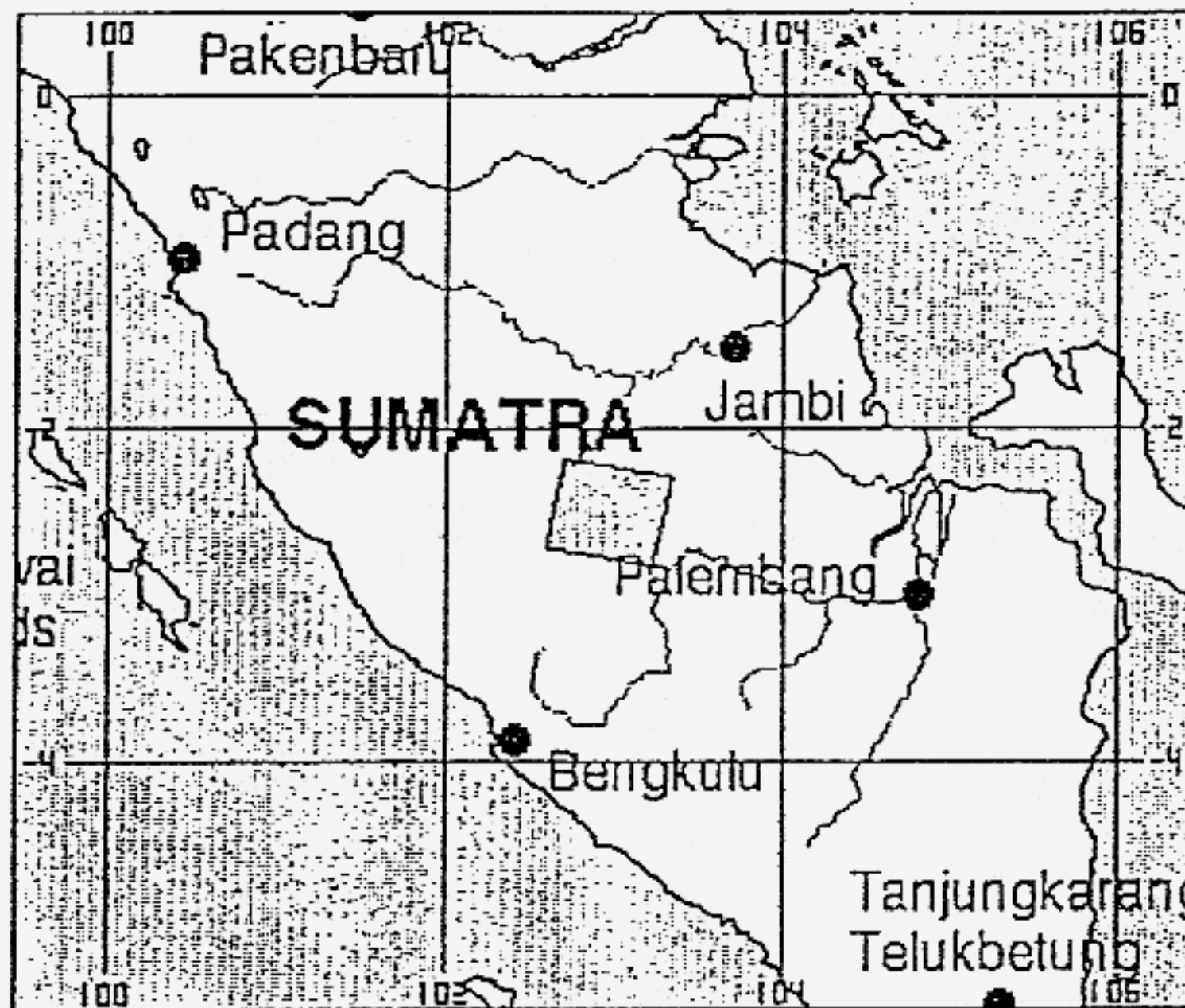
- A Magnet Y's magnetic strength increased in Experiment 2.
- B More force is needed to attract the metal ball in Experiment 2.
- C Magnet X's magnetic strength is the same in both experiments.
- D Less force is exerted by magnets X and Y to attract the metal ball in Experiment 1 compared to Experiment 2.

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

Section B (40 marks)

Write your answers to questions 31 to 45 in the spaces provided.
Marks will be deducted for misspelt key words.

31. The map below shows the burning areas in an Indonesian island.



(‘Fire and Smoke Haze Near Jambi, Sumatra’ – www.crisp.nus.edu.sg)

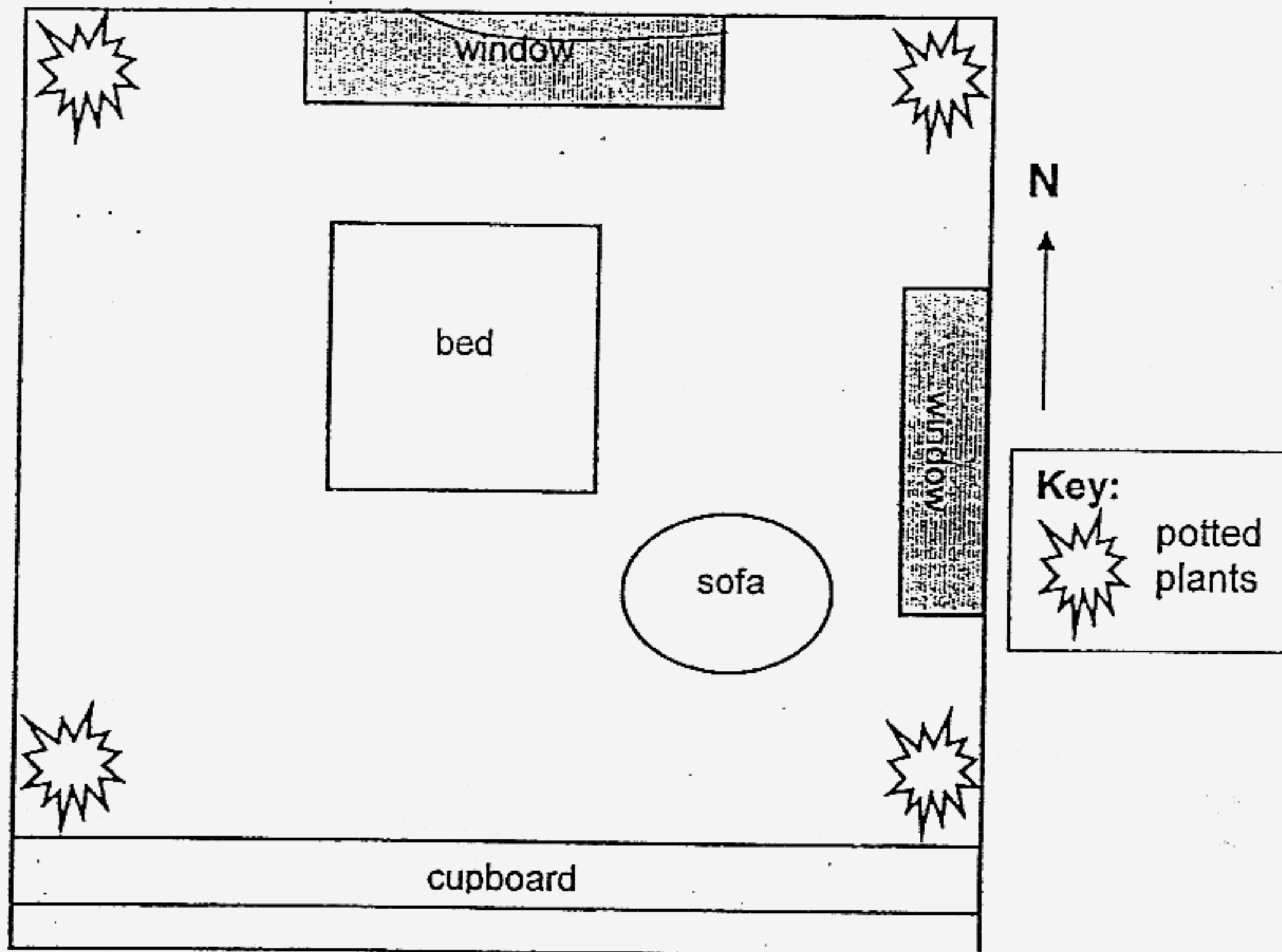
When a forest fire occurs in a remote forest, firemen need to locate quickly and accurately which part of the forest is burning.

