# 2024 PRIMARY 5 END-OF-YEAR EXAMINATION

Name : _____ (  )

Class : Primary 5 (  )

Date: 24 October 2024

Time: 8.00 a.m. - 9.45 a.m.

Duration: 1 hour 45 minutes

# SCIENCE

# BOOKLET A

## INSTRUCTIONS TO CANDIDATES

1. Write your name, class and register number.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers on the Optical Answer Sheet (OAS) provided.

## Booklet A (28 x 2 marks)

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet.

(56 marks)

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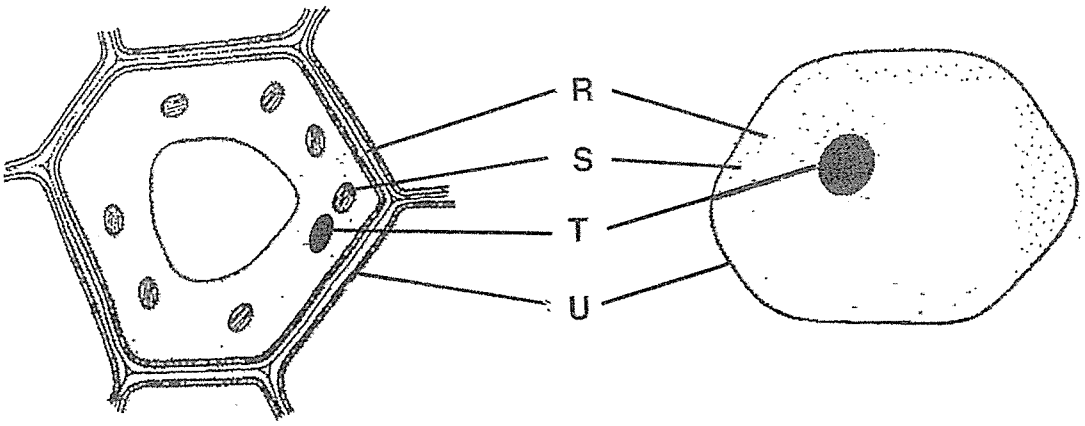
1. Which of the following is the basic unit of life for a child and a coconut plant?

| | child | coconut plant |
|---|---|---|
| (1) | cell | cell |
| (2) | cell | seed |
| (3) | nucleus | seed |
| (4) | nucleus | nucleus |

2. The diagram below shows two cells.

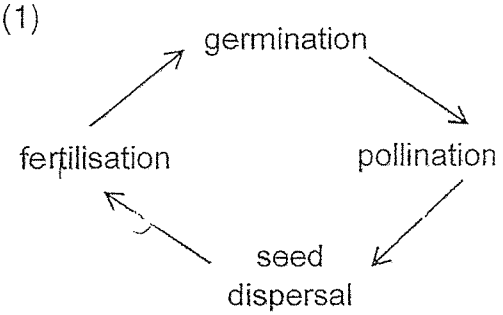



Which of the following parts, R, S, T or U, correctly matches the part of the cell?

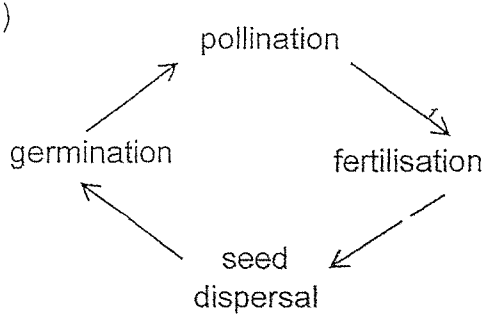
| | part | part of the cell |
|---|---|---|
| (1) | R | cytoplasm |
| (2) | S | chloroplast |
| (3) | T | nucleus |
| (4) | U | cell membrane |

3. Which of the following shows the correct order in the reproduction of a flowering plant?

(1)




(2)

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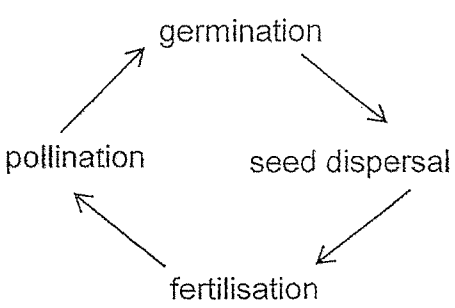
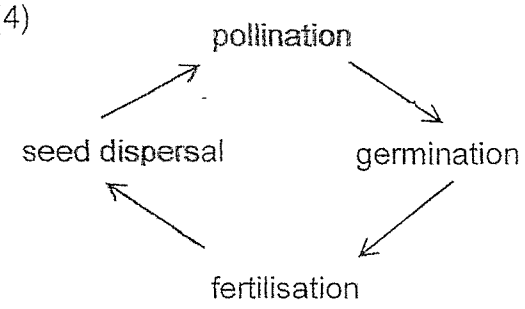
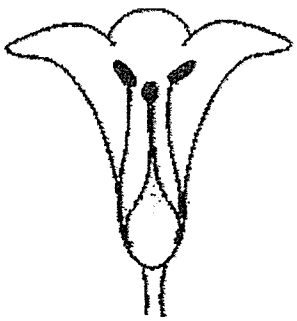


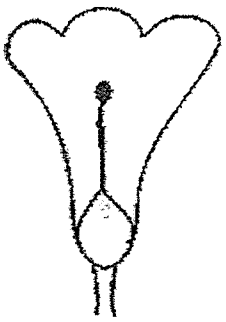

(4)




4. The diagram below shows flowers M and N.



flower M



flower N

Which statement about flowers M and N is false?

(1) Only flower M has anthers.

(2) Both flowers have an ovary.

(3) Pollination can take place in both flowers.

(4) Only flower M can develop into a fruit after fertilisation.

5. Plant R has brightly-coloured and sweet-smelling flowers.

Laura made 3 statements:

A Its fruits are sweet-smelling.

B Its seeds are dispersed by animals.

C Its flowers are pollinated by animals.

Which of the above statements can be inferred about plant R?

(1) C only

(2) A and B only

(3) A and C only

(4) A, B and C

6. Which group of animals has a four-stage life cycle?

(1) butterfly, chicken and frog

(2) chicken, cockroach and frog

(3) beetle, butterfly and mosquito

(4) butterfly, cockroach and mosquito

7. Which of the following substances are transported through tubes in both plants and humans?

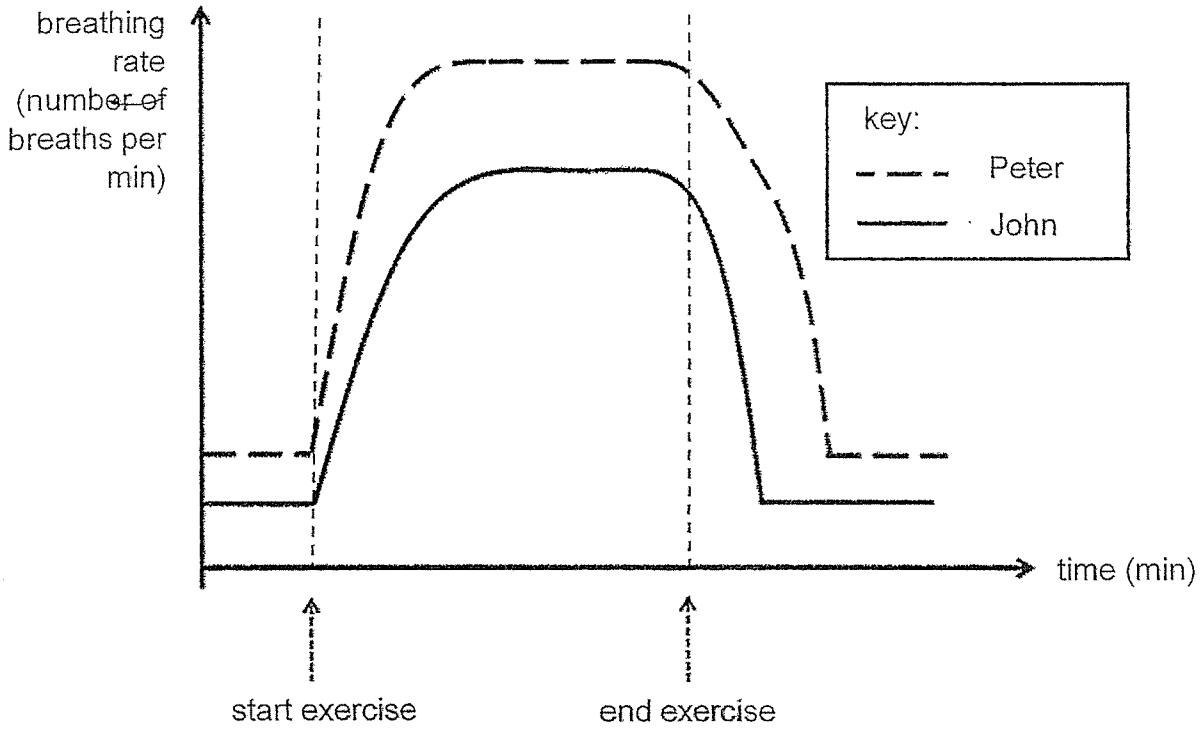
(1) food and water

(2) food and oxygen

(3) oxygen and water

(4) food, oxygen and water

8. The graph below shows the breathing rates of Peter and John.




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

(1) John has a higher breathing rate at rest.

