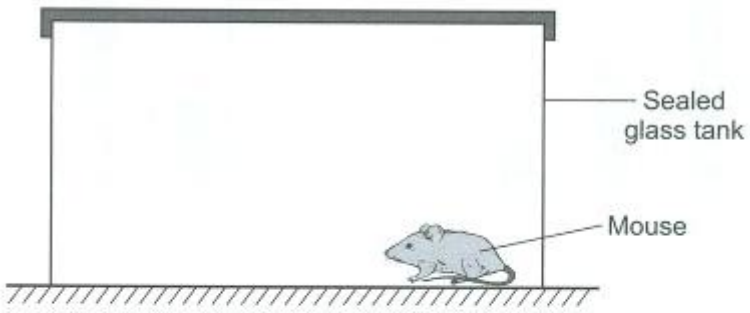
TOPICAL TEST 5A:

30

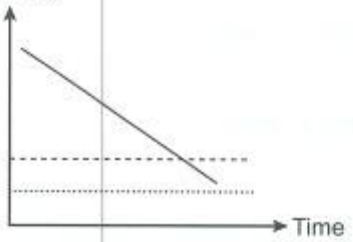
Section A (10 x 2 marks)

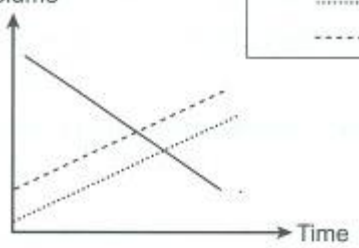
For each question from 1 to 10, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and write the answers in the brackets provided.

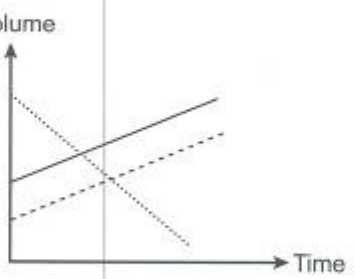
1. Claire sets up the experiment below to find out how the mouse affects the amount of oxygen, carbon dioxide and water vapour in a sealed glass tank over a period of time.

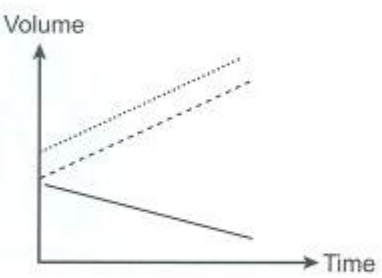


Which one of the following line graphs best illustrates the changes in the amount of oxygen, carbon dioxide and water vapour in the sealed tank over a period of time?

(1)


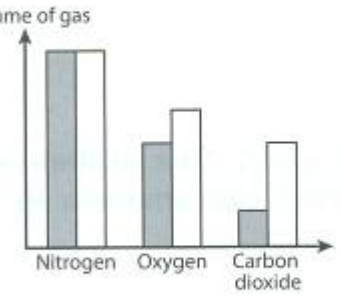
(2)


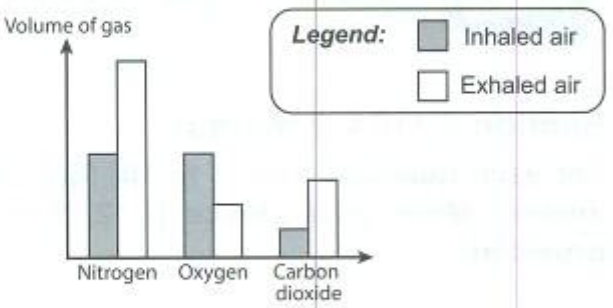
(3)


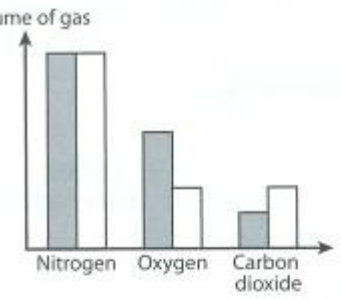
(4)


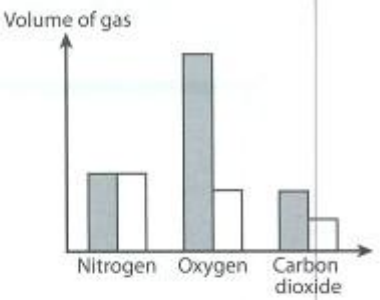
( )

2. Which one of the following bar charts best represents the composition of nitrogen, oxygen and carbon dioxide in inhaled and exhaled air?