- (a) Name a man-made device that the firemen can use to locate the burning areas on a map without leaving the fire station. (1 mark)

- (b) Name another use for the man-made device in (a). (1 mark)

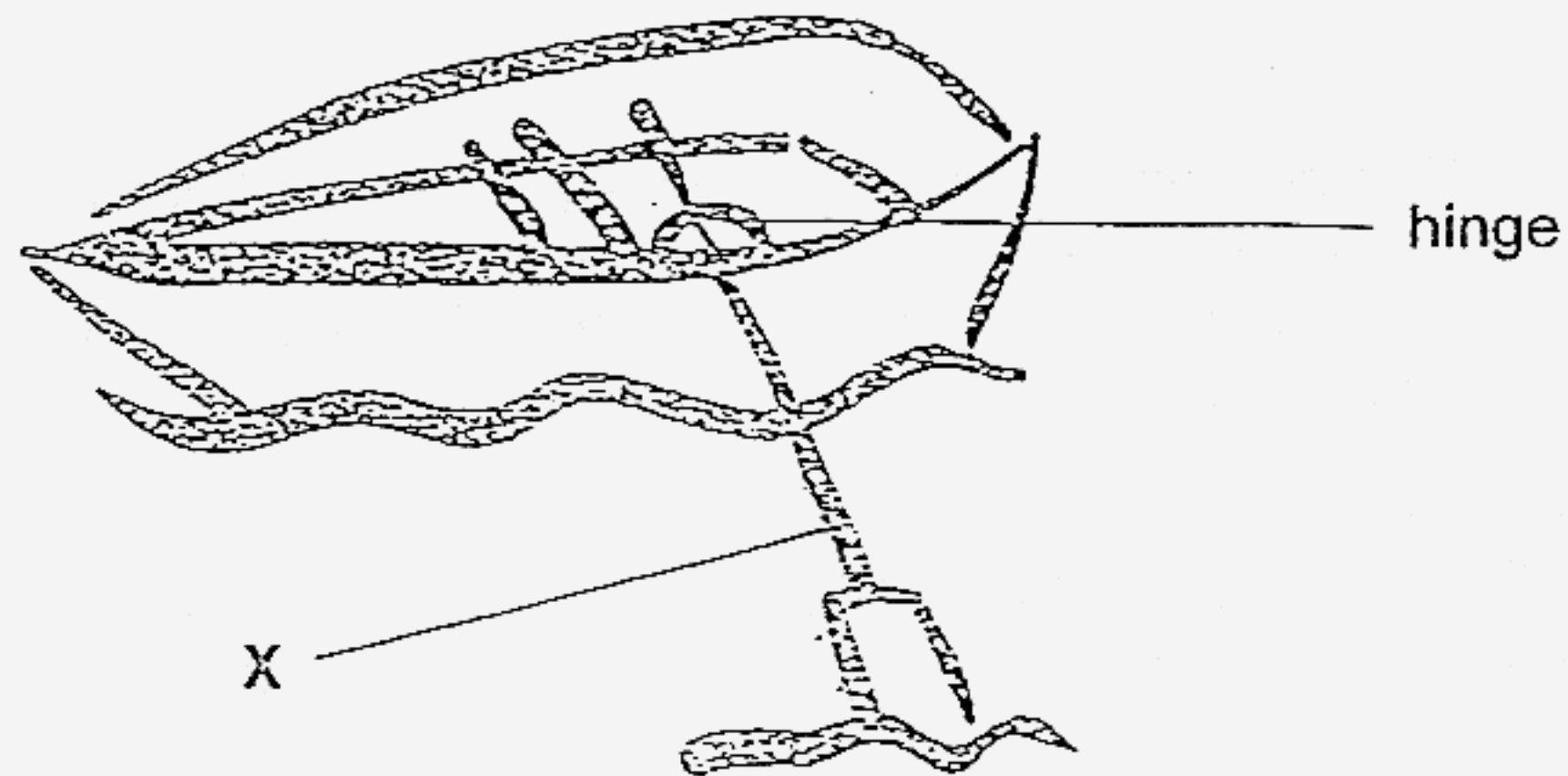
32. Ziming did his homework in his room every afternoon. However, he often got the direct glare of the sunlight in the late afternoon. He then decided to move his study table to another part of the room.

- (a) Without rearranging the potted plants and the other pieces of furniture, draw a rectangle (2 cm by 1 cm) and label it 'table' in the floor plan of Ziming's room to indicate where his study table should be placed. (1 mark)

