AI TONG SCHOOL

2020 END-OF-YEAR EXAMINATION
PRIMARY FIVE SCIENCE

(BOOKLET A)

29 OCTOBER 2020

Total time for booklets A and B : 1 h 45 min

INSTRUCTIONS

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

Follow all instructions carefully.

Answer all questions.

Name : _____ ( )

Class : Primary 5 _____

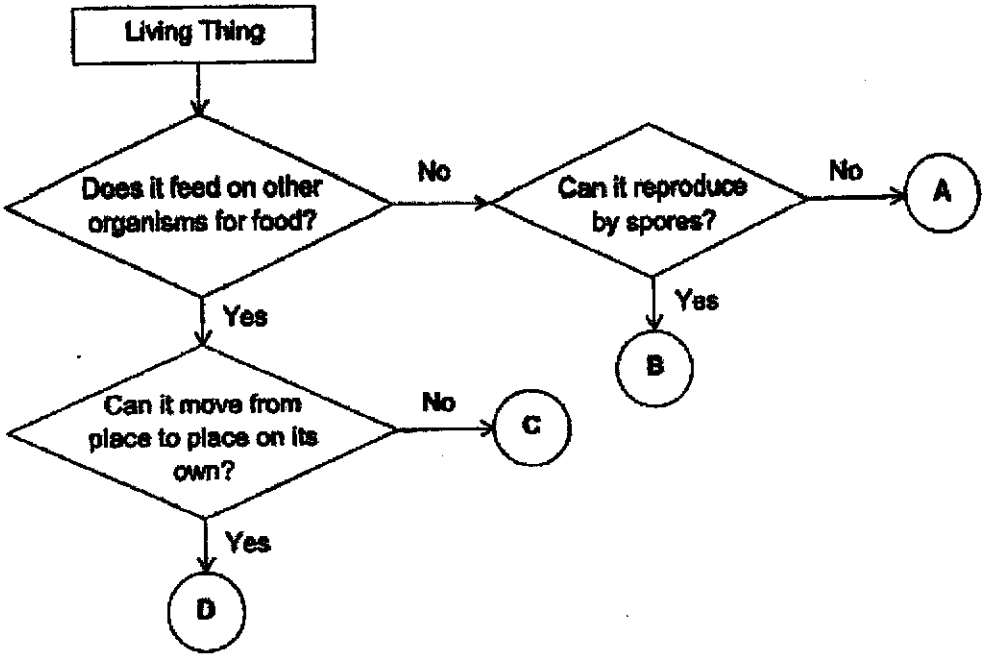
Parent's Signature : _____

Booklet A	/56
Booklet B	/44
Total	/100

Section 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 and shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

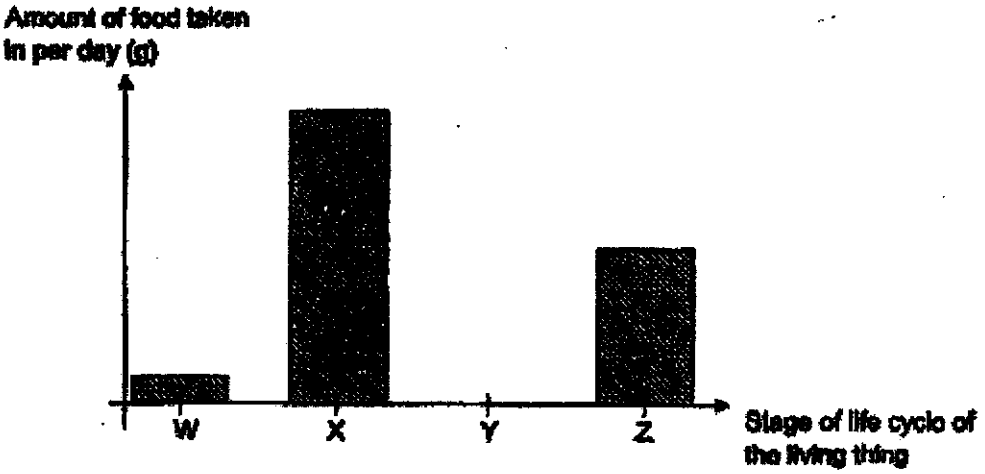
1. Refer to the flowchart below. A, B, C and D represent different living things.



Which of the following living things, A, B, C and D, do the mushroom and fern represent?

	Mushroom	Fern
(1)	B	C
(2)	A	D
(3)	D	A
(4)	C	B

2. The graph below shows the amount of food taken in by an organism daily at each stage of its life cycle. W, X, Y and Z represent different stages of its life cycle.

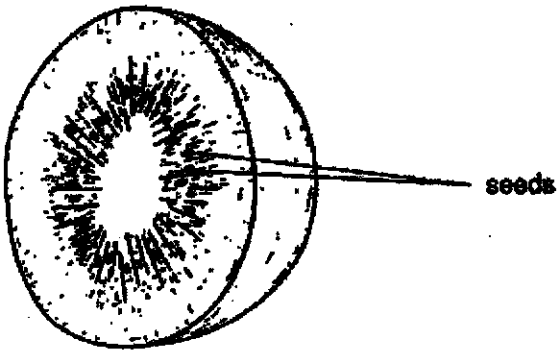


Based on the graph above, which of the following statement(s) is/are incorrect?

A Stage Y is the pupal stage of the organism.
B At stage Z, the organism reproduces by giving birth.
C The organism remains in stage W and stage X for the same amount of time.
D The organism goes through the same stages in its life cycle as the frog.

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

3. Study the diagram of the fruit P below.

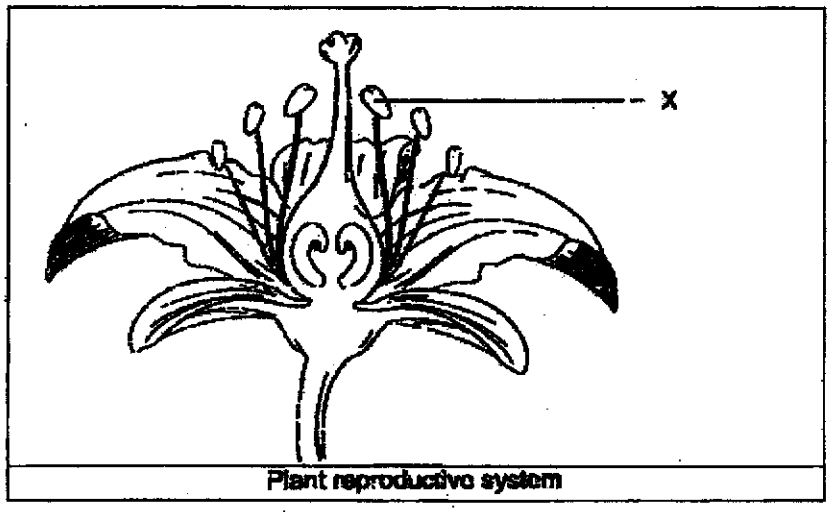


.Based on the diagram, what can be concluded about fruit P?

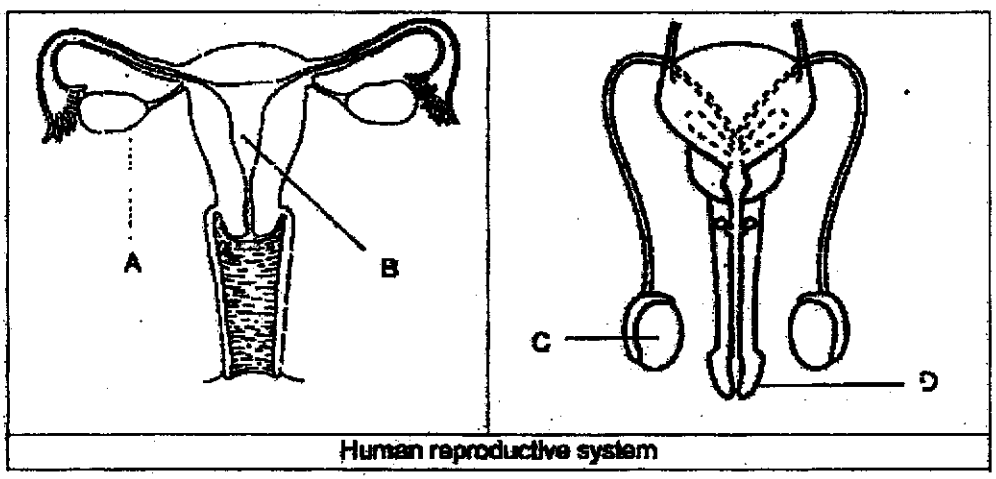
A Its flower is pollinated by wind.
B It is produced from many flowers.
C The ovary of its flower contains many ovules.
D After fertilisation, the ovary of its flower swells and becomes the fleshy fruit.

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

4. The diagrams below show the plant and human reproductive systems.



Plant reproductive system

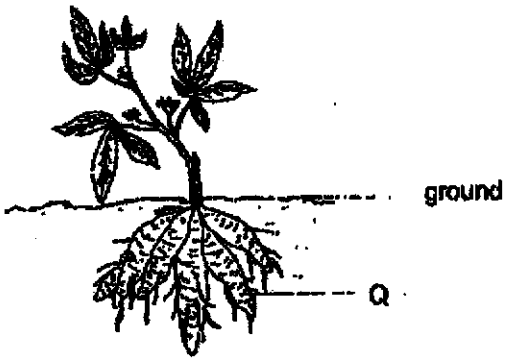


Human reproductive system

Which part of the human reproductive system has a similar function as part X?