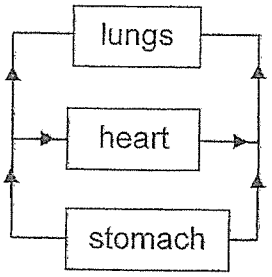
(2) During exercise, John's breathing rate rises more quickly.

(3) The maximum breathing rate reached by John is lower than Peter.

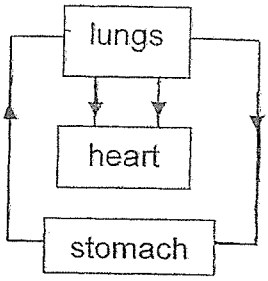
(4) The breathing rate of John returns to its breathing rate at rest more slowly.

9. Which diagram below shows the flow of blood in the human body correctly?

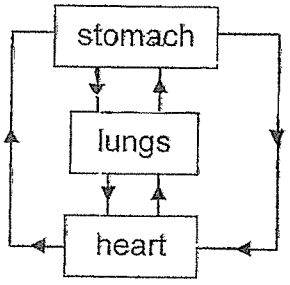
(1)



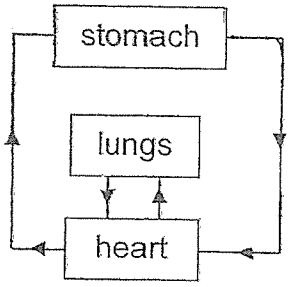

(2)



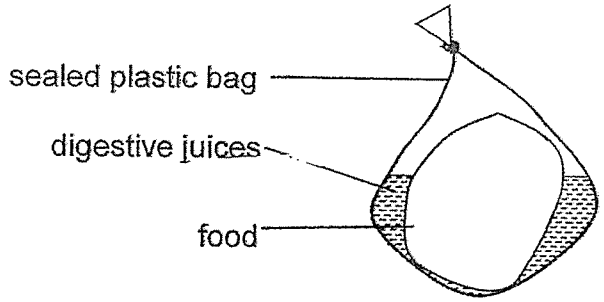

(3)




(4)




10. Ali made the model below to represent digestion of food in the stomach.




Why is Ali's model inaccurate?

(1) Digestion does not occur in the stomach.

(2) The plastic bag cannot absorb digested food.

(3) Digestive juices are not found in the stomach.

(4) Food in the stomach is not usually found in large pieces.

11. Which statement about photosynthesis is incorrect?

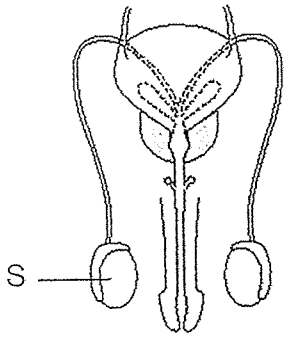
(1) Photosynthesis requires light.

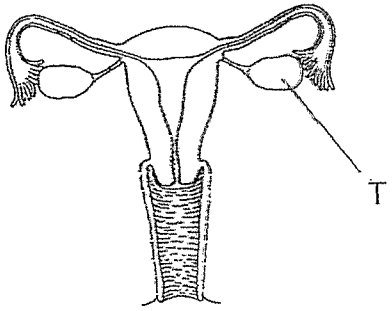
(2) Photosynthesis occurs only in the day.

(3) Photosynthesis allows the plant to make food.

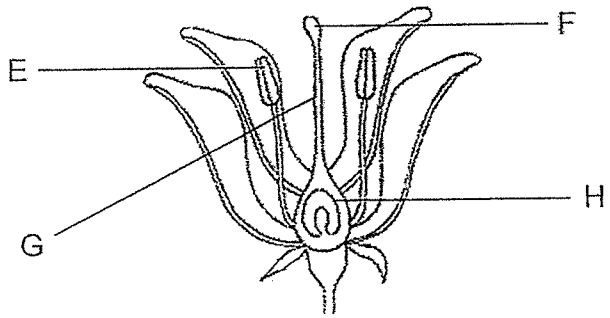
(4) During photosynthesis, carbon dioxide is taken in and oxygen is given out.

12. The diagrams below show the male and female human reproductive systems.



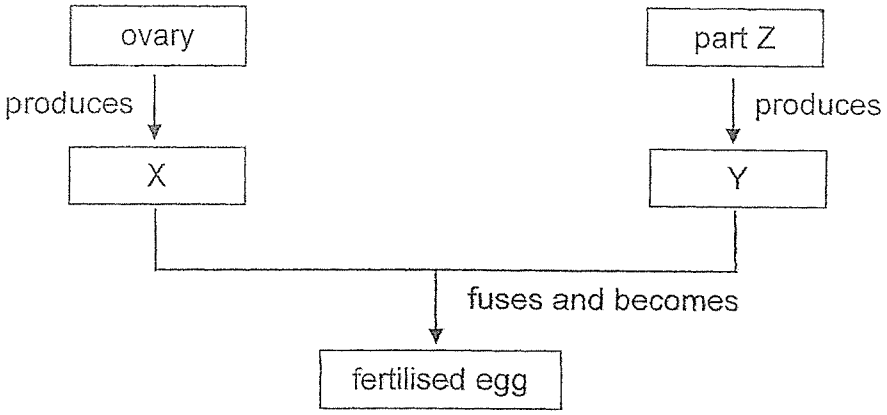




Which parts, E, F, G or H, of the flower have similar functions as S and T?




| | S | T |
|---|---|---|
| (1) | E | G |
| (2) | E | H |
| (3) | F | G |
| (4) | F | H |

13. The chart below shows the process of fertilisation when X from the ovary fuses with Y from part Z in the human reproductive system.



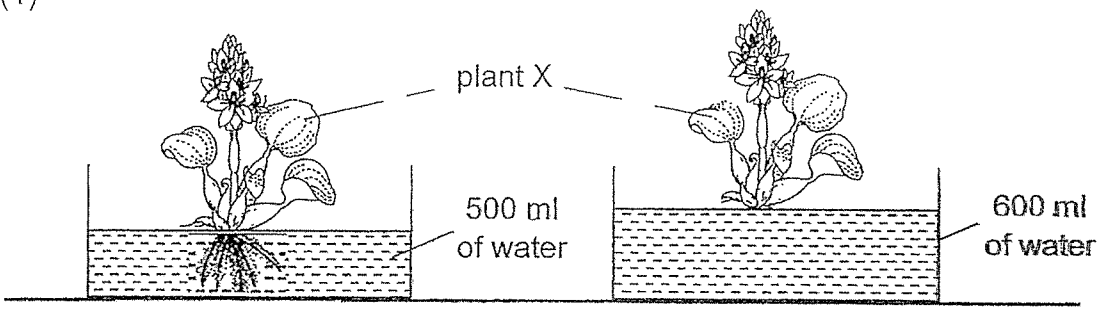

Which one of the following correctly identifies X, Y and part Z?

| | X | Y | part Z |
|---|---|---|---|
| (1) | egg | sperm | testis |
| (2) | egg | sperm | penis |
| (3) | sperm | egg | testis |
| (4) | sperm | egg | penis |

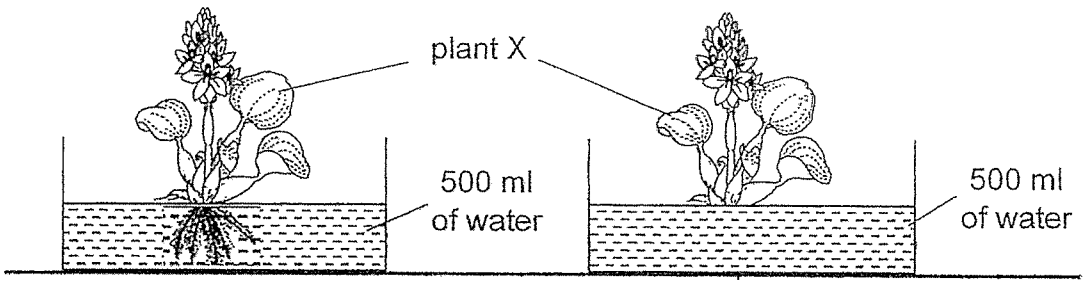
14. Steven wanted to find out if plants take in water through their roots.

Which of the following pair of set-ups should he use to conduct a fair test?

