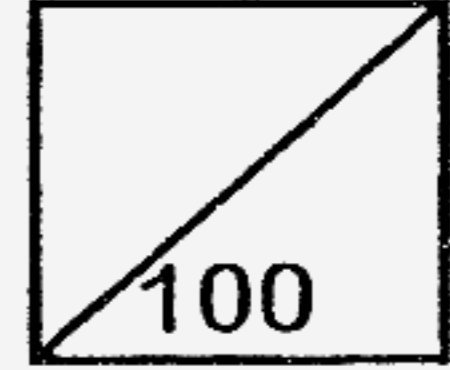




**Rosyth School**  
**Second Semestral Assessment for 2006**  
**SCIENCE**  
**Primary 5**



Name: \_\_\_\_\_

Total  
Marks:

Class: Pr \_\_\_\_\_

Register No. \_\_\_\_\_

Duration: 1 h 45 min

Date: 2<sup>nd</sup> November 2006

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

**Instructions to Pupils:**

1. Do not open the booklets until you are told to do so.
2. Follow all instructions carefully.
3. This paper consists of 2 booklets, Booklet A and Booklet B.
4. For questions 1 to 30 in Booklet A, shade the correct ovals on the Optical Answer Sheet (OAS) provided using a 2B pencil.
5. For questions 31 to 46, give your answers in the spaces given in the Booklet B.

	Maximum	Marks Obtained
Booklet A	60 marks	
Booklet B	40 marks	
Total	100 marks	

\* This booklet consists of 19 pages .

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**PART 1 (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 statements about the Sun are true?

A: The Sun is a satellite.

B: The Sun's temperature decreases during the night.

C: The Sun's gravitational force keeps the planets in orbit.

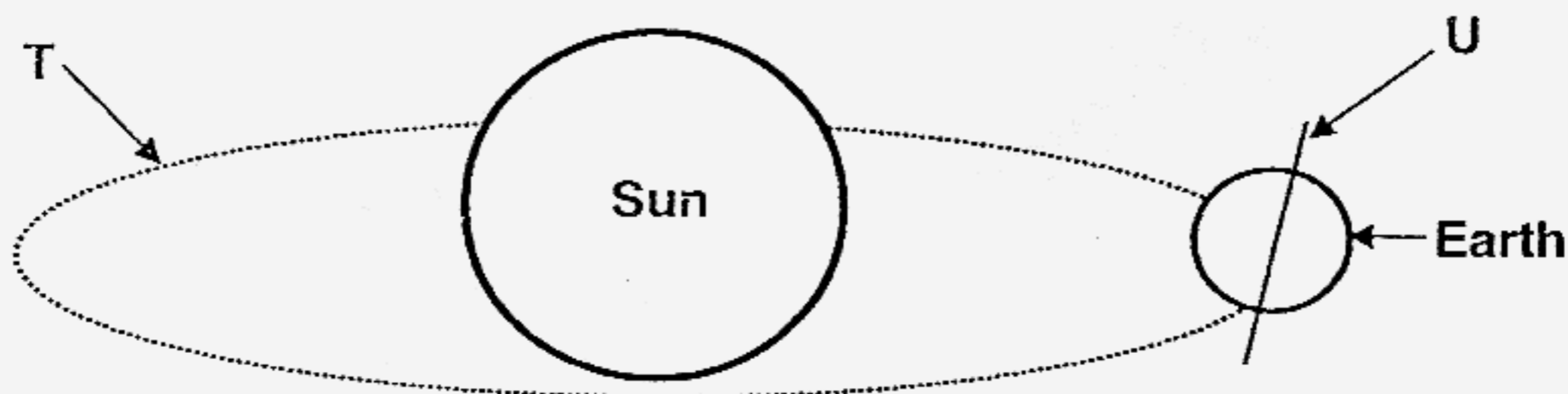
(1) A only

(2) B only

(3) C only

(4) A and B only

2. The diagram below shows a model of the Sun and the Earth.



How many turns about **U** would the Earth have made if it had completed one round along path **T**?

(1) 1 time

(2) 24 times

(3) 28 times

(4) 365 times

( Go on to the next page)

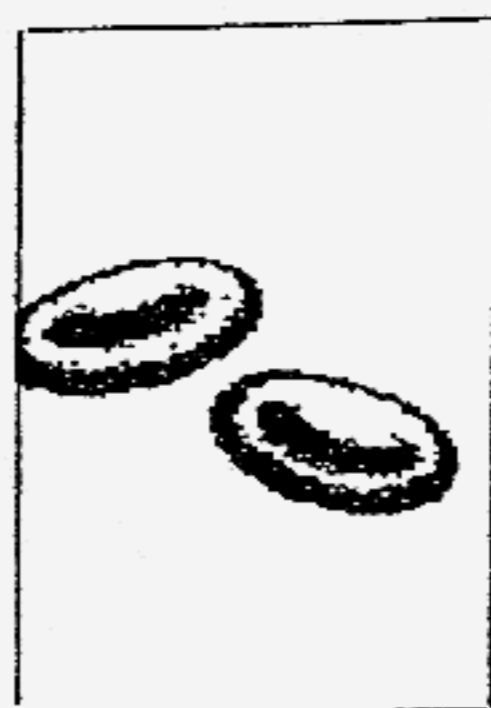
3. Study the table below carefully.

Group A	Group B
yeast	hydra
paramecium	algae

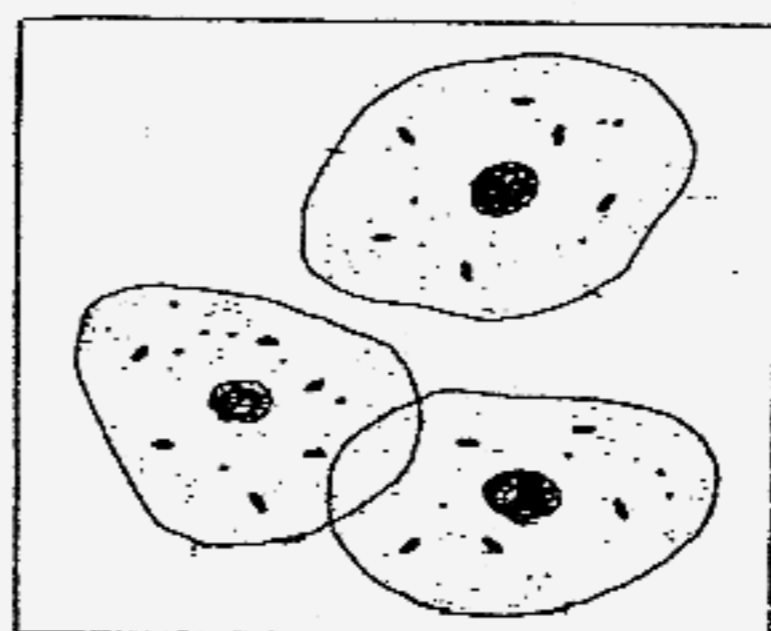
How are the organisms grouped according to the table shown above?

- (1) They are grouped according to whether they are plants or animals.
- (2) They are grouped according to whether they reproduce by budding or not.
- (3) They are grouped according to whether they can move or cannot move.
- (4) They are grouped according to whether they are single-celled organisms or not.

4. The slides below show some human cells.



red blood cells



cheek cells

Study the slides carefully. Which sentence/s correctly describe/s the differences between these types of cells?

- A: Only cheek cells have nucleus.
- B: Only cheek cells have cell membrane.
- C: Only the red blood cells cannot carry out cell division.
- D: Only the red blood cells allow exchange of gases to take place.

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

- (2) B only
- (4) B and D only

( Go on to the next page)

5. Su Ling had some fruits with her. In order to determine if any of the fruits is dispersed by wind, she observed the characteristics of the fruits. Which one of the following characteristic would strongly suggest that the fruits are dispersed by wind?

- (1) Fleshy fruit
- (2) Light weight
- (3) Presence of hooks
- (4) Presence of fibrous husk

6. In an experiment to study the life cycle of a flowering plant, a group of students removed different parts of some hibiscus flowers from a hibiscus plant. They dusted pollen grains on the remaining parts of the flower and observed their development after that.

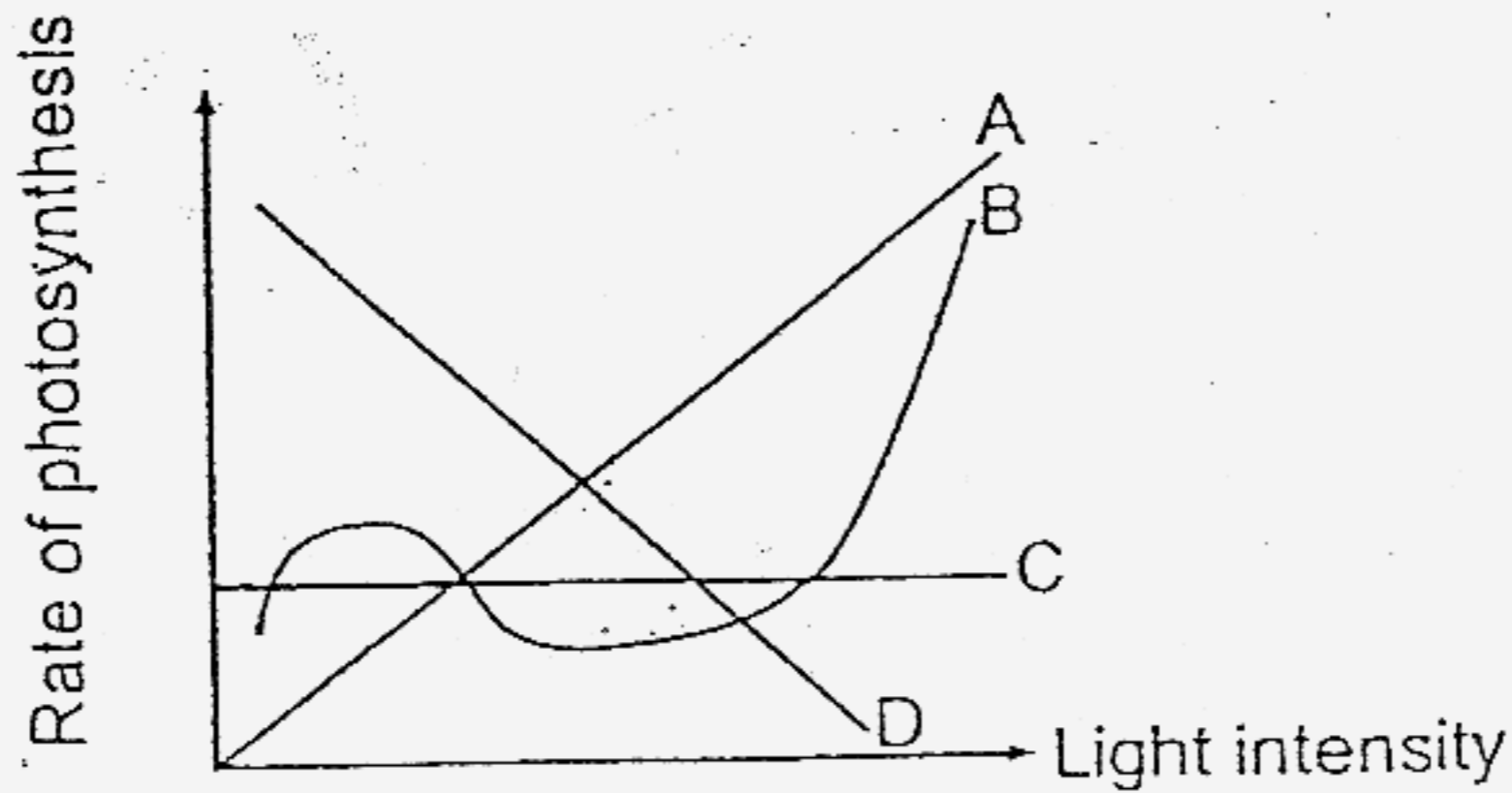
Group	Parts removed
D	Stigma
E	Petal
F	Anthers
G	Sepal

Which group of flowers will not develop into fruits after a few weeks of observation?

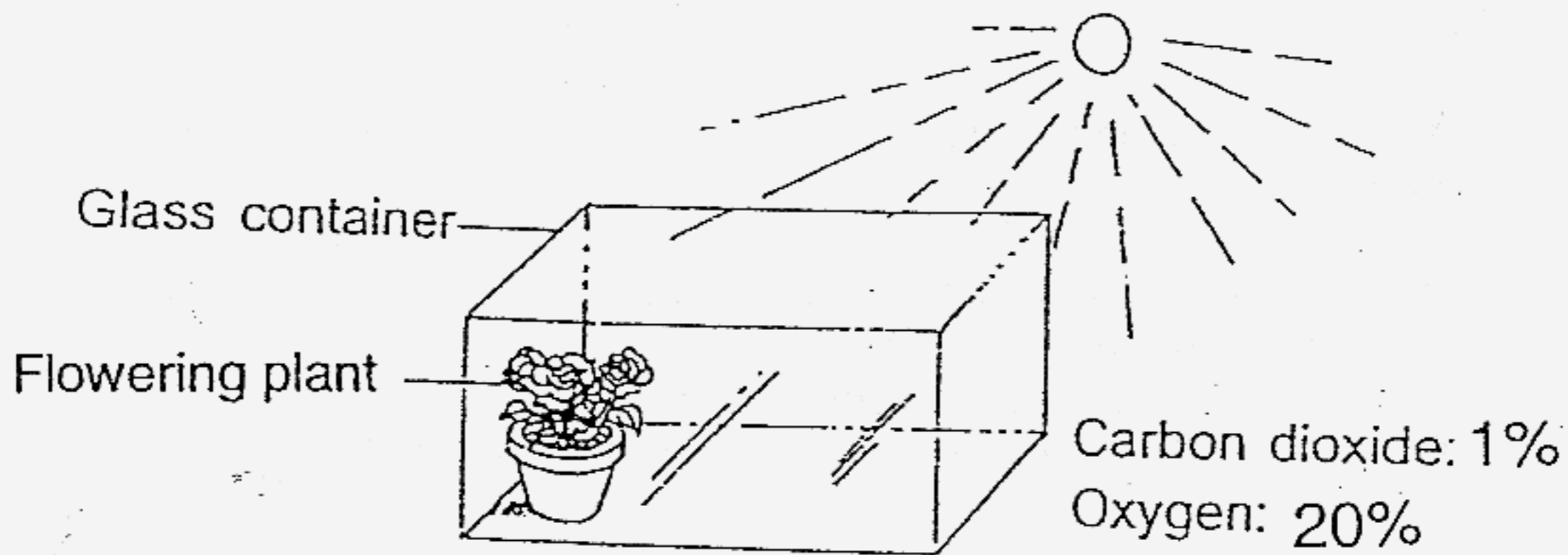
- (1) D
  - (2) E
  - (3) F
  - (4) G
7. Which of the following statements are true for a runner in a 400-metre race?
- A: His heart is beating at a faster rate.
  - B: He needs more oxygen.
  - C: He gives out more carbon dioxide.
  - D: He needs more energy than when he was stationary.
- (1) A and B only
  - (2) B and C only
  - (3) A, B and C only
  - (4) A, B, C and D

( Go on to the next page)

8. Anne conducted an experiment to determine the rate of photosynthesis in relation to light intensity. Which of the graphs below shows her results?



- (1) A (2) B  
 (3) C (4) D
9. A well-watered flowering plant is placed in a glass container as shown below. The amount of carbon dioxide and oxygen found in the container at the start of the experiment is as shown below.

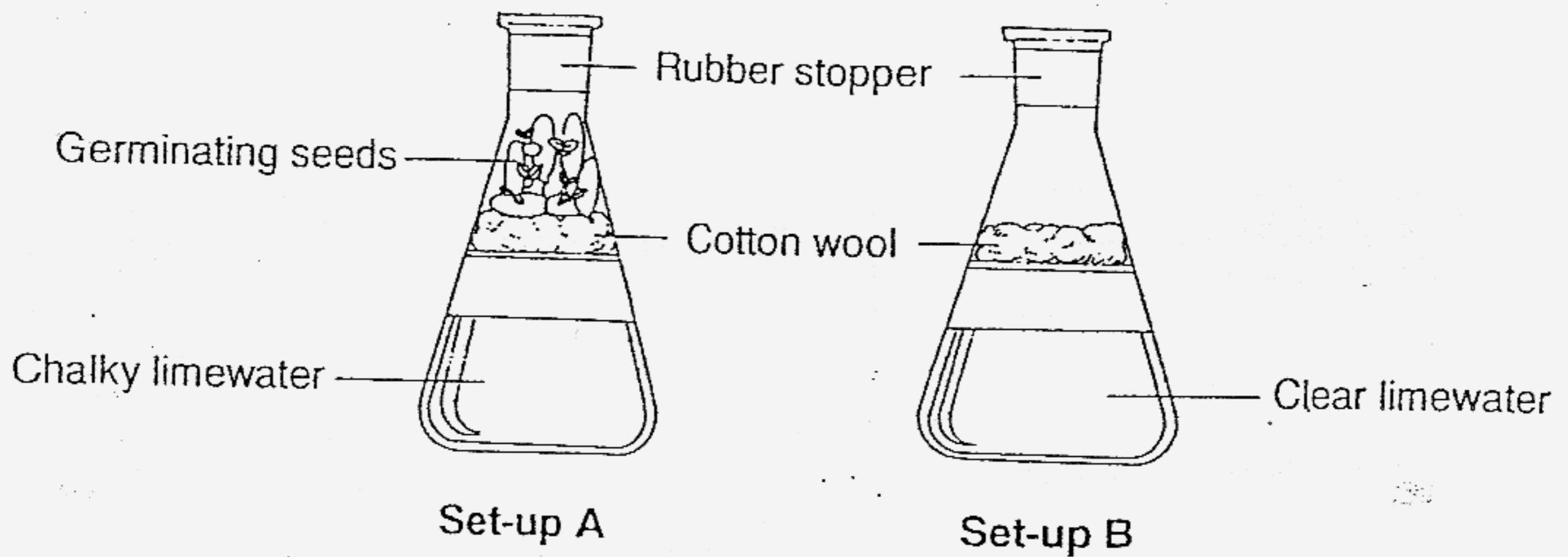


If the rate of photosynthesis is faster than the rate of respiration, which one of the following shows the most likely amount of the gases in the glass container after a few hours?

	Carbon dioxide	Oxygen
(1)	1%	20%
(2)	2%	40%
(3)	0.5%	40%
(4)	2%	10%

( Go on to the next page)

10. James set up the apparatus as shown in the diagram below. He left both set-ups in a warm dark place for 18 hours. The limewater in Set-up A turned chalky but the limewater in Set-up B remained unchanged.



What was James trying to find out from his experiment?

He was trying to find out \_\_\_\_\_.