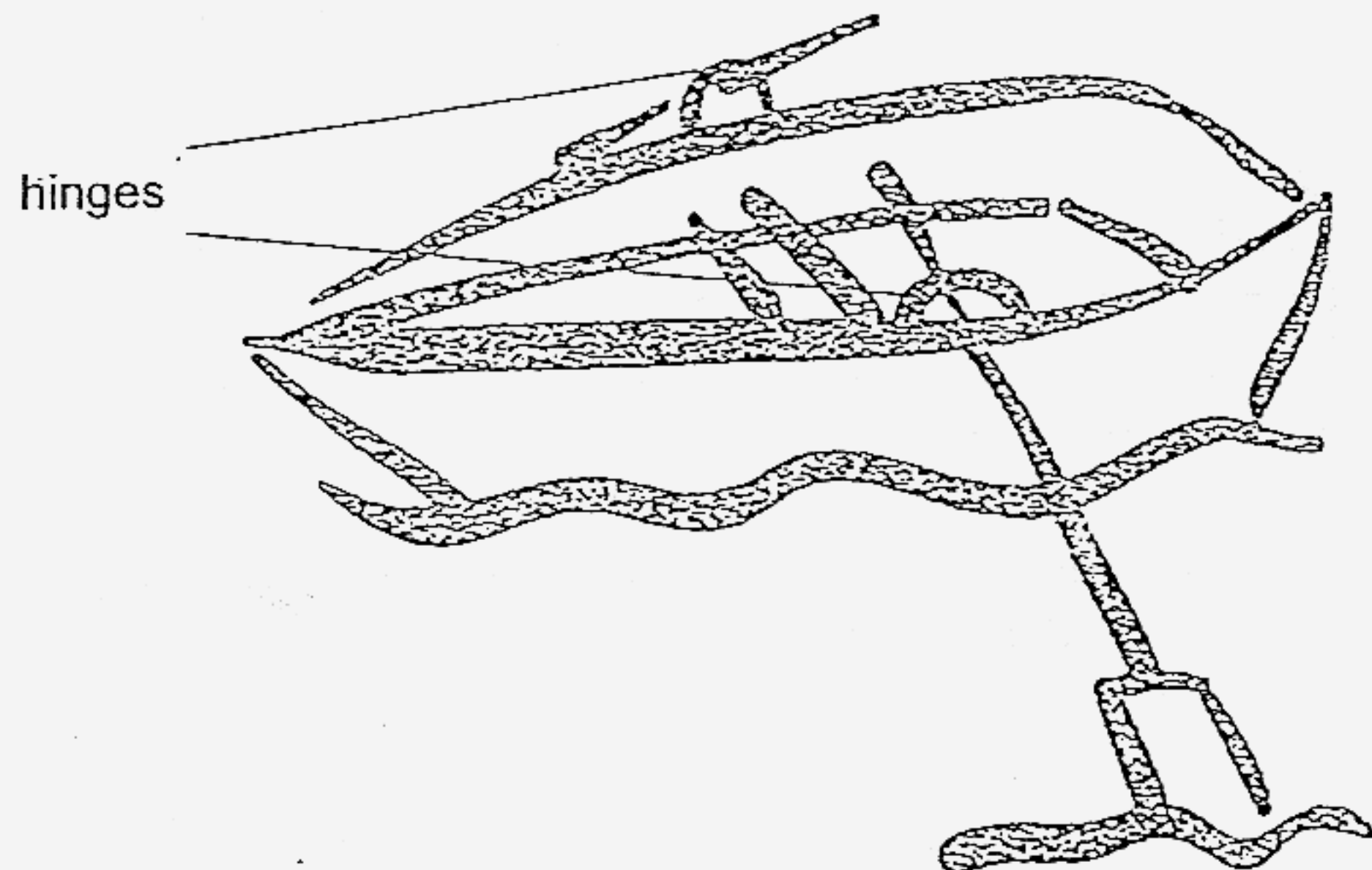


- (b) Explain how Ziming can avoid the direct glare of the sunlight by relocating his table to the location in (a). (2 marks)

33. Study the diagram below.

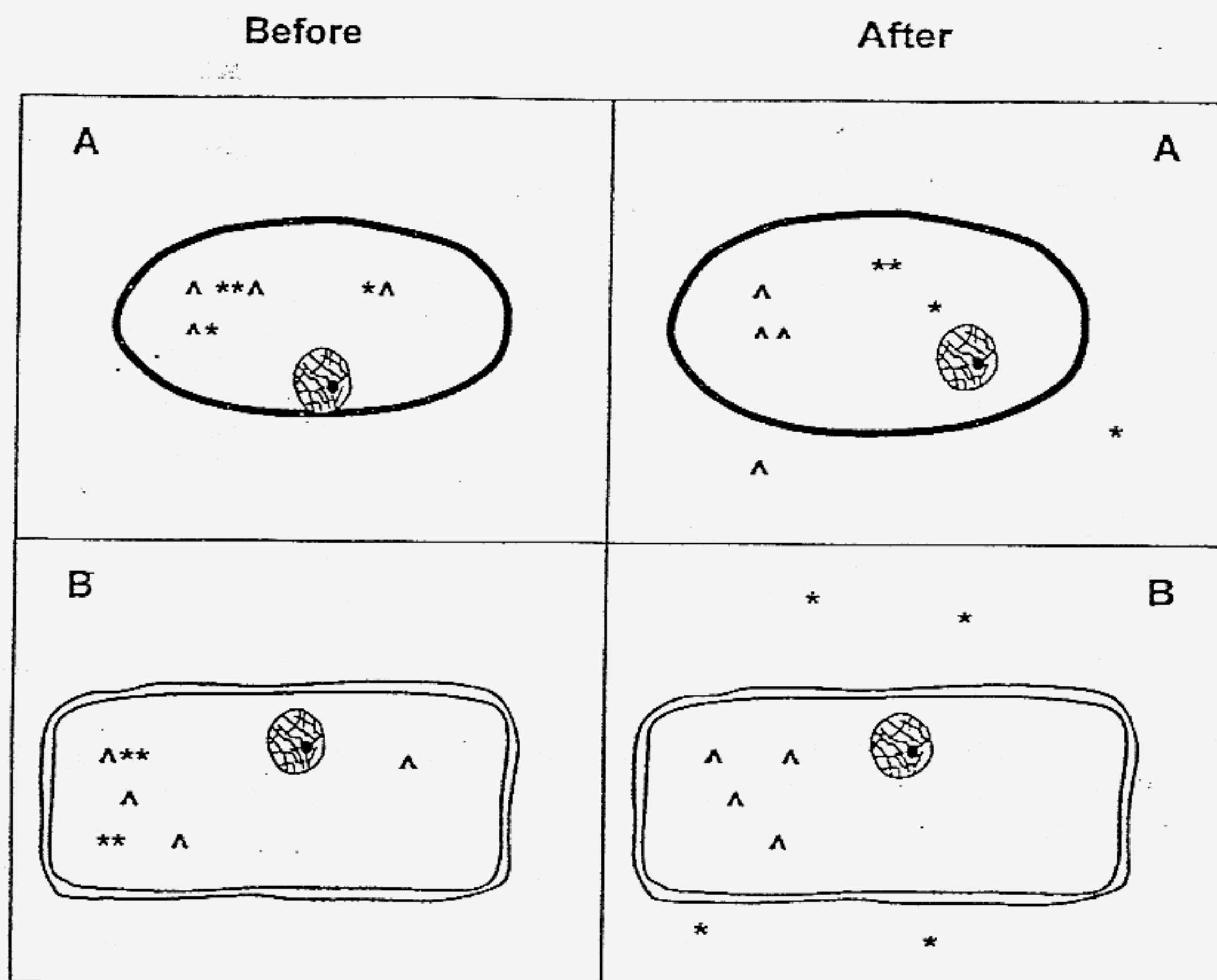


- (a) Identify the simple machine labelled 'X'. (1 mark)



- (b) How does the addition of another identical simple machine on the other side of the boat make the work easier? (2 marks)

34. X and Y are naturally occurring chemicals in animals. Two animal cells, A and B, were placed in some water. After a few minutes, they were removed from the water and examined under a microscope.

