NAN HUA PRIMARY SCHOOL
END-OF-YEAR EXAMINATION 2020
PRIMARY 5

SCIENCE

BOOKLET A

28 Multiple Choice Questions (56 marks)

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

INSTRUCTIONS TO CANDIDATES

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

Marks Obtained

Booklet A		/ 56
Booklet B		/ 44
Total		/ 100

Name: _____ ( ) Class: P 5 _____

Date: 28 October 2020 Parent's Signature: _____

This booklet consists of 19 pages.

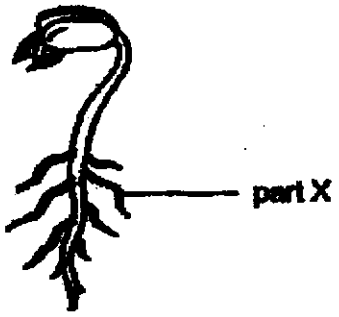
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Section A: (28 × 2 marks = 56 marks)

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.

1 The diagram below shows part X of a germinating seed.



What are the functions of part X?

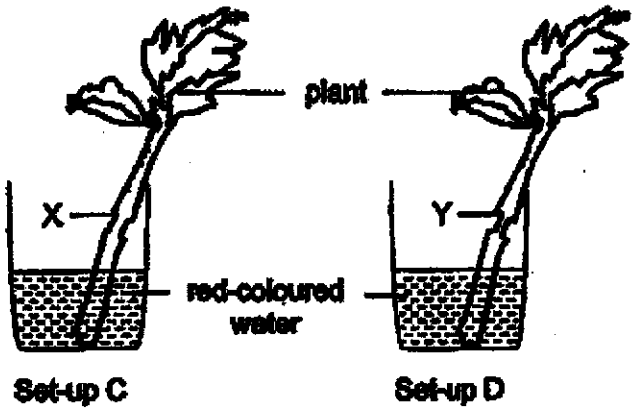
A making food
B taking in water
C absorbing sunlight
D anchoring the plant

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

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2 Tom had two similar plants. He removed the food-carrying tubes of one plant at part X and placed it in set-up C. He removed both the food-carrying tubes and the water-carrying tubes of the other plant at part Y and placed it in set-up D as shown below.



What will be the colour of the leaves in both set-ups after two days?

	Colour of leaves in set-up C	Colour of leaves in set-up D
(1)	turned red	turned red
(2)	turned red	remained green
(3)	remained green	turned red
(4)	remained green	remained green

3 The diagram below shows the digestion of food as it passes through the different organs of the digestive system.



Which of the following are the functions of organs X and Y?

	X	Y
(1)	moves the food to the next organ	removes undigested food
(2)	chews the food into smaller pieces	absorbs digested food
(3)	mixes the food with saliva	absorbs undigested food
(4)	chews and digests the food	absorbs water only and removes waste

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4 The diagram below shows a boy kicking a ball.



Which of the following organ systems work together to enable the boy to kick the ball?

A muscular system
B circulatory system
C respiratory system
D skeletal system

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

5 The table below shows the statements made by four students, A, B, C and D on the human respiratory and circulatory systems.

Student	Organ system	Statement
A	respiratory	The windpipe connects the heart to the lungs.
B	respiratory	The lungs help the body to take in oxygen and remove carbon dioxide.
C	circulatory	The heart pumps oxygen to the rest of the body.
D	circulatory	The blood contains water, oxygen and carbon dioxide only.

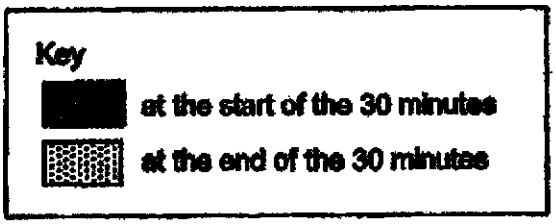
Which statements made by the following students are not correct?

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

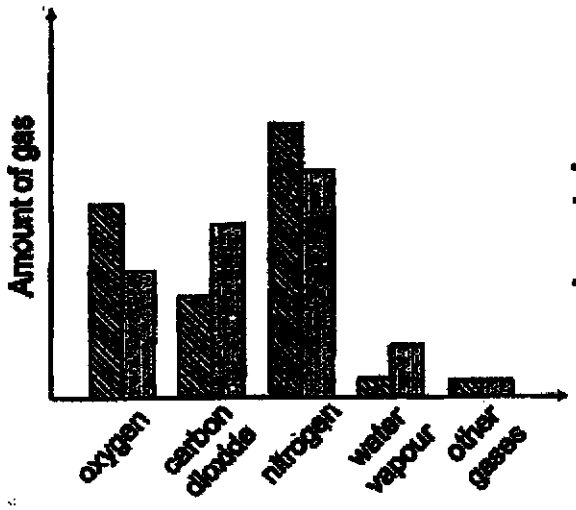
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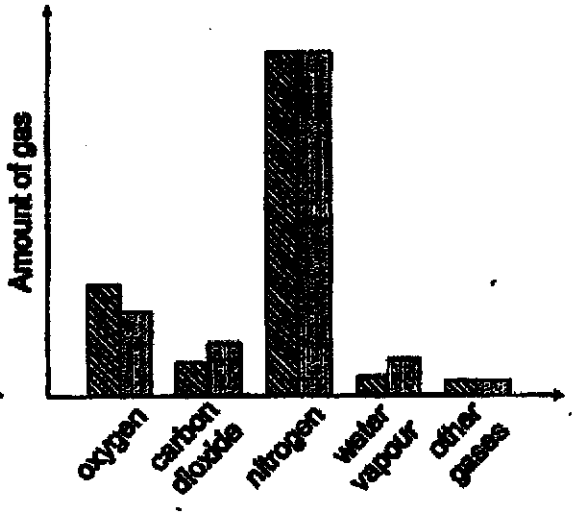
6 Five people were trapped in a small lift for 30 minutes. Which of the following graphs best represents the composition of air in the lift at the start and at the end of the 30 minutes?



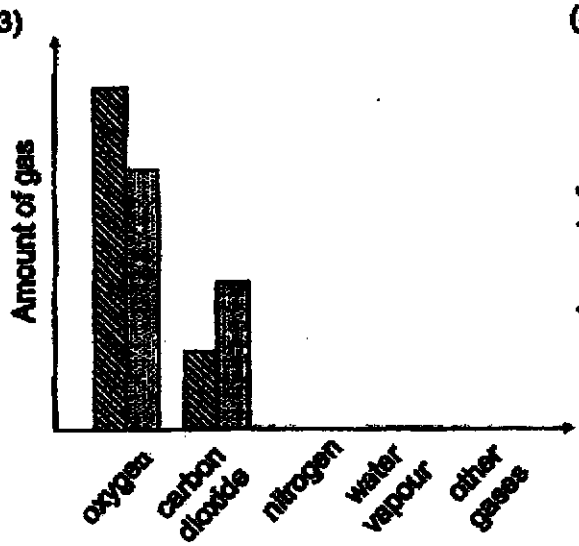
(1)



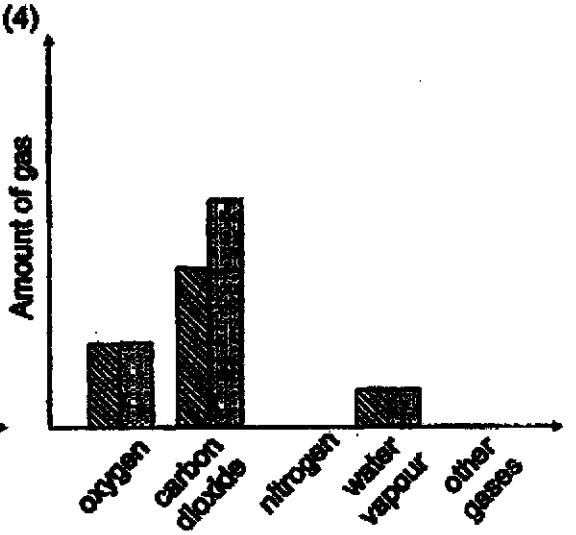
(2)



(3)



(4)



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7 Which of the following statement(s) is/are correct about the transportation of substances in plants or in humans?