(1)


(2)


(3)


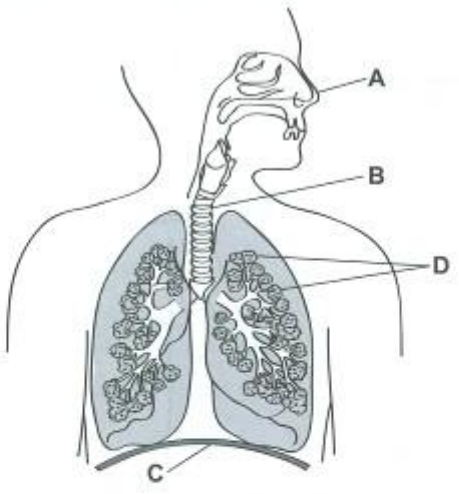
(4)


( )

3. Compared to the mouth, the nose is better equipped for breathing because _____.

(1) it is easier to breathe through the nose
(2) more oxygen can be inhaled through the nose
(3) the fine hair and mucus trap dirt and dust in the air
(4) the passage from the nose to the windpipe is wide ( )

4. The diagram below shows the human respiratory system.

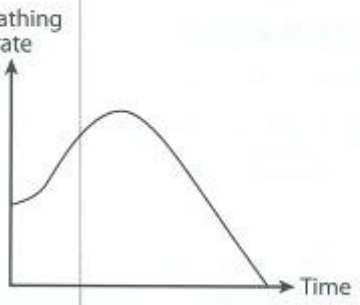


Where does the exchange of gases take place in the body?

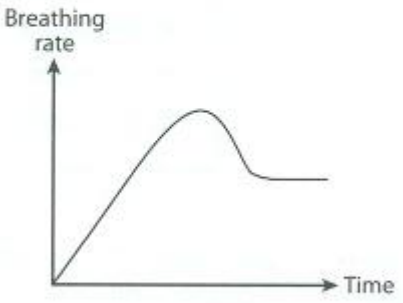
(1) A (2) B
(3) C (4) D ( )

5. Which one of the graphs shows the breathing rate of Mike from the time he began running to the time he stopped to take a rest?

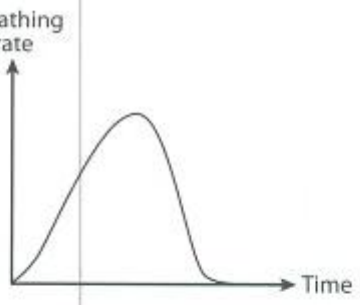
(1)



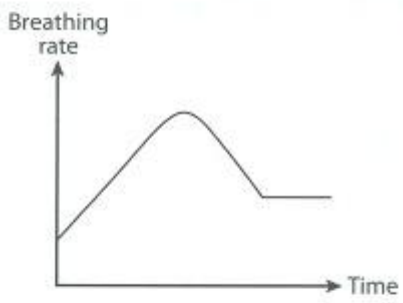
(2)



(3)



(4)



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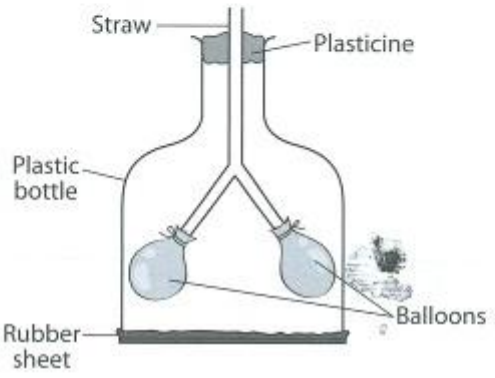
6. Jia Le made a model of the human respiratory system as shown in the diagram below.



Which of the following best describes what each part in the model represents in the human respiratory system?

