

NAME : _____ ()

CLASS : _____

METHODIST GIRLS' SCHOOL (PRIMARY)

MID-YEAR EXAMINATION 2006

PRIMARY FIVE

SCIENCE

BOOKLET A

Total time for Booklets A and B: 1 hr. 45 min.

Booklet A: 30 Questions (60 marks)

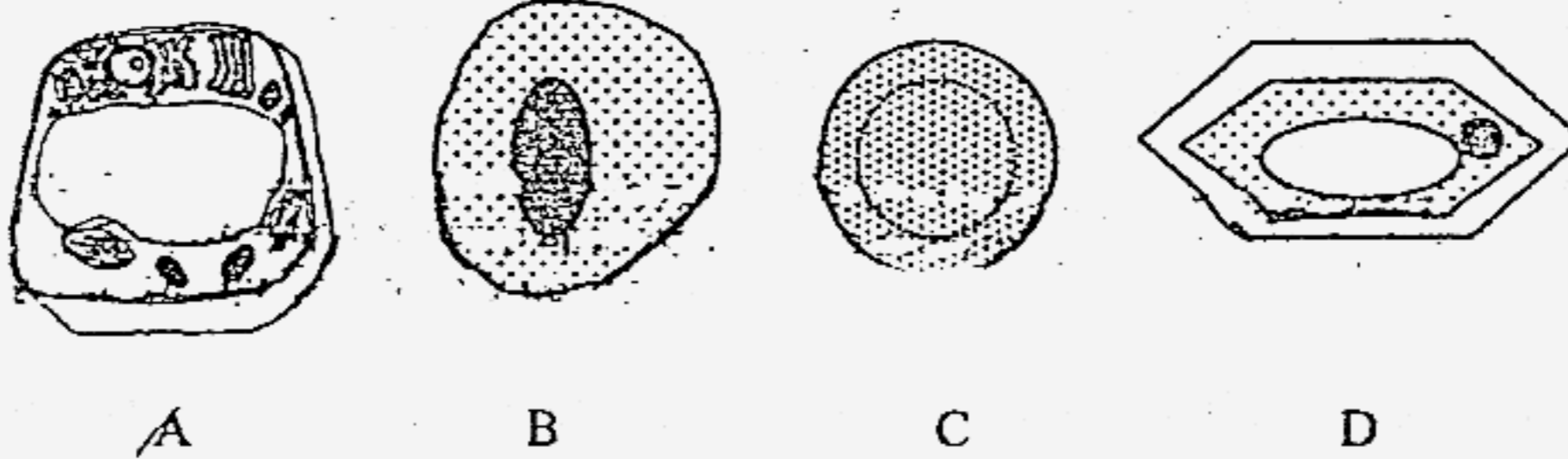
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

FOLLOW ALL INSTRUCTIONS CAREFULLY.

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.

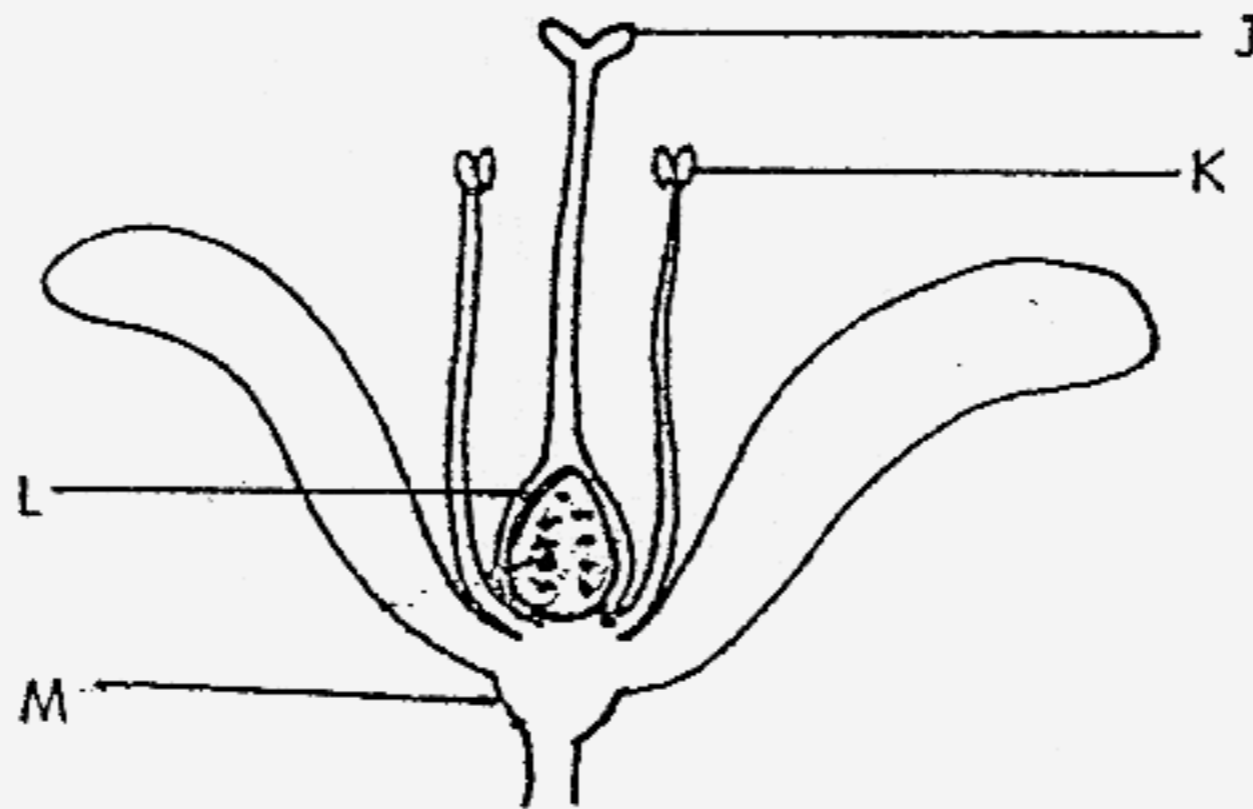
(30 x 2 marks)

1. Which two cells are animal cells?



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

2. The diagram below shows the parts of a flower of a plant.



In which parts of the flower are pollen grains and ovules produced?

	Pollen grains	Ovules
(1)	J	L
(2)	J	M
(3)	K	L
(4)	K	M

3. The different types of joints that can be found in our skeleton are listed below:

- (A) hinge joints e.g. elbow joints
- (B) ball and socket joints e.g. shoulder joints

Where can you find the similar joints in the body?

	Hinge Joints	Ball and Socket Joints
(1)	knees and hips	fingers and toes
(2)	spine and neck	jaw and hips
(3)	knees and fingers	hips
(4)	jaw	ankles and wrists

4. Amy put a balsam plant into a beaker of water in which some red colouring had been added. After 24 hours, she cut the stem across and noticed that red colour was observed in the stem and leaves. What was the conclusion she made from the experiment?



- (A) The roots take in water.
- (B) The stem transports water to the leaves.
- (C) The leaves make food through photosynthesis.
- (D) The stem carries food from the leaves to the roots.

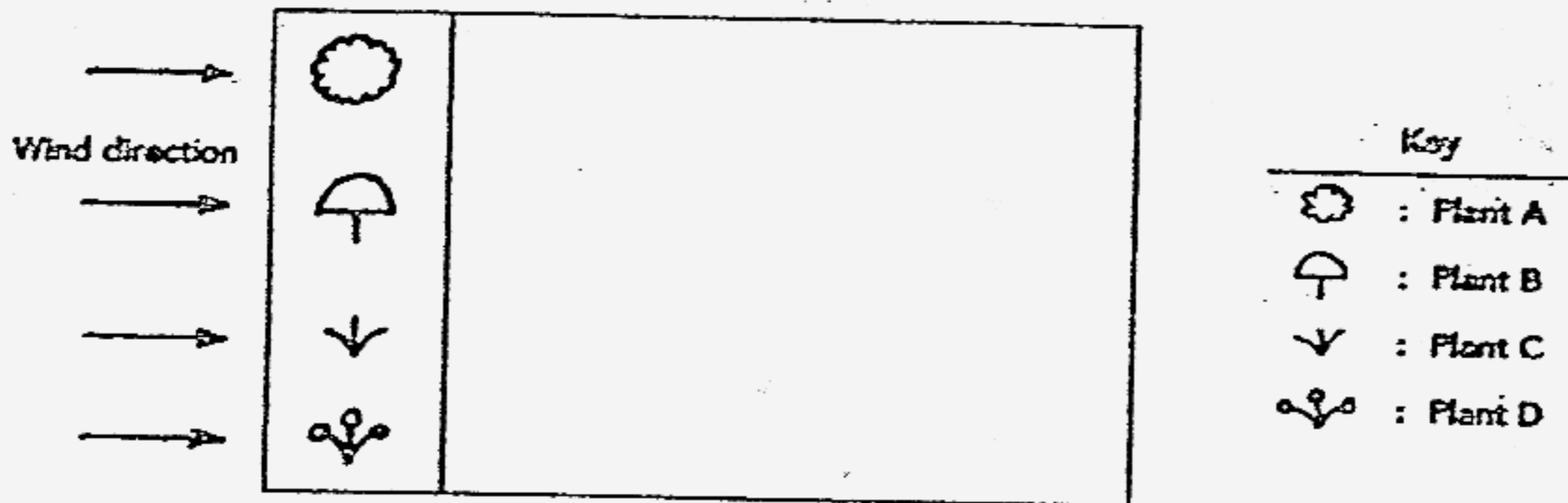
- (1) A and B
- (2) B and C
- (3) C and D
- (4) A, B, C and D

5. Which parts of the body can digestive juices be found?

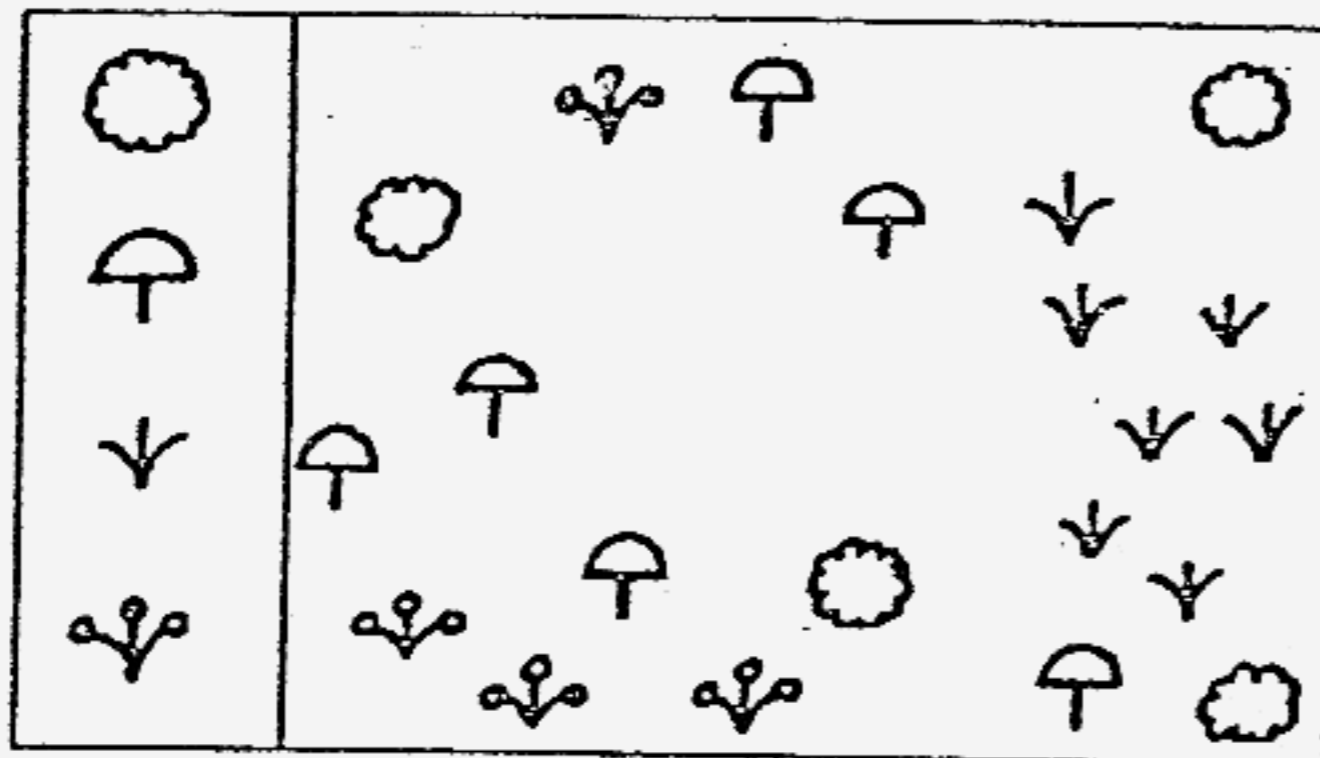
- (A) mouth
- (B) stomach
- (C) small intestine
- (D) large intestine

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

6. Mr Rajah weeded his garden except for the four plants growing on one side of his garden as shown in the diagram below.



He went away for a month and when he returned, this is what he saw:



Which one of the following plants probably have seeds that are scattered by wind?

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

7. Study the table below.

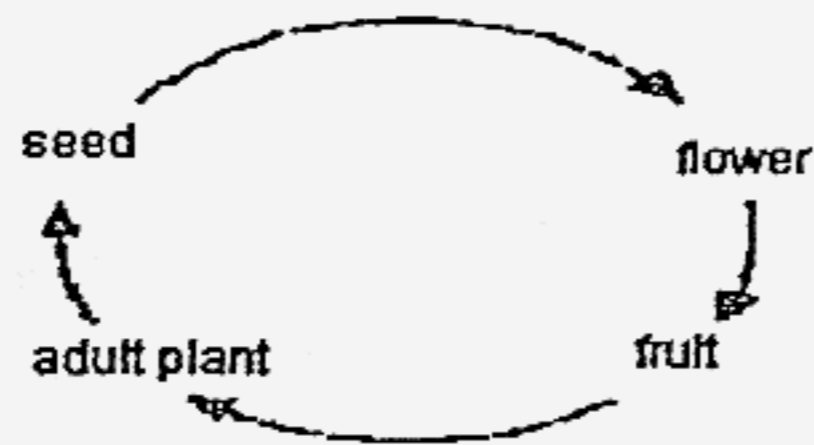
Characteristics	Animal X	Animal Y
4 stages in the life cycle	Yes	Yes
It has 3 body parts	Yes	Yes
Eggs laid on land	No	Yes

Which one of the following is correct?

