# NANYANG PRIMARY SCHOOL

## 2024
## PRIMARY 5
## END-OF-YEAR EXAMINATION

## SCIENCE
(BOOKLET A)

**Total Time for Booklets A and B: 1 h 45 min**

**INSTRUCTIONS TO CANDIDATES**

1. Write your name and index number in the space provided.
2. Do not open this booklet until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. For each question from 1 to 28, four options are given.
   Indicate your choice in this booklet.
   Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.

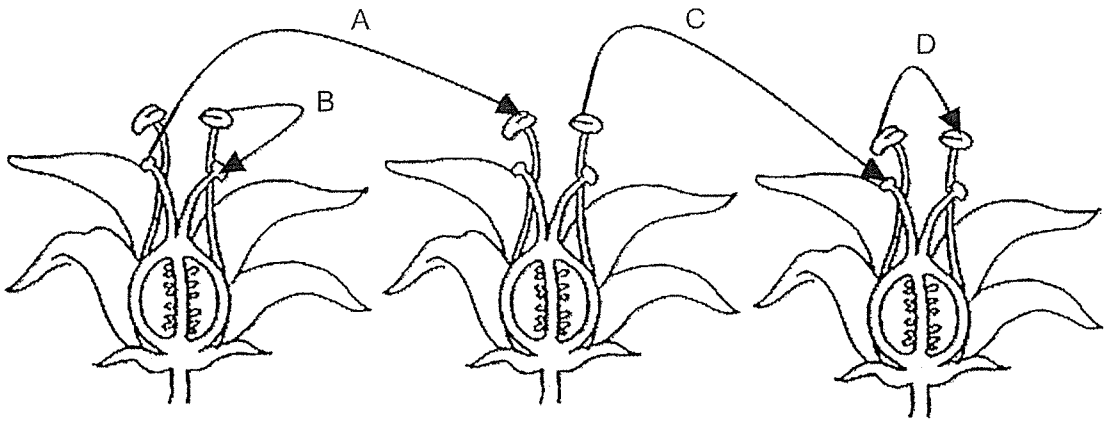
Name: _____ (  )

Class: Primary 5 (  )

Booklet A consists of 18 printed pages including this cover page.

Section A: Multiple Choice Questions [56 marks]

1. The diagram below shows three flowers of the same plant.




Which two arrows above represent the direction of pollination?

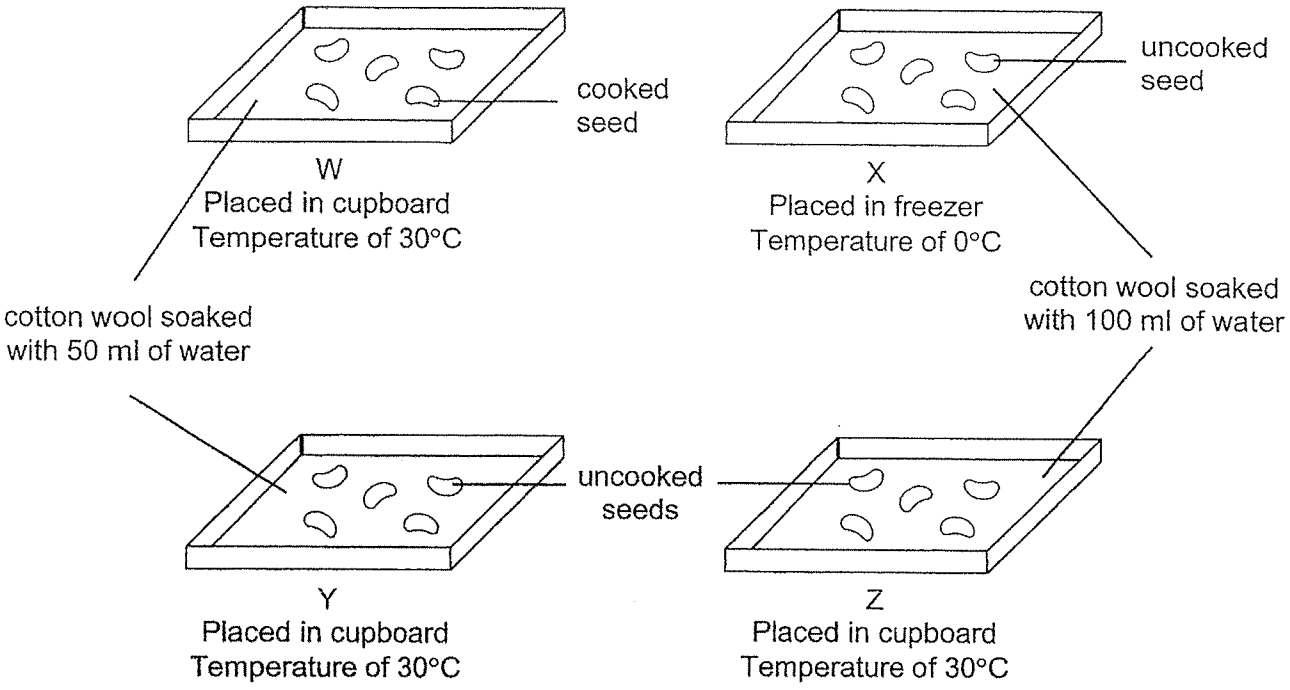
(1) A and C

(2) A and D

(3) B and C

(4) B and D

2. Xander prepared four set-ups, W, X, Y and Z, using seeds as shown below.




In which two set-ups would the seeds most likely germinate?

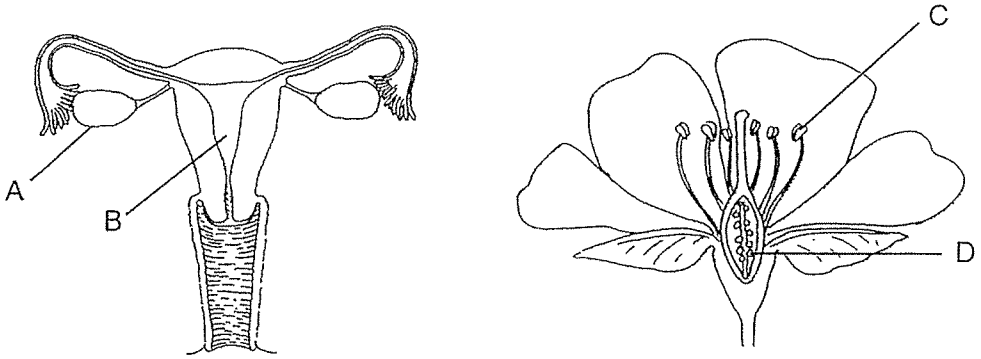
(1) W and X

(2) W and Y

(3) X and Z

(4) Y and Z

3. The diagram below shows the human and plant reproductive systems.




human reproductive system

plant reproductive system

Which of the following is correct for both reproductive systems?

| | Parts | Statement |
|---|---|---|
| (1) | A and C | Both parts produce male reproductive cells |
| (2) | A and D | Both parts contain female reproductive cells |
| (3) | B and C | Both receive male reproductive cells |
| (4) | B and D | Both parts will wither and fall off after fertilisation has completed |

4. The table below shows some characteristics of Aravin and his family.

| | Straight hair | Ability to roll tongue | Has dimples |
|---|---|---|---|
| Aravin | Yes | No | Yes |
| Sister | No | No | Yes |
| Father | Yes | No | No |
| Mother | No | Yes | Yes |

Based on the information in the table, which statement is correct?

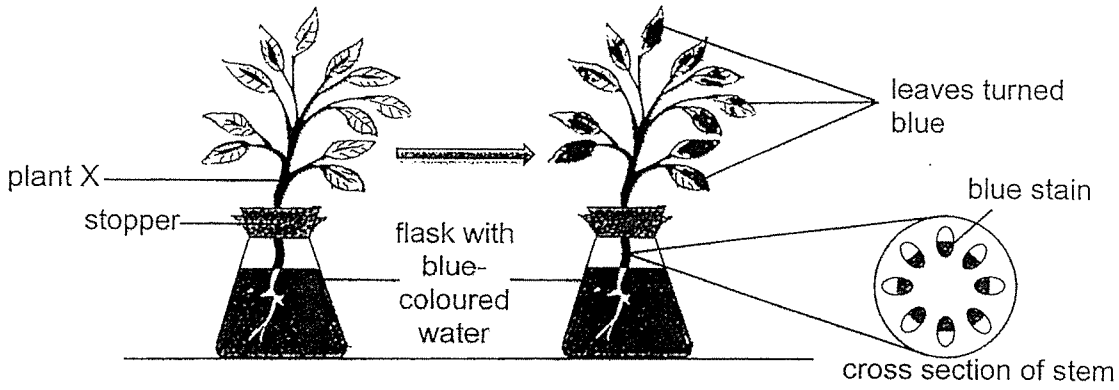
(1) Aravin's sister inherited two characteristics from her father.

(2) Aravin's father passed down all his characteristics to his daughter.

(3) Aravin inherited more characteristics from his father than his mother.

(4) Both Aravin and his sister inherited the ability to roll tongue from their mother.

5. Rania placed plant X in a conical flask of water with blue food colouring as shown in the diagram below. After 6 hours, she cut a section of the stem.



