

MGS_P6_SA2_2024

METHODIST GIRLS' SCHOOL

Founded In 1887



PRELIMINARY EXAMINATION 2024
PRIMARY 6
SCIENCE

BOOKLET B

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

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Name: _____ ()

Class: Primary 6. _ _

Date : 21 August 2024

Booklet A	56
Booklet B	44
Total	100
Parent's Signature	

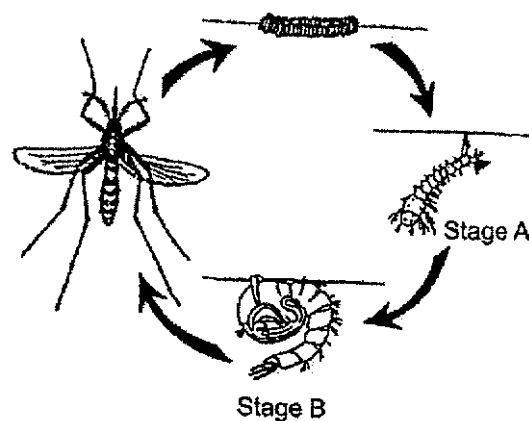
This booklet consists of 15 printed pages including this page.

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For questions 29 to 40, write your answers in the spaces provided. The number of marks available is shown in brackets [] at the end of each question or part question. [44 marks]

- 29 The diagram below shows the life cycle of a mosquito.

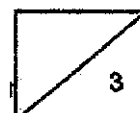


- (a) Name Stage A. State one difference between stages A and B. [1]

- (b) Male mosquitoes feed on the flower nectar of plant T.



Explain how male mosquitoes help to ensure that the life cycle of plant T continues. [2]

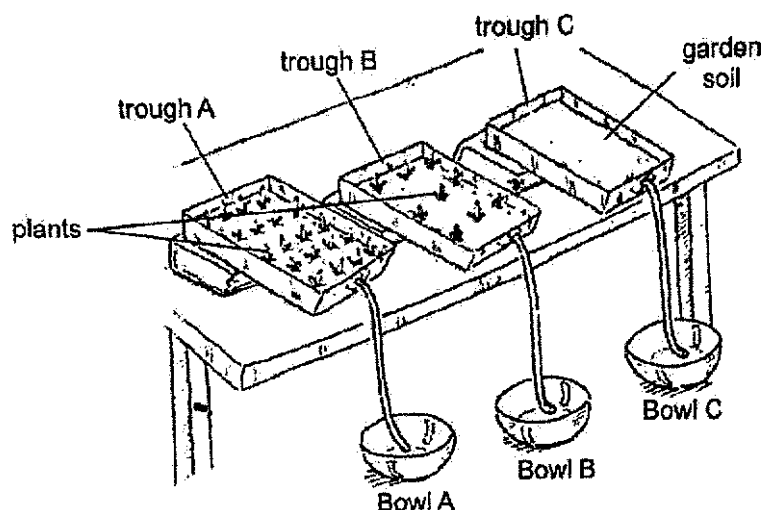


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- 30 Jayna conducted an experiment to find out how the amount of plants affect the amount of soil collected. All the troughs contained the same amount of garden soil at the start.



- (a) Jayna poured 500 cm³ of water into each trough and observed the amount of soil that was collected in bowls A, B and C.

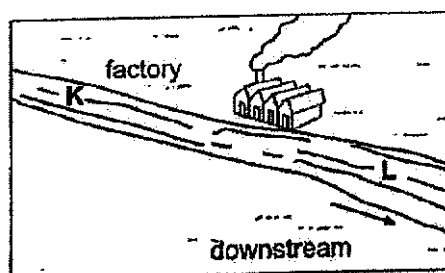
Which bowl, A or B, will have a smaller amount of soil in it? Explain your answer.

[1]

- (b) State the purpose of trough C.

[1]

- (c) The picture below shows a river flowing downstream. Along the river, there is a factory.



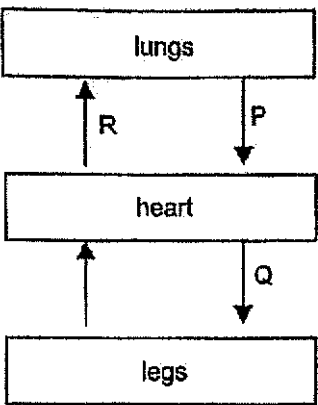
Explain why more dead fish were found in the river at L than at K.