- (1) whether oxygen would turn limewater chalky
- (2) whether oxygen was given out during respiration
- (3) whether carbon dioxide would turn limewater chalky
- (4) whether carbon dioxide was given out during respiration

11. What will happen to the sugar made by a mango plant?

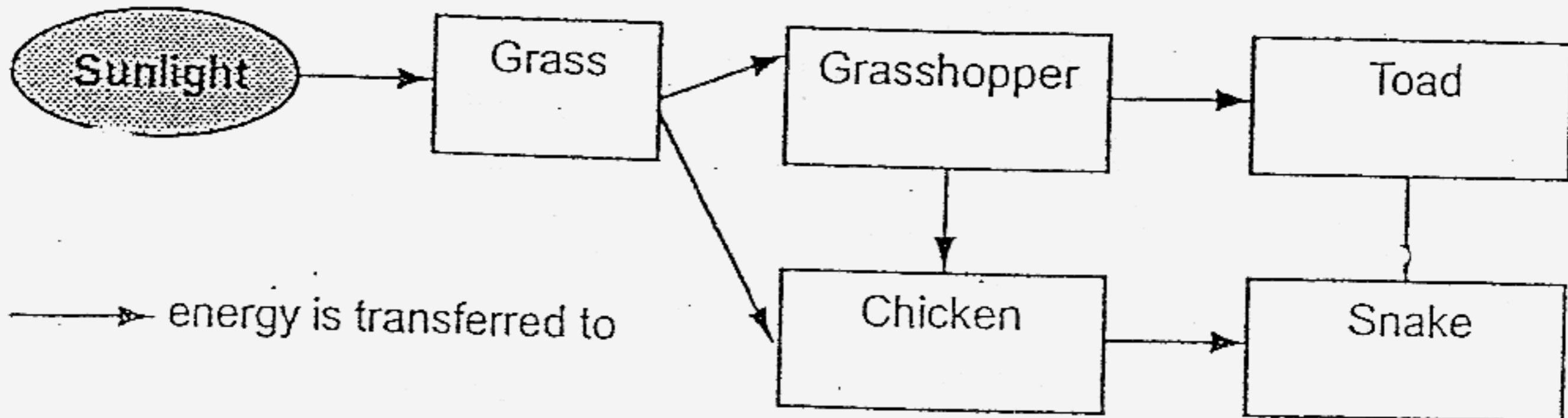
- A: Some sugar will be broken down to release energy for the plant to stay alive and grow healthily.
- B: Some sugar will be converted into starch and stored in different parts of the plant.
- C: Some sugar will be used to produce oxygen needed for the plant to carry out respiration.

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

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

( Go on to the next page)

12. Study the flow chart below



What information can you get from the above chart?

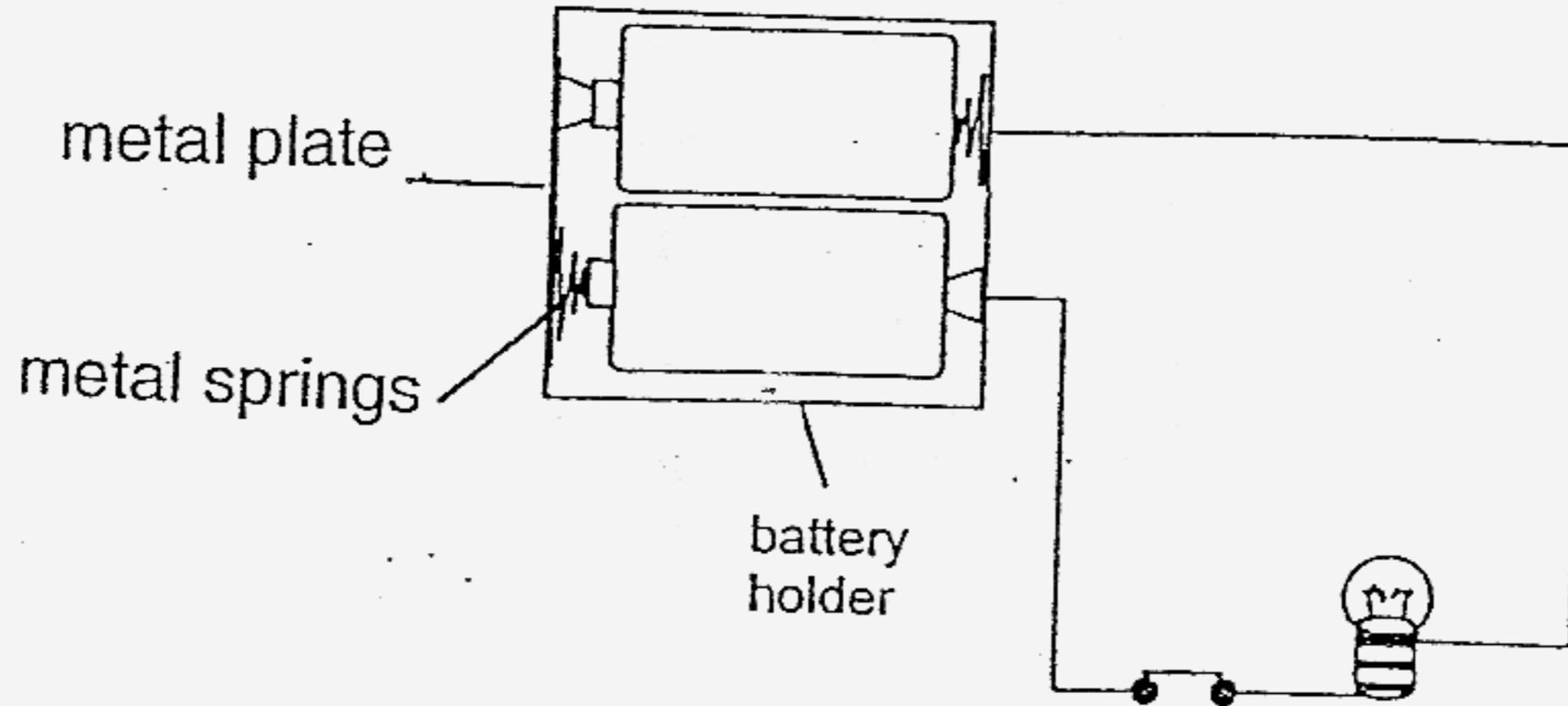
- A: Energy from the Sun is transferred to the snake indirectly.
- B: Energy in plants is transferred to herbivores or omnivores before it is transferred to carnivores.
- C: Plants are directly and indirectly sources of energy for animals.

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

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

( Go on to the next page)

13. Peter set-up a circuit as shown below.



What are the possible reasons why the bulb does not light up?

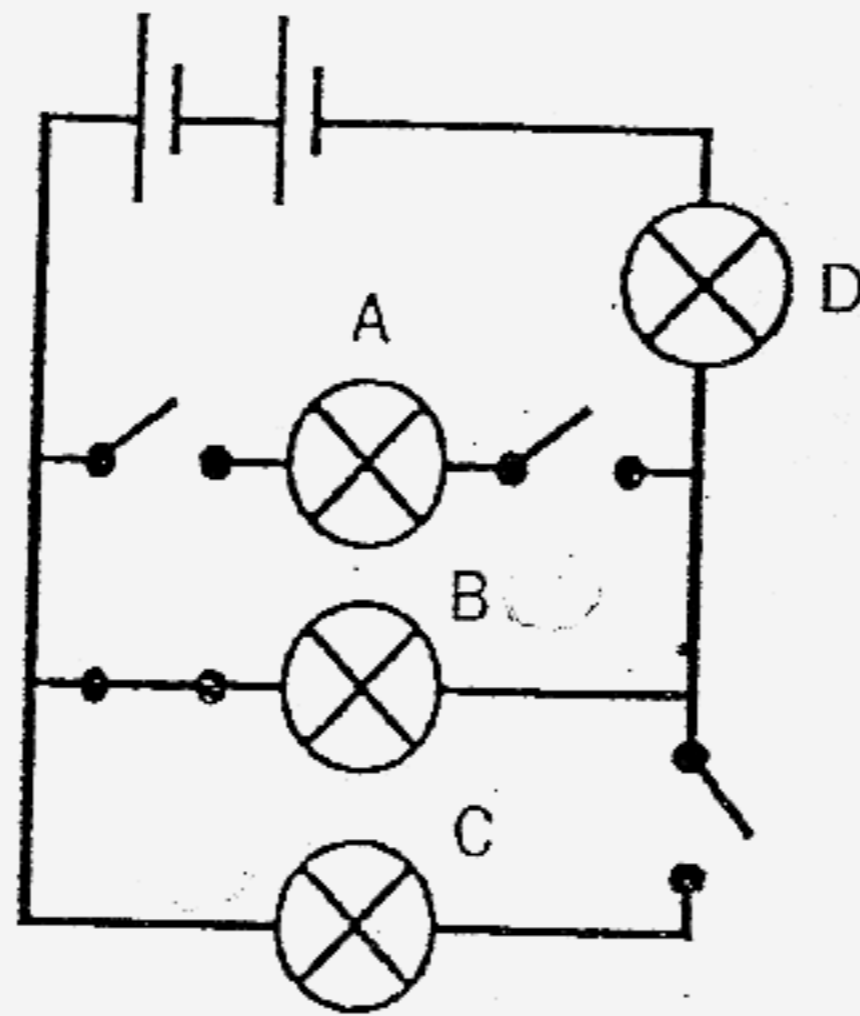
- A: The filament has melted, indicating that the bulb is fused.
- B: The switch is not closed and this indicates an open circuit.
- C: The battery holder is made from an insulating material with metal springs and metal plate.
- D: The dry cells are wrongly arranged.

- (1) A and D only
- (2) C and D only
- (3) A, B and C only
- (4) All of the above

( Go on to the next page)



14. Study the circuit carefully.



Which bulbs will light up in the circuit above?

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

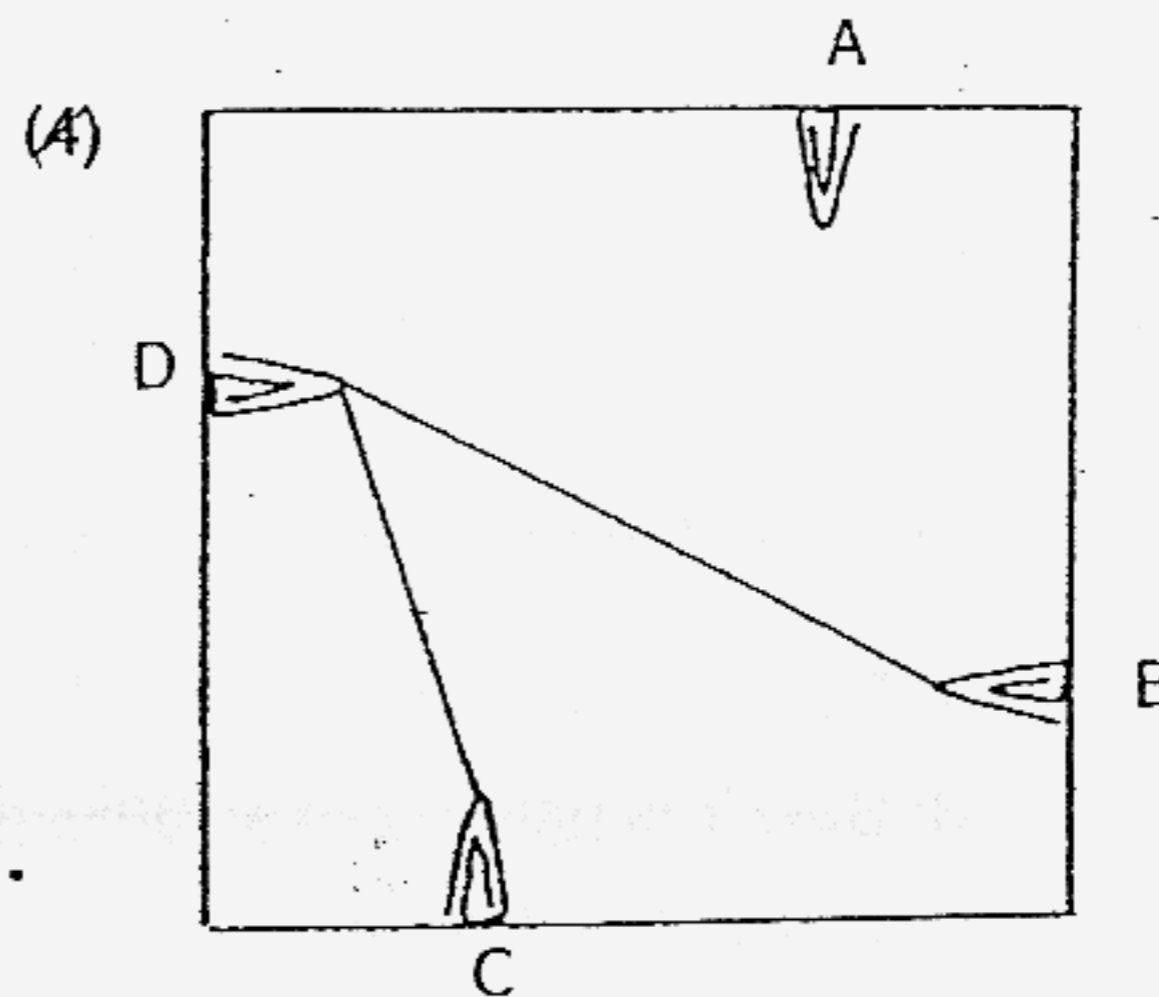
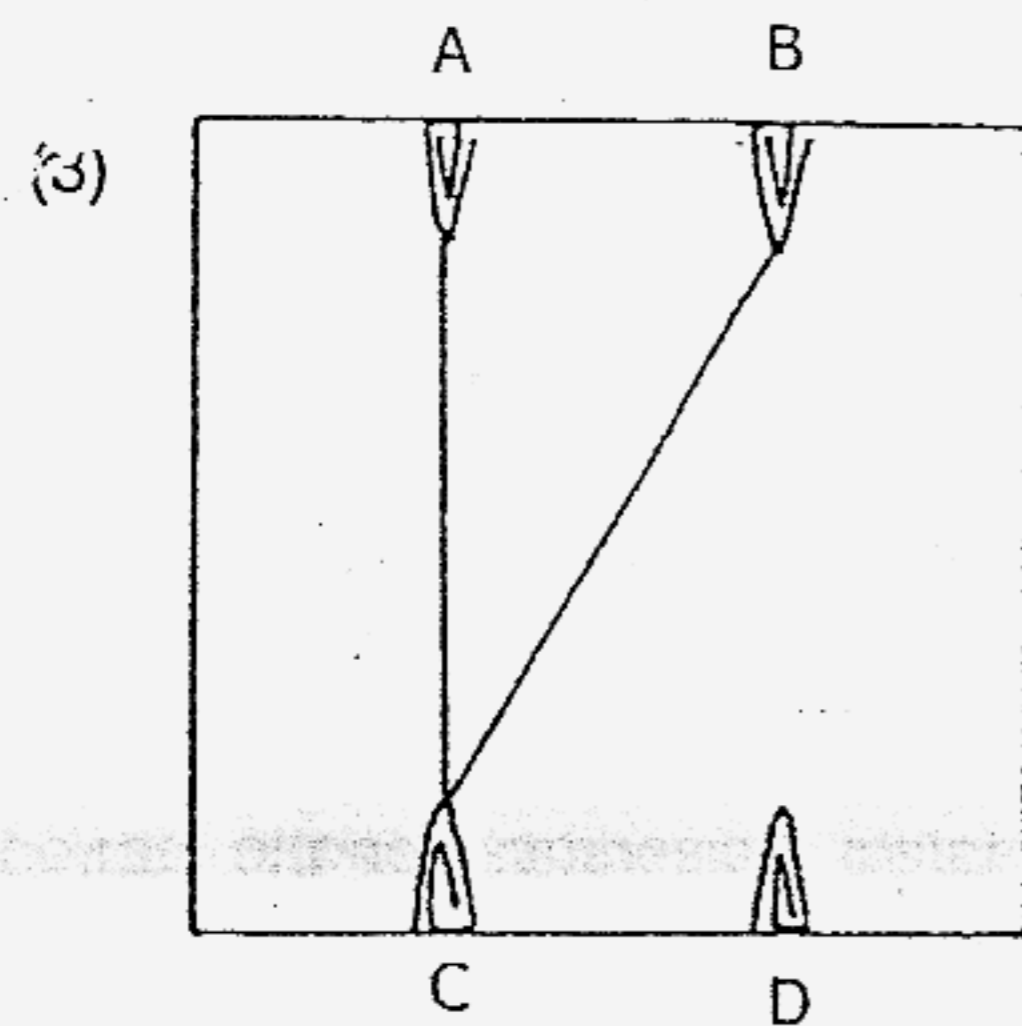
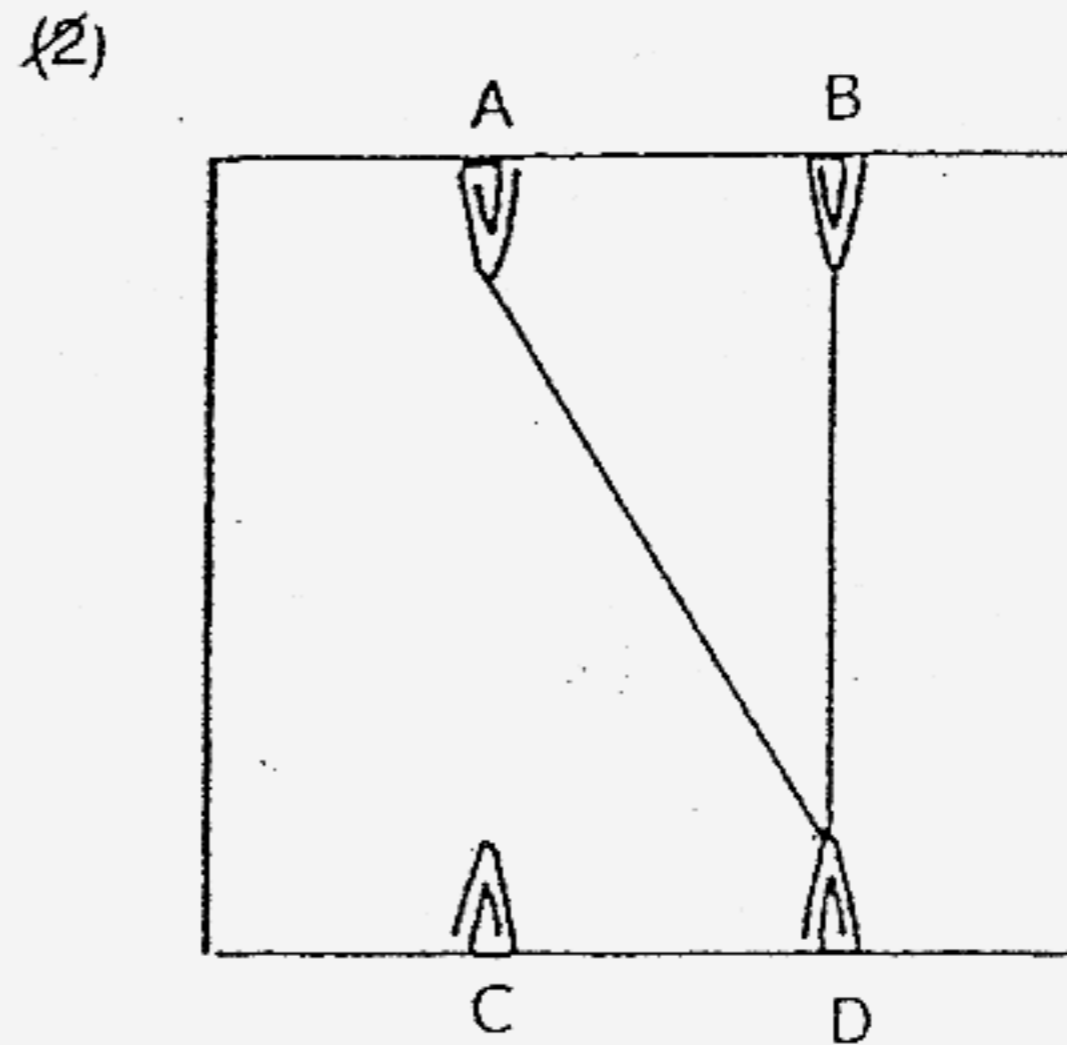
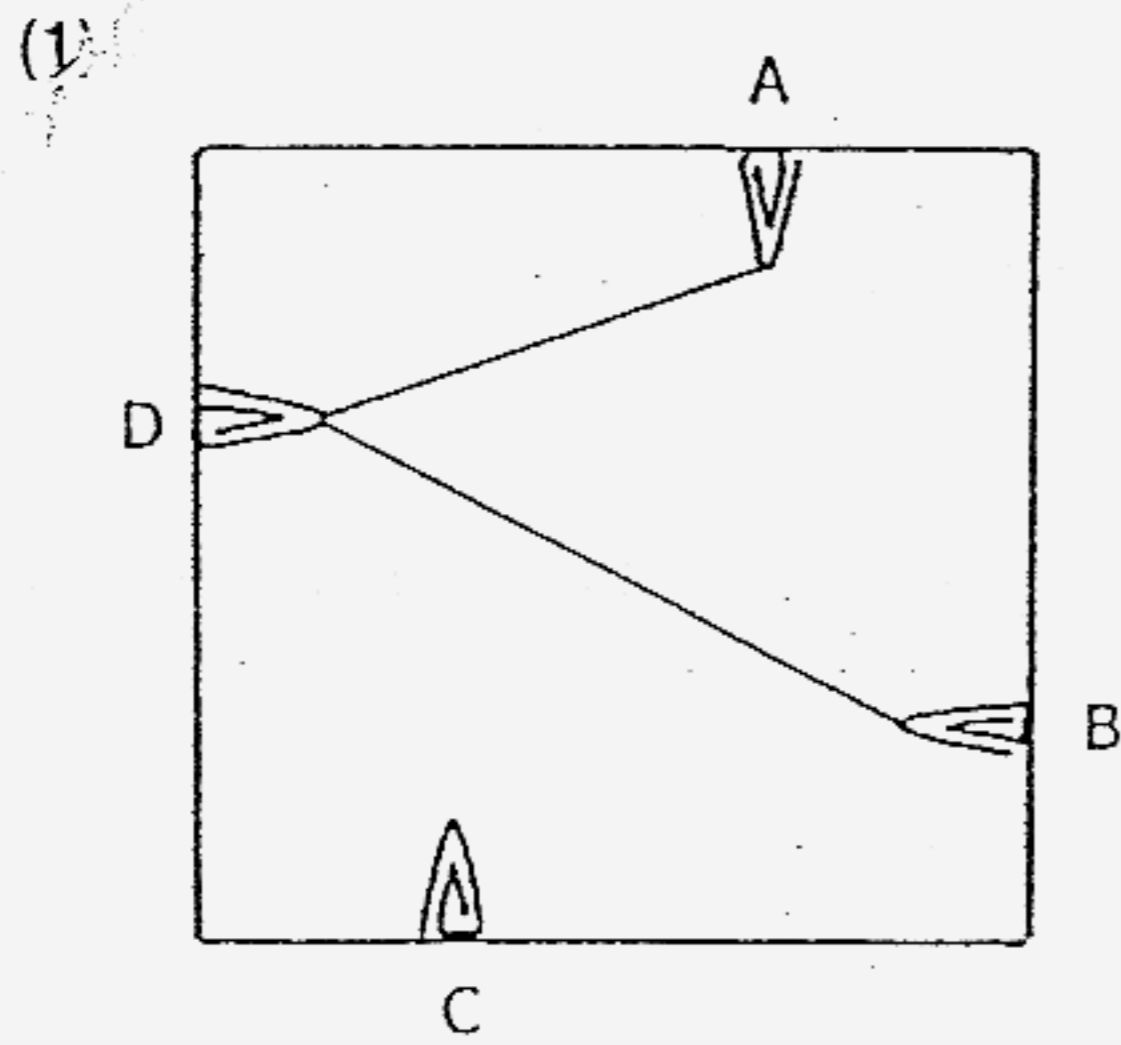
- (2) B and D
- (4) A and D