	Plastic bottle	Straw	Balloons	Rubber sheet
(1)	Chest cavity	Windpipe	Diaphragm	Lungs
(2)	Windpipe	Chest cavity	Lungs	Diaphragm
(3)	Chest cavity	Windpipe	Lungs	Diaphragm
(4)	Windpipe	Lungs	Diaphragm	Chest cavity

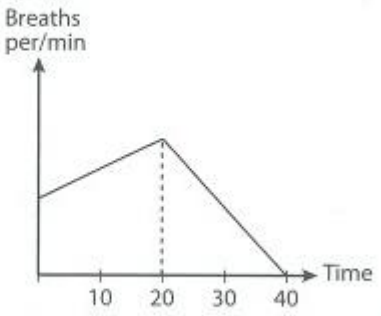
( )

7. The list below shows that activities that Yee Kai carried out after he woke up in the morning.

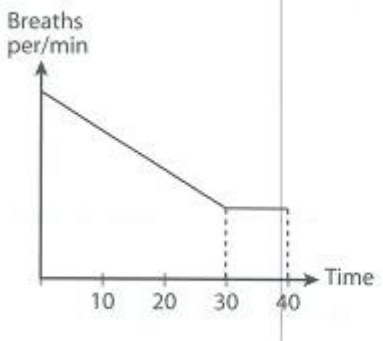
20 minutes : Jog along the park
10 minutes : Cool down exercise
10 minutes: Lie on the mat to rest

His breathing rate was measured during the activities and the results were represented in a graph. Which one of the graphs below correctly represents Yee Kai's breathing rate during those activities?

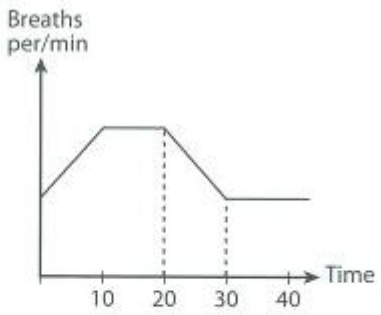
(1)



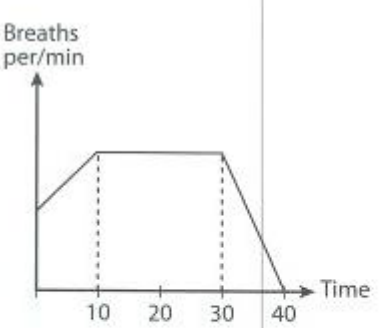
(2)



(3)

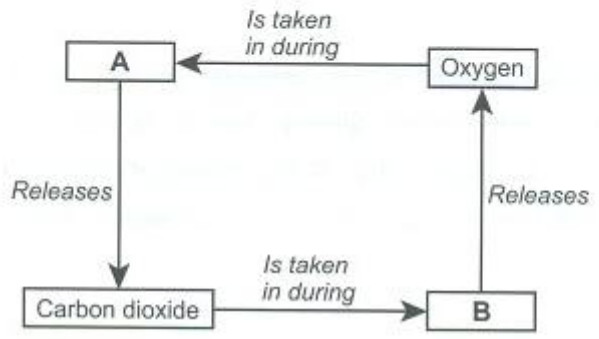


(4)



( )

8. Study the diagram shown below.



Which of the following processes does A and B represent?

	A	B
(1)	Respiration	Photosynthesis
(2)	Decomposition	Respiration
(3)	Photosynthesis	Transpiration
(4)	Photosynthesis	Respiration

( )

9. Four children were involved in a competition. The table below shows the breathing rates of the four children at the beginning and the end of the competition.

Child	Breathing rate (per minute)	
	At the beginning	At the end
Pei Pei	20	25
Queenie	20	22
Rachel	18	23
Siti	19	24

Based on the results in the table, which of the following statements are definitely true?

A: Pei Pei used more energy than Queenie.
B: Rachel and Queenie used the same amount of energy.
C: Rachel and Siti have the same increase in their breathing rate at the end of the race
D: Breathing rates of all the children increased at the end of the race because their bodies needed to remove the excess carbon dioxide produced.