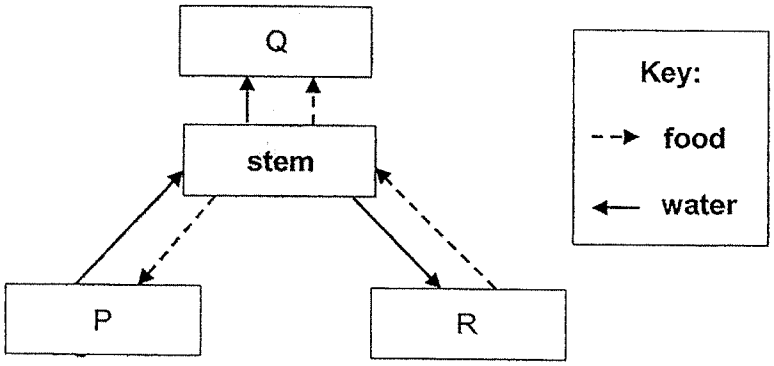

Based on her observations of the leaves and the cross section of the stem of plant X, Rania made the statements below.

Which pair of statements are correct?

A Plant X needs the blue food colouring for survival.
B The blue-coloured tubes in the stem contained food.
C The blue-coloured tubes in the stem are connected to the leaves.
D The stem has tubes that can transport water from the roots to all parts of the plant.

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

6. The diagram below represents the plant transport systems.




Which of the following correctly represent the parts of a plant?

| | P | Q | R |
|---|---|---|---|
| (1) | roots | leaves | flowers |
| (2) | leaves | flowers | roots |
| (3) | leaves | roots | flowers |
| (4) | roots | flowers | leaves |

7. Which of the following is a function of the human respiratory system?

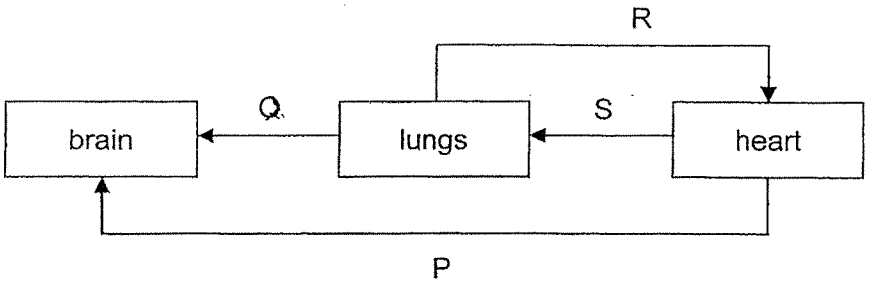
(1) transporting food to all parts of the body

(2) transporting blood from the lungs to the heart

(3) removing carbon dioxide from the blood in lungs

(4) absorbing food into the blood at the small intestine

8. The diagram below shows the blood circulation in the body.




Which arrows show the correct flow of blood in the body?

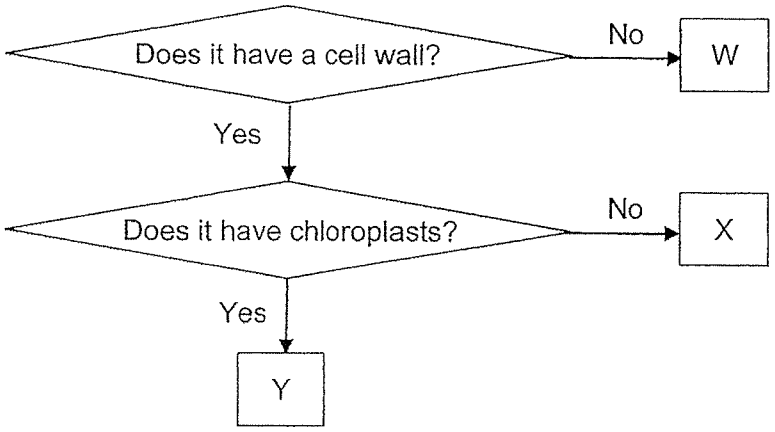
(1) P and Q

(2) P and R

(3) P, Q and R

(4) Q, R and S

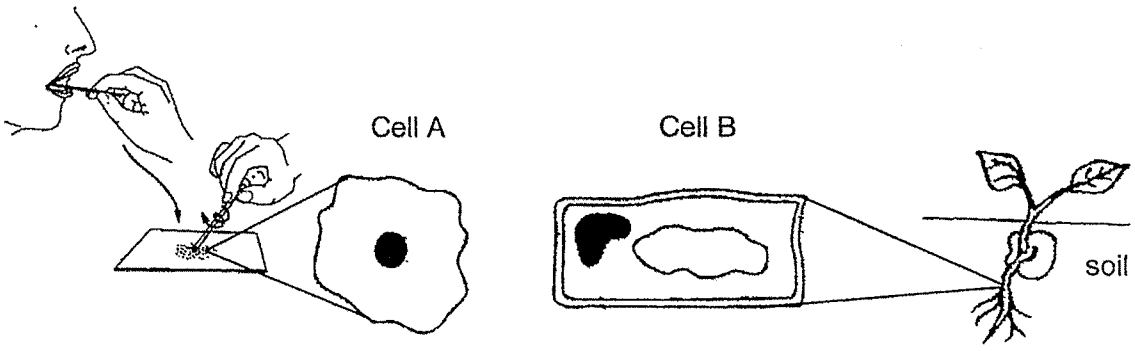
9. Alfie classified three types of cells as shown below.




Which of the following correctly represent cells W, X and Y?

| | **Cell W** | **Cell X** | **Cell Y** |
|---|---|---|---|
| (1) | cheek | onion | leaf |
| (2) | cheek | leaf | onion |
| (3) | onion | leaf | cheek |
| (4) | onion | cheek | leaf |

10. The diagram below shows cell A and cell B.




Based on the diagram, which of the following statements is correct?

(1) Cell A has a cell wall but cell B does not have a cell wall.

(2) Cells A and B have cytoplasm that control the cell activities.

(3) Cell A is unable to make its own food but Cell B is able to make food.

(4) Cells A and B have cell membranes that controls the movement of substances in and out of the cells.

11. Priya watched her classmate, John, throw a baseball during PE lesson as shown below.

She then made some statements on the body systems as shown below.

A The respiratory system helps John to carry out gaseous exchange.

B The circulatory system in our body includes nose, mouth, heart, lungs, blood vessels and blood.

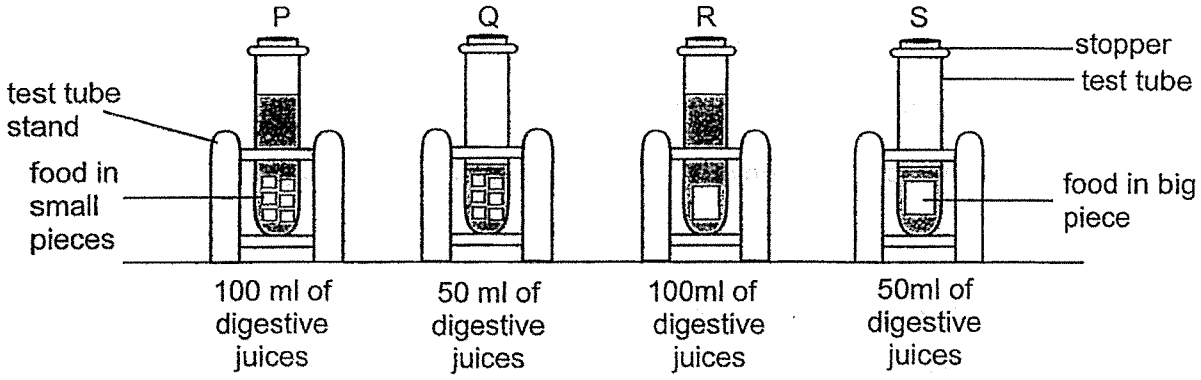
C The digestive system absorbs digested food and carbon dioxide and passed them to all parts of the body.

D The muscular and skeletal systems work together to allow John to move and stretch his arm to throw the baseball.

Which pair of statements are **wrong**?

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

12. Sze Yun wanted to investigate the different conditions needed to increase the rate of digestion of food. She put up 4 set ups as shown below.



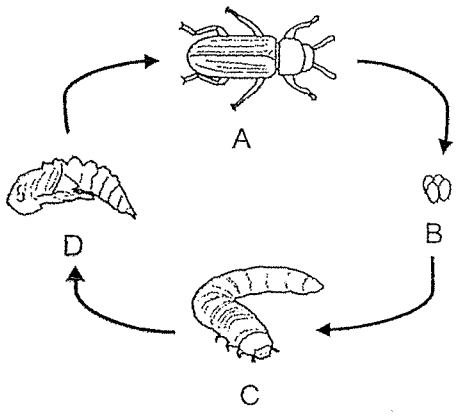

She made a list of sets-ups that must be compared to conclude about the effects of each variable as shown in the table below.

| | Changed Variable | Set-ups to compare |
|---|---|---|
| A | amount of digested juices | Q and R |
| B | amount of digested juices | R and S |
| C | size of food | P and Q |
| D | size of food | Q and S |

Based on the table above, which pairs of set-ups are correctly compared for a fair test?

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

13. The diagram below shows the life cycle of animal M.




Which statement is correct?

(1) Animal M is a cockroach.

(2) Animal M requires food at stage C.

(3) The young of animal M resembles the adult.

(4) The animal will moult several times at stage B.

14. Which statement about the life cycle of a plant is true?

(1) Water is not required for germination.

(2) The roots will develop first, followed by the shoot.