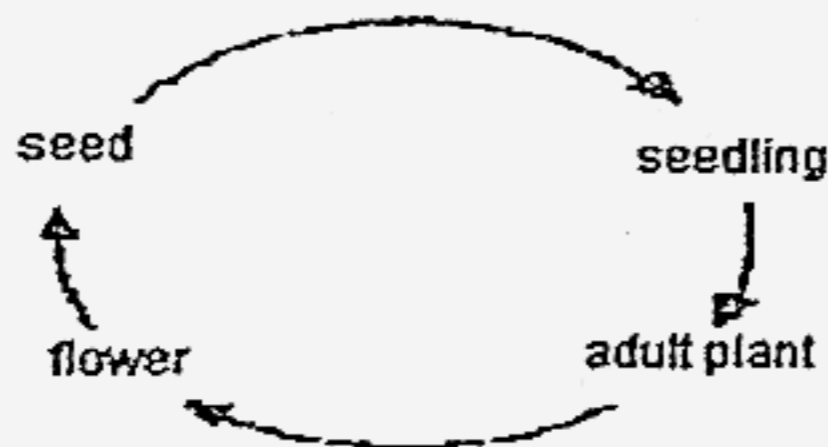
	Animal X	Animal Y
(1)	butterfly	mosquito
(2)	cockroach	housefly
(3)	mosquito	butterfly
(4)	dragonfly	housefly

8. Which one of the following diagrams best shows the life cycle of a plant?

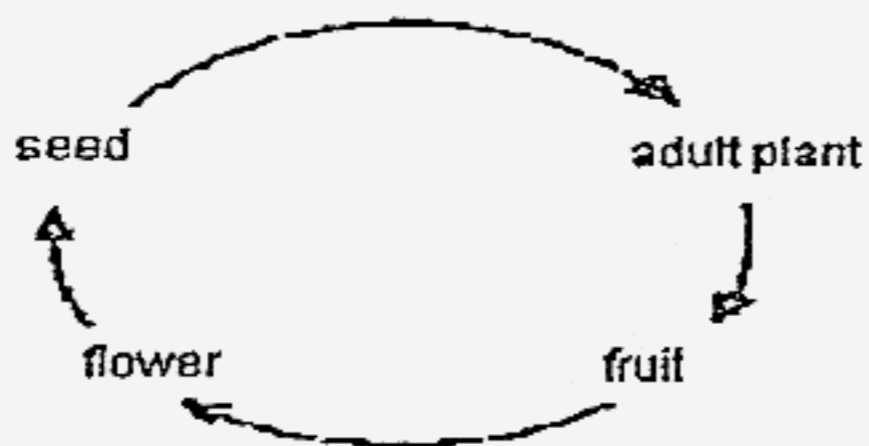
(1)



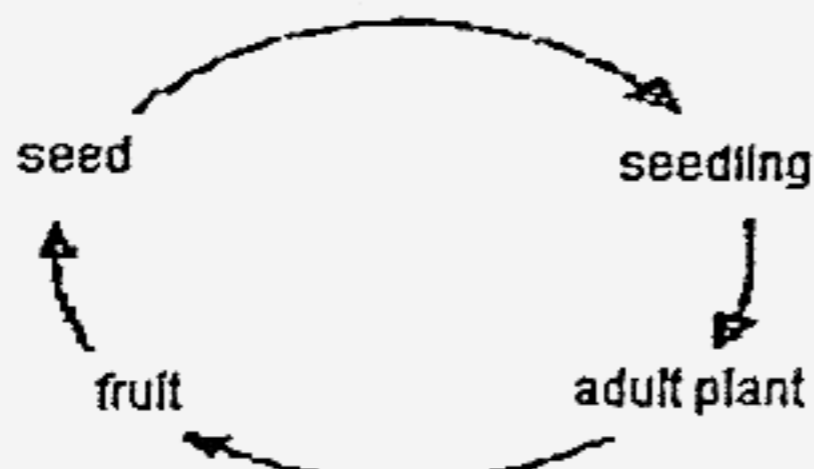
(2)



(3)



(4)



9. Janet has the following characteristics.

- (A) short hair
- (B) sharp nose
- (C) fair skin
- (D) single eyelid

Which of these traits are passed on from her parents to her?

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

10. What are the functions of leaves?

- (1) To carry water and nutrients to other parts of the plant.
- (2) To take in water vapour and give out carbon dioxide.
- (3) To take in water and minerals from the soil.
- (4) To make food and allow the exchange of gases.

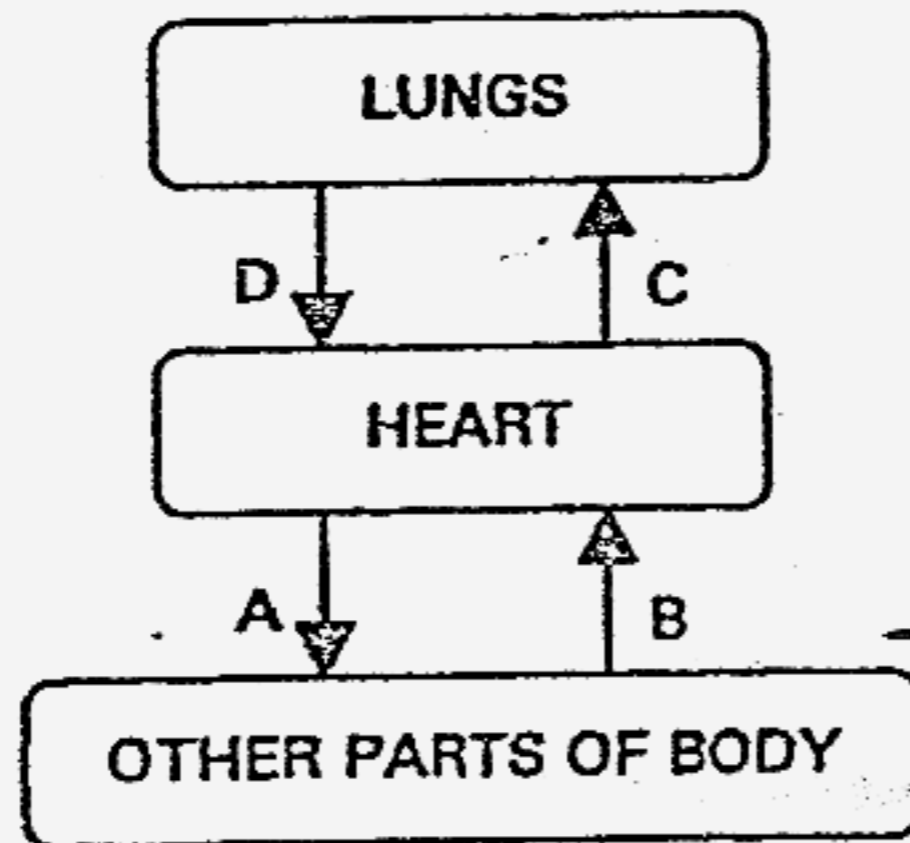
11. Study the classification table below.

Group A	Group B
ginger potato X	African violet begonia Y

Which of the following is likely to be X and Y?

	X	Y
(1)	Onion	Bryophyllum
(2)	Tapioca	Sweet potato
(3)	Bryophyllum	Onion
(4)	Sweet potato	Tapioca

12. The arrows, A, B, C and D, represent blood vessels carrying blood to and fro from the lungs, heart and other parts of the body.



Which two blood vessels carry blood with more oxygen?

- (1) A and B
 (2) A and D
 (3) B and C
 (4) C and D
13. In the classification table below, which animal is **wrongly** classified?

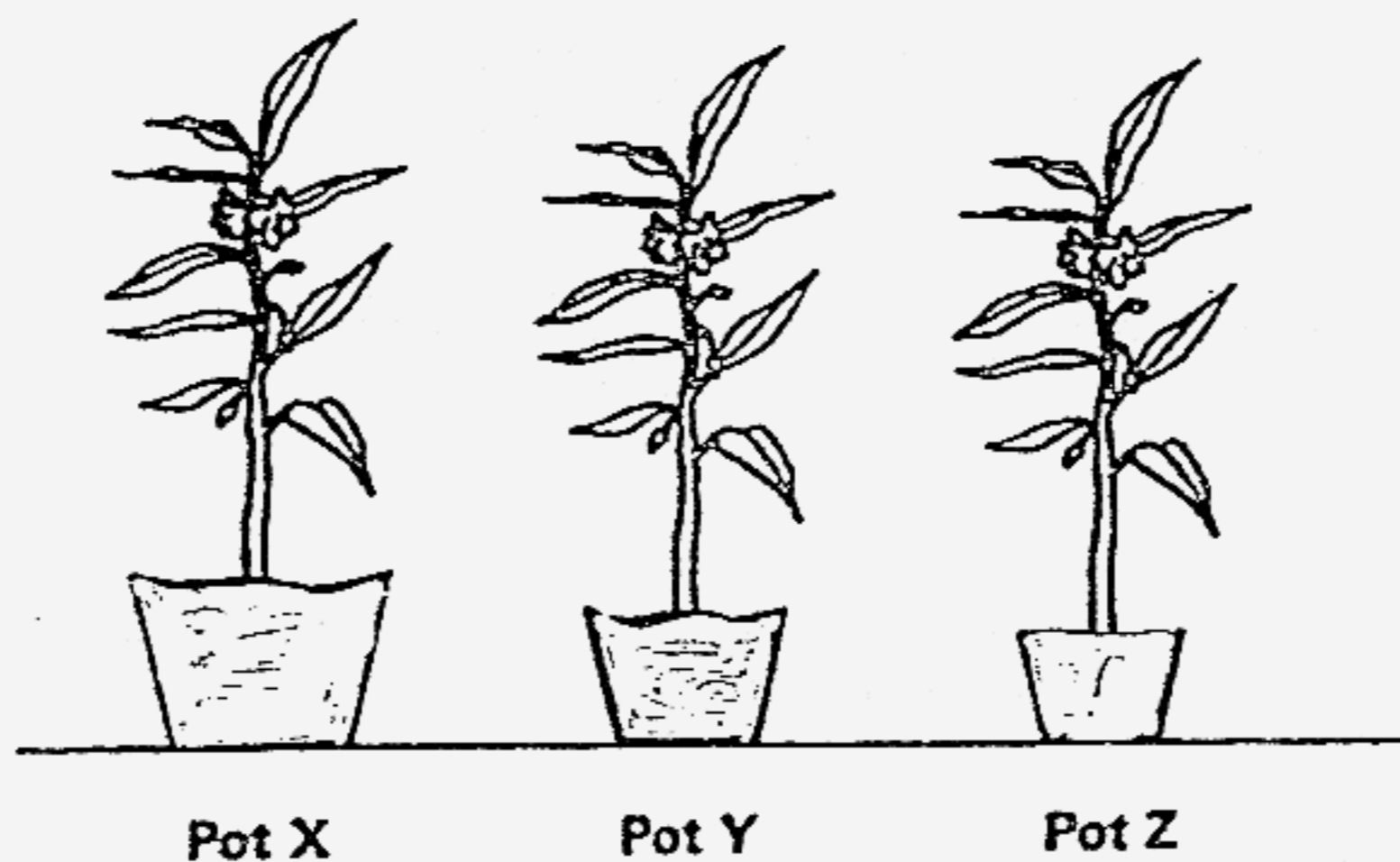
Life Cycles of Animals		
2 stages	3 stages	4 stages
Dog	Frog	Ant
Ostrich	Duck	Moth
Elephant	Platypus	Mealworm

- (1) Ant
 (2) Ostrich
 (3) Elephant
 (4) Platypus

14. Jason wanted to find out what type of soil was suitable for growing balsam plants. He planted 3 balsam plants of similar size in three pots, X, Y and Z. The soil of each pot was packed to the brim.

	Pot X	Pot Y	Pot Z
Material pot	plastic	plastic	plastic
Type of soil	clay	garden soil	sand
Size of pot (Diameter)		20 cm	cm
Amount of water used daily	150 ml	150 ml	150 ml

The three pots were placed in the garden as shown below.



Why was the experiment **not** a fair one?

- (1) The balsam plant in Pot Z obtained less sunlight than the others.
 - (2) The three pots were given the same amount of water.
 - (3) The type of soil used in each pot was different.
 - (4) The amount of soil in each pot was different.
15. The following table shows the comparison between sexual reproduction in humans and plants.

	Humans	Plants
Female reproductive cell	X	Y
Male reproductive cell	sperm	pollen grains
After fertilization	A baby is formed	Z

What are the missing information in the table above?

	X	Y	Z
(1)	ovary	egg	Seeds are formed
(2)	ovum	stigma	Fruits are formed
(3)	ovary	ovary	Fruits are formed
(4)	ovum	egg	Seeds are formed

16. Four tables are given below and in one of the tables, the classification is **Incorrect**. Which table is it?

1.

Metal	Non-metal
aluminium	lead

2.

Magnetic	Non-magnetic
steel	wood

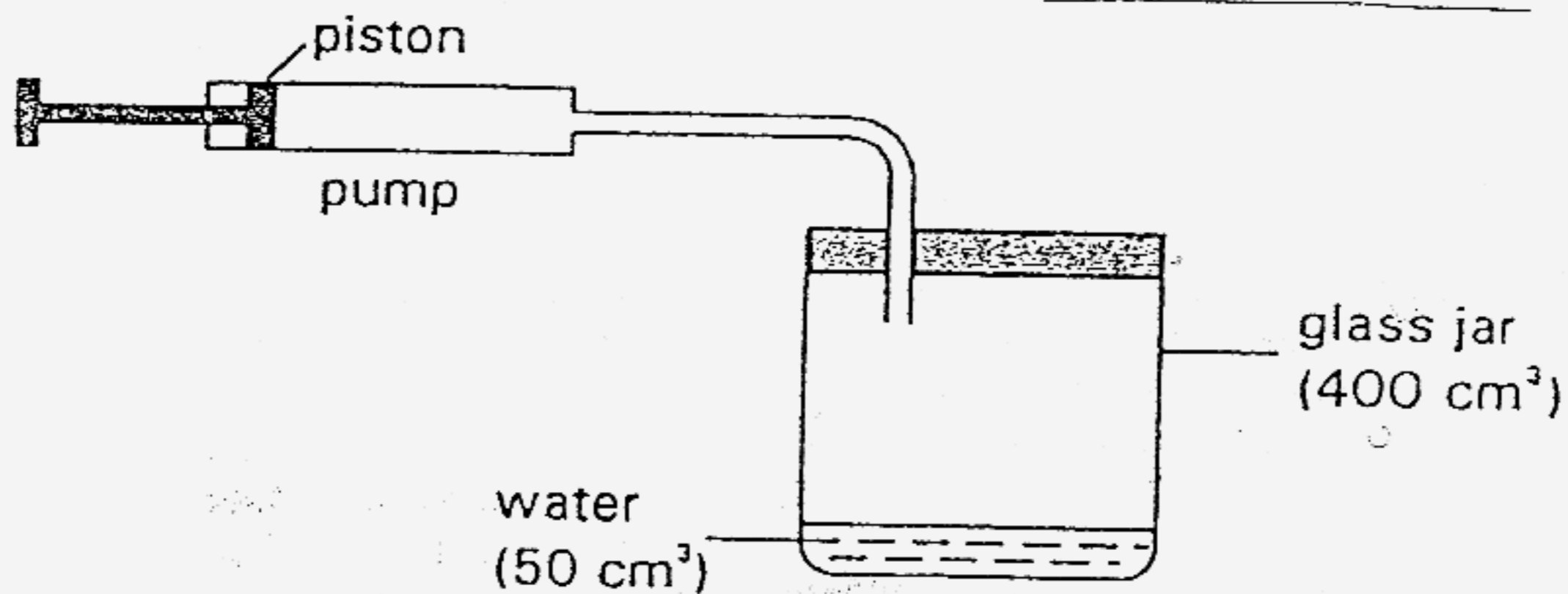
3.

Electrical conductor	Electrical insulator
water	glass

4.

Bad conductor of heat	Good conductor of heat
glass	tungsten

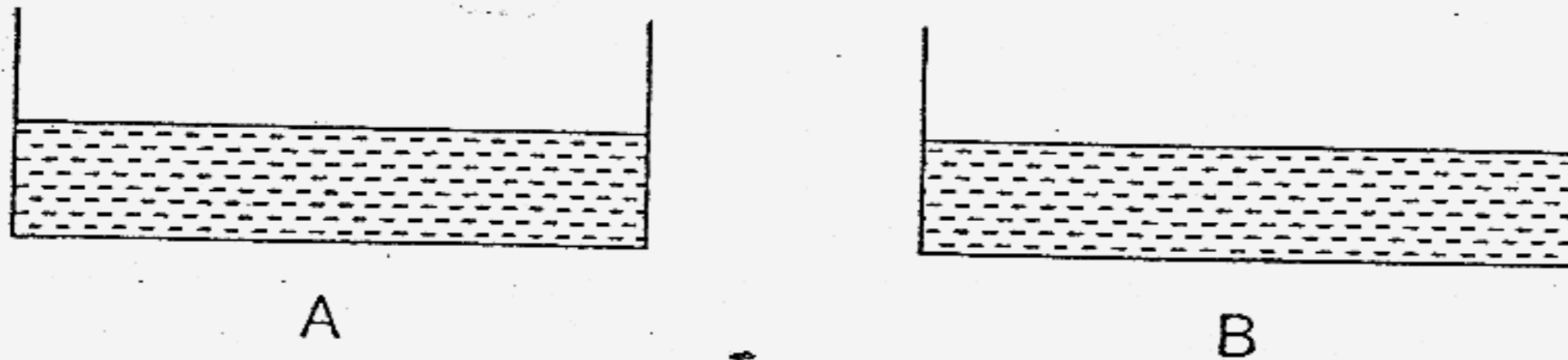
17. The diagram below shows a pump connected to a glass jar. The capacity of the jar is 400 cm^3 . The jar contains 50 cm^3 of water.