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

( )

10. Which of the following correctly states how respiration helps a living thing to stay alive?

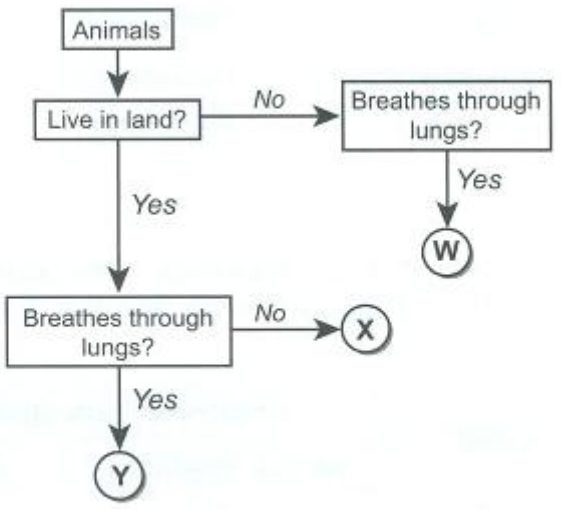
(1) Respiration breaks down food to release energy necessary for survival.
(2) Respiration produces carbon dioxide which is needed by plants to survive.
(3) Respiration helps to digest the food necessary for a living thing to survive.
(4) Respiration produces oxygen that is necessary for the survival of all living things.

( )

Section B (10 marks)

Read each question carefully and write the answers in the spaces provided.

11. Study the flow chart below.

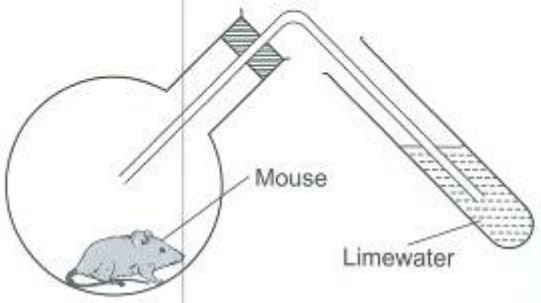


(a) State one difference between Animal W and Animal X. (1m)

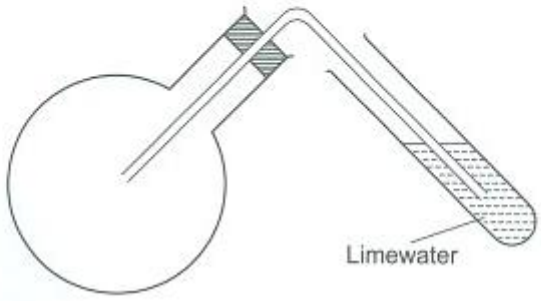
(b) State one similarity between Animal X and Animal Y. (1m)

(c) Suggest two possible examples for Animal Y. (1m)

12. Jay carried out an experiment as shown below.



Set-up A



Set-up B

(a) State the possible aim of this experiment. (1m)

_____

_____

(b) What can be observed about the limewater in the two set-ups at the end of the experiment? (1m)

_____

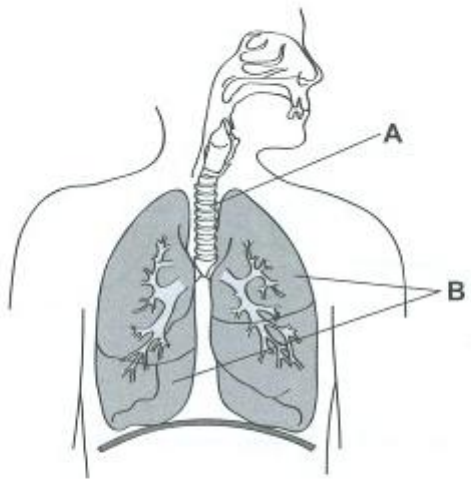
_____

(c) Jay repeated the experiment using 3 other similar mice. Explain why he did that. (1m)

_____

_____

13. The diagram below shows a human body system.



(a) Which labelled part, A or B, allows gaseous exchange to take place? (½ m)

_____

_____

(b) State one difference between inhaled air and exhaled air. (1m)

_____

_____

(c) Name the part of the skeletal system which protects Part B. (½m)

_____

_____

14. Josiah carried out an experiment to find out how the number of tiger barb fish affects the amount of dissolved oxygen in the water in a tank after 20 minutes. He prepared 4 set-ups, P, Q, R and S, each with a different number of fish.

Josiah recorded his results in the table below.

Set-up	Number of hydrilla plants	Number of tiger barbs	Amount of dissolved oxygen / unit
P	3	0	25
Q	3	4	20
R	3	8	15
S	3	12	10

(a) State the relationship between the number of tiger barbs and the amount of dissolved oxygen in the fish tank. (1m)

_____

_____

Next, Josiah removed all the hydrilla plants from all the set-ups.