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

5. Study the diagram of the plant below. Part Q helps to store excess food for the plant.



Which of the following is another function of part Q?

(1) It holds the plant upright.
(2) It photosynthesises to make food for the plant.
(3) It takes in carbon dioxide and releases oxygen.
(4) It helps the plant to take in water and minerals.

6. Four students made comparisons about the human circulatory system and the plant transport system.

Student	Comparison statements	
	Human circulatory system	Plant transport system
Lara	Transports water, oxygen, carbon dioxide and digested food	Transports water, carbon dioxide and food
Ming	Transports food and water in separate blood vessels	Transports food and water in food and water-carrying tubes
Olivia	Transports substances absorbed in the blood	Transports substances through food and water-carrying tubes
Panya	Transports water to the upper and lower body parts of the human body	Transports water to the upper parts of the plant

Which students made the correct comparison statements?

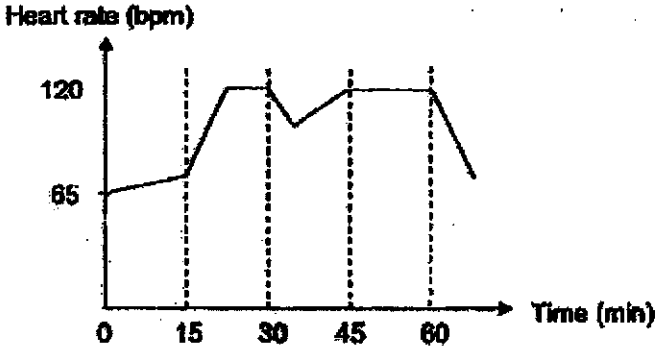
(1) Lara and Ming only
(2) Olivia and Panya only
(3) Olivia, Lara and Ming only
(4) Olivia, Ming and Panya only

7. Study the diagram below. The (⟶) shows the movement of substance(s) in the body.

What is/are the substance(s)?

(1) Digested food only
(2) Digested food and water only
(3) Digested food and oxygen only
(4) Undigested food and water only

8. Kya attended her swimming practice which lasted for 60 minutes. The graph below shows her heart rate during her practice.



Based on the graph, which of the following statements are correct conclusions?

A Kya's heart rate decreased the most after the 60th minute.
B Kya breathed in less oxygen after the 60th minute.
C Kya swam laps up and down the pool from the 15th to 60th minute without taking a break.
D At the heart rate of 120 beats per minute (bpm), Kya's heart only pumped blood rich in oxygen around her body.

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

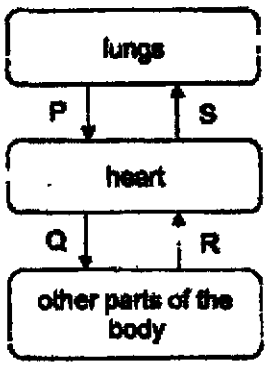
9. Lixin was asked to draw a diagram of the human circulatory system. Lixin was told to use arrow and letters P, Q, R, S to represent the flow of blood around the body.

She was given these information on P, Q, R and S.

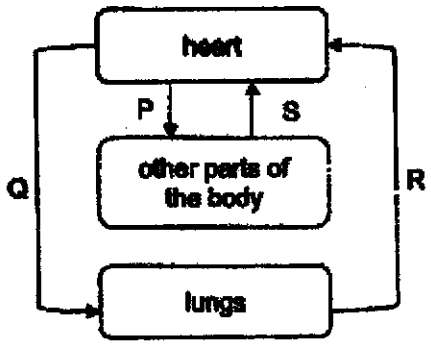
- Blood at R contains more carbon dioxide than the blood at P.
- Blood at S contains the least amount of carbon dioxide.
- Blood at Q contains the most amount of carbon dioxide.

Which of the following graphs correctly shows the diagram Lixin has to draw?

(1)



(2)



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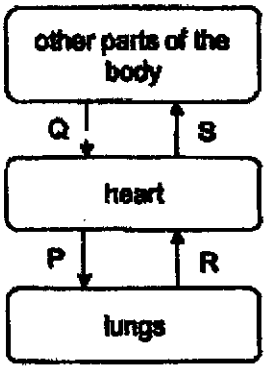
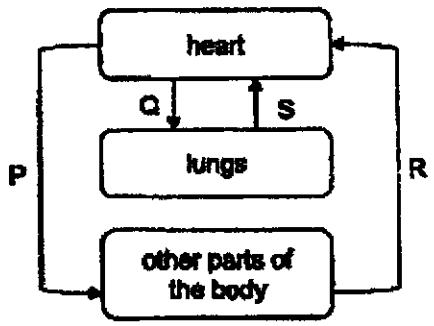


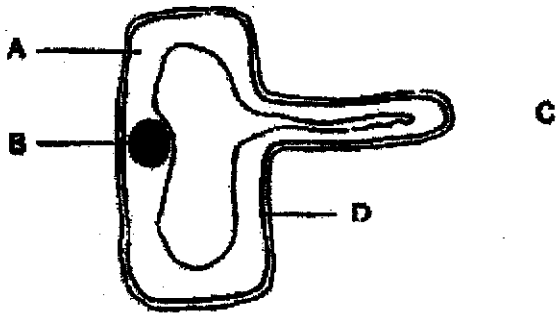
(4)



10. Which statement about cells is true?

(1) Cells can be seen with the naked eye.
(2) Cells have fixed structures and shapes.
(3) Cells are unable to reproduce on their own.
(4) Cells are able to react to changes in the environment.

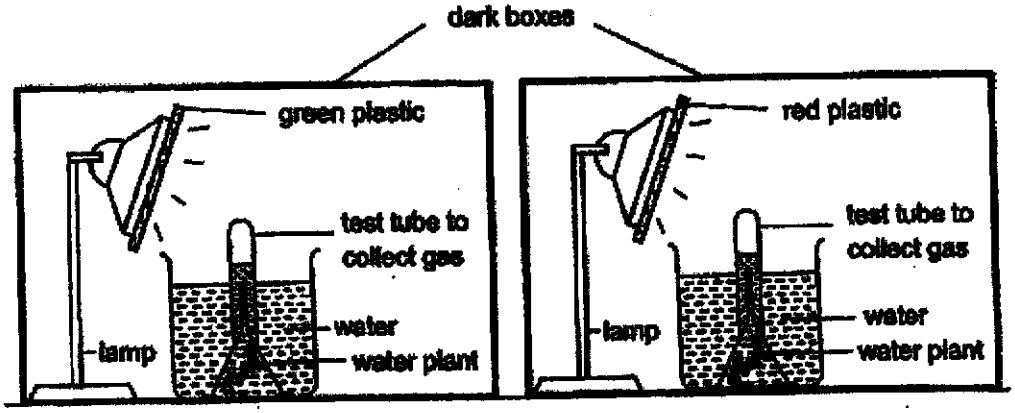
11. Study the cell below.



Which parts of the cell are present in most animal cells?

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

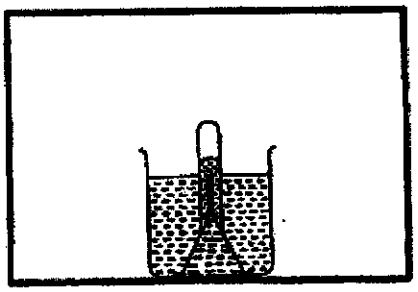
12. James wants to find out if the colour of light used will affect the rate of photosynthesis. He prepared two similar set-ups, W and X, as shown in the diagram below. Each set-up was placed in a dark box with a different coloured light.



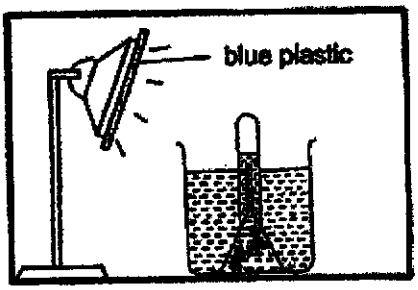
Set-up W Set-up X

Which set-up below should James use as a control set-up for his experiment?

