NANYANG PRIMARY SCHOOL

PRIMARY 5 SCIENCE

END-OF-YEAR EXAMINATION
2020

BOOKLET A

Date: 28th Oct 2020
Duration: 1 h 45 min

Name: _____( )

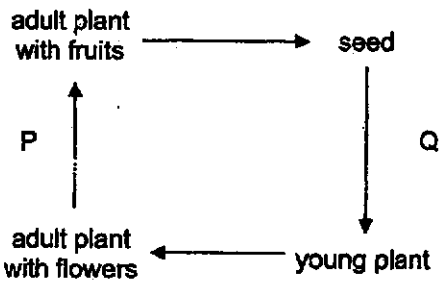
Class: Primary 5 ( )

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

Booklet A consists of 23 printed pages including this cover page.

Section A (28 x 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). **Identify your option and shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.**

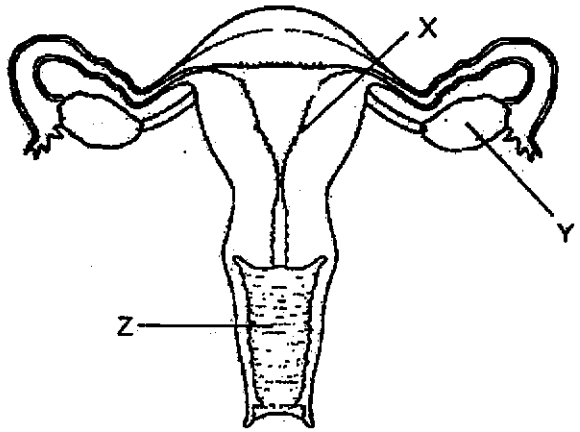
1. The diagram below shows the life cycle of a flowering plant.



Which of the following shows the possible processes taking place at P and Q?

	P	Q
(1)	seed dispersal	pollination
(2)	fertilisation	pollination
(3)	seed dispersal	germination
(4)	fertilisation	germination

2. The diagram below shows the female reproductive system.



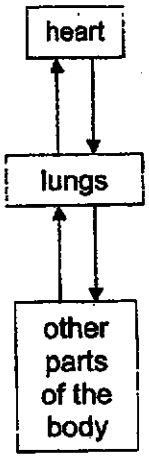
Which of the following statements about parts X, Y and Z are correct?

A Fertilisation only takes place at part Y
B Male reproductive cells enter through part Z
C Part Y produces the female reproductive cells
D The fertilised egg will move out from part X to part Z to develop.

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

3. Which of the following shows the correct direction of blood flow between the heart, lungs and other parts of the body?

(1)



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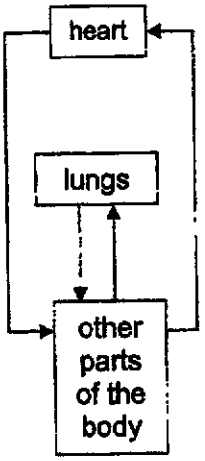

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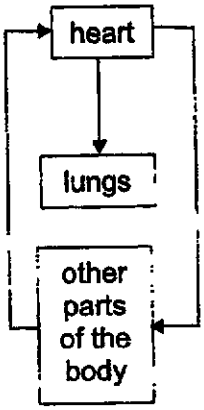

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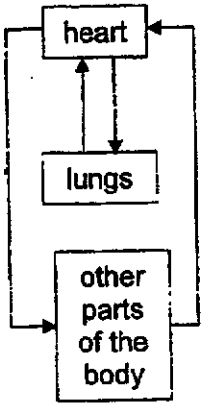
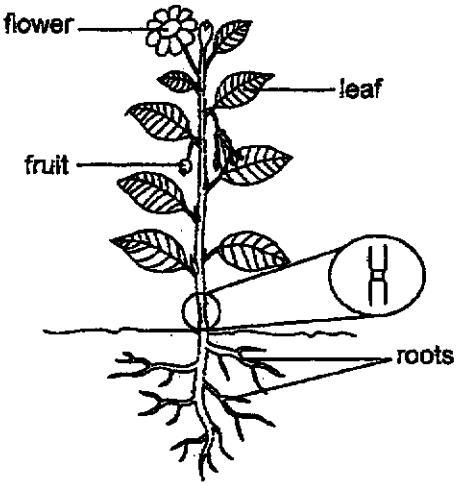


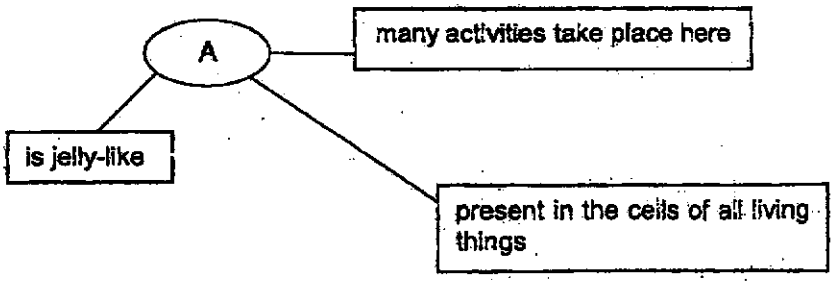
4. The diagram below shows a plant with part of its stem removed.



Which of the following explains why the roots died after some time?

(1) Nectar in the flower could not be transported to the roots.
(2) Food made in the leaves could not be transported to the roots.
(3) Water absorbed by the leaves could not be transported to the roots.
(4) Oxygen taken in by the leaves could not be transported to the roots.

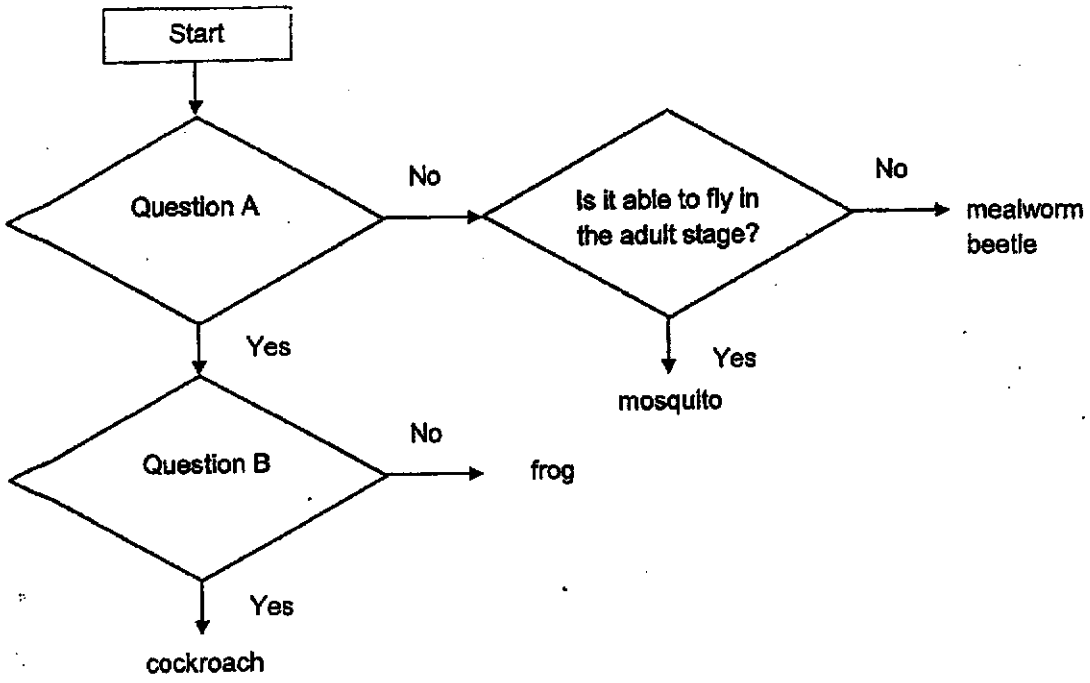
5. Study the diagram below.



Which of the following correctly identifies cell part A?

(1) cell membrane
(2) cytoplasm
(3) chloroplast
(4) nucleus

6. Study the flowchart below carefully.



Which of the following correctly represent questions A and B?

	Question A	Question B
(1)	Does the young resemble the adult?	Does it spend part of its life cycle in water?
(2)	Does the young resemble the adult?	Does it have wings in the adult stage?
(3)	Are there only 3 stages in the life cycle?	Does it have wings in the adult stage?
(4)	Are there only 3 stages in the life cycle?	Does it spend part of its life cycle in water?

7. A farmer kept young plants in an enclosure covered with netting. The leaves of the plants were eaten by caterpillars so the farmer sprayed insecticide on the leaves.

A few months later, the farmer observed that the plants had produced many brightly-coloured flowers but very little fruits.

Which one of the following statements explains the farmer's observations?