( Go on to the next page)

15. The table below shows the results of tests done to light up the bulb of a circuit tester on a circuit card. The card has steel paper clips A, B, C and D.

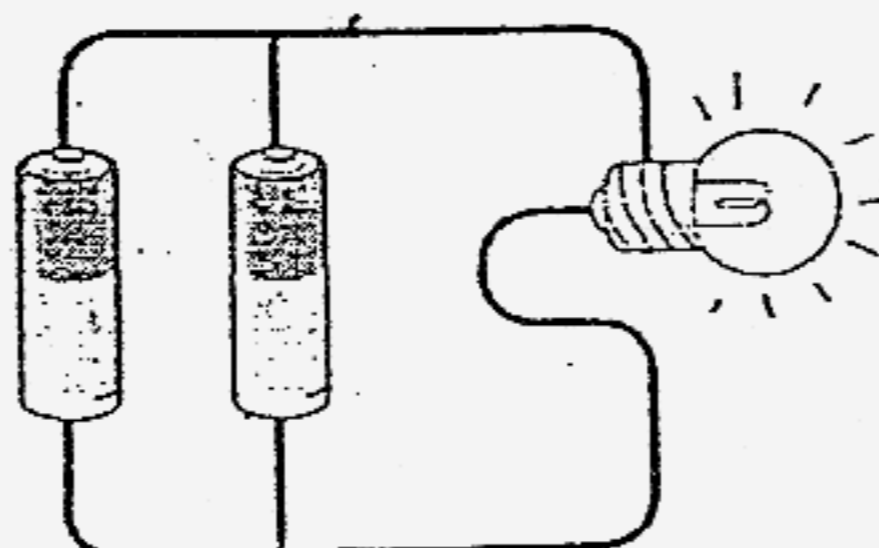
Clips tested	Bulb of circuit tester
B and C	Lights up
B and D	Lights up
C and D	Lights up
A and B	Does not light up
A and C	Does not light up
A and D	Does not light up

Which one of the following shows how the circuit card has been connected?



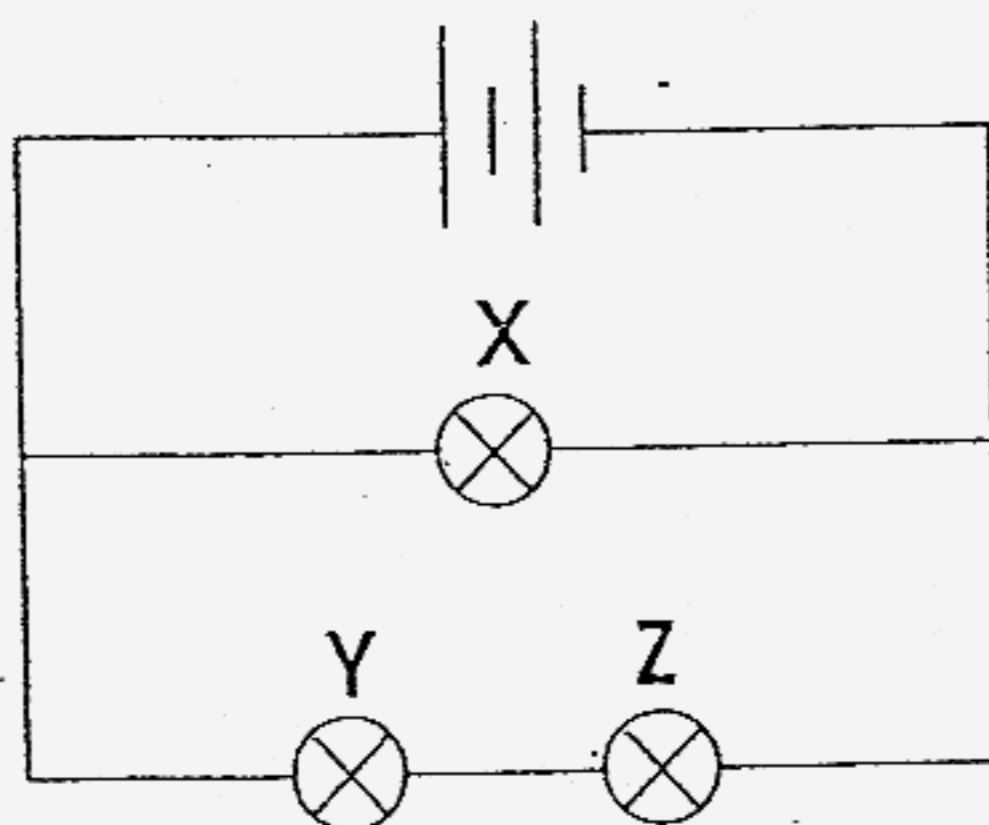
( Go on to the next page)

16. David has a circuit with 2 batteries connected correctly.



What does David need to do in order to increase the brightness of the bulb?

- (1) Increase the number of bulbs.
  - (2) Change the arrangement of batteries.
  - (3) Increase the number of batteries arranged in parallel.
  - (4) Increase the number of wires.
17. In the electric circuit below, two identical batteries and three identical bulbs are connected as shown.



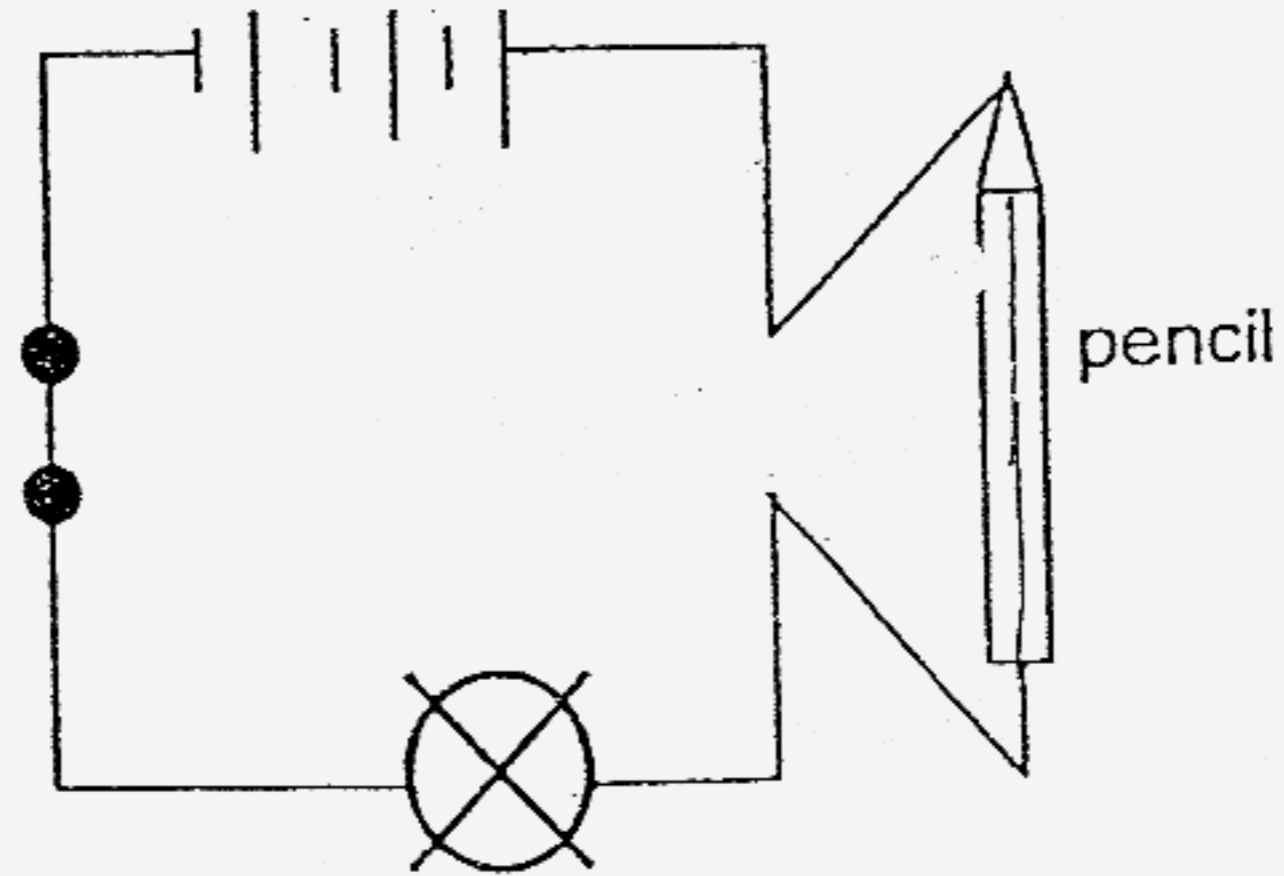
Which of the following statements are true of the set-up?

- A: Bulb X is glowing brighter than Bulb Y.
- B: Bulb Y is glowing as brightly as Bulb Z.
- C: If Bulb X fuses, Bulbs Y and Z will still glow.
- D: If Bulb Z fuses, Bulbs Y will still glow.

- (1) B and C only
- (2) A, B and C only
- (3) B, C and D only
- (4) All of the above

( Go on to the next page)

18. Study the circuit diagram shown below.

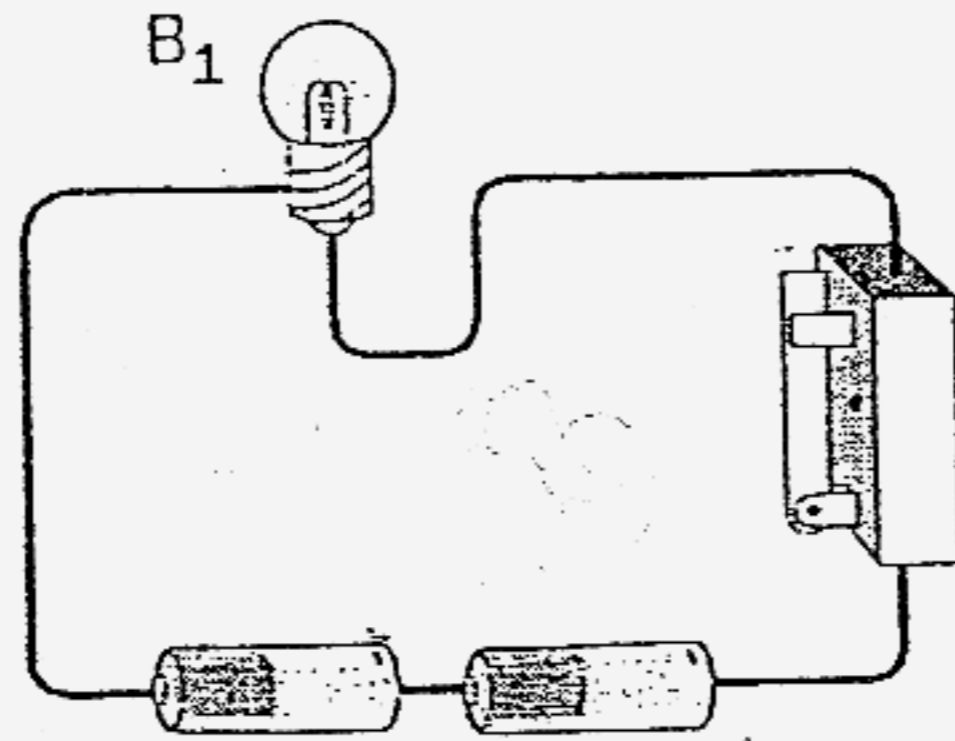


When the switch in the circuit diagram above is turned on, the bulb lit up.  
What could be a likely reason for this?

- (1) Lead is an electrical insulator.
- (2) Wood is an electrical conductor.
- (3) Lead is an electrical conductor.
- (4) Wood is an electrical insulator.

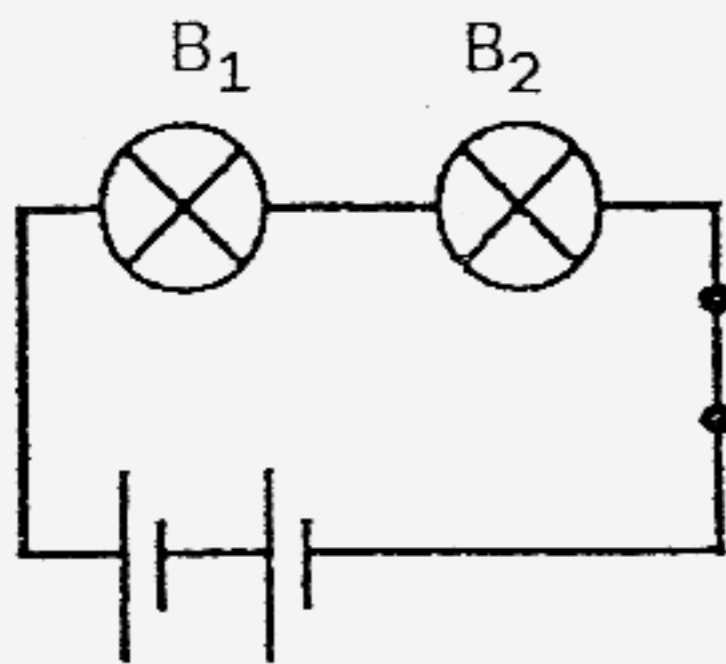
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19. Below is a diagram of a circuit.

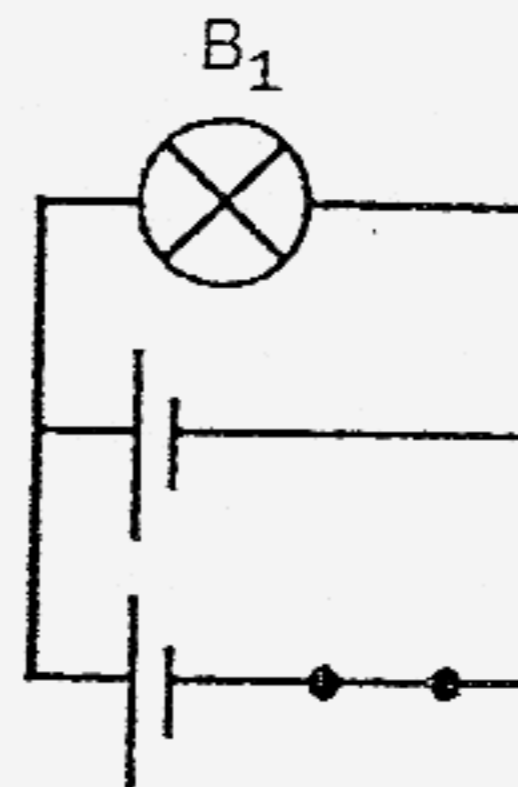


What must be done to the above circuit to make Bulb B1 glow more brightly?