[1]

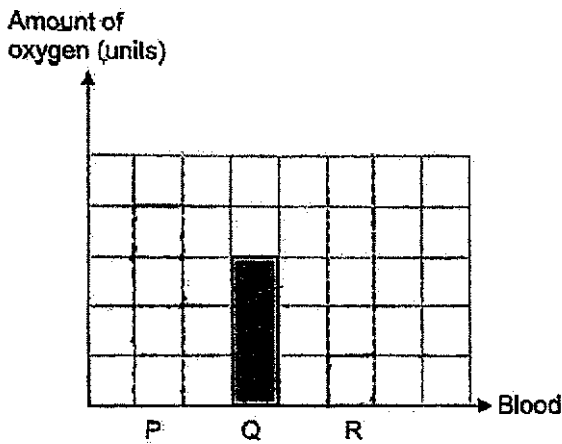


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31 The diagram below shows how blood is transported in the human circulatory system.



(a) Complete the bar graph below to show the amount of oxygen in the blood at P and R. [1]



(b) Name three parts found in the human circulatory system. [1]

(c) Describe how the digestive system works together with the circulatory system. [2]



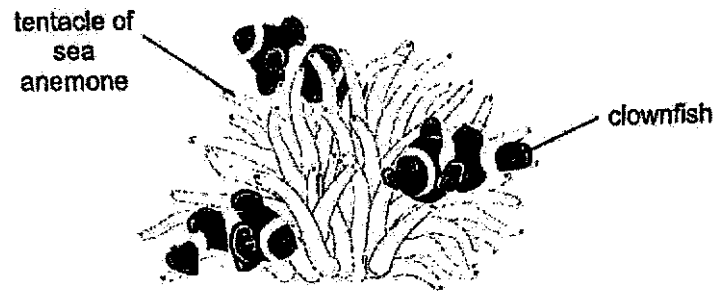
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- 32 Sea anemones are marine animals that feed on small fish and shrimps. When the prey comes close, the sea anemone attacks it using its poisonous tentacles.

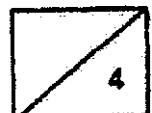
The clownfish, not affected by the poisonous tentacles of the sea anemone, helps to clean up the sea anemone by feeding on the leftovers of what the sea anemone feeds on.



- (a) State one way in which the clownfish depends on the sea anemone for survival. [1]

- (b) Sea slugs feed on the sea anemone. Explain how the population of the clownfish changes when the population of the sea slug increases. [2]

- (c) Green algae is commonly found living inside the sea anemone. Suggest one way in which the sea anemone benefits from the algae. [1]



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- 33 The diagram below shows a penguin.



When the weather gets very cold, penguins puff their feathers to trap air.

- (a) Explain how puffing its feathers helps the penguin to keep warm.

[1]

- (b) Penguins spend most of their time swimming in the dark ocean water.



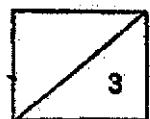
black feathers

- (i) State a characteristic of the penguin and explain how this affects its movement in water.

[1]

- (ii) Suggest how the black feathers is an advantage for the penguins swimming in the dark ocean water.

[1]

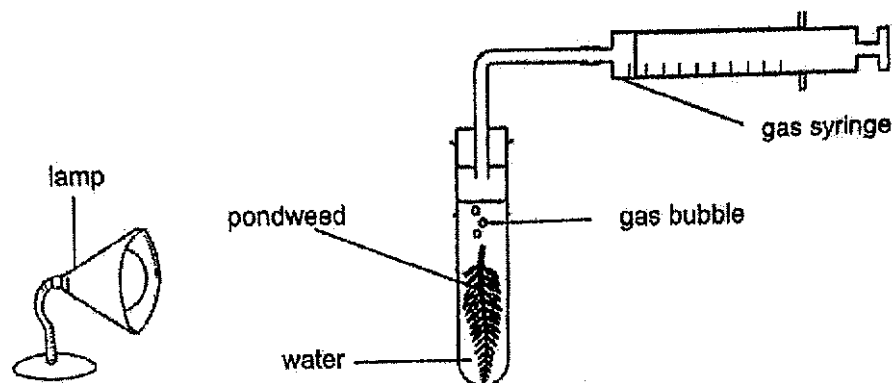


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- 34 Pam put a pondweed into a clear test-tube of water placed 10 cm from the lamp. She switched on the lamp and measured the volume of gas produced in 5 minutes.



Pam repeated the experiments using fresh sets of water and pondweed. She placed the lamp at different distances from the pondweed and her results are as shown.