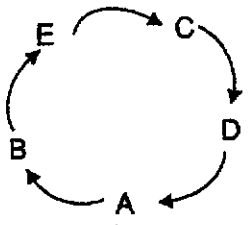
(1) The insecticide killed the caterpillars but pollination was not affected.
(2) The insecticide killed the caterpillars so there was no pupa to pollinate the flowers.
(3) The insecticide killed the caterpillars so there were no butterflies to pollinate the flowers.
(4) The insecticide did not kill the caterpillars so they were able to pollinate the flowers.

8. Danielle observed the characteristics of a green bean plant at each stage of its growth and her results are recorded in the table below.

Stage	Observations
A	fruits appear
B	roots appear
C	leaves appear
D	shoot appear
E	flowers appear

Which of the following shows the correct order of the stages in the life cycle of the green bean plant as observed by Danielle?

(1)



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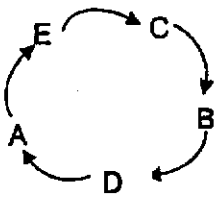
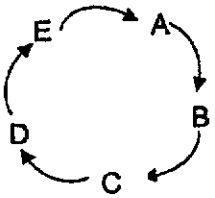


(3)



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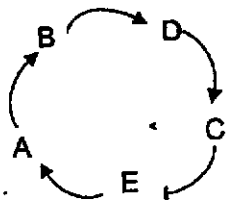
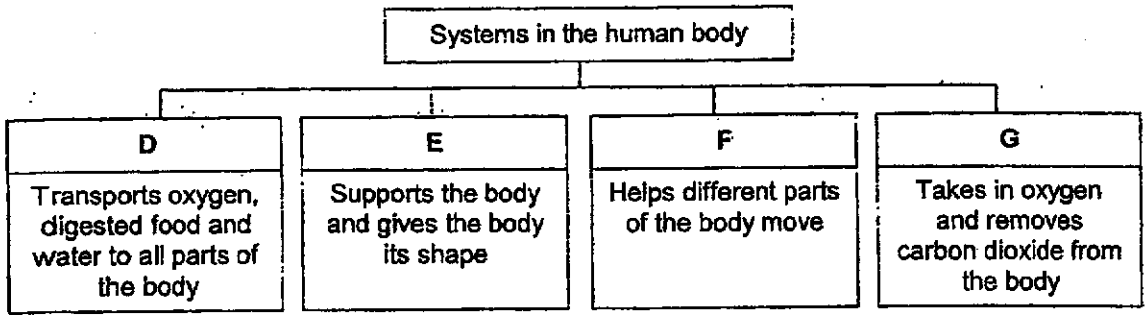


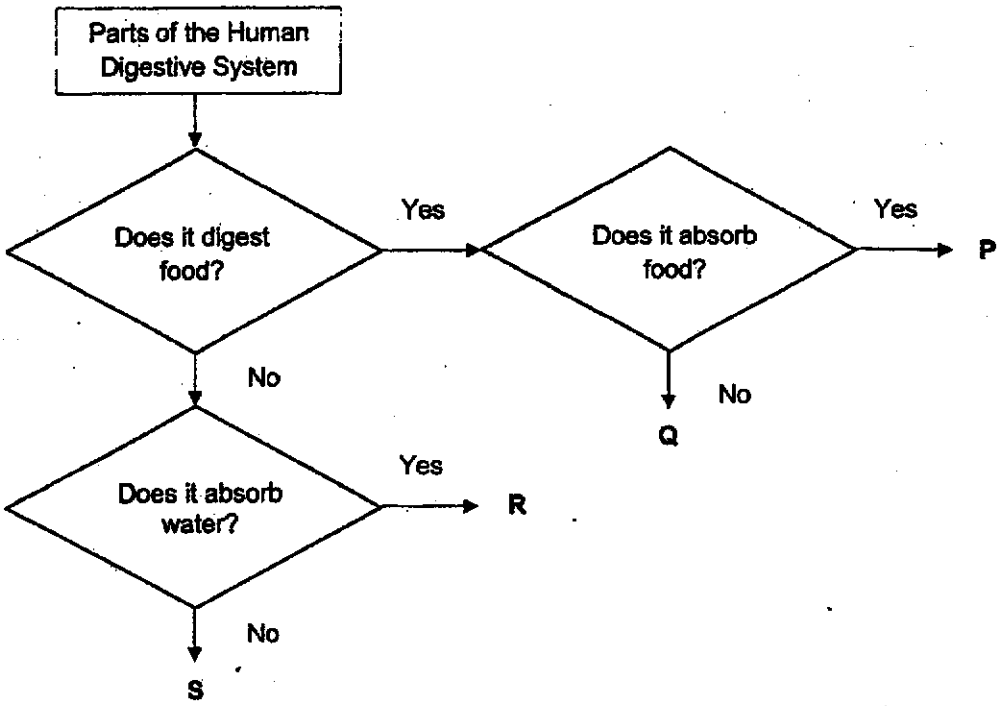
9. Study the chart below.



Which of the following correctly identifies systems D, E, F and G?

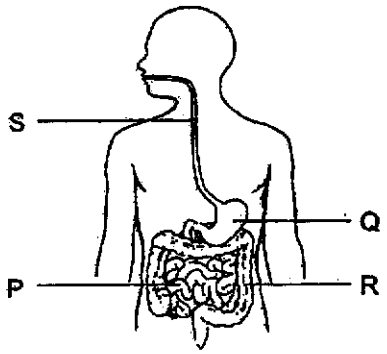
	D	E	F	G
(1)	Circulatory system	Skeletal system	Muscular system	Respiratory system
(2)	Digestive system	Skeletal system	Muscular system	Circulatory system
(3)	Circulatory system	Muscular system	Skeletal system	Respiratory system
(4)	Digestive system	Muscular system	Skeletal system	Respiratory system

10. Study the flowchart below carefully.

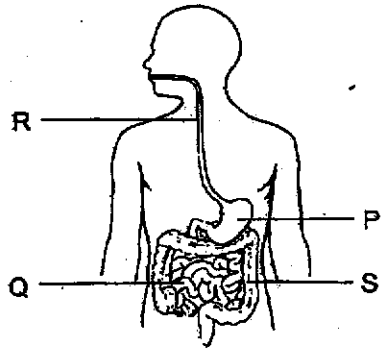


Which of the following correctly identifies parts P, Q, R and S?

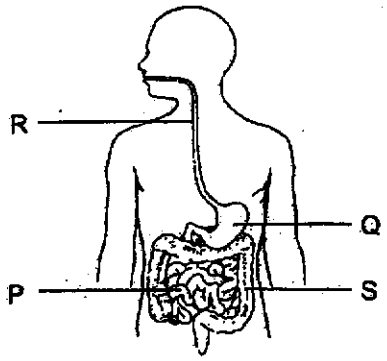
(1)



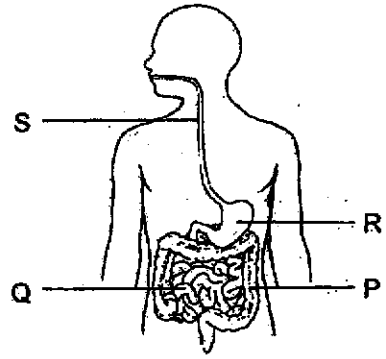
(2)



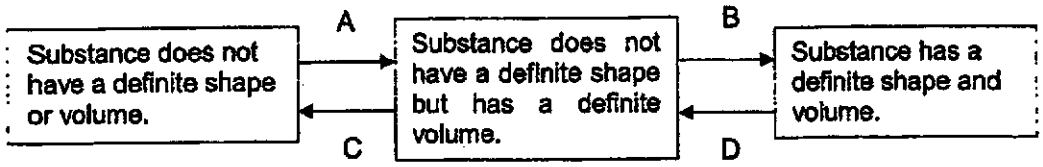
(3)



(4)



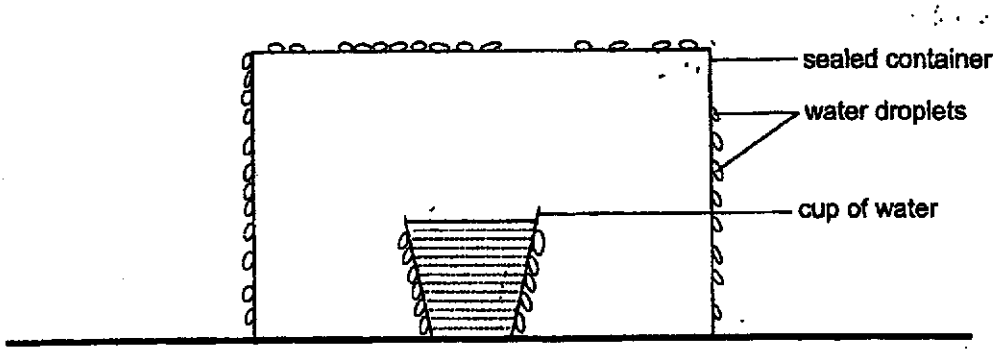
11. A, B, C and D represent different processes involved in the change of state of water.



