

Index No.

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**NAN HUA PRIMARY SCHOOL
PRELIMINARY EXAMINATION 2007
PRIMARY 6**

**SCIENCE
(BOOKLET A)**

Name: _____ ()

Class: Pr. 6 _____

Date: 23 August 2007

Booklet A	/ 60
Booklet B	/ 40
TOTAL	/ 100

Parent's Signature & Date

Total Time for Booklets A and B: 1 hour 45 minutes

INSTRUCTION TO CANDIDATES

1. Write your Index Number in the boxes at the top right-hand corner.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers in the Optical Answer Sheet (OAS) provided.

Section A: (30 x 2marks = 60marks)

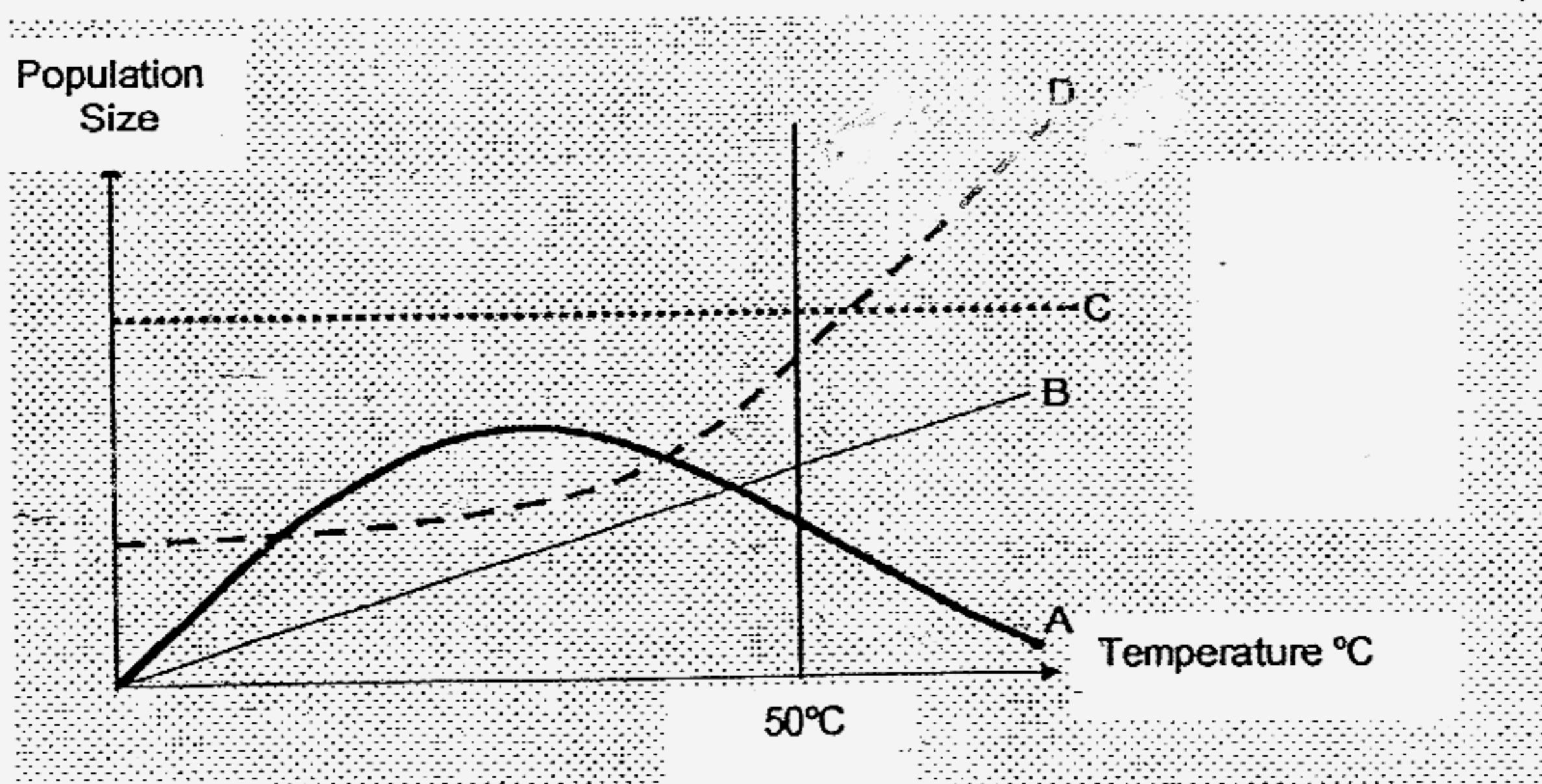
For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

1. Which of the following factors below will lead to an increase in the size of an organism's population?

- (A) Abundance of food
- (B) Predation
- (C) Diseases
- (D) High birth rate
- (E) Sufficient water

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

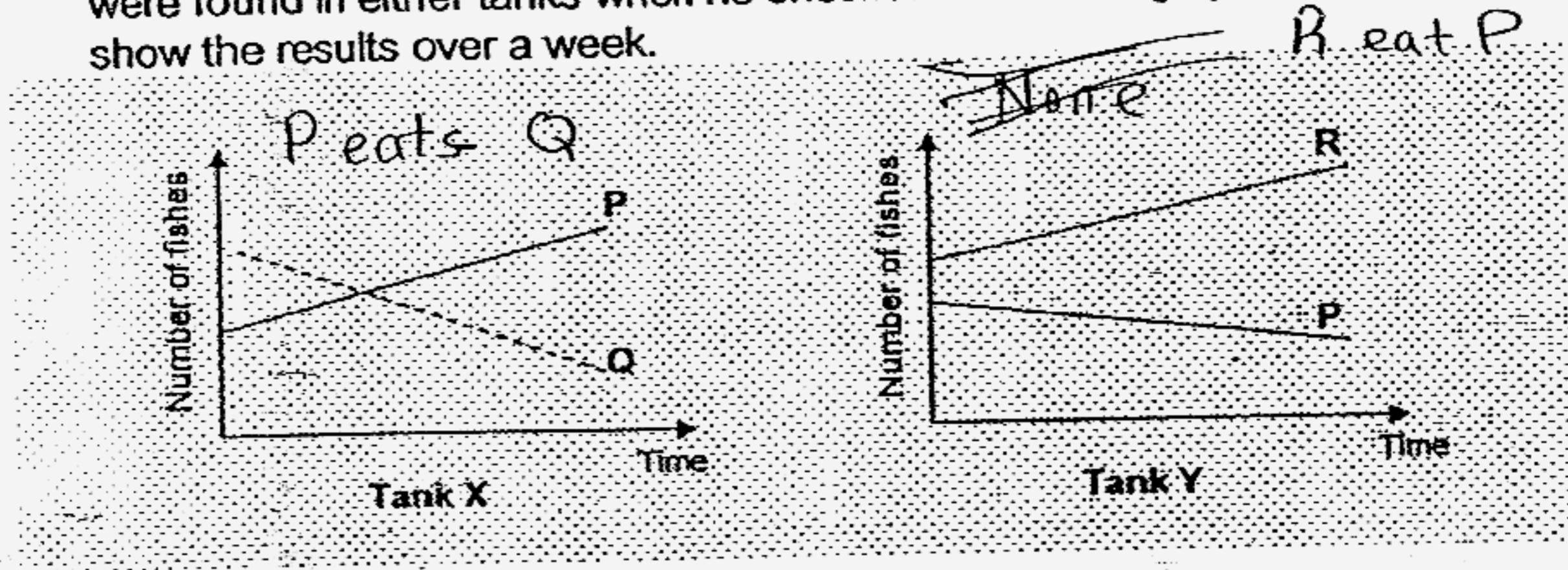
2. The graph below shows the effect of temperature on the populations of 4 different organisms, A, B, C and D.



Which organism(s) will not thrive if the temperature of the environment is above 50°C?

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

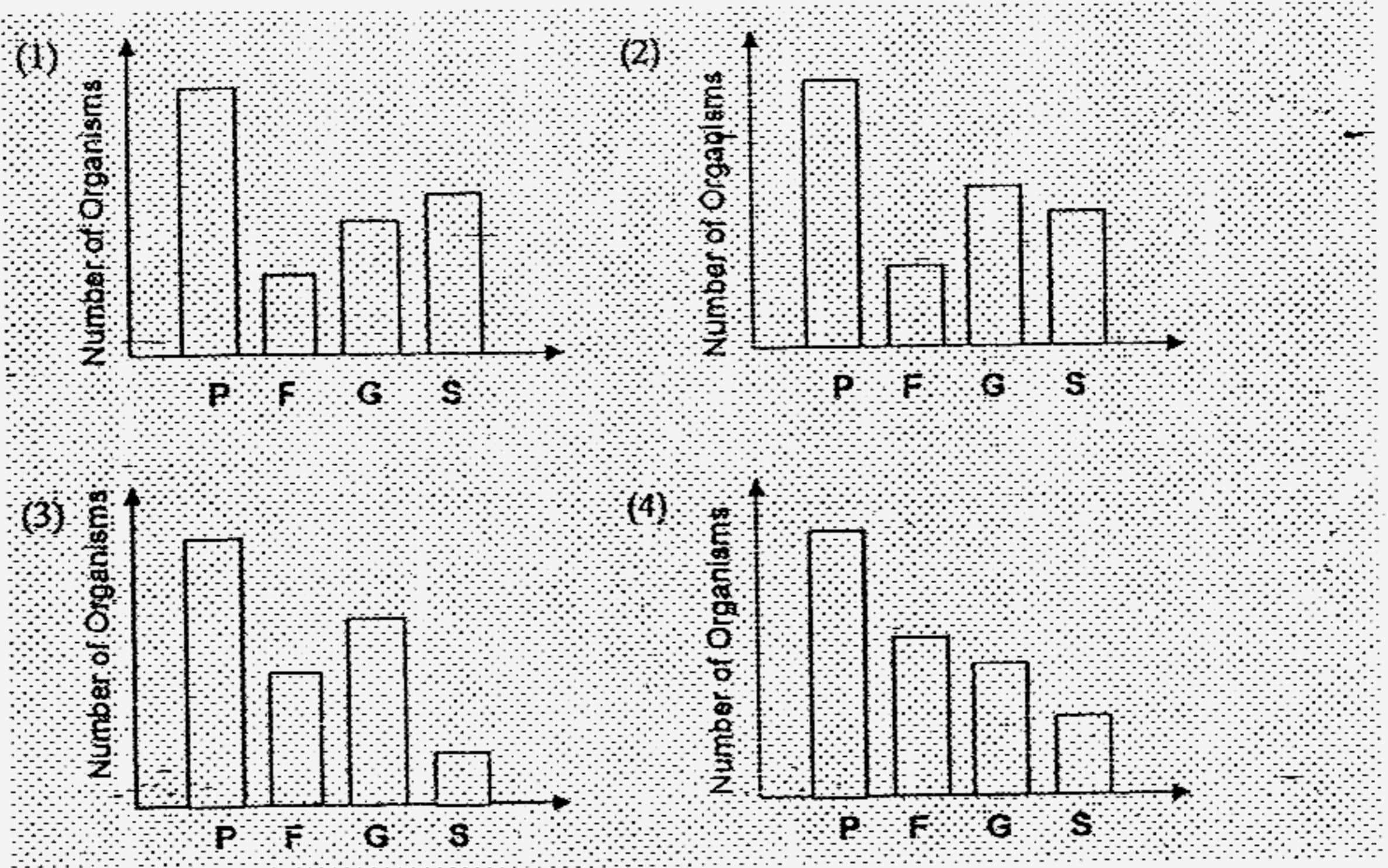
3. Matthew bought 3 different kinds of fishes, P, Q and R and put them into two tanks, X and Y. He put P and Q into tank X, and P and R into tank Y. He recorded the number of fishes in each tank everyday. No dead fishes were found in either tanks when he checked them. The graphs below show the results over a week.



Which one of the following food chains shows the predator-prey relationship between the 3 fishes?

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

4. Which one of the graphs best shows the population of each organism in the community?



Key:

P	Plant
F	Frog
G	Grasshopper
S	Snake

5. The following predator-prey relationships were observed among four living things W, X, Y and Z.

W is eaten by Z
 W feeds on Y
 Z feeds on Y but not X
 Y gets its food from X

Which one of the following is the correct classification of the living things?

	Food producer	Prey	Prey/Predator	Predator
(1)	Y	X	Z	W
(2)	X	Y	W	Z
(3)	Z	Y	W	X
(4)	X	Z	Y	W

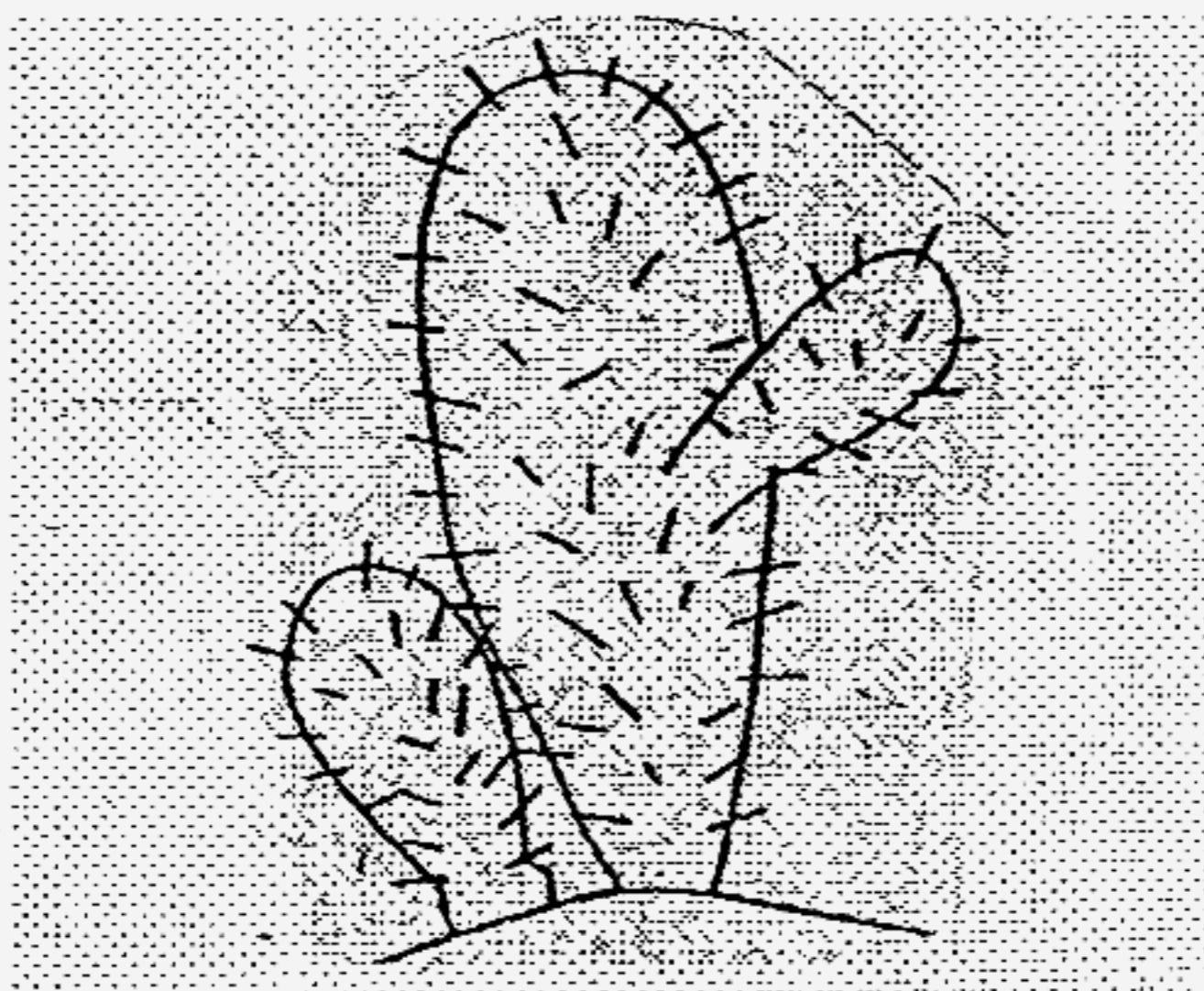
6. Which of the following statement(s) about the adaptation of the polar bear is/are true?
- (A) The polar bear has white fur for camouflage.
 - (B) The polar bear's fur is waterproof, thus allowing it to easily shake free of water and any ice that may form after swimming.
 - (C) The polar bear has a thick layer of fat to keep it warm.
 - (D) The polar bear has stiff hairs on the bottom of its feet to prevent it from slipping in the Arctic snow.
- (1) A and B only
 - (2) C and D only
 - (3) A, B and C only
 - (4) A, B, C and D

7. The camel has adapted itself to survival in the desert environment. These adaptations are _____.

- (A) having humps to store water
- (B) having long eyelashes to block out sand
- (C) having thick fur to protect against sand storms
- (D) sweating and urinating very little in order to retain as much water as possible

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

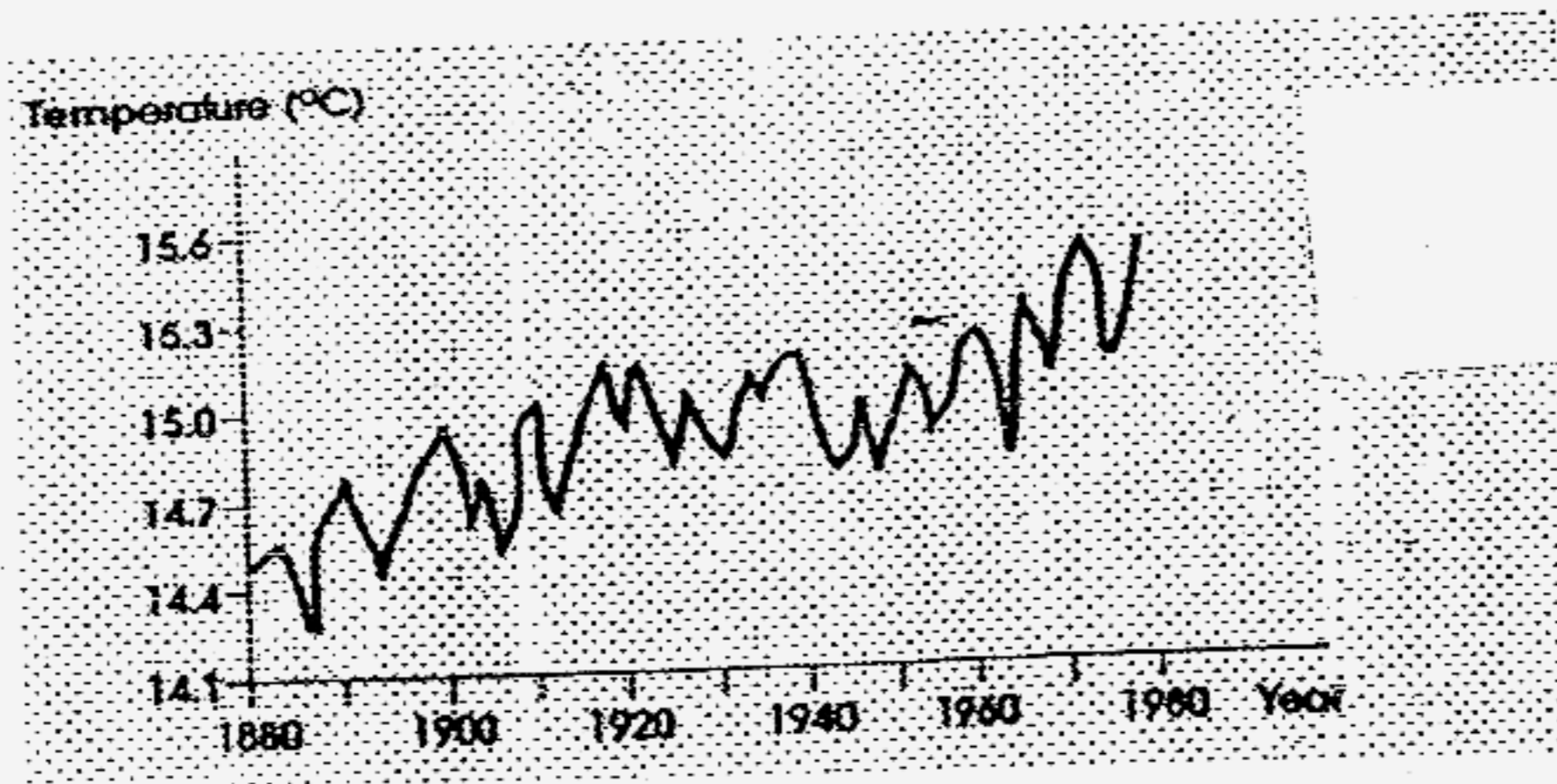
8. The needle-like spines of the cactus plant are actually the leaves modified into such shape for its adaptation to its natural habitat. What are some advantages of such leaves?