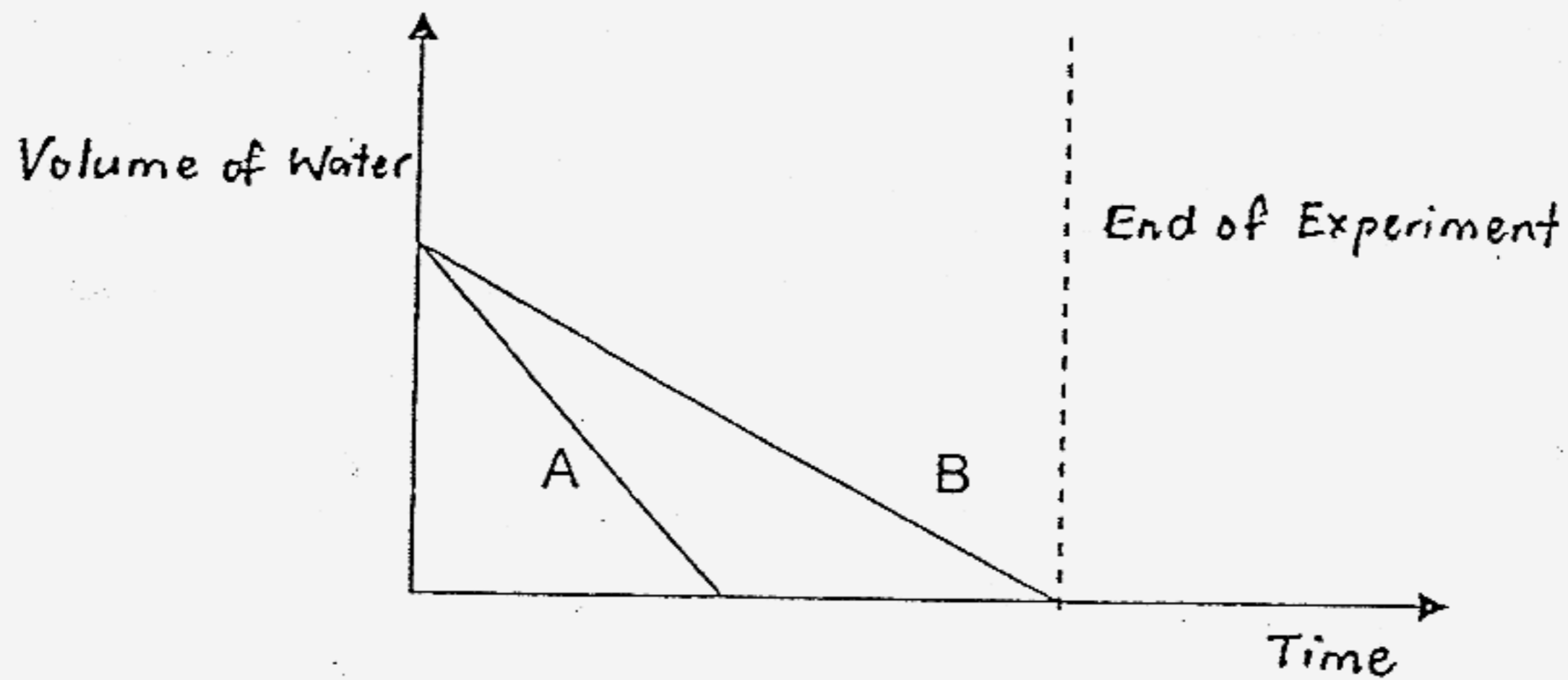
When the piston is pushed completely in, 20 cm^3 of air is forced into the jar. What is the volume of air in the jar?

1. 20 cm^3
2. 350 cm^3
3. 370 cm^3
4. 420 cm^3

18. Two identical containers filled with water are placed in two different environments.



The graph below shows the volumes of water in Containers A and B over time.



Which of the following statement/s is/are likely to be true?

- A Container B is put in a hotter environment than Container A.
- B Container A is put in a more windy environment than Container B.
- C Container B had more water than Container A at the end of the experiment.

- 1. A only
- 2. B only
- 3. A and B only
- 4. B and C only

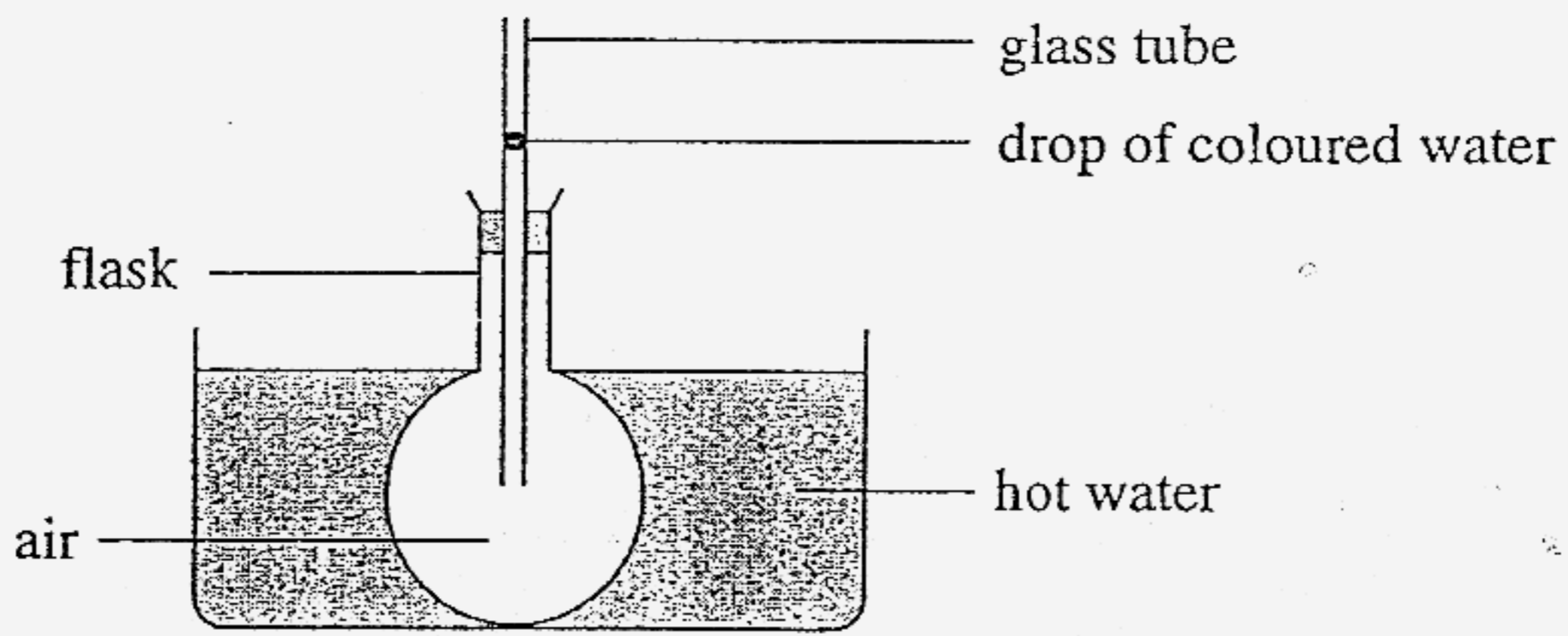
19. The table below gives some properties of four substances P, Q, R and S.

Substance	Colour	Can it dissolve in water?	Is it a magnetic material?
P	White	No	No
Q	White	Yes	No
R	Black	No	Yes
S	Blue	Yes	No

Alvin mixes some fine grains of the four substances together. He carries out an experiment to separate the four substances. Which two substances would be most difficult for him to separate?

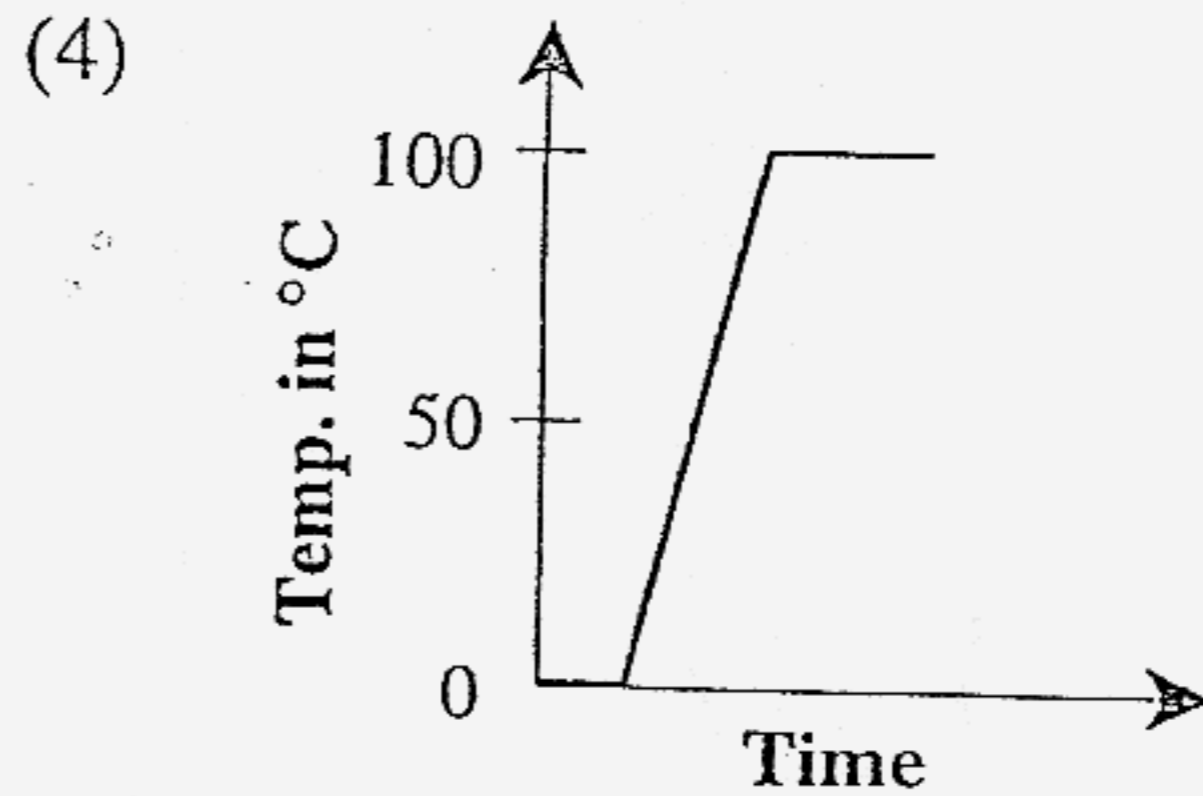
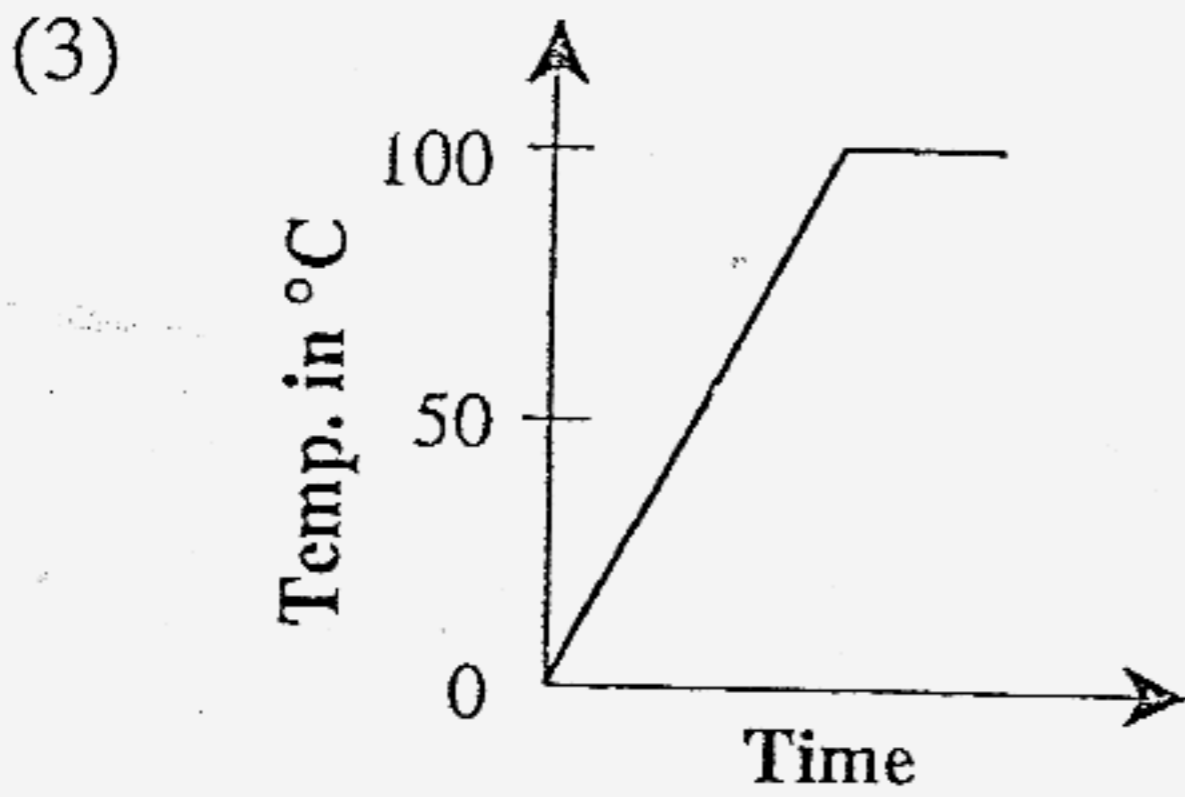
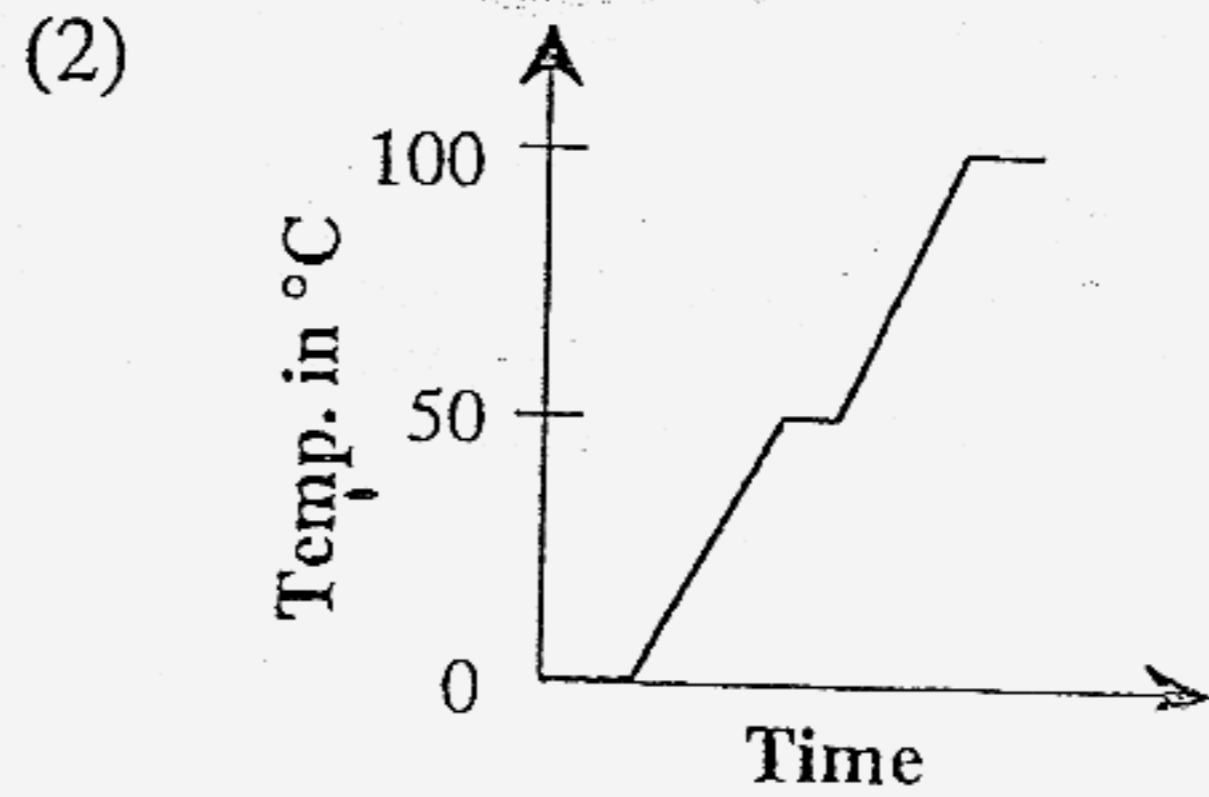
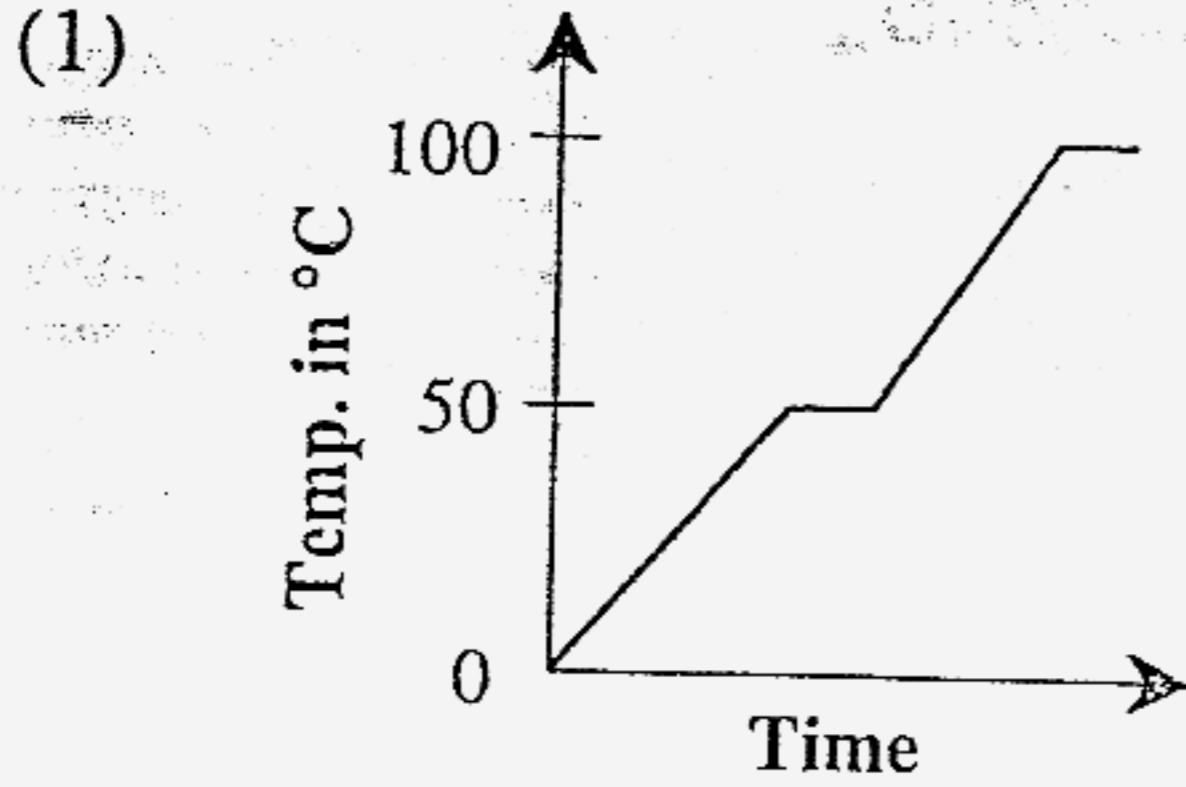
1. P and Q
2. Q and S
3. Q and R
4. R and S