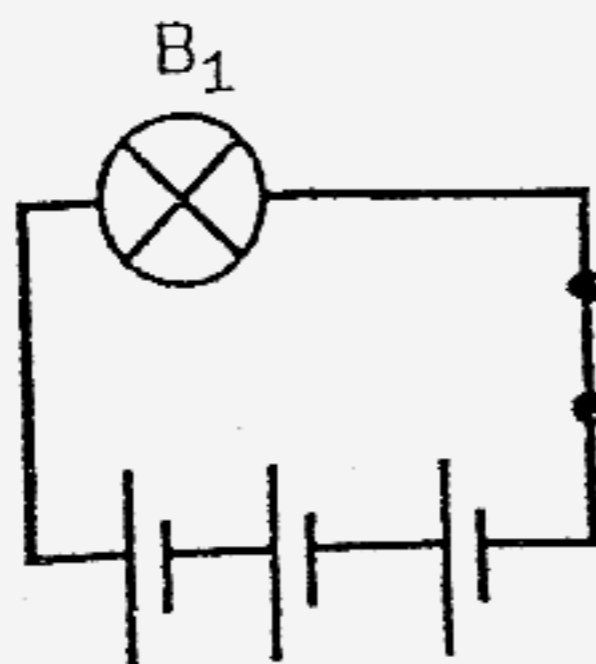
(1)



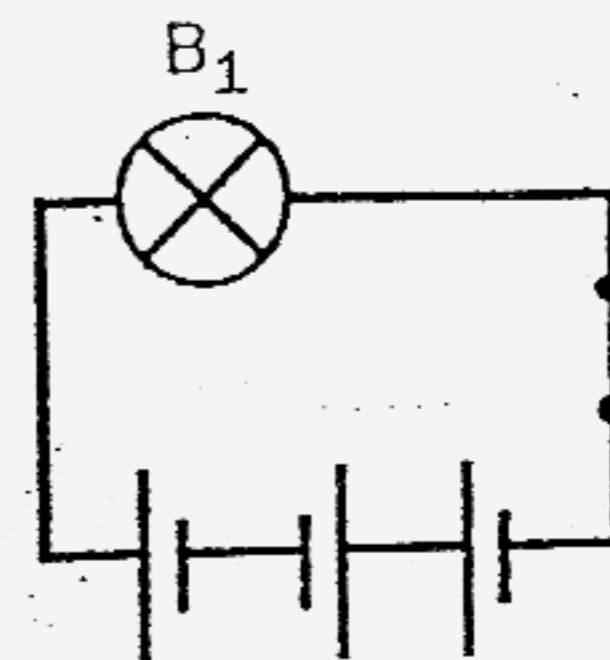
(2)



(3)

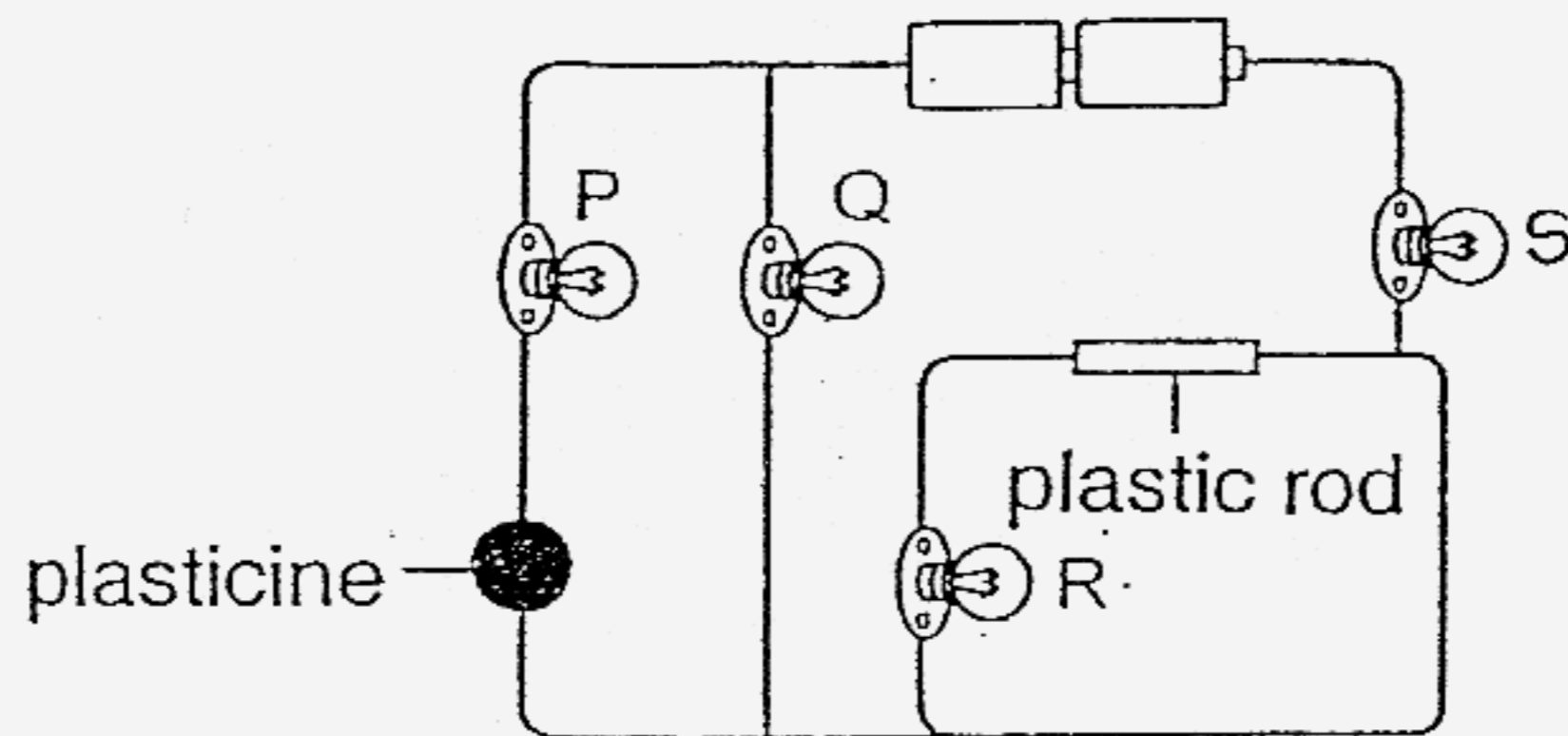


(4)



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20. There are four identical bulbs (P, Q, R and S) in the circuit below.

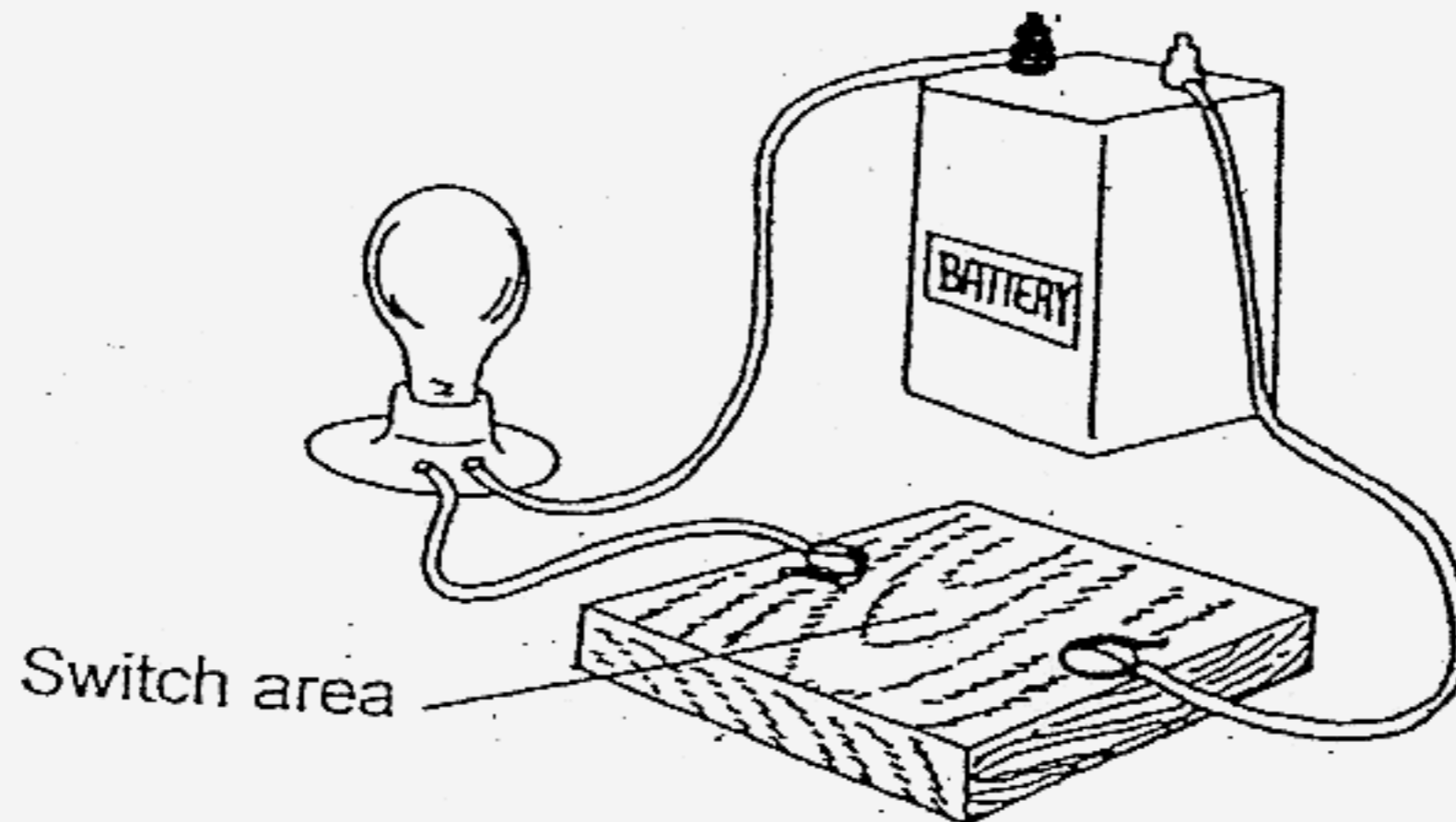


Which of the bulbs will light up when all the circuit components are connected properly?

- (1) P and S only
- (2) Q and S only
- (3) P, Q, R and S
- (4) None of the above

( Go on to the next page)

21. Mary used the set-up shown below to test if a material can conduct electricity.



The results for her experiment are shown in the table below.

Switch Material	Light produced by the above circuit			
	Trial 1	Trial 2	Trial 3	Trial 4
Steel Nail	Bright	Bright	Bright	Bright
Aluminium Foil	Bright	Dim	Dim	Bright
Copper Ring	Very Bright	Bright	Very Bright	Very Bright
Pencil Lead	Dim	Bright	Dim	Dim

Based on the given data, arrange the materials according to their electrical conductivity, from the weakest to the strongest.

- (1) Steel nail, pencil lead, aluminium foil, copper ring
- (2) Copper ring, steel nail, aluminium foil, pencil lead
- (3) Pencil lead, aluminium foil, steel nail, copper ring
- (4) Copper ring, aluminium foil, steel nail, pencil lead

22. Which one of the following statements about force is true?

- (1) A force cannot be felt.
- (2) A force cannot be seen.
- (3) A force is a type of matter.
- (4) A force always causes things to move.

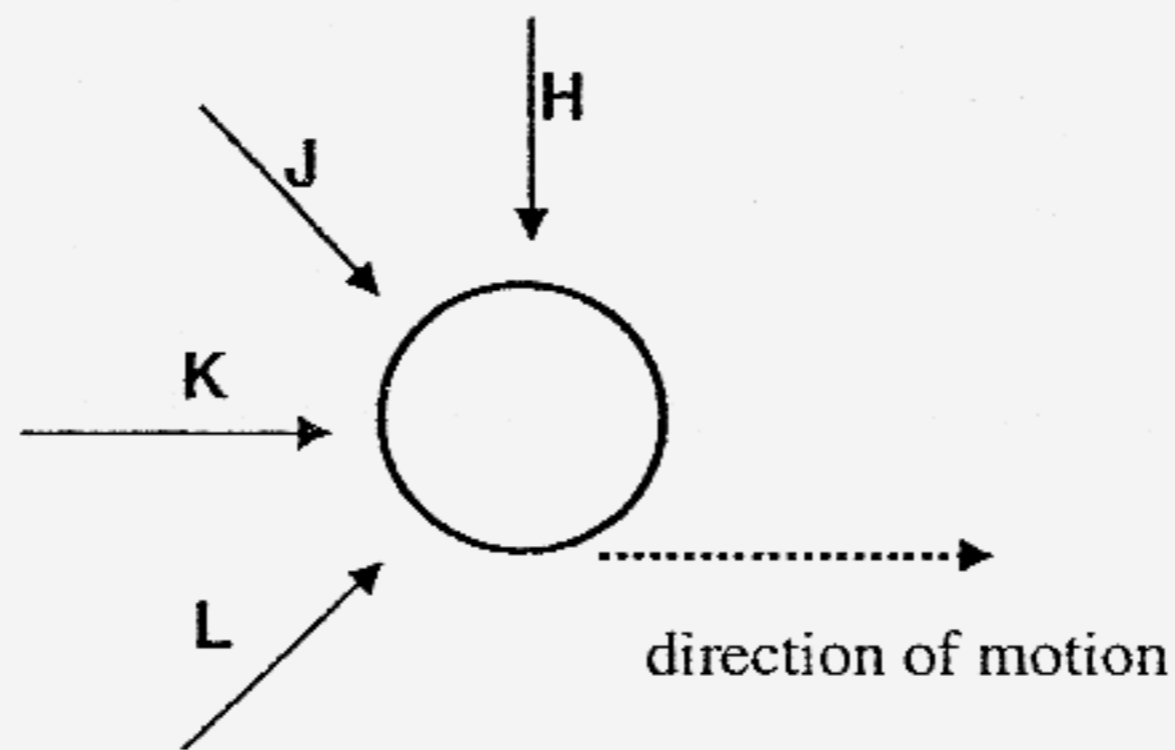
( Go on to the next page)

23. Which of the following activities requires the use of forces.

- R: Writing a letter.
- S: Blowing a candle.
- T: Opening a packet of milk.
- U: Pressing the buttons on a remote control.

- (1) U only
- (2) T and U only
- (3) S, T and U only
- (4) R, S, T and U

24. Study the diagram below carefully.



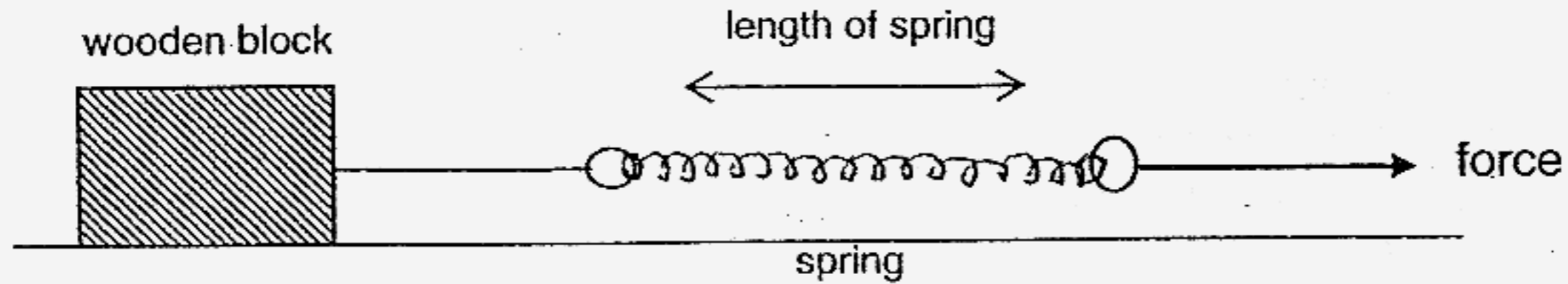
In order to get the ball to move faster in the same direction, in which direction should a force be applied?

- (1) H
- (2) J
- (3) K
- (4) L

( Go on to the next page)



25. Four wooden blocks of different sizes, M, N, P and Q were used in this experiment. The aim of this experiment was to study the amount of force required to move the blocks a certain distance. A force was applied in the direction as shown in the diagram. Then the length of the spring was measured.

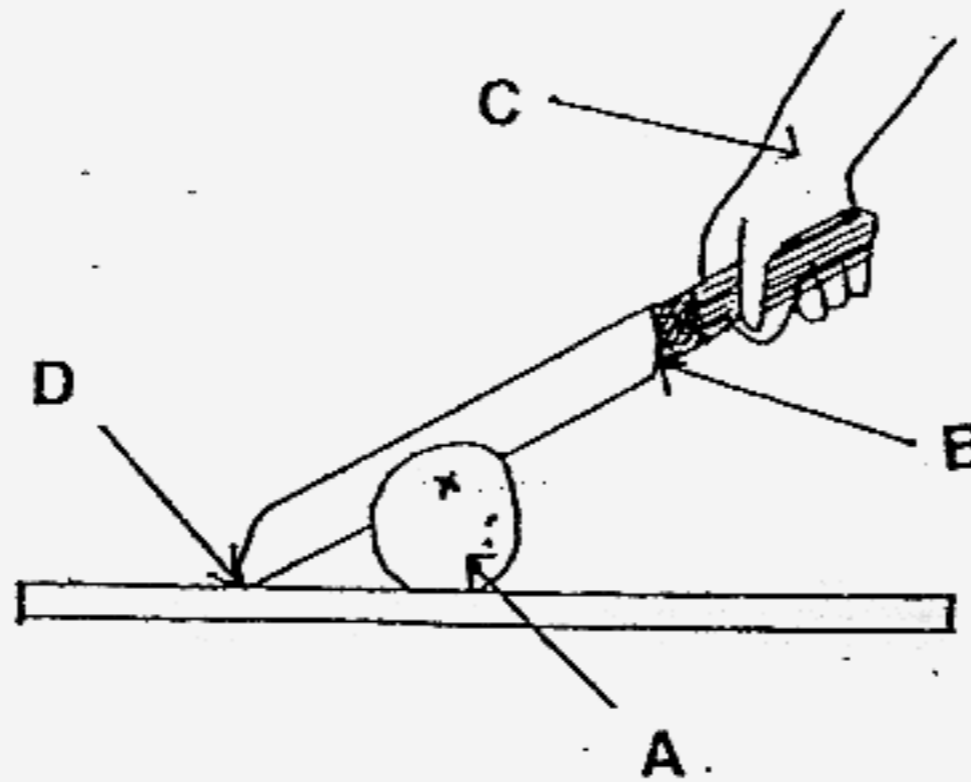


The table below shows the result.

Wooden Block	Length of spring (cm)
M	5
N	18
P	13
Q	9

Arrange the wooden blocks in order of their sizes, from the biggest to the smallest.