A Digested food is transported in food-carrying tubes.

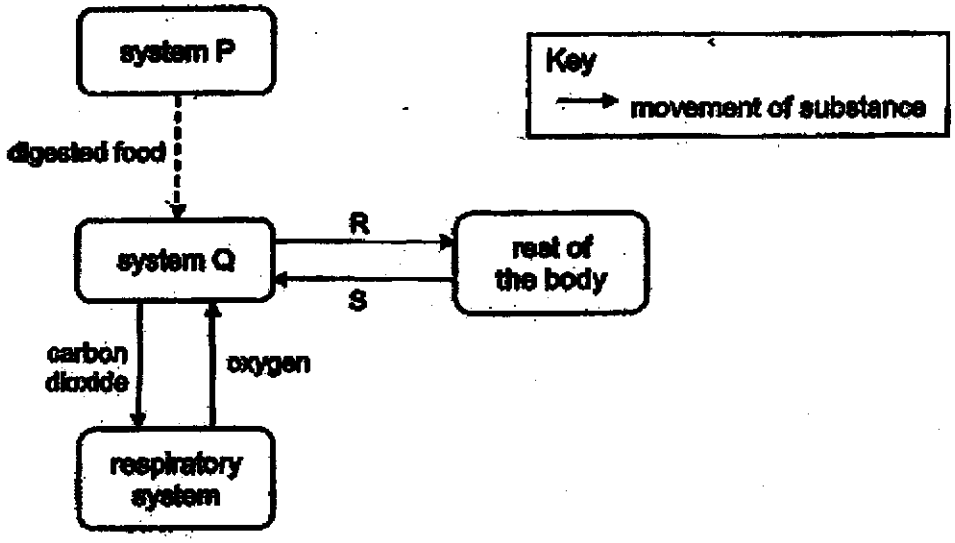
B Food made in the leaves is only transported downwards to all parts of the plant.

C Water is supplied to all parts of the human body through the water-carrying tubes.

D Water is transported in one direction in plants while water in the blood is circulated around the human body.

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

8 The diagram below shows how different organ systems work together in the human body.



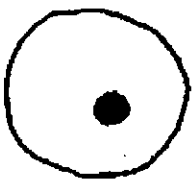
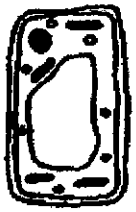
Which of the following correctly represents P, Q, R and S?

	System P	System Q	R	S
(1)	digestive	circulatory	oxygen	carbon dioxide
(2)	digestive	circulatory	wasted material	nitrogen
(3)	circulatory	digestive	digested food	carbon dioxide
(4)	circulatory	digestive	water	waste material

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9 Which of the following diagrams correctly shows the basic unit of life of a plant?

			
animal cell	seed	plant cell	flower
(1)	(2)	(3)	(4)

10 Diagram 1 below shows a plant cell placed in a petri dish with a liquid containing substances ▲ and ● . Diagram 2 shows the cell after a few hours.

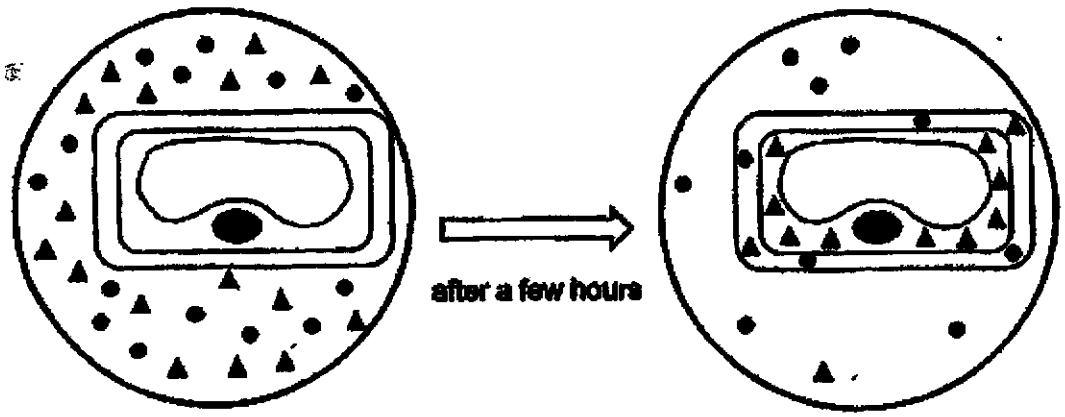


Diagram 1 Diagram 2

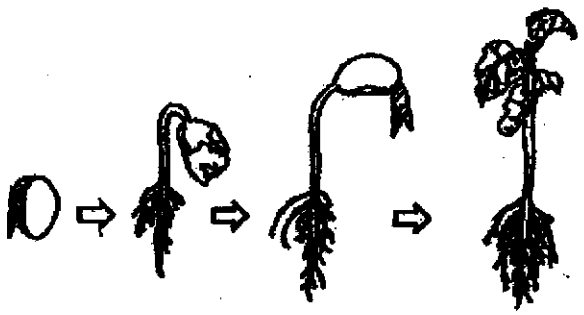
Based on the results of the experiment above, which statement can you correctly conclude about the cell?

(1) All cell activities takes place in the cytoplasm.
(2) The nucleus controls the movement of substances.
(3) The cell wall allows both substances to enter the cell.
(4) The cell membrane allows both substances to enter the cell.

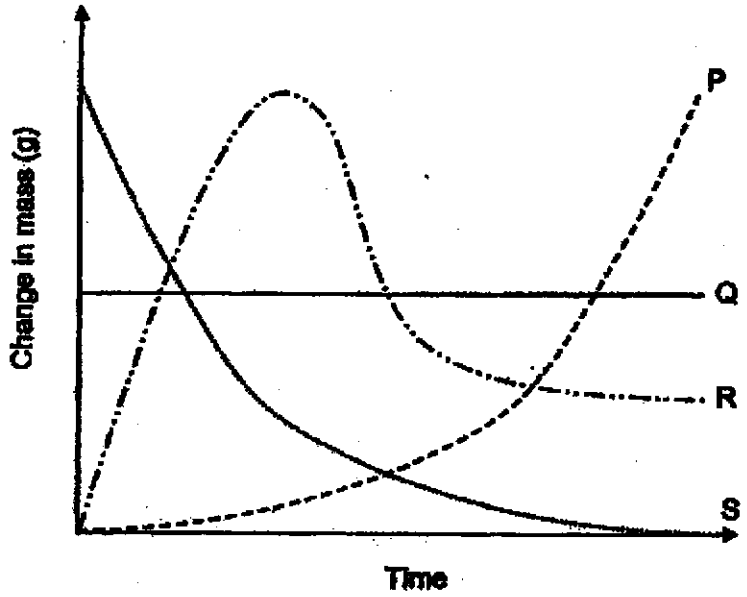
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11 The diagram below shows the development of a seed into a young plant.