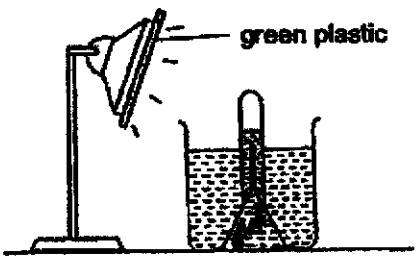
(1)



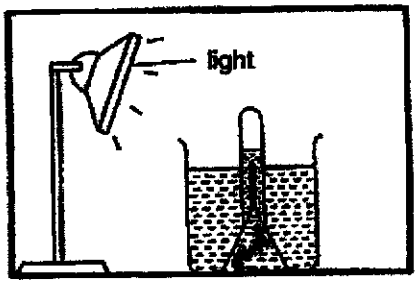
(2)



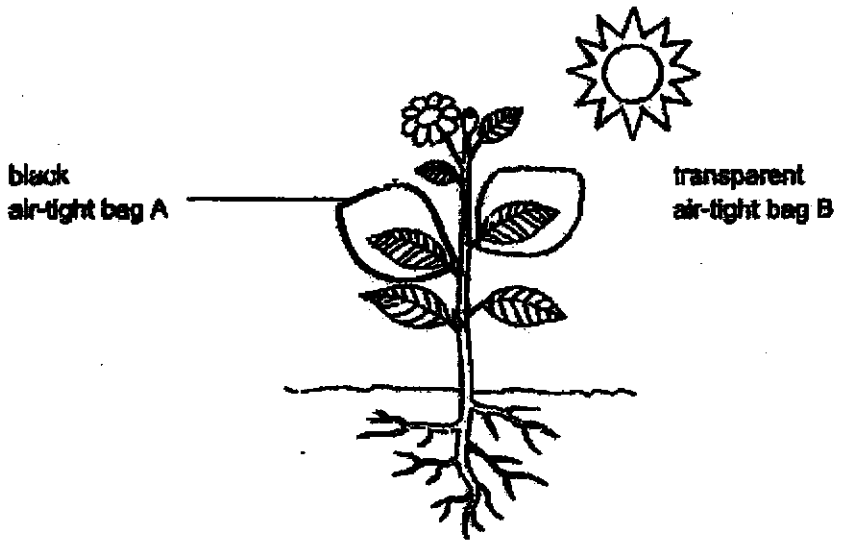
(3)



(4)



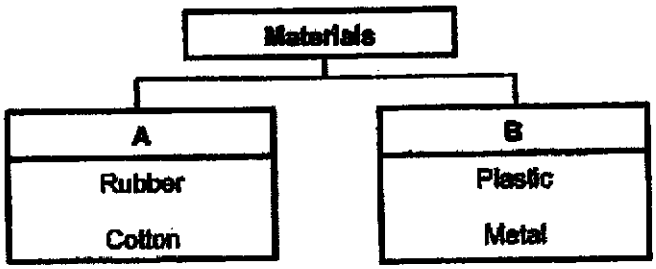
13. Surie wanted to find out how light affects gaseous exchange in the plants. She wrapped two identical-sized leaves from the same plant with different bags, A and B. The plant was placed under sunlight for four hours, as shown in the diagram below.



After four hours, which option shows the most possible change in amount of gases in each bag?

	Amount of oxygen in bag A	Amount of oxygen in bag B
(1)	remains the same	decrease
(2)	decrease	increase
(3)	decrease	remains the same
(4)	increase	remains the same

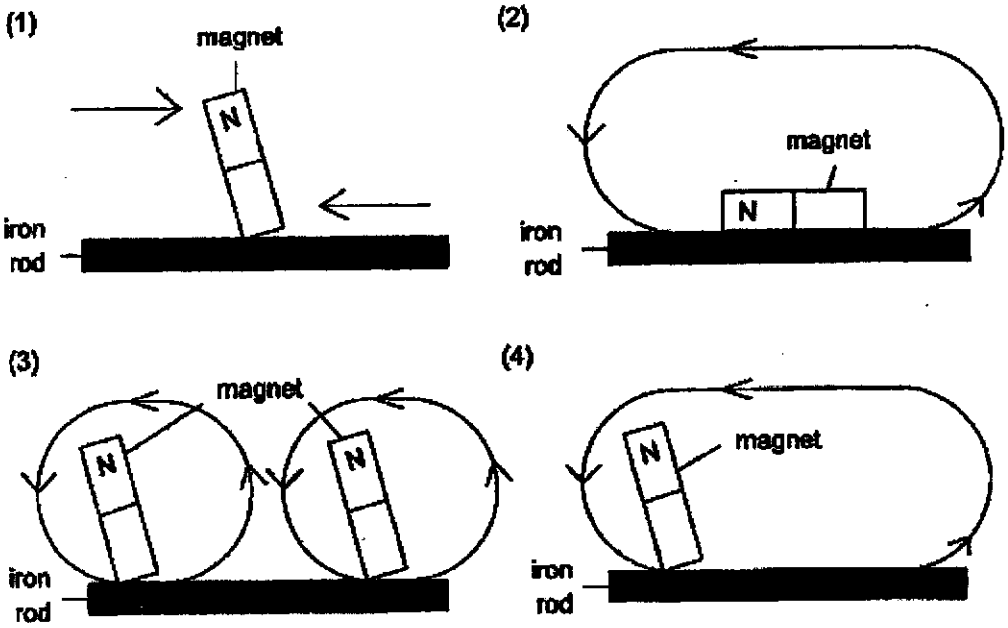
14. Study the classification chart below.



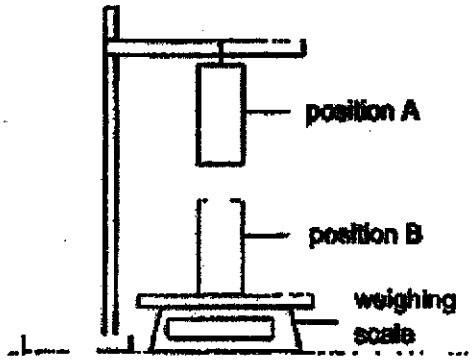
Which of the following sets of headings best represents A and B?

	A	B
(1)	Not waterproof	Waterproof
(2)	Come from plants	Come from materials from the ground
(3)	Come from animals	Come from plants
(4)	Allow most light to pass through	Do not allow any light to pass through

15. Which of the following options is the correct way of conducting the stroking method to magnetise the iron rod?



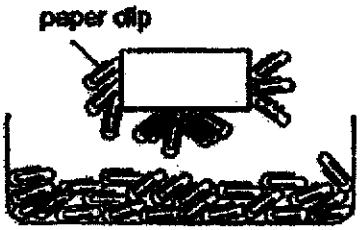
16. Raina wanted to find out the magnetic properties of bars, W, X, Y and Z. They have the same masses. She hung some of the bars at position A while placing the others at B and observed the readings on the weighing scale.



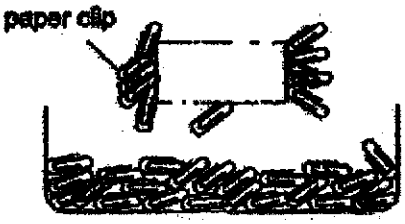
Position A	Position B	Reading on the weighing scale
W	X	decreases
Y	W	increases
Z	X	remains the same

Based on the results of the experiment, what can Raina observe after placing bar W in a container of steel paper clips?

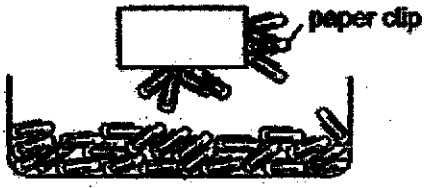
(1)



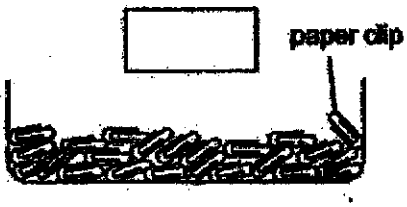
(2)



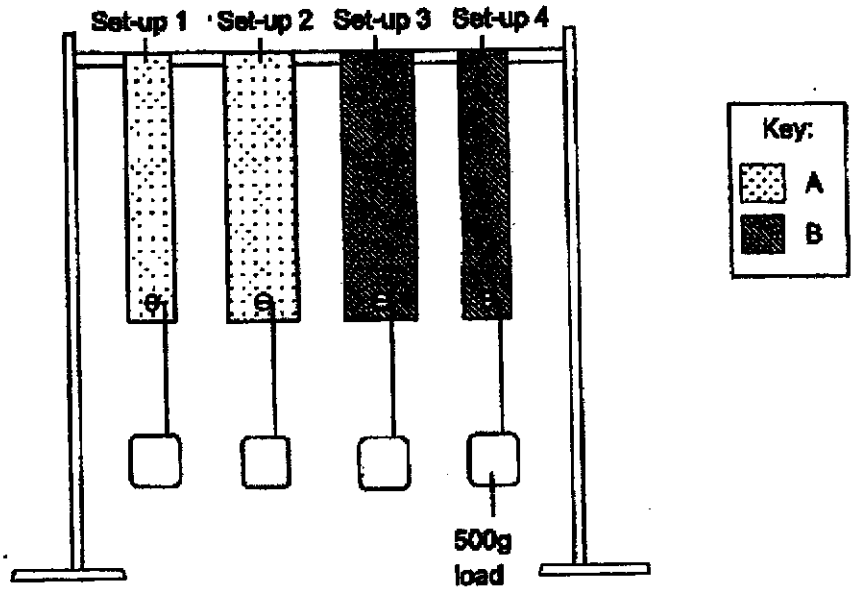
(3)



(4)



17. Logan wanted to investigate which material, A or B, is stronger. He carried out the experiment using the set-up as shown in the diagram below.



He added a load onto each set-up until the material broke. He repeated the experiment two more times and recorded the number of loads added to the material until it broke in the table shown below.

Set-ups	Number of loads added till the material breaks		
	First reading	Second reading	Third reading
Set-up 1	6	7	8
Set-up 2	7	8	8
Set-up 3	11	9	10
Set-up 4	7	6	6

Based on the results, which of the following statement is definitely true?