(3) The plant makes food during all stages of its life cycle.

(4) The adult plant obtains food only from the seed leaves.

15. Which statement about boiling is **wrong**?

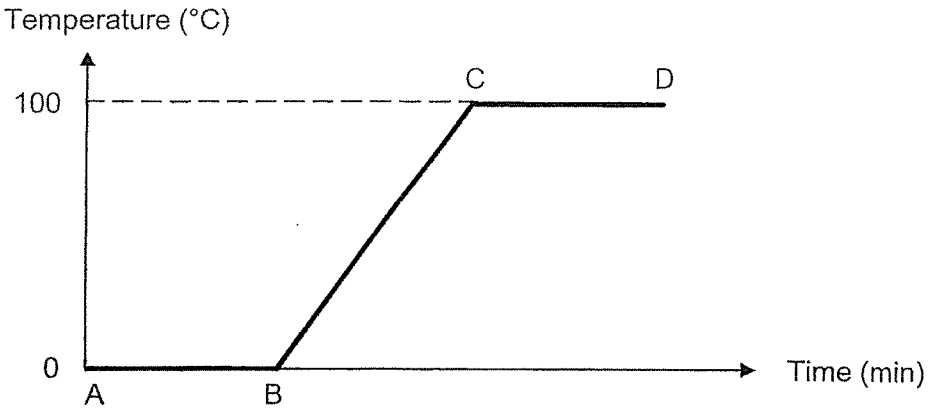
(1) Boiling requires heat.

(2) Boiling occurs at a fixed temperature.

(3) Boiling occurs only at the surface of the liquid.

(4) Boiling involves the same change in state as evaporation.

16. Marcus added some ice cubes into a container and placed the set up over a flame for 20 minutes. He drew the graph below to show the changes in the temperature of the melting ice cube over time.




From the graph above, at which point would the melting of ice be completed?

(1) Point A

(2) Point B

(3) Point C

(4) Point D

17. What is a possible effect on the water cycle when the temperature of the environment decreases?

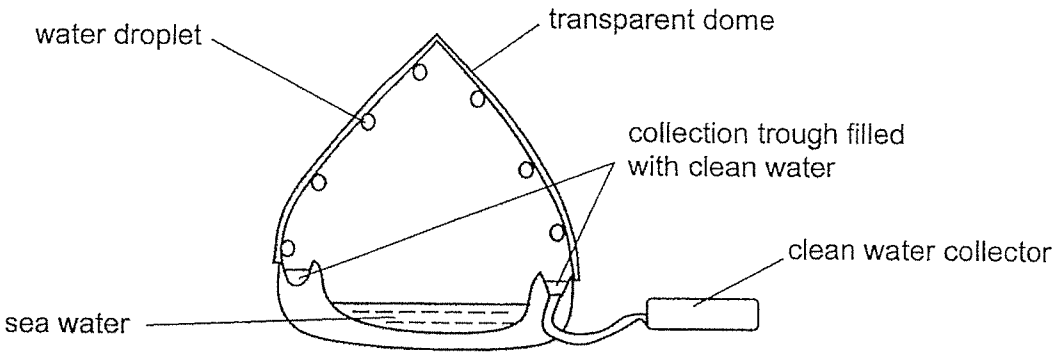
(1) Evaporation of water increases, resulting in more rain.

(2) Condensation of water vapour decreases, resulting in more rain.

(3) Condensation of water vapour increases, resulting in less clouds.

(4) Evaporation of water decreases, resulting in less water vapour in the air.

18. The set-up below shows a device that allows clean water to be collected from sea water.




Which row shows the correct process and its description when the device is in use?

| | Process | Description |
|---|---|---|
| (1) | Condensation | Water vapour in dome loses heat to form water droplets. |
| (2) | Condensation | Water vapour in dome gains heat to form water droplets. |
| (3) | Evaporation | Water in dome loses heat to form water vapour |
| (4) | Evaporation | Water vapour in dome gains heat to form water droplets. |

19. Which of the following are ways to help conserve water?

A Fixing leaky taps in the house.
B Brushing your teeth while the tap is running.
C Switch off the fans when not in use.
D Using water from the laundry to wash the toilet floor.

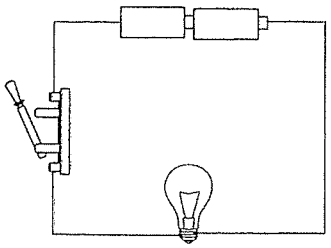
(1) A and C only
(2) A and D only
(3) B and C only
(4) B and D only

20. What is/are the different way(s) we can reuse water?

A Taking shorter showers.
B Collecting rainwater for general washing uses.
C Using water collected from washing vegetables to water plants.
D Using a mug when brushing your teeth instead of running tap water.

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

21. Prabhu set up the circuit as shown. The batteries, bulb, switch and wires were all in working condition.



When he closed the switch, the bulb did not light up.

Based on the diagram, which statement best explains this observation?

(1) Too few batteries were used.

(2) The switch was closed too quickly.

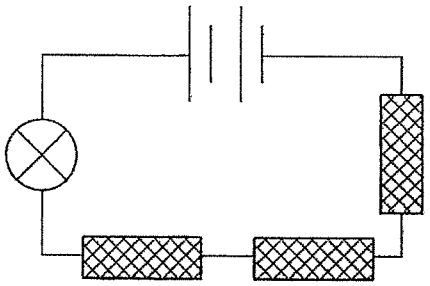
(3) The light bulb was not connected properly.

(4) The batteries are facing the wrong direction.

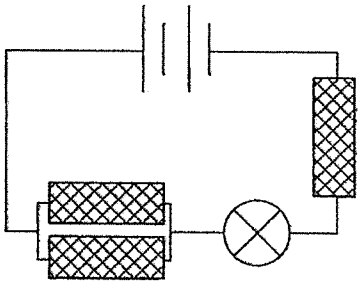
22. Each of the four circuits below has an iron rod, a wooden rod, and a plastic rod (represented by ▨) arranged in different positions.

In which of the circuits below will the bulb light up?

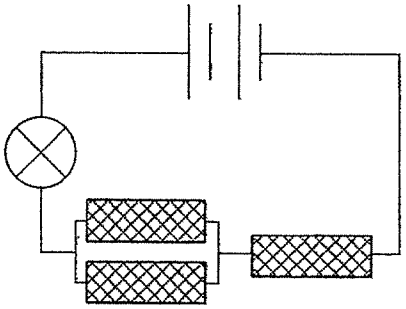
(1)



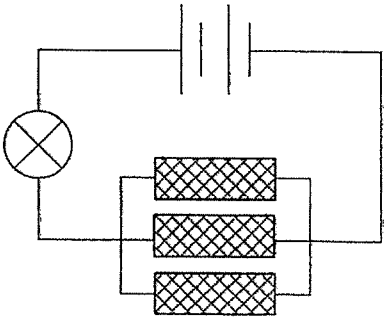
(2)



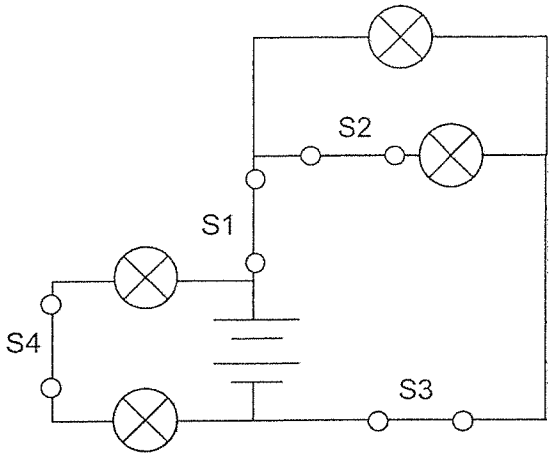
(3)



(4)



23. Study the diagram below.




All four light bulbs were lit when the switches were closed.

Which switch should be opened so that the **most** number of light bulbs will remain lit?

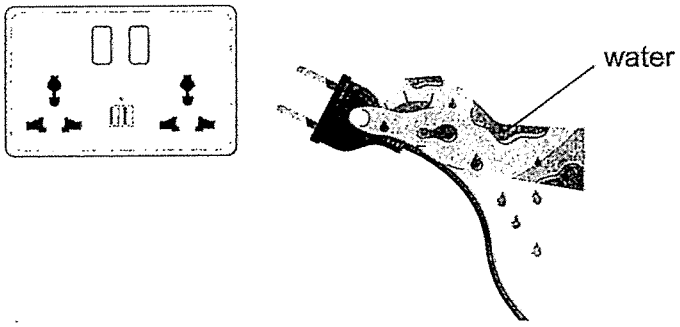
(1) S1

(2) S2

(3) S3

(4) S4

24. John was plugging in an iron after washing dishes.




Based on the picture above, how can John use the iron more safely and wisely?