Which pair of lines best represents the changes in the mass of roots and seed leaves during germination?



	Mass of roots	Mass of seed leaves
(1)	P	Q
(2)	P	S
(3)	R	S
(4)	R	Q

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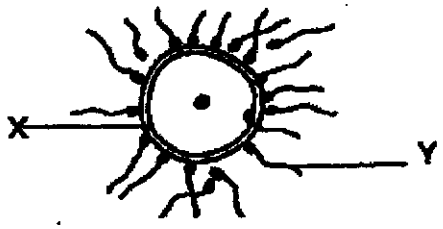
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12 Which of the statements about the life cycles of a frog and a cockroach are correct?

A There is no moulting in both life cycles.
B Both the frog and the cockroach lay eggs in water.
C Both the frog and the cockroach have 3 stages in their life cycle.
D The young of a frog spends part of its life cycle in water but the young of the cockroach does not.

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

13 The diagram below shows one of the processes of human reproduction.



Which one of the following correctly identifies X and Y?

	X	Y
(1)	egg	pollen grain
(2)	egg	sperm
(3)	sperm	egg
(4)	pollen grain	egg

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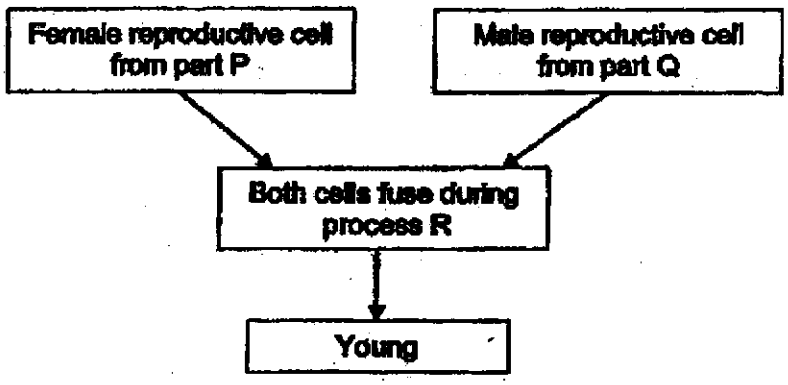
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14 The characteristics that can be passed from parents to their offspring are _____.

A type of blood
B colour of the eyes
C length of fingernails
D ability to roll the tongue

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

15 Study the diagram below.



Which of the following correctly represents P, Q and R in both the human and the plant reproductive systems?

	Human reproductive system			Plant reproductive system		
	Part P	Part Q	Process R	Part P	Part Q	Process R
(1)	ovary	testis	reproduction	stigma	anther	reproduction
(2)	ovary	testis	reproduction	stigma	anther	pollination
(3)	ovary	testis	fertilisation	ovules	pollen grains	fertilisation
(4)	testis	ovary	fertilisation	ovary	pollen grains	fertilisation

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16 Diagram 1 shows the location of a parent plant Z near a river before it disperses its fruits. Diagram 2 shows the location of its young plants about a year later.

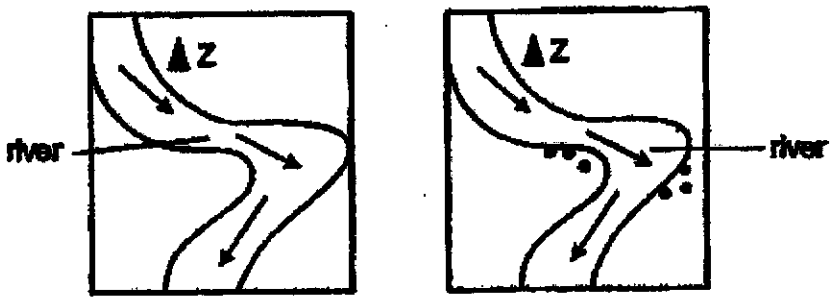


Diagram 1 Diagram 2

Key
▲ parent plant • young plant ⟶ direction of river

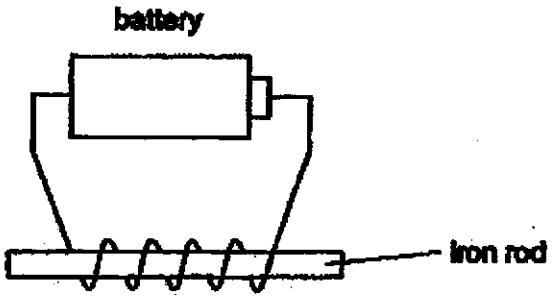
Which one of the following characteristics best describes the fruit from plant Z?

(1) has hooks
(2) has juicy flesh
(3) has air spaces
(4) has wing-like structures

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17 Molly used the set-up shown below to create an electromagnet.



Her friends suggested three methods to increase the strength of the electromagnet as listed below.

A use two batteries
B put the battery closer to the rod
C increase the number of coils around the rod

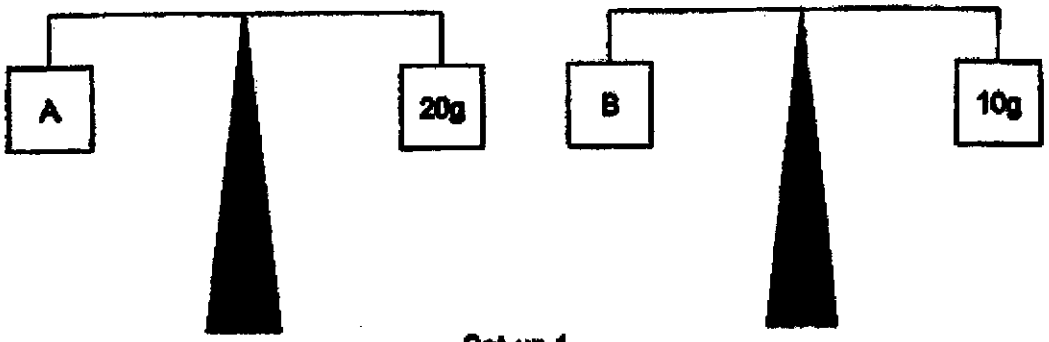
Which methods above would allow her to increase the strength of the electromagnet?

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

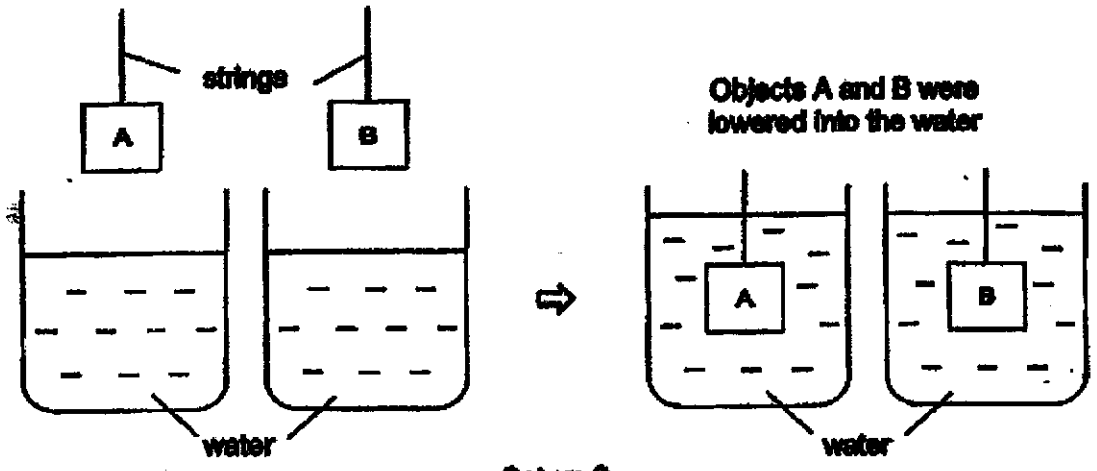
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18 Caihua carried out the following experiments on two objects, A and B. The objects have the same size and shape.