- (A) They help to reduce transpiration.
- (B) They help to beautify the plant.
- (C) They help the plant to photosynthesise.
- (D) They protect the plants against grazing animals.

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

9. The graph shows the average global temperature in degrees Celcius.



Which of the following are reasons for the above graphical representation?

- (A) Deforestation
- (B) Melting of the polar ice caps
- (C) Production of greenhouse gases
- (D) Increase in the number of motor vehicles

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

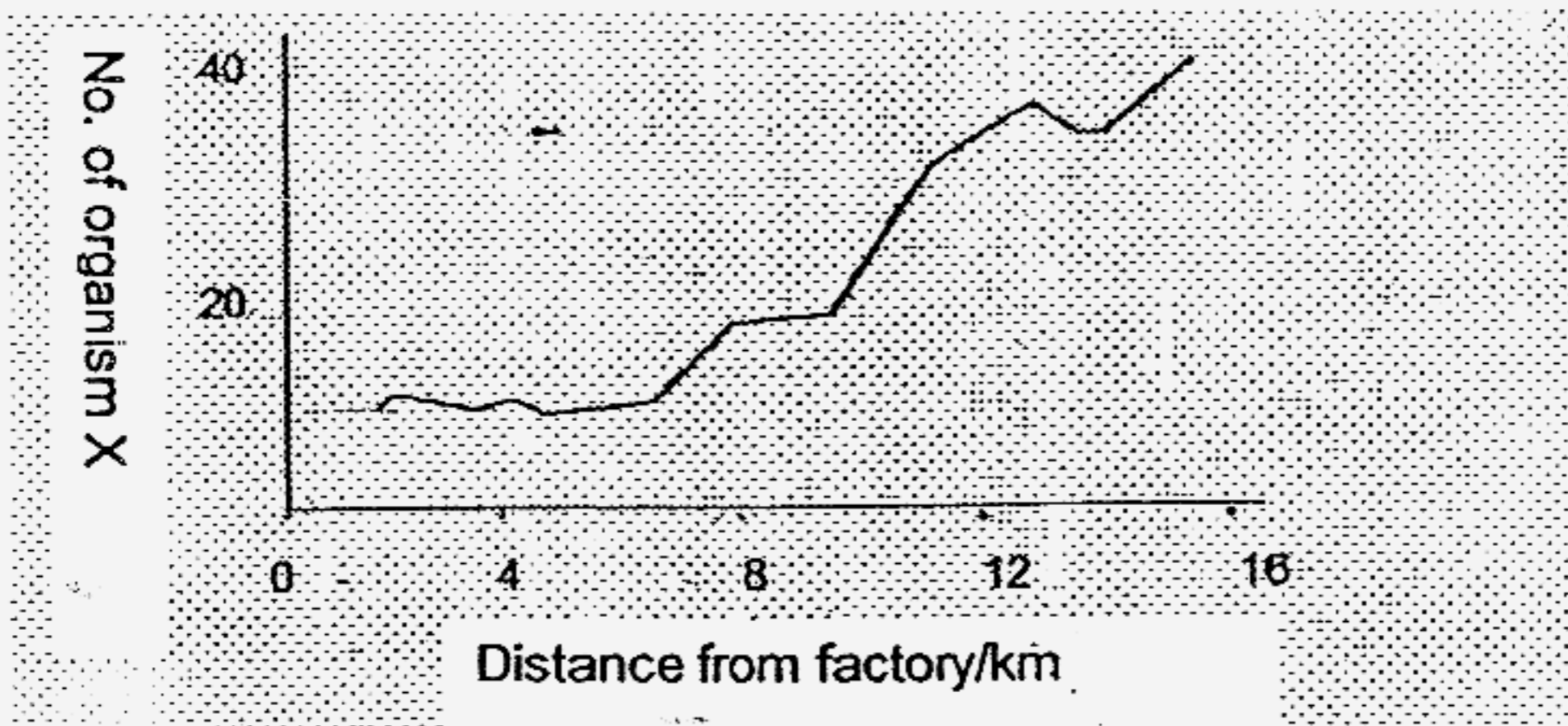
10. Study the statements below carefully.

- (A) Coal is a renewable resource.
- (B) Greenhouse effect will cause skin cancer.
- (C) The main cause of acid rain is deforestation.
- (D) The burning of fuels causes the greenhouse effect.

Which of the statements above are false?

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

11. Organism X is very sensitive to air pollution. The graph shows how the distance from a factory affects the number of organism X.



Which one of the following conclusions can be drawn from the graph?

- (1) Organism X grows more quickly near the factory.
 - (2) The number of organism X increases as the distance from the factory decreases.
 - (3) The number of organism X decreases as the distance from the factory increases.
 - (4) The number of organism X increases as the distance from the factory increases.
12. Which of the following organs are wrongly matched to their functions?

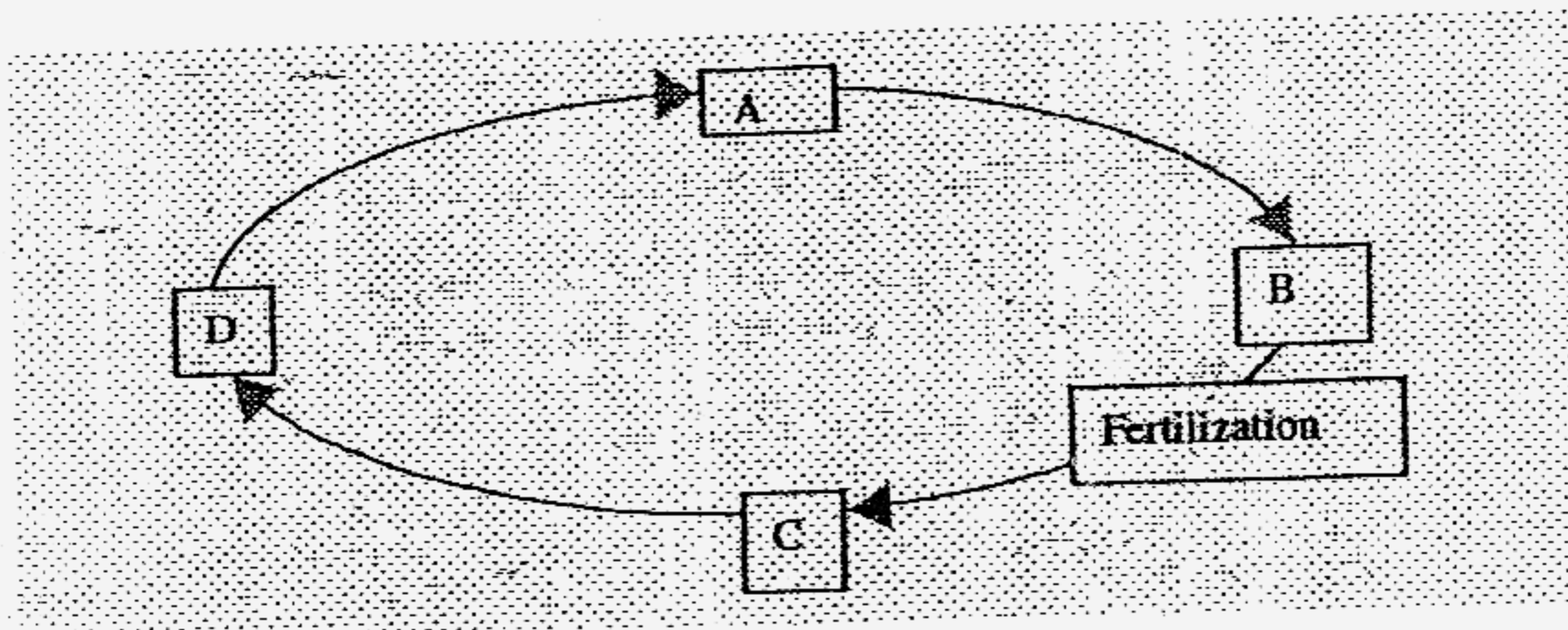
Organs	Functions
A: Heart	It pumps blood to all parts of our body.
B: Lungs	They transport oxygen around our body.
C: Stomach	It chums food into smaller pieces.
D: Small intestine	It completes the digestion of food.
E: Large intestine	It removes water from the undigested food.
F: Windpipe	It transports food from the mouth to the stomach.

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

13. How are birds and insects similar?

- (1) They lay eggs.
- (2) They have feelers.
- (3) They have two legs.
- (4) They have feathers.

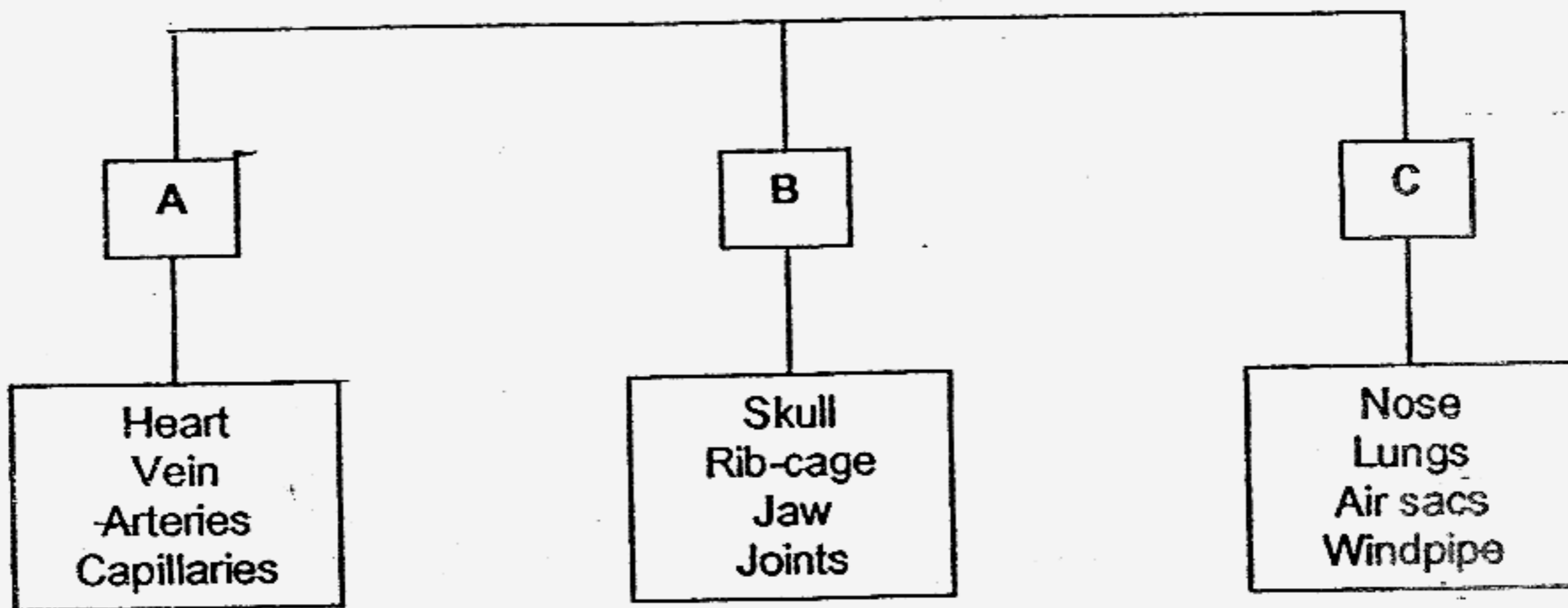
14.



The diagram shows the life cycle of a butterfly and the point at which fertilization occurs. Which of the following correctly shows the different stages of its life cycle?

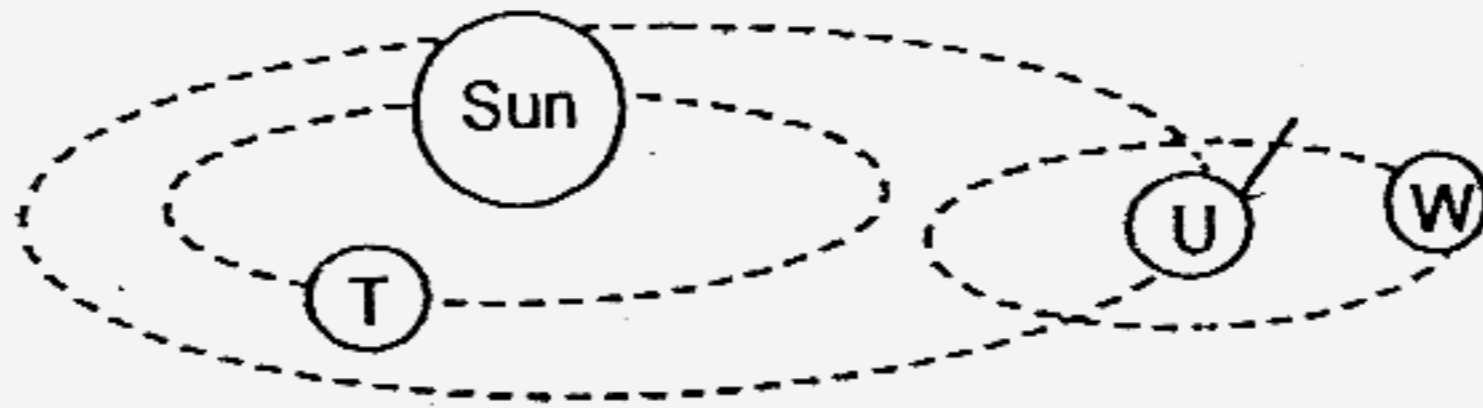
	A	B	C	D
(1)	Egg	Larva	Pupa	Adult
(2)	Larva	Pupa	Adult	Egg
(3)	Pupa	Adult	Egg	Larva
(4)	Adult	Egg	Larva	Pupa

15. How has the table below been classified? What systems do A, B and C belong to?



	A	B	C
(1)	Circulatory	Respiratory	Skeletal
(2)	Respiratory	Circulatory	Skeletal
(3)	Circulatory	Skeletal	Respiratory
(4)	Skeletal	Respiratory	Circulatory

16. The diagram below shows the orbits of some objects.



Which of the following statements can you infer based on the diagram only?

- A T, U and W revolve around the Sun.
- B T will have a higher surface temperature than U.
- C W is kept in orbit, due to the gravitational pull exerted on it by U.
- D When T completes one revolution around the Sun, U would have completed two revolutions.

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

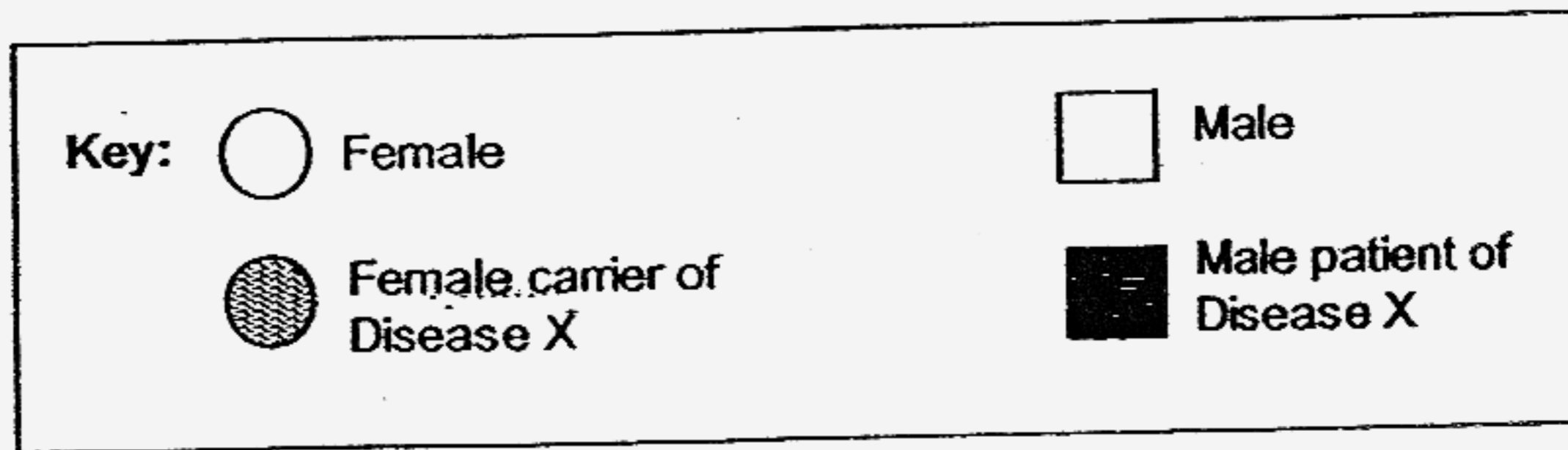
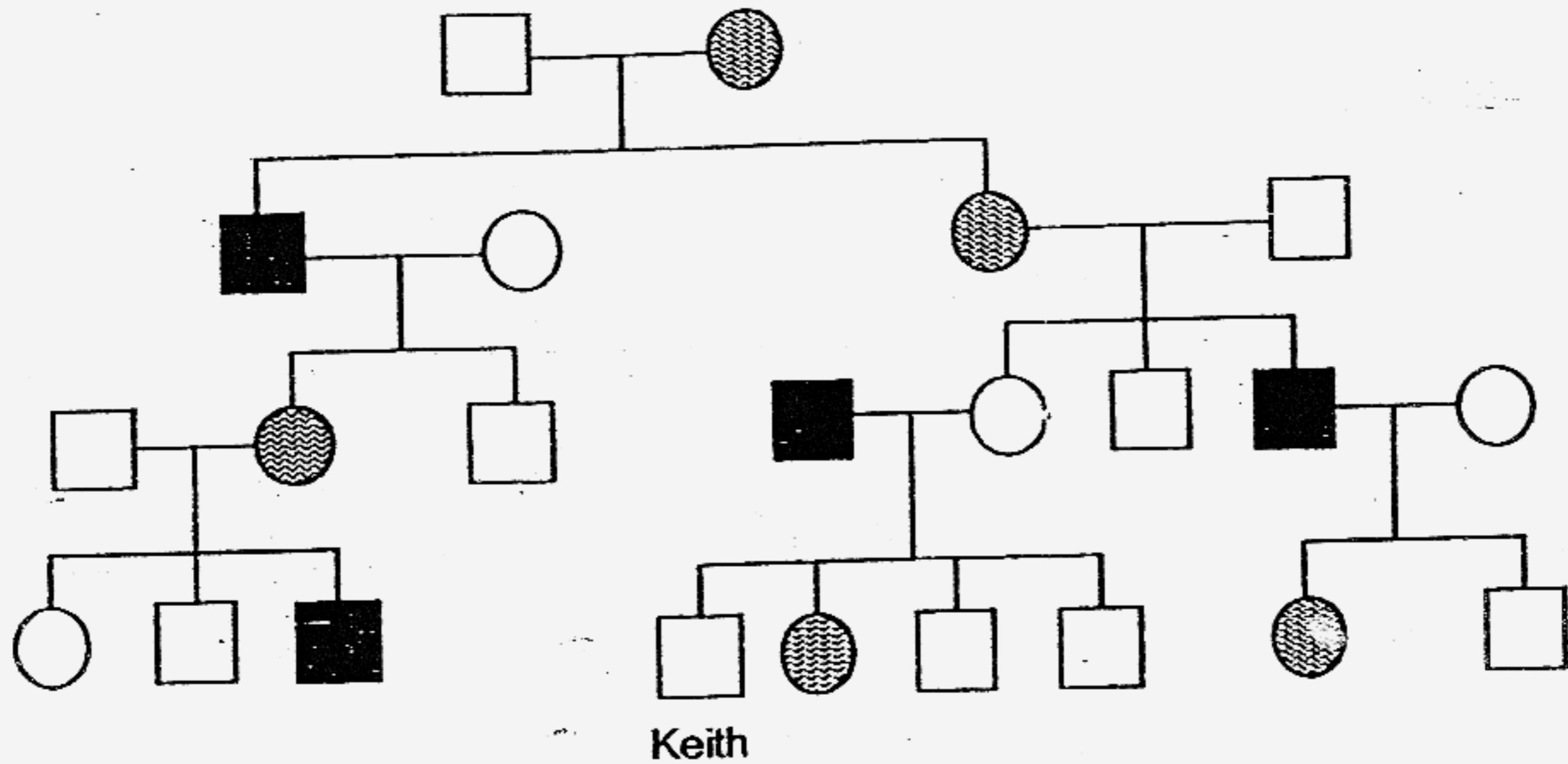
17. Five pupils observed some plant and animal cells under the microscope. They recorded their observations and conclusions in the table below.