20. In the set-up shown below, when the flask was placed in the hot water, the drop of coloured water fell first and then rose because the _____ expanded first and then followed by the expansion of the _____.



1. air in the flask flask
2. air in the flask water
3. flaskair in the flask
4. water air in the flask

21. Which one of the following graphs correctly shows the temperature changes when some ice cubes are heated to 100°C?



22. As an inhabitant on Earth, Betty has an understanding of the Moon. She wrote out these statements:

- ~~A~~: the Moon revolves around the Earth
- ~~B~~: the Moon is in total darkness about once in 28 days
- ~~C~~: the Moon is a much smaller planet than the Earth

Which of her statement/s above is/are incorrect?

- ~~1~~. A only
- ~~2~~. C only
- ~~3~~. A and B only
- ~~4~~. B and C only

For questions 23 and 24, use the information below:

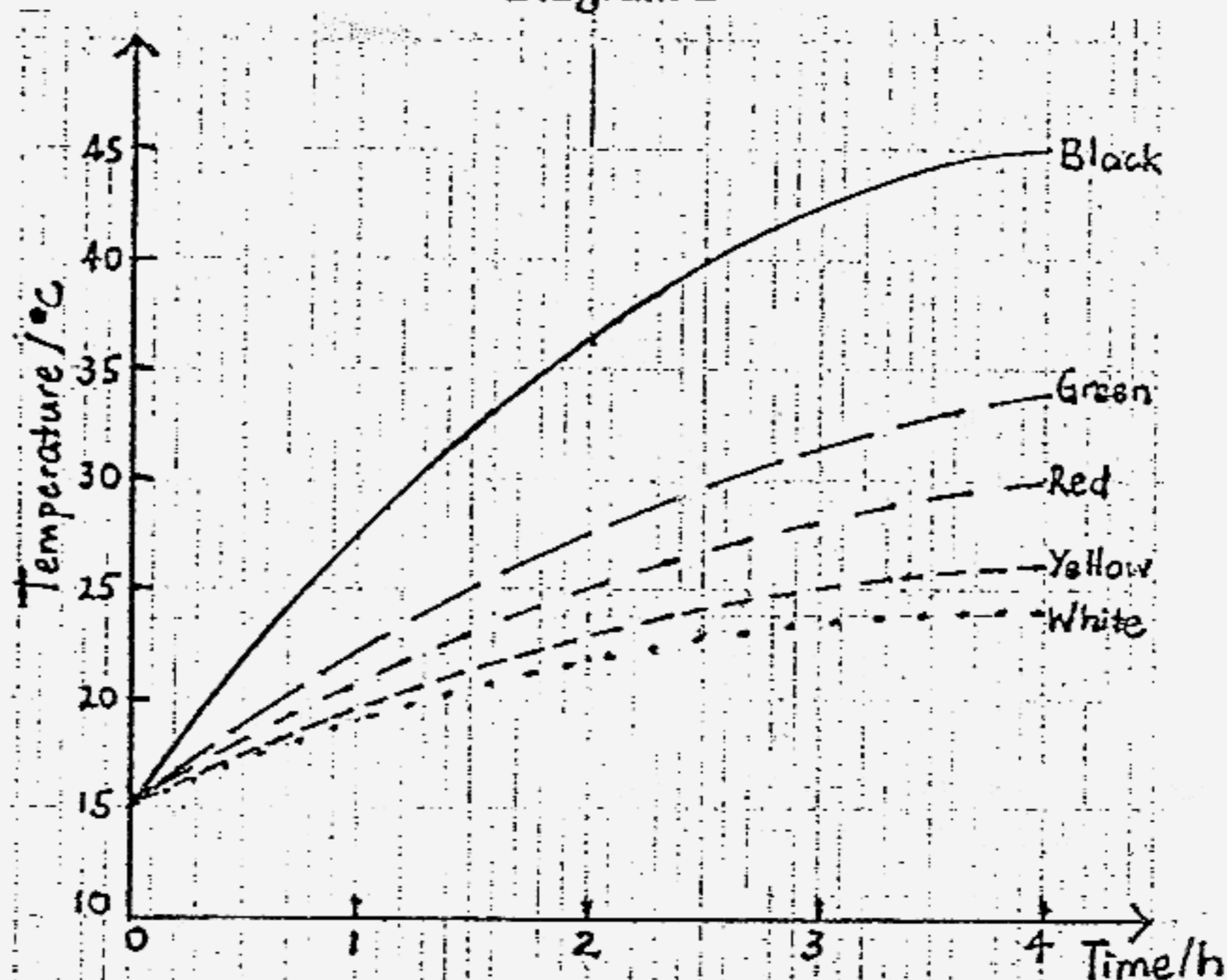
Materials with a colour that absorbs the Sun's heat are best for solar heaters.
Materials with a colour that reflects the Sun's heat are best for hot weather clothing.

Sam set up an experiment as shown in Diagram 1 below to investigate the effect of the Sun's heat on paper in various colours. He made five cups using paper. All the paper was of the same type but with different colours. He left the cups in a sunny place for a number of hours. Later, he plotted the graph of temperature against time for each set-up. The result is shown in Diagram 2 below.

Diagram 1



Diagram 2



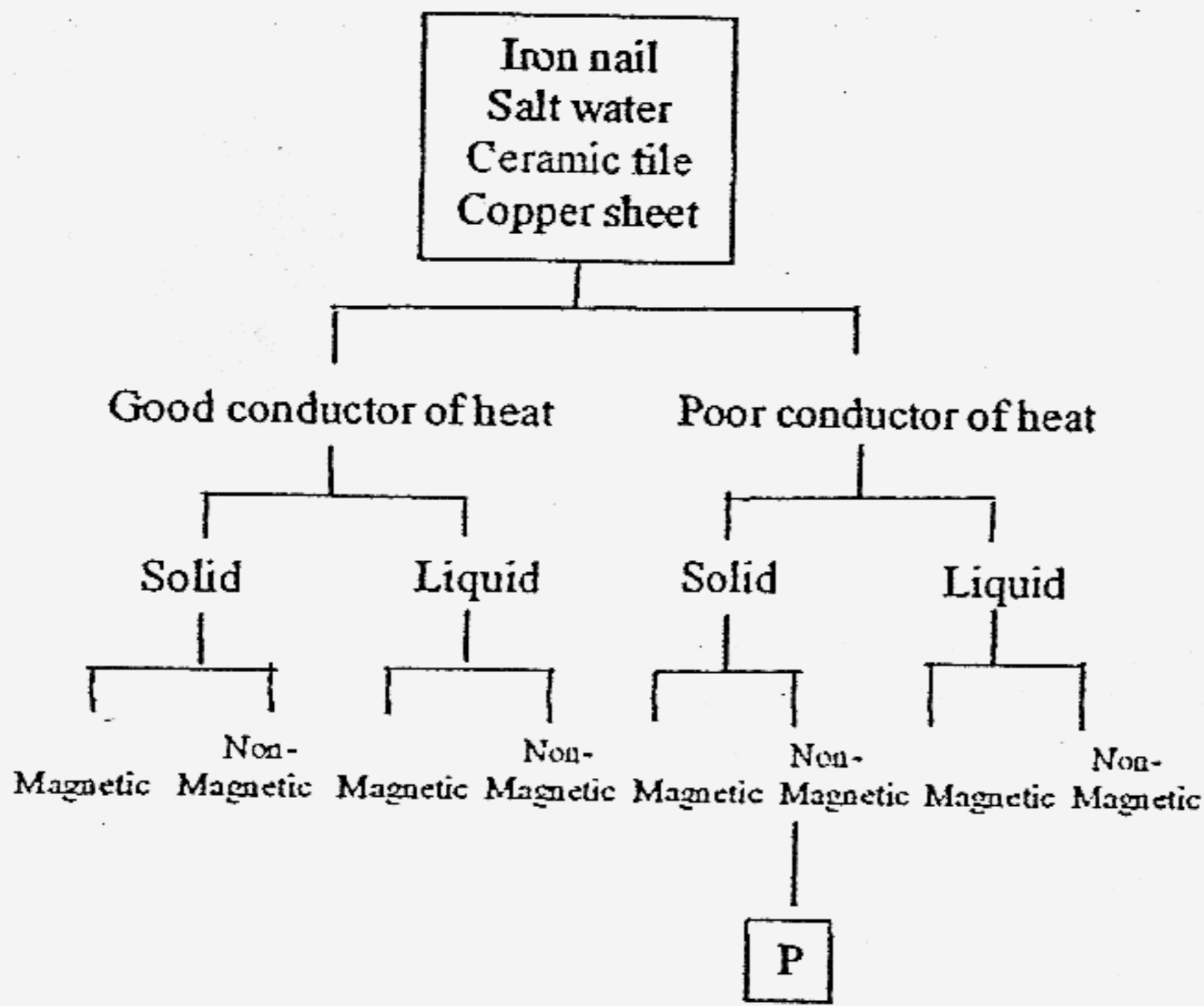
23. After two and the half hours, the difference in the temperatures of the black cup and the white cup was _____.

1. 17° C
2. 20° C
3. 28° C
4. 37° C

24. Which of the colours below are best suited for the purpose shown?

	Solar hot water heaters	Hot weather clothing
1.	Yellow	Red
2.	Yellow	Green
3.	Green	Red
4.	Green	Yellow

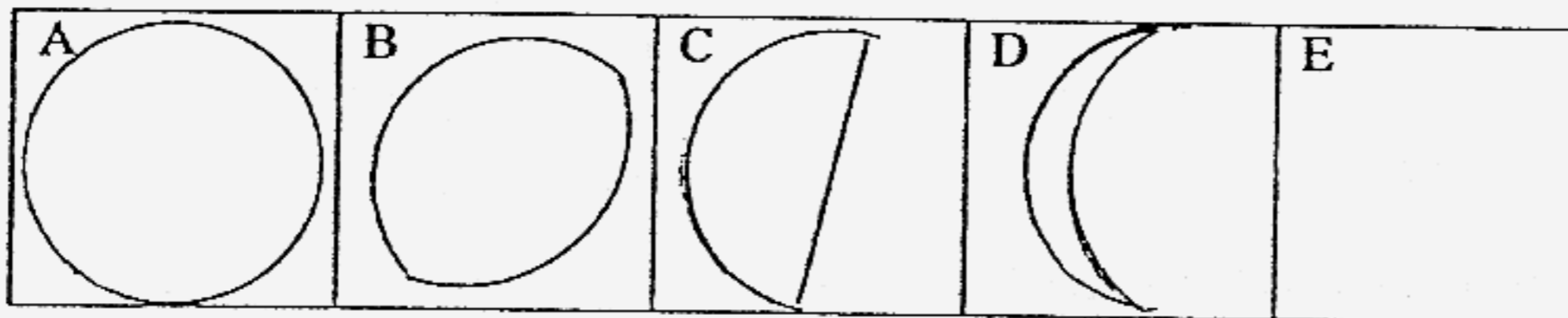
25. The following shows a classification table.



What does P represent?