Which of the processes represent freezing and evaporation?

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

12. A cup of water was placed in a sealed container. Water droplets started forming on the outer surface of the cup and sealed container as shown below.



Which of the following statements is true?

(1) There is no water vapour in the sealed container.
(2) Water in the sealed container touched the outer surface of the cup and condensed.
(3) The temperature of the water in the cup is higher than the temperature of the air in the sealed container.
(4) The temperature of the air in the sealed container is lower than the temperature of the air outside the sealed container.

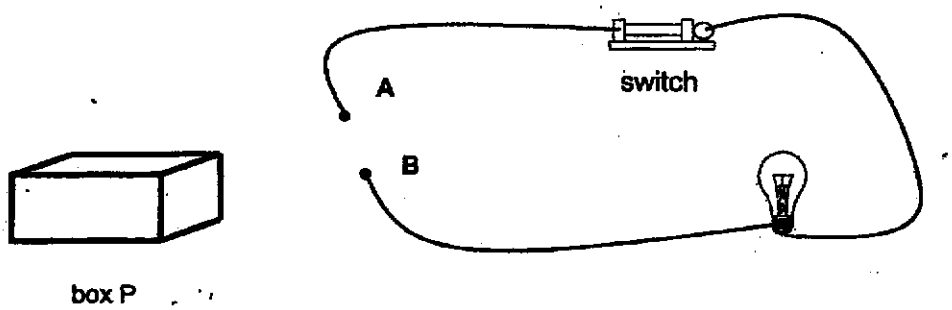
13. Water is a limited natural resource and we must do our part to conserve it. However, many human activities have caused our water bodies to become polluted.

Which of the following will result in water pollution?

A Oil leaks from ships
B Throwing plastic bags into the sea
C Releasing industrial waste into lakes
D Using a bucket of water to wash the car instead of a hose

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

14 Jan set up an electrical circuit as shown below. Contact points A and B were connected to an object in box P and the bulb lit up. The wires were connected correctly.

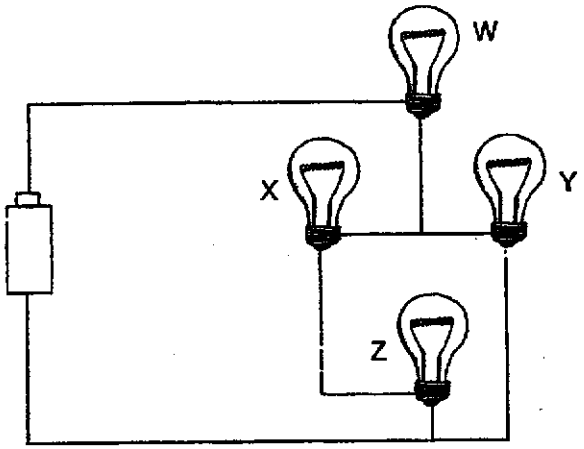


Based on the observed results, which of following could the object in box P be?

A Bulb
B Battery
C Iron rod

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

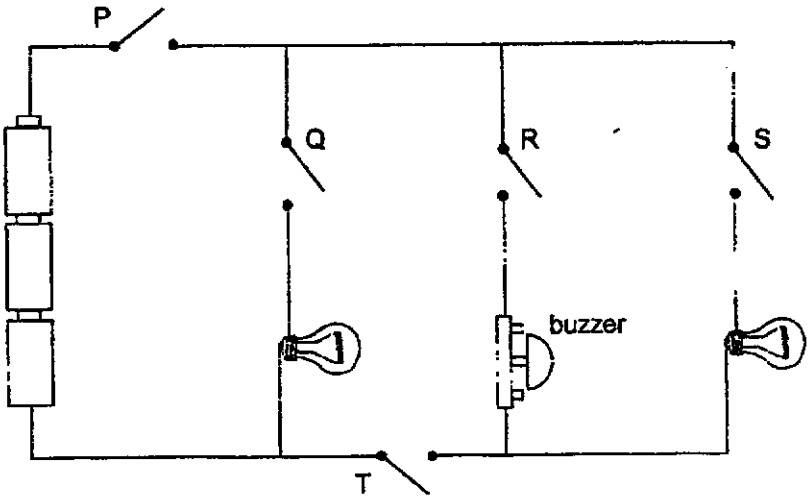
15. Study the electrical circuit below.



Which bulbs will remain lighted up when bulb Z fuses?

(1) W and X only
(2) W and Y only
(3) X and Y only
(4) W, X and Y

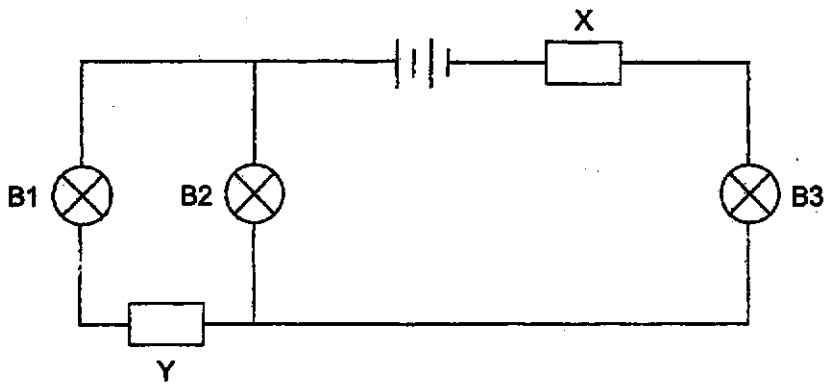
16. Study the electrical circuit below.



Which switches have to be closed so that only the buzzer will ring?

(1) P, R and T
(2) P, S and T
(3) Q, R and S
(4) R, S and T

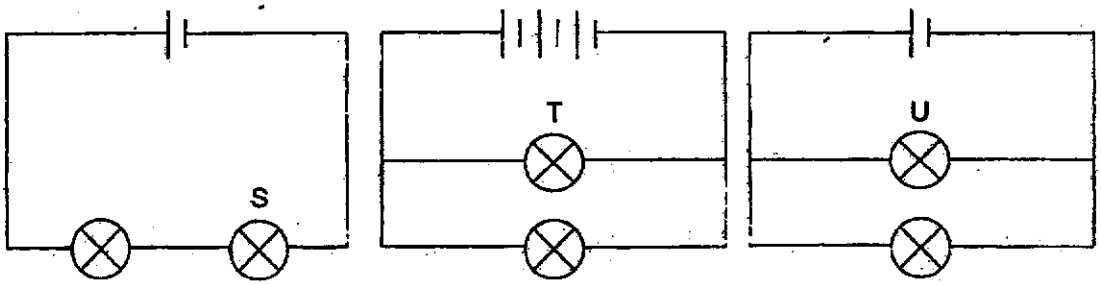
17. Study the circuit diagram below. X and Y are both electrical conductors and all three bulbs can light up.



Which one of the following correctly shows the results when either X or Y is replaced by an electrical insulator?

	Electrical insulator placed at	Bulbs that light up
(1)	X	None
(2)	X	B1 and B2
(3)	Y	B3
(4)	Y	B1, B2 and B3

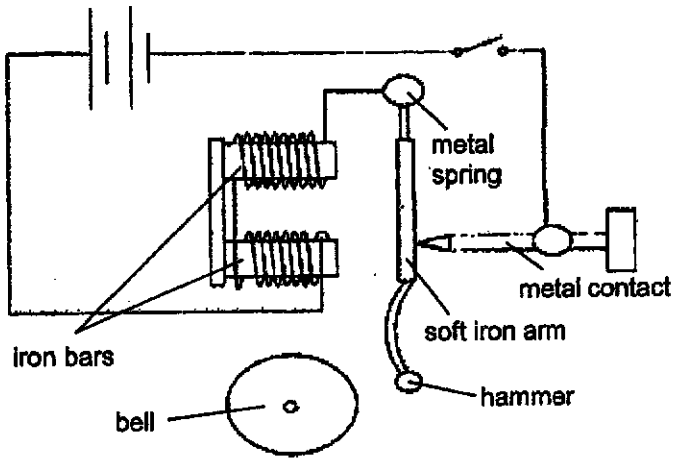
18. Study the circuit diagrams below.



Arrange the bulbs, S, T and U, from the brightest bulbs to the dimmest bulbs.

	Brightest →		Dimmest
(1)	S	U	T
(2)	T	S	U
(3)	T	U	S
(4)	U	T	S

19. The diagram below shows the set-up of an electrical doorbell.



Which one of the following statements is correct?