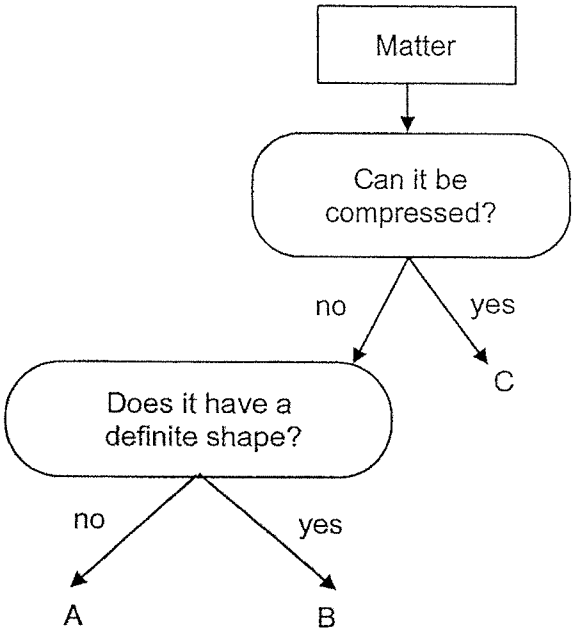
(1) Turn off electrical appliances when not in use.

(2) Do not put too many plugs into the same socket.

(3) Do not use electrical appliances with damaged wires.

(4) Do not touch power outlets and switches with wet hands.

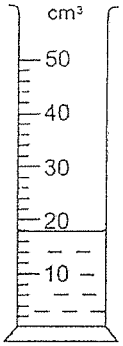
25. Suresh classified three types of matter, A, B, and C.




Which of the following correctly represent A, B, C?

| | A | B | C |
|---|---|---|---|
| (1) | water | rock | air |
| (2) | rock | water | water vapour |
| (3) | water vapour | rock | air |
| (4) | rock | air | water |

26. A measuring cylinder is used to measure the volume of an object. The diagram below shows a measuring cylinder filled with water.



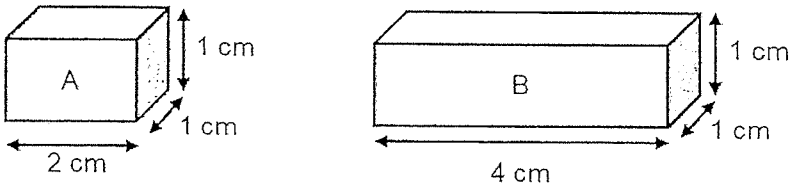

The volume of an object can be measured by putting it into the measuring cylinder and observing the change in water level.

The table below shows the properties of 4 objects, R, S, T and U.

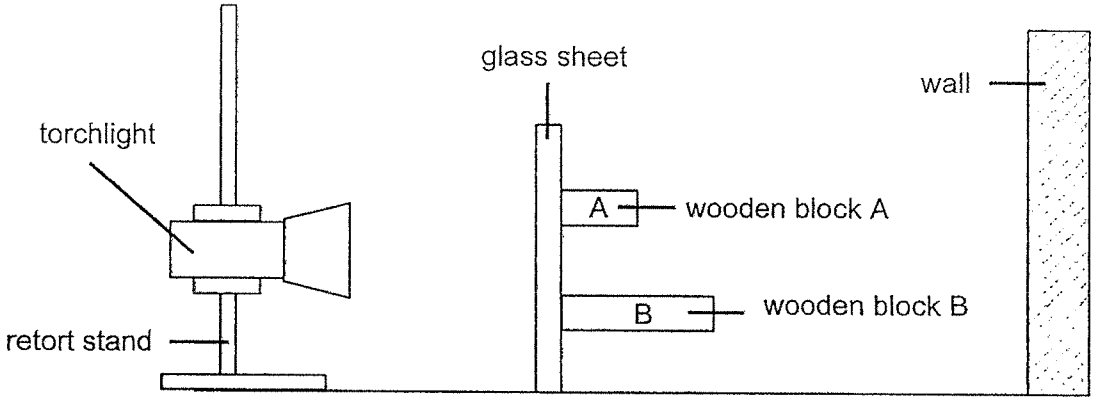
Which object is most suitable for its volume to be measured using the method above?

| | **Object** | **Does it have a definite shape?** | **Can it float?** |
|---|---|---|---|
| (1) | R | No | Yes |
| (2) | S | Yes | Yes |
| (3) | T | No | No |
| (4) | U | Yes | No |

27. Margret had two wooden blocks, A and B, as shown in the diagram below.



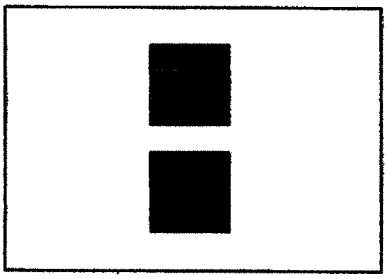

She attached the two wooden blocks on a clear glass sheet as represented in the diagram below.



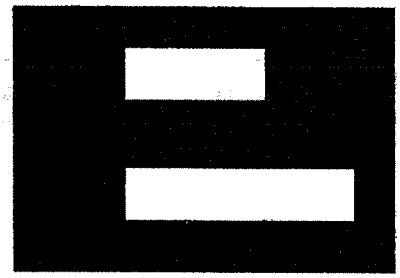

Side View of Set-Up

Which of the following shows the shadow that was cast on the wall when the torchlight was switched on?

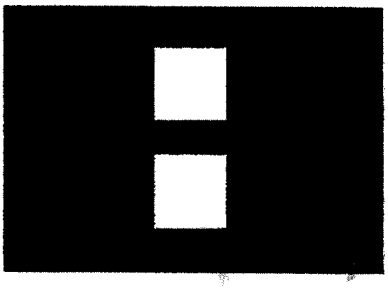
(1)



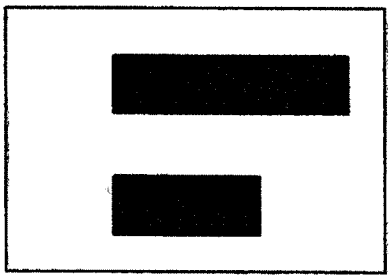
(2)



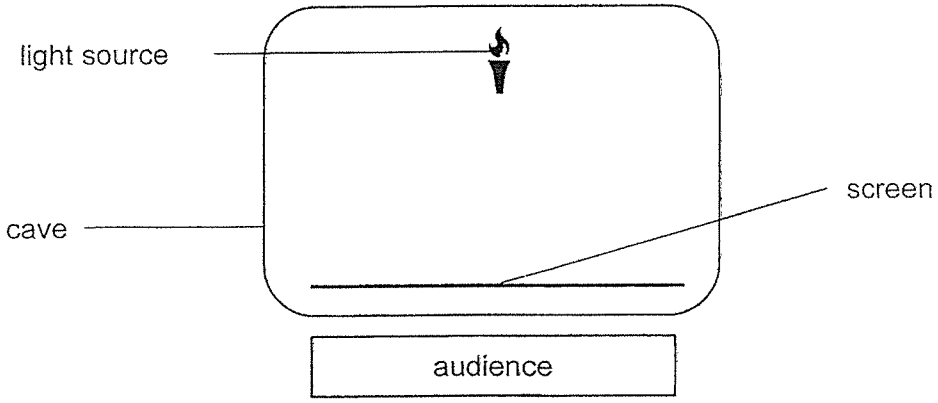
(3)



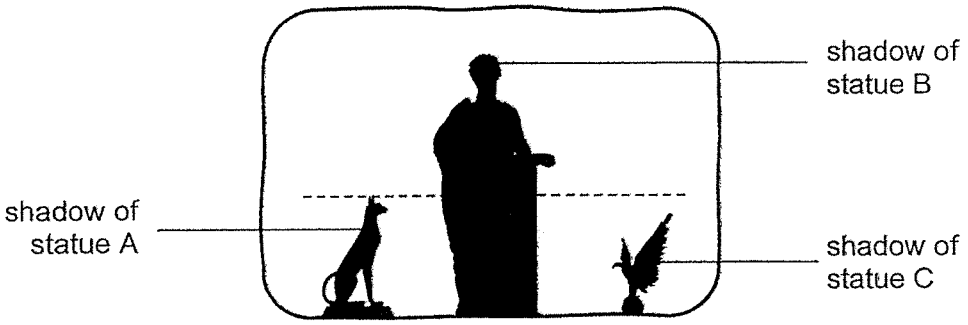
(4)



28. The diagram below shows the layout of a stage for a shadow artwork.

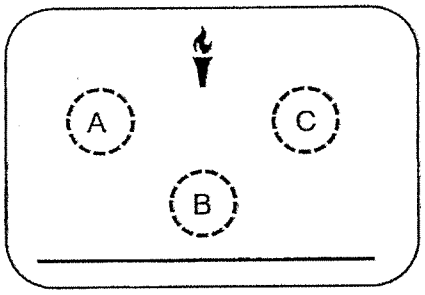



There were three statues, A, B and C, which were of the same height. The audience saw the shadows of the statues on the screen as shown below.

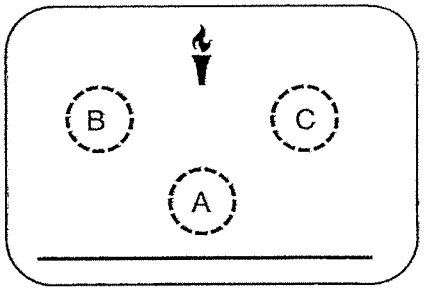



Which of the following shows the positions of statues A, B and C?