Name of pupil	Observation on cell parts seen	Conclusion on type of cell
Alfi	Cytoplasm, nucleus, cell membrane	Animal
Marshal	Nucleus, cell wall, cell membrane, chloroplasts	Plant
Emily	Cell membrane, nucleus, chloroplasts	Animal
Ben	Cell membrane, cell wall, nucleus	Animal
Nathan	Cell membrane, cell wall, nucleus, cytoplasm	Plant

Which pupils made the correct conclusion?

- (1) Alfi, Emily and Ben
- (2) Emily, Ben and Nathan
- (3) Marshal, Emily and Ben
- (4) Alfi, Marshal and Nathan

18. The diagram below shows Keith's family tree of 4 generations that carry the genetic trait for Disease X. Study the family tree carefully and answer the following question.

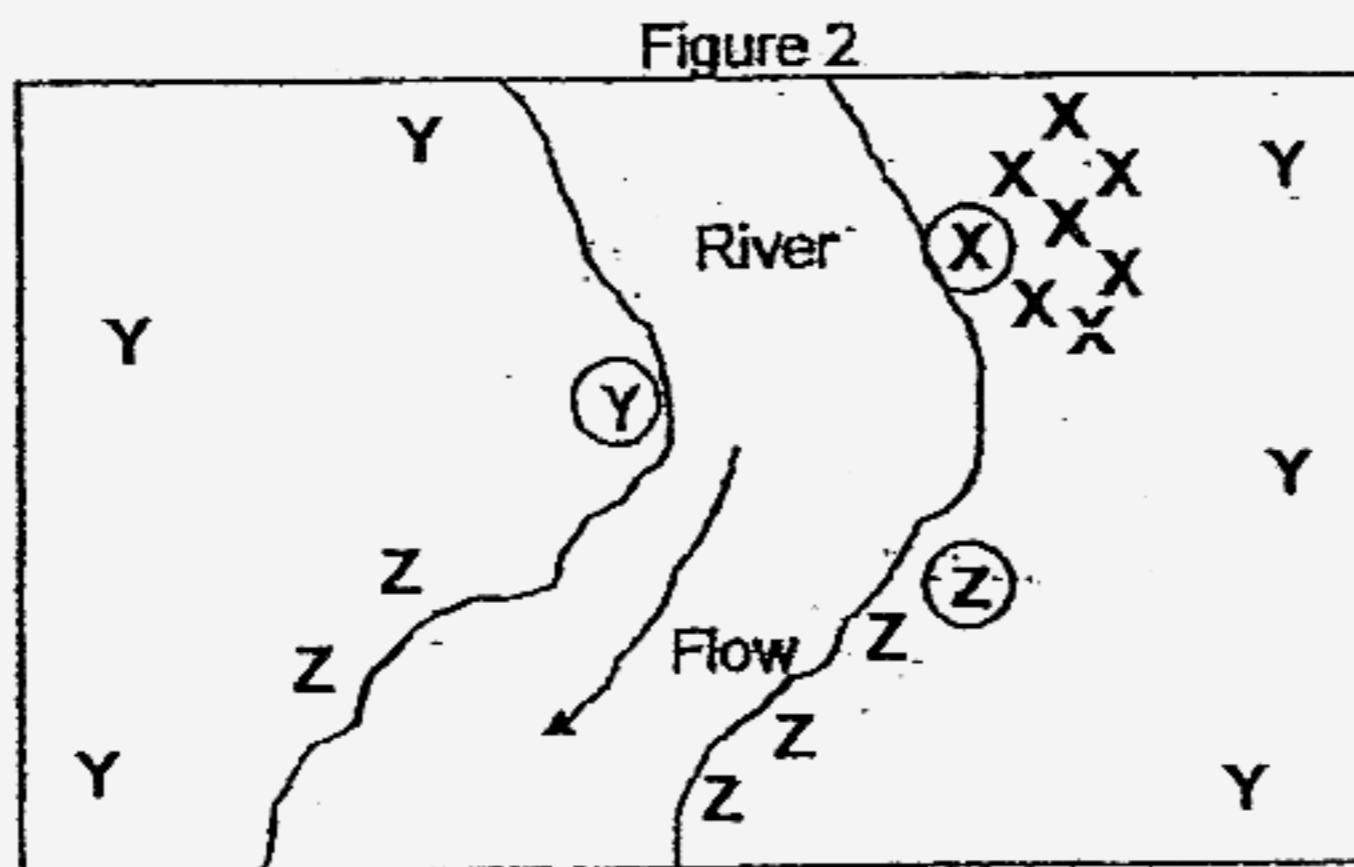
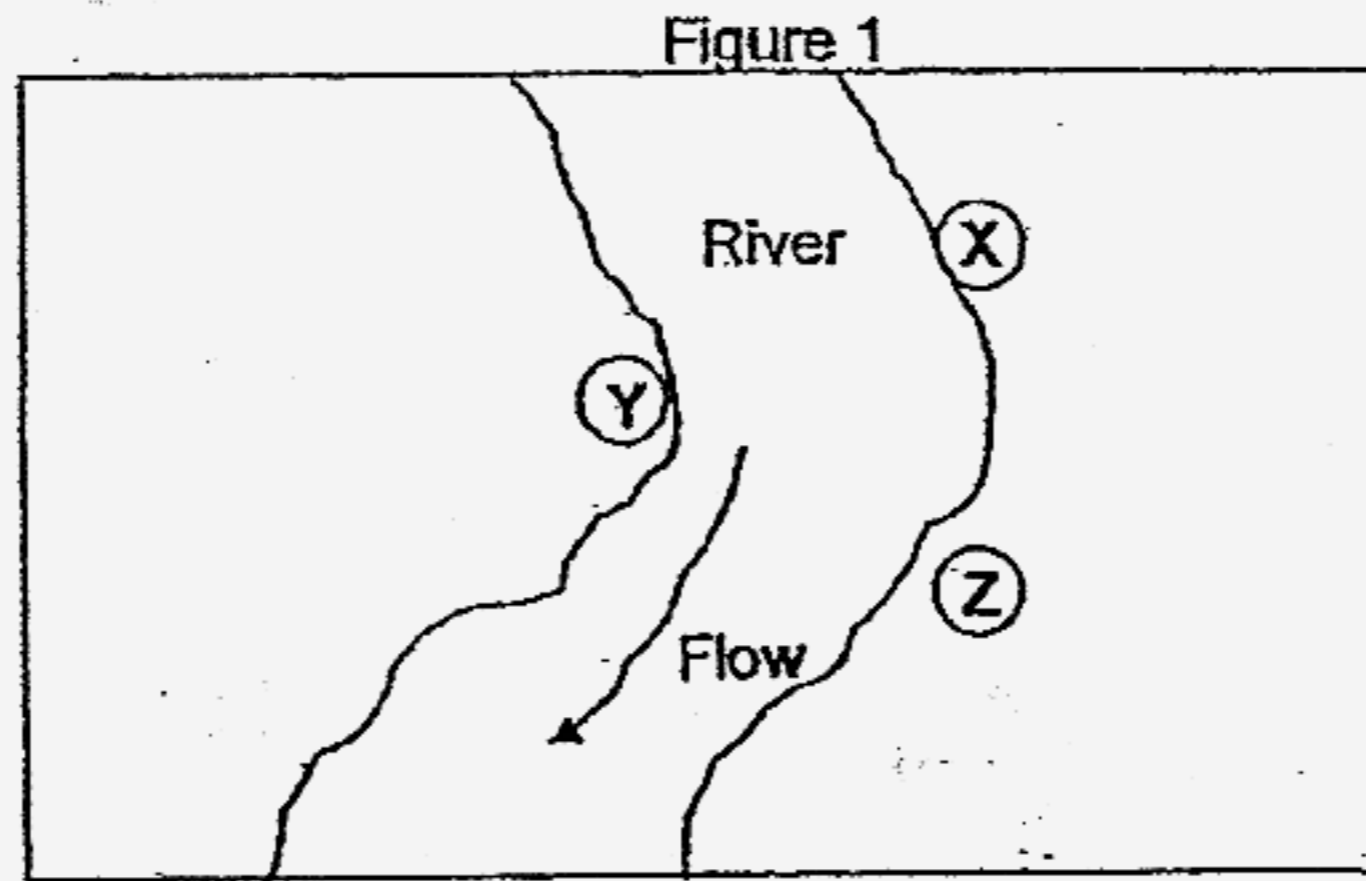


Which of the following statements can you conclude with the above family tree?

- A There is a possibility of Keith's sister bearing a son with the disease.
- B The genes of Disease X is passed on to only the male members of the family.
- C The daughter of a male patient with Disease X will be a carrier of the disease.
- D Keith's mother inherited the genes of Disease X from her maternal grandfather.

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

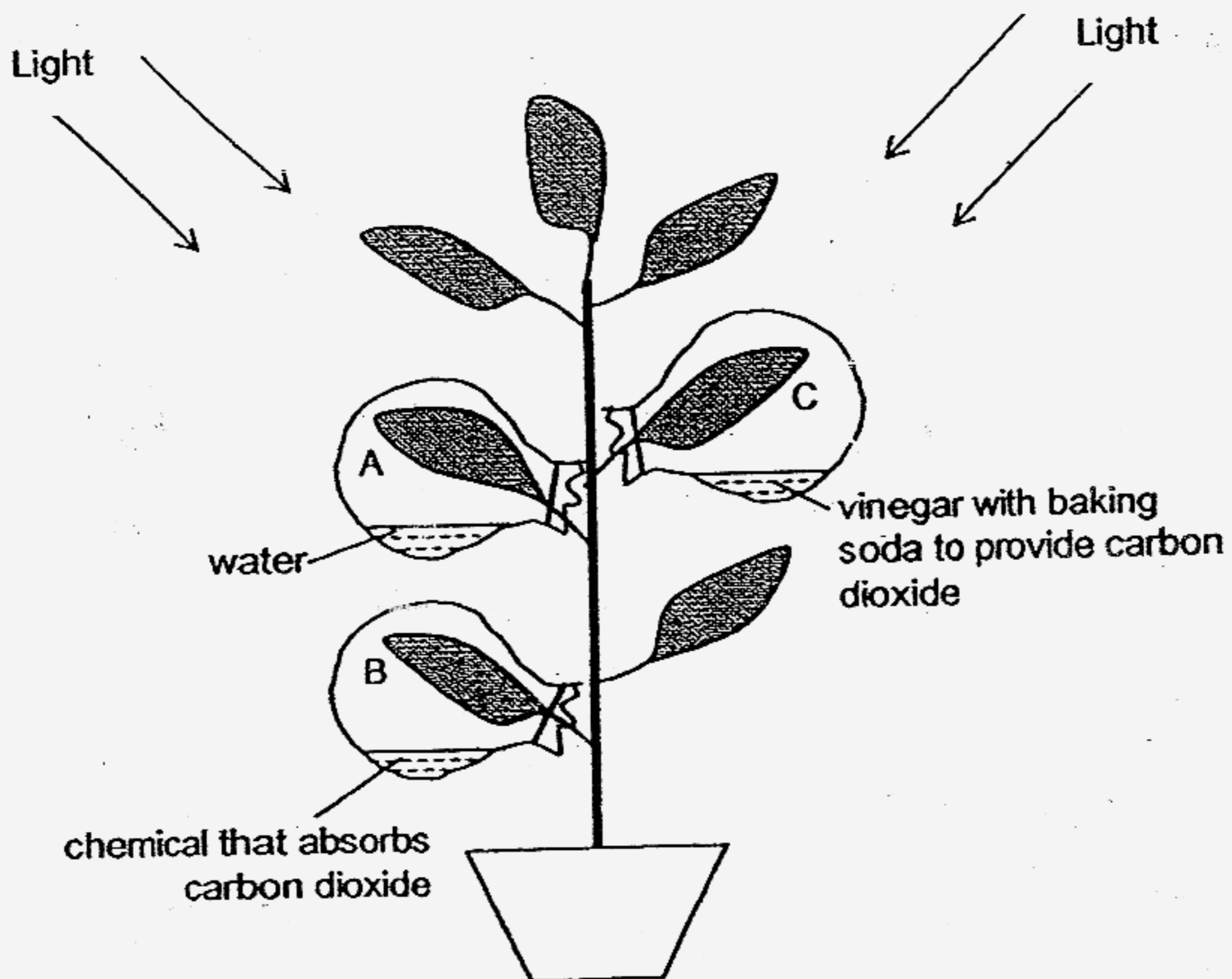
19. Three different types of plants, X, Y and Z were identified on some empty land as shown in Figure 1. All of them bear fruits. A few years later, as a result of dispersal, more of the plants were found as shown in figure 2.



Based on what you observe from figure 2, what are the likely characteristics of the fruits of plants X, Y and Z, which helped them to disperse their seeds?

	Plant X	Plant Y	Plant Z
(1)	Has a water-proof outer covering	Has air spaces	Has thorns
(2)	Splits open when dry	Is hairy and light	Has a fibrous husk
(3)	Has wing-like structures	Is fleshy and edible	Has a water-proof outer covering
(4)	Is fleshy and edible	Splits open when dry	Has hook-like structure

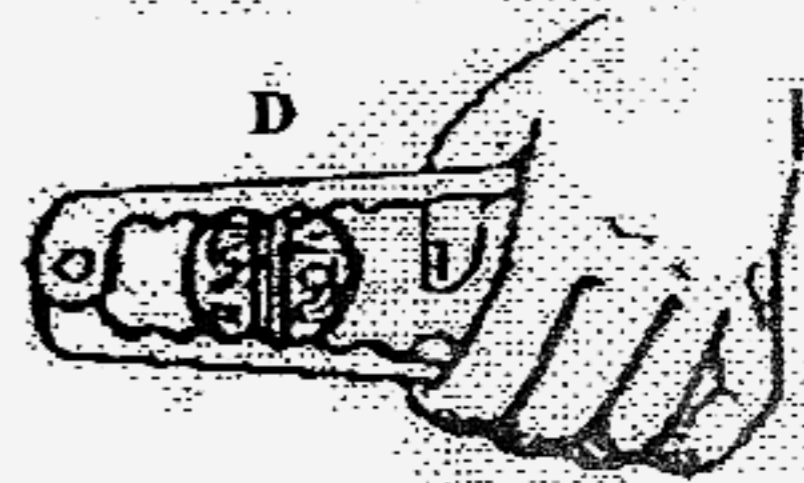
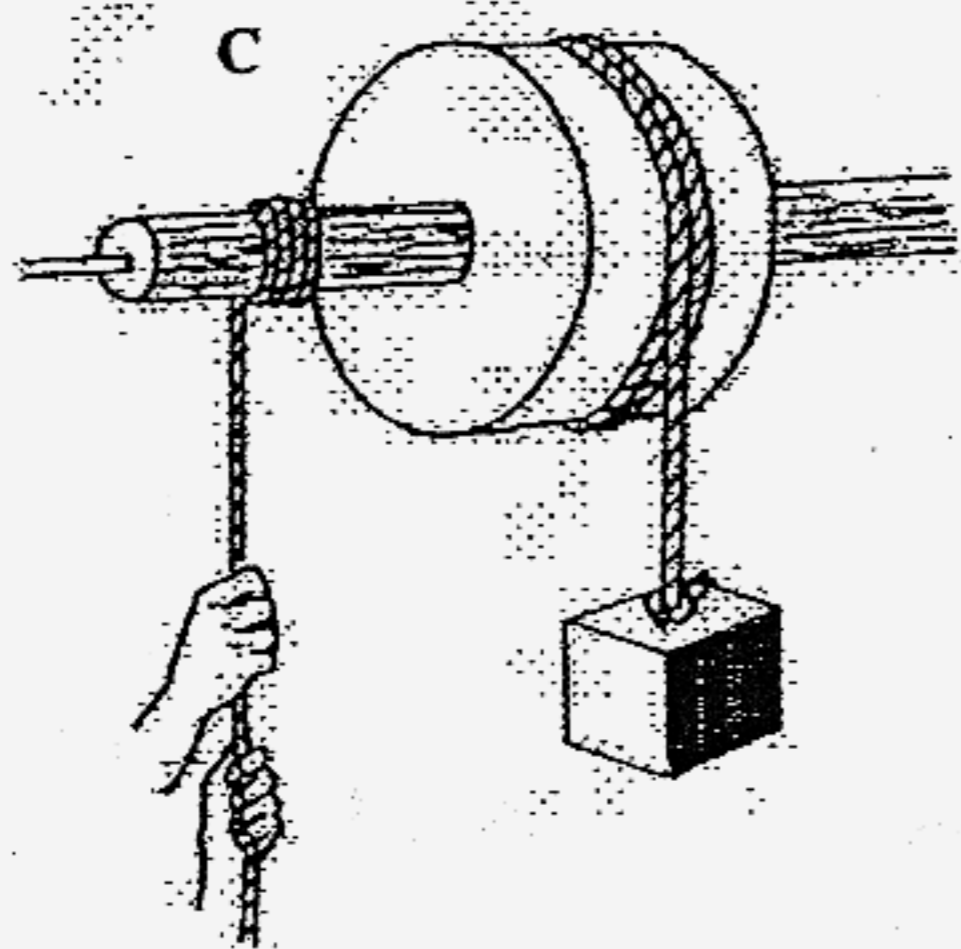
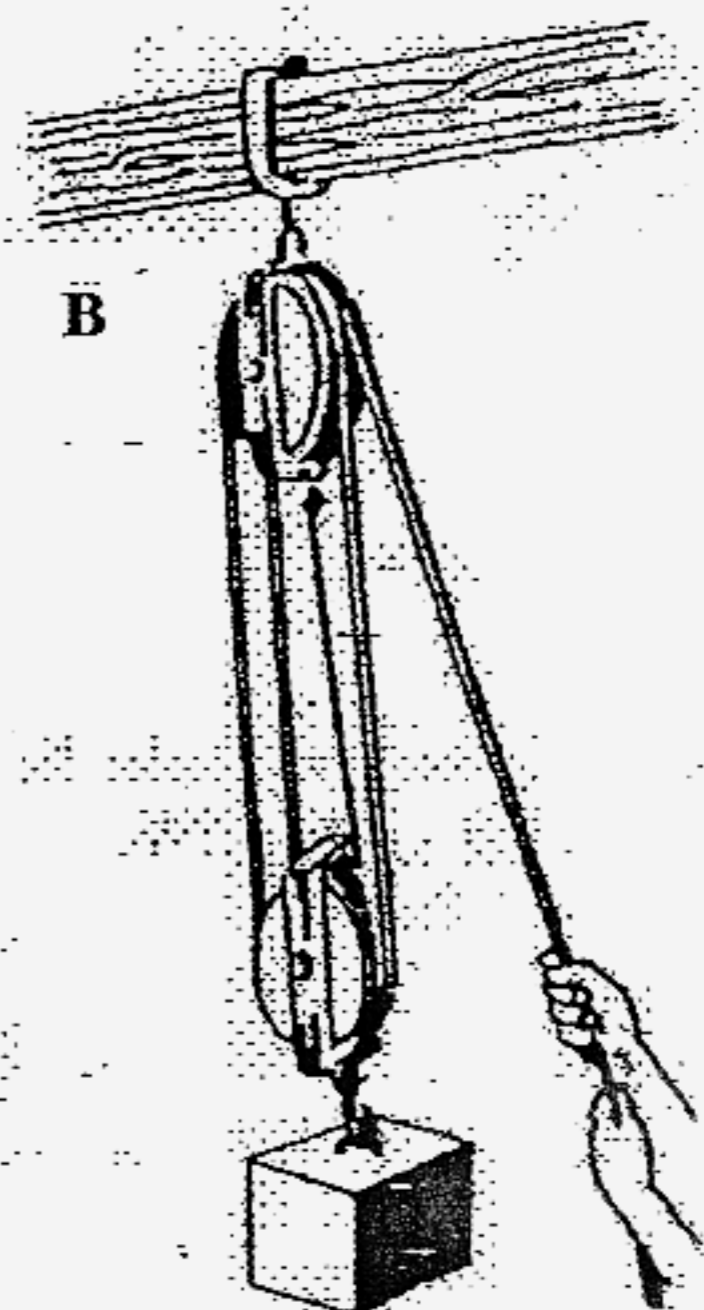
20. Ke Ai wanted to conduct an experiment on photosynthesis. Before she started her investigation, she left the plant in a dark cupboard for 48 hours. She set up her experiment in the garden as shown in the diagram below.



After four hours, Ke Ai removed leaves A, B and C, and conducted a starch test on the leaves. Which one of the following sets of results would she most likely obtain?