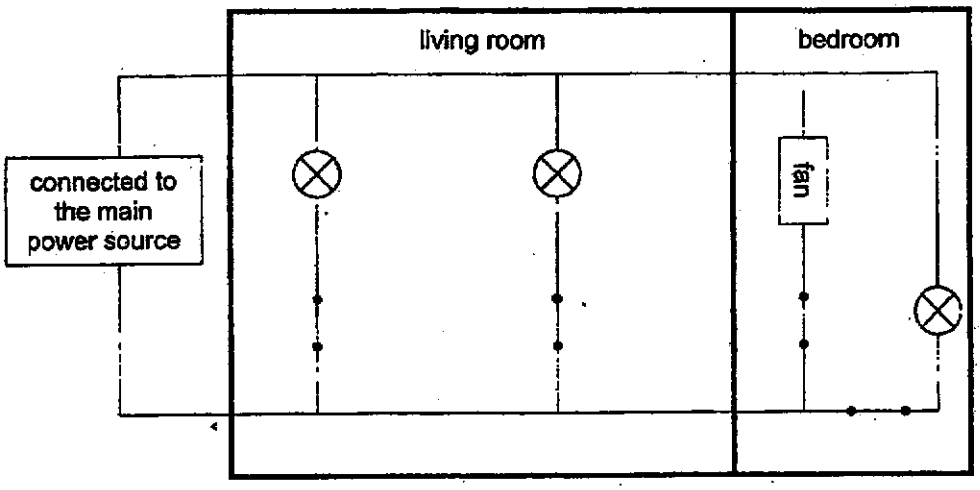
(1) When the switch is closed, the hammer will not hit the bell.
(2) When the switch is closed, the hammer will hit the bell repeatedly.
(3) When the switch is closed, electricity will flow through the iron bars.
(4) When the switch is closed, electricity will not flow through the circuit at all.

20. An electrician is planning the electrical circuit of Mr Lim's new house according to his requests:

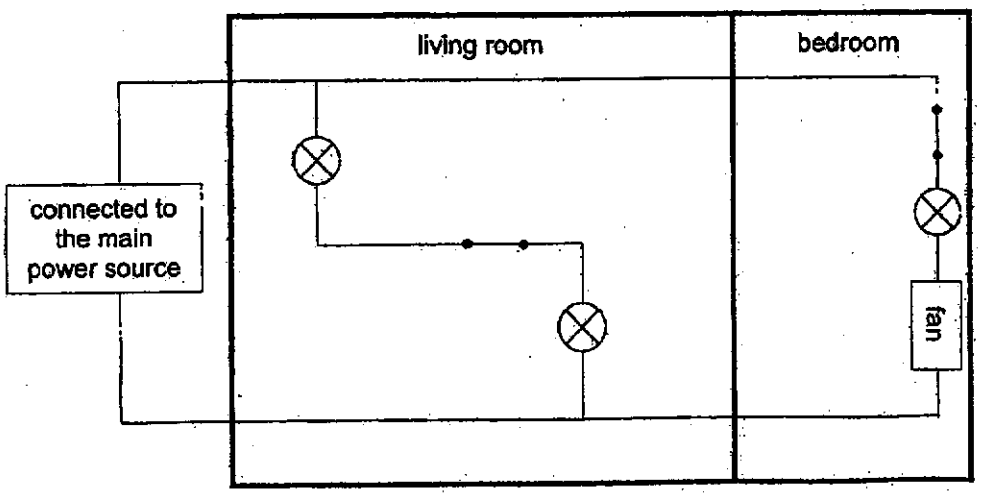
- The lights in the living room should be controlled independently.
- The light and fan in the bedroom should be switched on and off without affecting each other.

Based on Mr Lim's requests, which one of the following circuit diagrams should the electrician use to wire up his house?

(1)

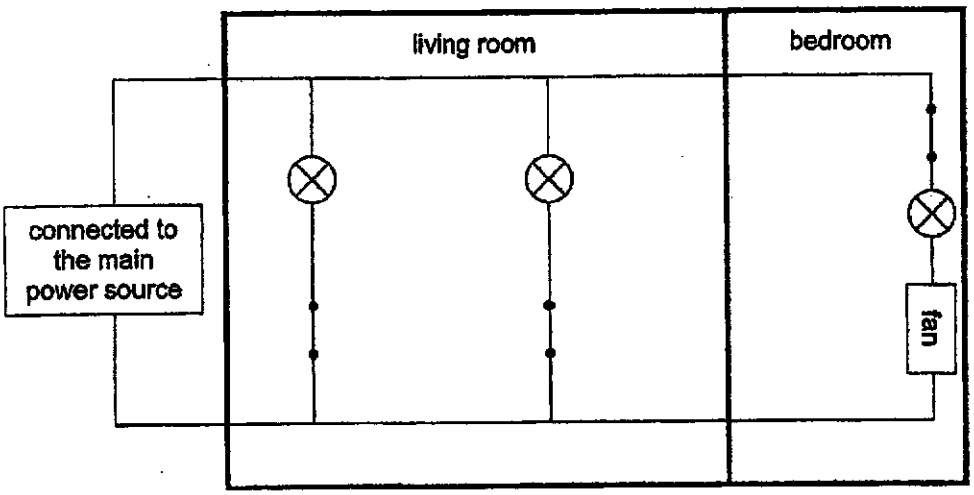


(2)

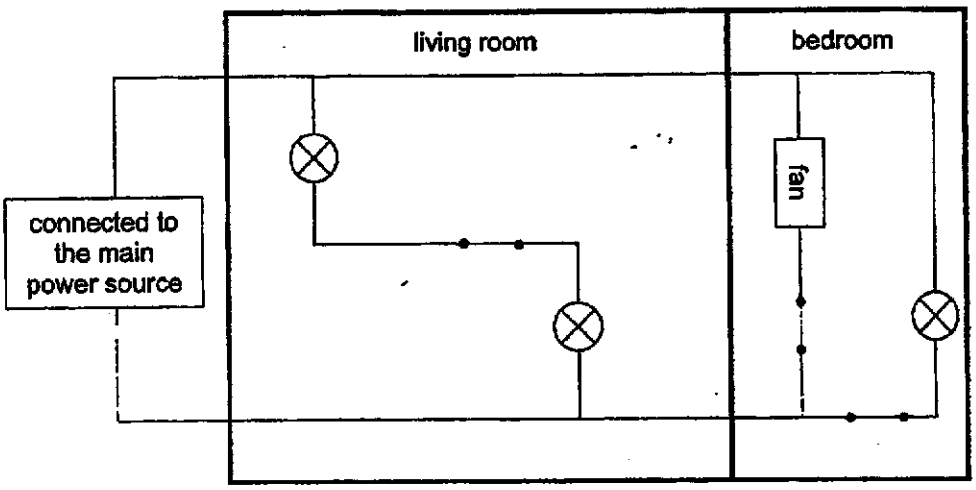


(Continued Question 20)

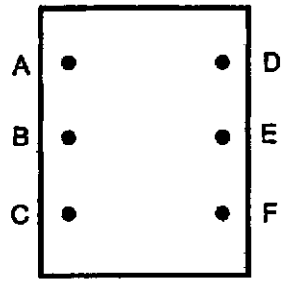
(3)



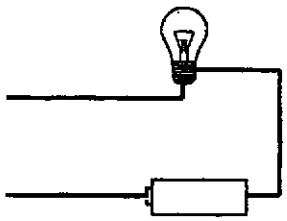
(4)



21. Hong Kai made a circuit card with 6 fasteners, A, B, C, D, E and F. Only some of the fasteners are connected on the underside. He connected a circuit tester to 2 of the fasteners at a time and placed a tick whenever the pair of fasteners allowed the bulb to light up.



circuit card



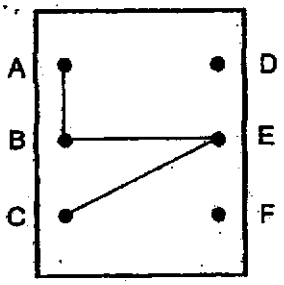
circuit tester

He obtained the following results.

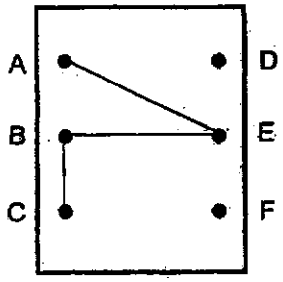
Fasteners tested	AB	BC	CA	EB	EF	FB
Did the bulb light up?	✓	✓	✓	✓		

Based on his results above, which one of the following connections is **not** possible?