1. iron nail
2. salt water
3. ceramic tile
4. copper sheet

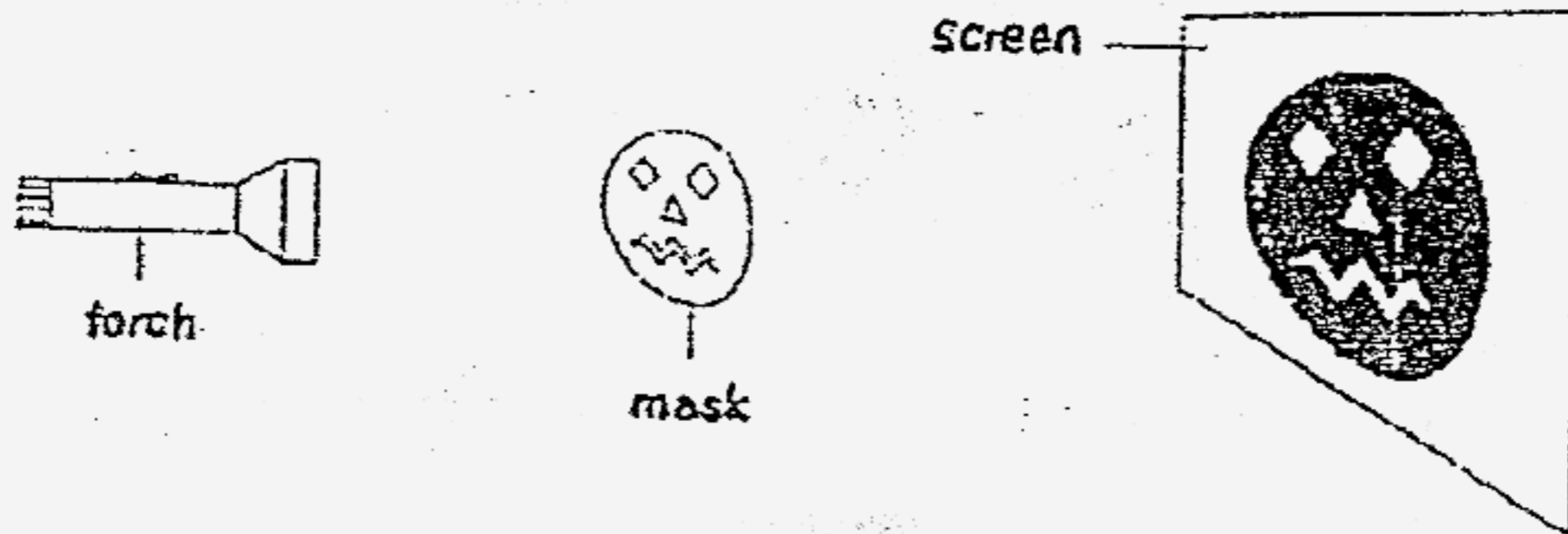
26. The diagram below shows the change in the shape of the moon over 14 days.



What phase of the moon can be observed in the Box E?

1. Half moon
2. New moon
3. Full moon
4. Gibbous moon

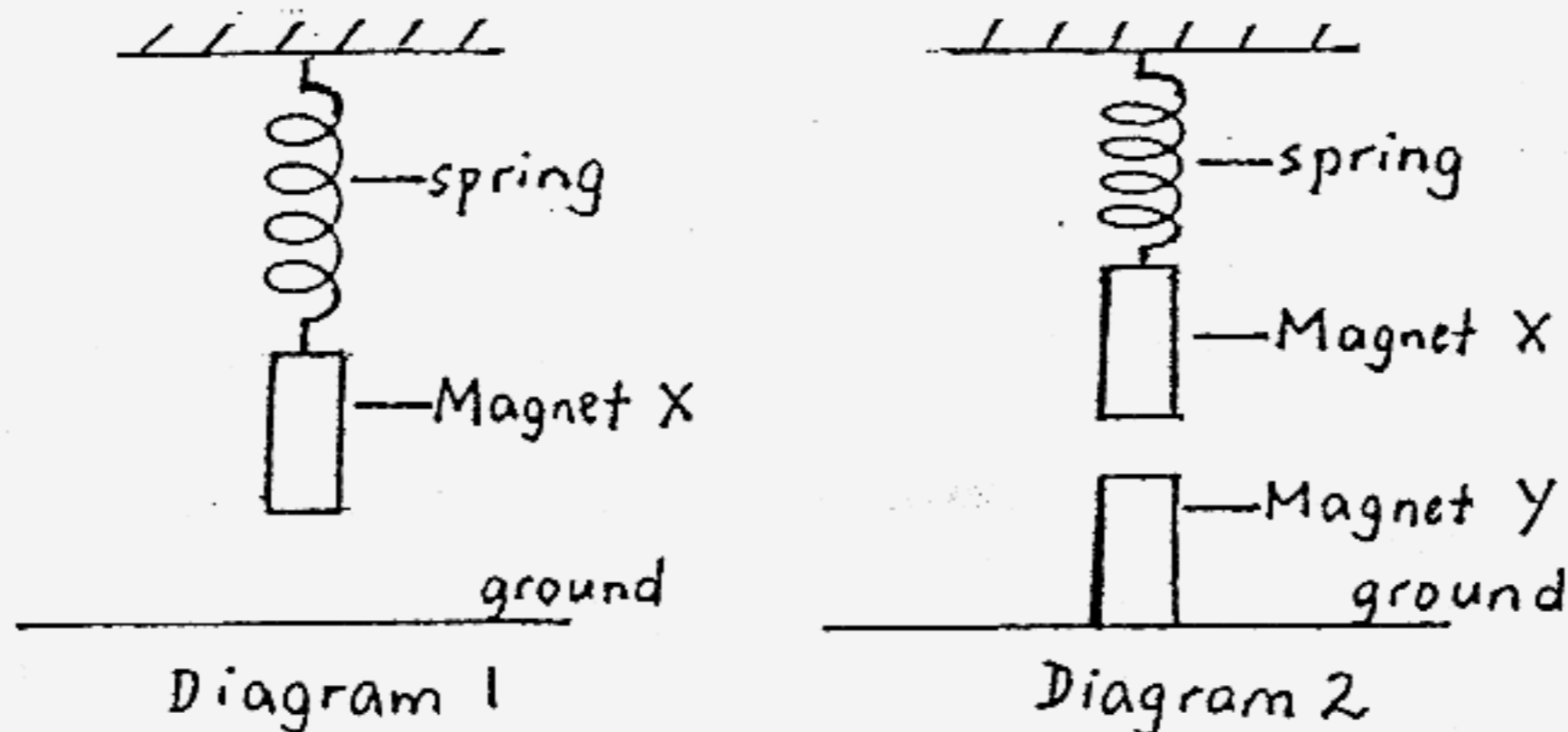
27. Susan forms a shadow on a screen by positioning a mask in the path of light from a torch. The size of the shadow will increase if she _____.



- A: uses a brighter torch
 B: moves the torch closer to the mask
 C: moves the mask closer to the screen
 D: moves the screen further from the torch

1. A and B only
 2. B and C only
 3. B and D only
 4. C and D only

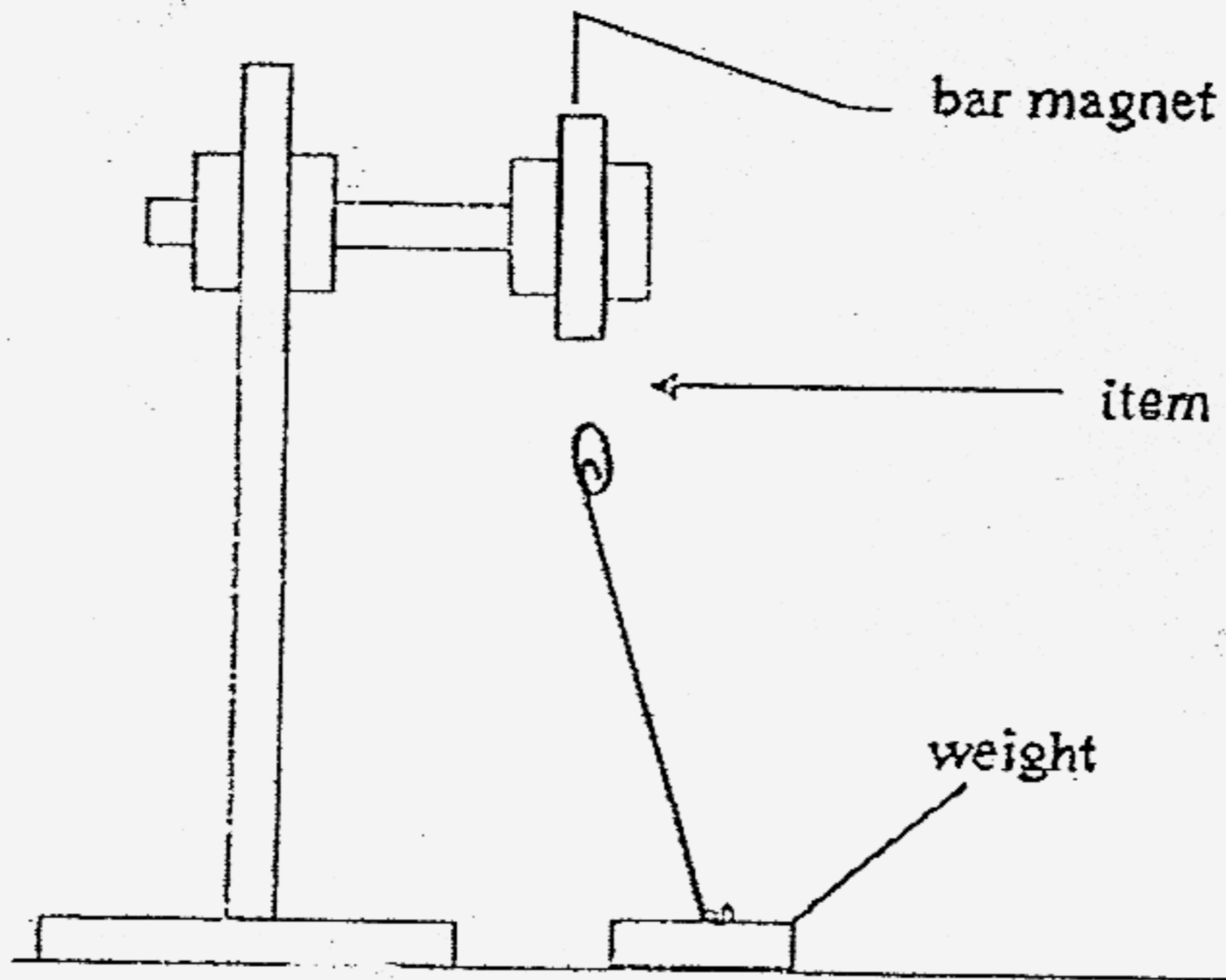
28. Magnet X is hung from a spring as shown in Diagram 1. Magnet Y is then placed on the ground, directly below Magnet X as shown in Diagram 2.



Why does the spring stretch less in the arrangement shown in Diagram 2?

1. The spring becomes stronger.
 2. The weight of Magnet X is smaller.
 3. Magnet X pulls Magnet Y upwards.
 4. Magnet Y pushes Magnet X upwards.

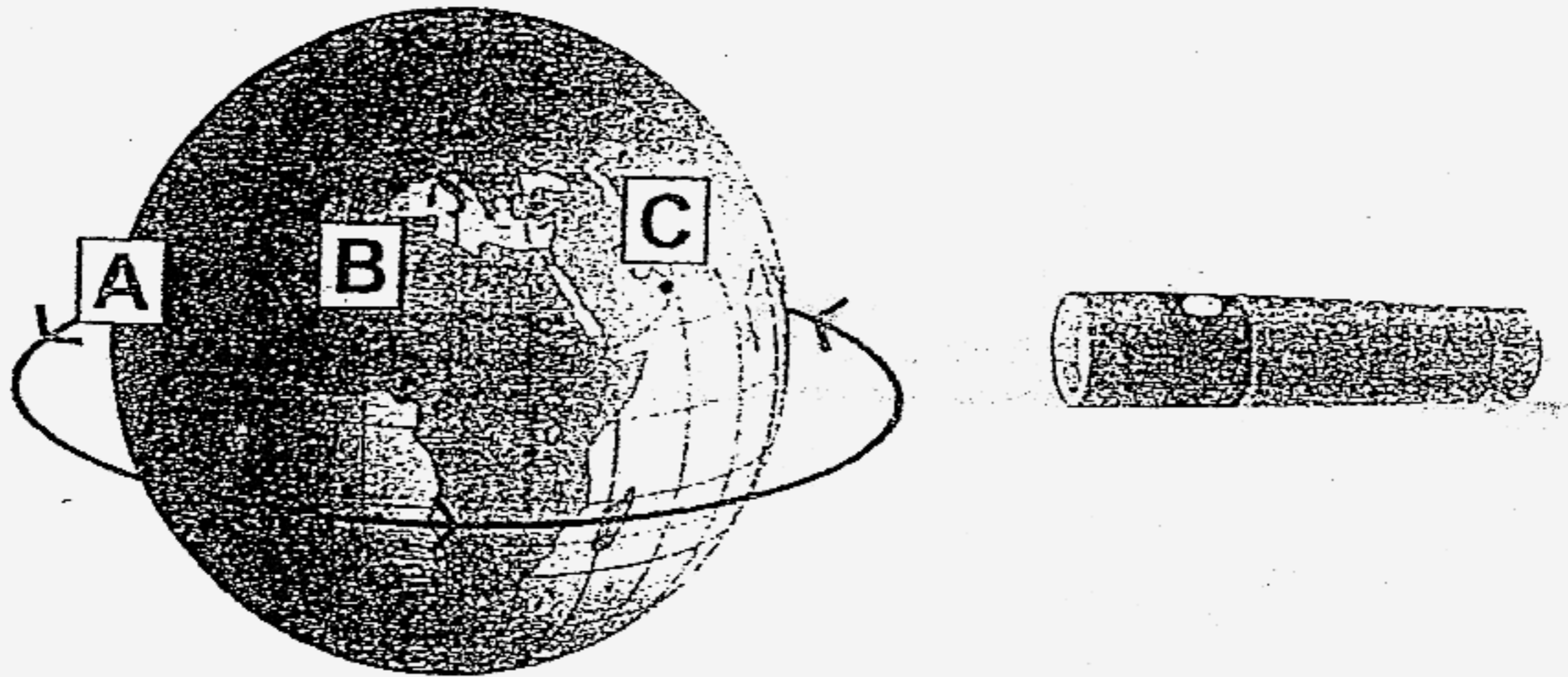
29. Samuel held a bar magnet above a paper clip which was tied to a weight by a string. The magnet pulled the paper clip up. Then he placed four items, one at a time between the magnet and the clip and observed if the paper clip dropped or remained where it was.



If the four items used in the experiment were a thin sheet of steel, a piece of aluminium foil, a piece of paper and a thin sheet of silver respectively, which one of the following would show accurately what Samuel had observed?

	Steel	Aluminium Foil	Paper	Silver
1.	Dropped	Dropped	Remained	Dropped
2.	Dropped	Remained	Remained	Remained
3.	Remained	Remained	Dropped	Remained
4.	Remained	Dropped	Dropped	Remained

30. Kelly uses a globe as a model of the Earth. She uses a torch as a model of the Sun. The arrows in this picture show the way that Kelly turns the model of the Earth.



When the model Earth is in the position shown in the picture, what times of day are shown at points A, B and C on the globe?

	A	B	C
1.	Sunrise	afternoon	sunset
2.	Sunrise	morning	afternoon
3.	Night-time	sunrise	evening
4.	Night-time	sunrise	morning

For questions 31 to 46, write your answers in the spaces provided.

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

(40 marks)

31. When we breathe, air is taken in (inhaled) and given out (exhaled).

The table below shows one difference between inhaled and exhaled air.

Complete the table by giving **two other** differences.

(2 marks)

Differences between		
	Inhaled air	exhaled air
1	Contains more oxygen	Contains less oxygen
2		
3		

32. The tiny tubes inside the stem of a plant are used for transporting materials from one part of the plant to another. There are two kinds of tubes.