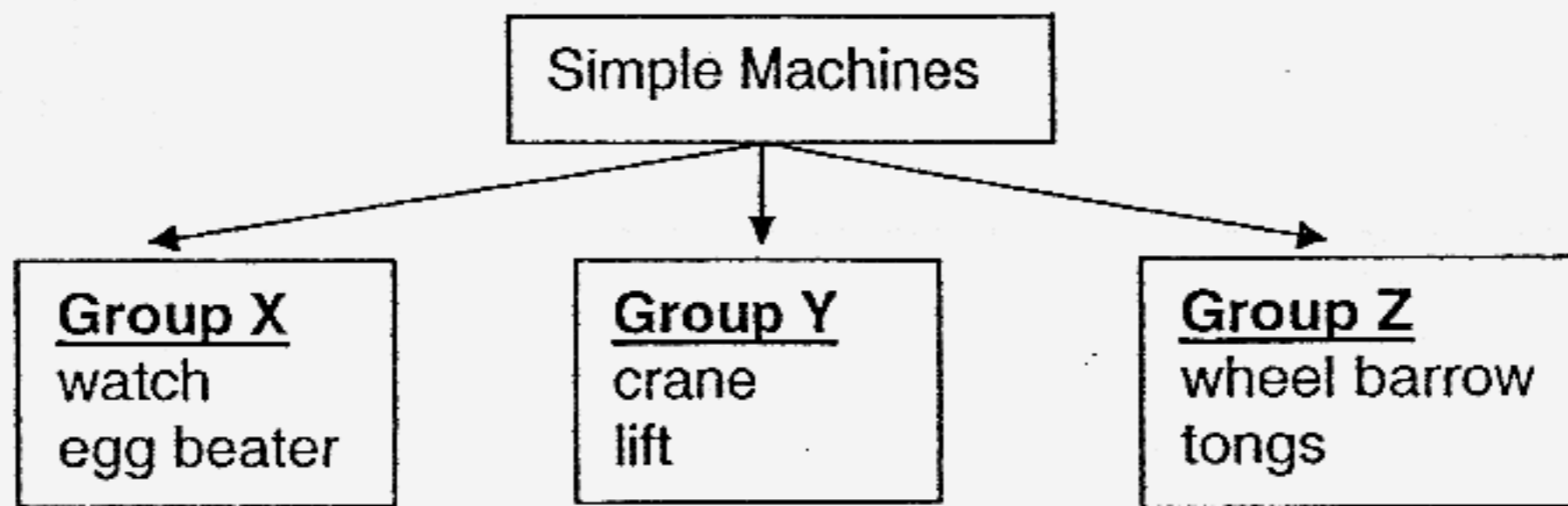
- (1) M, N, P, Q
  - (2) N, P, Q, M
  - (3) P, N, Q, M
  - (4) M, Q, P, N
26. Identify the fulcrum in this simple machine.



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

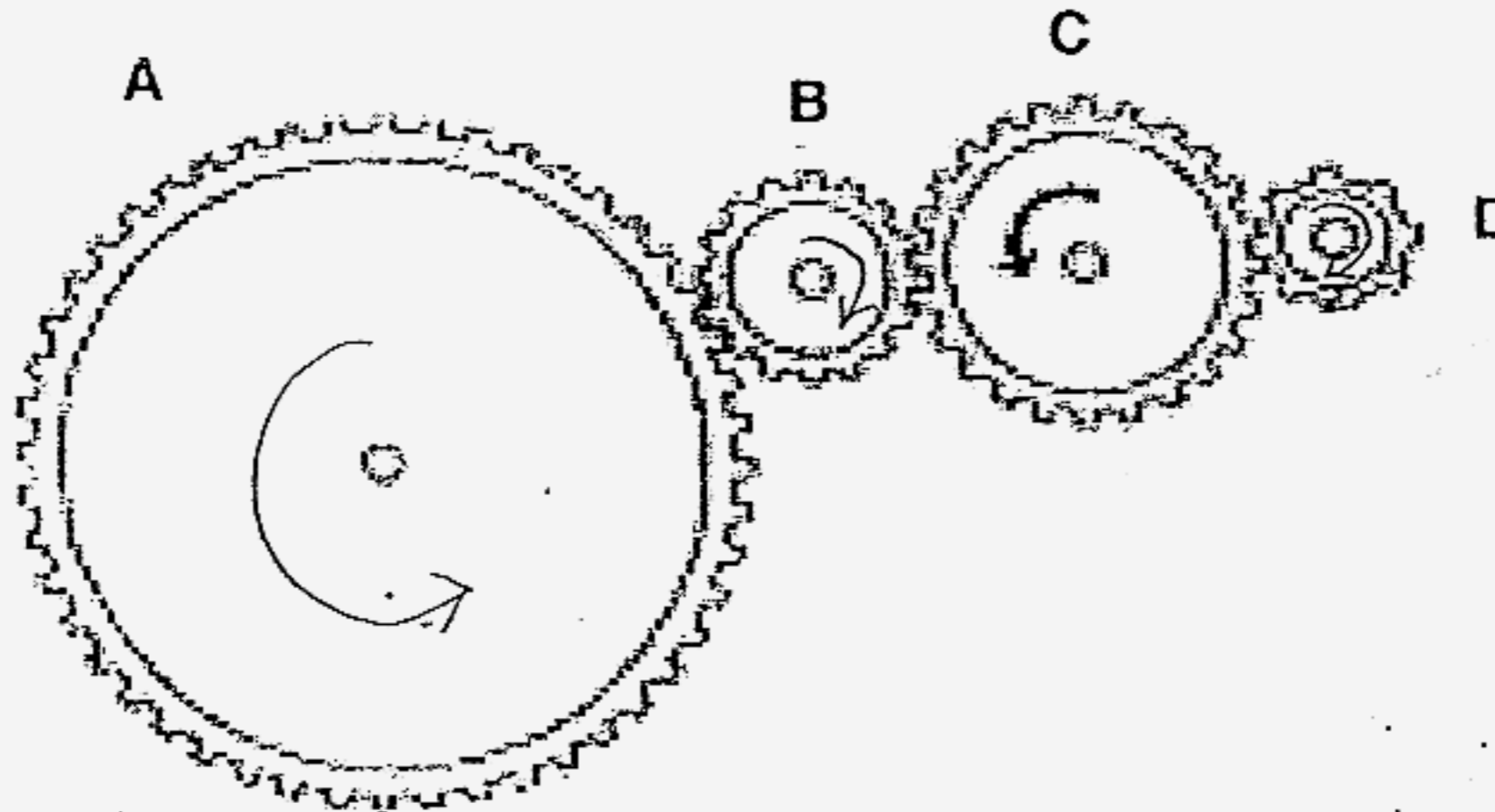
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27. The chart below show a classification table on some objects that works on the principles of simple machines.



In which group would you place a screwdriver as it is used to open the lid of a tin of paint?

- (1) Group X
  - (2) Group Y
  - (3) Group Z
  - (4) None of the groups
28. The following gears are interlocked as shown in the diagram below.

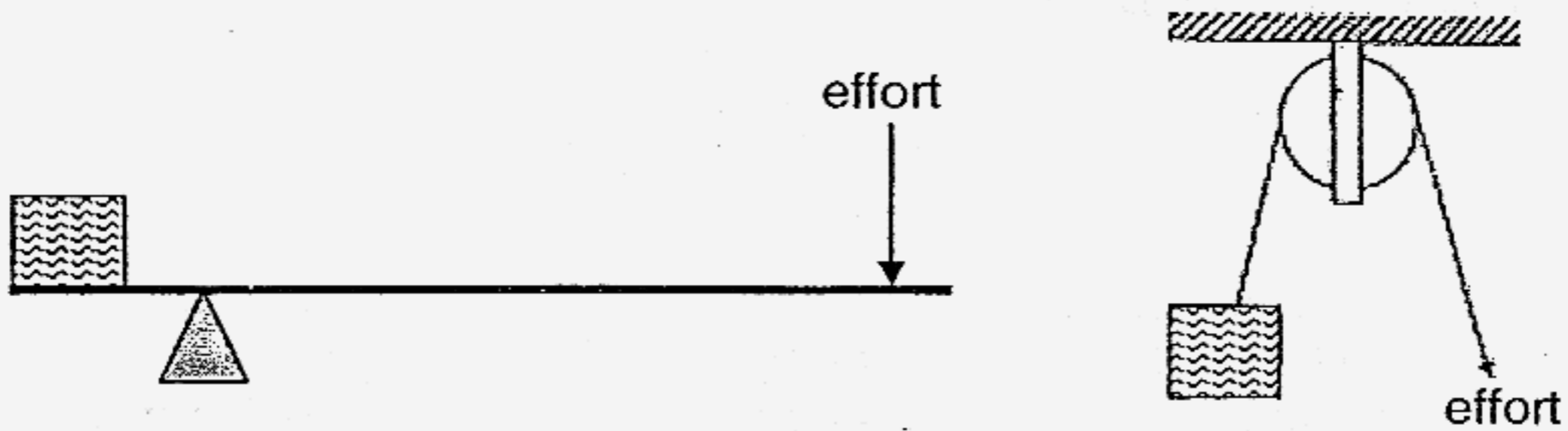


Which gears move in the same direction when the gears are turning?

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

( Go on to the next page)

29. The diagrams below show a lever and fixed pulley systems.



Which one of the following is true about the similarities or differences between the two types of simple machines?

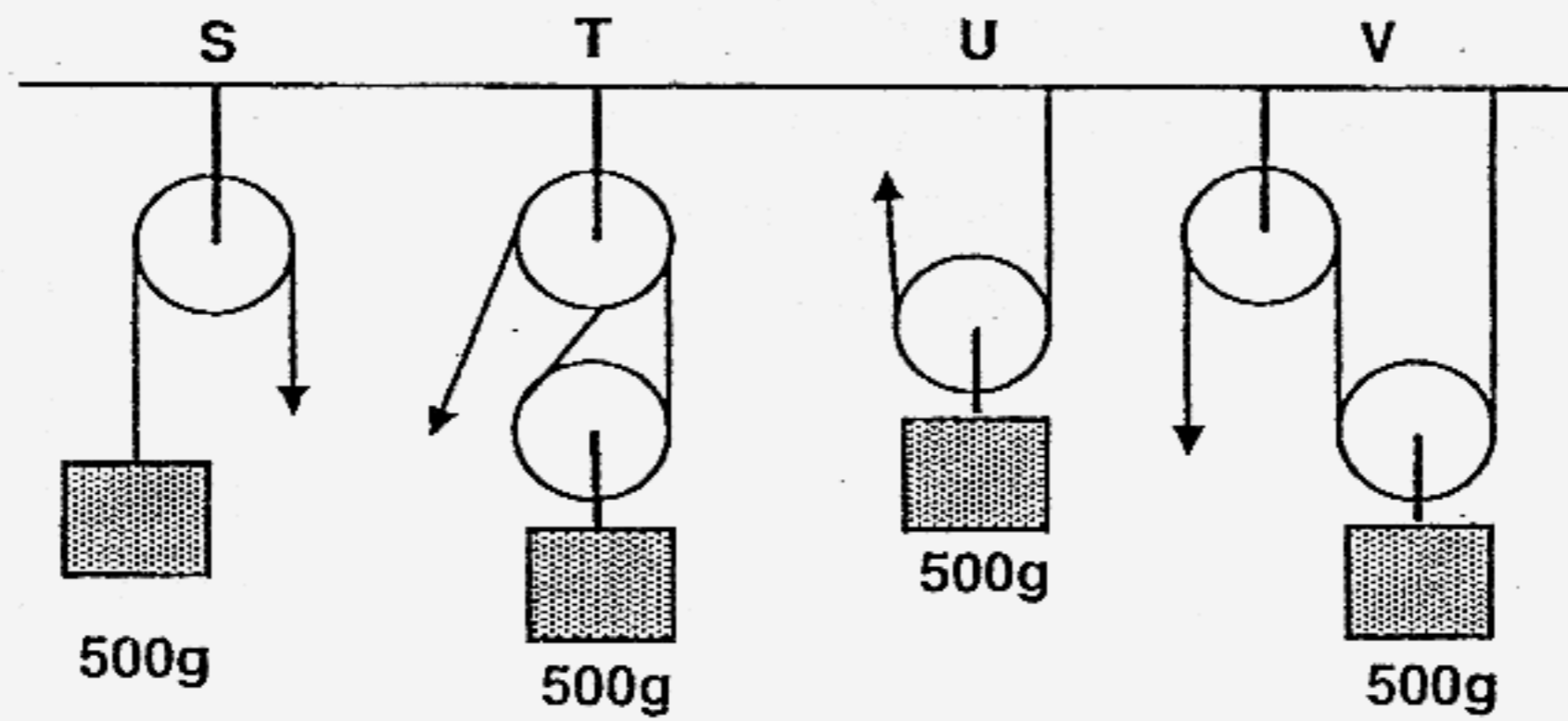
- E: The distance moved by the effort is greater than the load in both machines.
- F: The direction of effort is changed in both types of machines.
- G: The effort needed to lift the load is lesser than the load in both types of machines.

(1) E only  
(3) G only

(2) F only  
(4) F and G only

( Go on to the next page)

30. The diagrams below show 4 sets of pulleys.



Which of the above pulleys can lift the load with a force less than 500g?

- (1) S and U only
- (2) T and V only
- (3) T, U and V only
- (4) S, T and V only

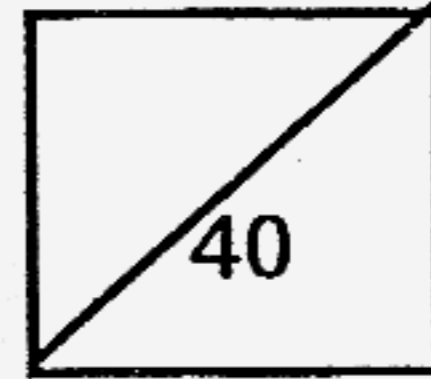
End of Booklet A



**Rosyth School**  
**Second Semestral Assessment for 2006**  
**SCIENCE**  
**Primary 5**

Name: \_\_\_\_\_

Total  
Marks:



Class: Pr \_\_\_\_\_

Register No. \_\_\_\_\_

Duration: 1 h 45 min

Date: 2<sup>nd</sup> November 2006

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

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## **Booklet B**

### **Instructions to Pupils:**

1. For questions 31 to 46, give your answers in the spaces given in this Booklet B.

\* This booklet consists of 15 pages.

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**PART 2 (40 MARKS)**

For questions 31 to 46, write your answers in this booklet.

31. In the month of February 2007, which has 28 days, a full moon will be observed on 2<sup>nd</sup> February.  
(Assume that a moon takes 28 days to complete 1 revolution around the Earth).

(a) On which date in February do you think you will see a new moon? (1m)

---

(b) On which date in February do you think the next full moon is? (1m)

---

32. Drawings A and B show some cells.  
Study the drawings carefully and answer the questions that follow.

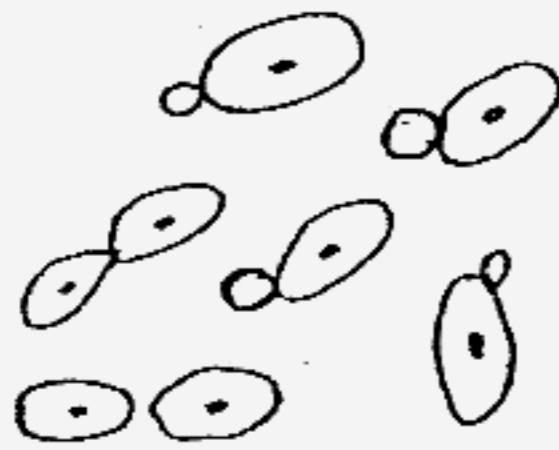


Diagram A

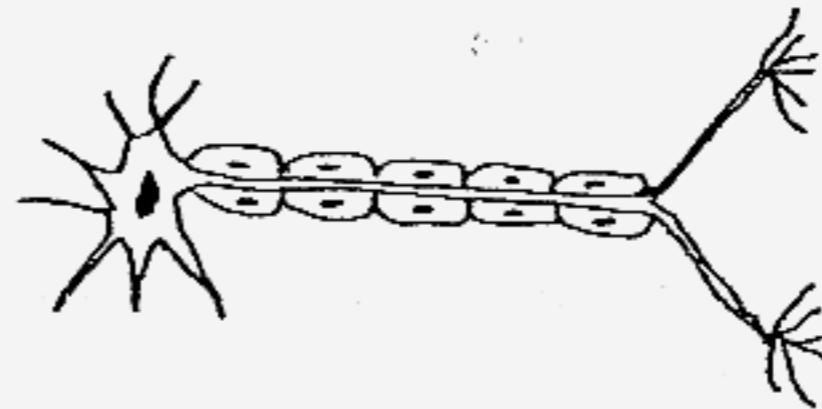


Diagram B

(a) Which diagram shows the process of cell division taking place? (1m)

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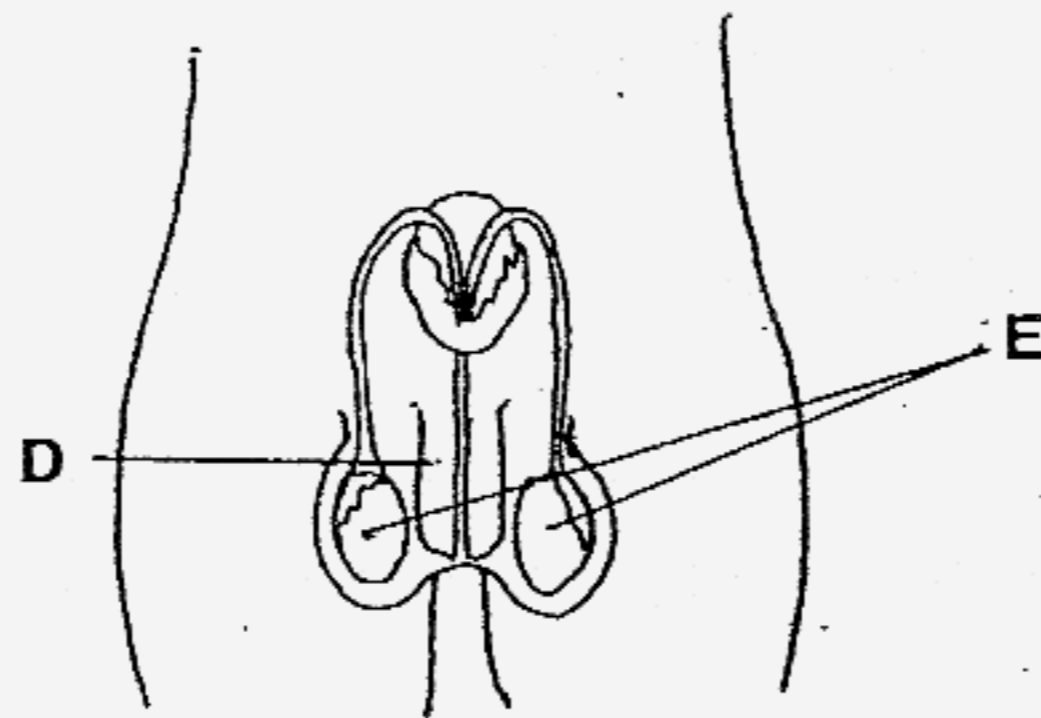
(b) Give a reason for your answer in (a). (1m)

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( Go on to the next page)

33. The drawing below shows the male reproductive organs of human beings.



(a) Name the parts D and E. (1m)

Part D: \_\_\_\_\_

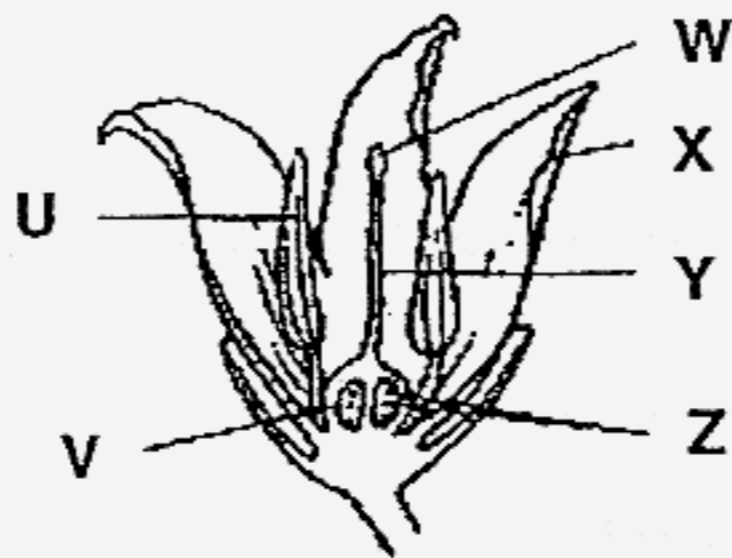
Part E: \_\_\_\_\_

(b) What is the function of part E? (1m)

---

---

Compare the male reproductive structures of a human being with that of a flower shown below.