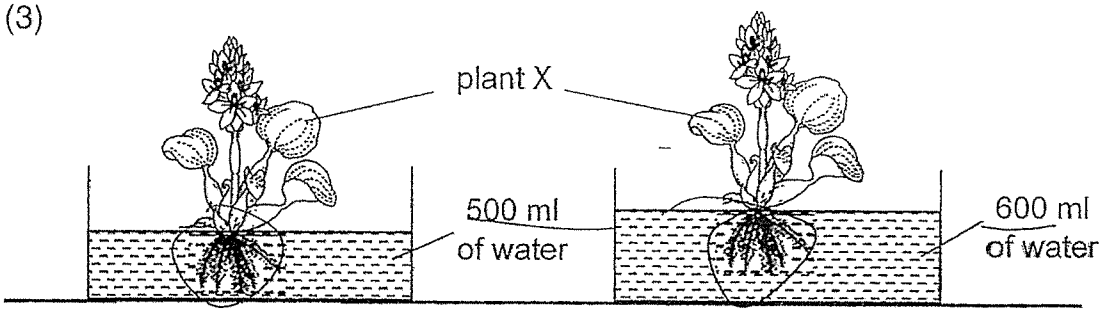
(1)



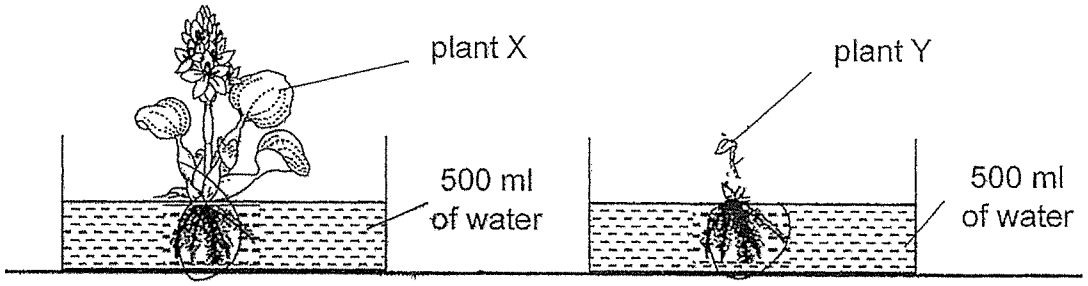

(2)



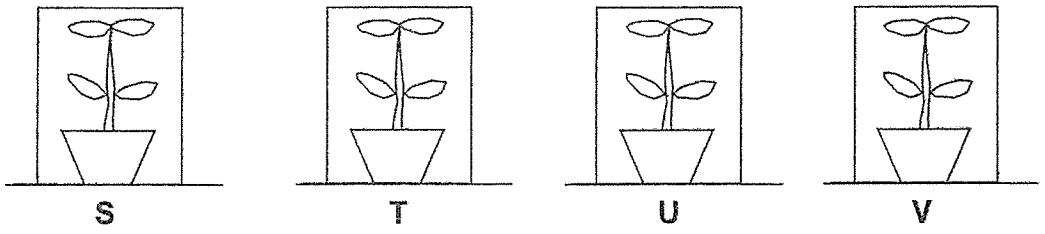

(3)




(4)

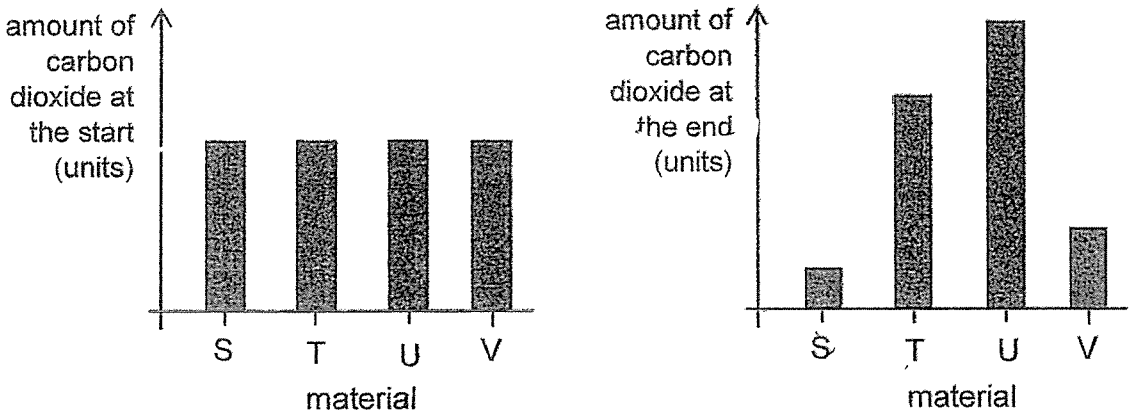


15. Janet set up an experiment as shown below.




She put 4 identical pots of plants in 4 boxes of different materials, S, T, U and V, and left the set-ups under the Sun for 2 hours.

The graph below shows the amount of carbon dioxide measured in each container at the start and at the end of the experiment.




Based on the results above, which of the following statement(s) is/are true?

A U is transparent.

B All the plants carried out photosynthesis.

C S allows the greatest amount of light to pass through.

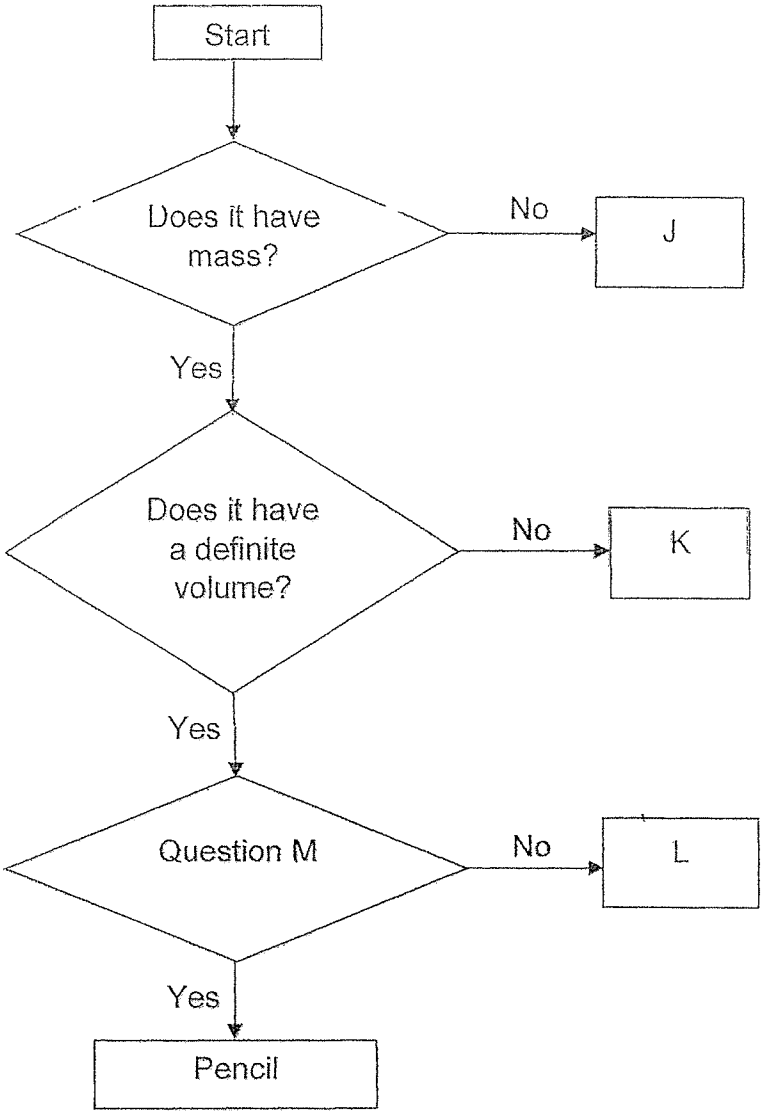
(1) C only

(2) A and B only

(3) B and C only

(4) A B and C

16. Study the flowchart below.

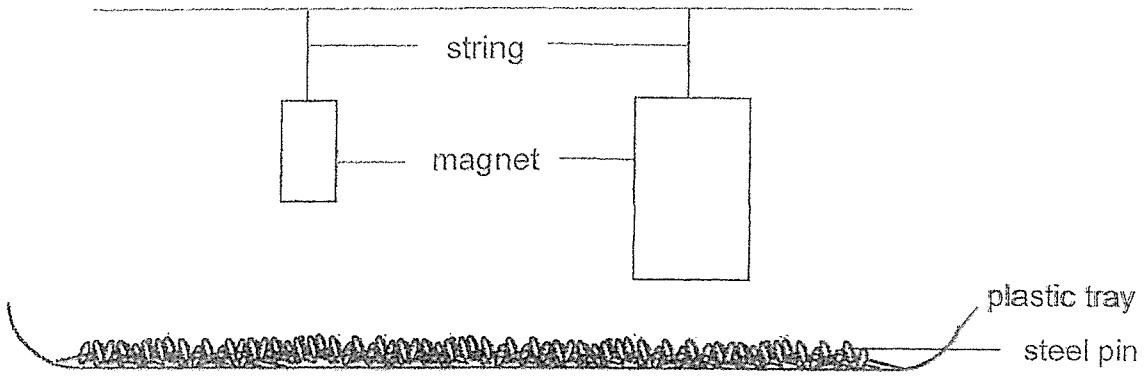



Which of the following represents J, K, L and Question M correctly?

| | J | K | L | Question M |
|---|---|---|---|---|
| (1) | table | sand | music | Does it occupy space? |
| (2) | music | air | water | Does it have a definite shape? |
| (3) | music | water | table | Does it have a definite shape? |
| (4) | water | sand | air | Does it occupy space? |

17. Chandran wanted to find out if the size of a magnet affects the number of pins it can attract.

He set up the experiment as shown below.




The teacher told Chandran his experiment set-up was unfair.

Which of the following variables should he keep the same to ensure his experiment was fair?