	Results of starch test		
	Leaf A	Leaf B	Leaf C
(1)	It turned dark blue.	It turned dark blue.	It remained brown.
(2)	It turned dark blue.	It remained brown.	It turned dark blue.
(3)	It remained brown.	It turned dark blue.	It remained brown.
(4)	It remained brown.	It remained brown.	It turned dark blue.

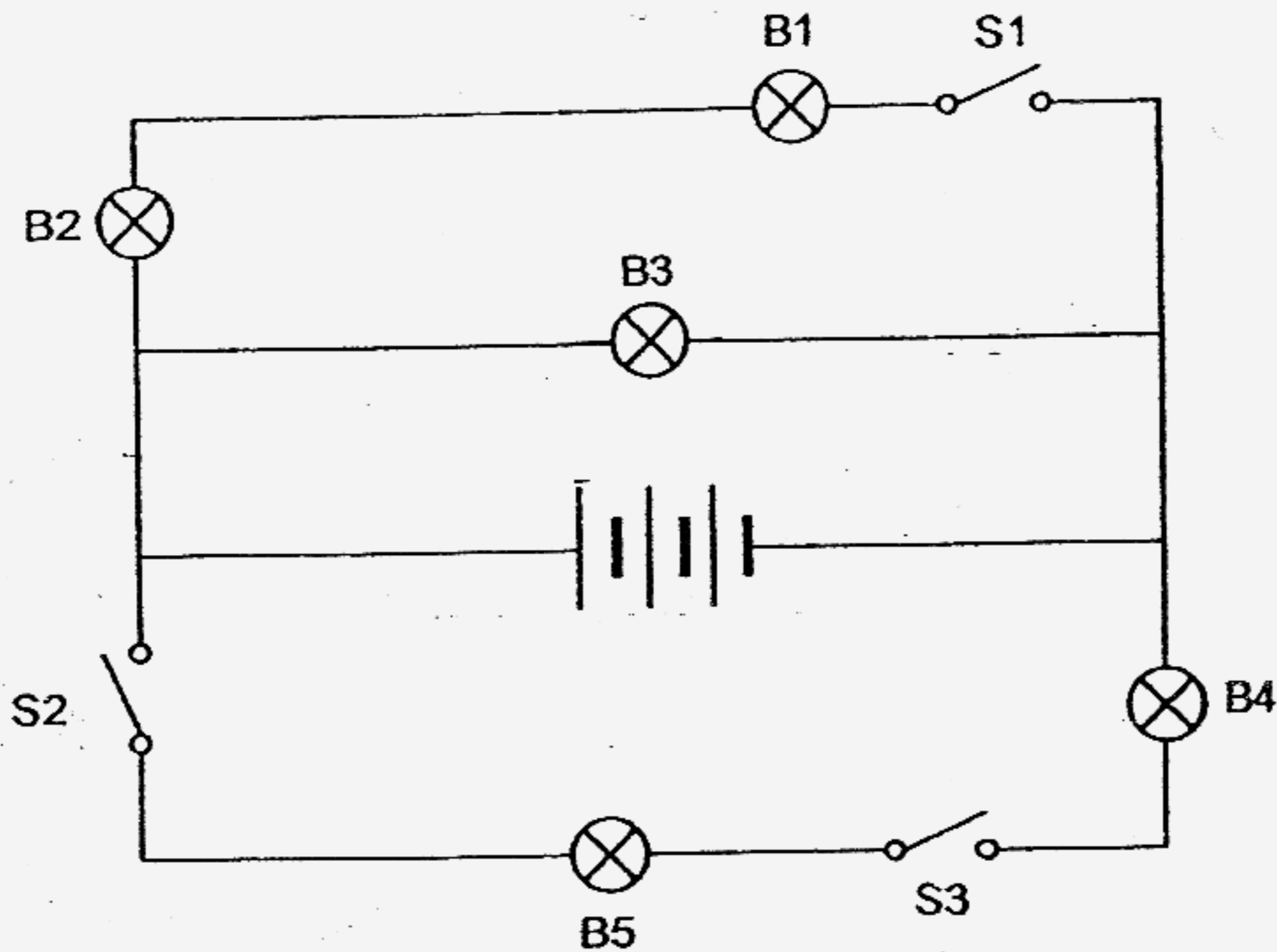
21. Four simple machines A, B, C and D are shown in the diagram below.



In which of the above simple machines, does the applied effort move over a longer distance than the load?

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

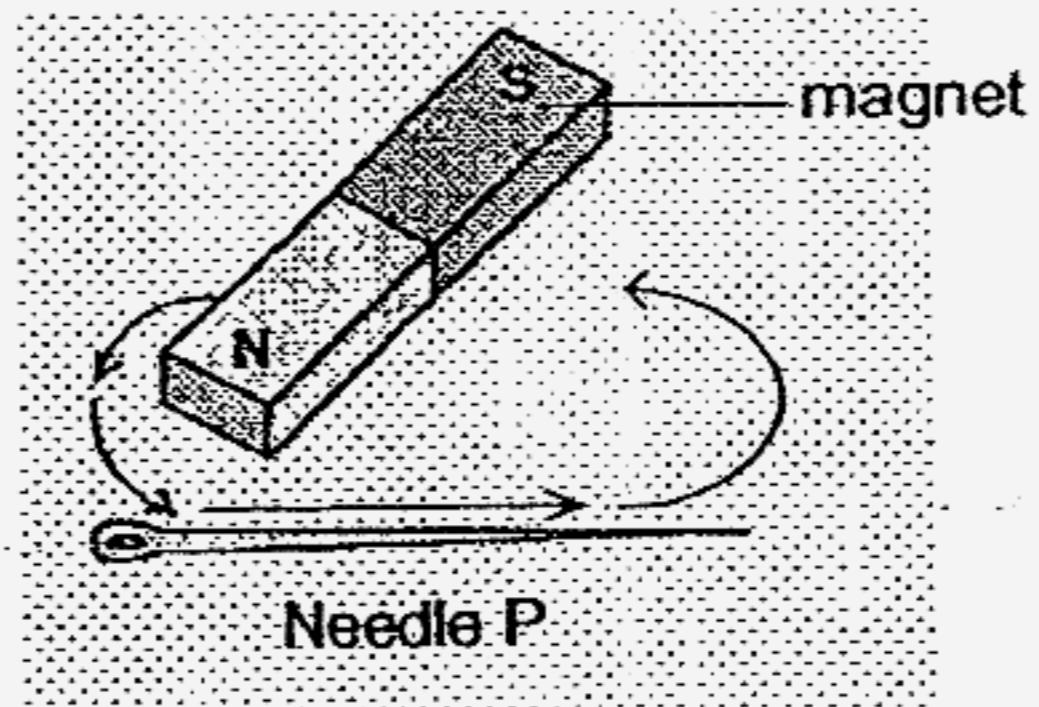
22. The circuit diagram shown below consists of five bulbs, three switches and three dry cells.



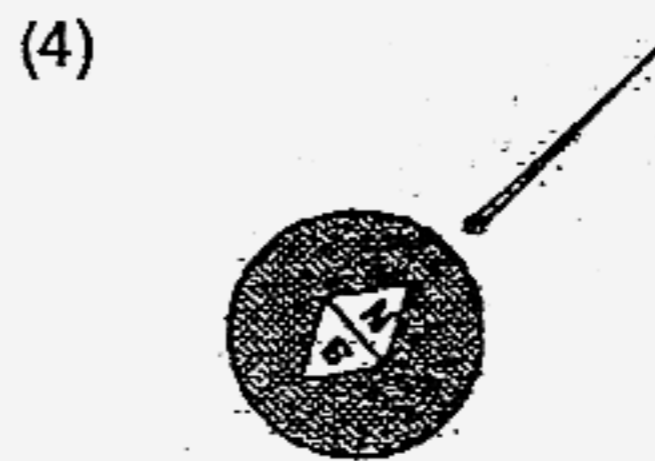
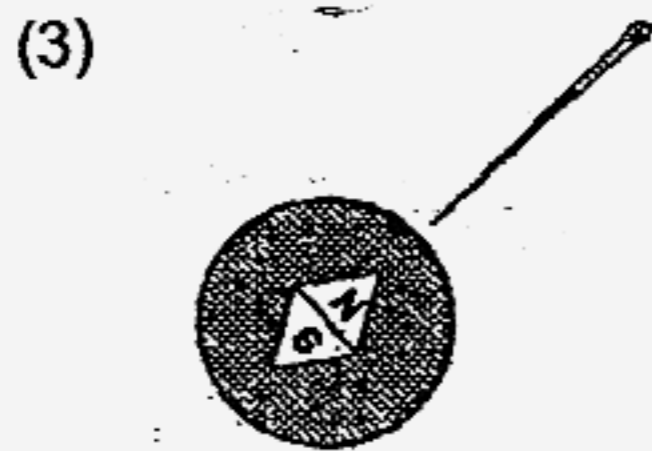
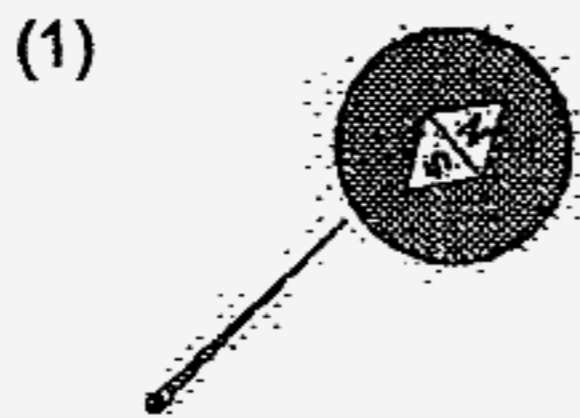
Which one of the following statements about the circuit shown above is correct?

- (1) When S1 and S2 are open and S3 is closed, only B4 and B5 would light up.
- (2) When S1 and S2 are closed and S3 is open, only B1, B2 and B3 would light up.
- (3) When S2 and S3 are open and S1 is closed, only B2 and B3 would light up.
- (4) When S2 and S3 are closed and S1 is open, only B4 and B5 would light up.

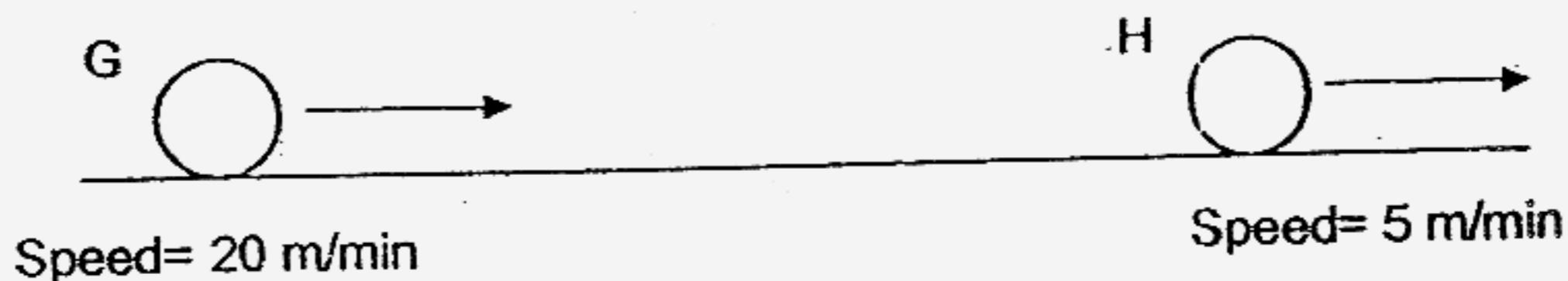
23. Needle P is made into a temporary magnet by using the stroking method.



The needle is then placed near a compass. Which one of the needles shown is needle P?



24. Two identical tennis balls, G and H are moving on a marble floor at different speeds in the direction as shown in the diagram below.



What will happen to balls G and H after some time?

- A G will hit H and G will travel in the same direction.
- B G will hit H and G will travel in the opposite direction.
- C After being hit by G, H will travel faster in the same direction.
- D After being hit by G, H will travel slower in the opposite direction.

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

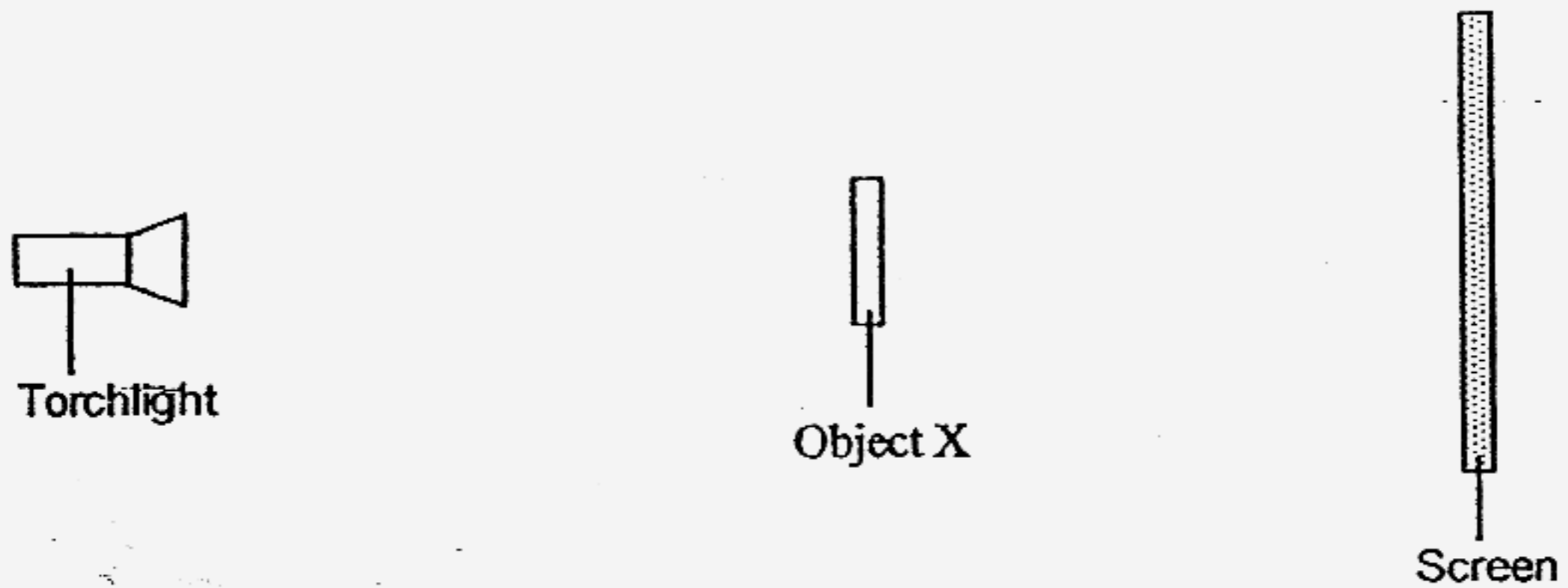
25. A marble was pushed with the same amount of force across four different types of surfaces, Q, R, S and T. The table below shows the distance travelled by the marble before it came to a stop.

Surface	Q	R	S	T
Distance traveled (cm)	78	19	28	55

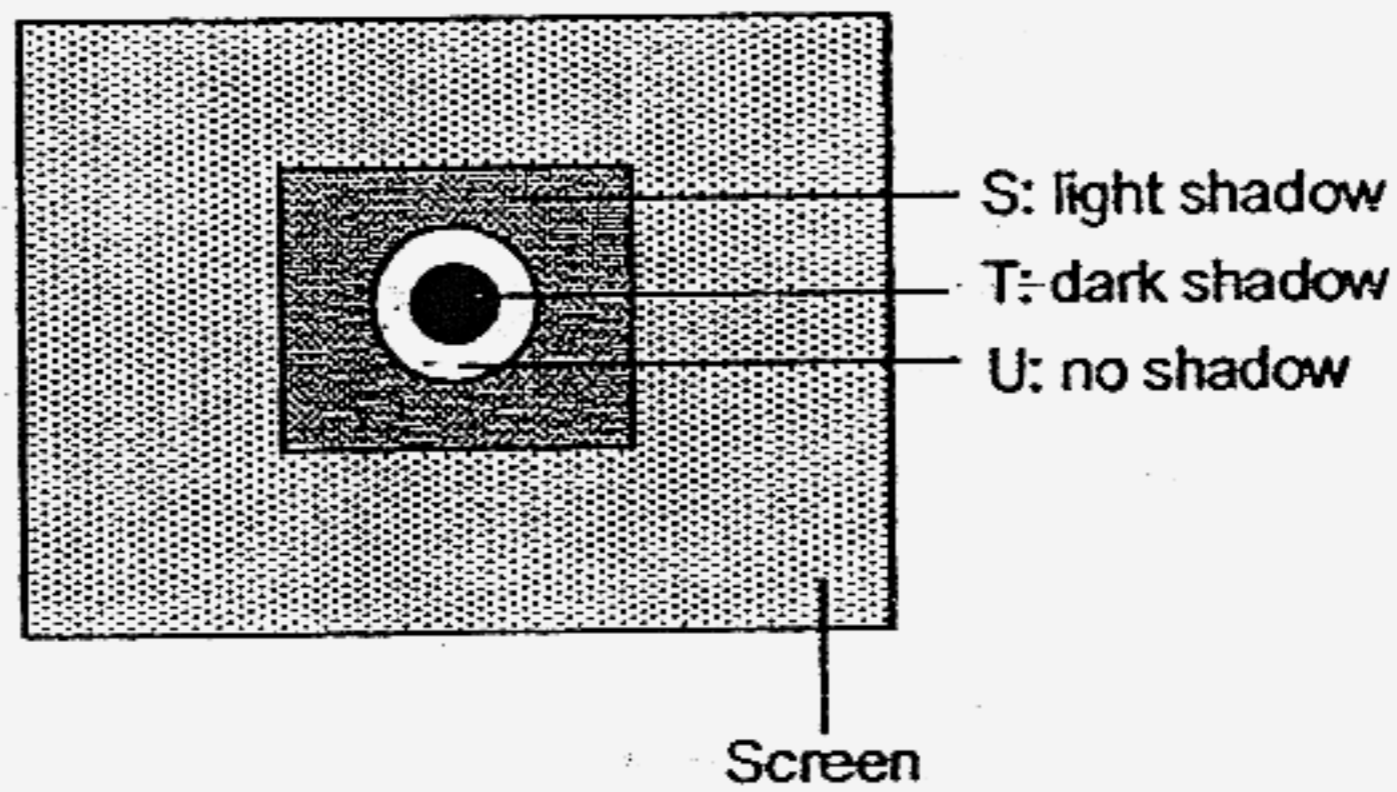
Which one of the following sets of surfaces best matches the distances recorded above?

	Q	R	S	T
(1)	Sandpaper	Wood	Glass	Carpet
(2)	Glass	Carpet	Sandpaper	Wood
(3)	Carpet	Glass	Wood	Sandpaper
(4)	Wood	Sandpaper	Glass	Carpet

26. Sherman carried out an experiment to find out more about shadows and the properties of light. He set up the experiment as shown in the diagram below.



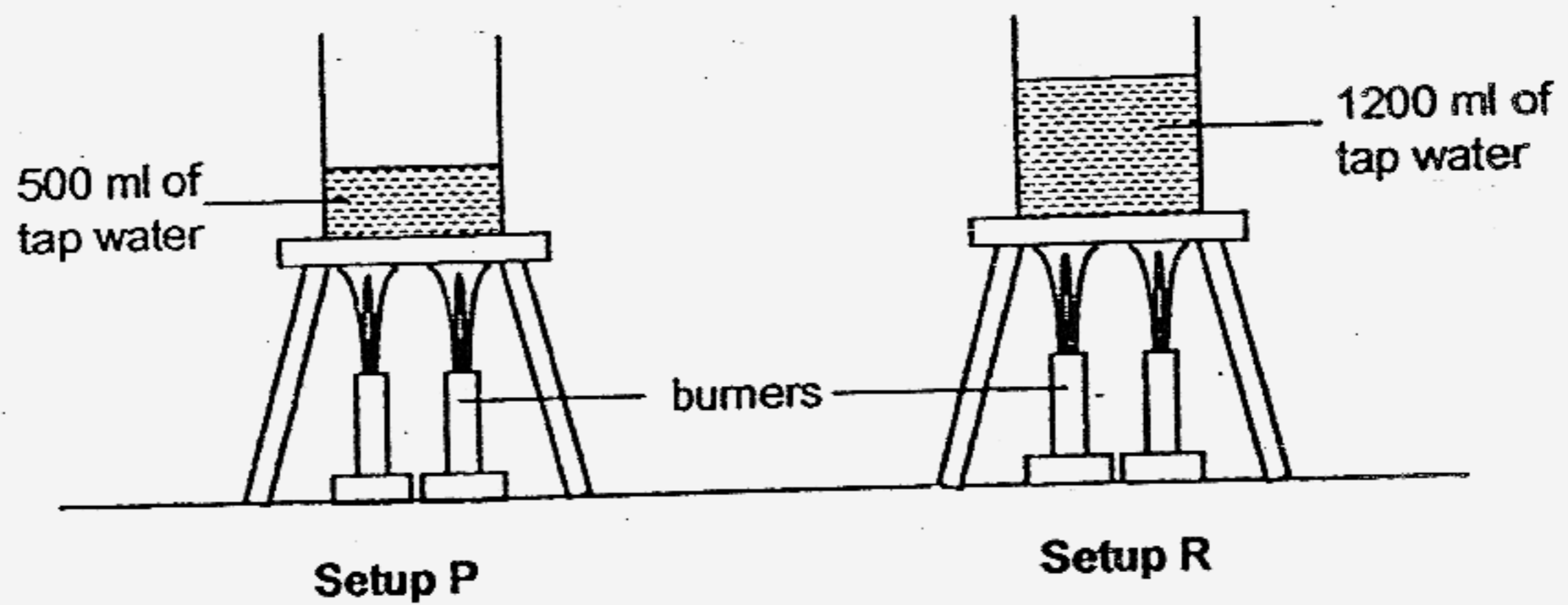
When he shone the torchlight at object X, he obtained a shadow as shown on the screen below.