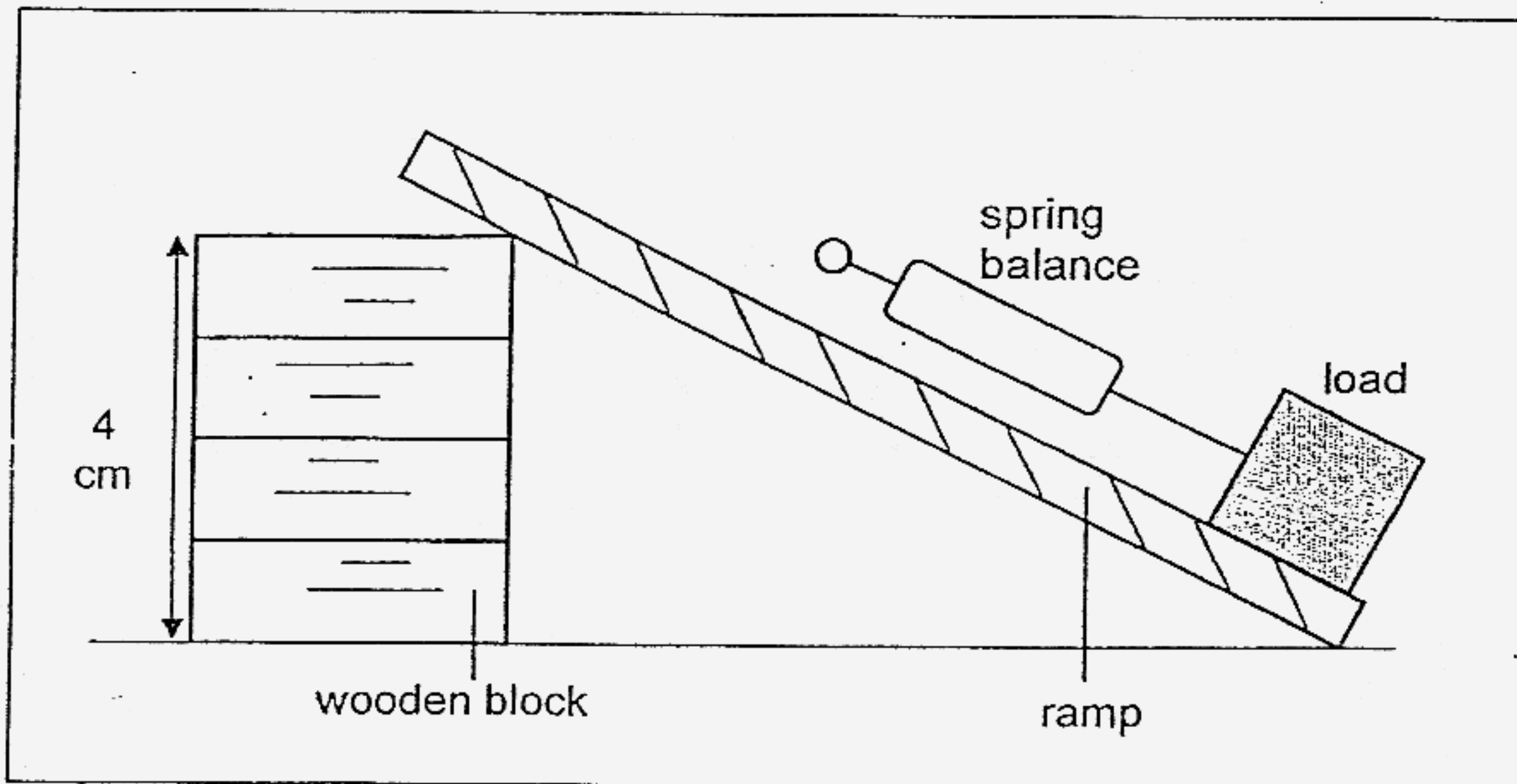


Key
 ^ : Chemical X
 * : Chemical Y

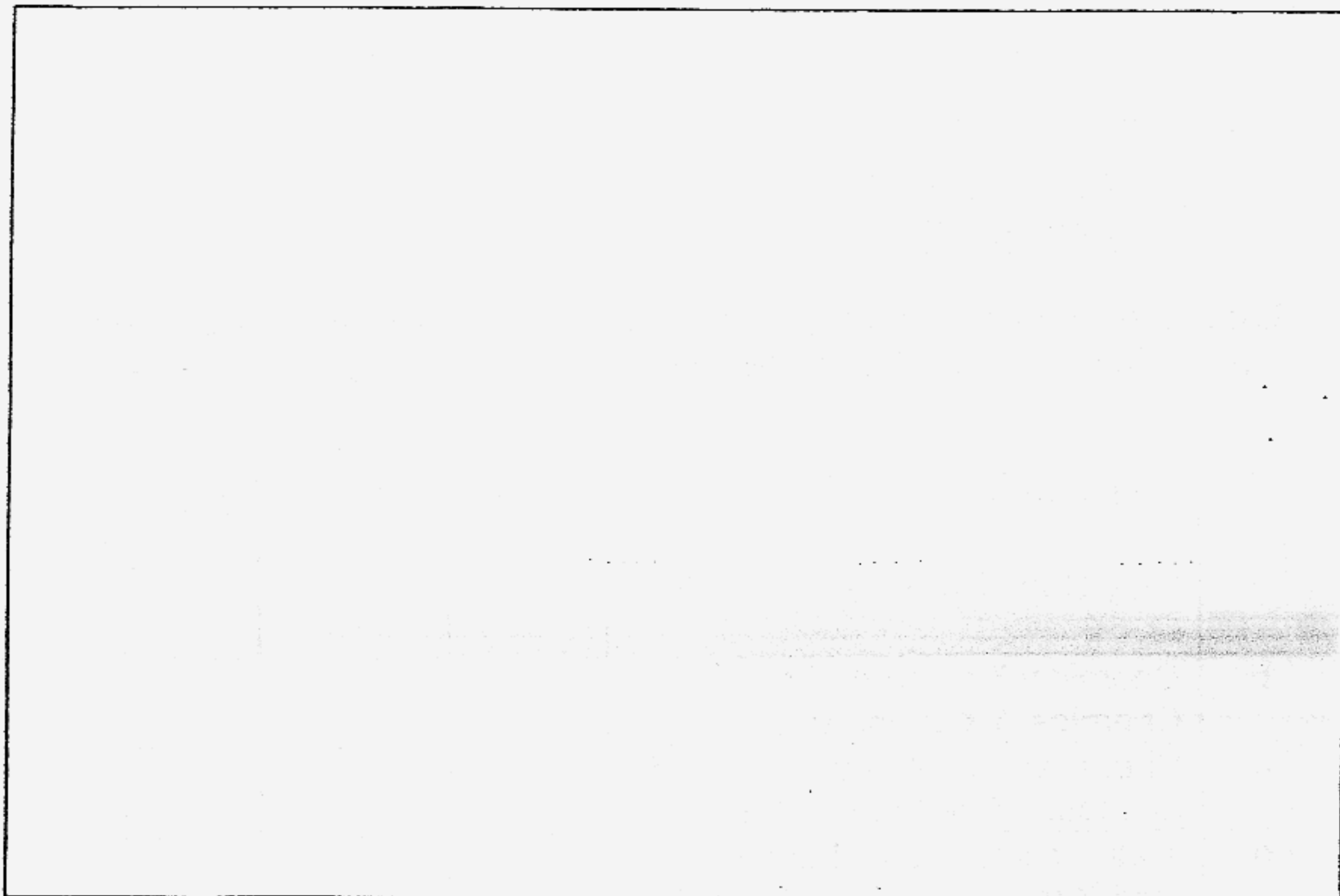
Using the information given, indicate whether the statements below are 'True', 'False' or 'Not Possible to tell' by ticking the appropriate boxes.
 (2 marks)

	Statements	True	False	Not Possible to tell
a.	Only Chemical Y can exit Cell B.			
b.	Chemical X is larger than Chemical Y per unit size.			
c.	Chemical Y is able to exit Cell A at a faster rate than Cell B.			
d.	Cell A allows both chemicals X and Y to pass through the cells.			

35. Leah carried out an experiment to find the force needed to pull a load up a ramp. She placed a ramp against 4 identical wooden blocks as shown in the diagram below. (Diagram drawn to scale).



Using the same apparatus and materials as above, draw in the space below to show how Leah can pull the same load up the same ramp with a reduced effort. (3 marks)



36. Farmer William placed 10 duck eggs in an incubator. After 3 weeks, he found that all the eggs had hatched into ducklings except for one.

(a) List a possible reason why the particular egg did not hatch. (1 mark)

(b) Wild ducks build nests before laying eggs in the nests. Why do ducks produce so many eggs? (1 mark)

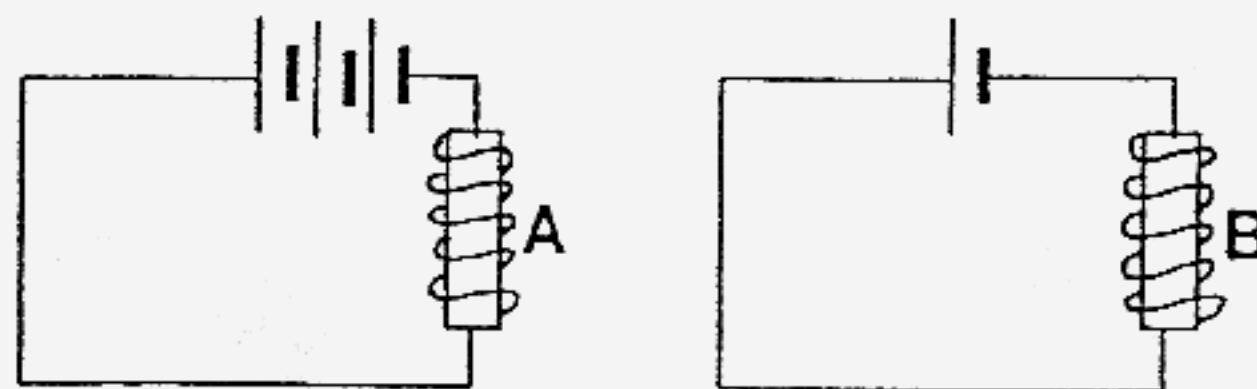
37. Look at the animals given in the box below.