(a) One kind of tube transports _____ and _____
from the roots to the leaves. (2 marks)

(b) The other kind of tube transports _____ from the leaves to the
other parts of the plants. (1 mark)

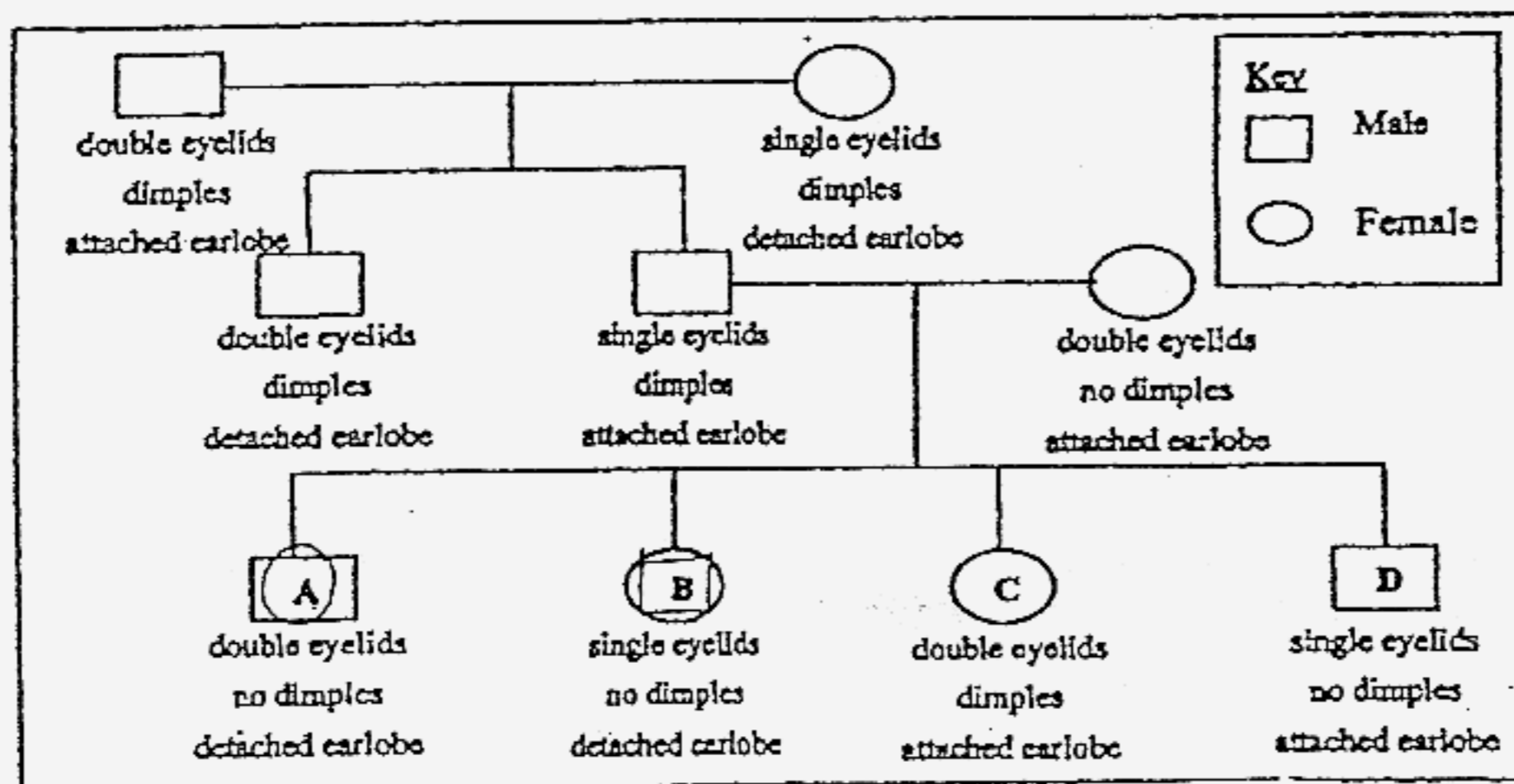
33. Ryan and his friends went camping. They saw an old vacant house on the top of a hill. It had cracks on its walls and roof. Ryan observed some plants growing out from those cracks.



- (a) What do you think these plants reproduce from? (1 mark)

- (b) How might *these plants have* been dispersed? (1 mark)

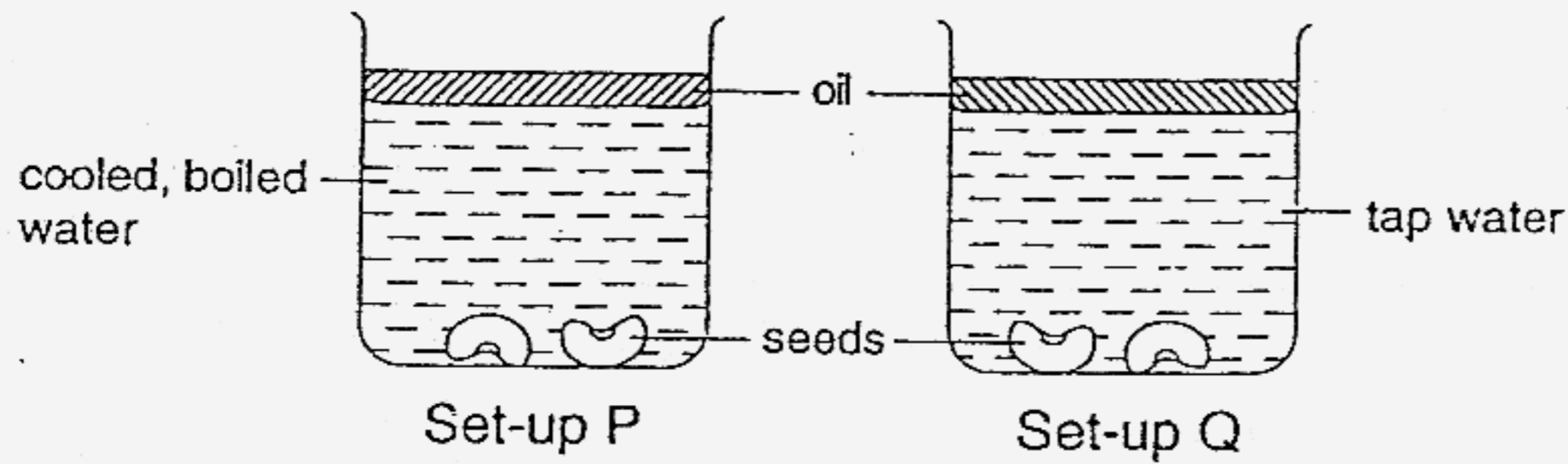
34. Study the family tree below



- (a) Which child, Amy (A), Benny (B), Cindy (C) or Danny (D), has inherited only one trait from each parent? (1 mark)

- (b) Both of A's parents have attached earlobes. Explain why A has detached earlobes. (1 mark)

35. Olivia set up an experiment using the apparatus shown below.



(a) What is the process that the seeds will go through if they can grow? (1 mark)

(b) In which set-up would you expect the seeds not to grow? (1 mark)

(c) Explain your answer in part (b). (1 mark)

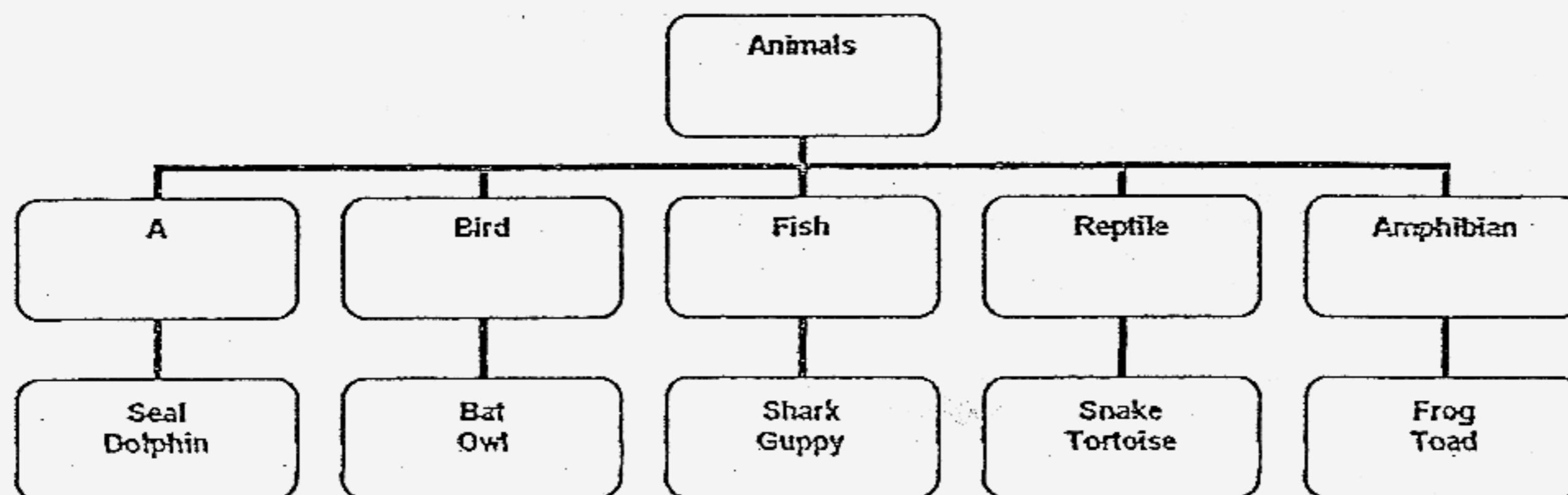
36. The diagram below shows a seed.



(a) Label the part that provides the growing seed with food. (1 mark)

(b) Which part of the seedling develops and appears first? (1 mark)

37. Study the classification table below.

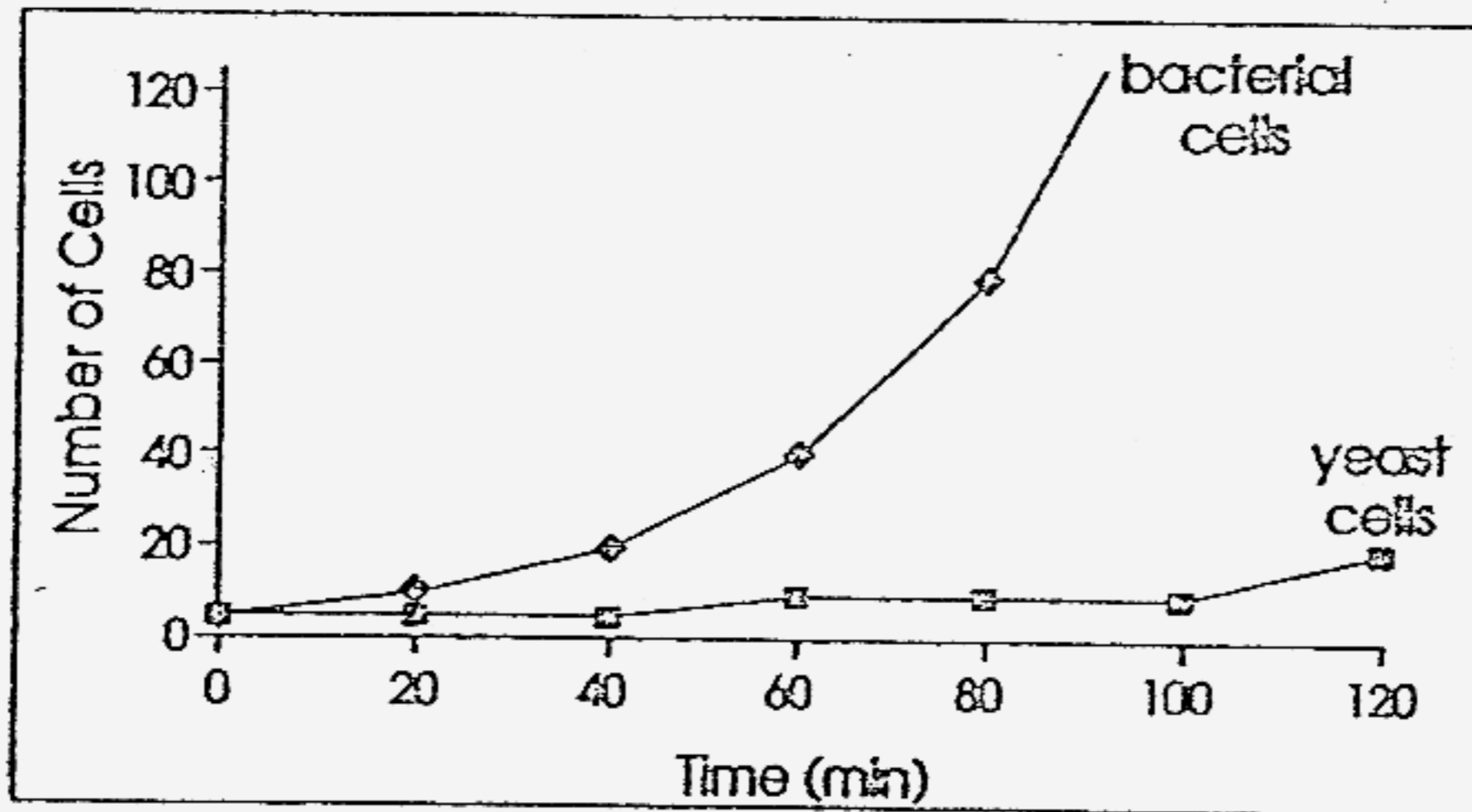


(a) Which animal is wrongly classified? Which group should it belong to? (1 mark)

(b) What does Group A represent? (1 mark)

38. Mrs Lee grew a culture of yeast cells and another culture of bacteria. She counted the number of yeast cells under a microscope and plotted the table and graph below.

Time (min)	0	20	40	60	80	100	120
No. of yeast cells	5	5	5	10	10	10	20
No. of bacterial cells	5	10	20	40	80	160	240



- (a) Why did Mrs Lee start off with the same number of yeast and bacterial cells? (1 mark)

- (b) What is the time taken to replicate the yeast cells? (1 mark)

- (c) What pattern do you observe about the division of bacterial cells in the table above? (1 mark)

39. John wanted to pour some condensed milk from a can into a cup. He made a small hole on the can as shown in Diagram P below. However, he found that the milk flowed out of the can very slowly.