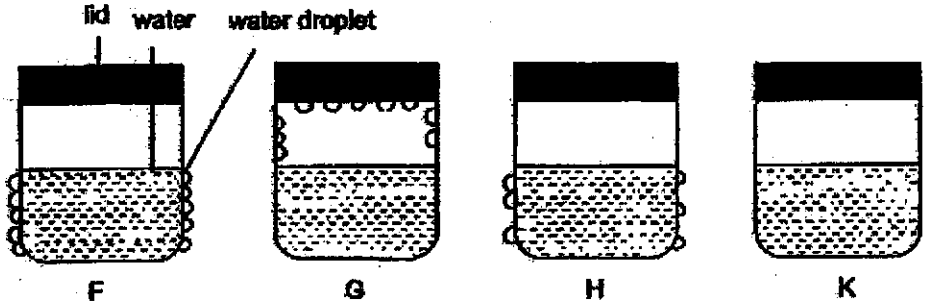
(1) Material B is as strong as Material A.
(2) Logan should use all set-ups to conduct a fair test.
(3) Set-ups 3 and 4 allow Logan to conduct a fair test with reliable results.
(4) Set-ups 1 and 4 allow Logan to conduct a fair test with reliable results.

18. The diagram below shows how water changes from one state to another.

Which of the following correctly identifies P, Q, R, S?

	P	Q	R	S
(1)	freezing	melting	boiling	steam
(2)	condensation	melting	evaporation	steam
(3)	melting	freezing	boiling	water droplets
(4)	melting	freezing	evaporation	water vapour

19. Rani poured same amount of water of the same temperature into each of the containers, F, G, H and K. She placed each container at different locations with different temperatures. An hour later, she checked the containers at their locations and observed the water droplets, shown in the diagram below.



Which of the following shows the temperature of the surroundings which the containers of water were placed in?

	Highest temperature of surroundings →			Lowest temperature of surroundings
(1)	F	H	K	G
(2)	G	K	H	F
(3)	K	G	F	H
(4)	H	F	G	K

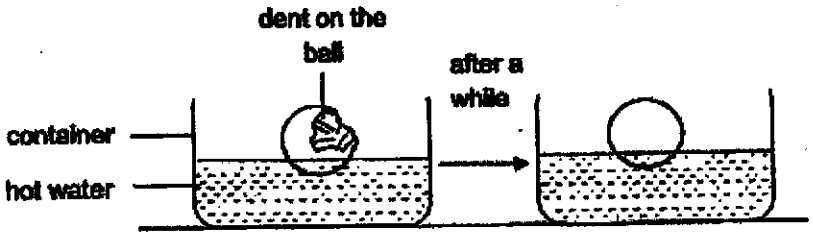
20. Study the table below for the boiling point and melting point of three substances.

Substances	Melting point (°C)	Boiling point (°C)
W	-7	64
X	37	130
Y	52	300

Which of the following options shows the correct state of the substances at 65°C?

	State of W	State of X	State of Y
(1)	Liquid	Liquid	Liquid
(2)	Liquid	Solid	Solid
(3)	Gaseous	Solid	Solid
(4)	Gaseous	Liquid	Liquid

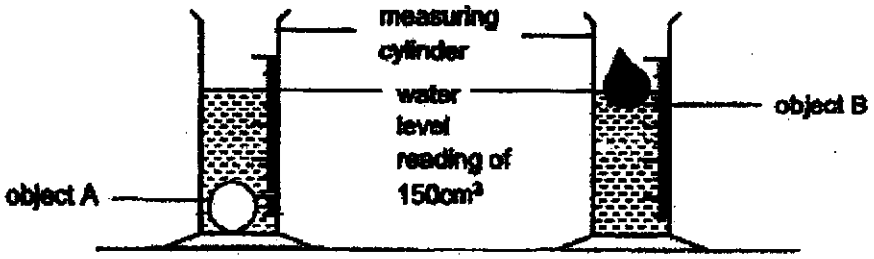
21. Tate stepped on a ping pong ball causing a dent on it. When he placed the dented ball into a container of hot water, the ball recovered its original shape.



Which of the following describes the changes in mass and volume of the ball after Tate had placed it in hot water?

	Volume of air in the ball	Mass of the ball
(1)	increases	increases
(2)	Increases	remains the same
(3)	remains the same	increases
(4)	remains the same	remains the same

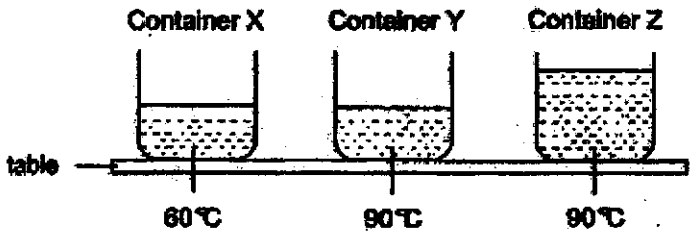
22. Aina wanted to compare the properties of two objects, A and B. Aina placed object A into a measuring cylinder and poured 100cm^3 of water into it. She noticed that the water level rose to the measurement of 150cm^3. She repeated the same step for object B as shown in the diagram below.



Based on the experiment results, which is a possible conclusion Aina can make for both objects A and B?

(1) A has more mass than B.
(2) B has more volume than A.
(3) B has a volume of more than 180cm^3.
(4) Both A and B each has a volume of 50cm^3.

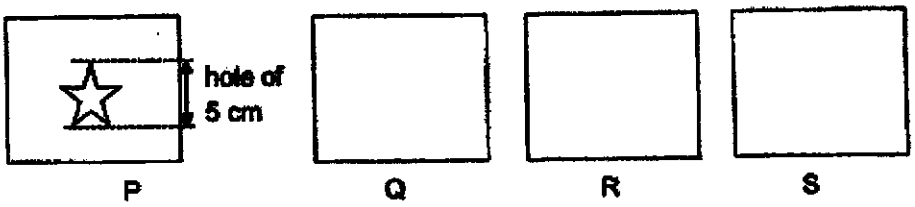
23. There are three similar containers, X, Y and Z, made of the same material. Each container contained a different amount of water heated to a different temperature.



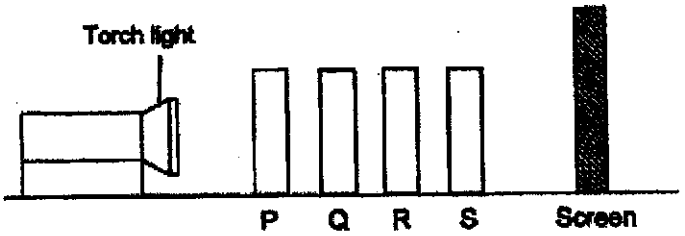
Based on the experiment, which of the following statements is true?

(1) Water in containers Y and Z contained the same amount of heat.
(2) All containers of water contained the same amount of heat at room temperature.
(3) Water in container X took the shortest amount of time to cool to room temperature.
(4) Water in containers Y and X lost the same amount of heat when cooled to room temperature.

24. An experiment was carried out in a dark room with four sheets of materials, P, Q, R and S, of the same size. A star-shaped hole of 5 cm in height was removed from the centre of P, as shown in the diagram below.



The four sheets of materials were arranged in a straight line. When the torch was switched on, only a bright patch of star-shaped light was seen on R.



Based on the results of the experiment, which of the following statements is/are true?

A R does not allow light to pass through.
B There will not be any shadow formed on the screen.
C It is not possible to tell if S allows light to pass through.
D P is transparent as it allows most light to pass through.

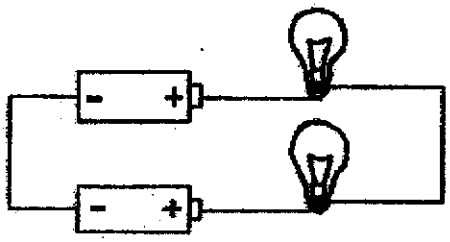
(1) A and C only
(2) B and C only
(3) B and D only
(4) A, C and D only

25. Which of the following items do not conduct electricity?

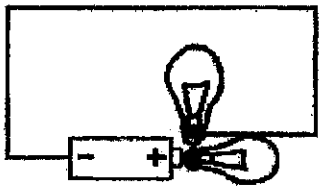
A	coin
B	towel
C	needle
D	ice-cream stick

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

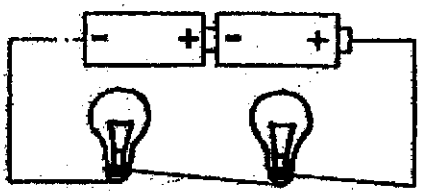
26. Study the four circuits, R, S, T, and U, as shown in the diagram below. All batteries and light bulbs are identical and in working condition.



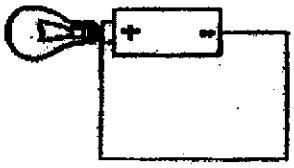
Circuit R



Circuit S



Circuit T

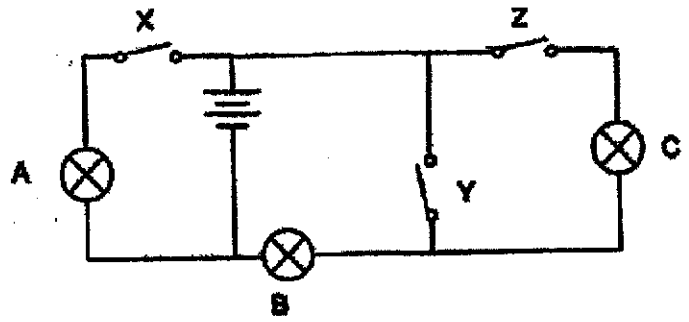


Circuit U

In which circuits would the bulbs not light up?