(c) Which part of the flower above has the same function as the part labelled E? (1m)

---

( Go on to the next page)

34. A fish was placed in water of different temperatures. The amount of oxygen dissolved in the water was measured at each temperature and the number of gill beats was counted by carefully observing the fish. The results are shown in the table below.

Water temperature (Degree Celsius)	Amount of dissolved oxygen per cubic centimetre of water	Number of gill beats per minute
5	9.25	20
10	8.05	28
15	7.23	33
20	6.58	36
25	6.08	41
30	5.58	44

- (a) Describe the relationship between the amount of dissolved oxygen in the water and the number of gill beats. (1m)

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- (b) Provide an explanation for your answer in (a). (1m)

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35. Study the food web shown below.

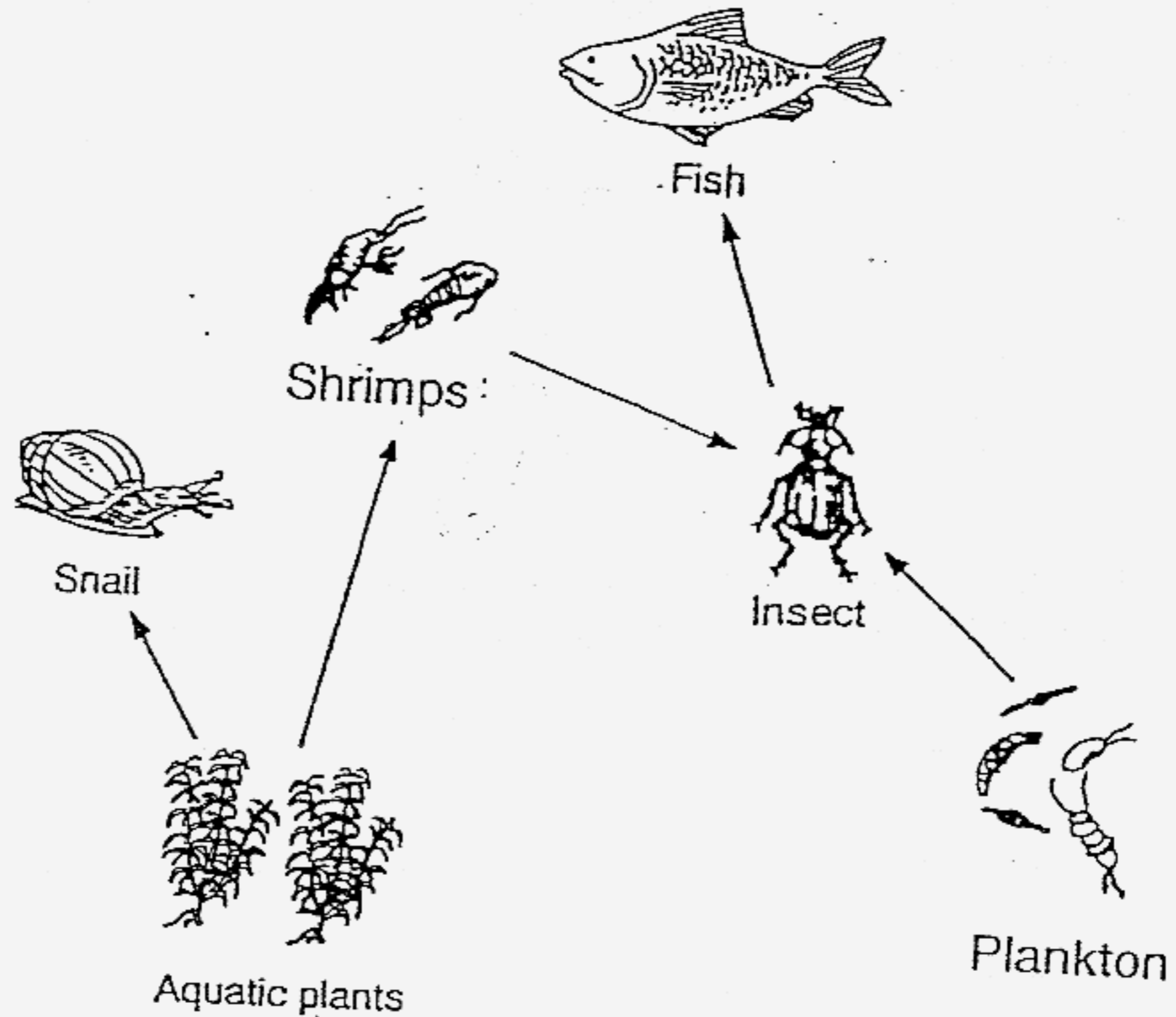


Figure 1

(a) List down the food producers in Figure 1. (1m)

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(b) Which of the organisms shown in Figure 1 is a prey as well as a predator? (1m)

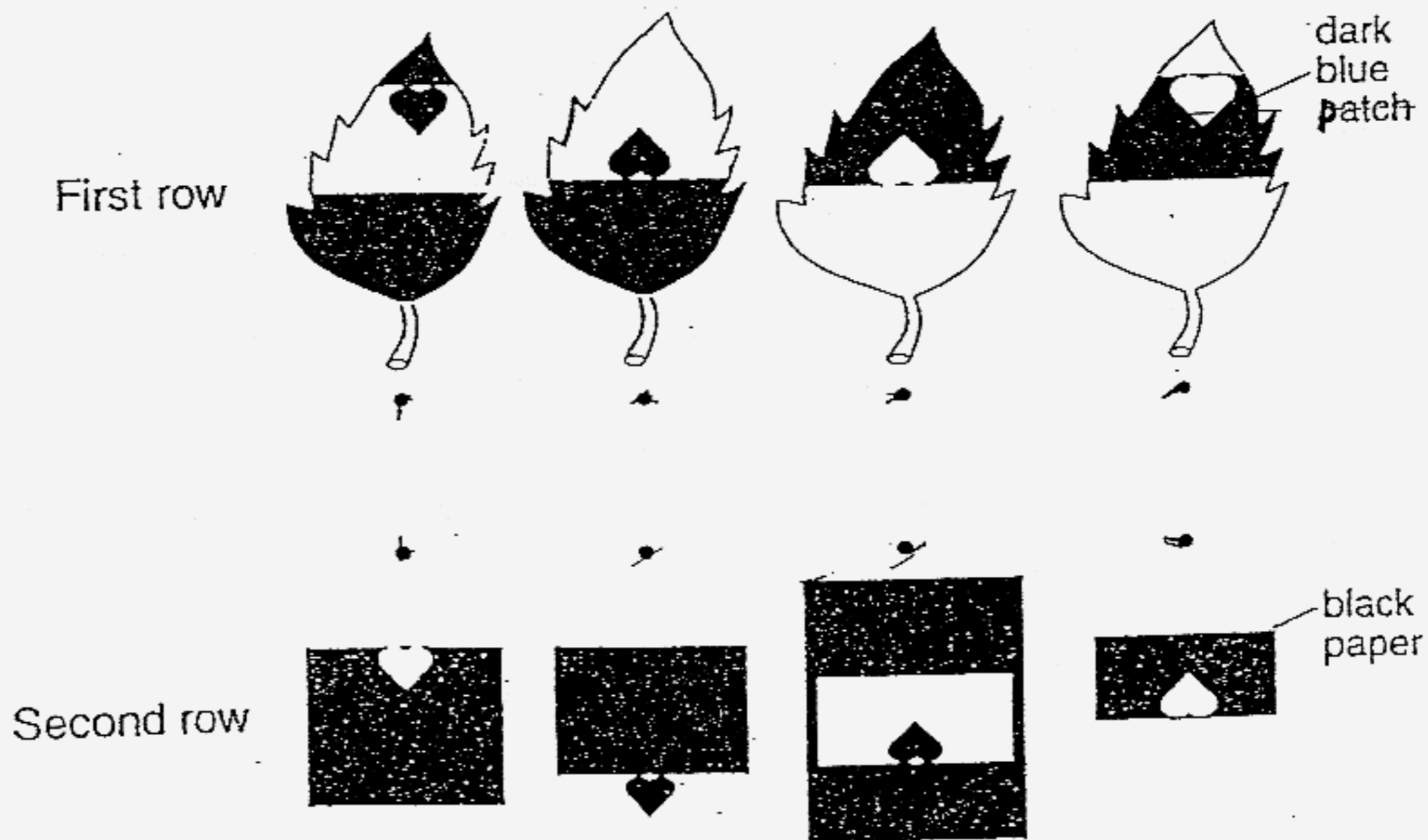
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(c) Which of the organism(s) in Figure 1 is/are carnivores? (1m)

---

( Go on to the next page)

36. Grace and her friends played an interesting game of matching patterns. They cut different shapes out of pieces of black paper and used them to cover some leaves of a plant. After placing the plant under sunlight for some time, they conducted the starch test on the leaves. The first row (refer to the diagram below) shows the leaves after the starch test, with dark blue patches. The second row shows the pieces of black paper used to cover the leaves.



- (a) Match each leaf to the correct piece of black paper used to cover it by joining a line between 2 dots. (2m)

- (b) What happened to the parts of the leaves that were blocked by the black paper? (1m)

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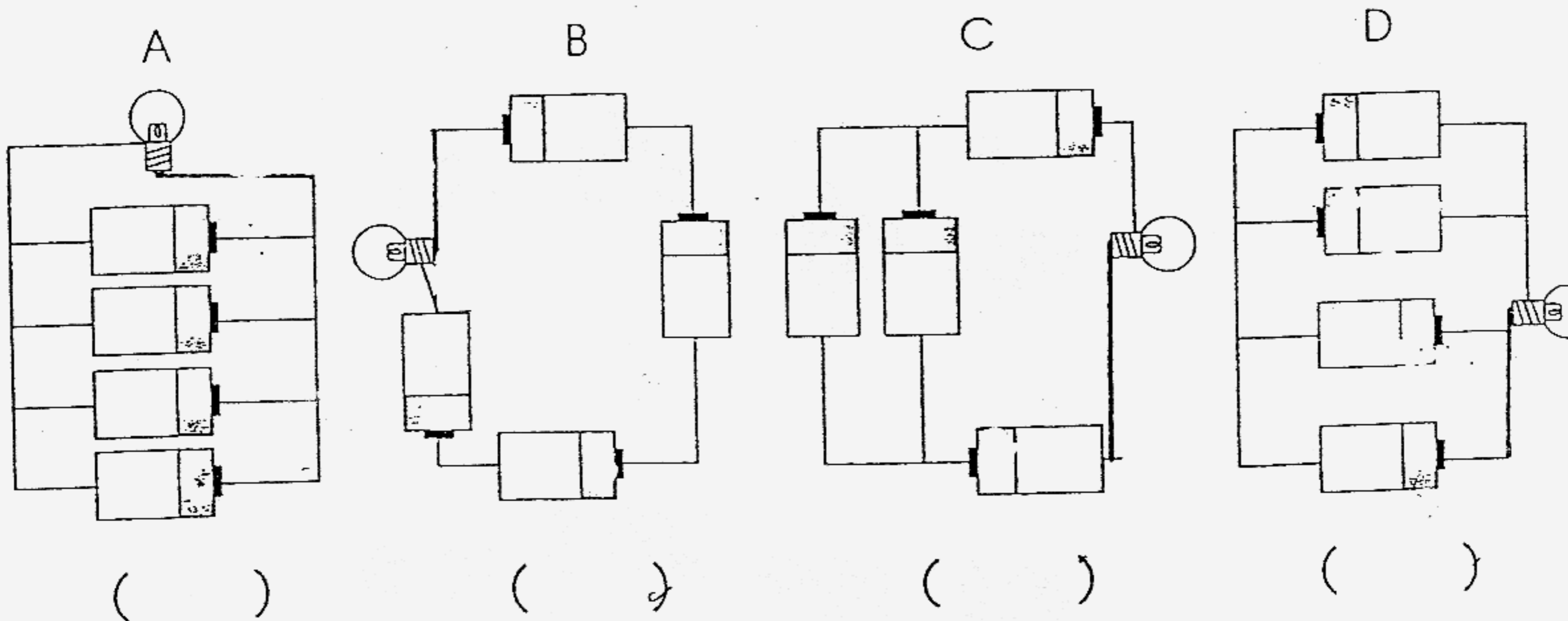
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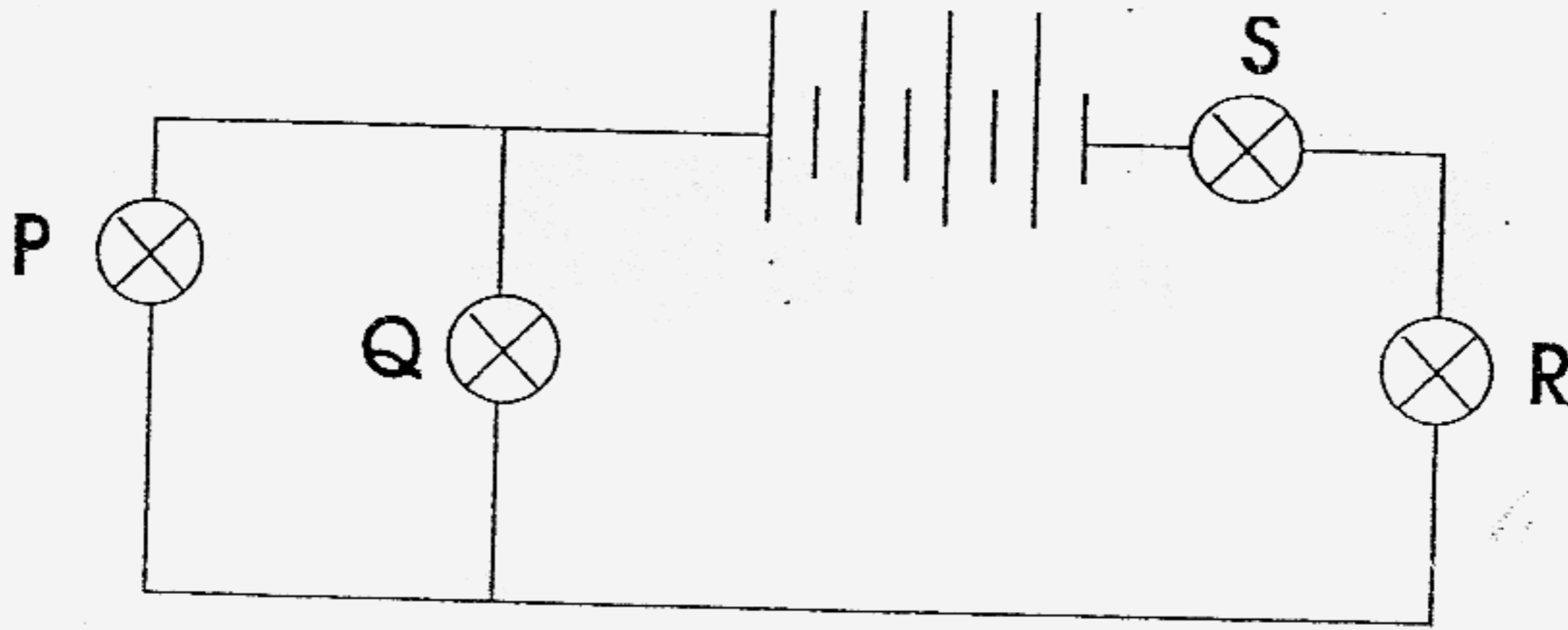
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37. Study the four circuits below. All the batteries, wires and bulbs used in each electrical circuit are identical. Arrange the circuits in order using (1) for the brightest and (4) for the least bright. (2m)



( Go on to the next page)

- ×38. Study the circuit below. All the bulbs in the closed circuit are shining brightly.