(1) size of magnet

(2) length of string

(3) number of pins attracted

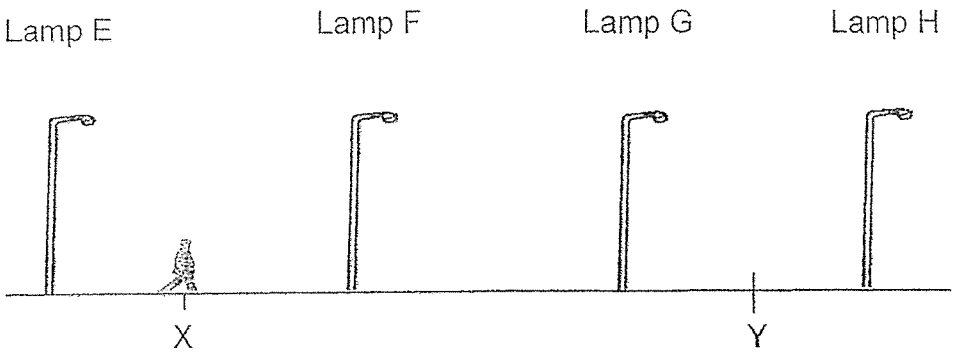
(4) distance between magnet and pins

18. Two plates made of different materials were placed in the refrigerator at 4°C. After 24 hours, the temperatures of both plates were measured.

Which of the following would most likely be the temperature of the plates?

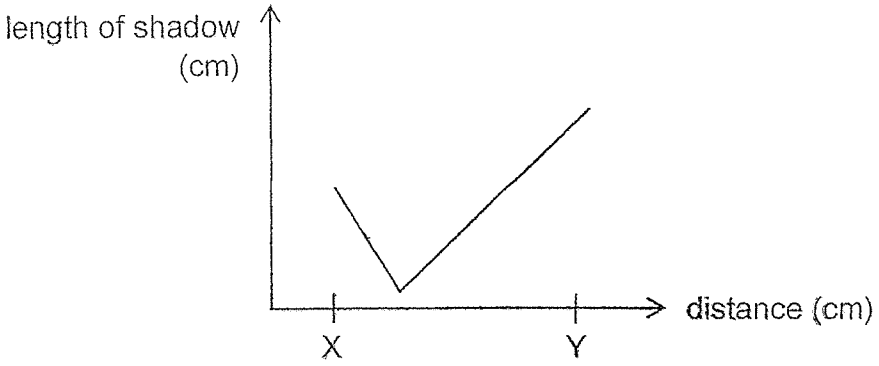
| | metal plate (°C) | plastic plate (°C) |
|---|---|---|
| (1) | 0 | 1 |
| (2) | 4 | 1 |
| (3) | 4 | 4 |
| (4) | 10 | 4 |

19. A man was walking down a street from X to Y as shown in the diagram.




Only one lamp was lit.

The graph shows the length of the shadow as the man walks from X to Y.




Based on the graph, which lamp, E, F, G or H, was most likely lit?

(1) E

(2) F

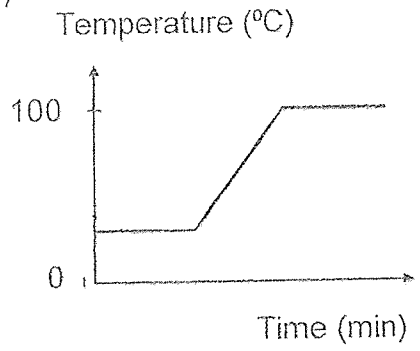
(3) G

(4) H

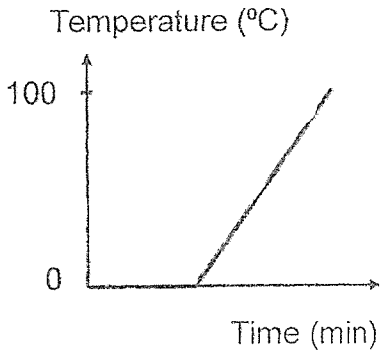
20. Albert placed a beaker of ice on a table at room temperature. He monitored the temperature of the content in the beaker with a thermometer, and recorded the temperature over time.

Which of the following graphs correctly shows the changes in the temperature of the content in the beaker over time?

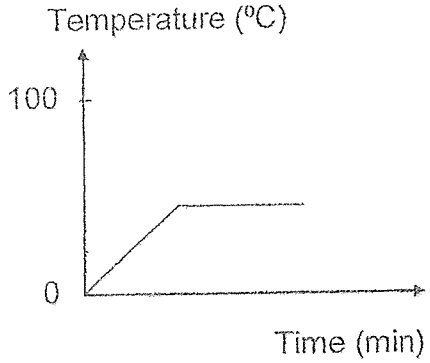
(1)



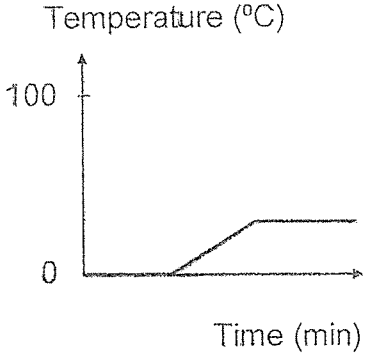

(2)




(3)



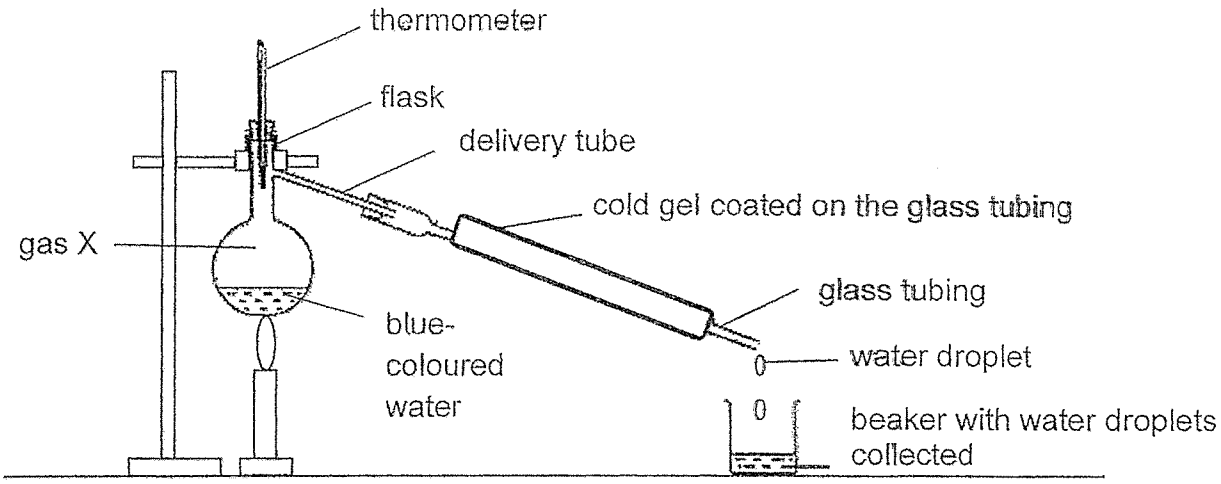

(4)



**For questions 21 and 22, refer to the same diagram below.**

In the set-up below, blue-coloured water was boiled and gas X travelled up and passed through the delivery tube and glass tubing.

A cold gel was coated on the glass tubing to keep the tubing cold and water droplets were collected in the beaker.




21. What was the colour of the water droplets collected in the beaker?

(1) blue

(2) white

(3) light blue

(4) colourless

22. After 10 minutes, it was observed that less water was collected in the beaker.

Which statement best explains this observation?

(1) The cold gel became warmer.

(2) All the water in the flask evaporated.

(3) The volume of water in the flask decreased.

(4) The water vapour escaped into the surroundings.

23. The table below shows the states of three substances, A, B and C, at different temperatures.

| substance | state of substance at | | |
|---|---|---|---|
| | 20 °C | 60 °C | 120 °C |
| A | solid | solid | liquid |
| B | liquid | liquid | gas |
| C | gas | gas | gas |

Based on the table, which of the following statements is definitely correct?

(1) Substance C has the lowest boiling point.

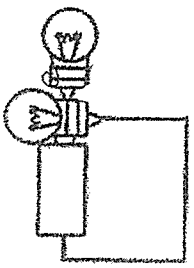
(2) Substance B has a boiling point of 130 °C.

(3) Substance A has the lowest freezing point.

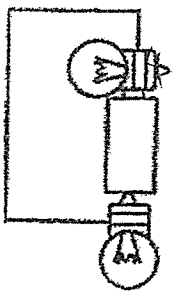
(4) Substances A, B and C are in a gaseous state at 150 °C.