Distance of lamp from pondweed (cm)	Volume of gas produced (cm ³)
10	80
35	65
75	29
100	7
150	0

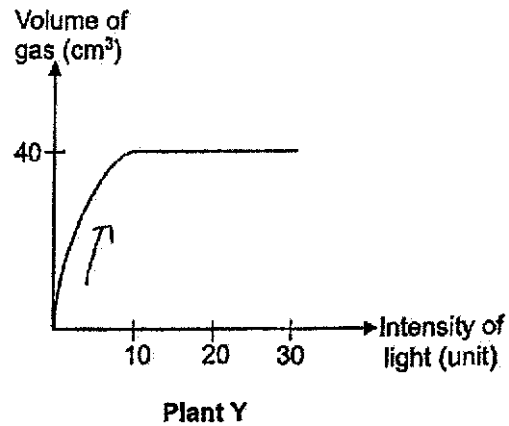
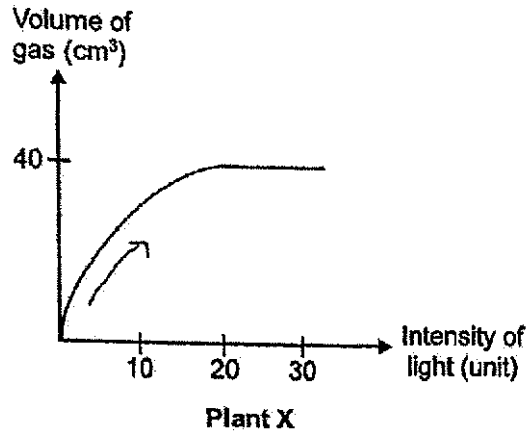
- (a) How does the volume of gas produced change with the distance of the lamp from the pondweed? [1]

- (b) Explain your answer in (a). [1]

- (c) Suggest one thing Pam could do to obtain more reliable results. [1]

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Using the same set-up, Pam conducted a second experiment using two different water plants, X and Y, that are similar in size. She measured the volume of gas produced and plotted the results as shown in the graphs below.

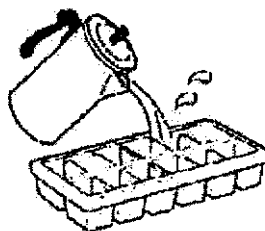


- 34 (d) Based on the results of her second experiment, which water plant, X or Y, will survive better in the shady part of her pond? Explain your answer. [2]



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- 35 Chetra poured water into the ice-cube tray as shown below.

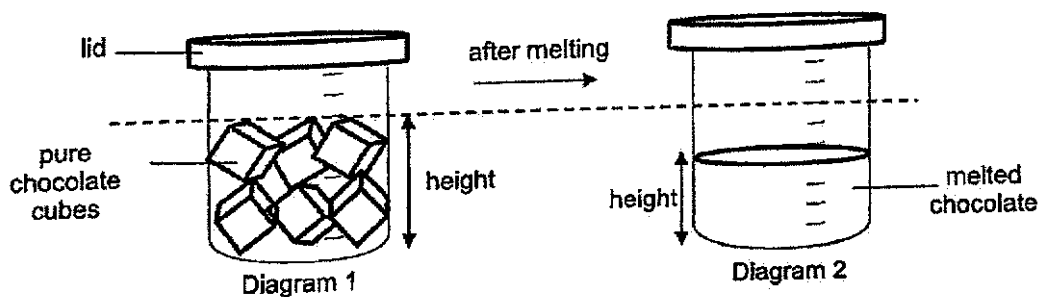


The table below showed the temperature for two different compartments of her refrigerator.

Compartment	Temperature of the compartment ($^{\circ}\text{C}$)
A	Below 0
B	3

- (a) Which compartment, A or B, should she put to turn the water into ice? Explain your answer. [1]

Chetra had some cubes of pure chocolate. She placed these cubes in a beaker and melted them as shown below.