The following day, he observed that the fish were swimming near the surface of water.

(b) Explain his observation. (1m)

_____

_____

_____

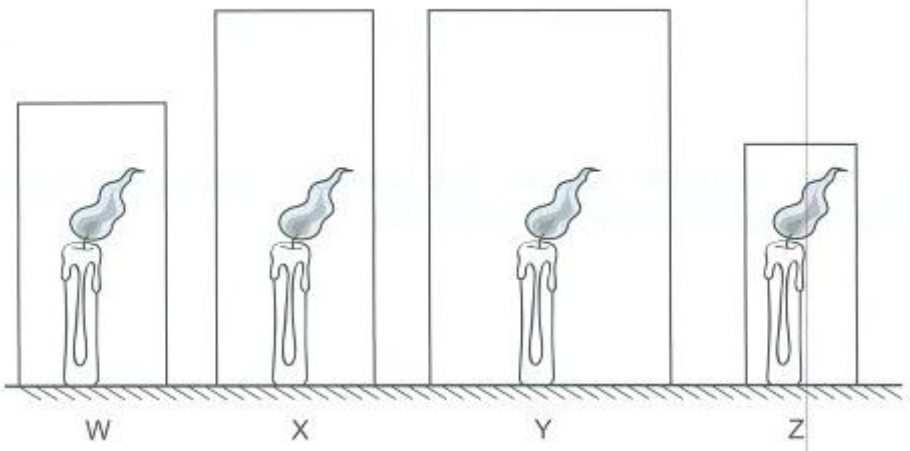
TOPICAL TEST 5B:

30

Section A (10 x 2 marks)

For each question from 1 to 10, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and write the answers in the brackets provided.

1. Study the diagram below.



Arrange the jars in descending order of the time taken for the flame to extinguish.

(1) W, X, Y, Z
(2) Z, Y, W, X
(3) X, W, Y, Z
(4) Y, X, W, Z ( )

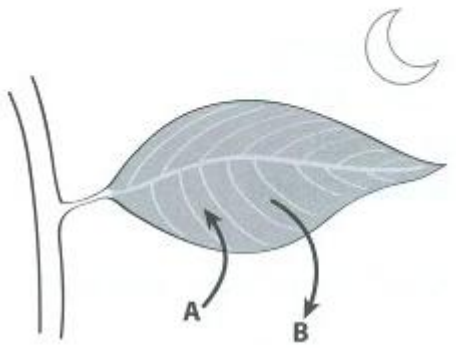
2. Adeline made the following statements about oxygen.

A: Oxygen is needed for combustion.
B: Oxygen is used to make fizzy drinks.
C: Oxygen is needed by animals and green plants only.
D: Oxygen is the gas that makes up the highest percentage in atmospheric air.

Which of the statement(s) Adeline made about oxygen is/are correct?

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

3. Study the diagram below.



Which of the following best represents Gases A and B?

	Gas A	Gas B
(1)	Oxygen	Carbon dioxide
(2)	Nitrogen	Carbon dioxide
(3)	Carbon dioxide	Oxygen
(4)	Oxygen	Nitrogen

( )

4. Which of the following shows the correct path taken by the air that we breathe in?

(1) Nose → Heart → Lungs
(2) Nose → Windpipe → Lungs
(3) Mouth → Windpipe → Heart → Lungs
(4) Mouth → Lungs → Windpipe → Heart ( )

5. Which of the following describes the difference between inhaled air and exhaled air?

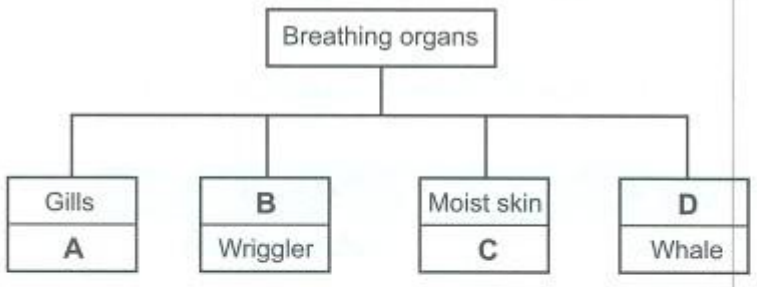
	Inhaled air	Exhaled air
A:	More oxygen	Less oxygen
B:	Less nitrogen	More nitrogen
C:	Less water vapour	More water vapour
D:	Warmer than room temperature	Cooler than room temperature