- (a) Which of the bulbs in the above circuit will (not light up if Bulb S fuses?  
(1m)

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- (b) Explain your answer in (a), (1m)

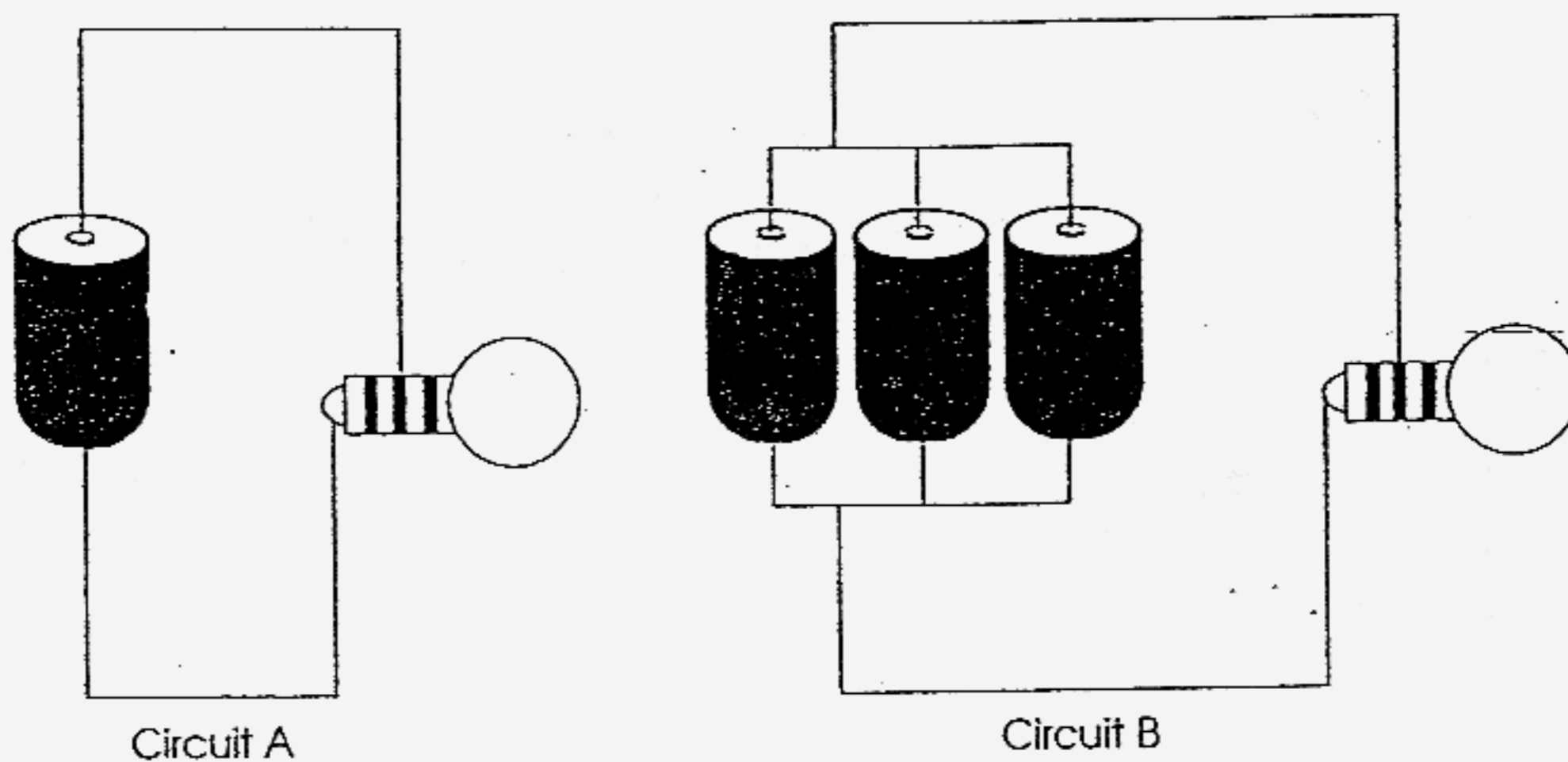
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39. Two bulbs of the same size were connected to the circuits as shown in the diagrams below. The batteries and wires were also of the same type. When the circuits were connected, both bulbs were found to be equally bright.



- (a) Explain why the bulb in Circuit B was not brighter than the bulb in Circuit A even though three batteries were used in Circuit B as compared to one battery in Circuit A. (1m)

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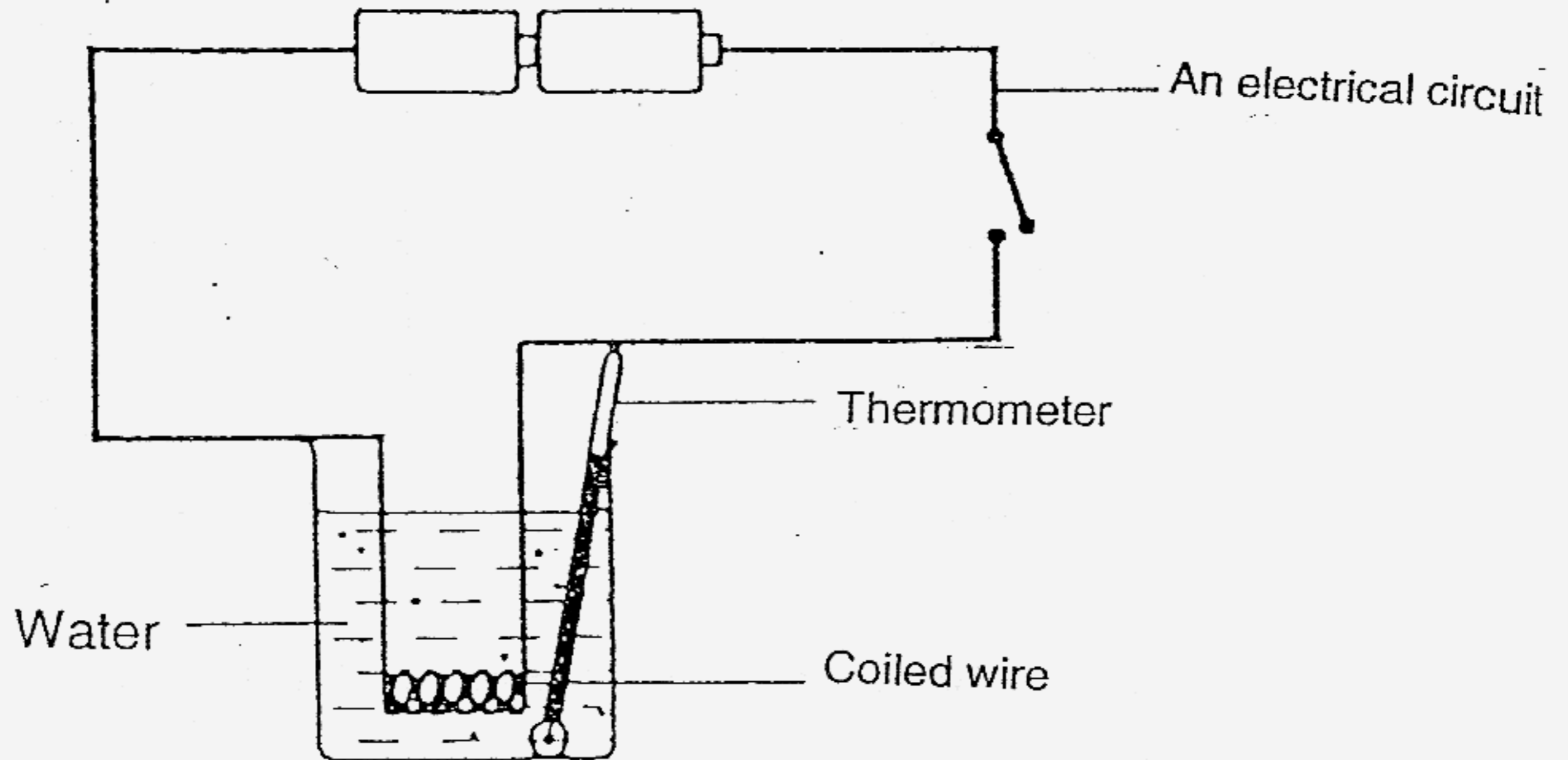
- (b) Using the same components suggest one way in which the bulb in Circuit B can be made brighter. (1m)

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40. Study the diagram below carefully.



(a) What will happen to the mercury level in the thermometer when the circuit is closed? (1m)

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(b) Explain your observation for (a). (1m)

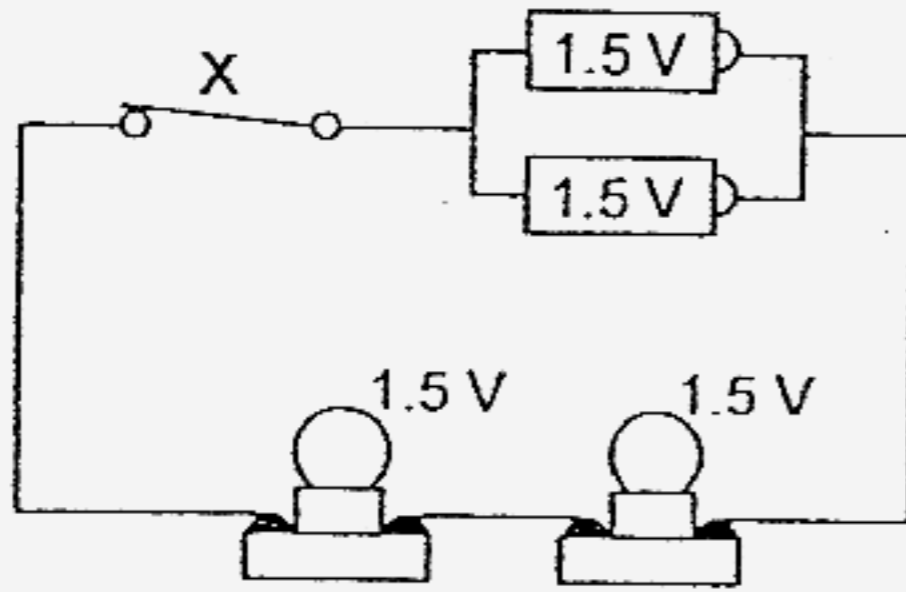
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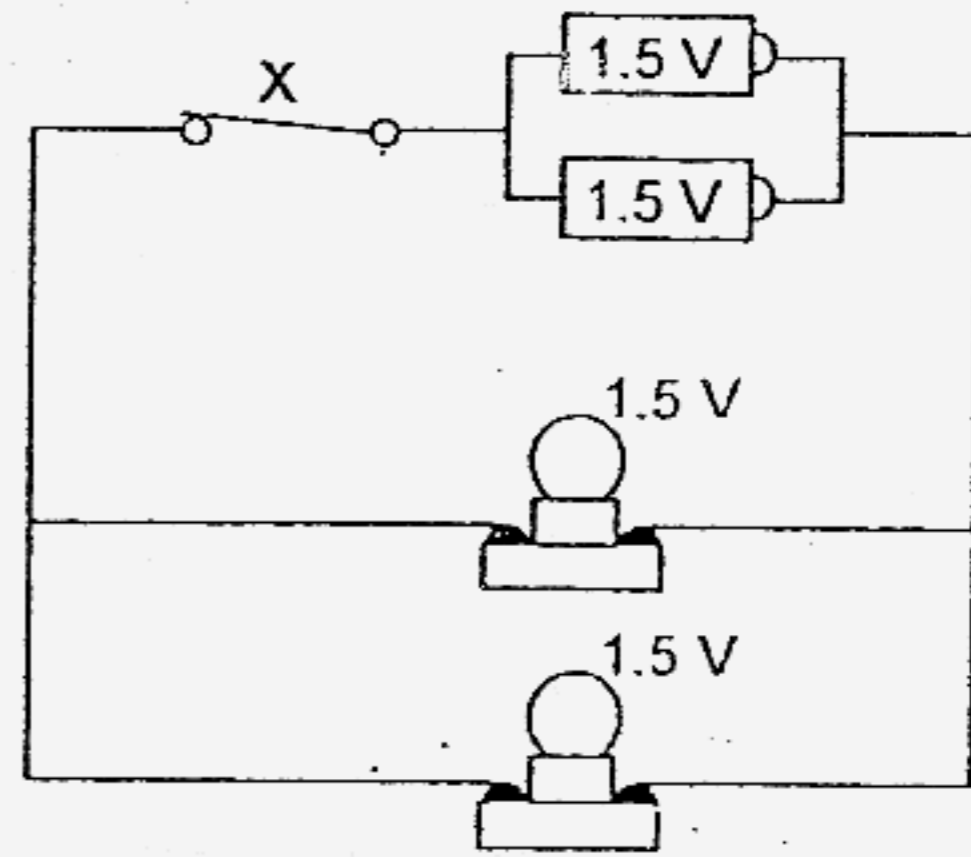
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41. Study the two circuits A and B below carefully.



Circuit A



Circuit B

(a) Write down two ways in which Circuit A and Circuit B are similar. (1m)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

(b) In what way are the bulbs in Circuit A different from Circuit B in terms of brightness? (1m)

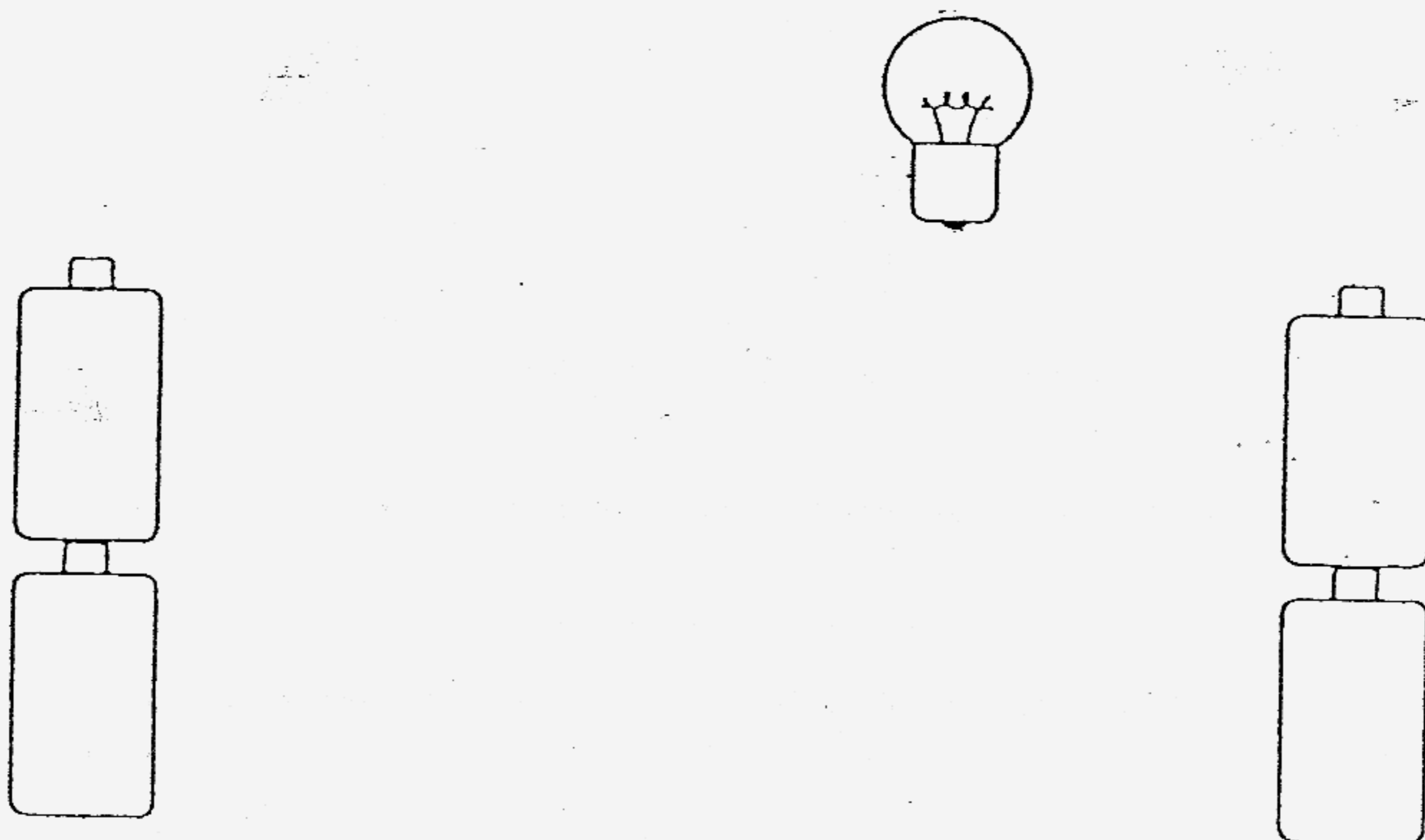
\_\_\_\_\_  
 \_\_\_\_\_

(c) What will happen if one of the bulbs in each circuit fuses? (1m)

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

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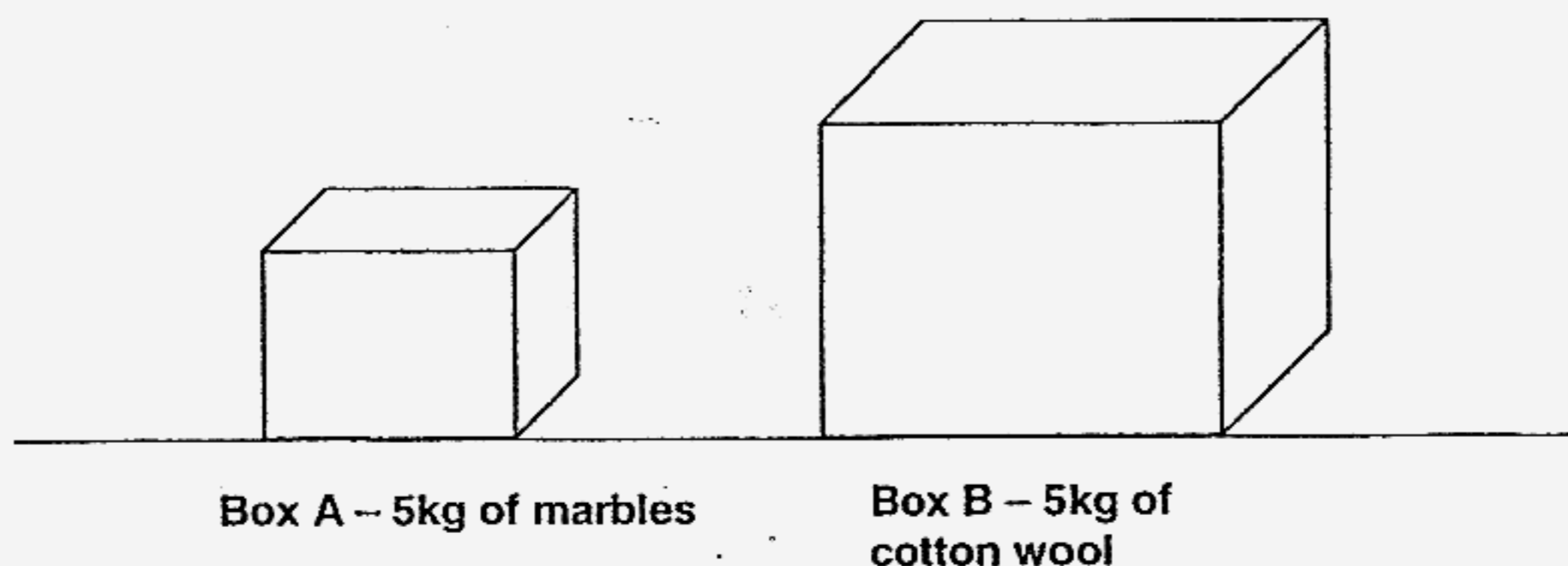
42. The diagram below shows a bulb and four batteries. Draw three wires to complete the circuit such that the bulb will light up the brightest. (2m)



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43. Ali had to carry the 2 boxes A and B shown below from his living room to his bedroom one at a time. Box A contained 5kg of marbles and Box B contained 5kg of cotton wool.



- (a) Would Ali require more, less or equal effort to carry Box B when compared to Box A? (1m)

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- (b) Suggest one type of simple machine which Ali could use to reduce the amount of effort to carry Box A. (1m)

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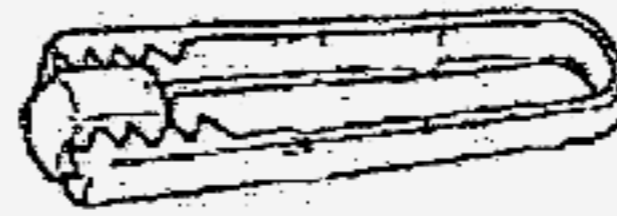
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44. Study these four tools carefully.