Set-up 1



Set-up 2

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

(1) Object A has less mass than object B.
(2) Objects A and B have the same mass.
(3) Objects A and B have the same volume.
(4) Object A has a greater volume than object B.

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19 Study the diagram below. A, B, C and D represent different processes.



Which letters represent melting and evaporation?

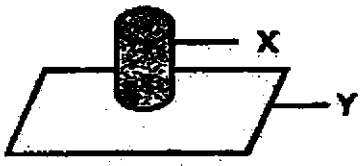
	Melting	Evaporation
(1)	C	B
(2)	C	A
(3)	D	B
(4)	D	A

20 Which of the following shows heat gain as water changes from one state to another in the water cycle?

A puddles of rainwater drying up
B water vapour turning into clouds
C clouds getting heavier and fall as rain

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

21 The diagram below shows object X which is placed on top of object Y. Heat flows from X to Y.



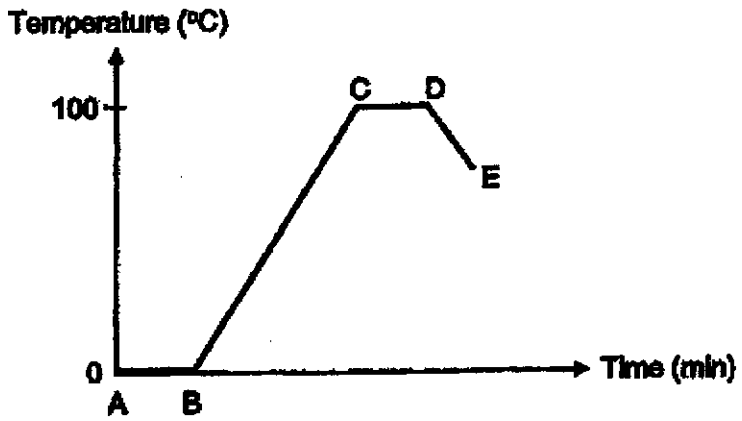
Which statement explains why heat flows from X to Y?

(1) X has a lower temperature than Y.
(2) X has a higher temperature than Y.
(3) X is a better conductor of heat than Y.
(4) X is a poorer conductor of heat than Y.

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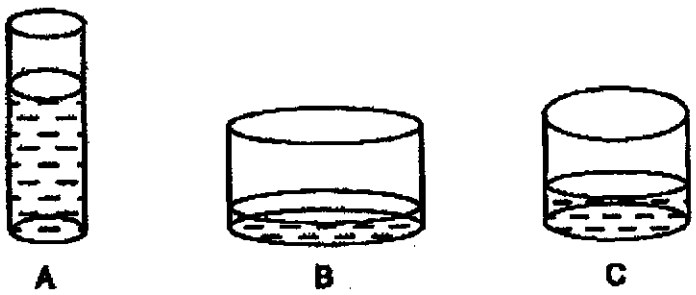
22 The graph below shows the change in temperature of water over time.



Which part of the graph shows a change in the state of water from solid to liquid?

(1) AB
(2) BC
(3) CD
(4) DE

23 Mary poured equal volumes of water into three containers, A, B and C made from the same material and placed the containers at the same location.



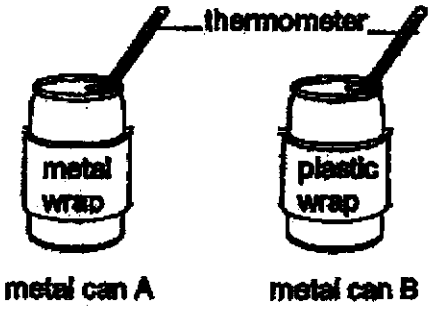
What is the order of the containers, according to the amount of the water left inside the containers after a day, from the least amount to the most amount?

	least → most		
(1)	A	B	C
(2)	A	C	B
(3)	B	C	A
(4)	C	B	A

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24 Tom filled two identical metal cans with the same amount of water at 60°C. He then wrapped the cans with metal and plastic as shown in the diagram below.



He recorded the temperature of water in each can every 5 minutes. The temperature of water in can A is shown in the table below.

Time (min)	0	5	10
Temperature (°C)	60	54	50

Which of the following sets of temperature readings would most likely be recorded for can B?

	Temperature (°C)		
	0 min	5 min	10 min
(1)	60	52	48
(2)	60	55	48
(3)	60	57	54
(4)	60	63	66

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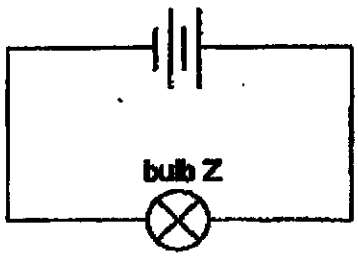
25 David wanted to set up a simple electrical circuit that could ring a bell. He selected the following items to construct his electrical circuit.

bell	wires	switch	battery

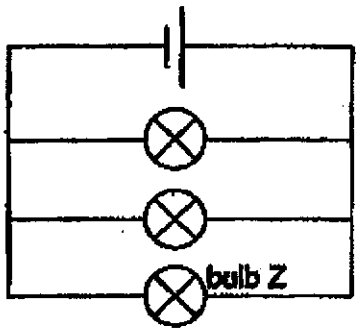
Which item listed above can he remove such that the bell can still ring in the circuit?

(1) bell
(2) wires
(3) switch
(4) battery

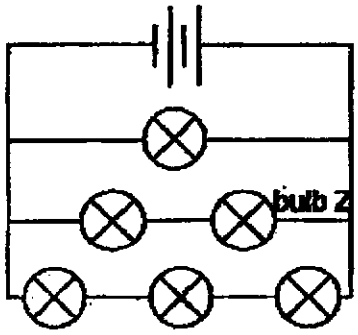
26 Observe the circuits below.



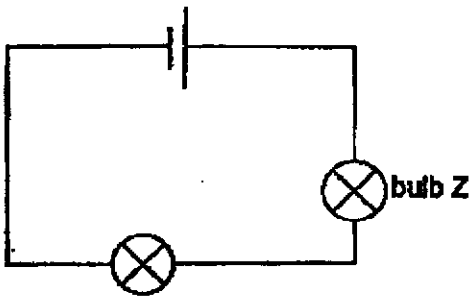
circuit J



circuit K



circuit L



circuit M

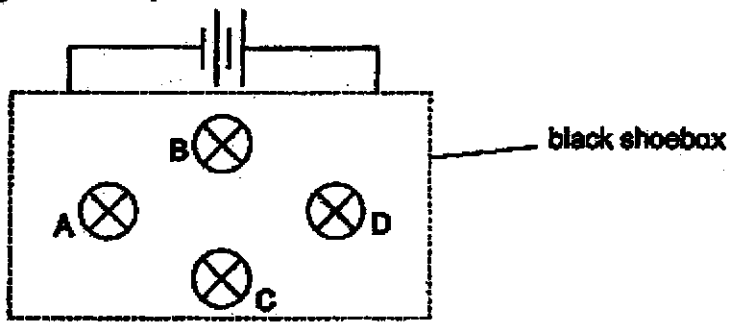
Which pair of circuits will bulb Z have the same brightness?