(1) S and U only
(2) S and T only
(3) R and T only
(4) R and U only

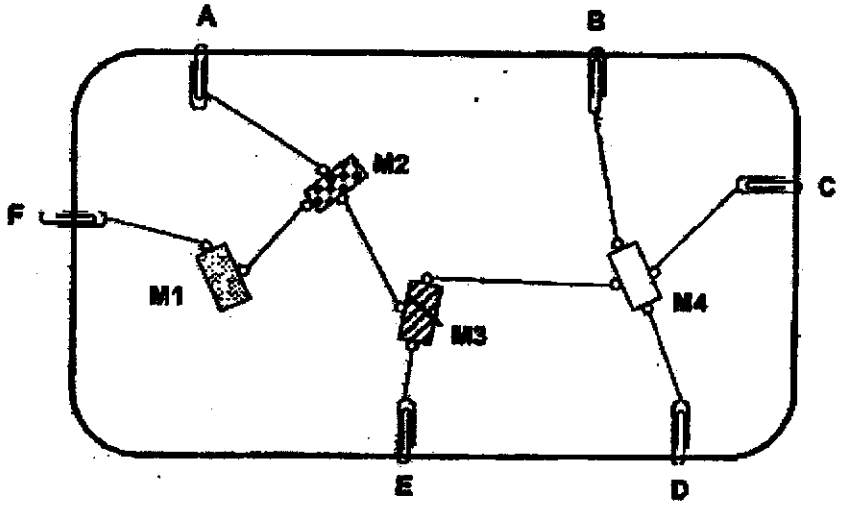
27. A teacher set up a circuit as shown below with bulbs, A, B and C and switches, X, Y and Z, are connected in a circuit as shown below. All bulbs and batteries are in working condition.



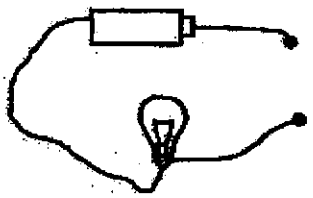
Which of the following is correct?

	Does the bulb light up?			Switches		
	A	B	C	X	Y	Z
(1)	No	No	Yes	Open	Open	Closed
(2)	Yes	No	Yes	Closed	Closed	Open
(3)	Yes	No	No	Closed	Open	Open
(4)	No	Yes	Yes	Closed	Open	Closed

28. Kim wanted to find out the electrical conductivity of four materials, M1, M2, M3 and M4. She stuck paper clips, A, B, C, D, E and F, on a cardboard. She placed the four materials on the cardboard and connected them to the paper clips with wires shown in the diagram below.



When Kim connected the ends of the circuit tester to the various paper clips shown in the diagram below, she obtained the following results.



Paper clips connected	Did the bulb light up?
C and E	No
A and F	Yes
D and B	Yes

Based on the results of the experiment, what can Kim observe and conclude?

	When connected to paper clips A and B, did the bulb light up?	Conductor of electricity	Insulator of electricity
(1)	No	M1	M2, M3, M4
(2)	No	M1, M2, M4	M3
(3)	Yes	M1, M2	M3, M4
(4)	Yes	M2, M3, M4	M1

End of Booklet A

AI TONG SCHOOL

2020 END-OF-YEAR EXAMINATION
PRIMARY FIVE SCIENCE

(BOOKLET B)

29 OCTOBER 2020

Total time for booklets A and B : 1 h 45 min

INSTRUCTIONS

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

Follow all instructions carefully.

Answer all questions.

Write your answers in this booklet.

Name : _____( )

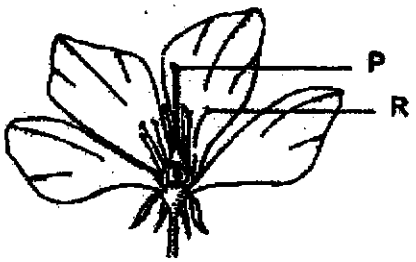
Class : Primary 5 _____

Parent's Signature : _____

44

Section B: 44 marks
Read the questions carefully and write down your answers in the spaces provided.

29. The diagram below shows the parts of a flower.



(a) Bees were noticed landing on parts, P and R. Explain how the bees help to pollinate the flower. [1]

_____

_____

(b) State a difference between animal-pollinated and wind-pollinated flowers. [1]

_____

_____

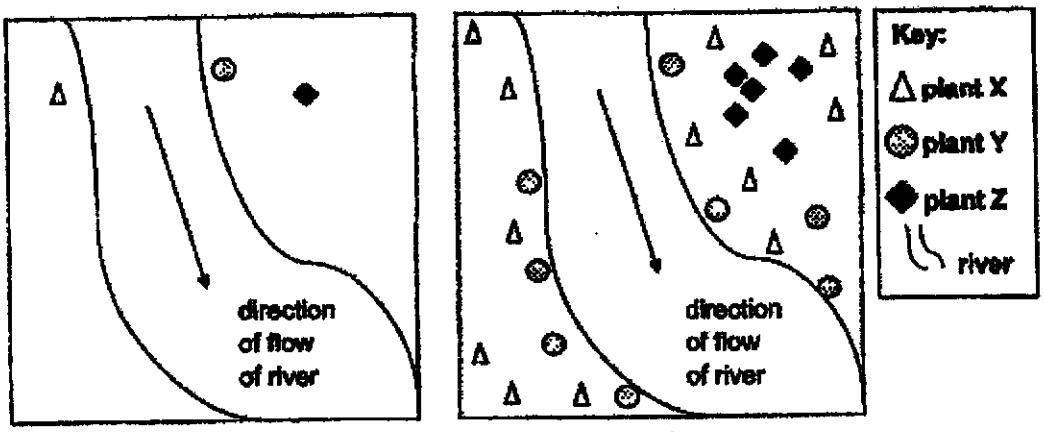
(c) The sentences describe how sexual reproduction in plants takes place. Write numbers in the boxes to sequence them correctly. [1]

Sentence	Step number
Pollen grains are transferred to the stigma.	
The anther of a flower releases pollen grains.	
The male and female reproductive cells fuse.	
Pollen tubes grow down the style towards the ovary.	

(Go on to the next page)

3

30. Rohan observed the dispersal of the fruits and seeds of plants X, Y and Z over a year in an area of a forest. His observations are shown in the diagram below.



He picked up samples of the fruits of plants X, Y and Z as shown in the diagram below.

(a) Match the correct fruits, 1, 2 and 3, to the respective plants, X, Y and Z in the table below. [1]

Plant	Fruit
X	
Y	
Z	

Question 30 continues on the next page.

1

Question 30 continues.

(b) Explain how a characteristic of Fruit 3 helps in its dispersal. [1]

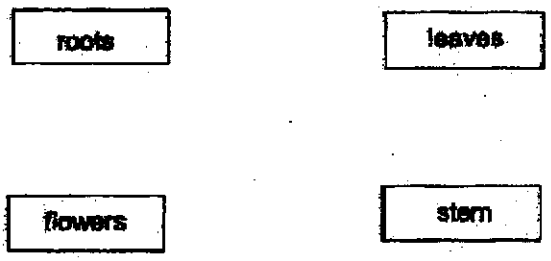
Rohan observed the fruits of another plant A. He made the following conclusion.

Fruits of plant	Dispersed by
A	Splitting

(c) How would the seed dispersal method of plant A affect the thickness of the stems of its young plants? [2]

31. The diagram below shows four parts of a flowering plant.

(a) Complete the diagram below by drawing arrows (⟶) to show the direction which water is transported in plant below. [1]

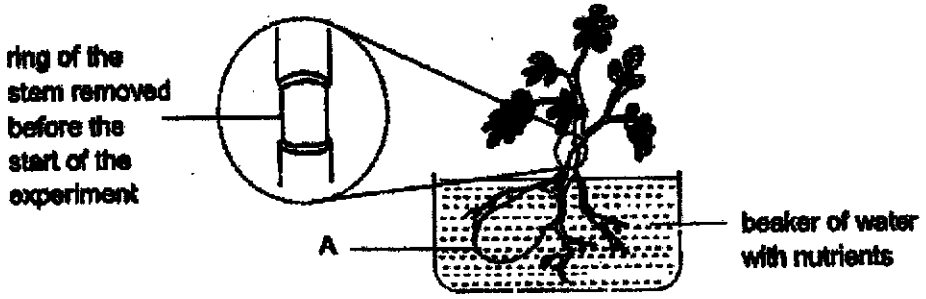


Question 31 continues on the next page

4

Question 31 continues.

31. Sadie cut the stem to remove a set of transport tubes from a plant as shown in the diagram below. The set-up was then placed by the window.



Over a week, Sadie observed that number of leaves that are green and healthy remained the same. However, she measured the thickness of part A and noticed that the thickness of A decreased.