- (b) Explain why the height of melted chocolate was different from the original height of the chocolate cubes in the beaker. [1]

- (c) Chetra concluded that the volume of chocolate cubes in diagram 1 was greater than the volume of melted chocolate in diagram 2. Do you agree? Give a reason for your answer. [1]

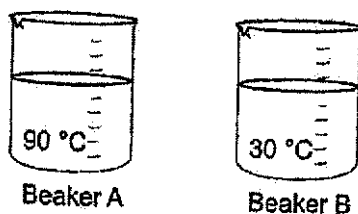


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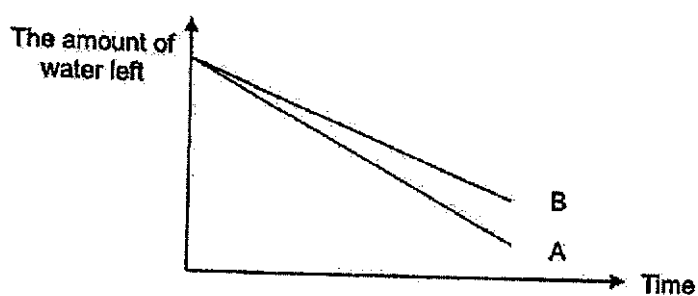
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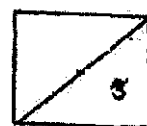
- 36 Jean conducted an experiment in the same room using two similar beakers containing the same amount of water but at different temperature.



The graph showed the amount of water left in the beakers over a period of time.



- (a) Based on the above results, explain how the temperature of the water affected the amount of water left in the beakers. [1]
- _____
- _____
- (b) Explain why Jean had to put the beakers in the same location for the experiment to be fair. [1]
- _____
- _____
- (c) Jean would like to find out how the size of exposed surface area affected the water loss. State two changes that she needed to make to the beakers. [1]
- _____
- _____



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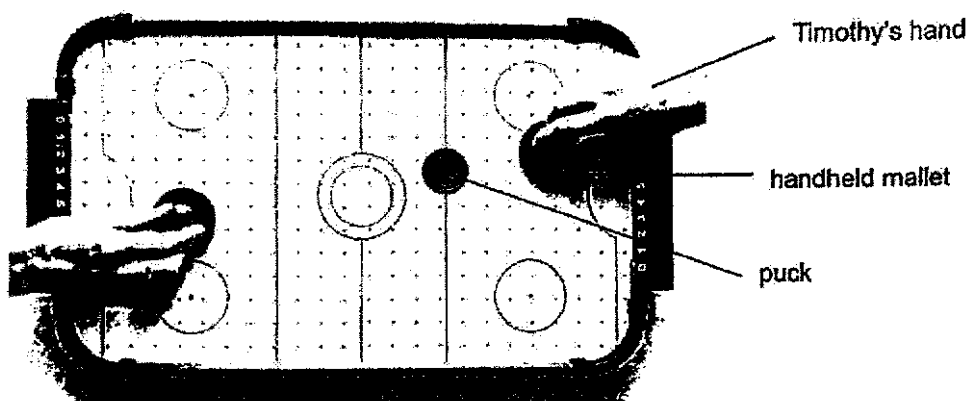
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- 37 (a) State what frictional force is.

[1]

Timothy played table hockey with his sister. He used the handheld mallet to push the puck to the other side.



He had two pucks, P and Q, of different sizes as shown below. They were made of same material and had the same mass.

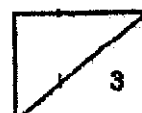


P (10 g)



Q (10 g)

- (b) Suggest if puck Q would travel further than P when Timothy, using the same amount of force, pushed it with the handheld mallet. Give a reason for your answer. [2]

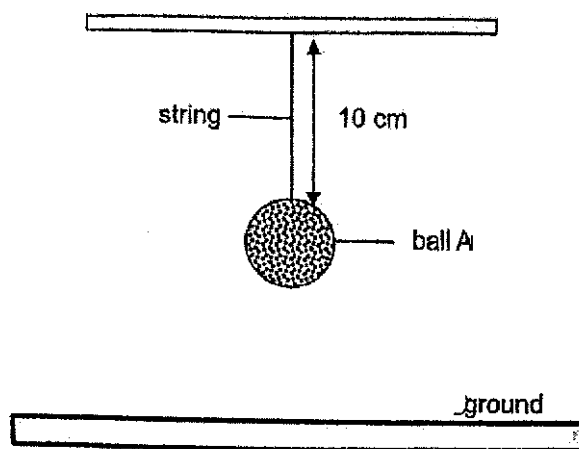


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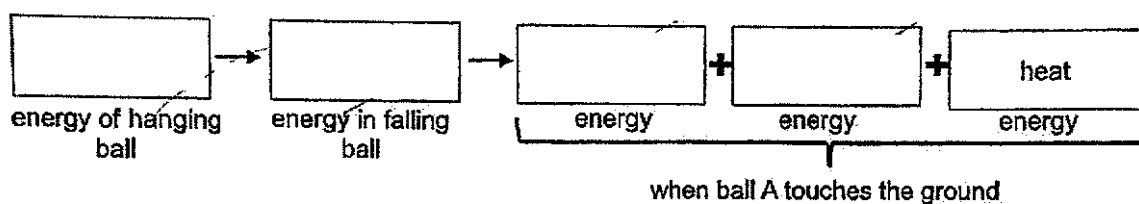
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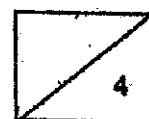
- 38 Xiao Jie hung ball A with a string above the ground as shown below. When the string was cut, the ball dropped and hit the ground.