(1) J and L
(2) K and L
(3) K and M
(4) L and M

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27 Bulbs A, B, C and D were connected in a circuit hidden in a black shoebox shown below. All the light bulbs lit up when the circuit was closed. The position of the bulbs were not changed throughout the experiment.

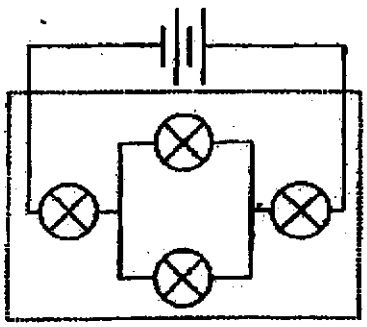


Jane removed one light bulb from the circuit each time and observed what happened to the rest of the bulbs. Her observations are recorded in the table below.

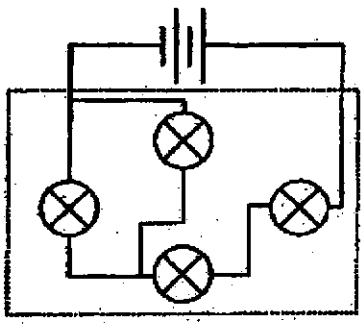
Bulb removed	Bulb(s) lit
A	None
B	A, C and D
C	None
D	A, B and C

Which of the following correctly shows the circuit hidden in the shoebox?

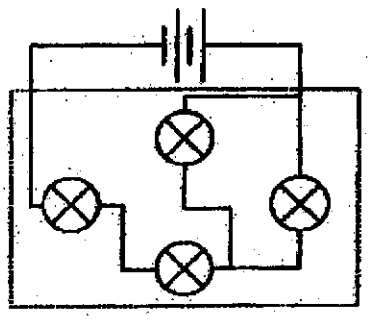
(1)



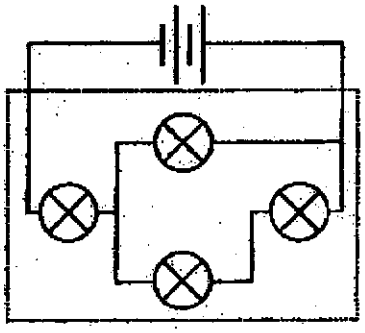
(2)



(3)



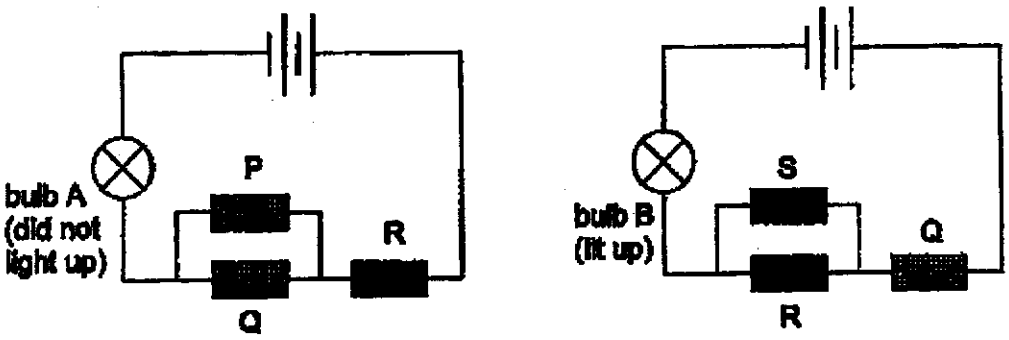
(4)



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28 Cheryl had four rods, P, Q, R and S, made from different materials. She connected the rods in the two circuits shown below. Bulbs A and B are new and identical.



She observed that only bulb B lit up.
Which one of the following can she conclude about materials P, Q, R and S?

	Does it conduct electricity?			
	Material P	Material Q	Material R	Material S
(1)	yes	yes	no	yes
(2)	yes	no	yes	no
(3)	not possible to tell	yes	no	yes
(4)	not possible to tell	yes	no	not possible to tell

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NAN HUA PRIMARY SCHOOL
END-OF-YEAR EXAMINATION 2020
PRIMARY 5

SCIENCE

BOOKLET B

12 Open-ended questions (44 marks)

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

INSTRUCTIONS TO CANDIDATES

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

Marks Obtained

Section B		/44

Name: _____( ) Class: P 5 _____

Date: 28 October 2020 Parent's Signature: _____

This booklet consists of 15 pages.

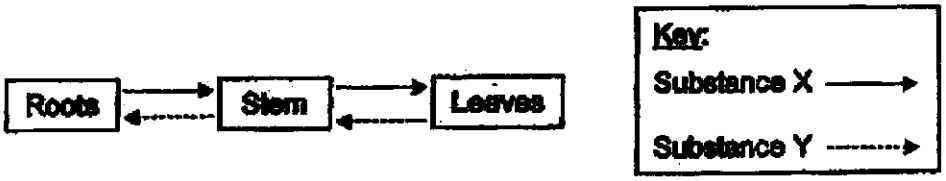
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Section B: (44 marks)

Write your answers to question 29 to 40.
The number of marks available is shown in brackets [ ] at the end of each question or part question.

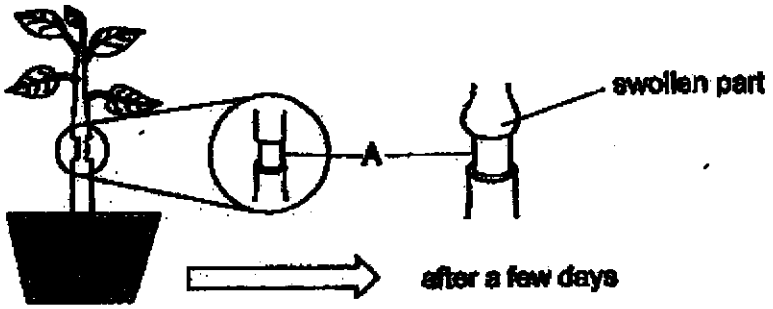
29 Ken drew a diagram below to show how substances X and Y are transported in a plant.



(a) Identify substances X and Y. [1]

X: _____ Y: _____

Ken removed an outer ring of stem at part A of the plant below. The plant was then watered daily and placed under the Sun. After a few days, he observed a swelling appearing above part A.



(b) What is the likely reason for the swelling above part A of the plant? [2]

_____

_____

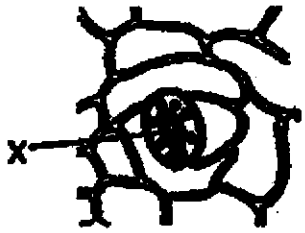
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30 The diagram below shows the underside of a leaf.