(b) Name one substance that is stored in part A. [1]

_____

(c) Based on Sadie's observations, which tubes, food or water-carrying, were removed? Explain your answer. [2]

_____

_____

_____

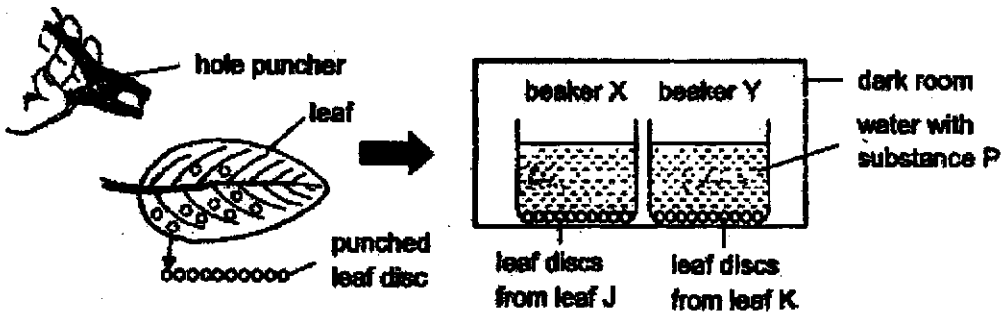
(Go on to the next page)

3

32. Joe took two similar leaves, J and K, from the same plant. Next, he removed air trapped in the leaves and immediately coated the leaf K with oil.

Leaf	Parts coated with oil
J	Not coated
K	Top and bottom surfaces

Joe punched 10 leaf discs each from leaf J and K and placed them in beakers, X and Y, filled with water and substance P. Substance P increases the amount of dissolved carbon dioxide in water. He placed each leaf's discs in a beaker and placed the beakers in a dark room as shown in the diagram below.



A few hours later, Joe moved the beakers to a brightly-lit room.

(a) Which beaker will Joe observe air bubbles? Explain your answer [2]

(b) List one variable Joe must keep constant in his experiment. [1]

(Go on to the next page)

33. Munah wanted to find out if the ages of people affect their heart rate at rest. She recorded the heart rate of four people as shown in the table below.

Name	Age	Number of heart beats per minute
Alison	3	100
Ben	8	90
Caine	20	60
Elroy	60	75

(a) Munah ensured that all four people had rested for half an hour before recording their heart rate. Why is it important for her to do so? [1]

_____

_____

(b) Munah's teacher told her that she had to repeat her experiment a few more times. Explain why. [1]

_____

_____

Caine ran around the park for 30 minutes. The data table below shows his heart rate before and after the run.

Resting heart rate	Highest heart rate
60	170

(c) Explain why Caine has a higher heart rate after the run. [1]

_____

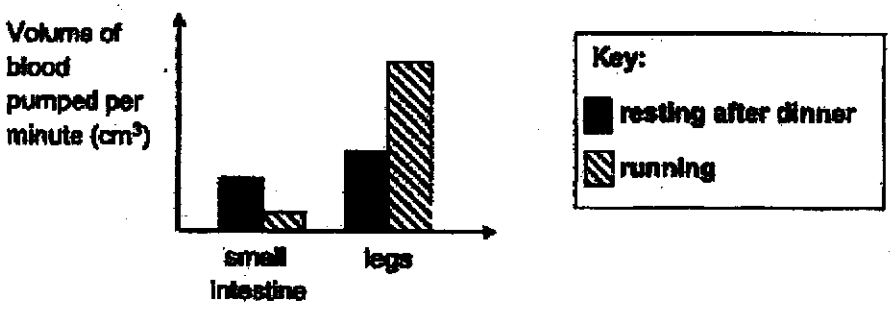
_____

Question 33 continues on the next page.

3

Question 33 continues.

The graph below shows the amount of blood pumped to the legs and small intestine of Ben while he was running and resting after dinner.



(d) Explain how running after a meal affects the absorption of food in the small intestine. [2]

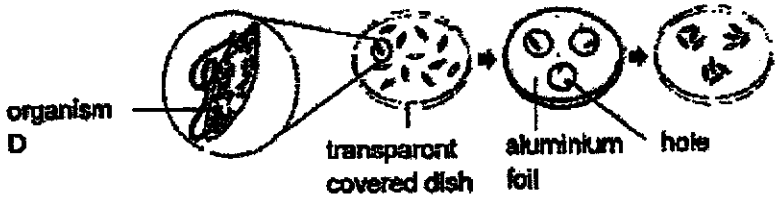
(Go on to the next page)

34. The diagram below shows a picture of the animal cell A, plant cell B and C.

(a) Cell A has a damaged cell membrane. Explain how this would affect cell A. [1]

(b) The cell wall of B is thickened with substance X but C is not. Suggest why the presence of substance X will benefit B more than C. [1]

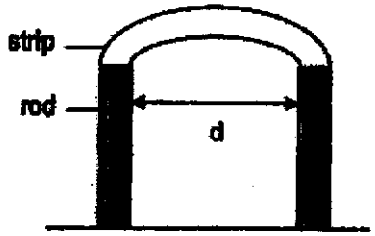
Min wanted to find out if organism D conducts photosynthesis. First, she placed 12 organism D in a covered transparent dish by the window. They were allowed to move freely. Next, she wrapped the dish with aluminium foil with three holes cut on the lid. A few minutes later, she observed that all organism D moved to the areas with holes in the aluminium foil.



(c) What conclusions can Min make about organism D? [2]

(Go on to the next page)

35. Alfan set up the experiment shown below to test a property of four strips, P, Q, R and S, which are made of different materials. He nailed each end of the strip on two rods and moved the rods towards each other until the strip breaks.



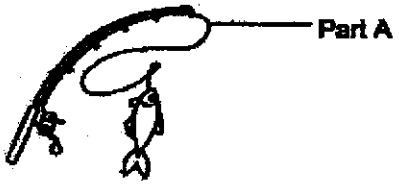
Strip	d (mm)
P	68
Q	47
R	2
S	21

Alfan recorded the distance, d, between the two rods when the strip breaks in the table shown above.

(a) What is the property of the strips that Alfan is testing? [1]

_____

The picture below shows a fishing rod.



(b) Which material, P, Q, R and S, is suitable for making Part A of the fish rod? Explain your choice. [1]

_____

_____

Alfan's teacher commented that he had made a mistake in his experiment that caused it to be unfair.

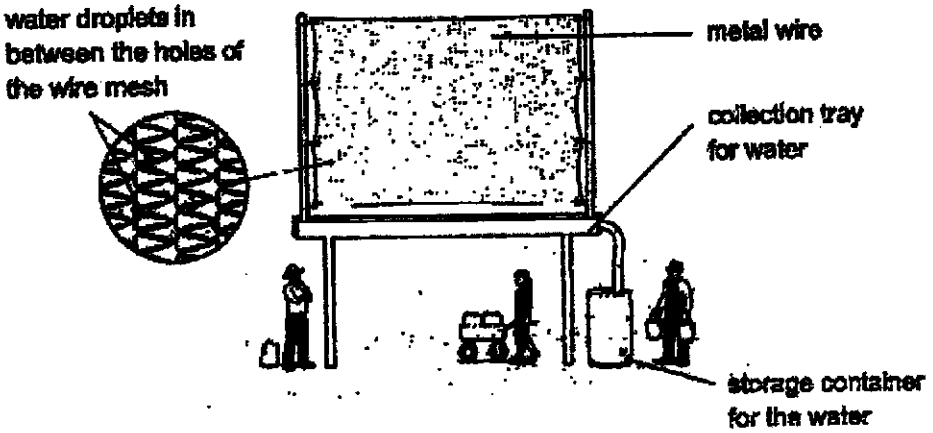
(c) Assuming that the two rods used to test strips, P, Q, R and S, were the same, give a reason why Alfan's experiment may not provide fair results. [1]

_____

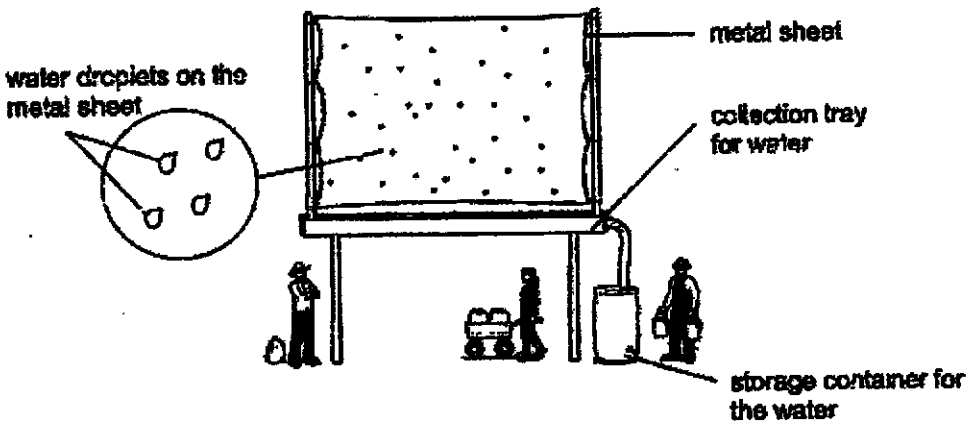
(Go on to the next page)

36. Mr Lee tasked his children, Lily and Jack, to design a set-up that could help villagers collect water. The diagram below shows the set-ups that Lily and Jack designed.

Lily's design



Jack's design



(a) Which part of the water cycle does the metal sheet in Jack's design represent? [1]

_____

Question 36 continues on the next page.

1

Question 36 continues.