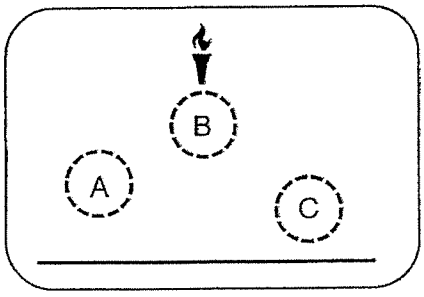
(1)



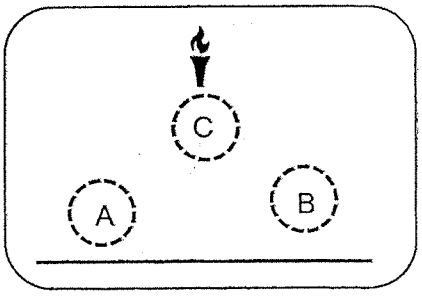

(2)




(3)




(4)




~ END OF BOOKLET A ~

# NANYANG PRIMARY SCHOOL

## 2024
## PRIMARY 5
## END-OF-YEAR EXAMINATION

## SCIENCE
(BOOKLET B)

**Total Time for Booklets A and B: 1 h 45 min**

**INSTRUCTIONS TO CANDIDATES**

1. Write your name and index number in the space provided.
2. Do not open this booklet until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers to Questions 29 to 40 in the spaces provided.

| | | |
|---|---|---|
| **Booklet A:** | | **56** |
| **Booklet B:** | | **44** |
| **Total:** | | **100** |

Name: _____ (  )

Class: Primary 5

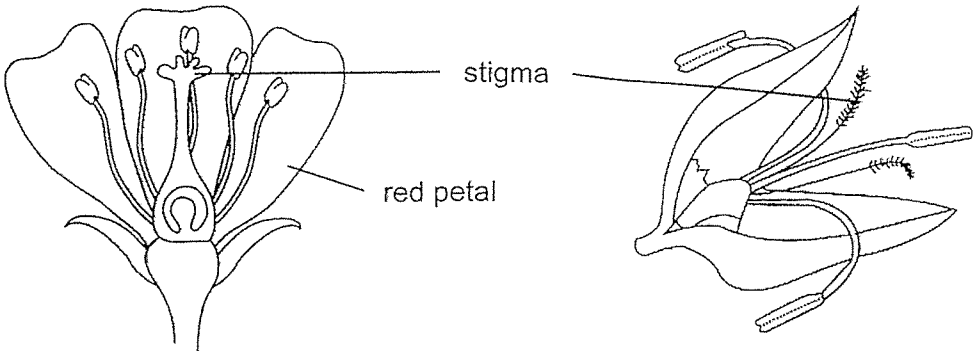
Parent's signature: _____

**Please sign and return the paper the next day. Any queries should be raised at the same time when returning the paper.**

Booklet B consists of 17 printed pages including this cover page.

Section B: Open-Ended Questions [44 marks]

29. The diagram below shows two different flowers.




Flower A Flower B

(a) Using information from the diagrams above, state the method of pollination for Flower A and Flower B and give a reason for your answer. [2]

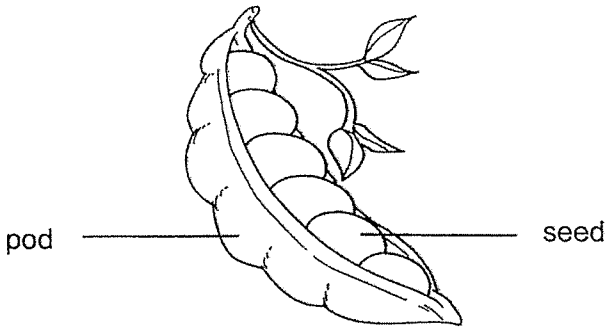
Flower A: _____

Reason: _____

Flower B: _____

Reason: _____

The diagram below shows Fruit C with its seeds.




Fruit C

(b) State a characteristic of Fruit C above and describe how it helps with its dispersal. [1]

_____

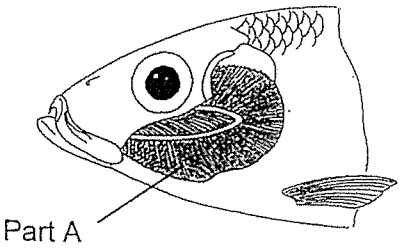
_____

(c) Why must ~~plants~~ seeds be dispersed? [1]

_____

_____

30. The diagram below shows the respiratory system of a fish.




Fish

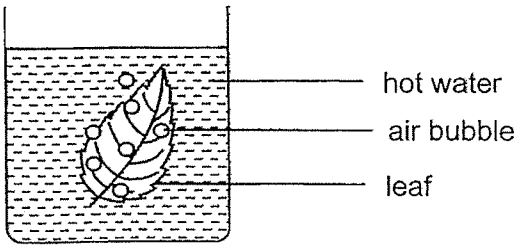
(a) Identify Part A and state its function. [1]

Jonathan set up an experiment to find out if there are more tiny openings on lower surface of leaves. He used 3 leaves and coated the leaves with a waterproof substance.

| Leaf from the same plant | Upper surface of leaf | Lower surface of leaf |
|---|---|---|
| X | Coated | Not coated |
| Y | Not coated | Coated |
| Z | Not coated | Not coated |

(b) Which two leaves must he compare to find out if there are more tiny openings on the lower surface of the leaf? [1]

Jonathan then carried out the experiment by placing each leaf in a beaker of hot water. He predicted that there will be more tiny openings on the lower surface of the leaf.




(c) What must he observe to confirm his prediction? [1]

31. A doctor carried out an experiment to measure the volume of blood transported per minute to different parts of the human body during resting and running.

The table below shows his results.

| Part of the body | Amount of blood transported per minute (units) | |
|---|---|---|
| | Resting | Running |
| Legs | 800 | 5000 |
| Digestive system | 1100 | 700 |

(a) Name the two human systems that help bring oxygen in the environment to the legs. [1]

(i) _____ system

(ii) _____ system

(b) Describe how oxygen in the environment reaches the legs. [2]

_____

_____

_____

The doctor concluded that humans should rest, instead of running, after a meal.

(c) Using the table above, explain how the absorption of food will be affected if a person runs after a meal. [2]

_____

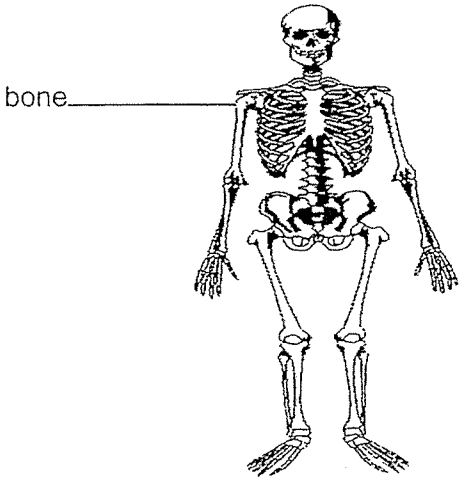
_____

_____

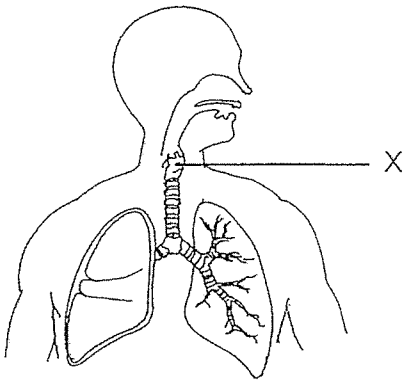


5

32. The diagram below shows two human organ systems.




P



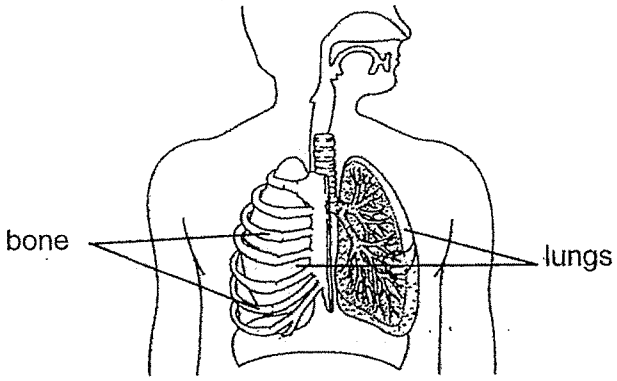

Respiratory System

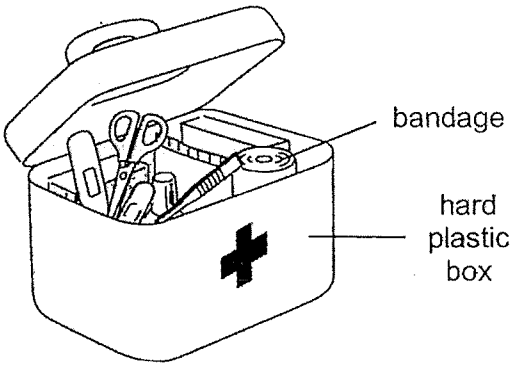
(a) Identify the human organ system P and part X. [1]

Human Organ System P: _____

Part X: _____

The diagram below shows the close view of the two systems in a human body and first-aid kit. The hard plastic box of the first-aid kit protects the bandage from damage.