(a) Name part X. [1]

(b) State the part of the human respiratory system that has similar function to part X. [1]

(c) What is the benefit of having more part X on the leaf? [1]

People need more oxygen when they are exercising then when they are resting.



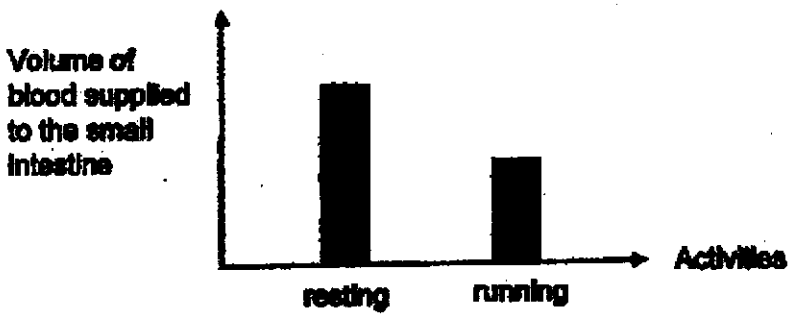
(d) With reference to the diagram above, describe how having many blood vessels in the human respiratory system helps to take in more oxygen into the human body during exercise. [1]

Score	/ 4

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31 The graph below shows the results of an experiment to compare the volume of blood supplied per minute to the small intestine during resting and running.



(a) Describe how the respiratory and circulatory system ensure that oxygen in the environment reaches the small intestine of the body. [2]

(b) Based on the graph above, explain how running after a meal affects the absorption of digested food in the small intestine. [2]

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32 The table below shows the description of three cells, A, B and C.

Cell A	The cell is taken from the cheek of a monkey.
Cell B	The cell is taken from the leaf of a mango tree.
Cell C	The cell is taken from the underground roots of the same plant.

(a) Complete the table by putting a tick (✓) to indicate the cell parts present in the cell. [2]

Cell parts	Cell A	Cell B
cell wall		
cell membrane		
cytoplasm		
nucleus		
chloroplast		

(b) State a difference in the cell parts found between cell B and cell C. Explain your answer. [1]

_____

_____

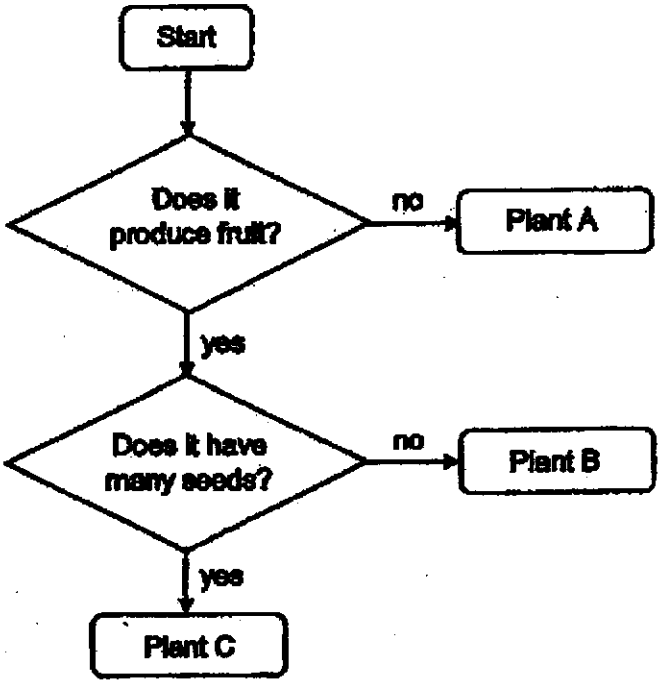
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33 Study the flowchart below.



(a) Based on the flowchart above, classify the plants by filling in the letters "A", "B" and "C" in the table below. [1]

Flowering plants	Non-flowering plants

(b) State a difference in how Plant A and Plant B reproduce. [1]

_____

(c) Plant C produces many seeds within its fruit.
How does having more seeds help plant C? [1]

_____

_____

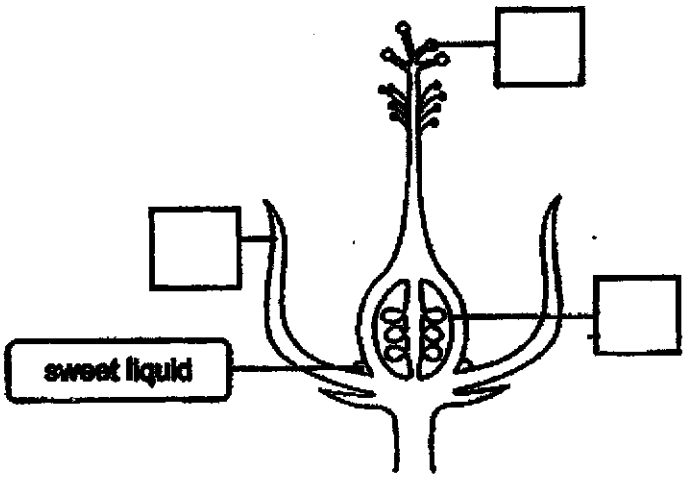
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34 A hibiscus flower produces a sweet liquid at the base of the flower as shown below.

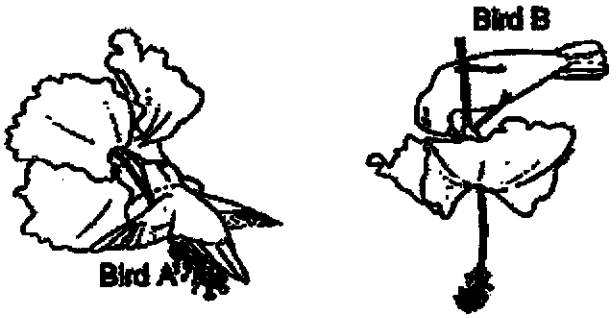


(a) Select the part where pollination takes place by placing a tick [✓] in the box. [1]

(b) State the reproduction process that will occur immediately after pollination. [1]

_____

The diagrams below show how birds A and B obtain the sweet liquid for food from the hibiscus flower.



(c) Which bird, A or B, is most likely to pollinate the hibiscus flower? Explain your answer. [2]

_____

_____

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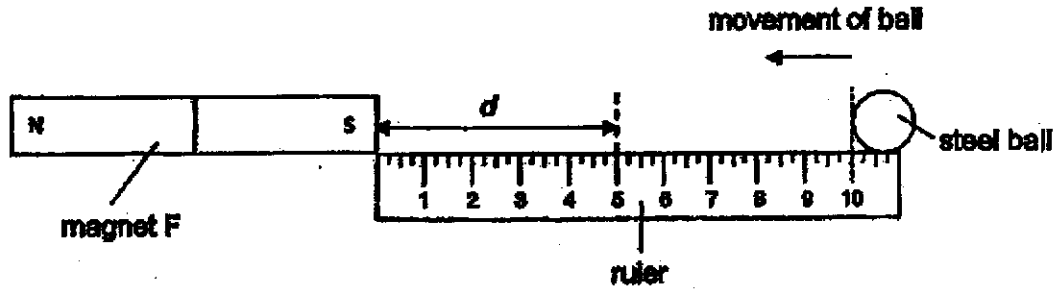
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35 Bala set up an experiment as shown. He moved the steel ball slowly from the 10 cm mark along the ruler towards magnet F. He recorded the distance, *d*, at the point where the magnet attracts the steel ball. He repeated the experiment using magnets G and H.