(b) Mr Lee said that Lily's design could help the villagers collect more water. Do you agree with him? Explain why. [2]

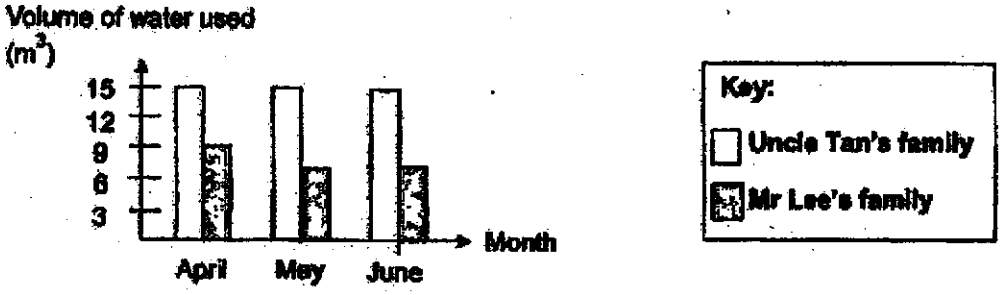
Based on Lily's set-up, the two children made the comments below.

Lily: There will be more water in the collection tray between 7am to 8am than 2pm to 3pm.

Jack: There will be less water in the collection tray between 7am to 8am than 2pm to 3pm.

(c) Who do you agree with? Explain why. [1]

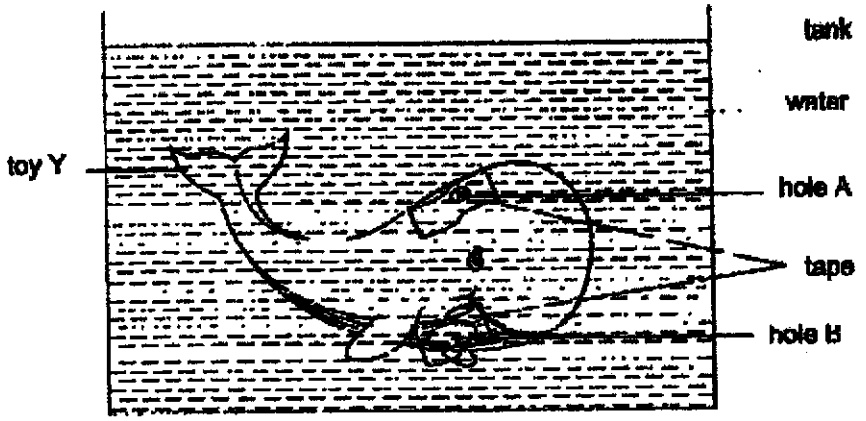
The graph below shows the amount of water used by Mr Lee and Uncle Tan's family over three months Both have the same number of people in a household.



(d) Suggest an activity that Mr Lee's family had done consistently to explain the difference in amount of water used between both families. [1]

(Go on to the next page)

37. Ruixin placed tape at holes A and B of toy Y. Hole A was at the top of toy Y and hole B was at its bottom. Next, she placed toy Y into a tank of water shown in the diagram below.



When Ruixin removed only the tape at hole B, water entered toy Y.

(a) From Ruixin's action, what can be concluded about the property of water? [1]

_____

_____

Next, Ruixin observed that the water did not fill up toy Y completely. She decided to remove the tape at hole A too.

(b) What would happen to the water level in the tank once the tape at hole A is removed? Explain your answer. [2]

_____

_____

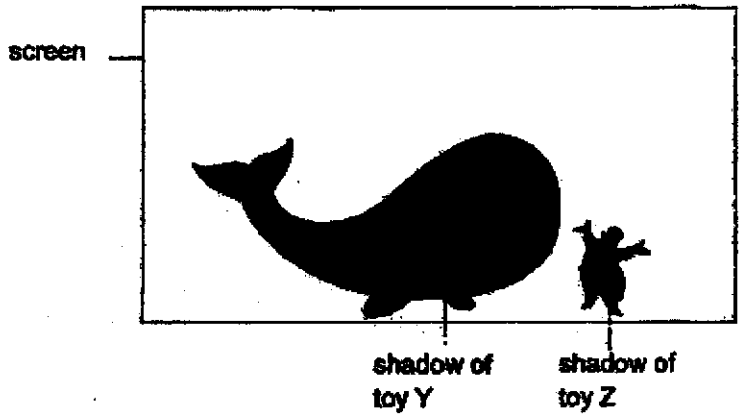
_____

Question 37 continues on the next page.

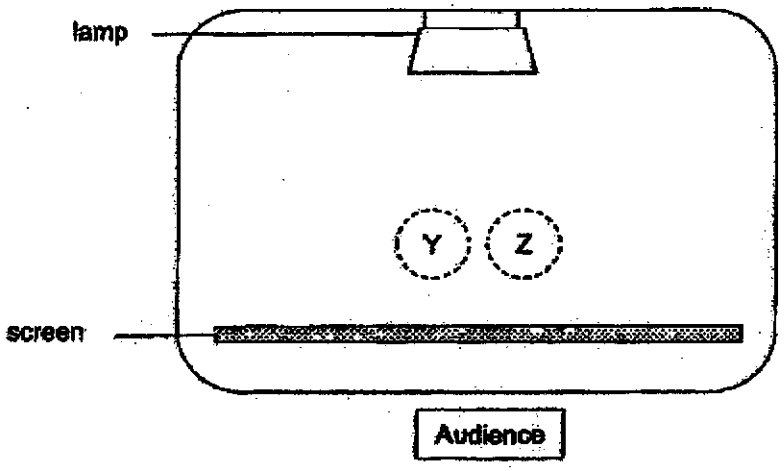
3

Question 37 continues.

Ruixin then used toy Y to put a shadow performance with toy Z as shown in the diagram below. Both toys are of the same height.



Ruixin planned her performance by drawing the layout below. Jane pointed out that her drawing is incorrect.



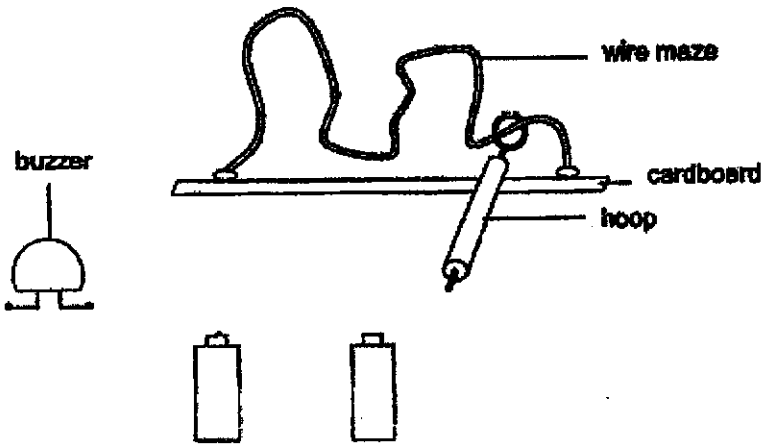
(c) How should Ruixin change her drawing? Explain your answer. [1]

_____

_____

(Go on to the next page)

38. Jazriel wanted to design a maze game. To win the game, players of the game have to move the hoop through the wire maze without touching the wire. The players lose the game once the hoop touches the wire and the buzzer sounds.



(a) In the diagram above, draw wires to connect all the parts to show Jazriel's game design correctly. [1]

Jazriel decided to add a bulb and a switch to the electrical circuit of his maze game. The bulb would also light up once the player loses the game.

(b) Will the game still work if the bulb is fused? Explain your answer. [1]

_____

_____

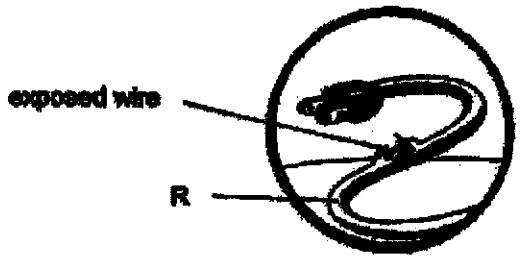
(c) What is an advantage of adding a switch? [1]

_____

(Go on to the next page)

3

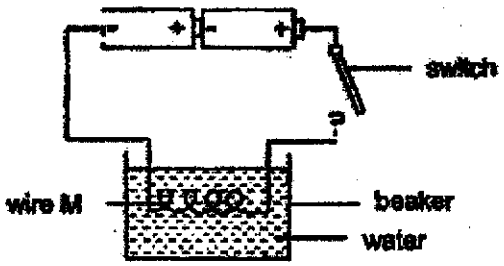
39. Aren noticed that the wire of an electrical appliance in his house was exposed as shown in the diagram below. His mother warned him not to touch the exposed wire.



(a) Based on the information above, fill in the blanks below with a property of each item. [1]

Item	Property of the item
Wire	_____
Material of part R	_____

Aren set up an experiment as shown below. He added a coil of wire M in a beaker of water in his circuit. Wire M heats up when electric current passes through it. When he closed the switch, he noticed that the temperature of water increased.