Nutcracker



Ice tongs



Clothes peg



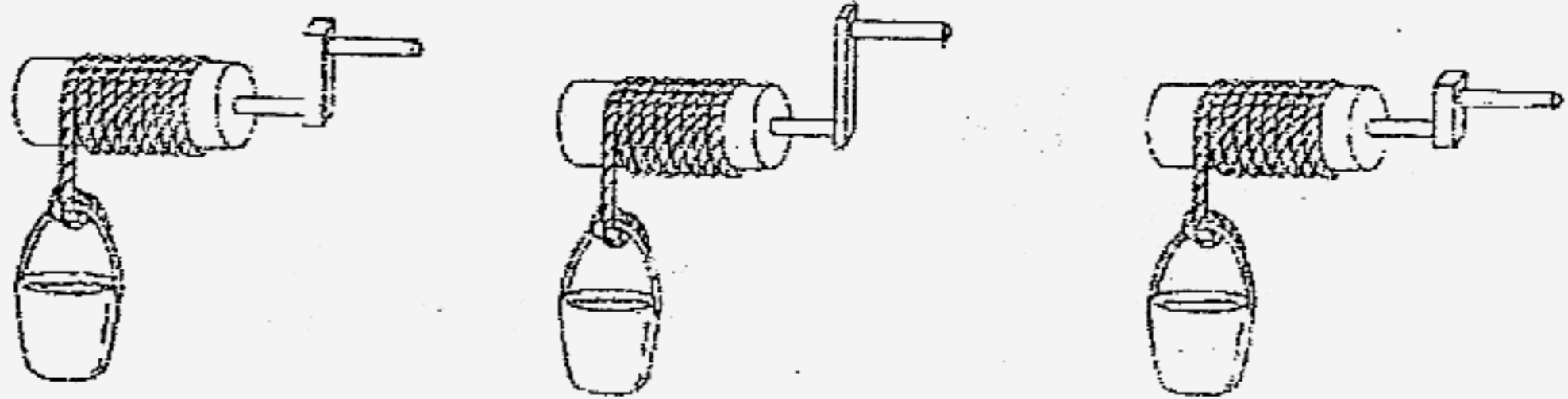
Tweezers

Complete the classification table. (4m)

Group	Position of fulcrum (F), load (L) and effort (E)	Tool(s)
Group 1		
Group 2		
Group 3		

( Go on to the next page)

45. Three different machines were used to study the effect of varying the sizes of the wheel on lifting a bucket filled with water.



Machine T

Machine U

Machine V

(a) Arrange the machines above according to the amount of effort that was needed to lift the load. Write your answers in the boxes provided. (1m)

greatest effort  $\longrightarrow$  least effort

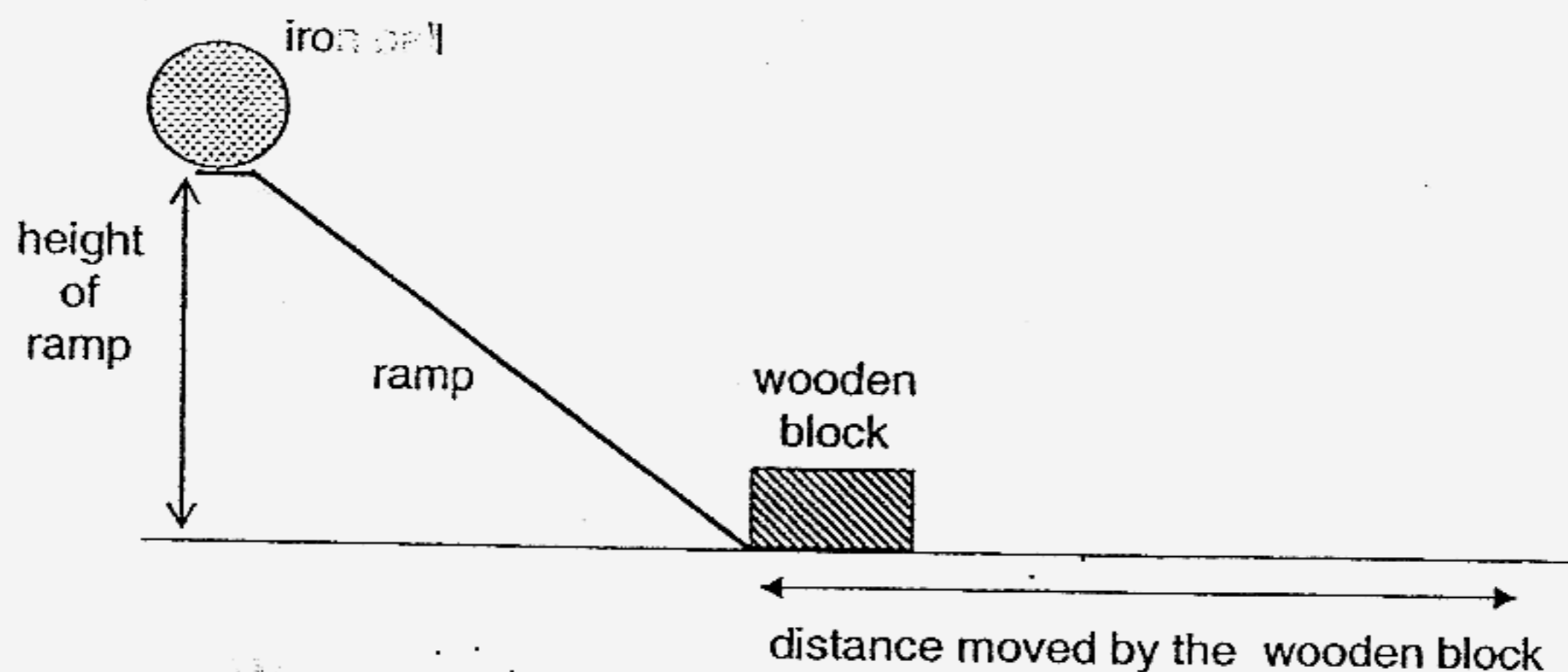
(b) State the relationship between the size of the wheel and the effort used. (1m)

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46. The diagram below shows the set-up of an experiment conducted by several students.



When the students allowed the iron ball to roll down the ramp, the iron ball would hit the wooden block and move it to a new position. They repeated the experiment 4 times to study the effect of changing the height of the ramp to four different levels.

The table below shows the result of their experiment.

*changable variable*

Height of ramp (cm)	10	15	20	25
Distance moved by the wooden block (cm)	8	18	26	32

*measurable variable*

- (a) What was the aim of this experiment? (1m)

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- (b) Name one variable that was changed during this experiment. (1m)

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- (c) Name one variable that the students had to keep the same so that the experiment was a fair one. (1m)

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- (d) What is the relationship between the height of the ramp and the distance moved by the wooden block? (1m)

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# Rosyth Primary School

## SECTION A : (60 MARKS)


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

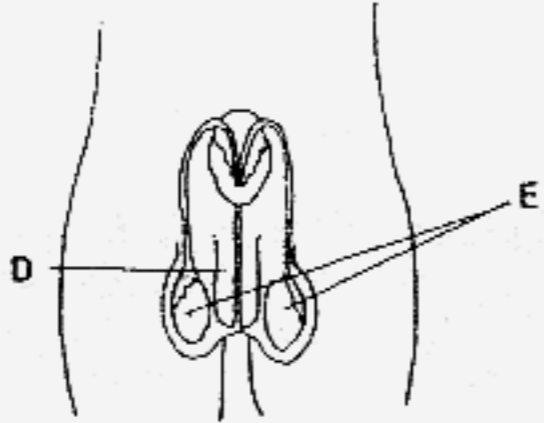

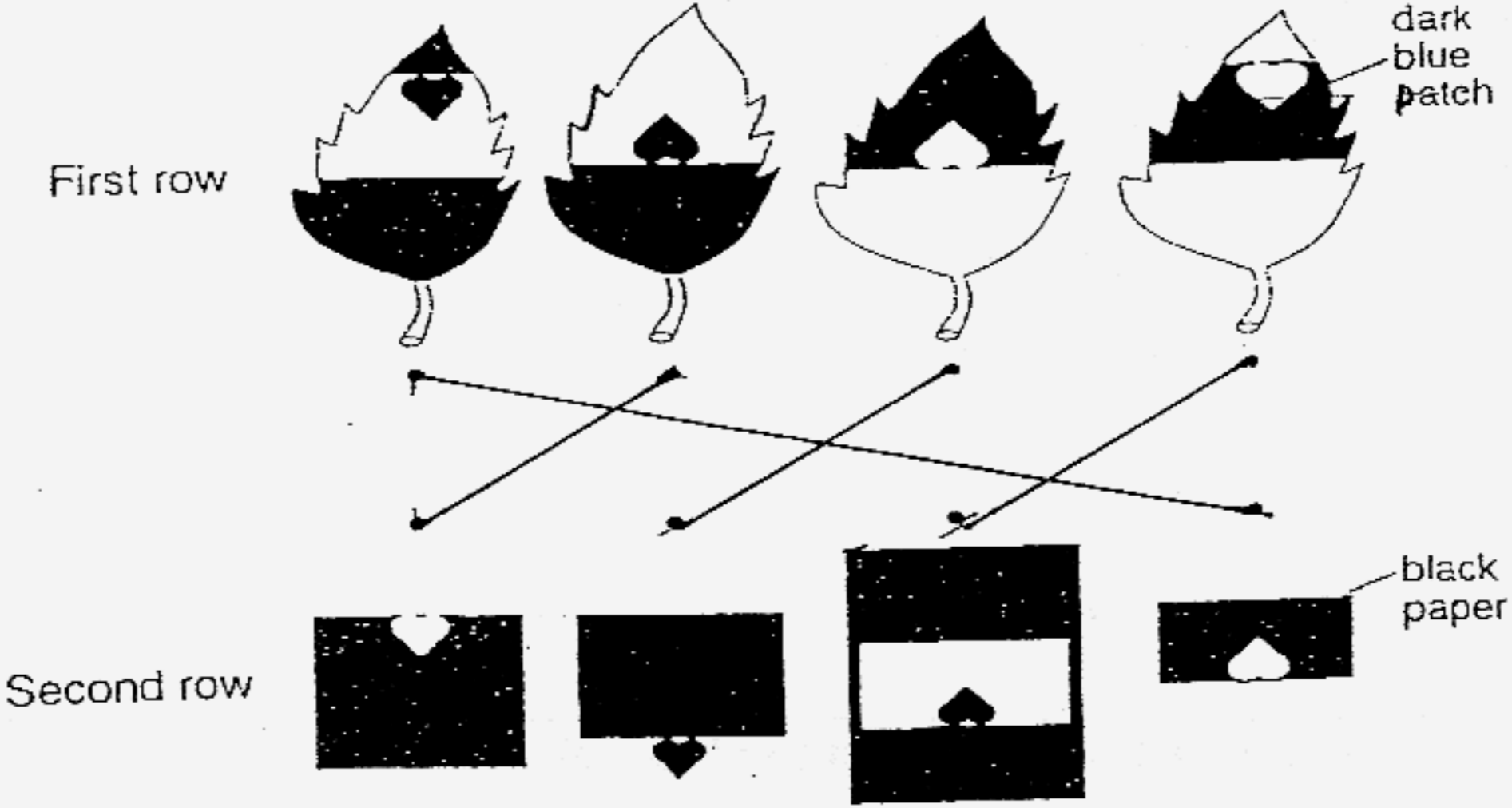
Qn no.	Ans
11	1
12	4
13	1
14	2
15	4
16	2
17	2
18	3
19	3
20	2

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

## SECTION B (40 MARKS)

Qn No.	Answers
31a	On the 16 <sup>th</sup> of February
31b	On the 2 <sup>nd</sup> March

32a	 <p>Diagram A</p>
32b	Buds are seen growing in the cells.

Qn No.	Answers
33a	 <p>D : penis                      E : testes</p>
33b	It produces sperm that fertilized an egg
33c.	 <p>The part is U</p>
34a	The lower the amount of dissolved oxygen per cubic centimeter of water, the faster the number of gill beats per minute.
34b	The fish needs to increase its number of gill beats per minute in order to get enough oxygen.
35a	Aquatic plants and plankton.
35b	Insect
35c	Fish
36a	 <p>First row</p> <p>Second row</p> <p>dark blue patch</p> <p>black paper</p>
36b	The parts could not photosynthesis and make food. When the plant cannot make food, it will use up its excess glucose for food. Soon, it will not have any starch left. When iodine solution is poured on them, they would not turn blue black.

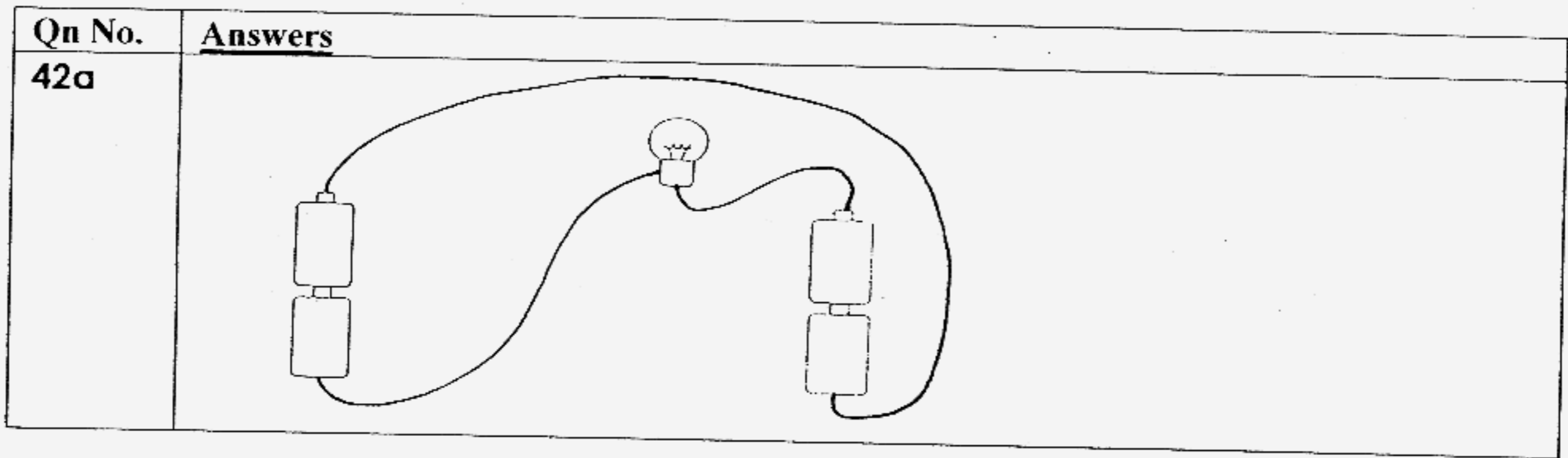
Qn No.	Answers
37	<p style="text-align: center;"> <span style="margin-right: 100px;">(     )</span> <span style="margin-right: 100px;">(     )</span> <span style="margin-right: 100px;">(     )</span> <span>(     )</span> </p> <p style="text-align: center;"> <span style="margin-right: 100px;">4</span> <span style="margin-right: 100px;">1</span> <span style="margin-right: 100px;">2</span> <span>3</span> </p>

38a	Bulb S will not light up.
38b	When Bulb S fuses, there will be a gap in the circuit. Thus, the electric current cannot flow through all the bulbs.

39a	Even though 3 batteries were used, they were arranged in parallel. Hence, the current flowing through circuit B is only equal to the electrical energy of one battery. The bulb in circuit B shines as bright as the bulb in Circuit A.
39b	I can arrange the arrangement of the batteries in circuit B in series.

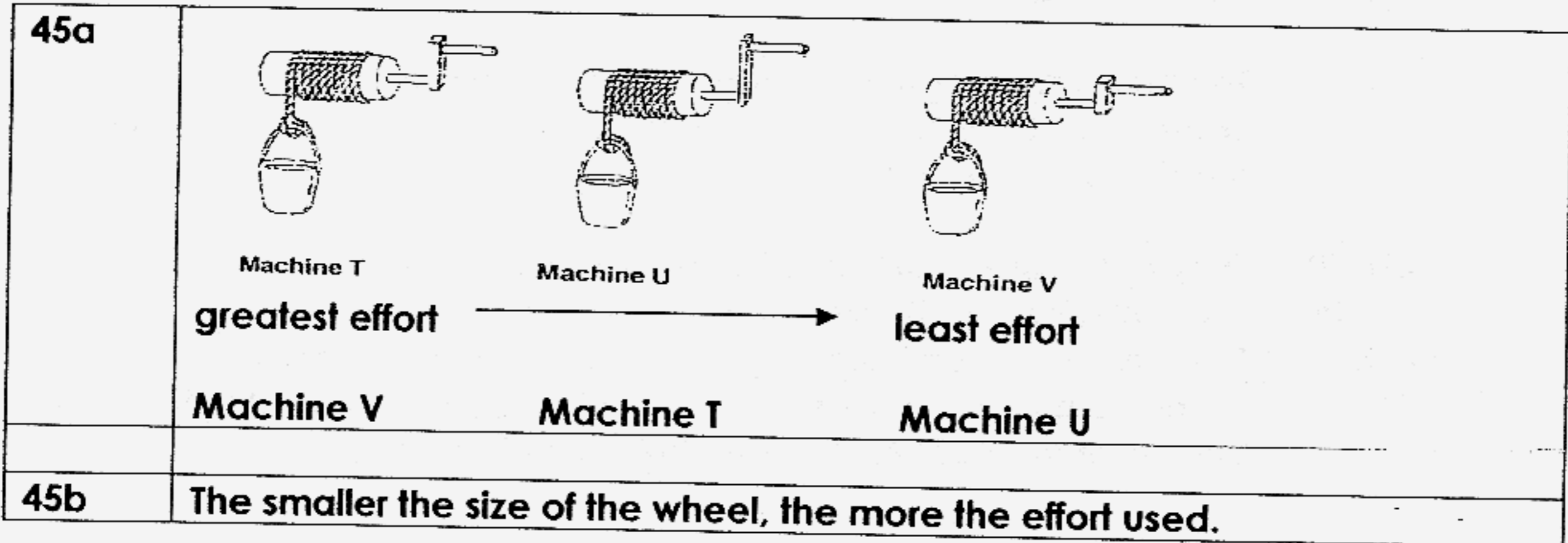
40a	The mercury level in the thermometer would rise.
40b	When the circuit is closed, electricity passes through the coiled wire thus heating up the water.

41a (i)	They both have a switch, 2 batteries and 2 bulbs.
(ii)	The batteries in both circuits are arranged in parallel.
41b	The bulbs in circuit B are brighter than the bulbs in circuit A.
41c	If 1 of the bulb fuses in circuit A, the other bulb would not light up. If one the bulb fuses in circuit B, the other bulb will still light up.



43a	Ali would require the same effort.
43b	The simple machine is wheelbarrow.

<b>44</b>	<b>Group</b>	<b>Position of fulcrum (F), load (L) and effort (E)</b>	<b>Tool(s)</b>
	Group 1		nutcracker
	Group 2		Clothes peg
	Group 3		Tweezers ice fongs



46a	The aim was to find out if the height of the ramp affects the distance moved by the wooden block.
46b	The variable was the height of the ramp.
46c	The mass of the wooden block.
46d	The higher the height of the ramp, the further the distance moved by the wooden block.