24. Which one of the following circuits will have both bulbs lighting up?

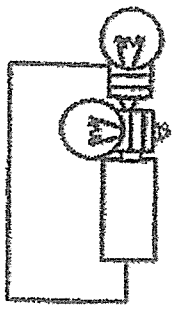
(1)



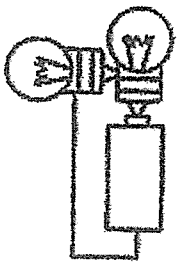
(2)



(3)

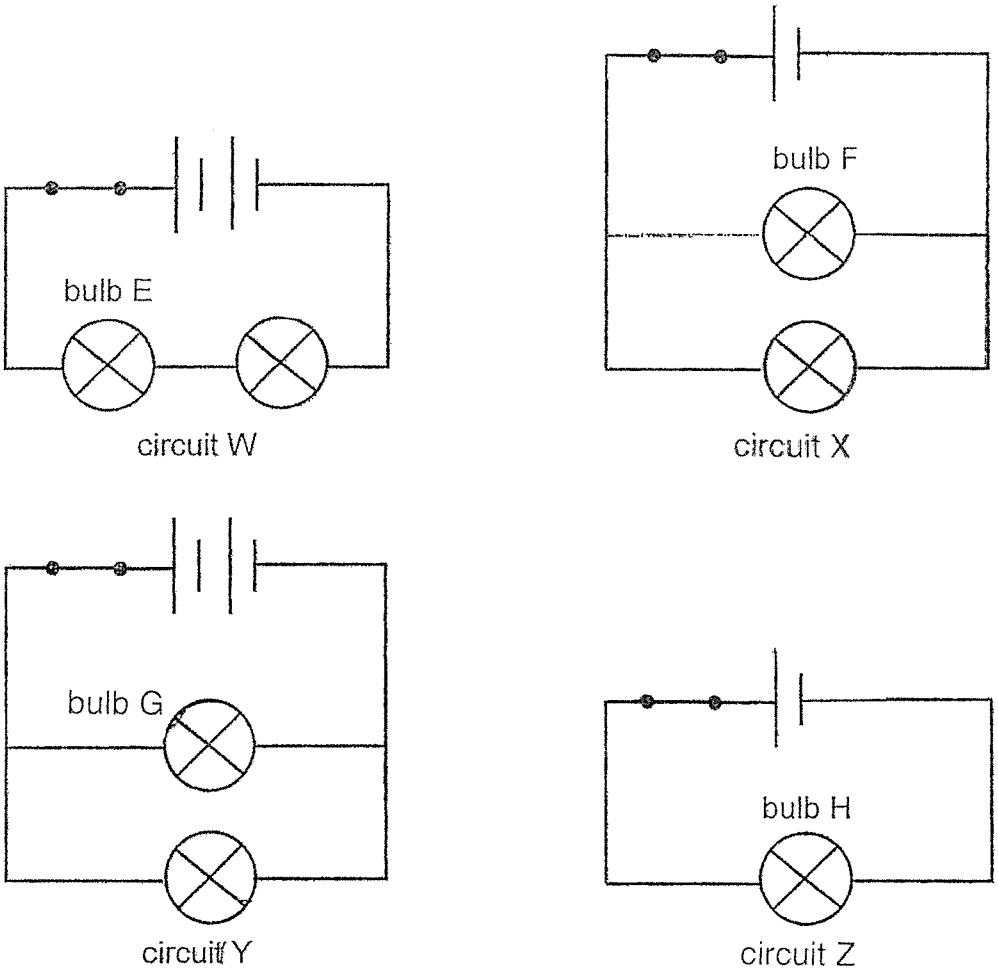


(4)



**For questions 25 and 26, refer to the circuits below.**

All the bulbs and batteries are working.




25. Which circuits should be used to find out if the arrangement of the bulbs affects the brightness of the bulbs?

(1) W and X

(2) W and Y

(3) X and Z

(4) Y and Z

26. Which of the following bulbs is the brightest?

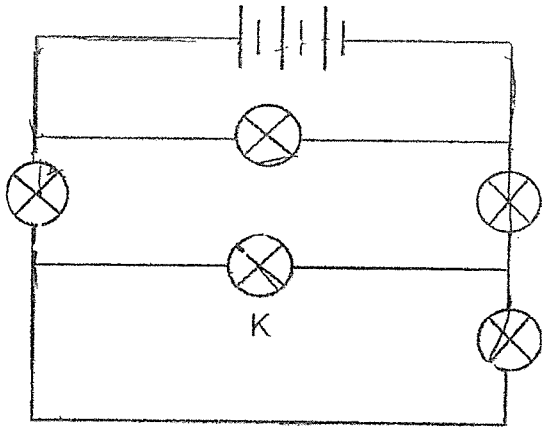
(1) E

(2) F

(3) G

(4) H

27. Study the circuit shown below.




How many bulbs would remain lit if bulb K fuses?

(1) One

(2) Two

(3) Three

(4) Four

28. Which of the following ways would conserve electricity?

(1) Open and close the refrigerator repeatedly.

(2) Leave the lights switched on when not in use.

(3) Switch off the water heater after taking a bath.

(4) Use an air conditioner instead of an electric fan.

**End of Booklet A**

TAO NAN SCHOOL 道南学校

SINCERITY & PERSEVERANCE

## 2024 PRIMARY 5 END-OF-YEAR EXAMINATION

Name : _____

Class : Primary 5 (  )

Parent's Signature : _____

Date: 24 October 2024

Time: 8.00 a.m. – 9.45 a.m.

Duration: 1 hour 45 minutes

# SCIENCE

## BOOKLET B

**INSTRUCTIONS TO CANDIDATES**

1. Write your name, class and register number.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Use a dark blue or black ballpoint pen to write your answers in the space provided for each question.
6. Do not use correction fluid/tape or highlighters.

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

**Booklet B (44 marks)**

For questions 29 to 40, write your answers clearly in this booklet.

The number of marks available is shown in brackets [ ] at the end of each question or part question. (44 marks)

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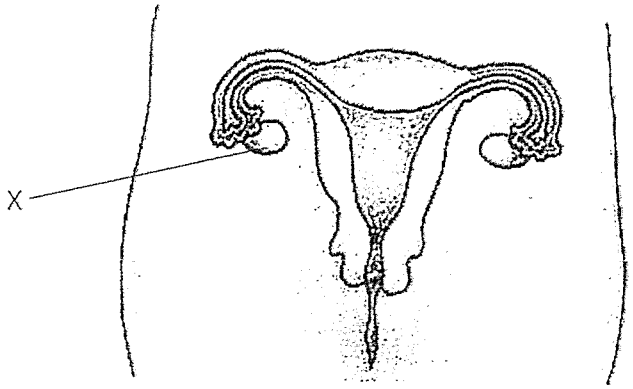
29. (a) Name the process in which the male reproductive cell fuses with the female reproductive cell. [1]

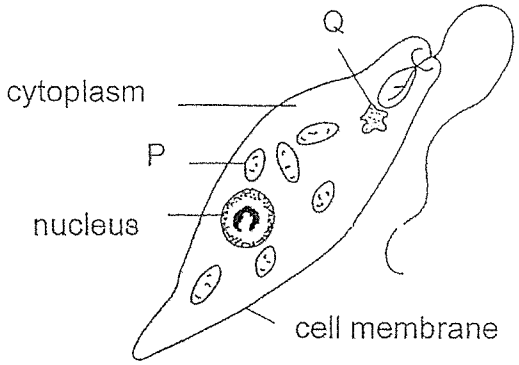
The diagram below shows the female human reproductive system.




(b) Due to health reasons, a woman needs to have part X removed. Will she be able to reproduce after that? Explain why [1]

| Score | 2 |
|---|---|

30. John found cell X in the pond. A picture of cell X is as shown below.




(a) What is the function of the nucleus? [1]

(b) When cell X is viewed under a microscope, it is observed part P contains a green pigment found in most plants. Name part P. [1]

(c) Part Q of cell X guides the cell to move towards a light source. Explain how this helps cell X to survive. [1]

| Score | / 3 |
|---|---|

31. An experiment was conducted to find out the effect of sit-ups on the heart rates of students. The heart rate of one student was measured before and immediately after doing the sit-ups.

The results of the experiment are shown in the table below.

| Number of sit-ups performed | Heart rate (beats per minute) | | |
|---|---|---|---|
| | 1st reading | 2nd reading | 3rd reading |
| 0 | 70 | 70 | 70 |
| 8 | 86 | 88 | 84 |
| 16 | 95 | 96 | 97 |
| 24 | 110 | 110 | 110 |
| 32 | 110 | 110 | 110 |

(a) What is his heart rate at rest? [1]

_____

(b) Based on the results above, state the relationship between the heart rate and the number of sit-ups performed. [1]

_____

_____

(c) The student rested for 15 minutes after taking the next reading. Explain why he needed to rest. [1]