- (a) Fill in the boxes below to show the energy conversion when the string was cut from ball A. [2]

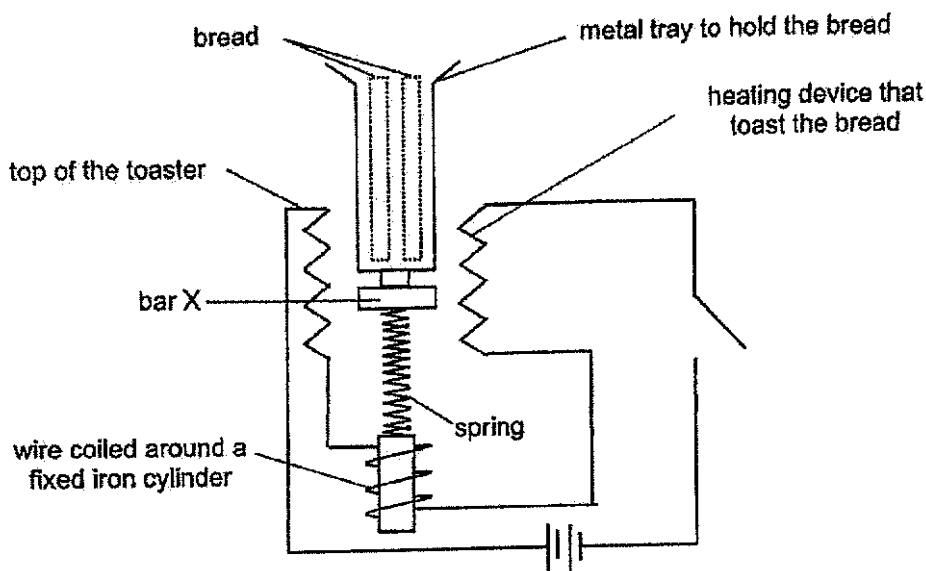


- (b) Suggest if the ball would produce a louder or softer sound if the length of string was 5 cm. Explain in terms of energy conversion. [2]

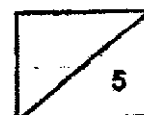


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- 39 Study the following circuit diagram of a bread toaster. When the switch is open, the spring attached to bar X and the iron cylinder is at its original length.



- (a) When the switch was closed, the metal tray moved downwards. Suggest the property of bar X that made this happen. [1]
- _____
- (b) Explain how the metal tray moved downwards when the switch was closed. [2]
- _____
- _____
- (c) It was observed that part of the bread was still above the top of the bread toaster when the switch was closed. Suggest a change to the spring to make the metal tray move down completely. Explain your answer. [2]
- _____
- _____

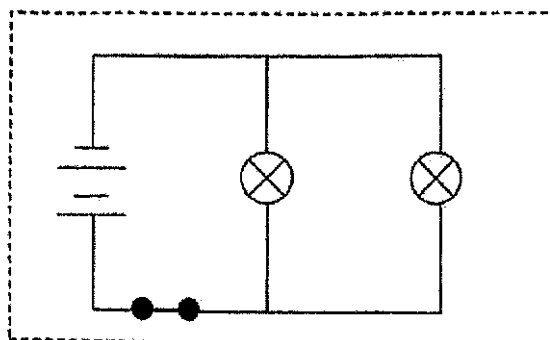


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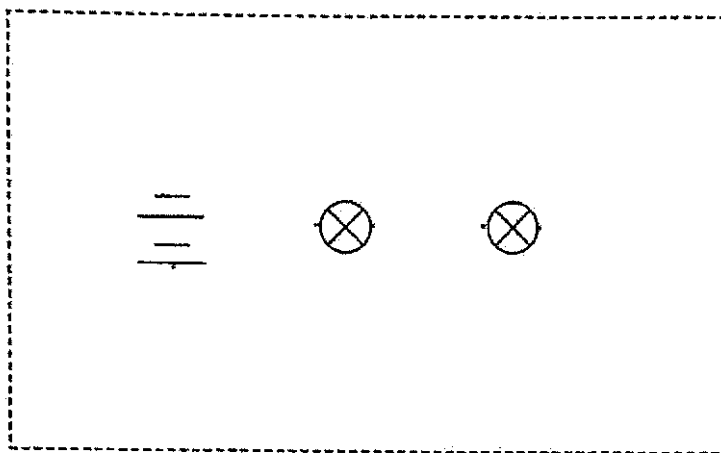
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- 40 Grace had two bulbs controlled by one switch in her toy house as shown below.