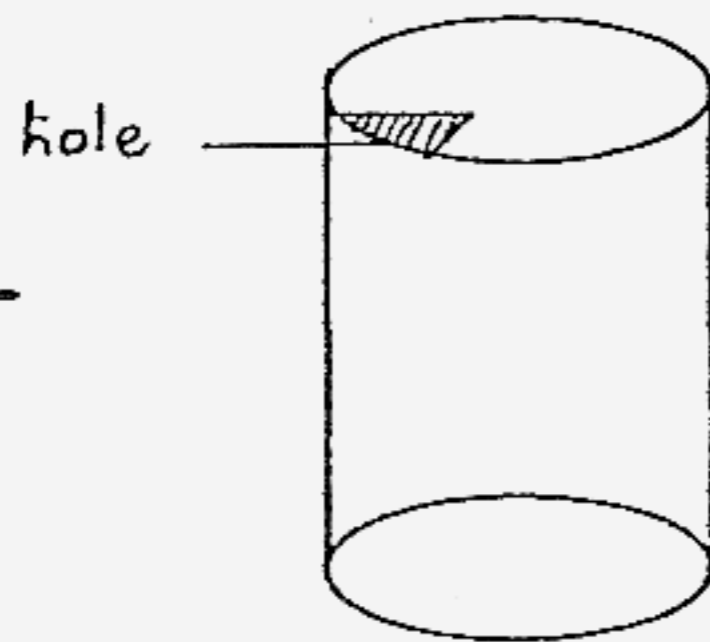


Diagram P

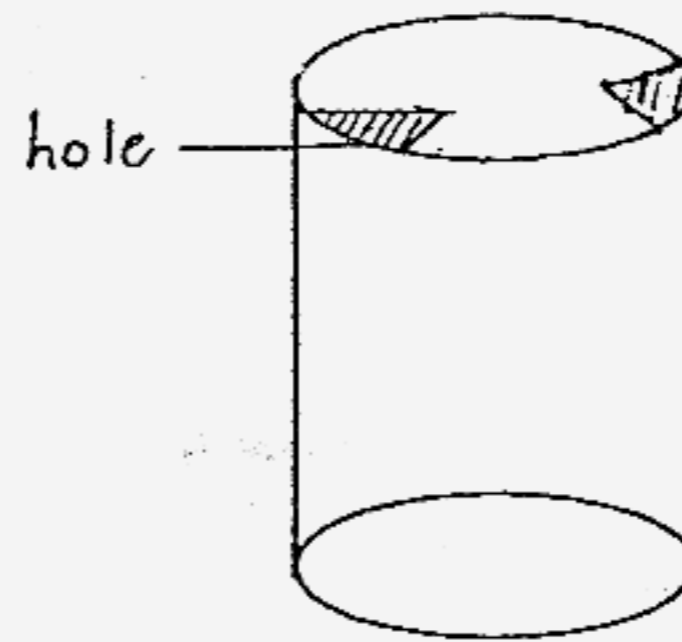
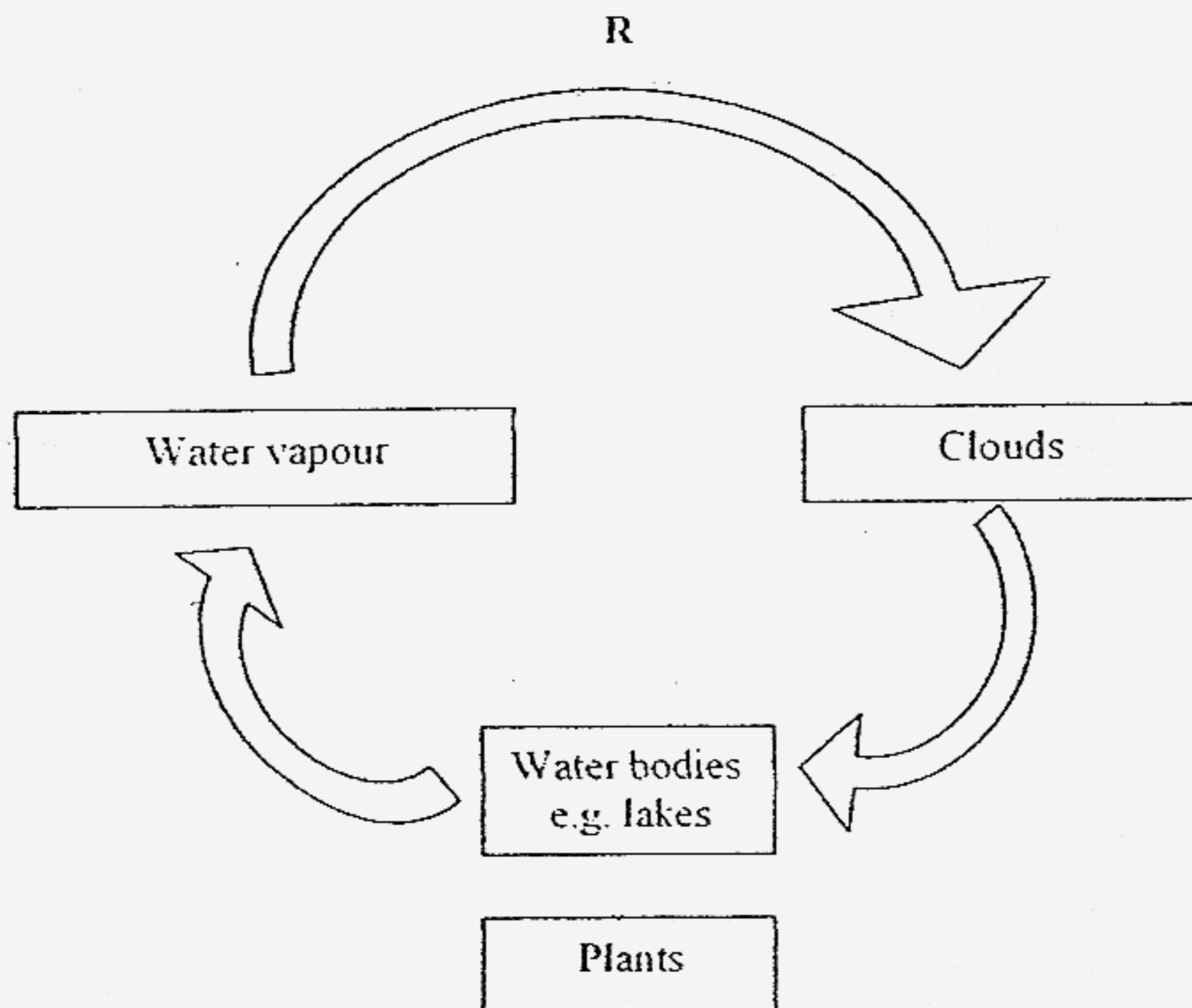


Diagram Q

- a. Draw on Diagram Q above what John can do to increase the rate of flow of the milk out of the can. (1 mark)
- b. Explain the course of action taken by John in part (a). (1 mark)

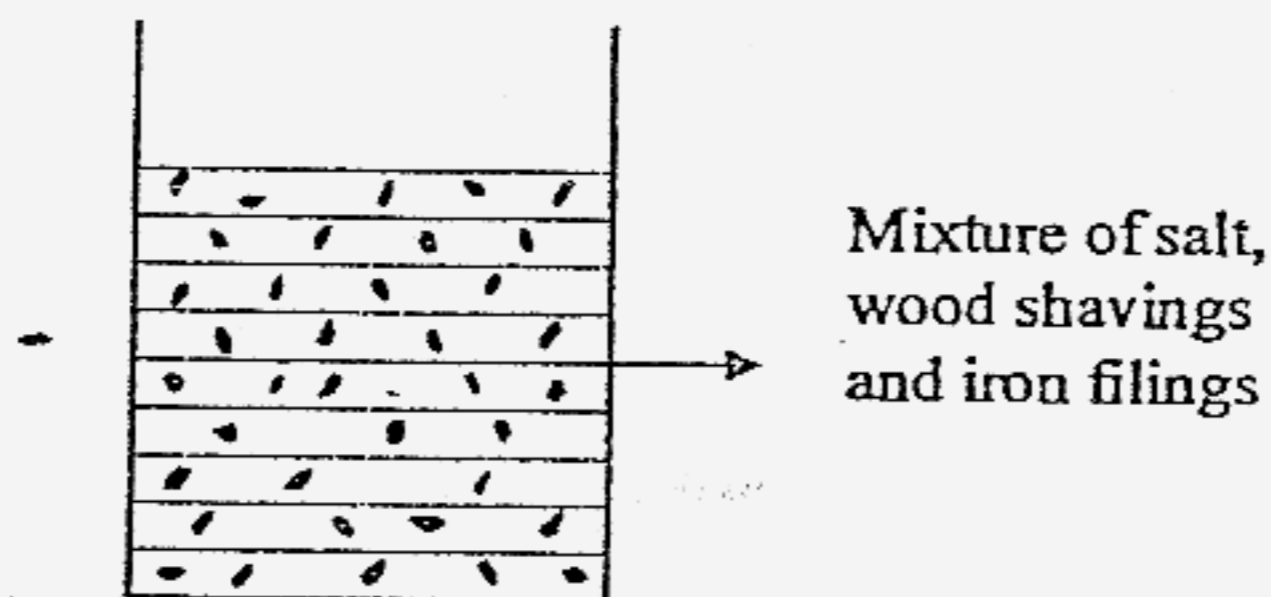
40. The diagram below shows part of the water cycle.



- a. Name the process taking place at R and state whether heat is taken in or given off during this process. (1 marks)

- b. Draw 2 arrows on the diagram above to show how plants can be part of this water cycle. (1 mark)

41. Aileen was given a mixture of salt, wood shavings and iron filings as shown in the diagram below.



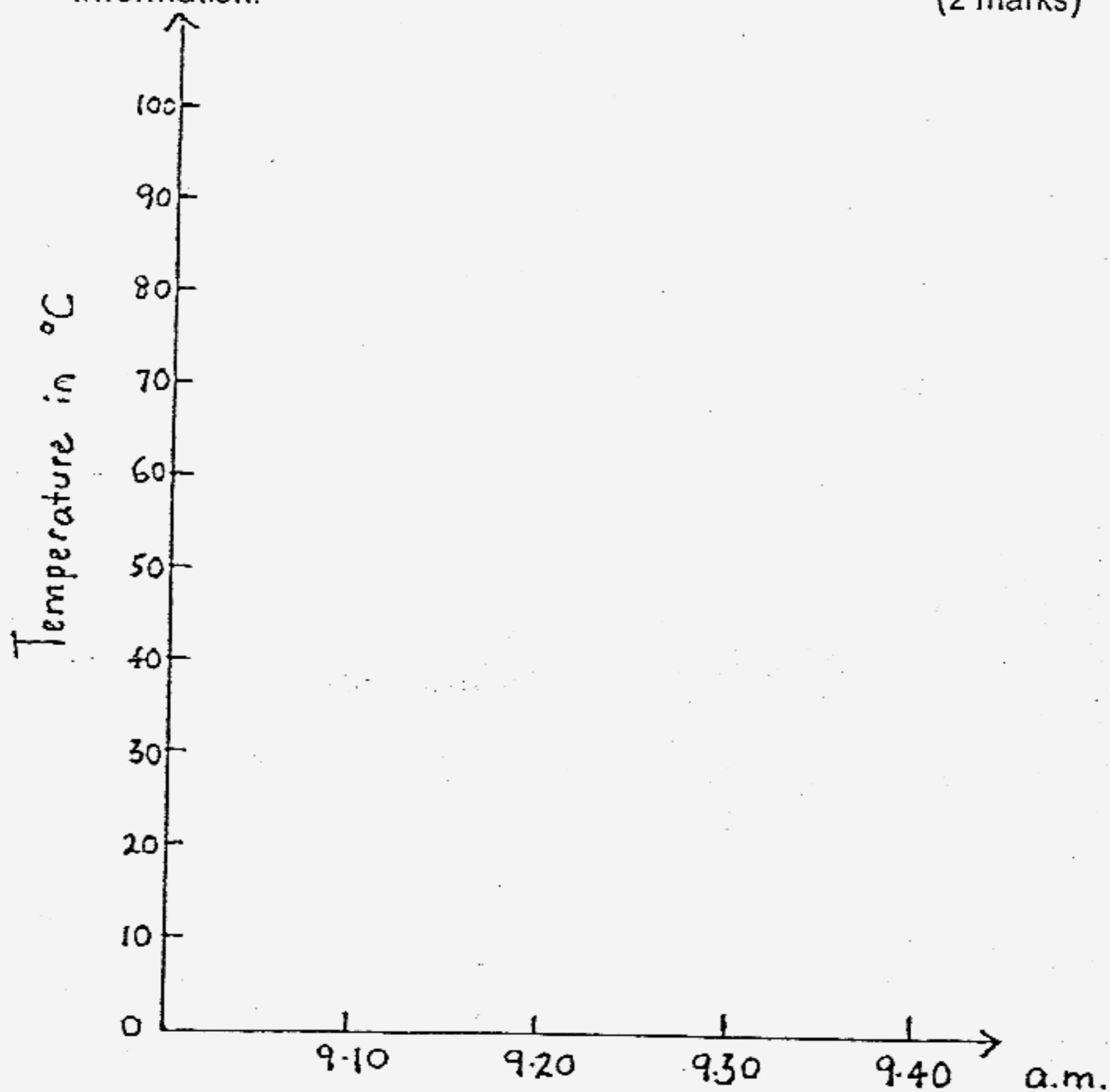
- She was provided with the following:
- Stirrer
 - Magnet
 - Water supply
 - Empty beaker
 - Funnel with filter paper

Describe in the table below, the steps she should take to separate the wood shavings from the mixture, using what she was provided. Only one item can be separated at each of Step 2 and 3. Step 1 is done for you. Complete Steps 2 and 3. (2 marks)

Steps	Description	What is separated
Step 1	Put all the mixture into empty beaker and pour water into it. Stir.	Nothing
Step 2		
Step 3		

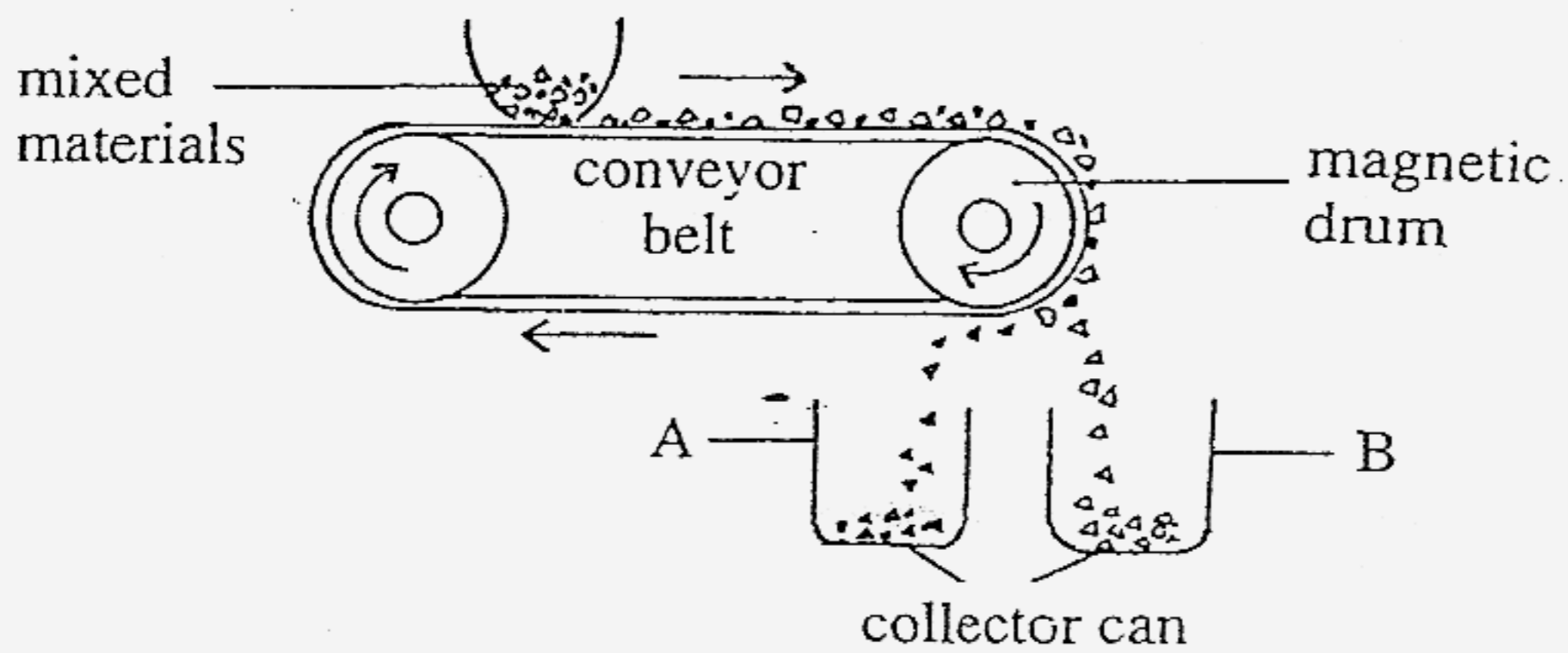
42. Two beakers, X and Y, each containing 200 ml of water at 30°C, were heated. Beaker X was heated at 9.10 a.m. and Beaker Y was heated at 9.20 a.m. Each had a different burner. The water in Beakers X and Y started to boil at 9.35 a.m. and 9.30 a.m. respectively.