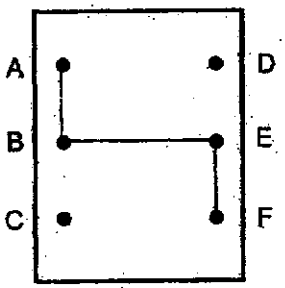
(1)



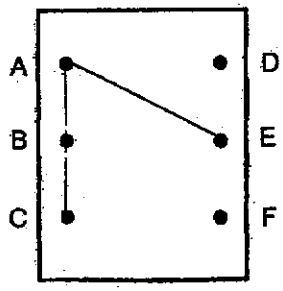
(2)



(3)



(4)

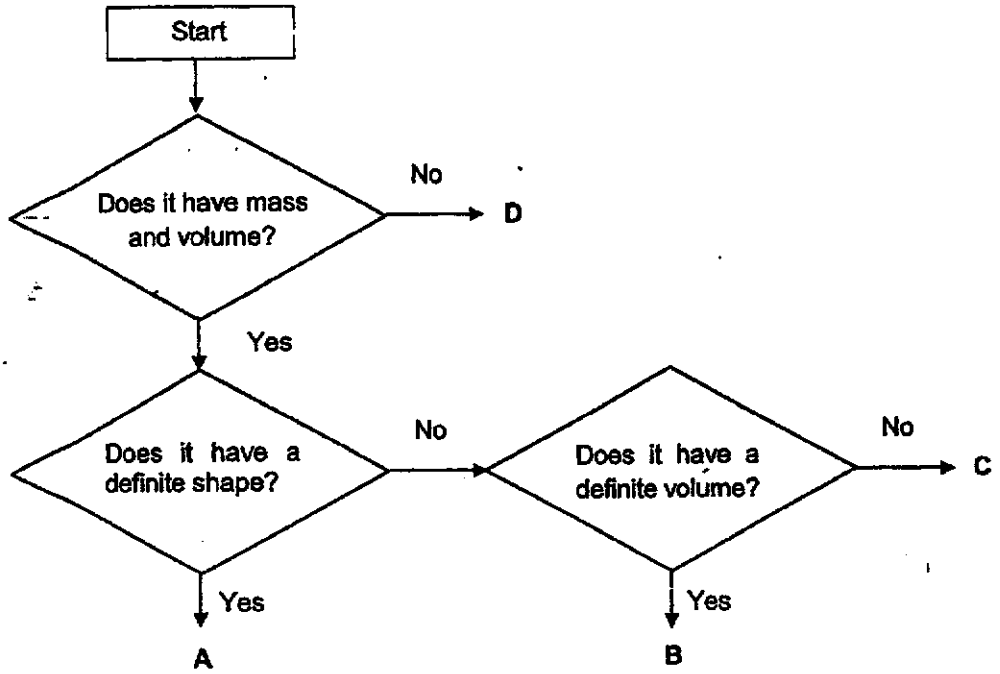


22. Which of the following actions show the safe handling of electrical parts?

A Do not touch switches with wet hands.
B Replace wires when rubber insulation is damaged.
C Connect as many plugs as possible to one socket.
D Connect the plug to the socket when the switch is turned off.

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

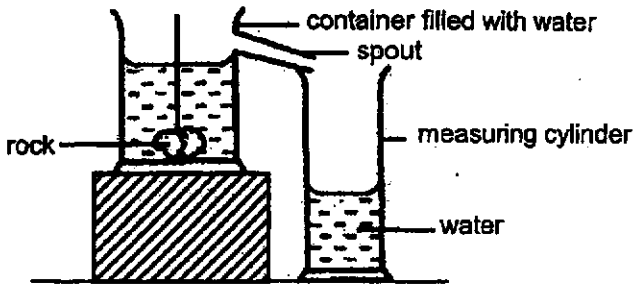
23. Study the flowchart below carefully.



Based on the flowchart, which one of the following best represents A, B, C and D?

	A	B	C	D
(1)	marble	water vapour	oil	shadow
(2)	marble	oil	water vapour	shadow
(3)	oil	marble	shadow	water vapour
(4)	shadow	water vapour	marble	oil

24. The set-up below was used to find the volume of a rock.

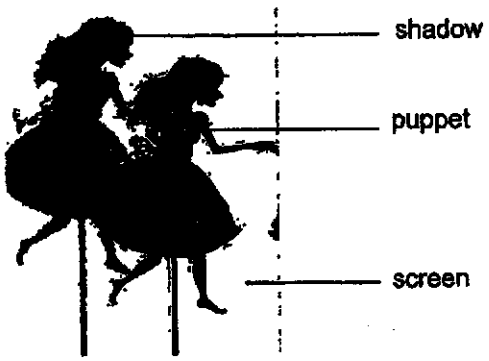


Rearrange the following steps to show the correct sequence used to measure the volume of the rock.

A Tie the rock to a string and lower it completely into the container..
B Place your eye at the water level of the measuring cylinder to find the volume of the rock.
C Fill the container with water until it starts to flow out from the spout.
D Place an empty measuring cylinder under the spout.

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

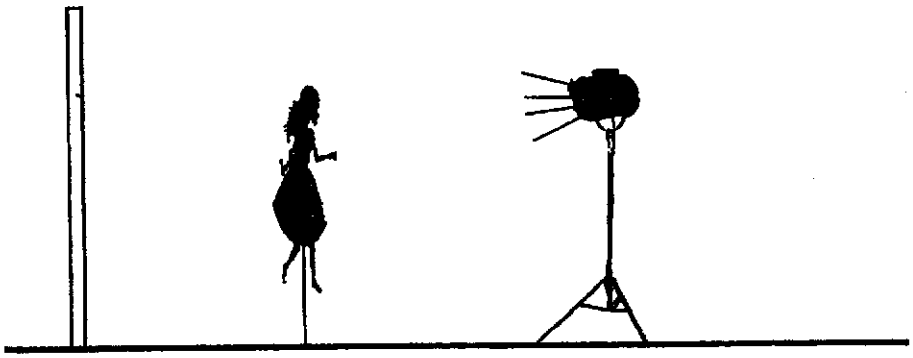
Study the diagram below and answer questions 25 and 26.
The diagram below shows a puppet and its shadow cast on the screen behind it.



25. Which one of the following statements correctly explains how the shadow was formed?

(1) The screen gave out light which was blocked by the puppet.
(2) The screen blocked the path of light from reaching the puppet.
(3) The puppet blocked the path of light from reaching the screen.
(4) The puppet and screen were placed in a dark room with no light source.

26. The puppet master observed that the size of the shadow changed when the puppet was moved nearer or further from the light source.



Which of the following action(s) could allow the puppet master to form a smaller shadow of the puppet on the screen?

A Move the puppet closer to the screen.
B Move the screen away from the puppet.
C Move the light source closer to the puppet.

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

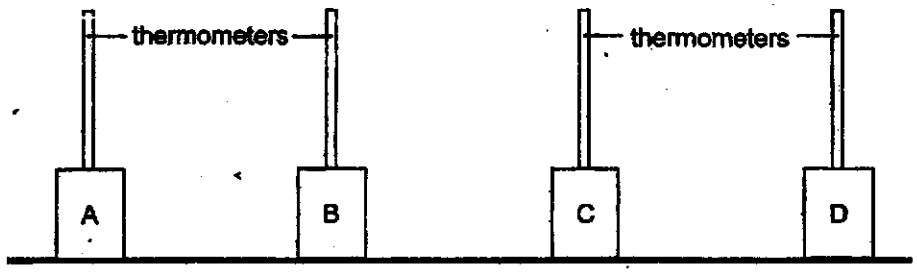
27. Gopal placed some ice cubes on a metal plate. After five minutes, he observed that the ice cubes melted and the metal plate felt cold.

Which of the following statements explain Gopal's observations correctly?

A The metal plate lost heat to the ice cubes.
B The ice cubes lost heat to the surroundings.
C The metal plate gained heat from the ice cubes.
D The ice cubes gained heat from the surroundings.

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

28. Rosnie carried out an experiment to find out the effect of the Sun's heat on different materials. She used 4 identical empty cans made of different materials, A, B, C and D, for the set-ups shown below. The set-ups were placed under direct sunlight.



She recorded the temperature of the air in the cans over time, as shown in the table below.

	Temperature of air in the cans (°C)			
Time (min)	A	B	C	D
0	25	25	25	25
5	28	28	27	29
10	31	30	29	33
15	34	32	30	36

Based on her results, which one of the materials is most suitable for making a cooler box to keep drinks cool for the longest time?

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

~ END OF BOOKLET A ~

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NANYANG PRIMARY SCHOOL

PRIMARY 5 SCIENCE

SEMESTRAL ASSESSMENT 2
2020

BOOKLET B

Date: 28th Oct 2020

Duration: 1 h 45 min

Name: _____ (

Class: Primary 5 ( )

Marks Scored:

Booklet A:		56
Booklet B:		44
Total:		100

Any query on marks awarded should be raised by the next day. We seek your understanding in this matter as any delay in the confirmation of marks will lead to delays in the generation of results.