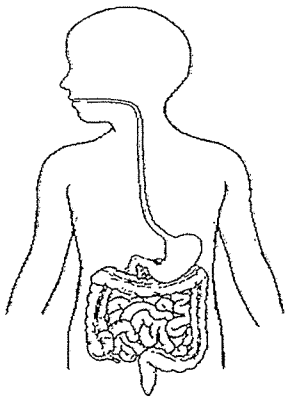




(b) Which part in the human body system above has a similar function as the hard plastic box? Give a reason for your answer. [1]

_____

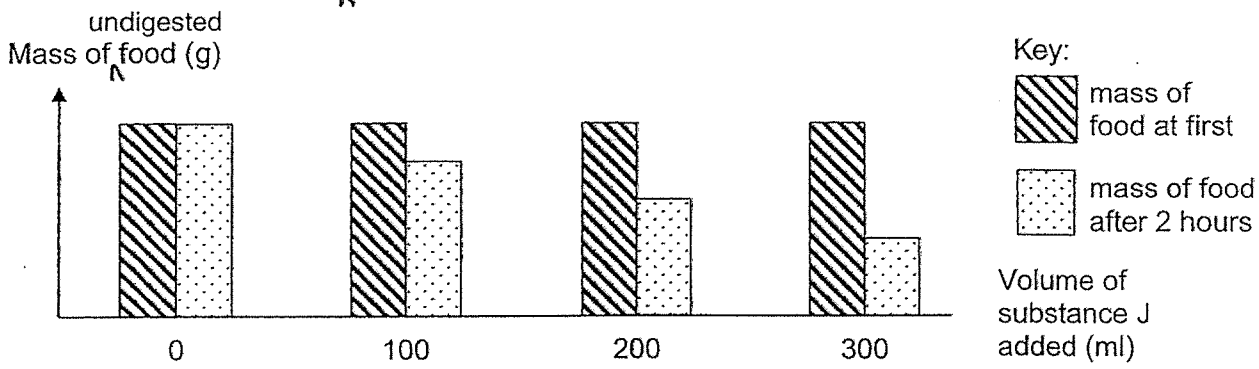
_____

33. The diagram below shows a body system.



(a) Identify the system and state the function of this system. [2]

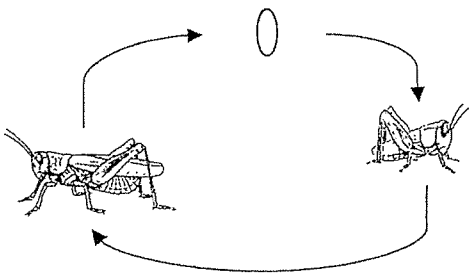
Substance J is a digestive juice.
Amy conducted an experiment by placing an identical mass of food in different volumes of Substance J.
She measured the mass of undigested food after 2 hours and recorded her results in a graph as shown below.



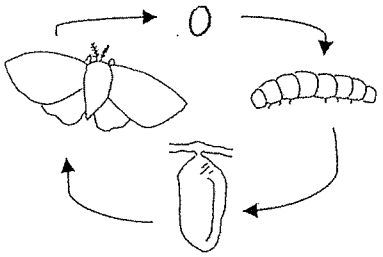

(b) State the aim of the experiment. [1]

(c) What is the relationship between the volume of substance J added and the mass of food left after 2 hours? [1]

34. The life cycle of living thing Y and Z are shown below.



life cycle of living thing Y

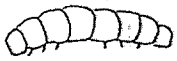


life cycle of living thing Z

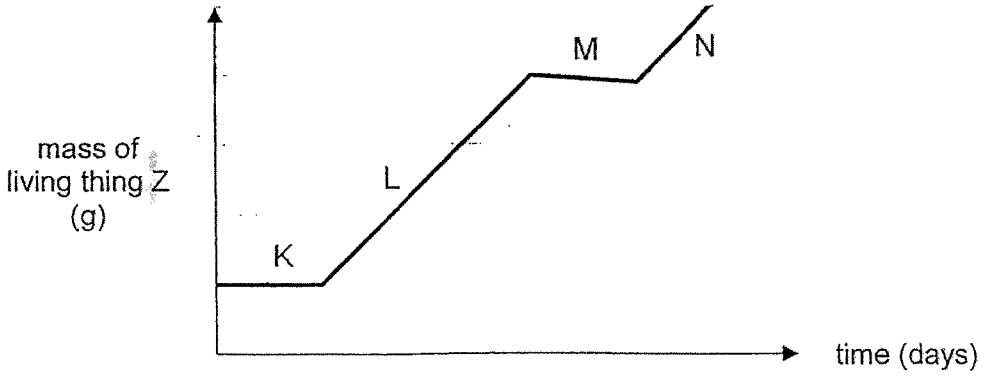
(a) Based on the life cycles shown above, state one difference between the life cycle of Y and Z. [1]

The life cycle of living thing Z is similar to that of a butterfly.

(b) Identify the **stages** of the life cycle of living thing Z below by filling in the boxes. [1]

| **Stage** |  |  |  |  |
|---|---|---|---|---|
| **Name of Stage** | **egg** | **adult** | | |

The graph shows the mass of living thing Z during different stages of its life cycle.




(c) Give a reason why there is no increase in mass of living thing Z during stage M. [1]

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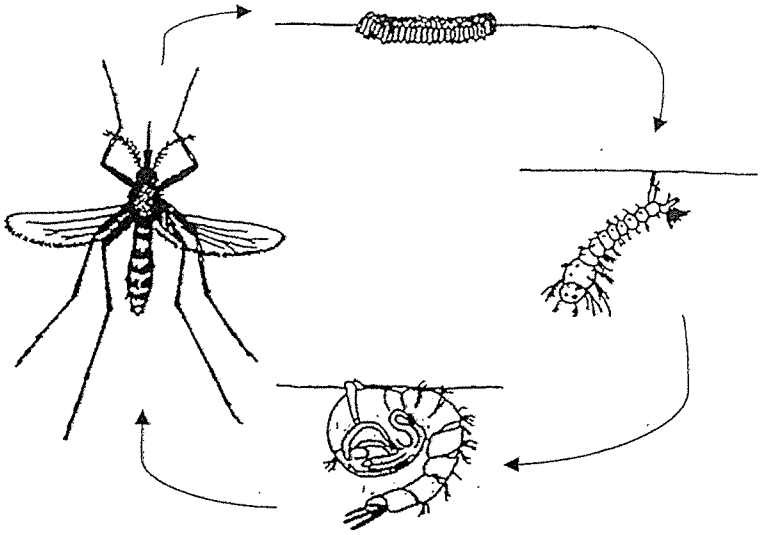
The life cycle of the mosquito is shown below.



(d) State one similarity between the life cycle of a butterfly and the life cycle of a mosquito. [1]

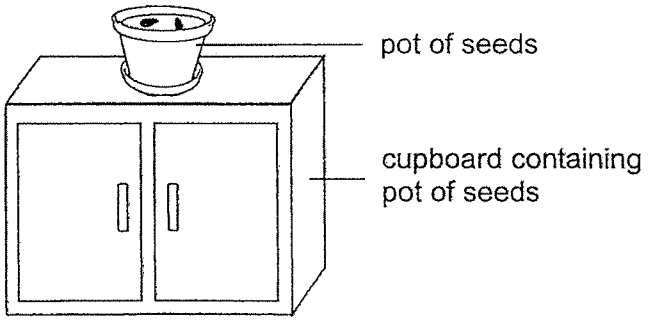
35. Jasmine wanted to find out how the temperature of surroundings affects the length of the life cycle of a plant.

In an experiment, Jasmine placed the same number of seeds into identical pots of soil. She then left the plants in different locations and recorded the number of days it took for the plants to complete one life cycle.

| Temperature of Surroundings (°C) | Length of one complete life cycle (days) |
|---|---|
| 15 | 15 |
| 20 | 18 |
| 25 | 22 |

(a) From the table above, how would temperature affect the length of one complete life cycle of the plant? [1]

Jasmine prepared two more pots of soil containing the five identical seeds each. She placed one pot in a closed cupboard and the other pot on top of the cupboard. She watered both plants daily.




(b) Give a reason why Jasmine used the same number of seeds in the two pots. [1]

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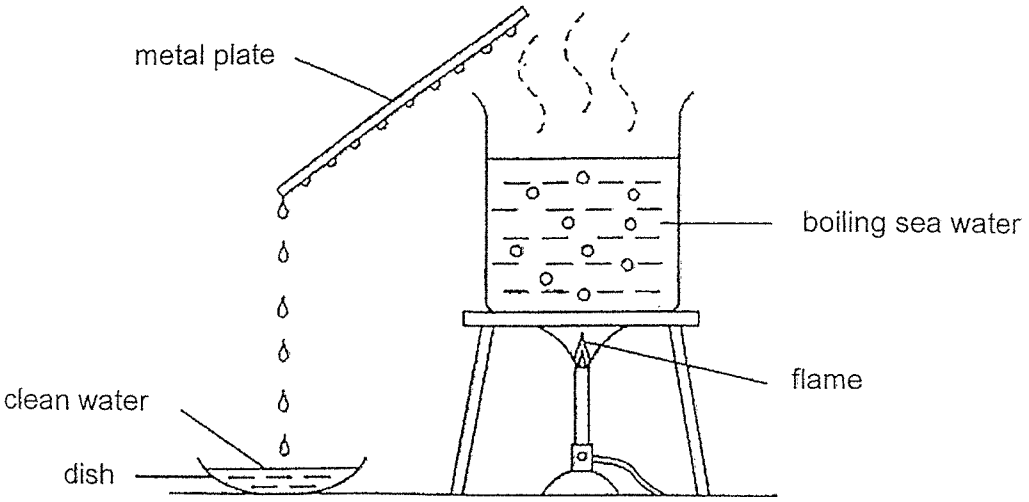
She recorded her observations in the table below.