The table shows the results for all the three magnets, F, G and H.

Magnet	Distance *d* (cm)
F	5
G	9
H	7

(a) Why did the steel ball get attracted to the magnet? [1]

_____

_____

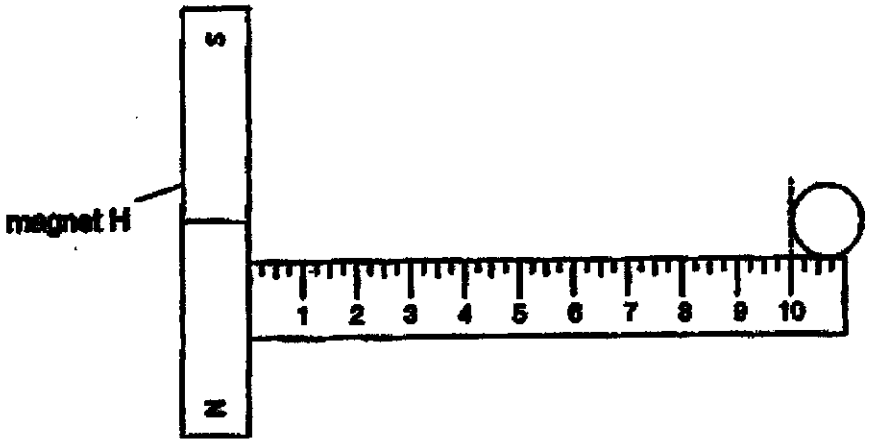
(b) Based on the information given in the table, arrange the magnetic strength of the magnets, F, G and H, from the weakest to the strongest. [1]

Weakest		Strongest

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Bala decided to use the middle of Magnet H for the experiment as shown below.



(c) State a distance at which the steel ball will be attracted to magnet H. Explain your answer. [1]

(d) Bala repeated this experiment a few times.
State a reason for repeating this experiment a few times. [1]

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36 Bennett filled a jar completely with water as shown in the diagram. He decided to add a 50 cm^3 sponge into the jar of water.

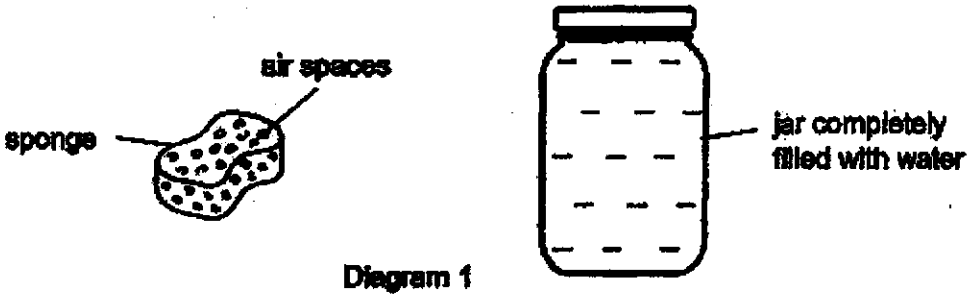


Diagram 1

(a) In terms of properties of matter, state a property of air. [1]

Bennett slowly pushed the sponge into the jar until it is completely submerged as shown in diagram 2.

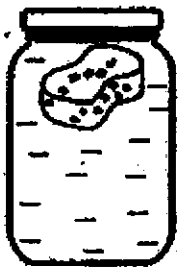


Diagram 2

He realised that only 20 cm^3 of water overflowed out of the jar.

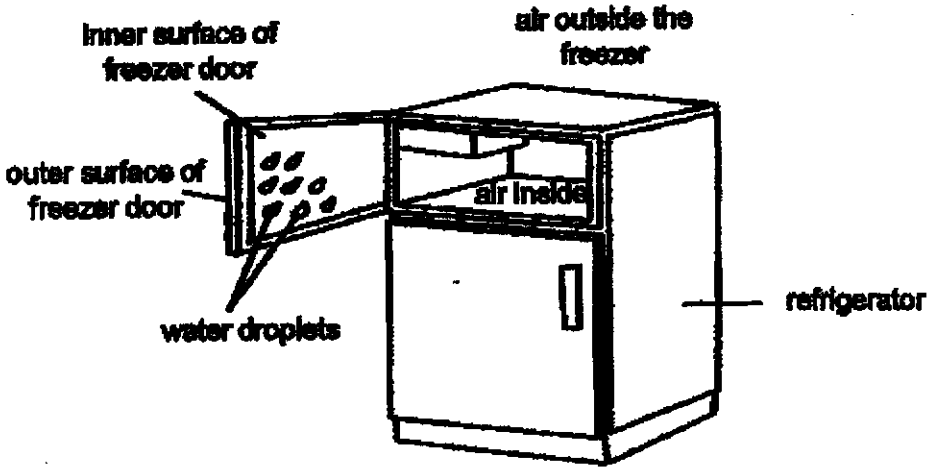
(b) In terms of properties of matter, explain clearly why the volume of water that overflowed out was less than the volume of the sponge added in. [2]

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37 Peter opened the freezer door of a refrigerator. He observed some water droplets forming on the inner surface of the freezer door after a few minutes but not the outer surface of the freezer door.



(a) Based on the above information, explain how the water droplets were formed. [2]

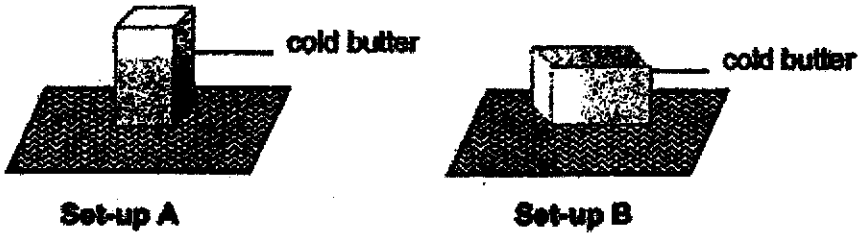
(b) State a reason why water droplets were found on the inside of the freezer door but not on the outside of the freezer door. [1]

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36 Mary set up an investigation to find out how the surface area of a block of cold butter in contact with a metal sheet will affect how fast the butter melted.



Set-up A Set-up B

(a) State the changed variable in Mary's investigation. [1]

(b) State two variables Mary should keep the same in her investigation. [2]

(c) Mary observed that the butter in set-up B took a shorter time to melt completely. Explain the reason for her observation. [2]

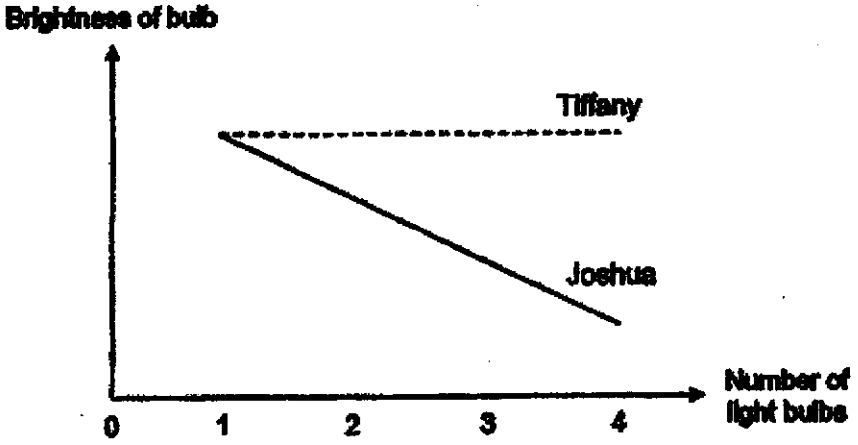
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39 Joshua and Tiffany each set up an electrical circuit using new and identical batteries and bulbs.