alligator	dolphin
earthworm	salmon

Classify the above animals into two groups of 2 each. (2 marks)

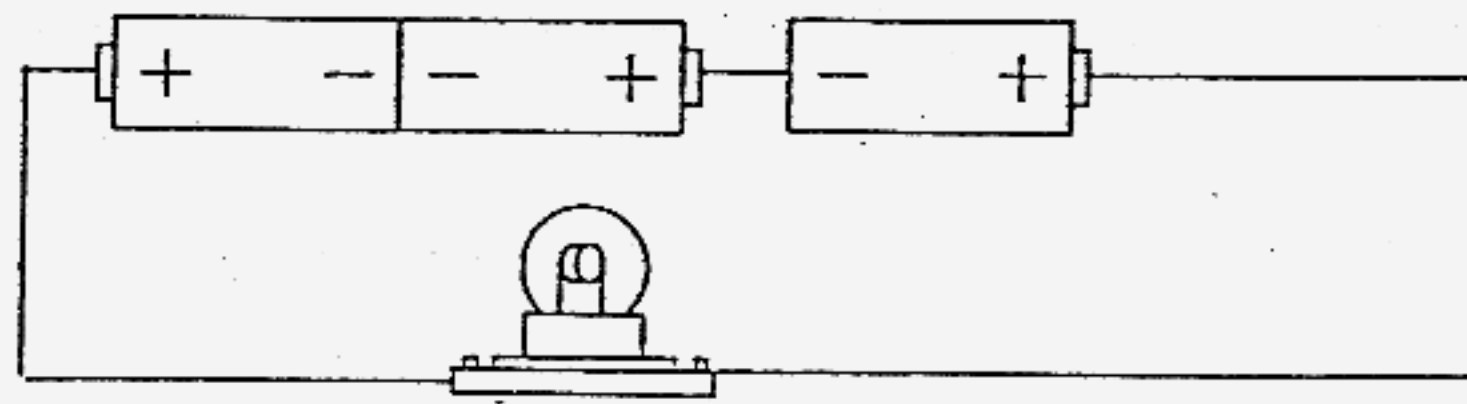
Internal Fertilisation	External Fertilisation

38. Two electromagnets, A and B, were able to attract the same number of paper clips.



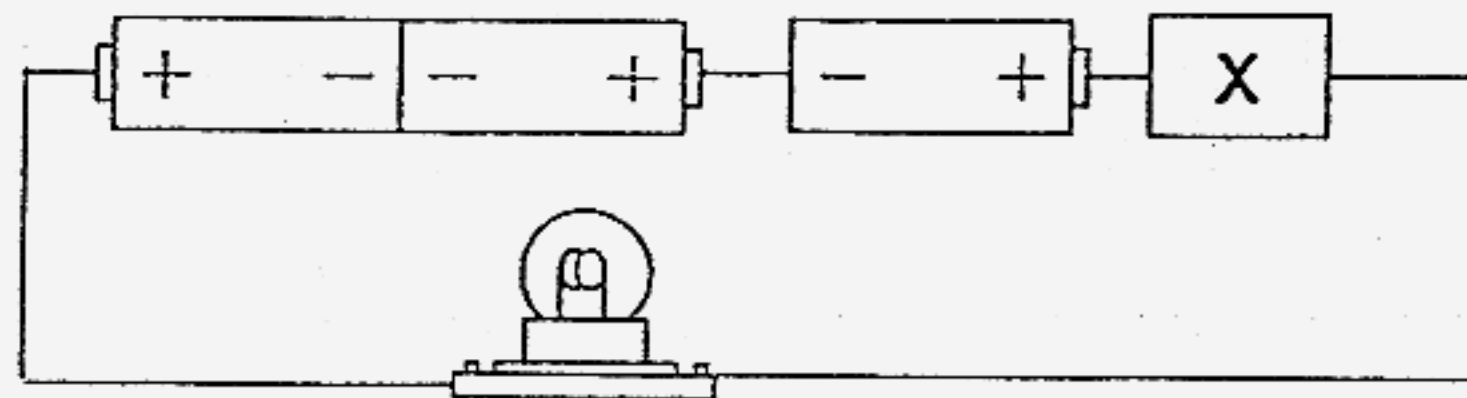
Explain why this is possible. (2 marks)

39. ^{Three} ~~Two~~ similar batteries, each of 2 V, and a bulb of 4.5 V, were connected in a circuit as shown below.



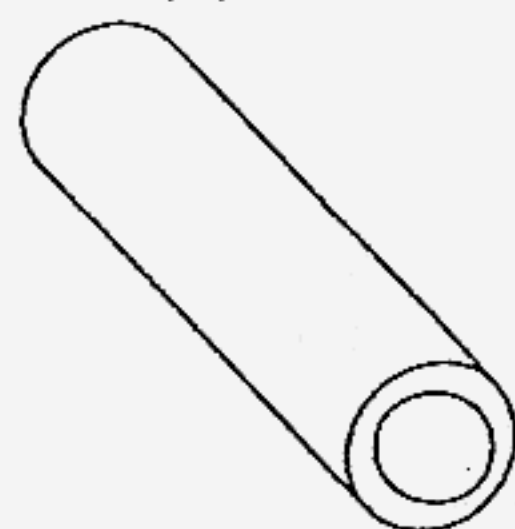
- (a) Explain why the bulb above lit up. (1 mark)

Item X was added into the circuit as shown below.

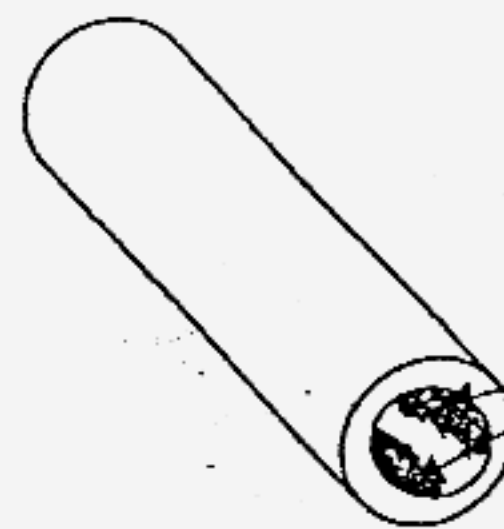


- (b) The bulb lit up for a very short time and went off after that. What could item X be? (1 mark)

40. The pictures below show blood vessels near the hearts of a healthy and an unhealthy person.



blood vessel of healthy person



blood vessel of unhealthy person

fatty deposits

Explain why the heart of the unhealthy person has to pump harder to circulate the same amount of blood compared to the healthy person. (2 marks)

41. The stomach is a muscular organ. Without any muscles, the stomach will take a long time to digest food. State two reasons to explain why it would take a long time to digest food without muscles. (2 marks)

42. Sheena studied the feeding habits of three different animals, P, Q and R. The animals were placed in separate well-ventilated cages and were given a sufficient supply of water. Cabbages and meat were given to the animals as food. She observed the changes and recorded the feeding habits of the animals in the table below.