- a. On the grid below, draw two straight line graphs to represent this information. (2 marks)



- b. From the graph above, the water in the two beakers reached the same temperature of about _____ °C at about _____ a.m. (1 mark)
- c. Suggest one reason why the water in Beaker Y boiled first. (1 mark)

43. The diagram below shows a magnetic separator. Mixed materials, consisting of magnetic and non-magnetic materials are passed along the conveyor belt.

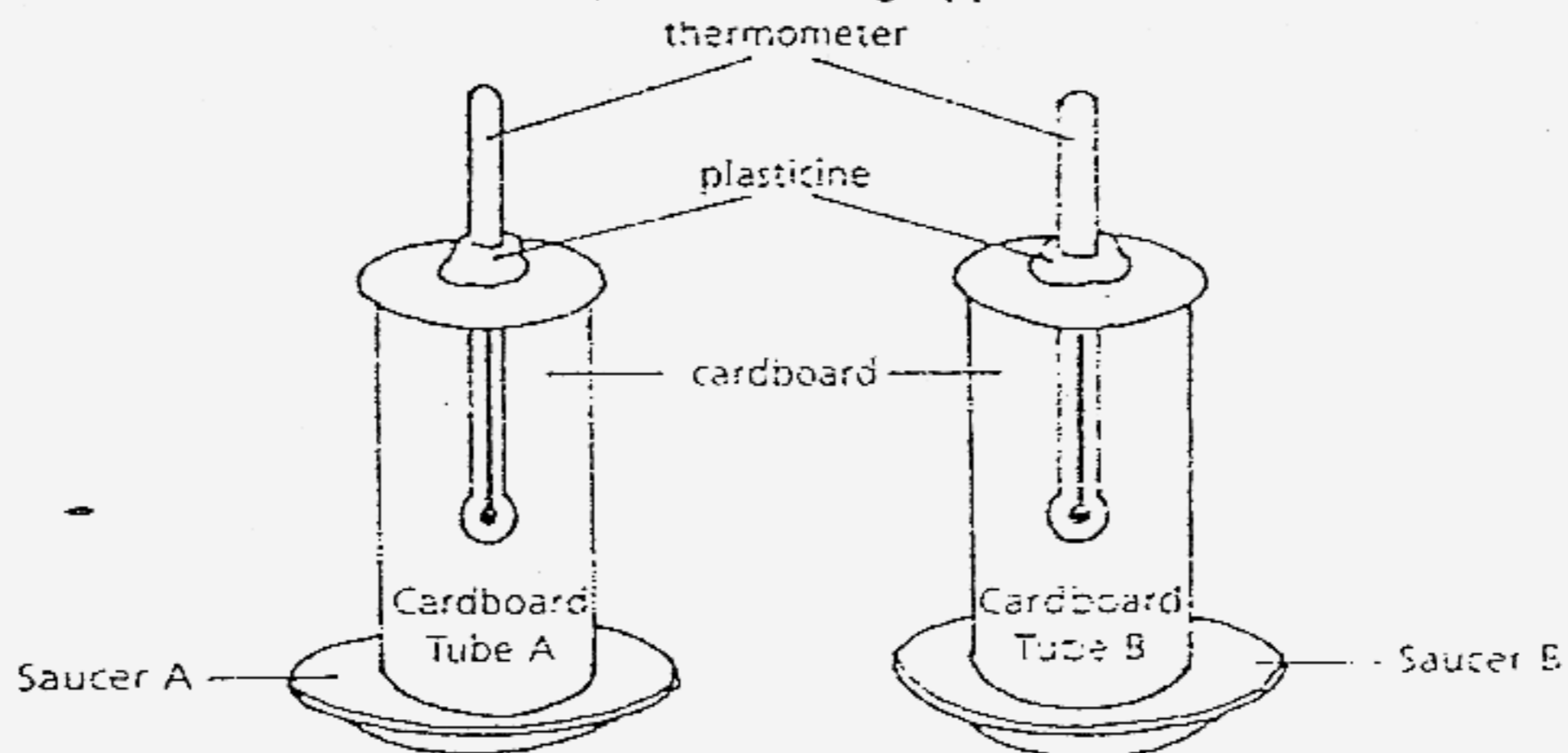


- a. What is the function of the magnetic drum? (1 mark)

- b. Into which container would magnetic materials fall into? (1 mark)

- c. Give a reason for your answer in part (b). (1 mark)

44. In an experiment, some pupils set up the following apparatus as shown below.



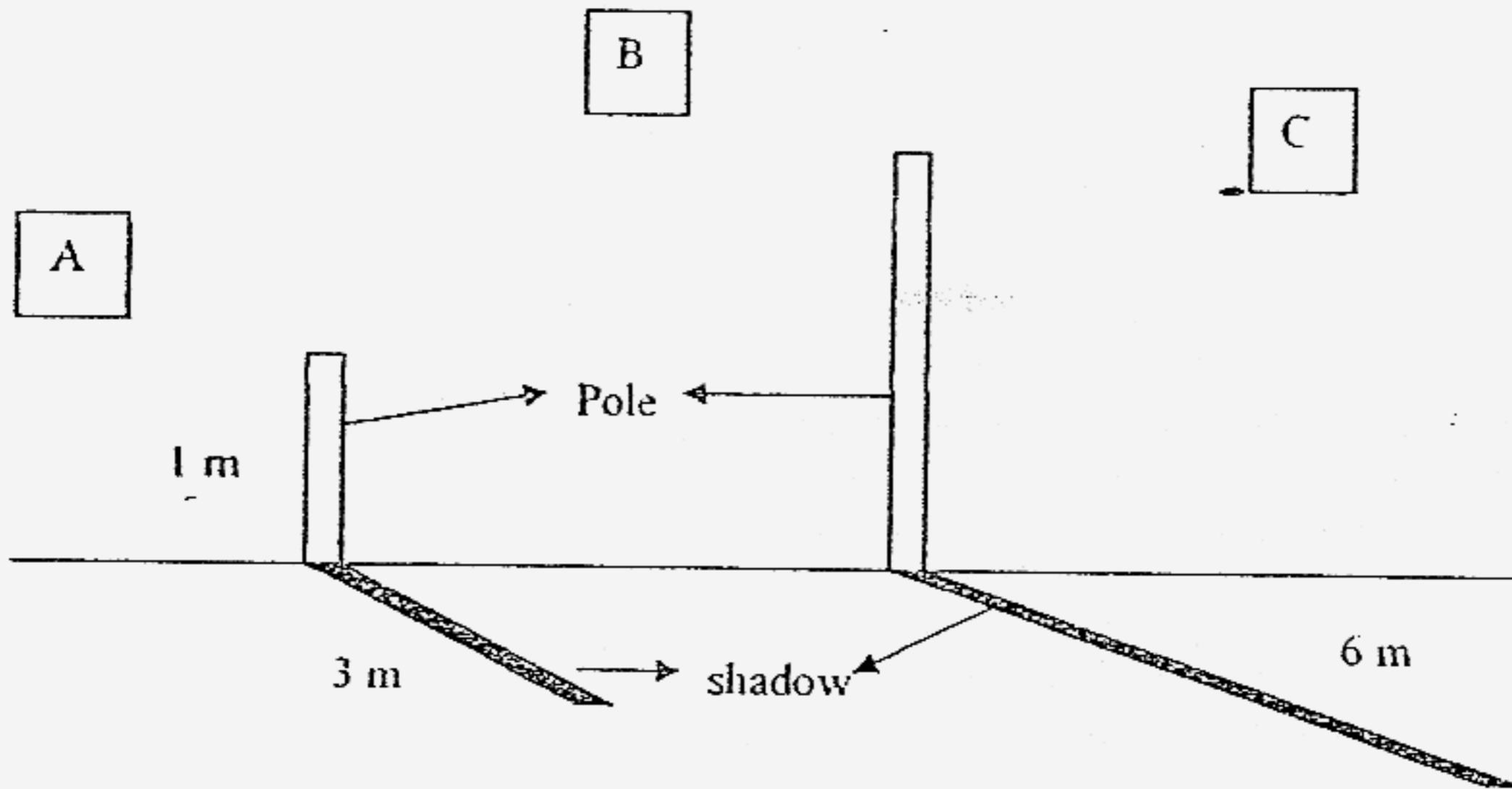
After the experiment was set up, they did the following:

- Recorded the temperature in each tube
- Poured some tap water at room temperature into Saucer A. Started the time and observed what happened
- Recorded the temperatures again and repeated the recording every five minutes for about half an hour
- Organized all the readings in the table below

Time	Temperature of tubes / °C	
	Tube A	Tube B
Before adding water	28	28
After adding water – 5 min	26	28
10 min	24	28
15 min	22	28
20 min	20	28

- a. What happened to the temperature inside Tube A as water soaked into the tube? (1 mark)
-
- b. What does this experiment show? (1 mark)
-
- c. How do showering themselves and wallowing in muddy water in the midday heat help elephants, rhinoceros and hippopotamuses stay cool? (1 mark)
-

45. The diagram below shows a 1-metre pole which is perpendicular to the ground. At a certain time, Alice observed that its shadow was 3 metres long while a nearby longer pole cast a shadow of 6 metres. (The diagram is not drawn to scale)



- a. In which position, A, B or C was the position of the Sun at the time Alice observed the shadows? (1 mark)
-
- b. What was the height of the longer pole at this time? (1 mark)
-
- c. At what time of the day would the shadows be the shortest? (1 mark)
-

46. Mr Tan was planning to take his family out for a picnic one Sunday. He had three picnic spots in mind and the schedule of tide times for these 3 places, A, B and C are shown below.

TIDE TIMES SUNDAY					
Place A		Place B		Place C	
Time	Tide	Time	Tide	Time	Tide
12.01 a.m.	3.2 m	4.48 a.m.	0.9 m	1.25 a.m.	0.5 m
5.38 a.m.	0.6 m	10.48 a.m.	2.2 m	7.11 a.m.	3.1 m
12.03 p.m.	3.1 m	4.44 p.m.	0.7 m	2.08 p.m.	0.4 m
5.49 p.m.	0.5 m	11.18 p.m.	2.6 m	7.32 p.m.	2.5 m

- a. If Mr Tan's children wanted to swim in the sea, what is one possible reason why this is not a good day for swimming at place C? (1 mark)
-

- b. What causes the changing of tides? (1 mark)
-

*****THE END*****
Please check your work carefully

Methodist Girls' Primary School

SECTION A : (60 MARKS)

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

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

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

SECTION B (40 MARKS)

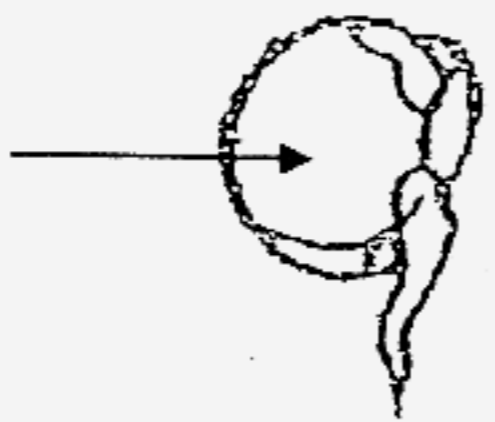
Qn No.	Answers															
31a	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="3" style="text-align: center;">Differences between</th> </tr> <tr> <th></th> <th style="text-align: center;">Inhaled air</th> <th style="text-align: center;">Exhaled air</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1.</td> <td>Contains more oxygen</td> <td>Contains less oxygen</td> </tr> <tr> <td style="text-align: center;">2.</td> <td>Less water vapour and moisture</td> <td>More water vapour and moisture</td> </tr> <tr> <td style="text-align: center;">3.</td> <td>Contains less carbon dioxide</td> <td>Contains more carbon dioxide</td> </tr> </tbody> </table>	Differences between				Inhaled air	Exhaled air	1.	Contains more oxygen	Contains less oxygen	2.	Less water vapour and moisture	More water vapour and moisture	3.	Contains less carbon dioxide	Contains more carbon dioxide
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1.	Contains more oxygen	Contains less oxygen														
2.	Less water vapour and moisture	More water vapour and moisture														
3.	Contains less carbon dioxide	Contains more carbon dioxide														

32a	One kind of tubes transports <u>water</u> and <u>minerals</u> from the roots to the leaves.
32b	The other kind of tube transports <u>food</u> from the leaves to the other parts of the plants.

33a	They reproduce from spores.
33b	They might have been dispersed by wind.

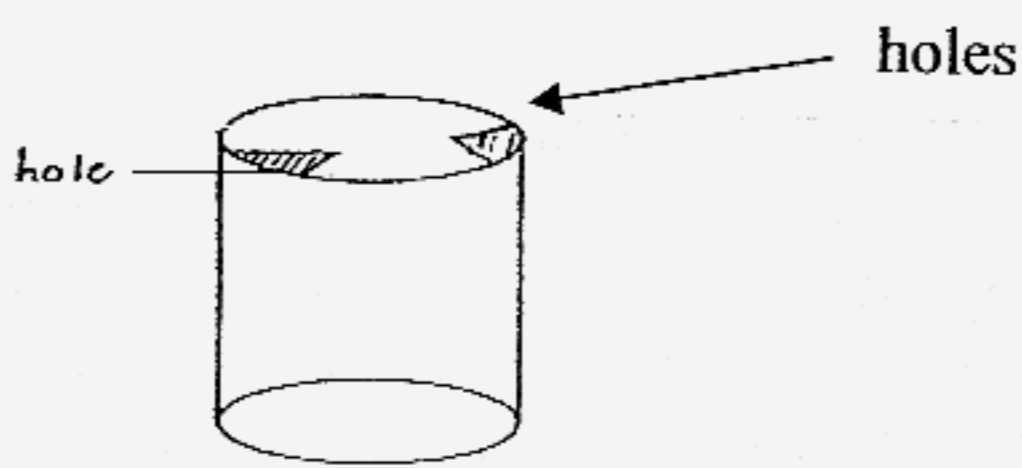
Qn No.	Answers
34a	Benny
34b	Amy's grandmother has detached earlobes, therefore it has been passed down to Amy.

35a	They will go through germination.
35b	Set-up P
35c	There is no oxygen in boiled water; hence the seeds will not grow.

36a	
36b	The root develops first.

37a	Bat. It should belong to Group A.
37b	Mammals

38a	She wants the experiment to be fair.
38b	The time is 60 minutes.
38c	It multiplies by 2 every 20 minutes.

39a	 <p style="text-align: center;">Diagram Q</p>
39b	Air entering one hole will 'push' the milk out faster through the other hole.

Qn No.	Answers
40a	Condensation. Heat is given off during this process.
40b	

41	<table border="1"> <thead> <tr> <th>Steps</th> <th>Description</th> <th>What is separated</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Put all the mixture into empty beaker and pour water into it. Stir</td> <td>Nothing</td> </tr> <tr> <td>2</td> <td>Hold magnet above beaker</td> <td>Iron filings</td> </tr> <tr> <td>3</td> <td>Pour mixture of salt solution and wood shavings through the funnel with filter paper into the empty beaker.</td> <td>Wood shavings</td> </tr> </tbody> </table>	Steps	Description	What is separated	1	Put all the mixture into empty beaker and pour water into it. Stir	Nothing	2	Hold magnet above beaker	Iron filings	3	Pour mixture of salt solution and wood shavings through the funnel with filter paper into the empty beaker.	Wood shavings
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42a	
42b	From the graph above, the water in the two beakers reached the same temperature of about <u>78°C</u> at about <u>9.27am</u>
42c	The burner used to heat Beaker Y probably has hotter.

Qn No.	Answers
43a	It is to attract the magnetic materials.
43b	Container A.
43c	At the magnetic drum, the non-magnetic materials would fall, but the magnetic materials would be attracted to the magnetic drum and therefore would be released when it moves away from the magnetic drum.
44a	The temperature dropped.
44b	Water cools down the air inside the tube.
44c	The water takes the heat from the body of the animal. When the water evaporates, it cools the animals.
45a	A
45b	It was 2m long.
45c	At 12 o'clock.
46a	High tides are either too early or too late.
46b	The position of the moon and its gravitational force.