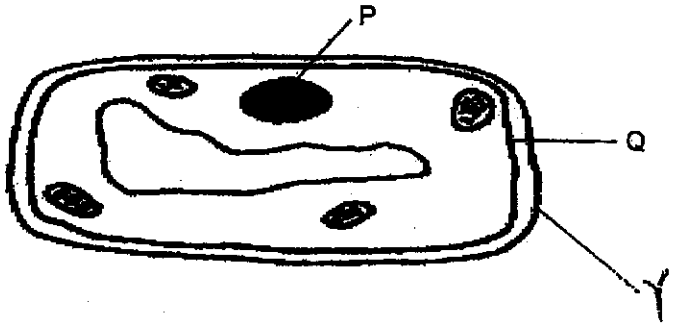
Parent's signature: _____

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

Booklet B consists of 15 printed pages including this cover page.

Section B (44 marks)
Write your answers to questions 29 to 40 in the spaces provided.

29. The diagram below shows a plant cell.



(a) (i) On the diagram above, **label with an 'X'** the part of the cell that helps to make food for the plant. [1]

(ii) Besides the part labelled in (a)(i), **label with a 'Y'** another part of the cell that is present only in a plant cell. [1]

(b) State the function of parts P and Q. [2]

(i) Part P:

_____

_____

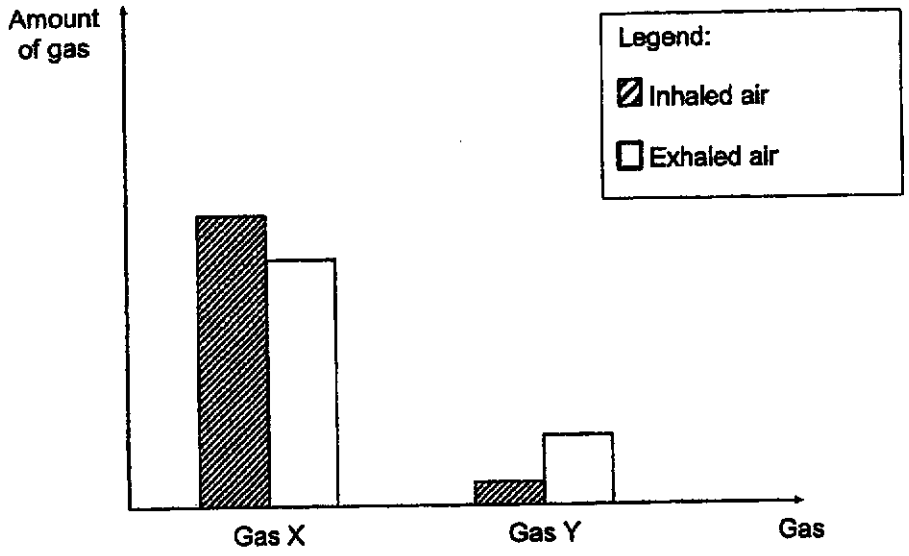
(ii) Part Q:

_____

_____

4

30. The bar graph below shows the amount of gases X and Y in inhaled air and exhaled air.



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

Gas X: _____

Gas Y: _____

Max went to the park to exercise. He noticed that his breathing rate increased during exercise.

(b) Explain why Max's breathing rate increased when he exercised. [1]

_____

_____

The respiratory system must work together with the circulatory system to ensure that oxygen is transported to all parts of the body and carbon dioxide is removed from various parts of the body.

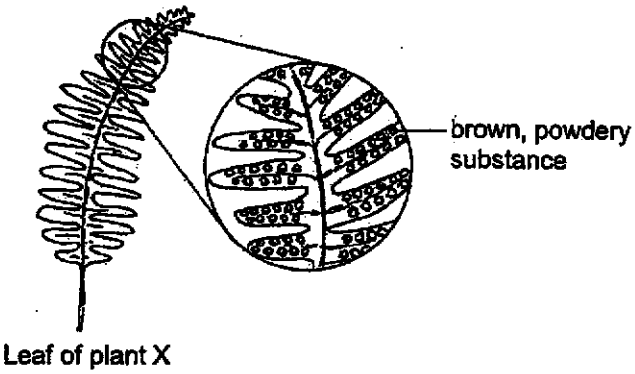
(c) Describe how both systems work together to remove carbon dioxide from various parts of the body. [2]

_____

_____

4

31. Jerry studied a leaf of plant X as shown in the diagram below. He observed some brown, powdery substance on the underside of the leaf and concluded that plant X is non-flowering.



Leaf of plant X

(a) What is the brown, powdery substance that Jerry observed on the underside of the leaf? [1]

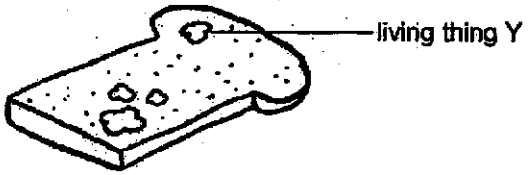
_____

(b) Explain why it is important for the brown, powdery substance to be small and light. [1]

_____

_____

Jerry then observed living thing Y that was found growing on a piece of bread as shown in the diagram below.



He placed plant X and living thing Y in a closed cupboard for a week and gave them the same amount of water daily. He recorded his observations as shown below.

	Observations after a week
Plant X	leaves turned yellow and some dropped off from the plant
Living thing Y	grew and covered a larger area on the bread

(Continued Question 31)

(c) Given the same conditions, explain why living thing Y grew well but not plant X. [2]

_____

_____

(d) State the group of living things that living thing Y belongs to and give one characteristic of this group. [1]

_____

_____

32. A scientist kept some mosquitoes at different temperatures to study the average duration of each stage of its life cycle.

Stage	Average duration of stage (days)		
	25°C	30°C	35°C
 egg	2	2	1
 larva	11	9	4
 pupa	3	3	2

(a) Based on the results above, how does temperature affect the time taken for mosquitoes to develop into the adult stage? [1]

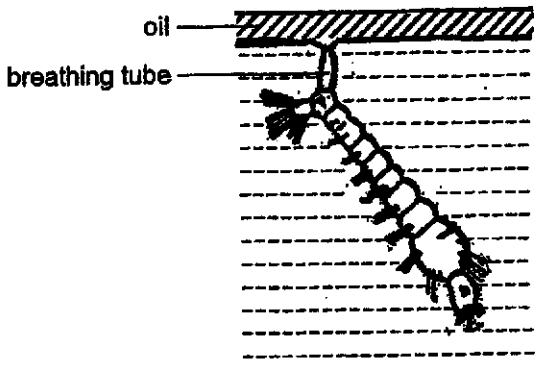
Singapore has an average daily temperature of 34°C. People are advised to remove stagnant water in their homes to prevent mosquitoes from breeding in them.

(b) Based on the results in the table and the information above, how often should stagnant water be removed in order to prevent the eggs from hatching into young? [1]

(Continued Question 32)

2

The diagram below shows a mosquito larva in water.

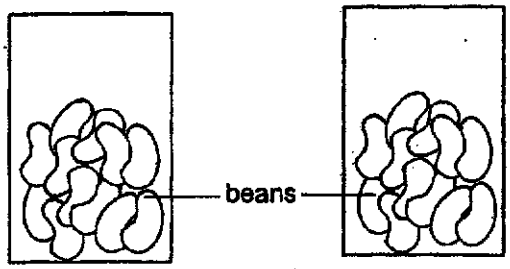


mosquito larva

(c) How is the mosquito larva affected when oil is sprayed on the stagnant water? Explain your answer. [2]

2

33. Marcio put the same number of beans into 2 identical boxes, P and Q. He added the same amount of water to the beans in both boxes. Box P was left in a closed cupboard while box Q was left by the window. He observed the beans over 5 days.