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

6. Which group of animals below breathe in the same way?

(1) Walrus, Goat, Penguin, Butterfly
(2) Shark, Guppy, Swordtail, Dolphin
(3) Tadpole, Whale, Seal, Lizard
(4) Parrot, Ostrich, Crocodile, Giraffe ( )

7. The classification chart below shows the breathing organs of some animals.

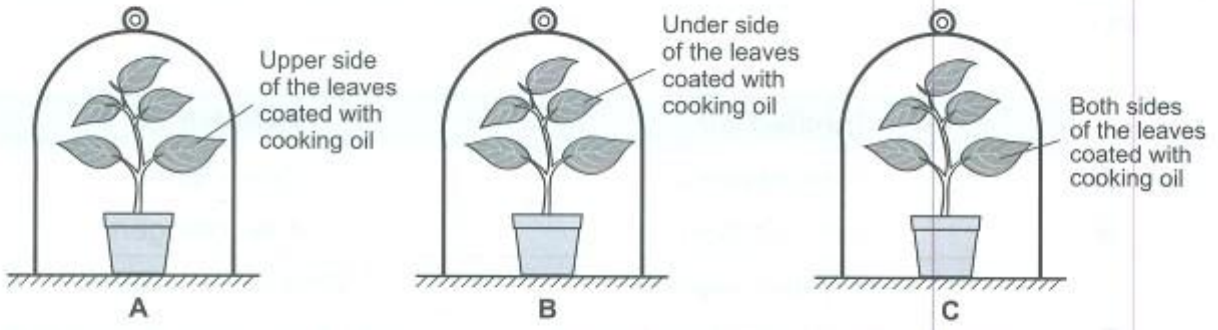


Which of the following best represents A, B, C and D?

	A	B	C	D
(1)	Penguin	Gills	Tadpole	Snout
(2)	Dolphin	Breathing tubes	Toad	Blowhole
(3)	Shark	Spiracles	Tadpole	Gills
(4)	Molly	Breathing tubes	Earthworm	Lungs

( )

8. Kay Kay prepared the experimental set-ups as shown below.

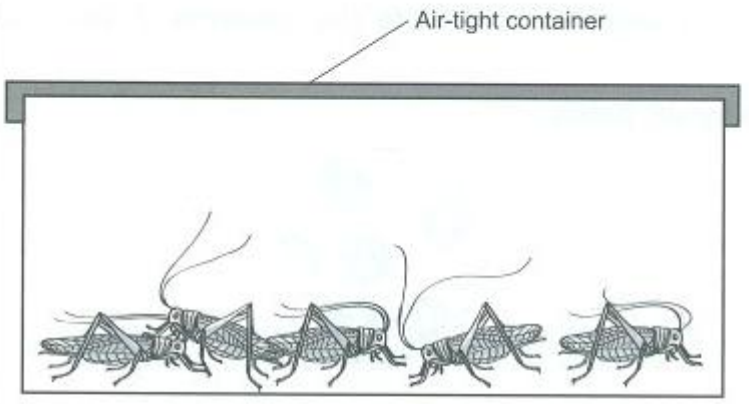


Which of the following represents the amount of gaseous exchange that takes place in the jars, arranged in ascending order?

Least ⟶ Most

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

9. The diagram below shows a few grasshoppers placed in an air-tight container.

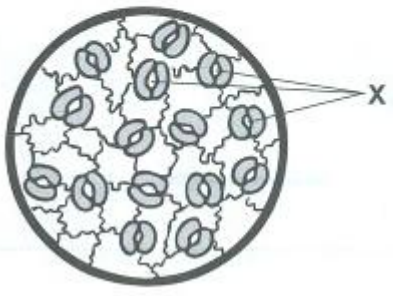


Which of the following best represents the changes in the composition of air in the air-tight container after 1 hour?