Which one of the following materials would parts S, T and U be most likely made of?

	Part S	Part T	Part U
(1)	Cardboard	Tissue paper	Clear glass
(2)	Tissue paper	White paper	Frosted glass
(3)	Clear plastic	Tracing paper	Tissue paper
(4)	Tracing paper	Cardboard	Clear plastic

27. An experiment is set up as shown in the diagram below.

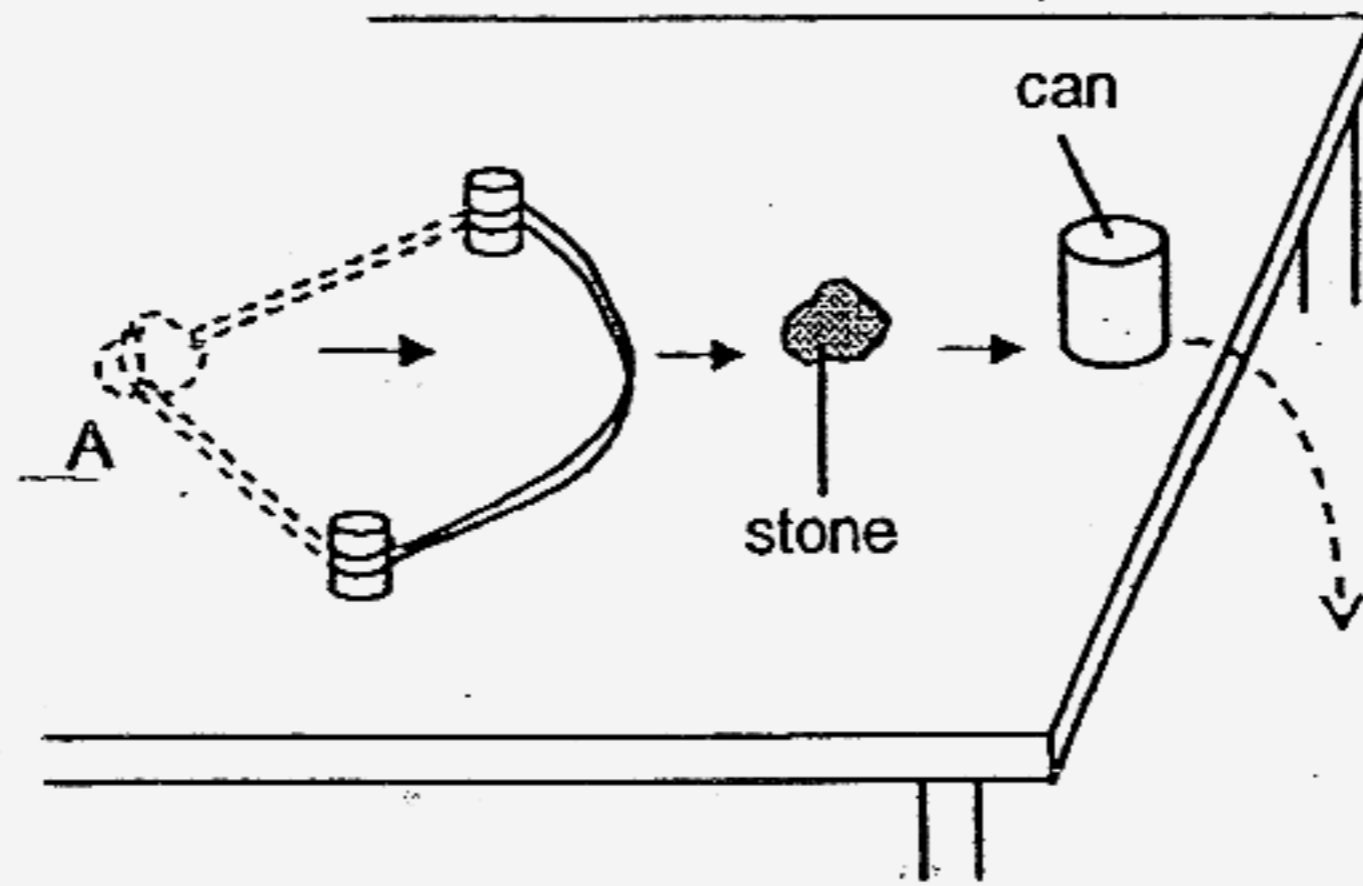


The experiment was stopped after the water in both setups was heated for 30 minutes. Which of the following statement(s) is/are true about the above experiment?

- A The water in both setups will start to boil at the same time.
- B The water in setup P has more heat energy than the water in setup R.
- C The water in both setups is at the same temperature when it is boiling.
- D The water in setup R is at a higher temperature than the water in setup P when it is boiling.

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

28. Rahman conducted an experiment as shown in the diagram below.

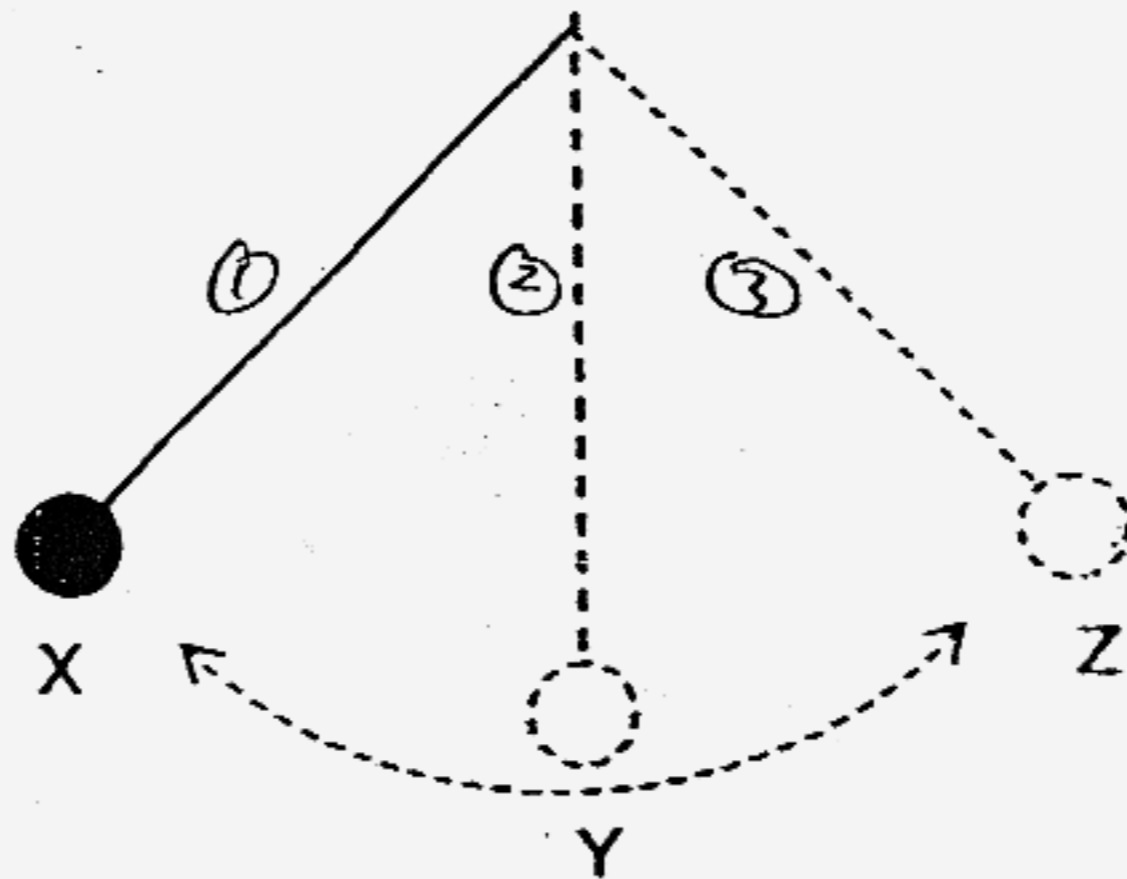


He pulled the rubber band backwards together with a stone to position A. When he released the stone, it moved forward and hit the can. The can fell off the table and hit the ground.

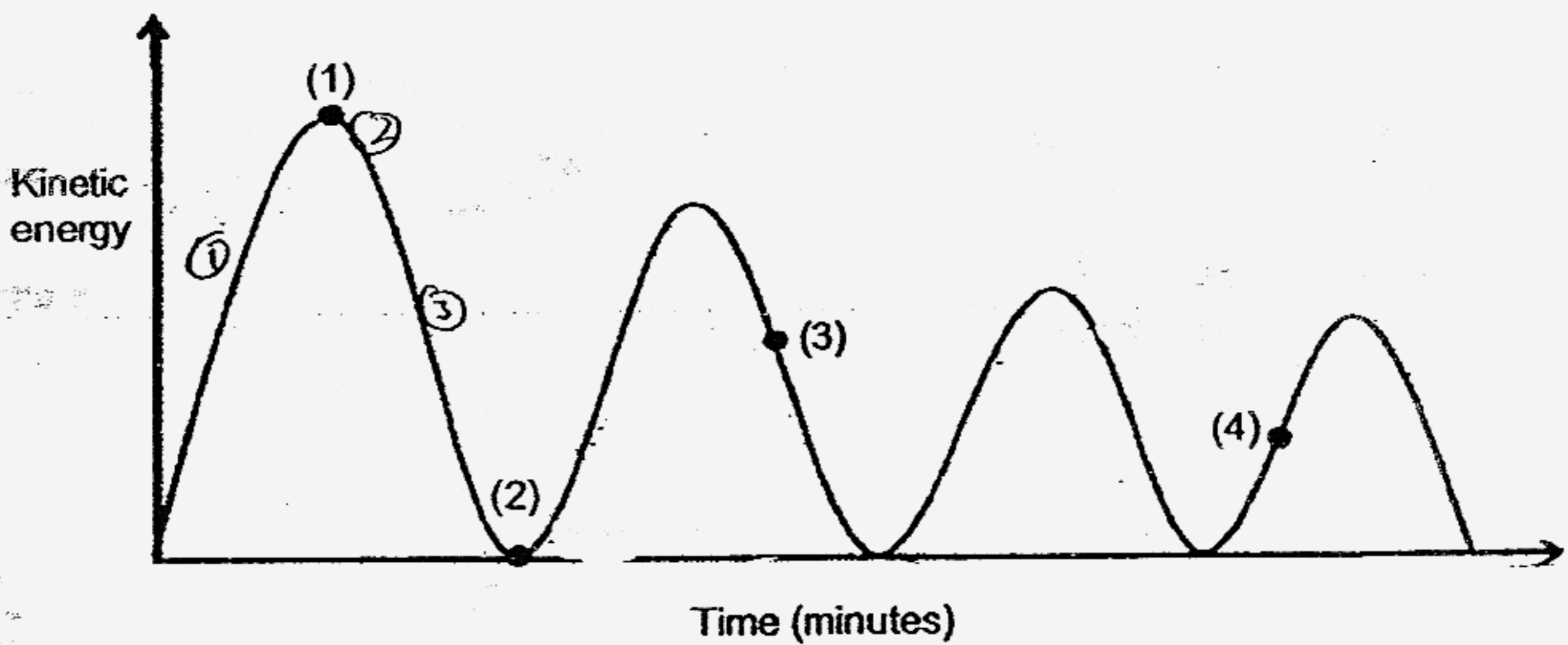
Which one of the following shows the correct energy conversion that took place from the moment Rahman released the rubber band till the can hit the ground?

- (1) Kinetic energy \longrightarrow Heat energy + Sound energy
- (2) Kinetic energy \longrightarrow Potential energy \longrightarrow Heat energy + Sound energy
- (3) Potential energy \longrightarrow Kinetic energy \longrightarrow Potential energy + Heat energy + Sound energy
- (4) Potential energy \longrightarrow Kinetic energy \longrightarrow Kinetic energy \longrightarrow Heat energy + Sound energy

29. A pendulum was released at point X as shown in the diagram below.

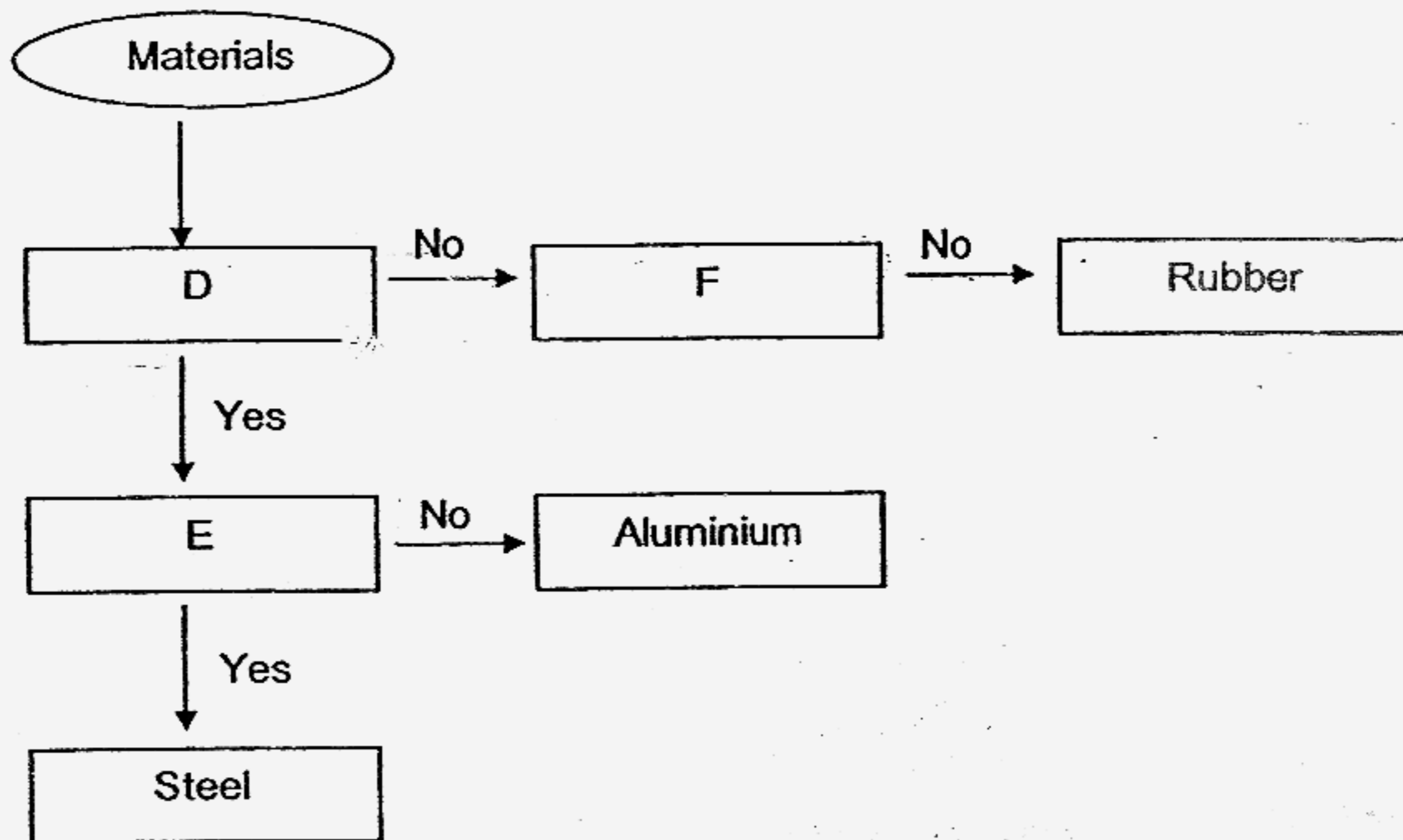


As the pendulum swung from point X to Z, its kinetic energy was calculated and plotted on the graph below.



Which point on the graph best represents the kinetic energy of the pendulum when it was at point Y?

30. The flow chart below shows the classification of some materials.



Which one of the following properties correctly describes D, E and F in the chart above?

	D	E	F
(1)	Allows light to pass through	Non-magnetic	Electrical insulator
(2)	Flexible	Conducts heat	Non-magnetic
(3)	Conducts electricity	Magnetic	Allows light to pass through
(4)	Conducts heat	Allows light to pass through	Heat insulator



NAN HUA PRIMARY SCHOOL
PRELIMINARY EXAMINATION 2007
PRIMARY 6

SCIENCE
(BOOKLET B)

Name: _____ ()

Class: Pr. 6 _____

Date: 23 August 2007

BOOKLET B
40

Parent's Signature & Date

Total Time for Booklets A and B: 1 hour 45 minutes

Section B: (40marks)

Write your answers to question 31 to 46.

The number of marks available is shown in brackets [] at the end of each question or part question.

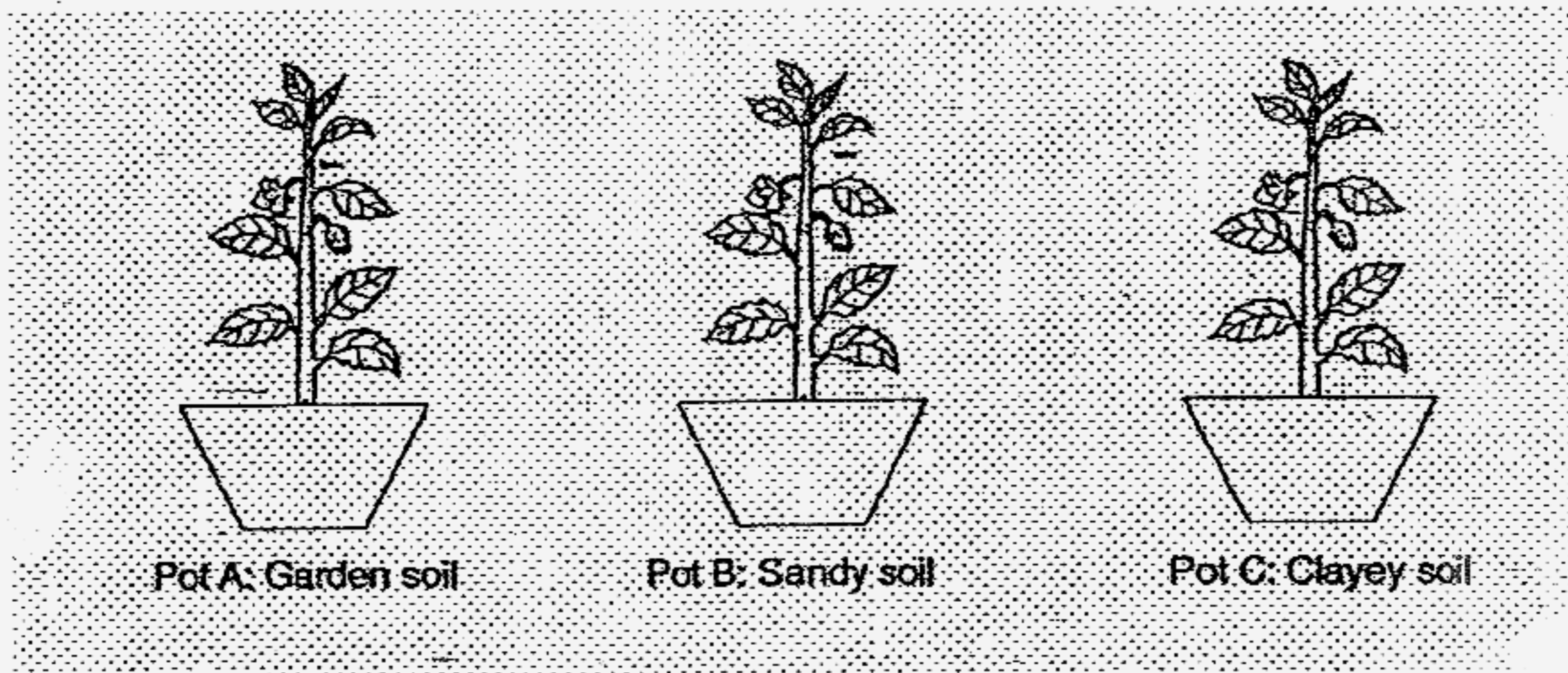
31. The table below shows the number of organisms in a habitat.