_____

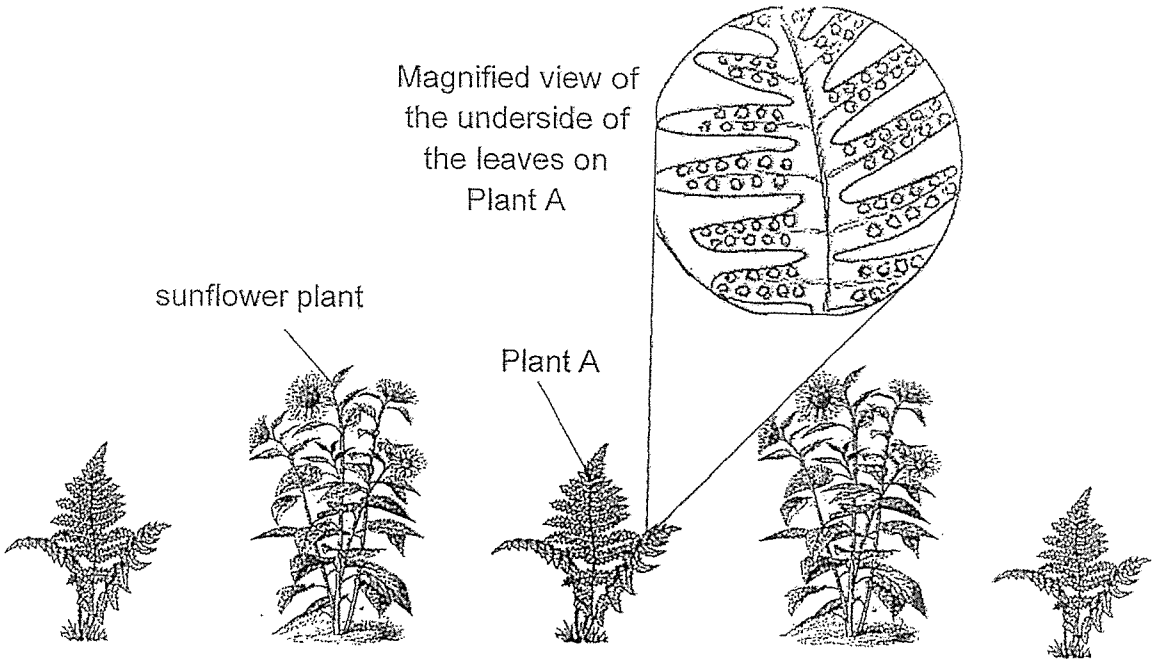
_____

| Score | 3 |
|---|---|

(d) The student observed that his breathing rate also increased when he was doing the sit-ups. Explain how the respiratory system works together with the circulatory system to enable him to do sit-ups. [4]

| Score | 2 |
|---|---|

32. Zachary planted two sunflower plants in his garden. After two weeks, he noticed that there were more Plant A growing near his sunflower plants even though he did not plant them.




(a) Based on the information above, explain why plant A appeared near his sunflower plants. [1]

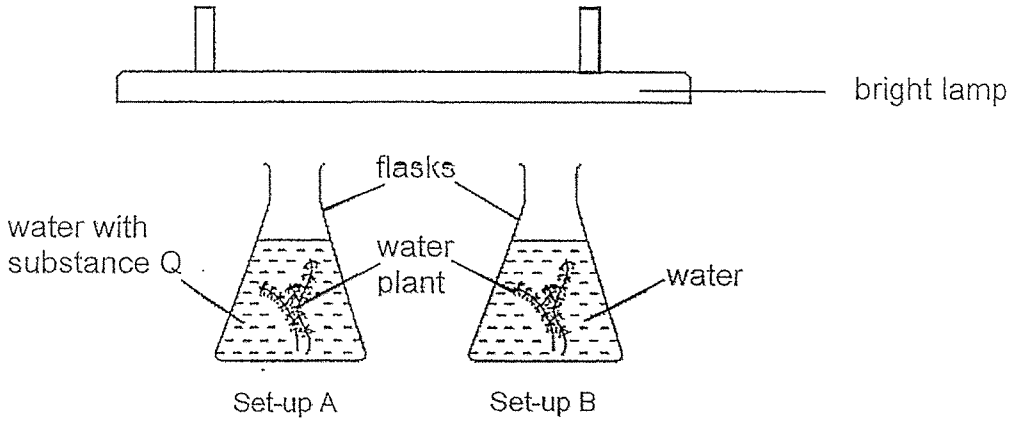
(b) Zachary observed that the sunflower plants are not growing well. What should he do ? Explain why. [2]

(c) The sunflower plants produce a sweet substance that attracts bees and other insects. Explain how this sweet substance helps in reproduction of the sunflower plants. [2]



Score /5

33. Sue Ann wanted to find out if the presence of substance Q would affect the rate of photosynthesis of the water plants. She prepared the two set-ups with identical water plants as shown below and placed them under a bright lamp. After a while, she observed bubbles appearing in the water in both set-ups.




(a) What is photosynthesis? [1]

_____

_____

(b) After half an hour, Sue Ann concluded that substance Q increases the rate of photosynthesis of the water plants. What observation could lead Sue Ann to this conclusion? [1]

_____

_____

(c) Suggest two changes Sue Ann can make to set-up A if she wants to find out if light is needed for photosynthesis. [2]

(1) _____

_____

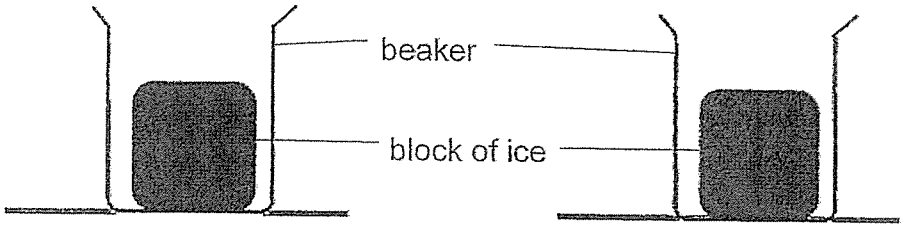
(2) _____

_____

| Score | 4 |
|---|---|

34. (a) State what melting is. [1]

Jen conducted an experiment using two identical blocks of ice. She placed each block of ice in a beaker and placed them in similar rooms of different temperatures as shown below.




Room at 22°C — Set-up P

Room at 32°C — Set-up Q

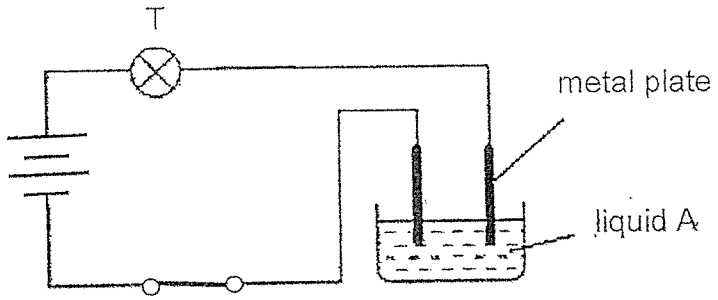
She then removed the ice blocks after 10 minutes and measured the amount of water collected in each beaker. She recorded her results in the table below.

| Set-up | Amount of water collected in the beaker (ml) |
|---|---|
| P | 35 |
| Q | 70 |

(b) Explain why there was more liquid collected in set-up Q than set-up P. [2]

| Score | 3 |
|---|---|

35. Stella used the set-up below to find out about the electrical conductivity of liquids A, B, C and D. When liquid A was used, bulb T lit up brightly when the switch was closed.




(a) What would happen to the brightness of bulb T if another bulb is added in series to bulb T. [1]

Using the same set-up, Stella tested another three different types of liquid, B, C and D, one at a time, and recorded the results in the table below.

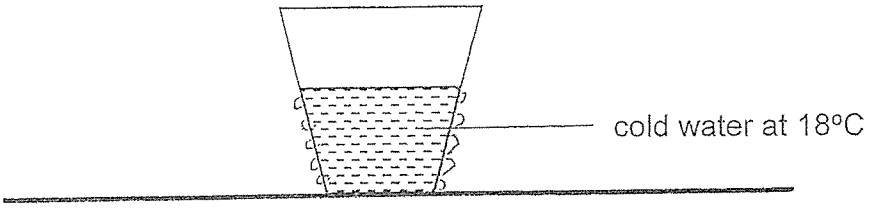
| Liquid | Bulb T |
|---|---|
| B | Lit up dimly |
| C | Did not light up |
| D | Did not light up |

(b) Based on the result given, classify liquids A, B, C and D according to their properties, in the table below. Give a suitable heading in the table below. [2]

| | |
|---|---|
| | |

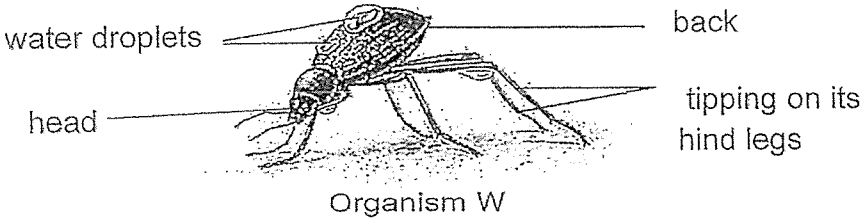
Score 3

36. Marcus placed a cup of cold water at a room temperature of 35°C.




(a) After 10 minutes, he noticed that the water droplets are formed. Draw on the above set-up to show where the water droplets would be seen. [1]

(b) Marcus wanted to increase the amount of water droplets formed in the same given period of time. Suggest one way he could do so. [1]




Organism W

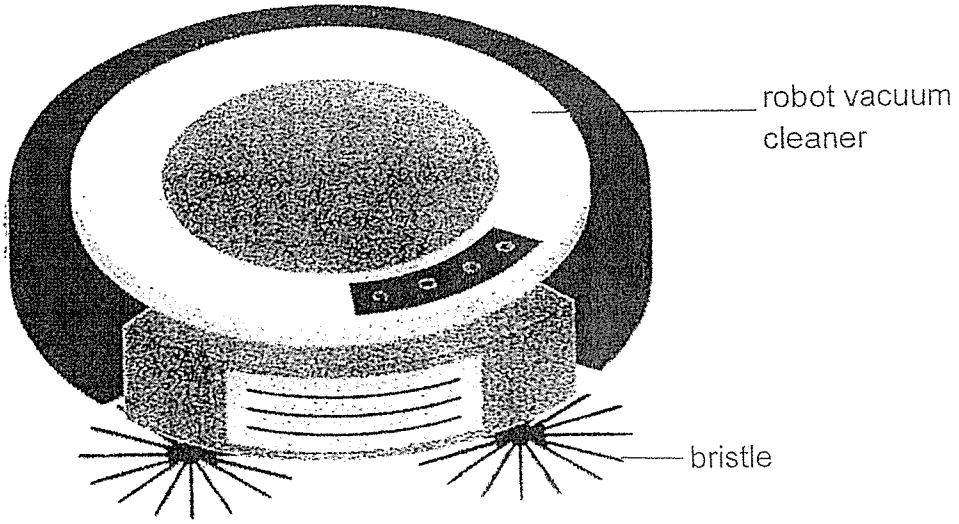
Marcus read about an organism W which lives in the desert. The desert is very hot in the day and very cold at night. Organism W relies on water droplets on its back to survive. The water droplets will slide towards its head for it to drink.