	Nitrogen	Carbon dioxide	Oxygen	Water vapour
(1)	Decreases	Increases	Decreases	Increases
(2)	Remains the same	Increases	Decreases	Increases
(3)	Remains the same	Decreases	Increases	Remains the same
(4)	Increases	Remains the same	Increase	Decreases

( )

10. Study the diagram shown below.



Which of the following best describes the function of the parts labelled X?

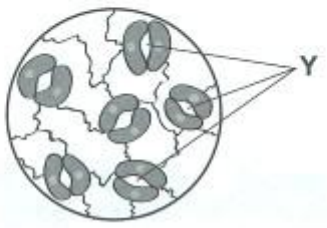
A: Part X allows oxygen to leave the leaves.
B: Part X allows oxygen to enter the leaves.
C: Part X allows water vapour to enter the leaves.
D: Part X allows water vapour the leave the leaves.

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

Section B (10 marks)

Read each question carefully and write the answers in the spaces provided.

11. Study the diagram below.



(a) Name the parts labelled Y and state the part of the leaf where they are mostly found. (1m)

_____

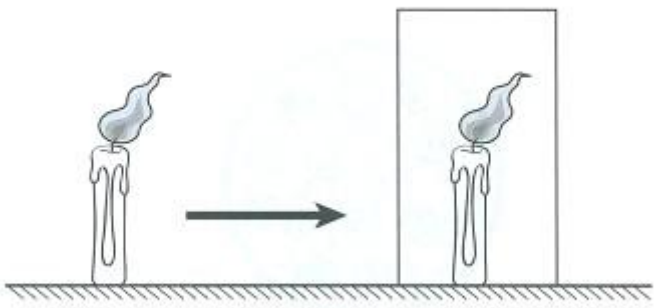
_____

(b) State the function of the parts mentioned in (a). (1m)

_____

_____

12. Lily carried out an experiment as shown below.



She lit a candle and placed a glass jar over it.

(a) What can be observed about the candle after some time? (1m)

_____

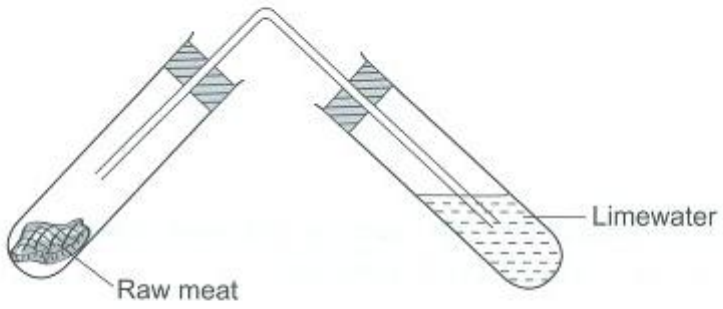
_____

(b) Explain your answer in (a). (2m)

_____

_____

13. Hui Min carried out an experiment as shown in the set-up below.



(a) What can be observed about the limewater after 1 week? (1m)

_____

_____

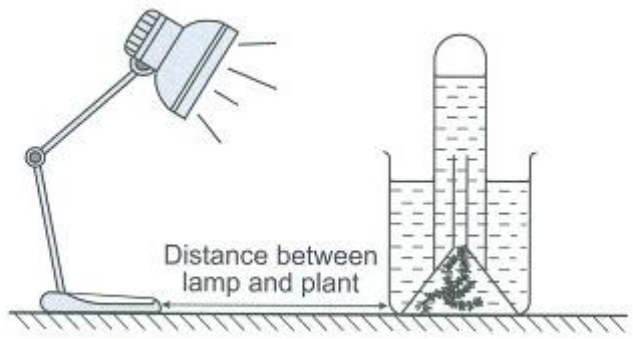
(b) Explain your answer in (a). (2m)

_____

_____

_____

14. Judy conducted an experiment to find out the effect of light on hydrilla plants. She placed a lamp at different distances away from the test tube and counted the number of bubbles produced by the hydrilla plant in 1 minute.



She recorded the results in the table below.

Distance between the lamp and the plant (cm)	Number of gas bubbles produced
5	30
10	26
15	22
20	18

(a) Name the gas in the gas bubbles produced by the plant. (1m)

(c) What is the relationship between the distance between the lamp and the plant and the plant's rate of photosynthesis? (1m)