Organism	Number of organisms
Caterpillar	3
Snail	7
Earthworm	10
Butterfly	2
Ant	8
Sparrow	4

- (a) In which community can the above organisms be found? [1]
-

- (b) How many populations of organisms are there? [1]
-

32. Amy filled 3 pots with the same amount of soil as shown in the diagram below.

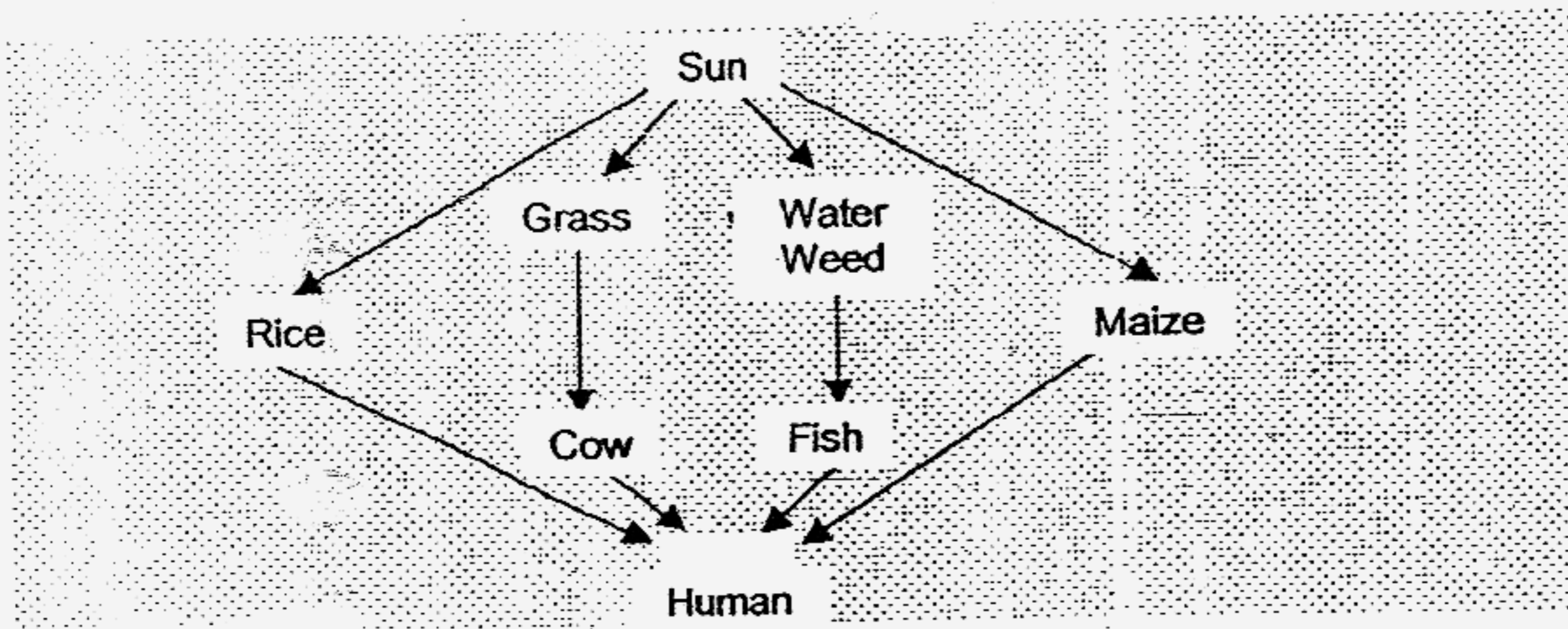


She planted the same kind of plants in each pot and placed them side-by-side on a table near the window. She watered each plant with the same amount of water every morning.

(a) What was the aim of the experiment? [1]

(b) Which pot of plant will grow the best after some time? Why is this so? [2]

33. The figure below shows a food web.



(a) Name one group of organism that is not shown in the diagram but is very important in maintaining the food web. [1]

(b) How does this group of organism help to maintain the above food web in a balanced state? [1]

34. The table below shows some aquatic plants found in a pond.

Group A	Group B	Group C
Cabomba	Duckweed	Arrowhead
Elodea	Water Hyacinth	-Cattail
Hydrilla	Water Lettuce	Sedge

(a) Give suitable headings for groups A, B and C. [2]

(i) Group A: _____

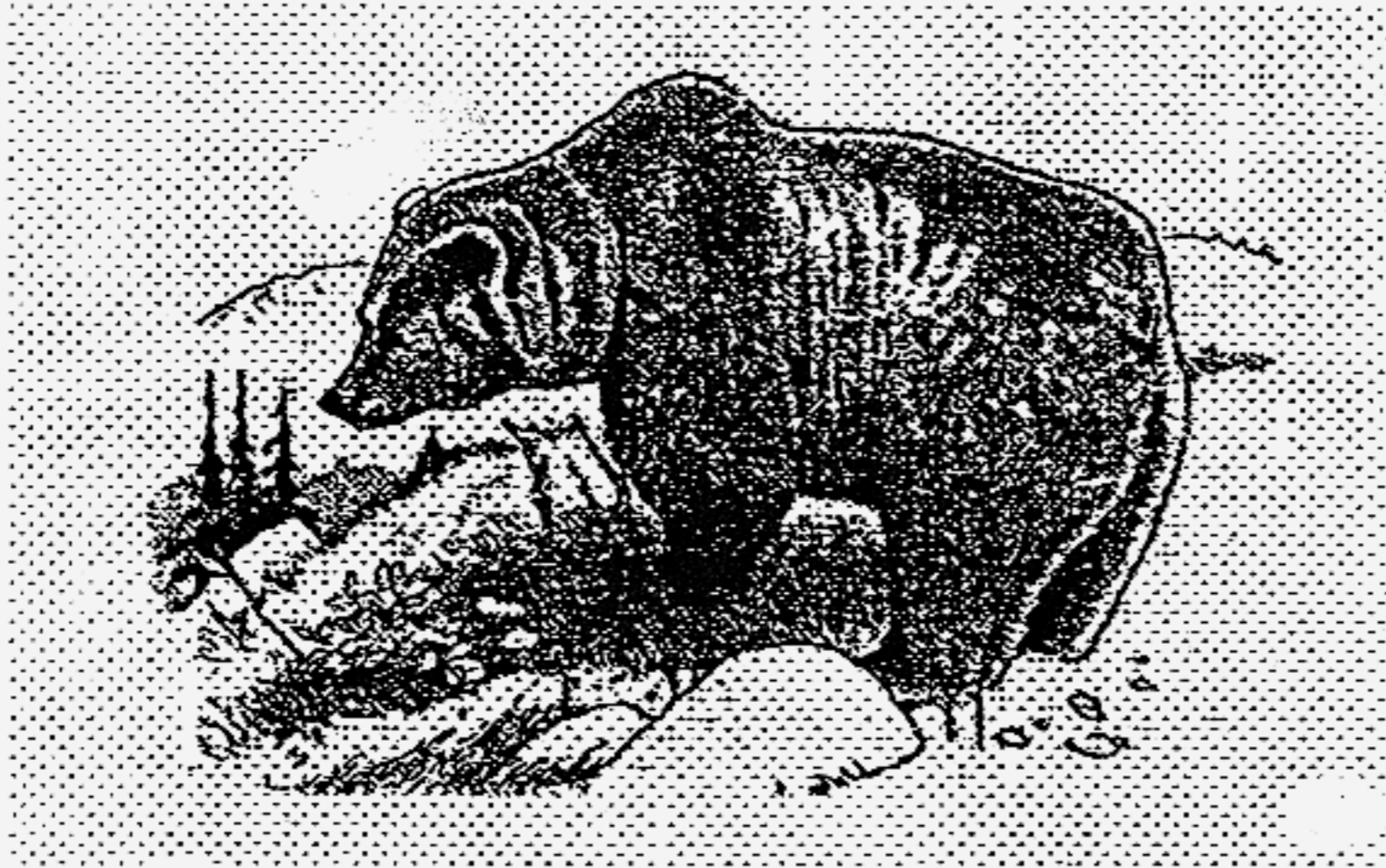
(ii) Group B: _____

(iii) Group C: _____

(b) If Group B grows uncontrolled throughout the pond, which group of plants would be affected the most? [1]

(c) Give a reason for your answer in (b). [1]

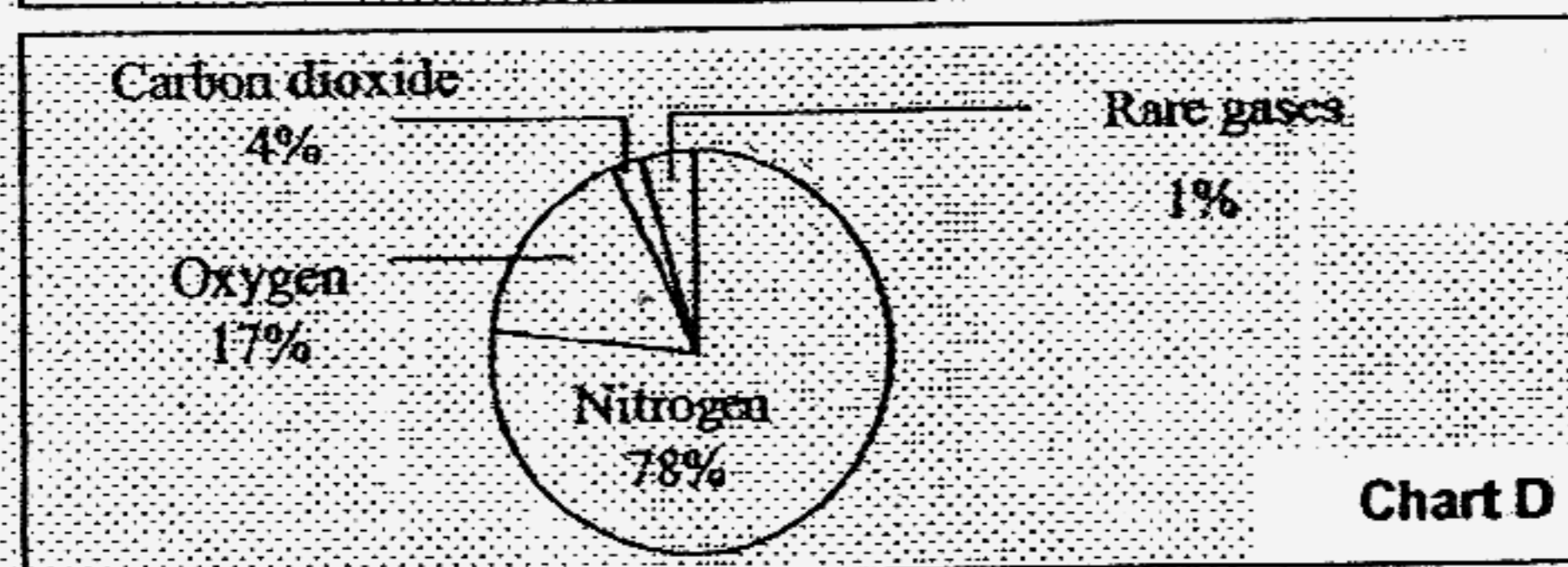
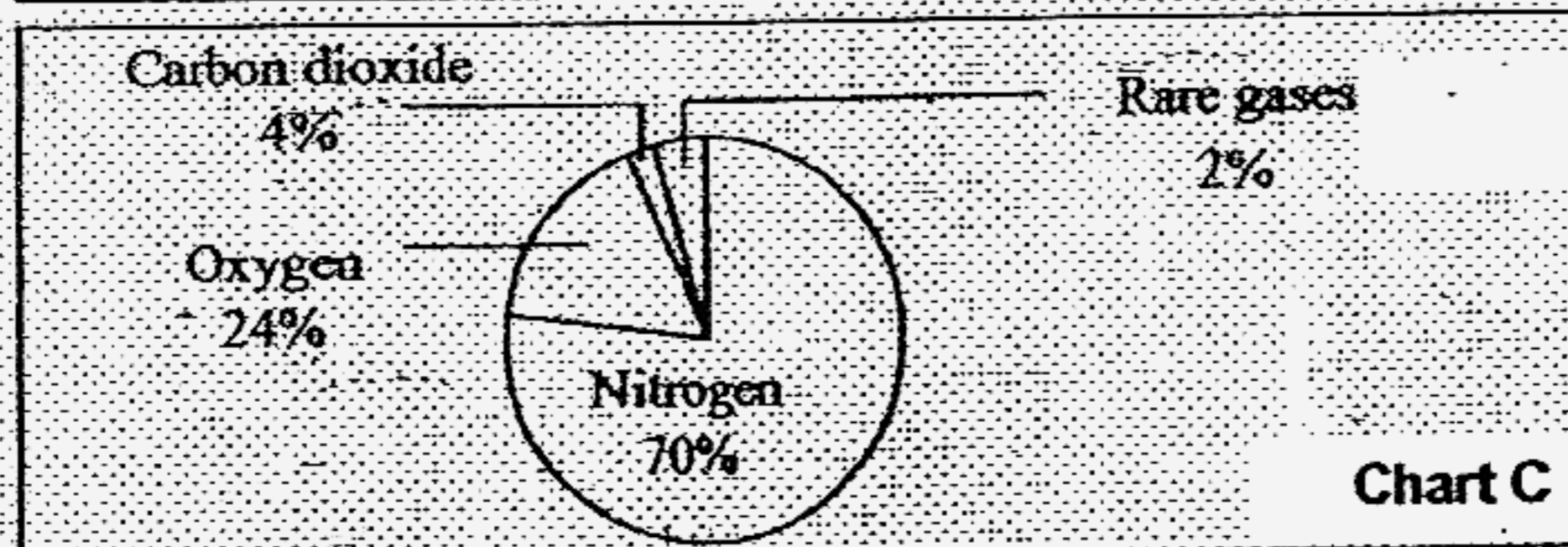
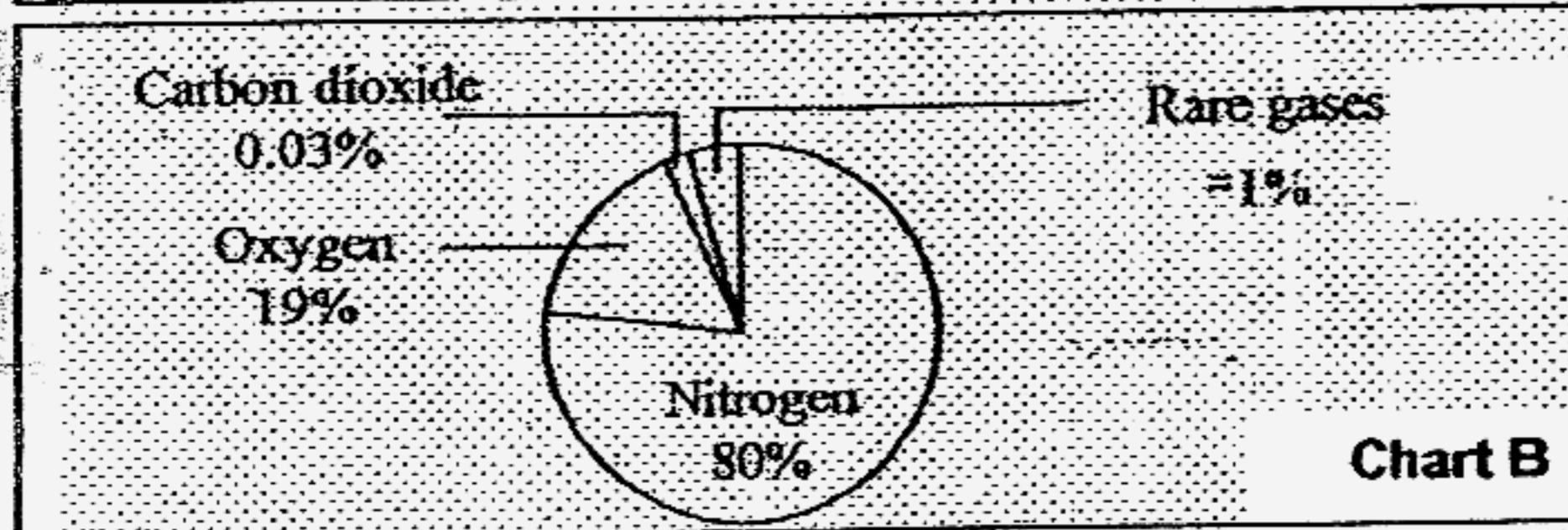
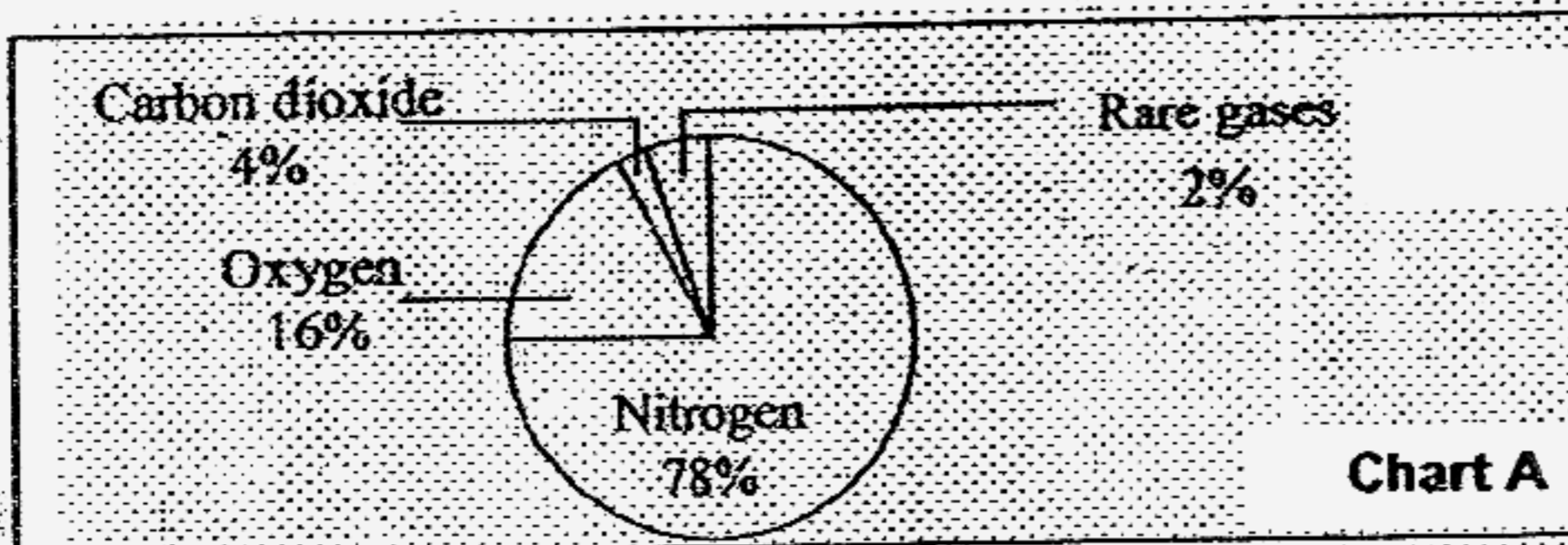
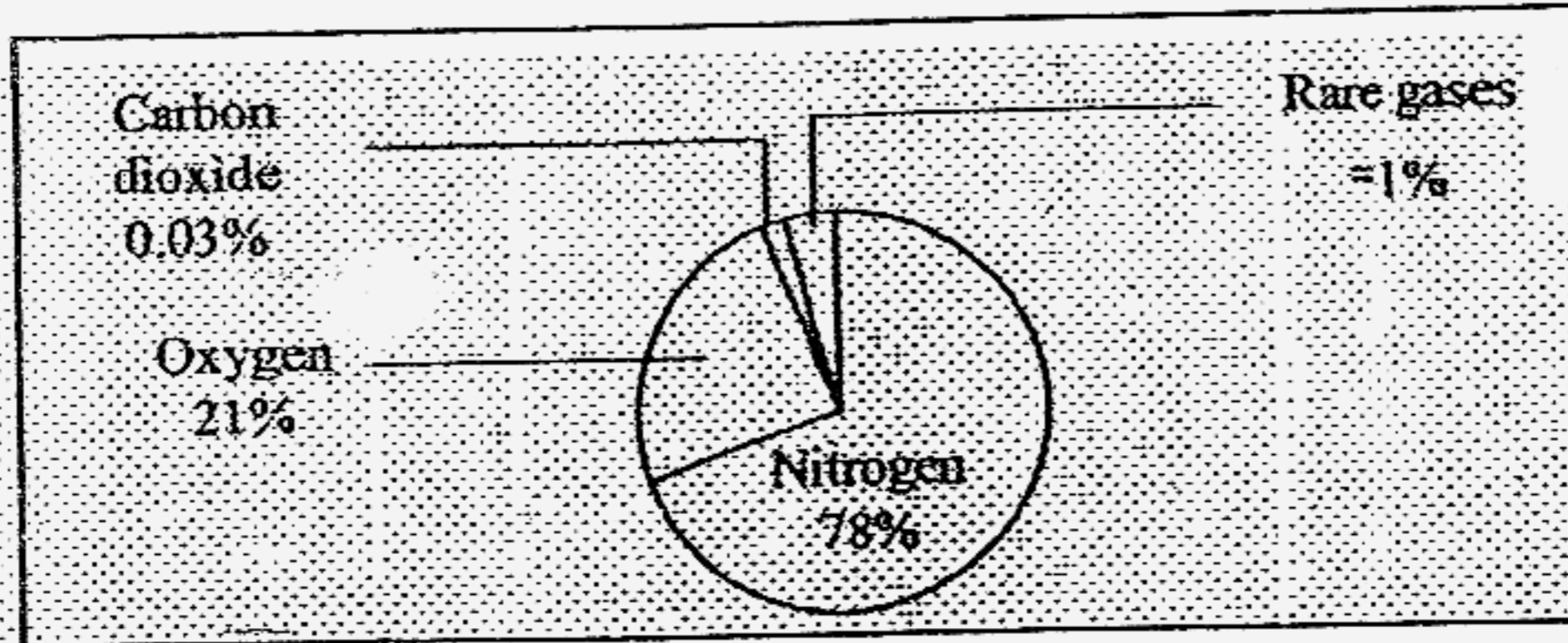
36. Grizzly bears are well-adapted to the seasonal changes of a temperate forest. How has the Grizzly Bear adapted itself to spend the winter season? (Give one structural adaptation and one behavioural adaptation)