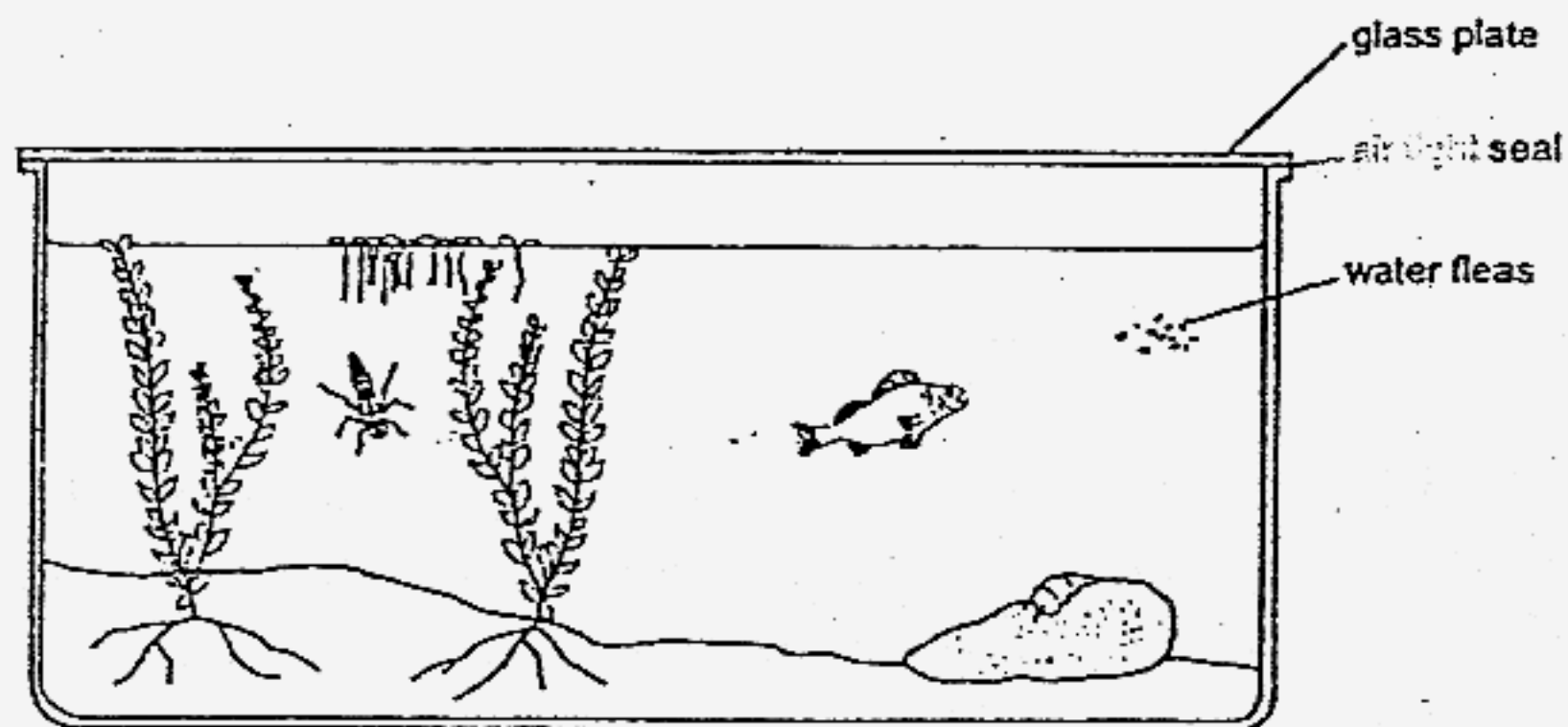
Animal	Mass of cabbages (g)		Mass of meat (g)	
	Start of experiment	End of experiment	Start of experiment	End of experiment
P	40	30	90	90
Q	60	60	40	20
R	80	60	50	30

- (a) What would Sheena observe of P, Q and R if only meat was given to them over two weeks? (1 mark)

- (b) P, Q and R are related in a food chain. Complete the food chain below. (2 marks)

Plant → _____ → _____ → _____

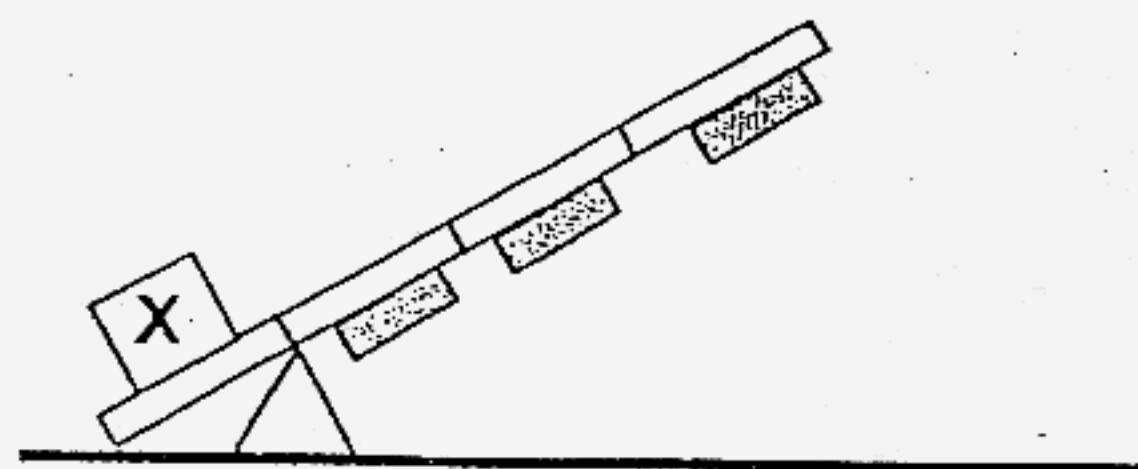
43. The diagram below shows some animals and green plants in a sealed aquarium.




- (a) Without removing the glass plate, what must be present to keep the animals and green plants alive for the longest possible time? (1 mark)

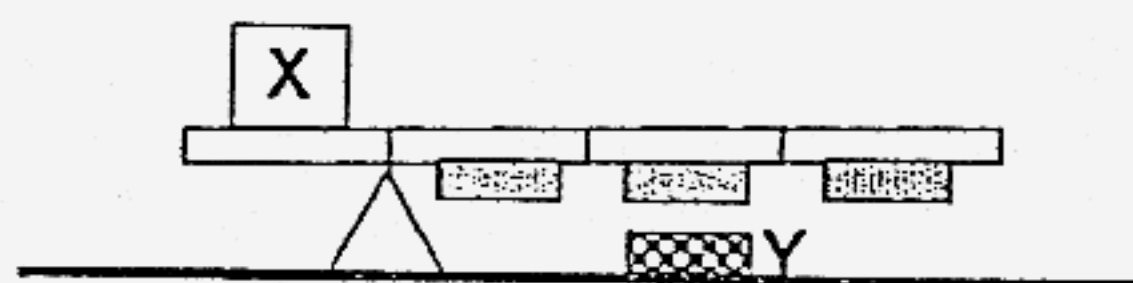
- (b) Explain your answer in (a). (2 marks)

44. Study the setup below. Three similar magnets were attached on the underside of a lever but they were unable to lift load X, which is 50 g.