- (a) When the switch was closed, the light was too bright for her. Without removing or adding any battery or bulb, what could she do to the circuit to make bulbs dimmer? Draw the new circuit in the following diagram. [1]



- (b) State one disadvantage of the new arrangement of bulbs in part (a). [1]

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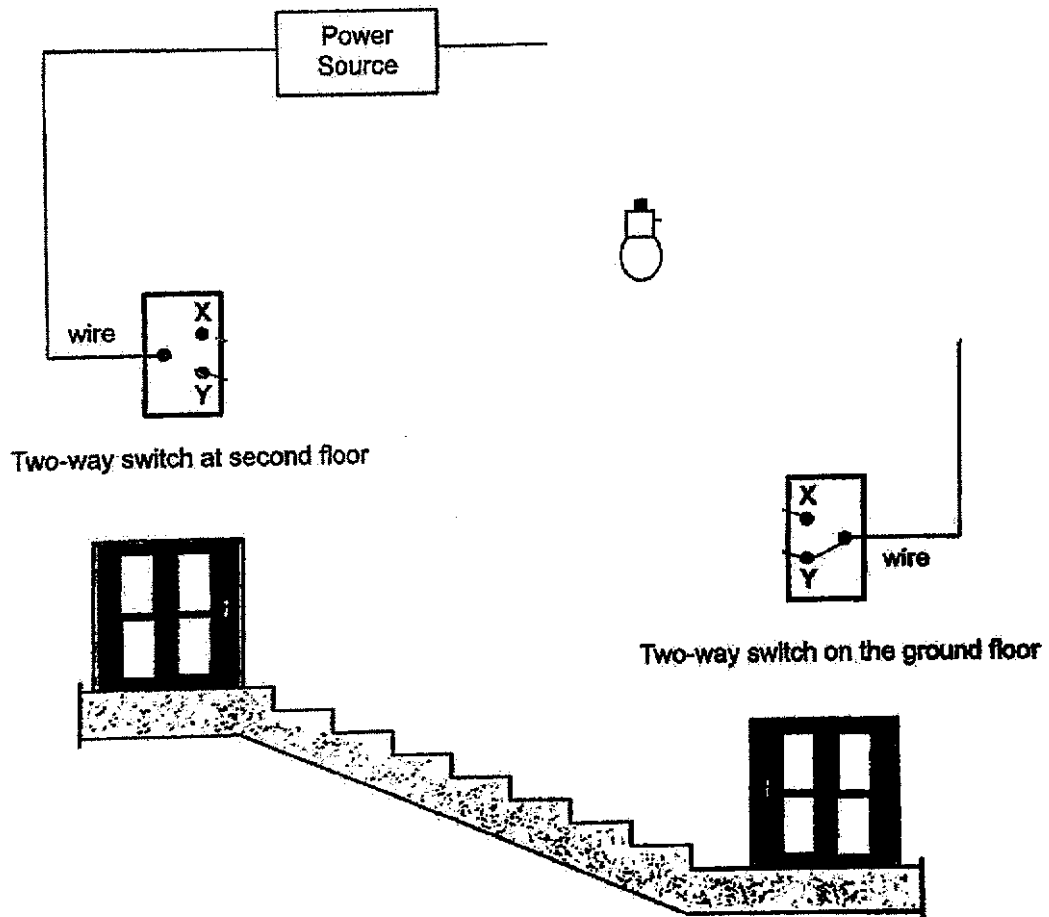
15

- 40 (c) Grace installed a two-way switch to control the light at the hallway. Each switch can be turned to position X or position Y.

She set up the circuit so that the bulb will be lit as described in the table below.

Position of Switch		
Switch on the ground	Switch at second floor	Bulb is lit
X	Y	No
X	X	Yes
Y	Y	Yes
Y	X	No

The diagram below shows part of the circuit. Complete the circuit so that it will work as described. [2]



End of Paper