Box P
closed cupboard
29°C

Box Q
by the window
29°C

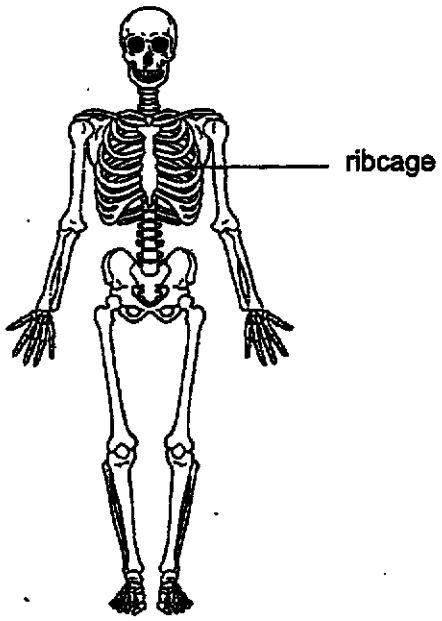
(a) What was the aim of Marcio's experiment? [1]

(b) What would be observed about the beans in box P and box Q over 5 days? Explain your answer. [1]

(c) Why did Marcio put more than one bean in each of the bags? [1]

3

34. The diagram below shows the skeleton of a human.



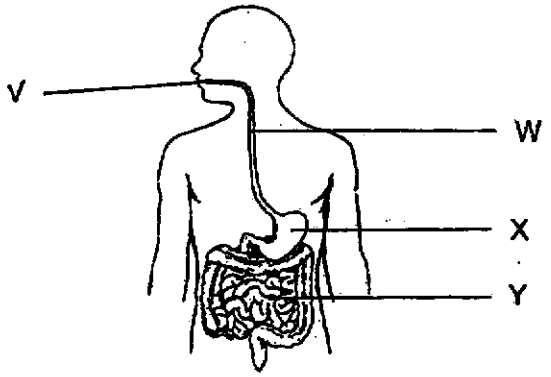
The ribcage protects two organs. One is part of the circulatory system while the other is part of the respiratory system.

State the organs and their functions. [2]

Organ in the circulatory system	
Function	

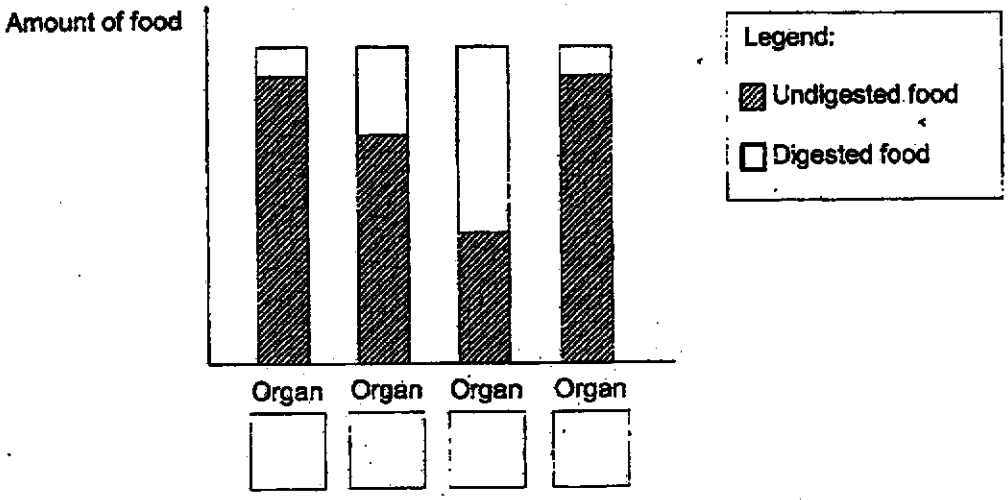
Organ in the respiratory system	
Function	

35. The diagram below shows the human digestive system with some organs labelled V, W, X and Y.



The graph below shows the amount of digested food and undigested food in various organs of the human digestive system after a boy ate a meal.

(a) Identify the four organs in the graph below using the letters V, W, X or Y. Each box should only contain one letter and each letter can only be used once. [2]



(b) State a similarity and difference between the functions of organ V and organ Y. [2]

Similarity:

_____

_____

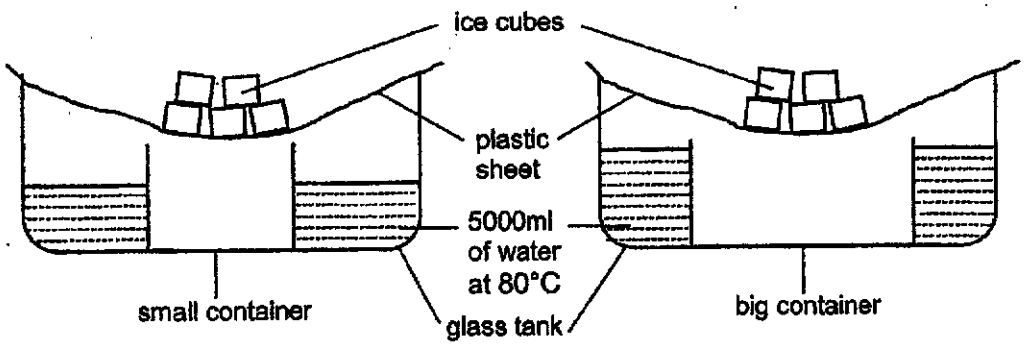
Difference:

_____

_____

4

36. Renee prepared two set-ups below to show her classmates how to make artificial rain.



Set-up P **Set-up Q**

(a) State the purpose of the ice cubes in the set-ups above. [1]

_____

After a few hours, she noticed that some water was collected in both containers.

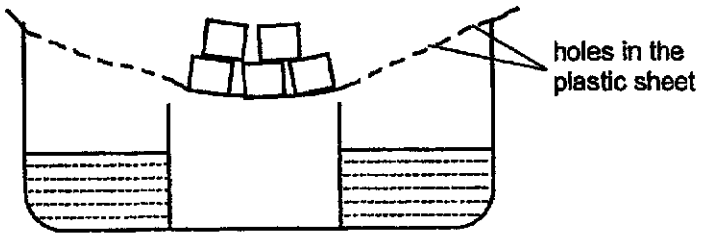
(b) Which set-up would have more water collected in the container? Explain your answer. [2]

_____

_____

_____

Renee then prepared set-up R. Set-up R was similar to set-up P but with some holes in the plastic sheet.



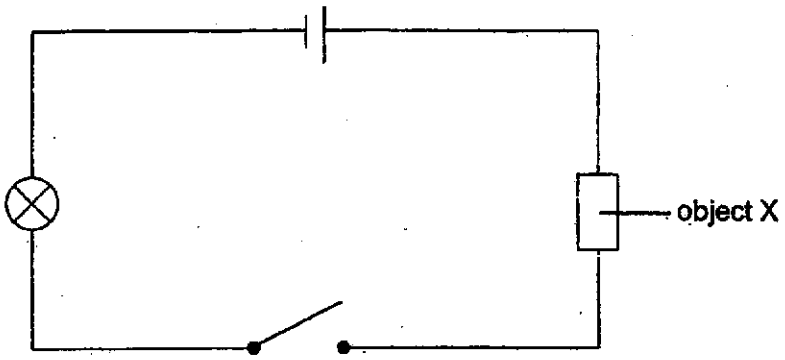
Set-up R

(c) Would the amount of water collected in the container of set-up R be more than, less than or the same as the amount of water collected in the container of set-up P? Explain your answer. [2]

_____

_____

37. Sophia set up an open circuit as shown below.



When she closed the circuit, the bulb did not light up.

(a) What could be the two possible reasons that the bulb did not light up? [2]

Reason 1: _____

_____

_____

Reason 2: _____

_____

_____

After Sophia made a change to the circuit, the bulb lighted up.

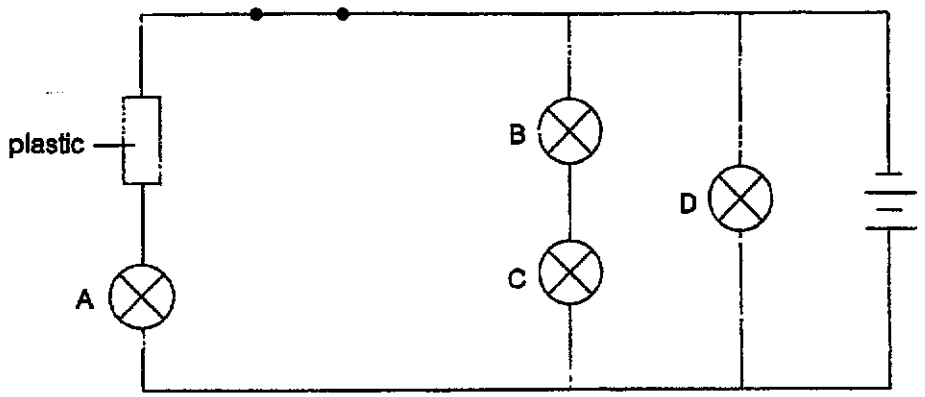
(b) She then added two more batteries. The bulb fused after lighting up for a while. Why did the bulb fuse? [1]

_____

_____

3

38. Study the circuit diagram below.



Bulbs A, B, C and D are identical.