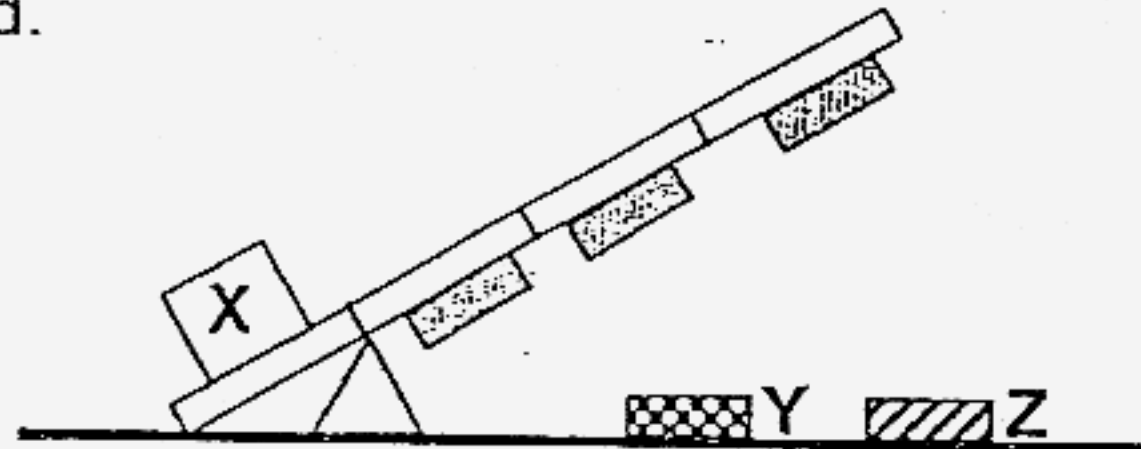
Key:
 magnet

A magnet, Y, was placed under the lever and the following was observed.



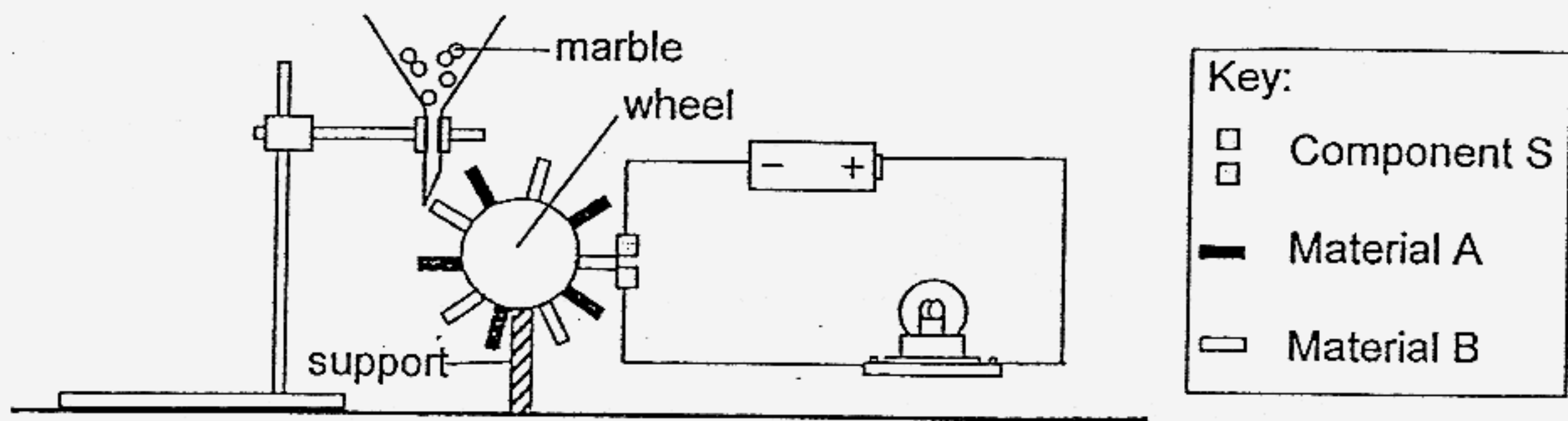
- (a) Explain why magnet Y was able to lift load X if its magnetic strength was only 10 g. (2 marks)

Another magnet, Z, was then placed under the lever and the following was observed.

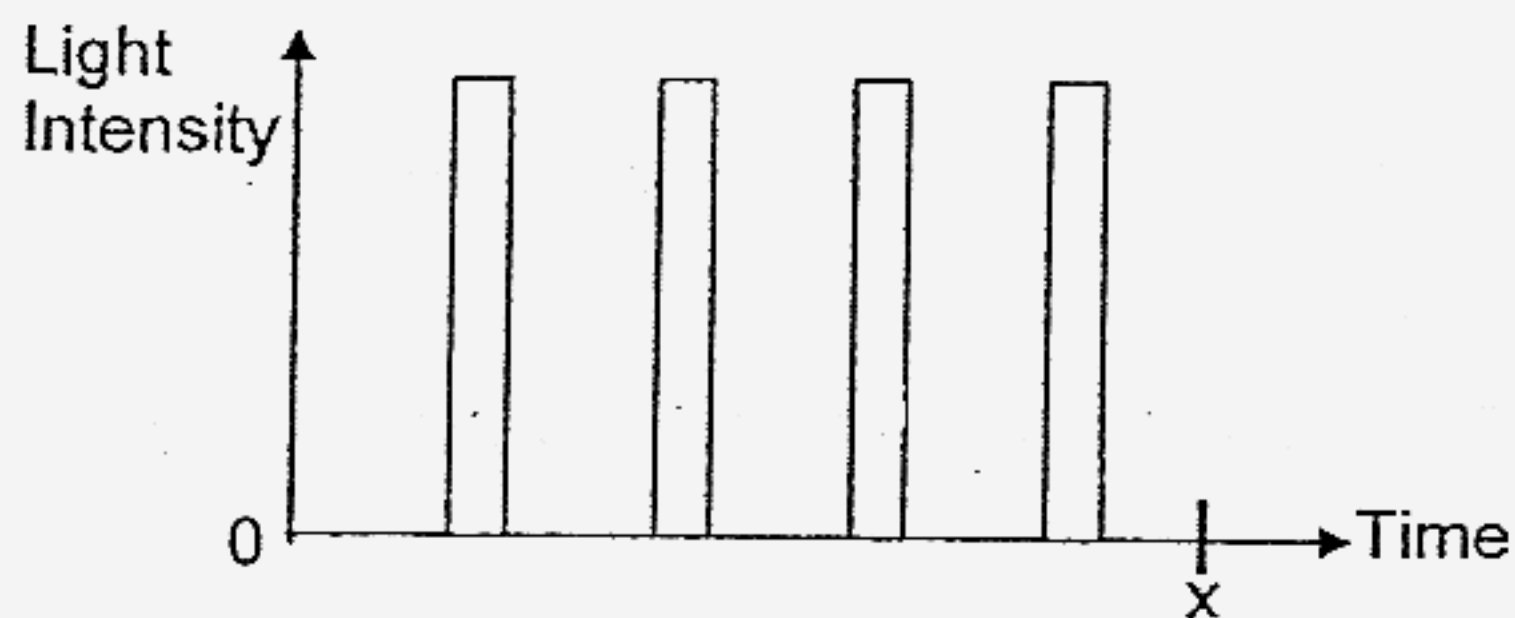


- (b) Explain why load X was not lifted up when magnet Z was placed under the lever, even though magnet Y was still present. (2 marks)