| Location of pot | After 5 days | | After 10 days | |
|---|---|---|---|---|
| | Number of young plants | Number of adult plants | Number of young plants | Number of adult plants |
| On top of cupboard | 3 | 2 | 0 | 5 |
| Inside cupboard | 2 | 0 | 0 | 0 |

(c) What should Jasmine do to ensure that results are reliable? [1]

(d) In the space below, draw the life cycle of a plant **using words and arrows only**. [1]

36. Nadhya used the set-up below to collect pure water from sea water.



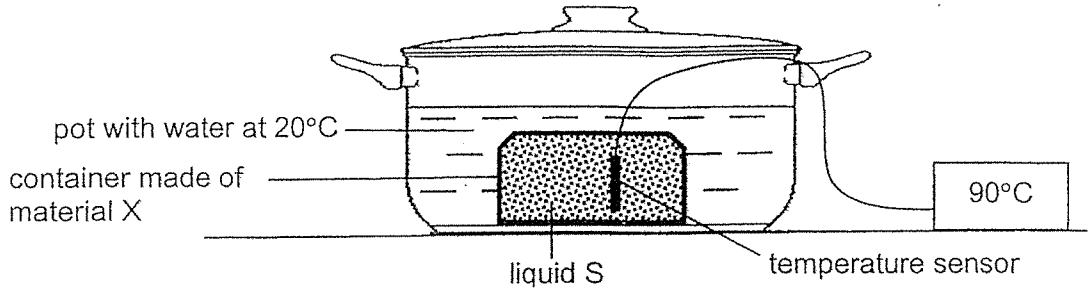

(a) From the set-up above, explain how pure water can be collected from sea water. [2]

During the experiment, Nadhya kept the volume of sea water in the beaker constant. After one hour, she noticed that there were less water droplets forming and the amount of pure water collected decreased.

(b) Explain why less water droplets formed. [2]

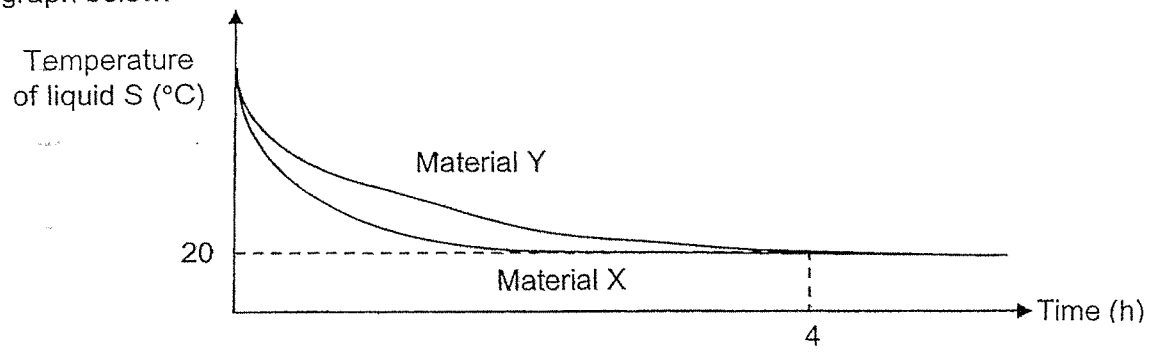
37. (a) What is temperature? [1]

Teacher Yeni conducted an experiment using the set-up below.




She took a container made of material X and filled it with liquid S. She then placed the container into a pot with water at 20°C. She measured and recorded the temperature of liquid S with a temperature sensor for 4 hours.

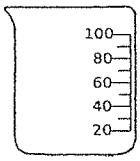
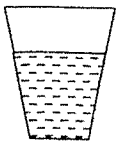
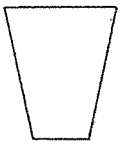
She repeated the experiment using a container made of material Y. Her results are shown in the graph below.




(b) Based on the results of the graph, which material should Teacher Yeni use to keep her iced desserts cold for a longer time? Explain why. [2]

38. Shamil wanted to find out the mass of liquid K. He was given the apparatus shown in the diagram below.

(a) Which of the following apparatus ~~would~~ should Shamil use to find out the mass of 50ml of liquid K? Put a tick (✓) in the correct boxes. [1]

|  |  |  |  |  |
|---|---|---|---|---|
| 100ml beaker | liquid K | digital scale | plastic cup | ruler |
| | | | | |

(b) Write down the steps that Shamil should take to measure the mass of 50ml liquid K in the table below. Step 1 has been written for you. [2]

| Step | Procedure |
|---|---|
| 1 | Turn on the digital scale. |
| 2 | |
| 3 | |
| 4 | |

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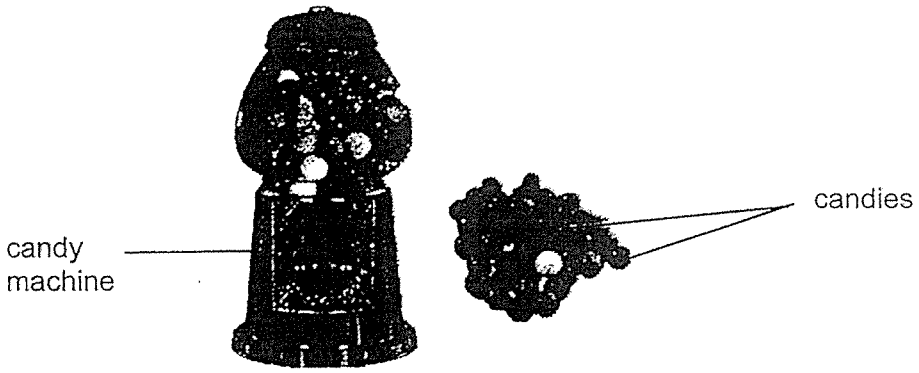
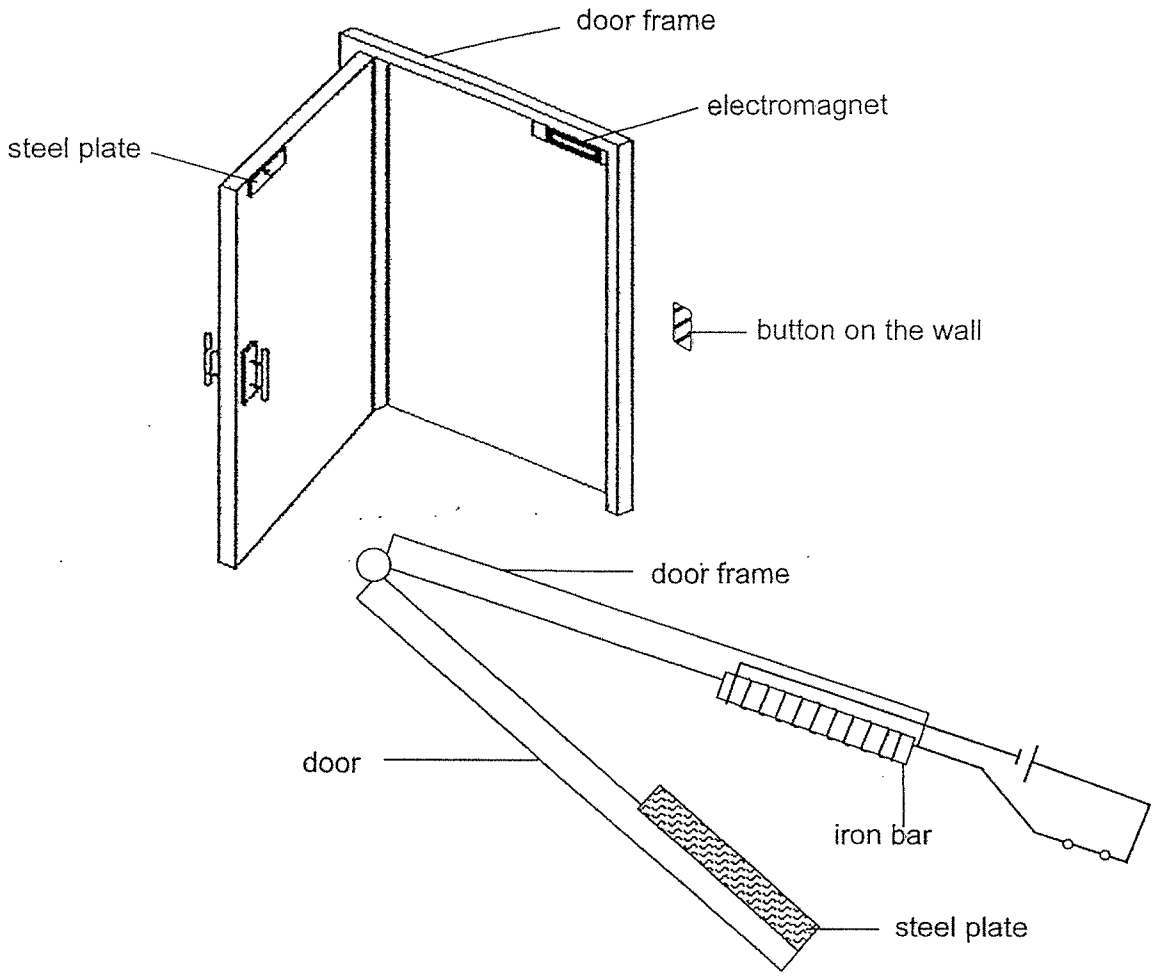
Shamil has a candy machine as shown below. The volume of the candy machine is 200 $cm^3$. He has 100 similar candies. Each candy has a volume of 2 $cm^3$.