They added one more light bulb to the circuit each time and measured the brightness of the bulbs. The following graph shows their observations.



(a) What was the aim of their experiment? [1]

(b) State the relationship between the brightness of the bulb and the number of light bulbs in Joshua's experiment. [1]

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(c) In the space below, draw the electrical circuit that Joshua and Tiffany have set up for their experiment based on the information provided in the graph on page 13.

Use exactly two batteries, three light bulbs and wires for each circuit diagram. [2]

Joshua's set-up

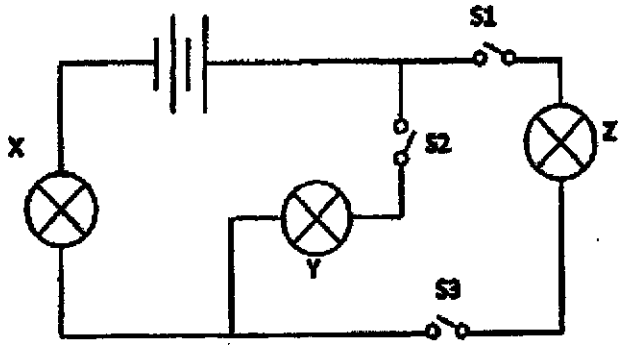
Tiffany's set-up

Score	/ 4

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40 Yong Quan set up the circuit shown below with new and identical batteries and bulbs.



(a) Based on the information given, write "open" or "closed" in the table below to indicate the position of the switches S1, S2 and S3. [2]

Switch			Will the bulb light up?		
S1	S2	S3	X	Y	Z
			yes	no	yes
			yes	yes	yes

Yong Quan decided to add block P into the circuit. As a result, all the bulbs did not light up.

(b) In the circuit above, mark a cross (X) on the part of the circuit to indicate where he might have placed block P. [1]

(c) Name a material that block P could be made of. Explain why block P caused all bulbs to not light up. [1]

_____

_____

End of paper

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LEVEL : PRIMARY 5
SUBJECT : SCIENCE
TERM : 2020 SA2
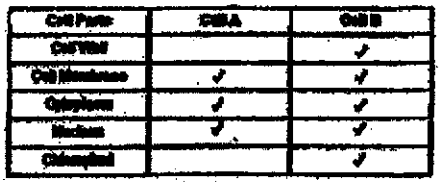
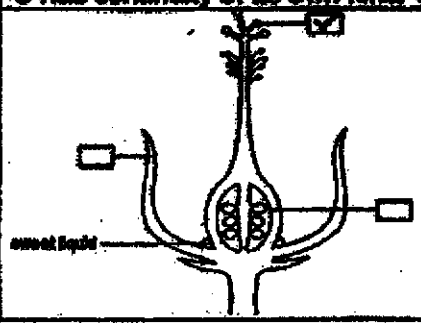
SECTION A

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
4	2	2	4	3	2	1	1	3	3
Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
2	2	2	3	3	3	2	3	1	1
Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
2	1	3	3	3	2	3	3		

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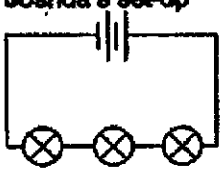
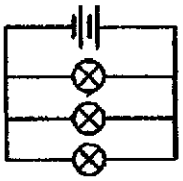
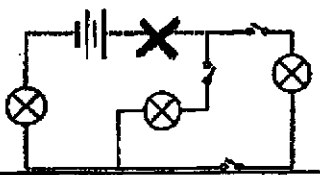
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ANSWER KEY

29a	X: water /dissolved mineral salts Y: food/sugar/glucose
29b	The food-carrying tubes are removed and food made by the leaves cannot be transported to the rest of the plants, causing the swelling above part A of the plant.
30a	Stomata / Stoma
30b	Lungs
30c	It allows an increased/more/faster gaseous exchange to take place.
30d	There are many blood vessels in the lungs which increases the surface area of contact between the air and the blood/blood vessels to allow more oxygen to be taken in.
31a	Air is inhaled and flow to the lungs where oxygen is taken in by the blood. The heart then pumps the oxygenated blood to the other parts of the body including the small intestine.
31b	The amount of food absorbed into the blood will decrease/ is slower as the amount of blood supplied to the small intestine decreases/is slower during running.
32a	
32b	Cell B has chloroplast while Cell C does not. There is no light for chloroplast to trap to make food as the roots are found underground.
33a	Flowering plants: B, C Non-flowering plants: A
33b	A reproduce by spores while B reproduce by seeds.
33c	Having more seeds increases the chances for germination/ increase the chances that plant C has continuity of its own kind/ decrease the chances of extinction.
34a	
34b	Fertilisation
34c	Bird A. When bird A collect the sweet liquid, the body of bird A touches the anther of the hibiscus flower which helps to transfer the pollen grains to the stigma of the hibiscus flower.
35 a	The steel ball is a magnetic material and magnets attract magnetic materials.
35 b	F, H, G
35 c	0.1 – 5.9 cm. (any numbers between) Magnets are weakest in the middle (so it needs a nearer distance to attract the ball) OR

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	Magnets are strongest at its poles (so it needs a nearer distance to attract the ball)
35d	To ensure that the results is reliable.
36a	Air can be compressed/Air does not have a definite shape / Air has no definite volume / Air has mass.
36b	There are air spaces in the sponge and some of the water occupied the air spaces/ in the sponge.
37a	The water vapour in the air outside the freezer loses heat to the cooler inner surface of the freezer door and condenses to water droplets.
37b	There is a temperature difference between the inner surface of the freezer door and the water vapour outside the fridge but the temperature of the outer surface of the freezer door and the water vapour outside the fridge is the same.
38a	The surface area of the butter in contact with the metal sheet.
38b	type/shape/size of butter thickness/material/type/size/temperature of metal sheet time or duration of experiment temperature of surroundings (any two of the constant variables)
38c	Butter B gain more heat/gain heat faster from the metal sheet as it has a larger/more/greater surface area in contact with the metal sheet.
39 a	To find out if the number of light bulbs would affect the brightness of the light bulbs in an electrical circuit./To find out if the arrangement of light bulbs would affect the brightness of the bulbs.
39b	When the number of light bulbs increased, the brighiness of the light bulbs decreased.
39 (c)	Joshua's set-up  Tiffany's setup 
40 (a)	<table><tr><th colspan="3">Switch</th><th colspan="3">Will the bulb light up?</th></tr><tr><th>S1</th><th>S2</th><th>S3</th><th>X</th><th>Y</th><th>Z</th></tr><tr><td>closed</td><td>open</td><td>closed</td><td>yes</td><td>no</td><td>yes</td></tr><tr><td>closed</td><td>closed</td><td>closed</td><td>yes</td><td>yes</td><td>yes</td></tr></table>
40 (b)	Anywhere along the dotted line 
40 (c)	Wood. (Any other electrical insulators) As wood is an electrical insulator, no electric current can flow through to the rest of the circuit to light up the bulbs/ the circuit will be open.

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