45. Hafiz carried out an experiment as shown in the diagram below.



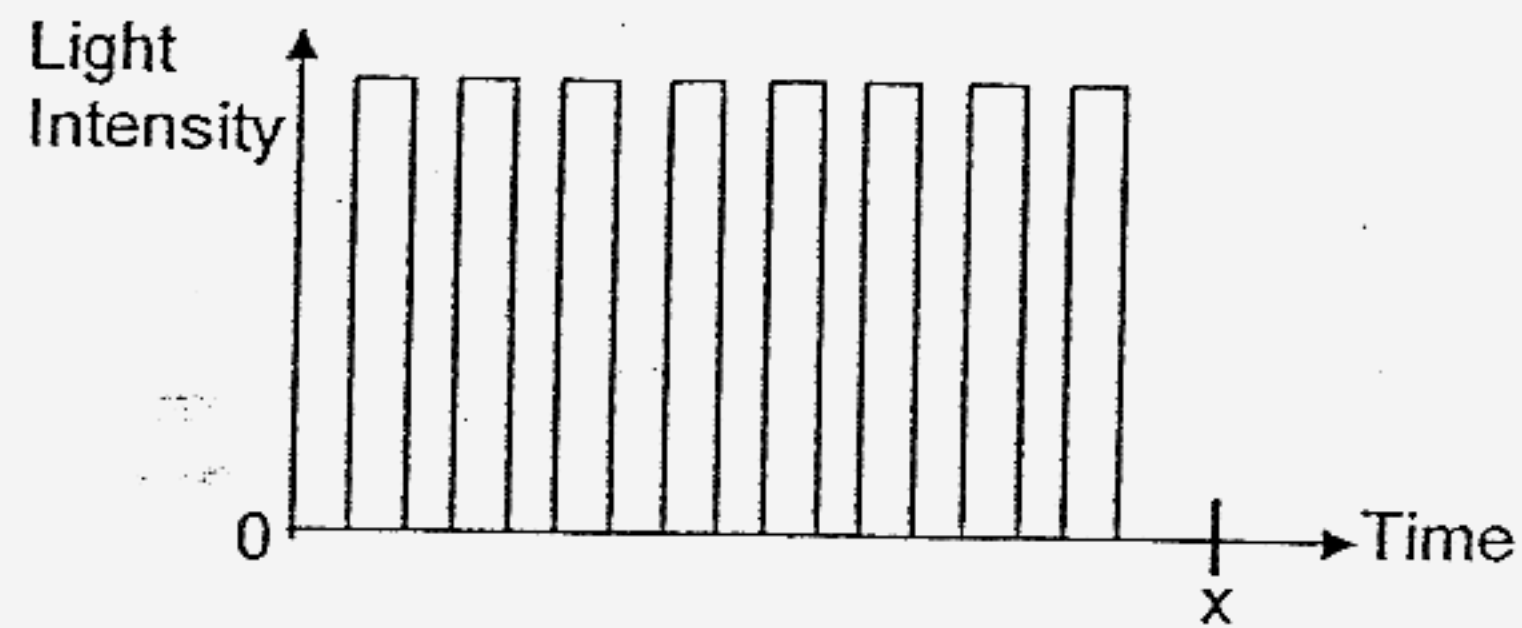
A container containing similar marbles would release one marble every minute, causing the wheel to turn continuously throughout the whole experiment. The wheel had teeth made of materials A and B, placed in alternate positions on the wheel. When the teeth came into contact with component S, the electrical circuit would be closed. Hafiz observed the light bulb and recorded his observations in the graph below.



- (a) What caused the wheel to turn? (1 mark)

- (b) Referring to the graph above, state the difference between material A and B. (1 mark)

Hafiz made a change to his experiment and recorded his new observations in the graph below.



- (c) State the change that he had made in his new experiment. (1 mark)

- (d) Explain your answer in (c). (2 marks)

-----END OF PAPER-----

Nanyang Primary School

SECTION A : (60 MARKS)

Qn no.	Ans
1	1
2	2
3	3
4	3
5	1
6	2
7	3
8	1
9	4
10	2

Qn no.	Ans
11	2
12	4
13	4
14	3
15	1
16	2
17	3
18	3
19	4
20	4

Qn no.	Ans
21	4
22	3
23	1
24	4
25	4
26	2
27	1
28	4
29	4
30	3

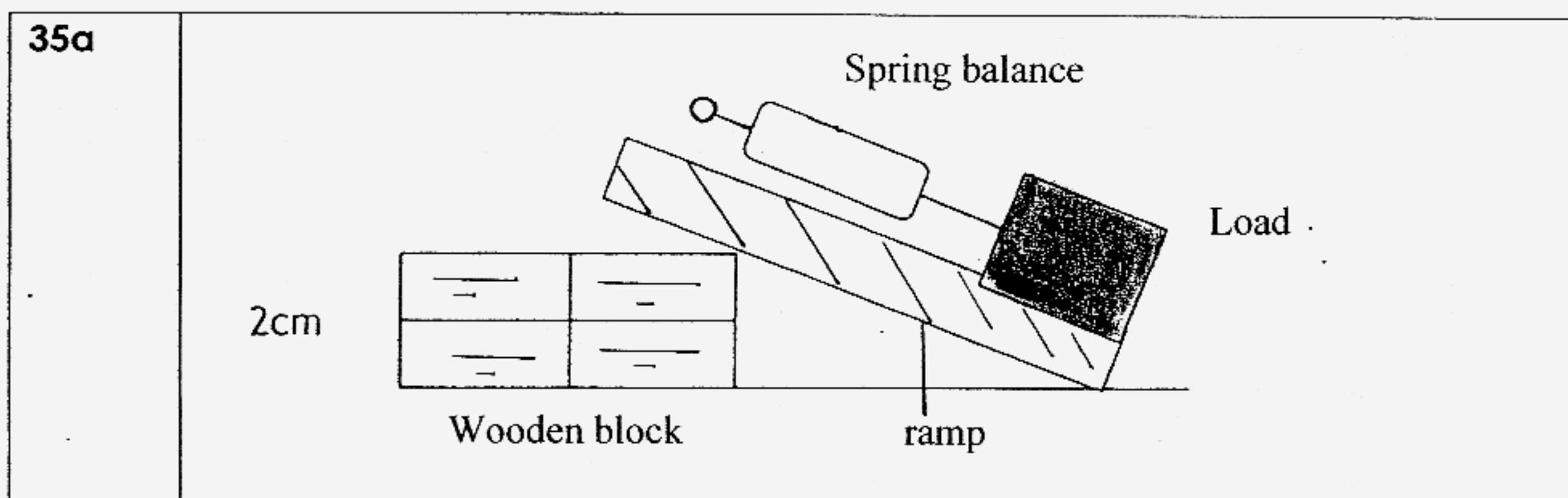
SECTION B (40 MARKS)

Qn No.	Answers
31a	Man-made satellite
31b	Telecommunication

32a	
32b	In the later afternoon, the sun is in the west. rays coming into the room are not directed to the table.

Qn No.	Answers
33a	Lever
33b	Load moves a longer distance

34a	True
34b	Not possible to tell
34c	Not possible to tell
34d	True



36a	It did not get enough food and not warm enough or some are not fertilized duck egg.
36b	Some eggs might die.

37	Internal Fertilization : Alligator , Dolphin
	External Fertilization : Salmon, Earthworm

38	The total voltage of battery in Set-up 1 is the same as the Set-up 2. Hence Set-up A and B will have the same magnet strength.
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39a	The two batteries facing each other act as a conductor and the bulb lit up with the electric source of 1 battery.
39b	A battery.

40	The blood vessel's opening is smaller so less blood can pass through it.
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41a	The churning action breaks the food into small pieces and mixed the food with the digestive juices.
-----	---

42a	P will die because it only eats vegetables but Q and R is still going to be alive.
42b	Plant → P → R → Q

Qn No.	Answers
43a	There must be sunlight.
43b	The plant will photosynthesis in light and produce oxygen. The animals are the oxygen for respiration and give out carbon-dioxide for the plant.

44	The masses of the 3 magnets which were already attached added weight on the lever. Together with attraction force of the magnet Y.
44b	Repulsion between August Z and above magnet is much stronger than attraction force between magnet Y and pulling force by 3 magnets on the lever.

45a.	The marbles pushing the wheel down.
45b	One is a conductor of electricity the other is an insulator of electricity.
45c	Marbles dropped at a faster rate.
45d	The bulb lights up again at a shorter time.

46a	
46b	
46c	