Water droplets only appear on the back of organism W in the early morning

(c) Explain how these water droplets are formed. [2]

| Score | 4 |
|---|---|

37. Andrew has a robot vacuum cleaner. It moves around his house by itself and sucks up dust from the floor. The side brushes of the vacuum cleaner can bend along wall edges and corners to sweep dust towards the vacuum cleaner. The brush has bristles made of plastic.




(a) State and explain two physical properties of plastic that makes it suitable to be used to make the bristles of the vacuum cleaner. [2]

Physical property: _____

Explanation: _____

_____

Physical property: _____

Explanation: _____

_____

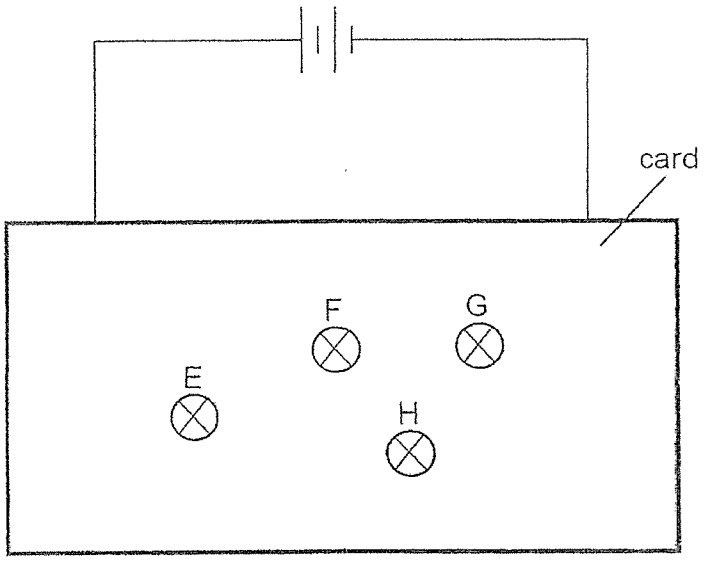
(b) Andrew says that the robot vacuum cleaner is a living thing as it can move by itself. Do you agree with Andrew? Explain your answer. [1]

_____

_____

| Score | 3 |
|---|---|

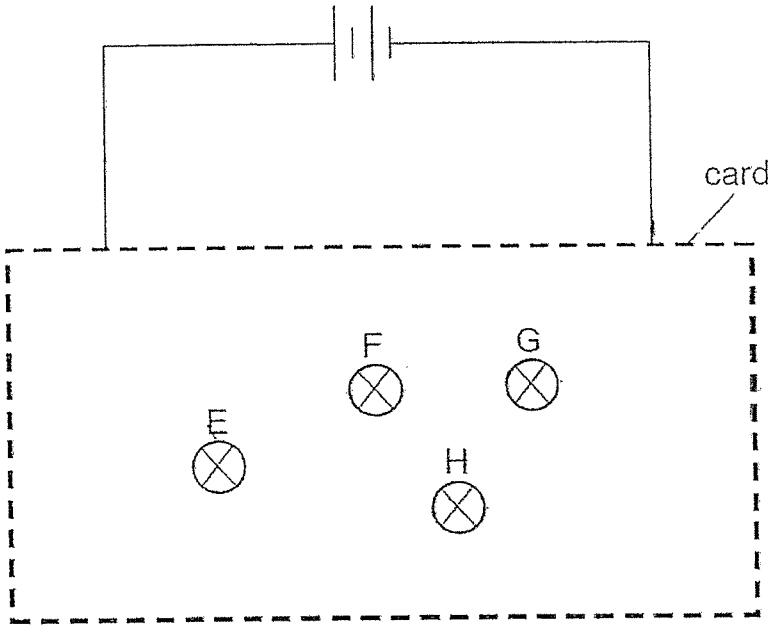
38. Imran built a circuit with identical batteries and bulbs E, F, G and H. He covered the connections to the bulbs with a card as shown below.




All the bulbs lit up. He then removed one bulb from the circuit each time and recorded his observations below.

| Bulb removed | Bulb(s) lit |
|---|---|
| E | None |
| F | E and H |
| G | E and H |
| H | E, F and G |

(a) Complete the circuit diagram below to show how the four bulbs could be connected. [2]




Imran added a switch to the electric circuit in (a) so that he could turn off all the four bulbs at the same time.

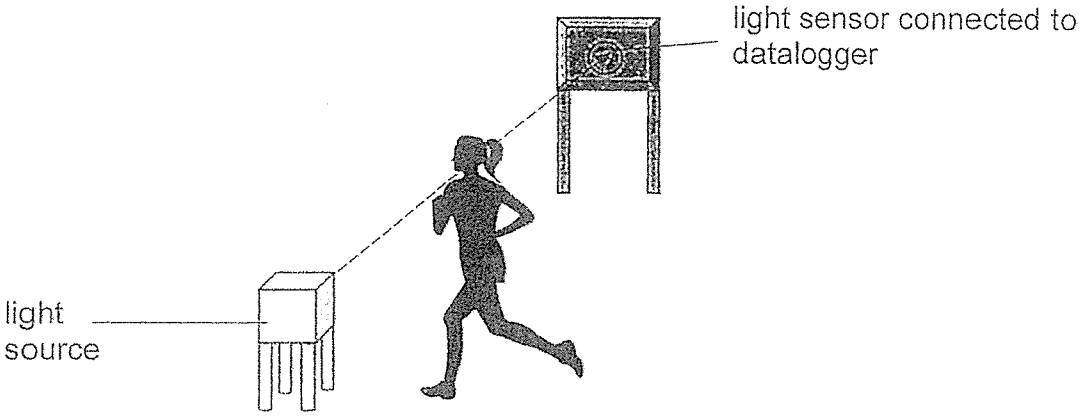
(b) Write the letter "S" in the circuit diagram in (a) to show where the switch could be added. [1]

(c) Imran added three more batteries in series to the two batteries. The bulbs in the circuit lit up brightly but stopped glowing after a few seconds. What has happened to the bulb? Explain why. [1]

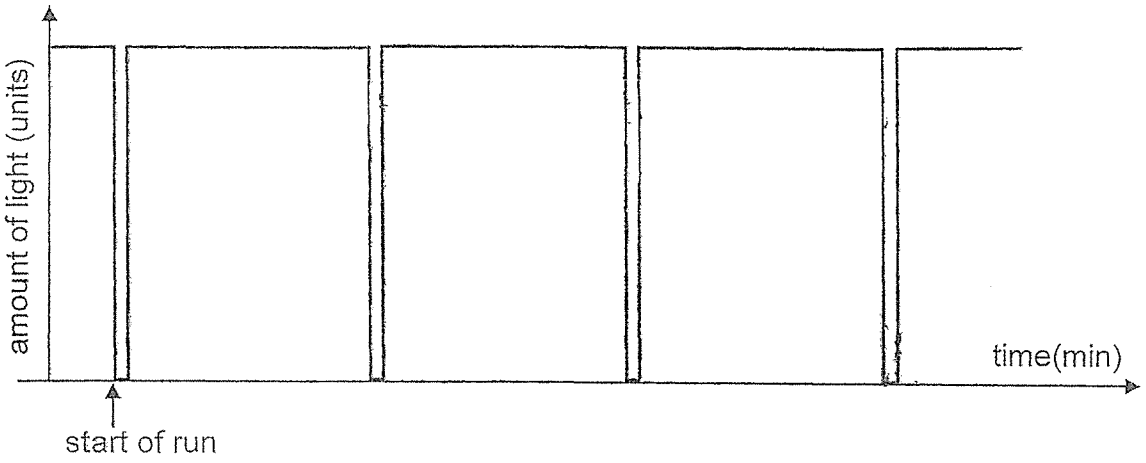
(d) Imran replaced bulb E with a plastic rod. Will the other bulbs light up? Explain why. [1]

| Score | 5 |
|---|---|

39. During a Physical Education lesson, students had to run a certain number of rounds around the school field. Mr Heng used a strong beam of light and light sensor connected to a datalogger to record the time taken by the students to complete their run.




When the beam of light shines onto the sensor, the data logger records the brightness of light as 1000 units. When the student runs across the beam of light, the datalogger records the brightness of light as 0 units. The line graph below shows the amount of light detected by the light sensor during one student's complete run.