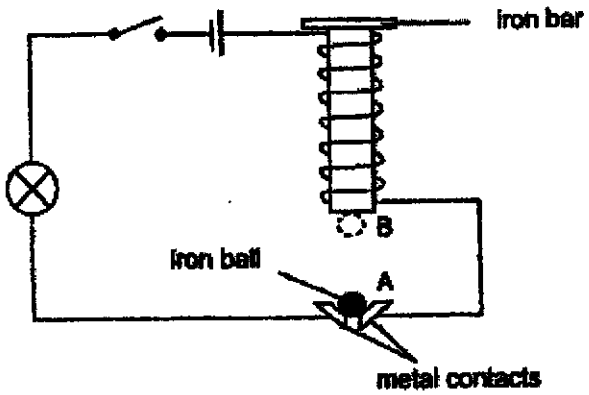


(b) State a change that Aren can make to his set-up above to have a higher increase in the temperature of the water. [1]

_____

(Go on to the next page)

40. Study the circuit shown below. When the switch was closed, Shanna observed that the iron ball moved up and down between points A and B repeatedly as the bulb went lit and unlit.



(a) Explain how the iron ball moved from point A to B repeatedly [1]

_____

_____

Shanna wants to replace the iron ball with another object.

(b) State two properties of the object which will allow the bulb to stay lit when the switch is closed. [1]

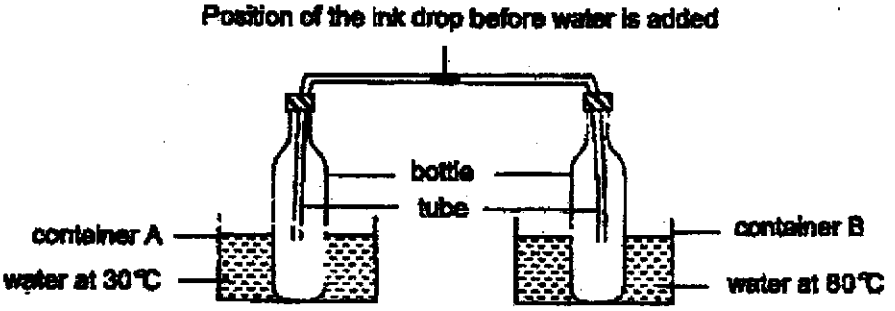
_____

_____

(Go on to the next page)

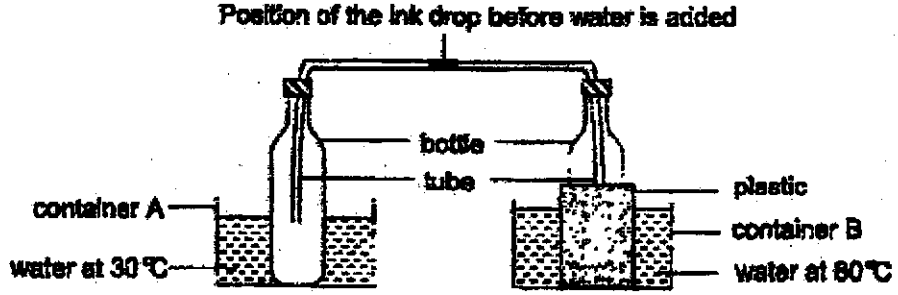
2

41. Hilda set up the experiment as shown below. She placed two similar empty bottles sealed with air-tight lids into two containers. Both bottles are connected to a tube containing an ink drop. Next, she poured the same amount of water with the temperature of 30°C into container A and water with the temperature of 80°C in container B.



(a) Would the ink drop move towards container A or B? Explain your answer. [1]

Hilda repeated the experiment. She poured the same amount of water in both containers. However, in this set-up, she wrapped the bottle in container B with a layer of plastic.



(b) Would the ink drop move faster or slower compared to the previous set-up? Explain your answer. [1]

End of paper

SCHOOL : AITONG PRIMARY SCHOOL
LEVEL : PRIMARY 5
SUBJECT : SCIENCE
TERM : 2020 SA2

SECTION A

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

Name:_____( ) Class: 5_____ Date:_____

Correction for P5 Science EOY 2020- Section B

29a The bees that had landed on R will transfer the pollen grains to P which are stuck on their bodies.

29b Animal- pollinated flowers have a smaller number of pollen grains but wind-pollinated flowers have a larger number of pollen grains.

29c

Sentence	Step number
Pollen grains are transferred to the stigma.	2
The anther of a flower releases pollen grains.	1
The male and female reproductive cells fuse.	4
Pollen tubes grow down the style towards the ovary.	3

30a

Plant	Fruit
X	1
Y	3
Z	2

30b It has a fibrous hask so that it can stay afloat on water.

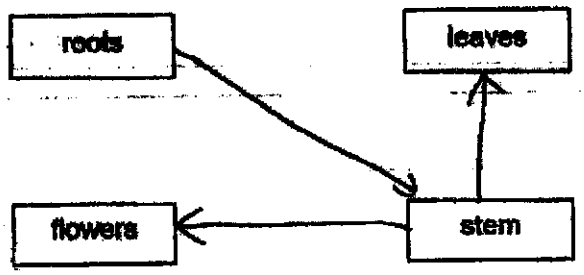
30c Young plant A has thinner stem. Fruits of plant A disperse by splitting action, so its seeds are dispersed closer to one another and

the parent plant. So young plant A need to compete for sunlight.

OR

Young plant A has thicker stem. Fruits of plant A dispersed by splitting action, so its seeds are scattered away from parent plants. So young plant A would not need to compete for sunlight.

31a



31b

Excess food / starch

31c She removed the food - carrying tubes.

This shows that water is transported to the leaves to make food through the water-carrying tubes so the leaves remained green and healthy. But the food made by the leaves is not transported to A as the food - carrying tubes are removed. So A decreased in thickness.

32a Beaker X. Leaf J does not have oil coated at the bottom of the leaf but both sides of Leaf K are coated with oil.

During photosynthesis, the leaves take in carbon dioxide and give out oxygen

32b The number of leaf discs in the water.

33a This is to ensure that the experiment is a fair test so that the results of the experiment are solely due to the difference in their ages and not due to other variables.

33b Munah should repeat her experiment to check for consistency in readings and to ensure reliable results.

33c During exercise, Celine needed more energy.

His heart needs to pump more blood to transport more oxygen and digested food to the cells fasted to release more energy.

33d Volume of blood pumped to the small intestine should be less while running

Less digested food will be absorbed into the blood stream.
and less digested food will be transported to the other parts of the body.

34a Substances will be able to leave cell A freely.

34b The cell wall provides more support to the cell.

34c Organism D can photosynthesize. It moved towards the light.

35a

Flexibility

35b Material R.

It has the least distance between the two rods.

So this proves that R is the most flexible and can allow part A to bend the most without breaking.

35c He could have changed the thickness of each strip.

36a

cooler surrounding air

36b Yes. The wire mesh in Lily's design has a greater exposed surface area. This allows more water vapour in the surrounding air to lose heat to the cooler wire mesh and condense to form more water droplets.

36c Lily. The wire mesh will be cooled at night causing the wire mesh to be cooler at 7am and 8am compared to 2pm to 3pm. There will be a higher rate of condensation.

36d Any one of the activity:

Using a mug to contain water while brushing teeth.

Taking short showers.

Reusing water (in various ways)

Half flushing

wash full load of clothes

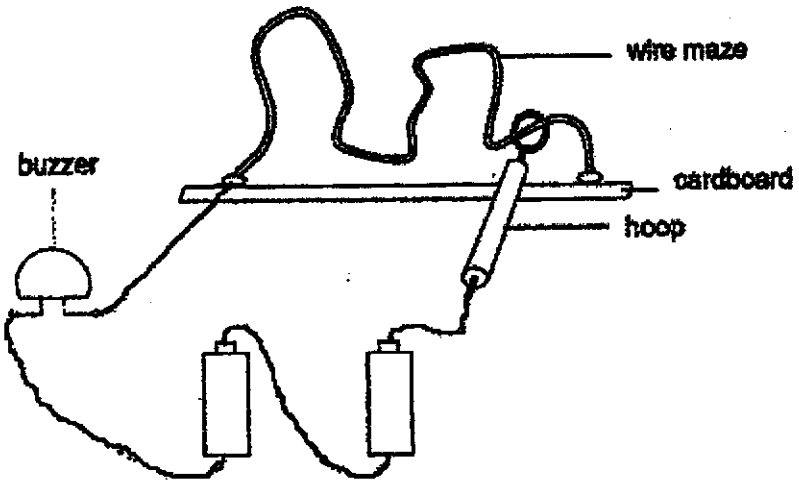
37a Water does not have a definite shape.

37b The water level will decrease.

Air in toy Y will escape from hole A, causing water to occupy the space previously occupied by air.

37c She should move the position of toy Z closer to the screen so that its shadow will be smaller than toy Y.

38a



38b No. When the bulb fuse, there would be a gap in the circuit. Electricity will not be able to pass through.

38c He can open and close the circuit more easily.

39a Wire: Electrical conductor

Material of Part R: Electrical insulator

39b He can increase the number of batteries in the circuit.

40a When the switch is closed, the iron bar will become an electromagnet and attract the iron ball to point B.

Once attracted to point B, there is an open circuit, causing the iron ball to drop.

40b She can replace it with an object that can conduct electricity which is non-magnetic.

41a It will move towards A. Air in the bottle of container B will gain heat from the hotter water and expand, pushing the ink drop towards container A.

41b It will move slower. Plastic is a poor conductor of heat. So it will slow down the heat transfer from the hotter water to the air in container B, causing the air to expand slower.