(a) Structural adaptation [1]

(b) Behavioural adaptation [1]

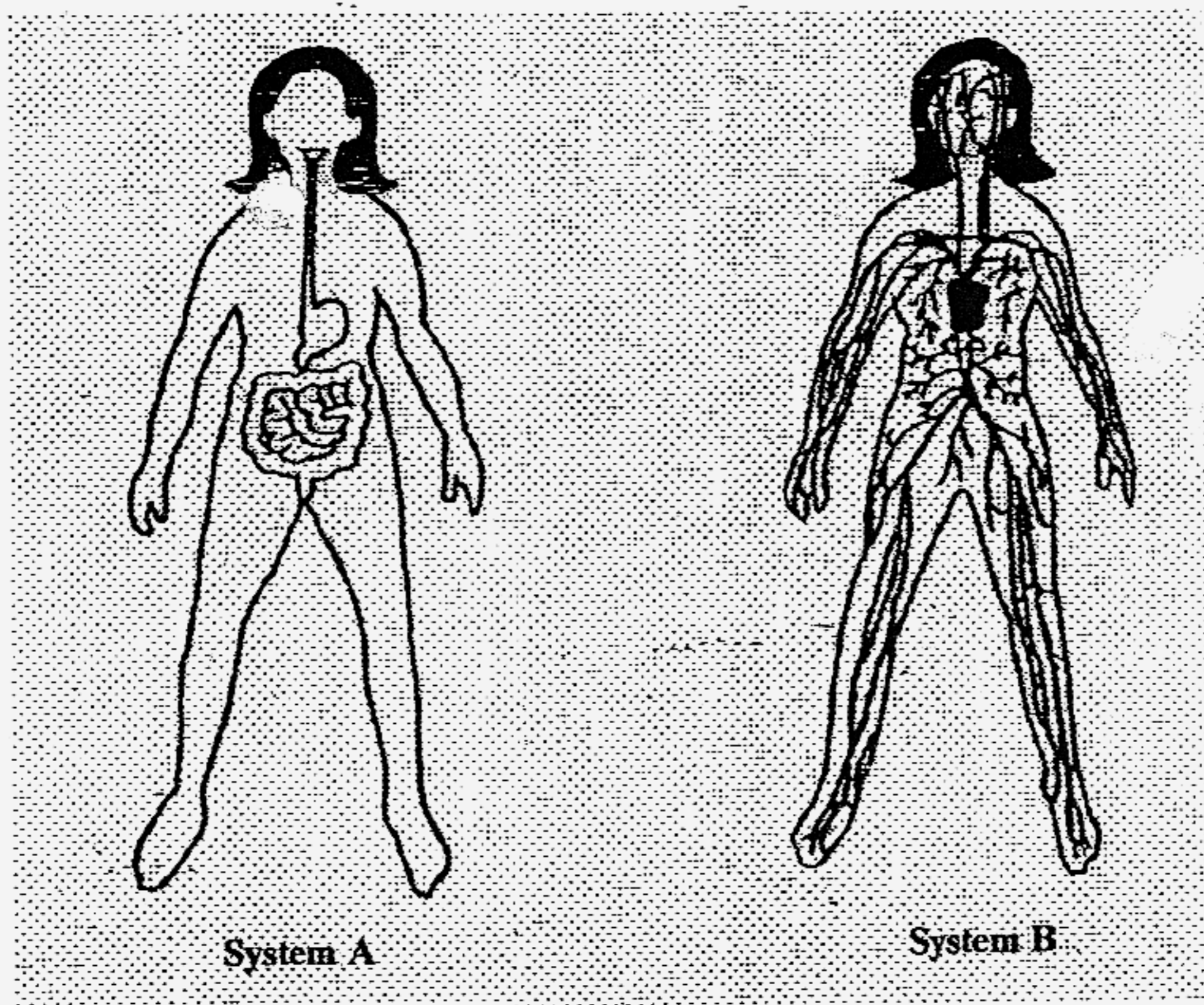
37. The first pie chart below shows the composition of air that we breathe in.



- (a) Which of the following pie charts (A, B, C or D) best shows the composition of air that we breathe out? [1]

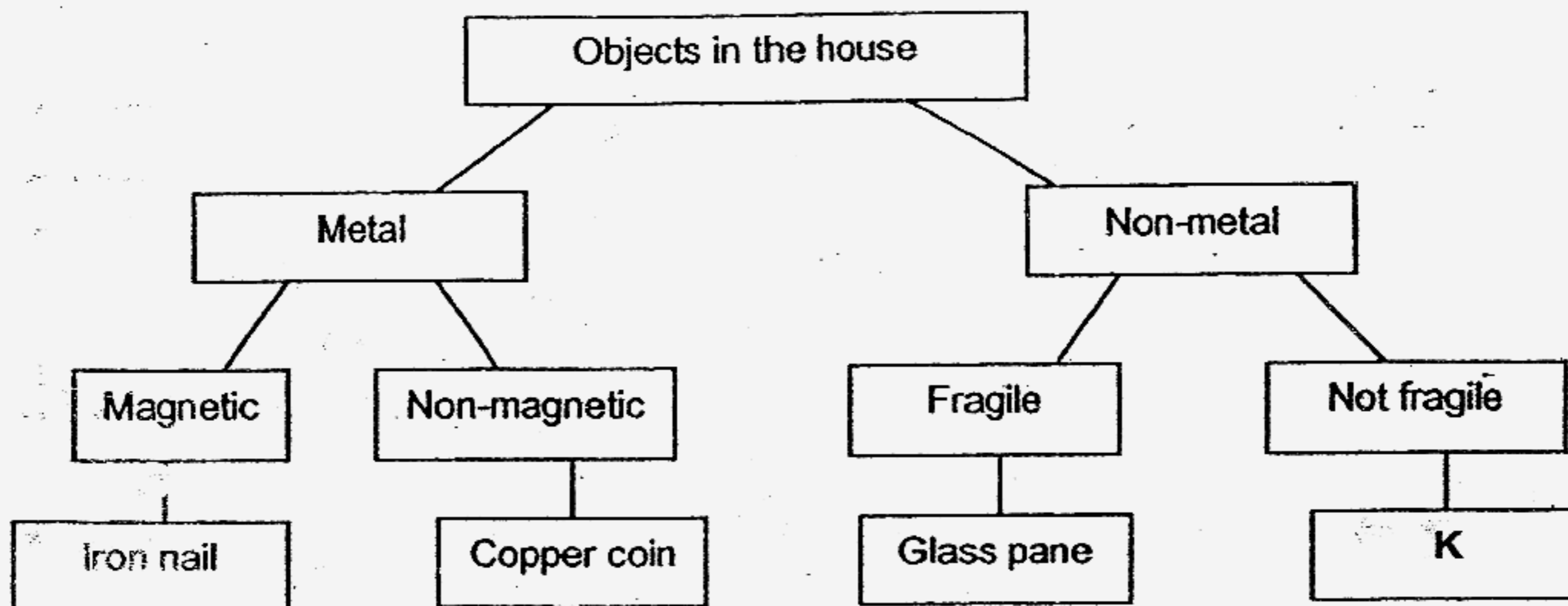
- (b) Give a reason for your answer in (a). [1]

38. The diagram below shows 2 important systems in the human body.



How do these two systems work together? [2]

39. Kegan classified four objects in his house. He presented his classification in the chart below.



(a) State the properties that describe the "Copper coin" in the chart above. [1]

(b) Give an example of "K". [1]

40. The classification table below shows the classification of some animals by their outer covering.

Animals			
Group W	Group X	Group Y	Group Z
Lobster Tortoise Snail	Penguin Eagle Platypus	Cat Tiger Polar bear	Guppy Lizard Seahorse

- (a) Identify the animal that has been classified wrongly in the classification table above. [1]
- _____
- (b) In which group, X, Y or Z should this animal be classified? [1]
- _____
- (c) Write an appropriate heading for animals in Group Z. [1]
- Group Z- _____

41. Yasmin wanted to investigate how the speed of wind would affect the rate of evaporation of water. She poured equal amounts of water into three containers, Q, R and S. Each of the containers was placed in 3 separate rooms. An identical fan was placed in front of each container and switched on at the beginning of the investigation.

She measured the volume of water in each container after eight hours and recorded the results in the table below.

Container	Volume of water left in the container (ml)
Q	54
R	21
S	32

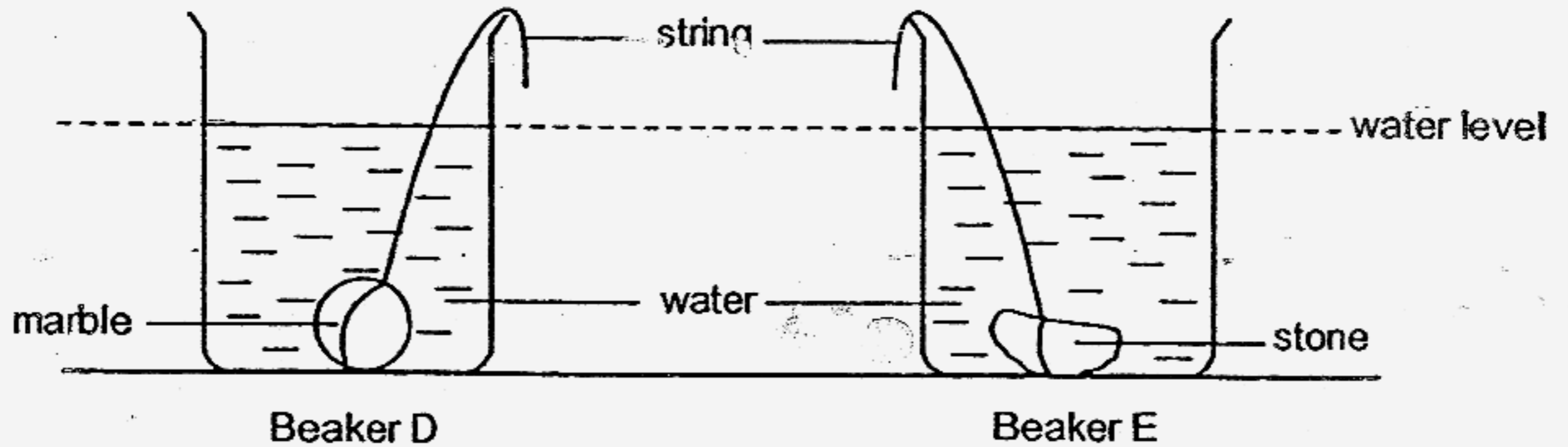
- (a) Arrange the rate of evaporation of water in the three containers in ascending order. [1]

- (b) Put a tick (✓) in the box beside the variable(s) that should be kept the constant for the investigation to be fair. [1]

Variables	Kept constant
Exposed surface area of container.	
Starting time of the experiment.	
The time that the fan was switched off.	
Fan speed when it was switched on.	
Distance between the fan and the container.	

42. The diagram below shows two identical beakers D and E.

A marble tied with a string was lowered into the empty beaker D and a stone tied with a string was lowered into the empty beaker E. Then, water was poured into both beakers D and E, until they have the same water level.



(a) What will you do, if you want to find out whether the marble or the stone has a larger volume? [1]

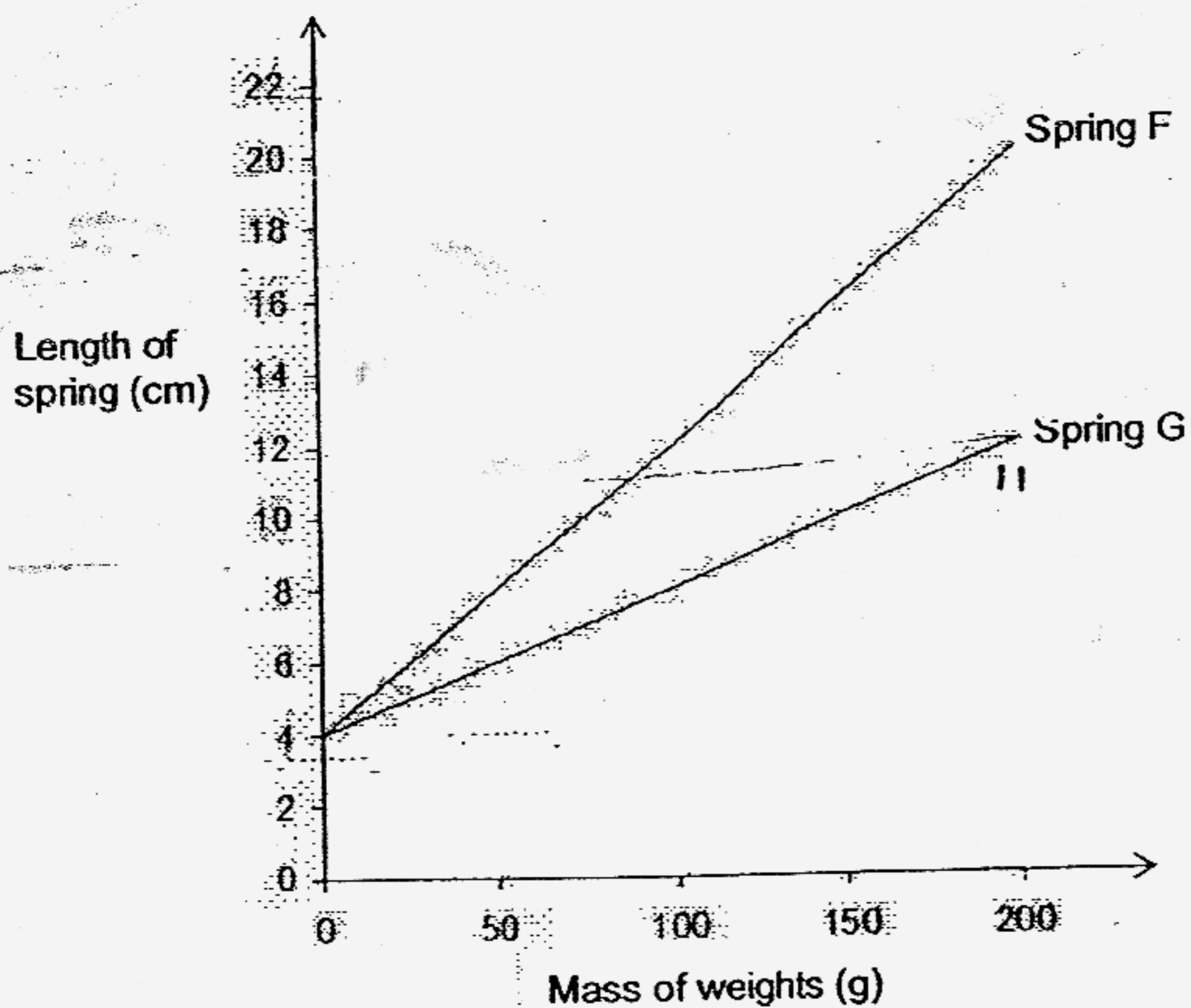
You are **NOT** allowed to:

- use any other apparatus or equipment.
- pour water into or out of the beakers.

(b) After what you have done in (a), what observation tells you that the marble has a greater volume than the stone? [1]

43. Ismail and Han Wei has two springs F and G. They carried out an experiment to find out the elasticity of each of the spring. They hung different weights to each of the spring and measured the new lengths of each spring.

The results of their experiment are plotted in the graph below.

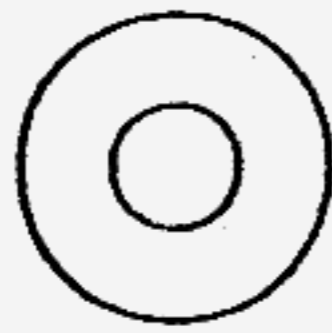


Based on the graph, the following statements were made about springs F and G.

Put a tick (\checkmark) in the correct boxes to indicate which of the statement is True, False or Not possible to tell. [2]

	Statements	True	False	Not possible to tell
(a)	The original length of each of the two springs is 4 cm.			
(b)	The extension of Spring G will be 16cm when a mass of 300g is hung on it.			
(c)	Spring G will be permanently stretched when a mass of 600g is hung on it, whereas Spring F will not be.			
(d)	The extension of Spring F is less than Spring G when the mass of the weights increased from 100g to 200g.			