(c) Give a reason why Shamil cannot put all 100 candies into the candy machine. [1]

39. The diagram below shows an open electromagnetic door. When the button is pressed, the switch in the circuit is opened, unlocking the door so it can be opened.



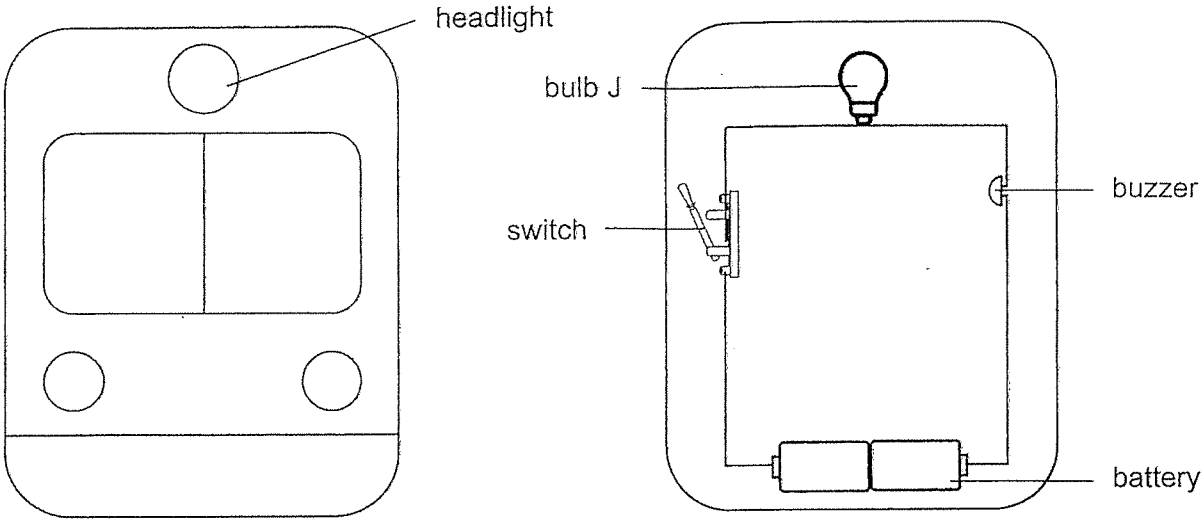

Top view of electric circuit of electromagnet on door

(a) Explain how the door remains locked when the button is not pressed. [2]

The steel plate is changed to a wooden plate.

(b) Would the system still work? Give a reason for your answer. [1]

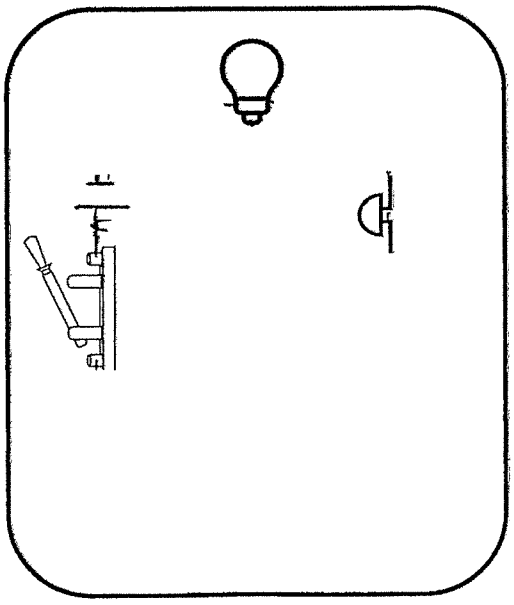
40. Diagram 1 shows the front view of a toy train. An electrical circuit was set up in the toy using bulb J, buzzer K, wires, a switch and batteries as shown in Diagram 2. All the circuit components are in working condition.




When the switch was closed, the bulb did not light up and no sound was heard.

(a) Use a pencil to complete the circuit below. [2]

- Correct the mistake(s).
- Connect the bulb and buzzer such that
  - when the bulb blows, the buzzer can still make sound and
  - both the bulb and buzzer will only work when the switch is closed.
- Do not use symbols.



(b) Suggest a change to the set-up in (a) to increase the brightness of bulb J. Give a reason for your answer. [2]

_____

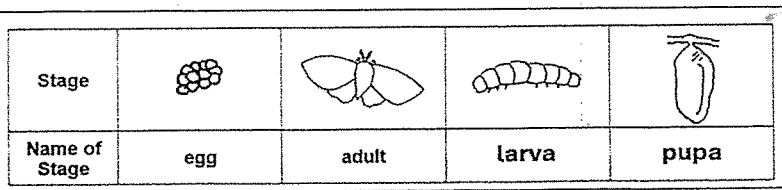
_____

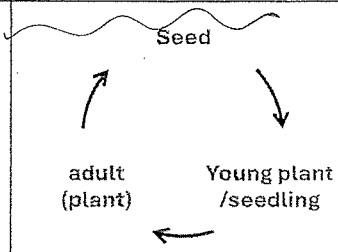
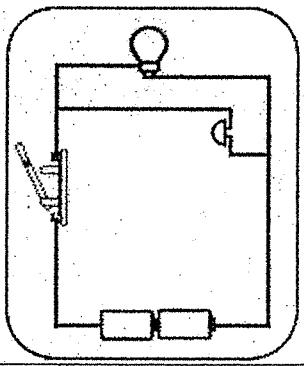
~ END OF BOOKLET B ~

## Section A

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3 | 6 | 4 | 11 | 3 | 16 | 2 | 21 | 3 | 26 | 4 |
| 2 | 4 | 7 | 3 | 12 | 4 | 17 | 4 | 22 | 4 | 27 | 1 |
| 3 | 2 | 8 | 2 | 13 | 2 | 18 | 1 | 23 | 2 | 28 | 3 |
| 4 | 3 | 9 | 1 | 14 | 2 | 19 | 2 | 24 | 4 | | |
| 5 | 4 | 10 | 4 | 15 | 3 | 20 | 3 | 25 | 1 | | |

## Section B

| Qns No | Answer |
|---|---|
| 29 (a) | **Flower A** – animal/insect<br>• Stigma/anther is hidden<br>• Red/bright petal<br>**Flower B** – wind<br>• Feathery stigma<br>• Anther/stigma hanging out of the petals |
| (b) | Fruit C has a seed pod / pod-like structure that splits open when dry. |
| (c) | To prevent overcrowding and avoid competition for water, light, space and mineral salts between the young plants. |
| 30 (a) | Gills. Allows gaseous exchange to take place. |
| (b) | Leaf X and leaf Y |
| (c) | More air bubbles come out from the lower surface of the leaf / leaf X. |
| 31 (a) | Respiratory and Circulatory system. |
| (b) | When we breathe in air/oxygen, oxygen is absorbed by the lungs into the blood. Blood rich in oxygen is then circulated to other parts of the body, including the legs. |
| (c) | Data: Less blood is transported to the digestive system.<br>Explain: Less digested food will be absorbed into the blood. |
| 32 (a) | System P: Skeletal System  Part X: Windpipe |
| (b) | The bones. Bones help to protect organs / lungs from damage. |
| 33 (a) | Digestive system. To break down food into simple(r) substances. |
| (b) | To find out how different volumes of substance J affects the mass of food left / mass of undigested food after 2 hours. |
| (c) | As the volume of substance J increases, the mass of food after 2 hours decreases. |
| 34 (a) | Y has a 3-staged life cycle but Z has a 4-staged life cycle.<br>The young of Y resembles the adult but the young of Z does not resemble the adult. |
| (b) |  |
| (c) | Z does not eat / feed during stage M. |
| (d) | Both life cycles are 4-staged life cycles / both young do not resemble the adult. |

| | |
|---|---|
| 35 (a) | The higher the temperature, the longer it takes to complete one life cycle. |
| (b) | To ensure that any change in results is due only to the presence of light. |
| (c) | Repeat the experiment at least 3 times and calculate the average / check for consistent results. |
| (d) |  |
| 36 (a) | Water from the boiling sea water evaporates / gains heat and turns into water vapour. Warmer water vapour touches the cooler metal plate and condenses / loses heat to form water droplets. |
| (b) | The metal plate gained heat from the surroundings and became warmer. Less condensation could take place. |
| 37 (a) | Temperature is the measurement of the degree of hotness. |
| (b) | Choice: Material Y<br>Data: Temperature of S decreased slower in Y than X. Y is a poorer conductor of heat.<br>Explain: Y transfers heat from the surroundings to the dessert slower. |
| 38 (a) | Step 2: Weigh and record the original mass of the 100ml beaker.<br>Step 3: Measure the 50ml of liquid K used using the 100ml beaker.<br>Step 4: Weigh and record the new mass of the 100ml beaker.<br>Step 5: Subtract the original mass from the new mass. |
| (b) | Candies have a definite shape. There are air spaces between the candies that cannot fit the candies. |
| 39 (a) | When the button is not pressed, the switch is closed. A closed circuit is formed and electric current passes through the wires. The iron bar is magnetised to become and electromagnet, which attracts the steel plate. |
| (b) | No, wood is a non-magnetic material. |
| 40 (a) |  |
| (b) | Add more batteries / use batteries of a higher voltage.<br>More electric current passes through the circuit. |

2

END