(a) Observe the graph and state how many rounds this student ran around the field. [1]

_____

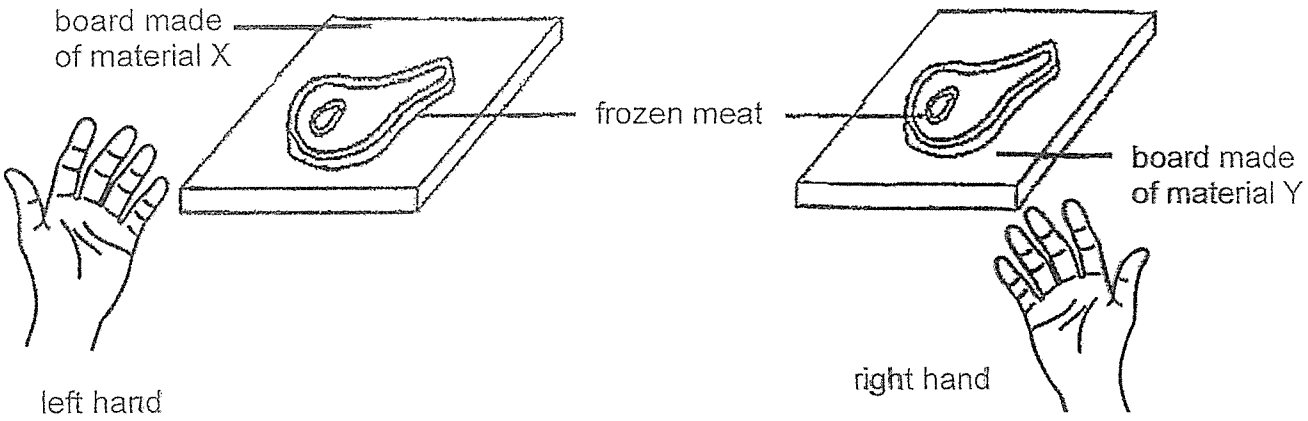
(b) Indicate on the graph above where the run ended by marking with a cross (X). [1]

| Score | 2 |
|---|---|

(c) Using a property of light, explain how the brightness of the light beam falls from 1000 units to 0 units during the run. [2]

| Score | 2 |
|---|---|

40. Samuel placed his left hand on a board made of material X and his right hand on a board made of material Y. His left hand felt cooler than his right hand. He then placed two similar pieces of frozen meat taken from the freezer on the two boards, as shown in the diagram. The two boards are of the same size and thickness at room temperature of 30°C.




(a) A white solid appeared on both pieces of the frozen meat and it disappeared after a while. Explain why it disappeared. [1]

_____

_____

(b) On which board, X or Y, would the white solid disappear faster? Explain your answer. [2]

_____

_____

**End of Paper**

| Score | 3 |
|---|---|

# ANSWER KEY

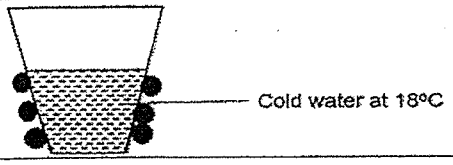
YEAR : 2024
LEVEL : PRIMARY 5
SCHOOL : TAO NAN
SUBJECT : SCIENCE
TERM :

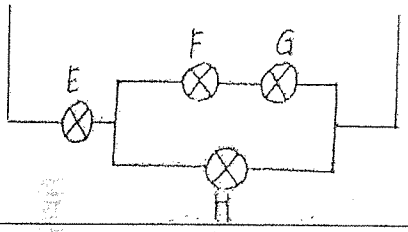
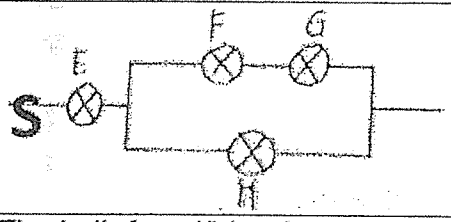
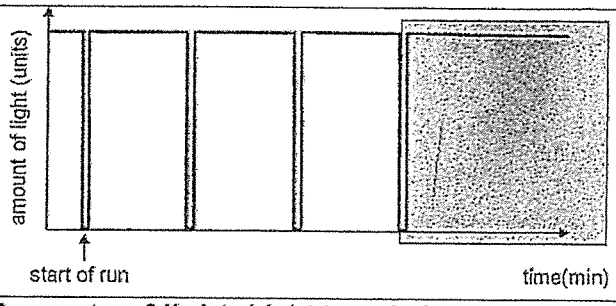
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Q1 | 1 | Q2 | 3 | Q3 | 2 | Q4 | 4 |
| Q5 | 1 | Q6 | 3 | Q7 | 1 | Q8 | 3 |
| Q9 | 4 | Q10 | 4 | Q11 | 2 | Q12 | 2 |
| Q13 | 1 | Q14 | 2 | Q15 | 1 | Q16 | 2 |
| Q17 | 4 | Q18 | 3 | Q19 | 2 | Q20 | 4 |
| Q21 | 4 | Q22 | 1 | Q23 | 1 | Q24 | 4 |
| Q25 | 2 | Q26 | 3 | Q27 | 4 | Q28 | 3 |

Tao Nan School
P5 Science EOY Examination 2024
Simplified Answer Key (Booklet B)

Name: _____ (  ) Class: 5____

This answer key only serves as a reference. Variations of students' answers have been accepted if they have shown conceptual understanding.

| Qn | Suggested Answer |
|---|---|
| 29a | Fertilisation |
| b | Yes. The woman still has another ovary to release egg for fertilisation. |
| 30a | Nucleus control all cell activities/ contains genetic information/ DNA (that can be passed down from one generation to another). |
| b | Chloroplast(s) |
| c | (To allow the chlorophyll/chloroplast) to absorb (more) sunlight/ light for photosynthesis. |
| 31a | 70 beats per minute |
| b | As the number of sit-ups performed increases, the heart rate increases until the maximum heart rate is reached/ until it reaches 110 bpm where it stays constant/ same. |
| c | When resting, the heart rate will decrease to the resting heart rate/ heart rate at rest. OR To allow heart rate to go back to 70 bpm/ at rest. OR His heart needs to return to resting heart rate. |
| d | Respiratory system/ nose needs to breathe (faster) to take in (more) oxygen to be absorbed into the blood at the lungs. Circulatory system/ heart pumped (faster) to transport (more) oxygen (faster) to her body parts (to release energy). |
| 32a | Spores from ferns were dispersed/ blown/carried by wind into his garden. |
| b | Remove plant A. To reduce competition for water/ mineral salts, sunlight and space (Any 1) or to prevent overcrowding. |
| c | (This sweet substance attracts pollinators/ bees/ insects) which help to transfer pollen grains from anther to stigma/ helps in pollination for fertilisation to take place so that the flower/ plant can be fertilised. |
| 33a | Photosynthesis is the process where plants use chlorophyll to trap light with water and carbon dioxide to produce glucose/ food and oxygen. |
| b | More (oxygen) bubbles are seen in the water in Set-up A. |
| c | (1) Remove substance Q from set-up A<br>(2) Cover set-up A with a black paper/ Put set-up A in a dark room |
| 34a | Melting is the change of a state from solid to a liquid at a fixed temperature. |
| b | As the temperature of the room for Set-up Q was higher, the block of ice gained heat faster/ gained more heat (from the surroundings) and the ice melted faster. |
| 35a | The brightness of bulb T decreases/ Bulb T is less bright. |
| b | Electrical conductor: B, A<br>Electrical insulator: C, D |
| 36a |  |

| | |
|---|---|
| b | Add ice/ colder water (0°C to 17°C) into the cold water |
| c | The (warmer) water vapour in the surrounding touches the cooler back of W and condenses to form water droplets. OR touches the cooler back of W, loses heat to change from gas (water vapour) to liquid (water droplets). |
| 37a | Physical Property 1: Flexible<br>Explanation: The brushes need to bend (without breaking) to clean the corners and wall edges effectively.<br>Physical Property 2: Strong<br>Explanation: The brushes need to be strong so that they will not break when cleaning the floor.<br>Physical Property 3: Waterproof<br>Explanation: The brushes will not absorb water to enable the dust to be swept away/ to clean effectively/prevent collection of water which can lead to mould growing. |
| b | No. The robot vacuum cleaner does not require food and water to stay alive/ does not reproduce/ does not grow. OR It cannot move by itself as it requires energy from the battery/ electrical point to move. |
| 38a |  |
| b |  |
| c | The bulb fused/blew because too much electric current flowed through it. |
| d | No. Plastic is an electrical insulator/ does not allow electricity to pass through. It causes an open circuit (in the main path). |
| 39a | 3 or 3.5 |
| b |  X could be marked in any area in the shaded box. |
| c | **Property of light:** Light travels in a straight line. OR Light can be blocked by an opaque object.<br>**Explanation:** When the runner runs across the beam of light, his body blocks the beam of light/ light source. No light entered the sensor or light sensor did not detect any light. |
| 40a | The white solid melted. OR The white solid gained heat from the surrounding and become liquid. |
| b | X. Material X is a better heat conductor. The frozen meat/ white solid will gain heat faster from the board. |



END