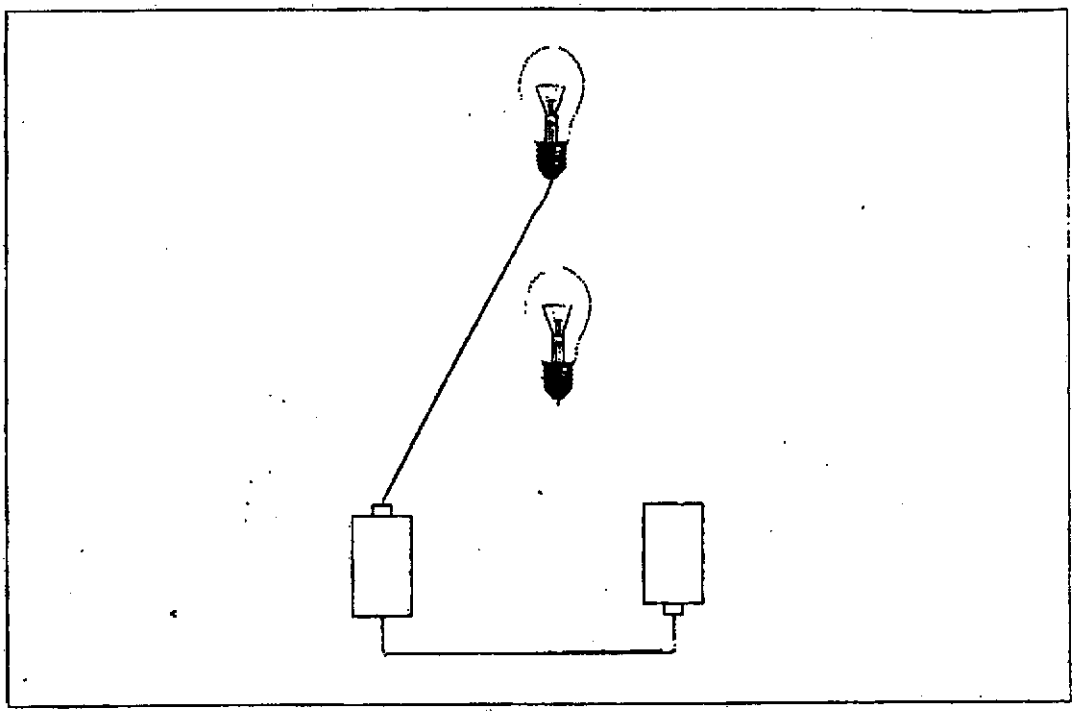
Below are four statements based on the circuit above. Put a tick (✓) to indicate if each statement is true or false. [2]

	Statements	True	False
(i)	Bulb C is dimmer than Bulb D.		
(ii)	Bulb D will not light up if the switch is open.		
(iii)	Bulbs B and C will have equal brightness.		
(iv)	Bulb A did not light up.		

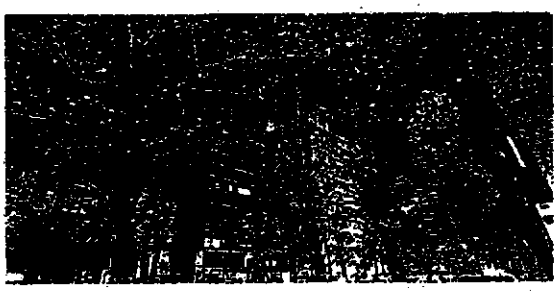
2

39. The diagram below shows two identical batteries and two bulbs.

(a) In the diagram below, draw wires to connect the bulbs and the batteries such that the two bulbs will light up with maximum brightness. [2]



(b) During festive seasons, some stretches of roads in Singapore will be decorated with lightings as shown in the diagram below.



The bulbs of festive lightings along the roads are arranged in parallel. Give two advantages of this arrangement. [2]

Advantage 1: _____

_____

Advantage 2: _____

_____

4

40. Esther wanted to make a magnet using the electrical method.

(a) Other than a battery, which of the following item(s) would she need? Tick the correct box(es) in the table below. [1]

magnet	
steel rod	
nylon string	
copper wire	✓

She tested the electromagnet that she had made, and recorded her results in the table below.

	Aluminium pins	Steel pins
Number of pins attracted	0	3

She re-designed her electromagnet and tested it again. The number of steel pins attracted increased.

(b) State the number of aluminium pins that would most likely be attracted. [1]

	Aluminium pins	Steel pins
Number of pins attracted	_____	6

(c) Suggest two possible changes that Esther could have made to her re-designed electromagnet for it to attract 6 steel pins. [2]

(i) _____

_____

(ii) _____

_____

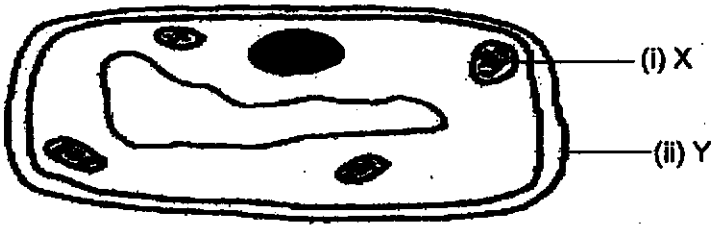
~ END OF BOOKLET B ~

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

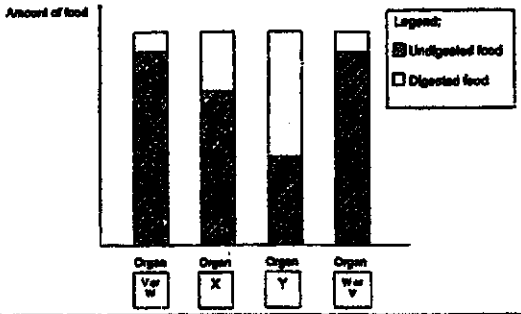
SECTION A

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

Nanyang Primary School
P5 SCIENCE END-OF-YEAR EXAM 2020
Answer Key

Qn	Answer
29 (a)	
(b)	Part P: It controls all cell activities. Part Q: It controls the movement of substances in and out of the cell.
30 (a)	Gas X: oxygen Gas Y: carbon dioxide
(b)	Max had to take in more oxygen and give out more carbon dioxide.
(c)	The circulatory system transports carbon dioxide to the lungs. At the lungs, carbon dioxide is exhaled.
31 (a)	Spore bags
(b)	It is to allow the substance to be dispersed by wind.
(c)	Living thing Y obtained its food from the bread that it grew on but plant X could not obtain light to make food.
(d)	Fungi. It reproduces by spores.
32 (a)	The higher the temperature, the shorter the time taken for mosquitoes to develop into the adult stage.
(b)	Every day
(c)	The mosquito larva will die. It cannot take in oxygen.
33 (a)	To find out if light is needed for seed germination.
(b)	The seeds in both boxes will germinate as they received water, oxygen and warmth. (
(c)	Using more beans ensures that the results obtained are reliable.
34	**Organ in the circulatory system** – Heart **Function** – The heart pumps blood to all parts of the body **Organ in the respiratory system** – Lungs **Function** – Allows oxygen to be taken in and carbon dioxide to be given out.

35 (a)



(b) Similarity: Both organs digest food.
Difference: Organ Y absorbs digested food into the bloodstream while organ V does not.

36 (a) To cool the plastic sheet

(b) Set-up P. The water in set-up P had a greater exposed surface area so it evaporated faster.More water vapour would lose heat to and condense on the cooler underside of the plastic sheet to form water droplets, which dripped into the smaller container.

(c) Less. Some water vapour escaped through the holes in the plastic sheet so less water vapour would condense to form water droplets on the plastic sheet of set-up R.

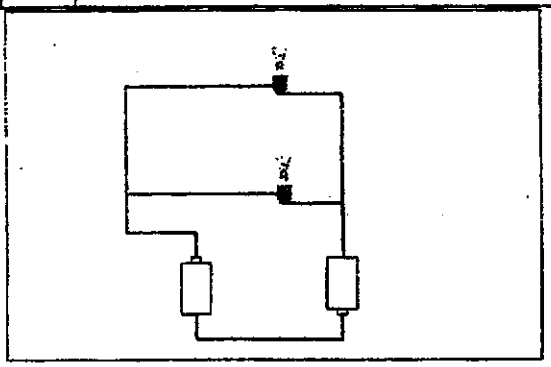
37 (a) Object X could be an insulator of electricity.

(b) Too much electric current flowed through the circuit, causing the filament to melt.

38

	Statements	True	False
(i)	Bulb C is dimmer than Bulb D.	✓	
(ii)	Bulb D will not light up is S1 is open.		✓
(iii)	Bulbs B and C will have equal brightness.	✓	
(iv)	Bulb A did not light up.	✓	

39 (a)



(b) The bulbs will be brighter.
When one light bulb fuses, the other light bulbs will still light up.

40 (a) steel rod, copper wire

(b) 0

(c) She increased the number of coils of wire around the steel rod.
She added more batteries to the set-up.