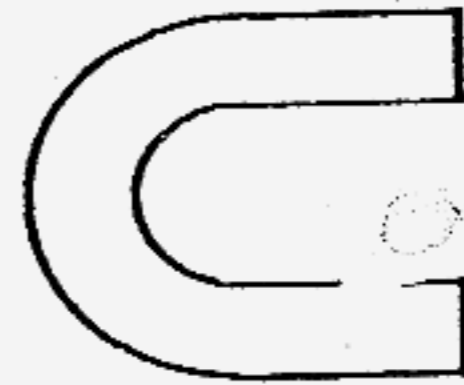
44. Shi Yee wanted to conduct an experiment to find out the strength of different types of magnets. She found the following materials in the laboratory:



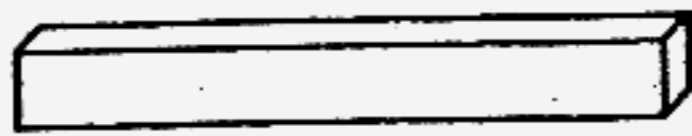
ring magnet



rod magnet



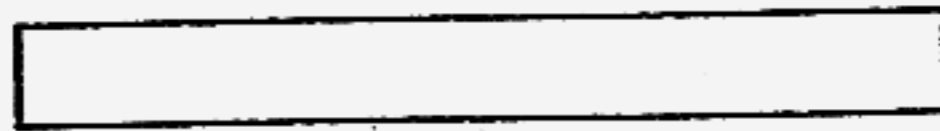
horse shoe magnet



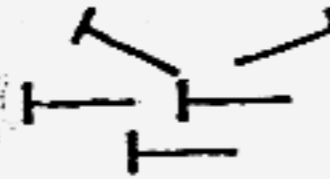
bar magnet



paper clips



30cm ruler

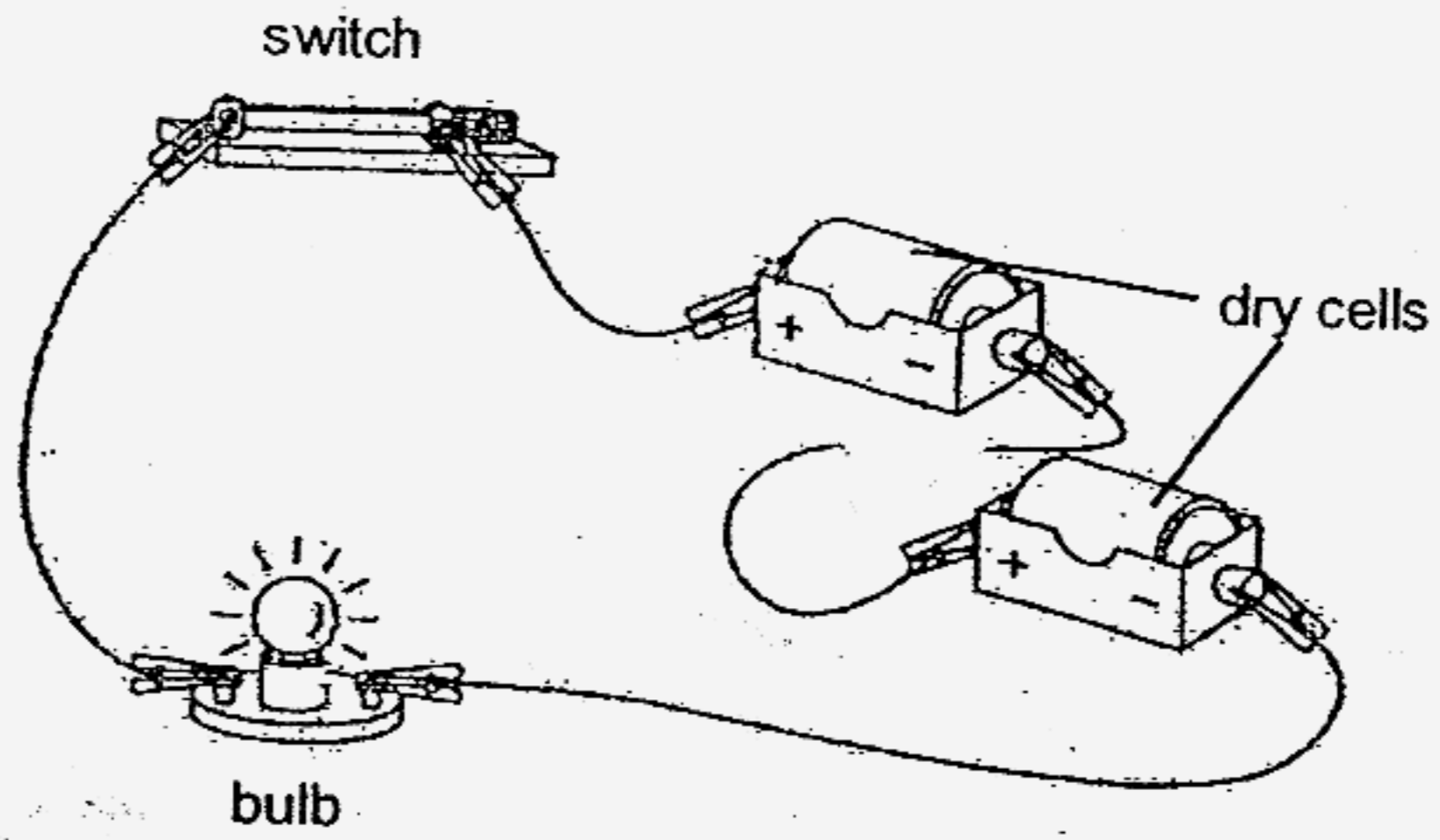


pins

(a) Without using any other materials than those listed above, list the materials Shi Yee would require to conduct the experiment. [1]

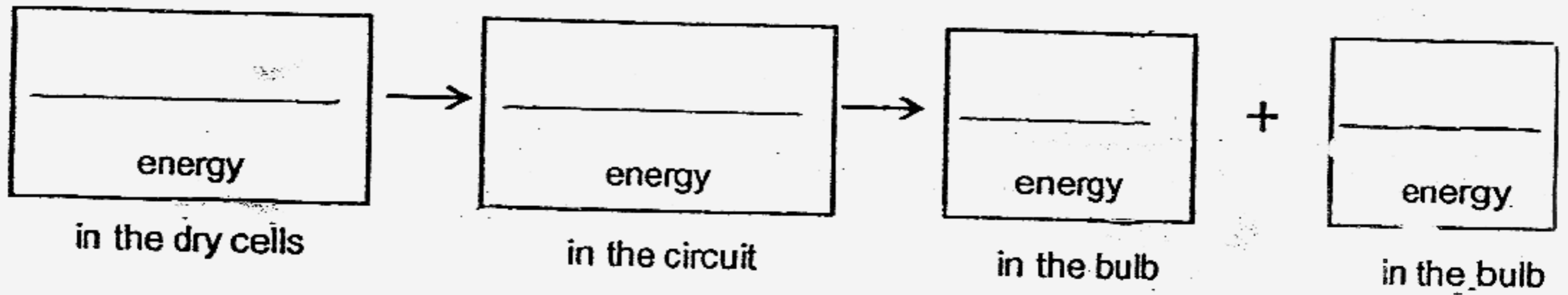
(b) Describe how Shi Yee would conduct the experiment for it to be a fair test to obtain reliable results. List the steps. [3]

45.(a) The diagram below shows an electrical circuit.

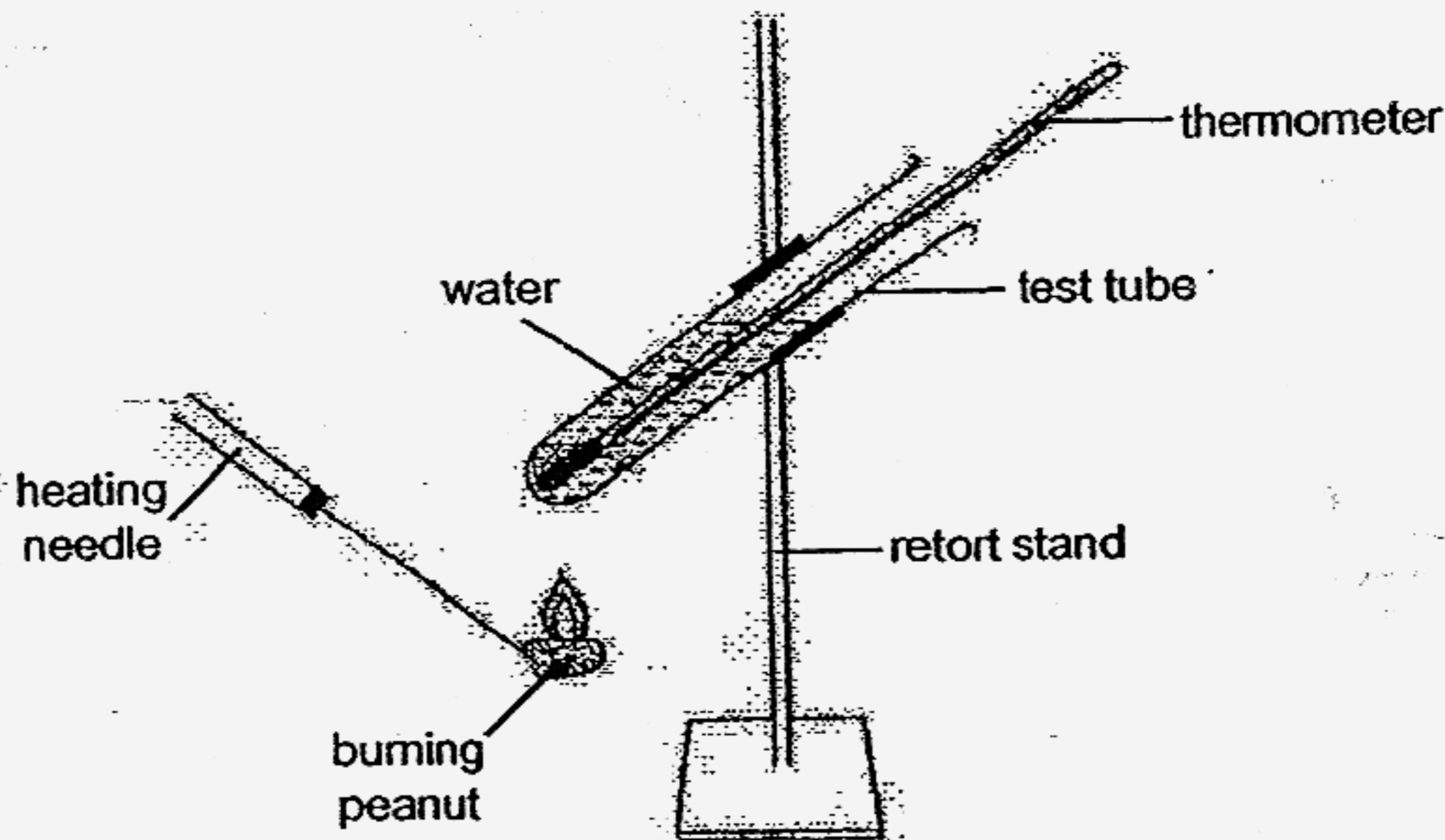


State the main energy conversion when the switch is closed and the bulb lights up.

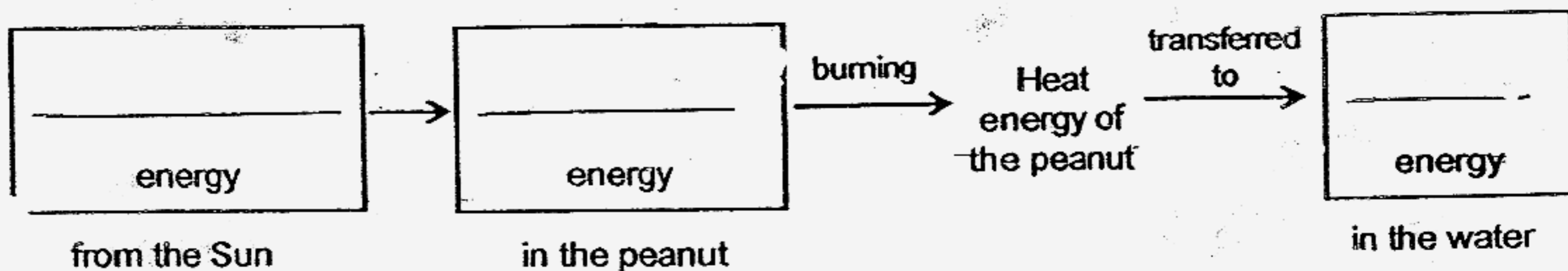
[1]



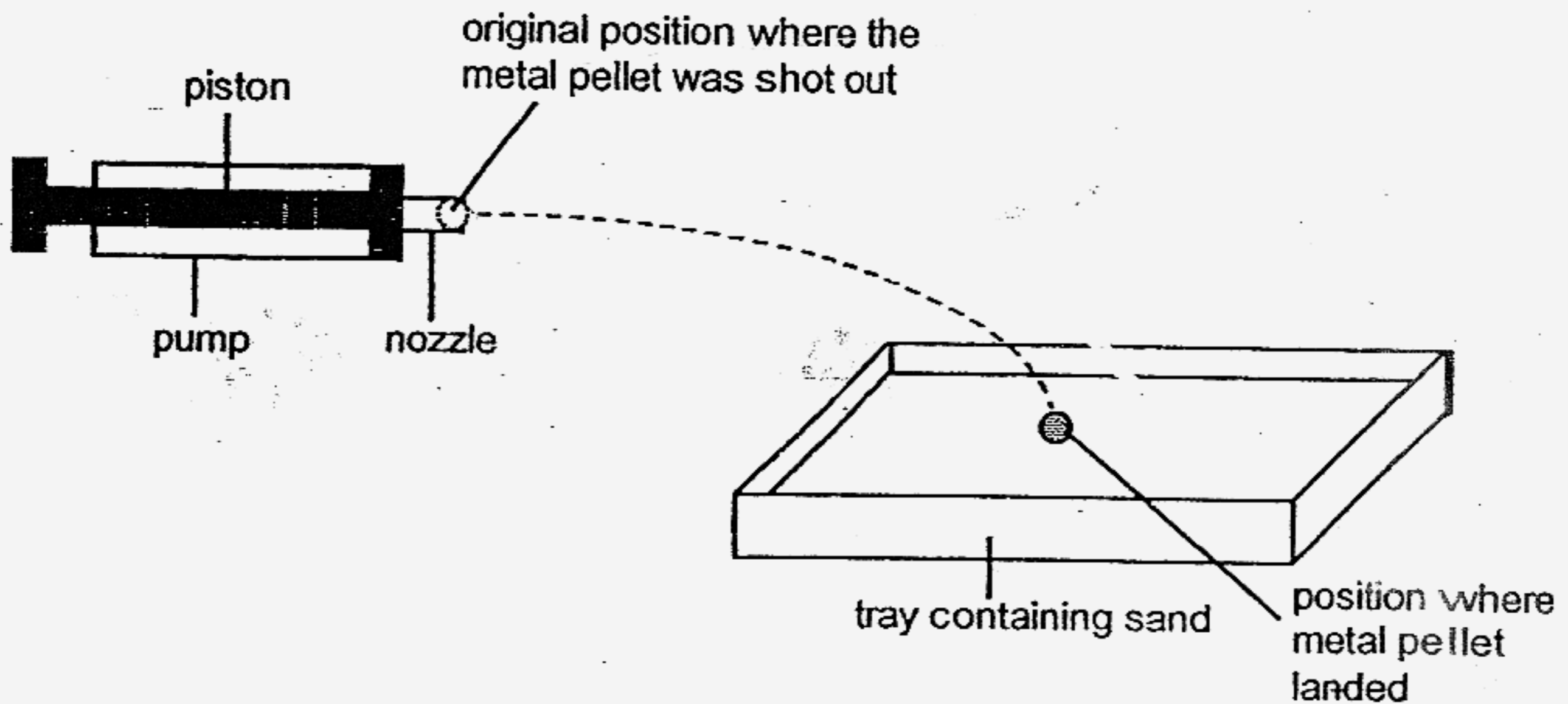
- (b) The diagram below shows an experimental setup that could be used to find out the amount of energy released when food such as the peanut is burnt.



State the main energy conversion to show the transfer of energy from the Sun to the peanut and lastly to the water in the above experiment. [1]



46. Leonard wanted to find out if the mass of a pellet would affect the path it travels when it was shot out from a pump. He placed a metal pellet in the nozzle of the pump and pushed the piston all the way into the pump. The pellet landed on a tray of sand placed a distance away. The path travelled by the metal pellet is represented by the dotted curve (---).



- (a) Leonard's friend, James repeated the experiment with a lighter plastic pellet of a similar size. The plastic pellet landed in the tray of sand. Draw in the diagram above the likely path travelled by the plastic pellet and put a mark (X) in the tray of sand where it would probably land. [1]
- (b) Identify two variables James must keep the same when repeating the experiment to ensure a fair test. [2]

END OF PAPER

NAN HUA PRIMARY SCHOOL - PRIMARY 6 SCIENCE 2007
 SEMESTRAL ASSESSMENT (2)

- 1.3 31) a) Garden community.
 2.1 b) 5 populations.
 3.2
 4.3 32) a) To find out which soil can a plant
 5.2 survive.
 6.4 b) Garden soil provides the plant with
 7.3 sufficient air and water.
 8.3
 9.3 33) a) Decomposers.
 10.4 b) The decompose waste matter and dead
 11.4 organisms into simpler substances
 12.4 which are nutrients for plants.
 13.1
 14.3 34) a) i) Submerged
 15.3 ii) Float
 16.3 iii) Half submerged
 17.4 b) Group A.
 18.1 c) Group B prevents Group A from receiving
 19.2 sufficient sunlight for photosynthesis.
 20.2
 21.2 35) a) He will observe air bubbles.
 22.2 b) The air spaces in the leaf stalk of
 23.3 the water hyacinth help it to float.
 24.1
 25.2 36) a) It has a thick layer of fat to keep
 26.4 it warm.
 27.1 b) The grizzly bear hibernates during
 28.4 the winter season.
 29.1
 30.2 37) a) Chart A.
 b) The percentage of carbon dioxide
 increases while the percentage of
 oxygen decreases and the rest of the
 gases remain unchanged.

38) System A digests the food we eat while system B transports the digested food around the body.

39) a) Metal and non-magnetic.
b) Cloth like curtain.

40) a) Platypus.
b) Group Y.
c) Scales.

41) a) Q, S, R

b) ✓

✓

✓

42) a) Using the string remove the marble and the stone from the beaker.
b) The water level in Beaker D is lower than the water level in Beaker E.

43) a) True b) False c) Not d) False

44) a) The greater the rod magnet, horse magnet, bar magnet and paper clips pulling dist, the stronger magnet.

b) 1) Place a pin at the 0 cm mark of the ruler.

2) Place a magnet at the 10 cm mark of the ruler.

3) Move the magnet nearer to the pin until it attracts the pin.

4) Record the pulling distance of the magnet.

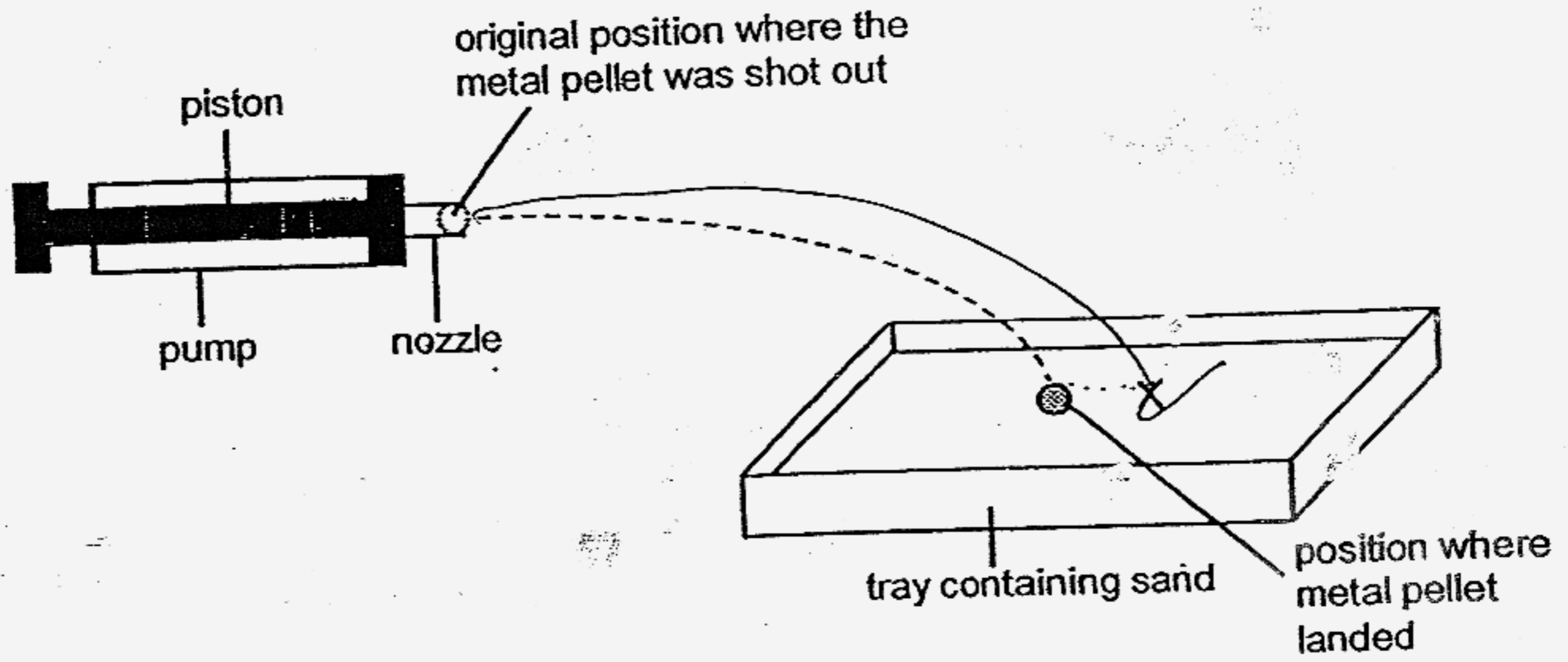
5) Repeat the experiment twice.

6) Repeat steps 1 to 5, using a different type of magnet.

45) a) Potential → electrical → light + heat.

b) Solar energy → chemical potential energy → heat

46) a)



b) He must keep the angle of projection the same.

---end---