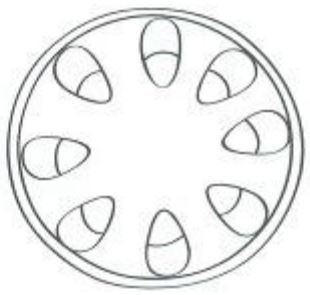
TOPICAL TEST 6A:

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. Lisa has a stalk of white carnation flower. The diagram below shows the cross-section of the stem.



Lisa placed the stalk of carnation in a beaker of red-coloured water. After 1 day, she observed that the white carnation flower was stained red. What would the cross-section of the stem look like after 1 day?

(1) 

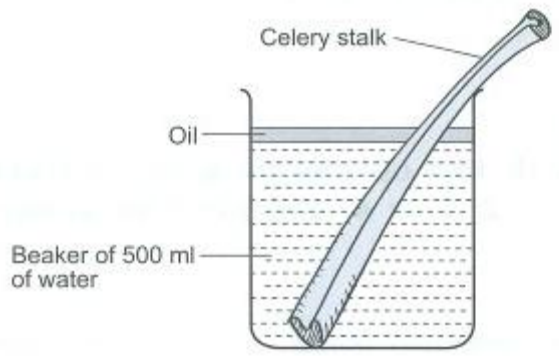
(2) 

(3) 

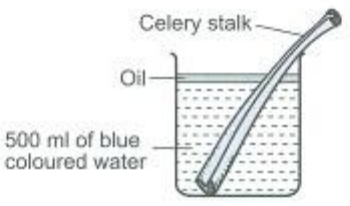
(4) 

( )

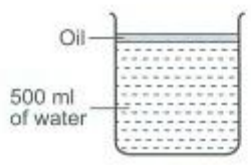
2. Jia Mei wanted to find out if a celery stalk absorbs water. She set up the experiment as shown below.

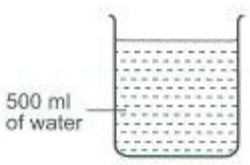


Which of the following set-ups should she used as a control?

(1)


(2)


(3)


(4)


( )

3. Which of the following correctly represents the path that water takes in a plant?

(1) Root → Xylem → Leaf
(2) Leaf → Phloem → Root → Stem
(3) Root → Leaf → Xylem → Phloem
(4) Root → Phloem → Xylem → Leaf

( )

4. The table below shows Joseph's heart rate and the breathing rate per minute taken before and after exercise.

	Heart rate per minute	Breathing rate per minute
Before exercise	70	40
After exercise	105	56

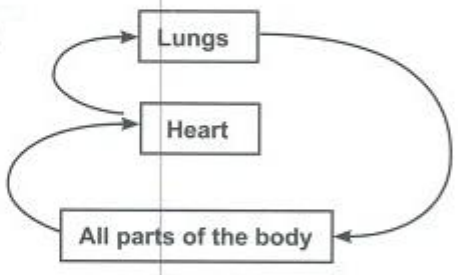
From the table above, which of the following can be inferred?

A: The heart beats faster during exercise.
B: The heart beats slower during exercise.
C: More oxygen is needed so we take in more breaths during exercise.
D: Blood reaches different parts of the body faster when our body works harder.

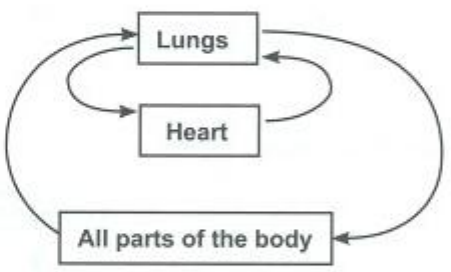
(1) A only
(2) B and C only
(3) A, C and D only
(4) A, B, C and D ( )

5. Which of the following diagrams shows the path of blood in the human body?

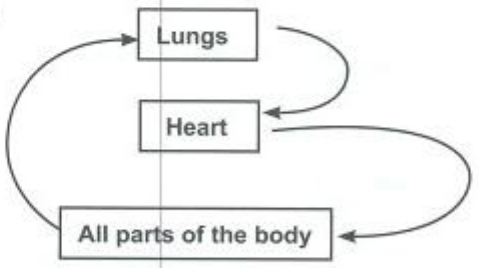
(1)



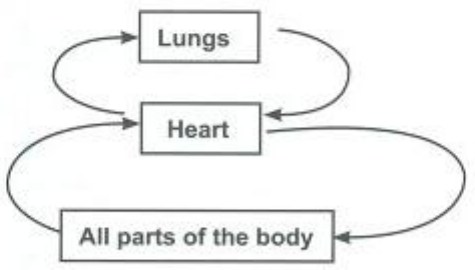
(2)



(3)



(4)



( )

6. Which of the following statements about the circulatory system is/are correct?

A: Arteries carry blood back to the heart.
B: Veins carry blood away from the heart.
C: Heart muscles contract and relax when the heart pumps blood around the body.
D: Capillaries have thin walls so that materials can pass through them easily.

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

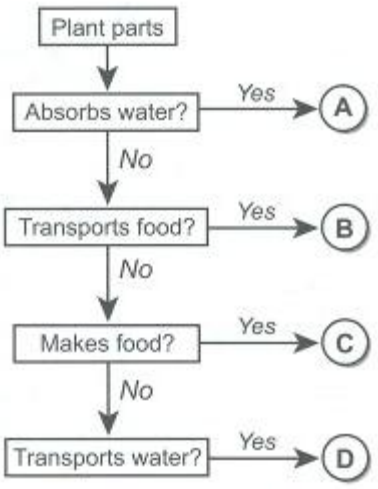
7. Serene measured the heart rate (beats per minute) of her brother as he carried out 4 different activities.

Which set of readings shown below correctly represents the heart rate of her brother when he was carrying out the respective activities?

	Reading a book	Exercising	Mopping the house	Sleeping
(1)	58	89	95	76
(2)	76	95	89	58
(3)	95	76	58	89
(4)	89	58	76	95

( )

8. Study the flow chart below.

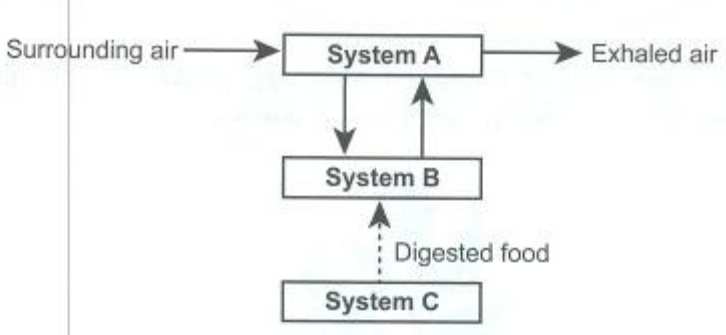


Which of the following correctly identifies A, B, C and D?

	A	B	C	D
(1)	Phloem	Xylem	Leaves	Roots
(2)	Leaves	Phloem	Roots	Xylem
(3)	Xylem	Roots	Phloem	Phloem
(4)	Roots	Phloem	Leaves	Xylem

( )

9. The diagram below shows how food and various gases are transported in the human body.



Which systems do A, B and C represent?

	A	B	C
(1)	Digestive	Respiratory	Circulatory
(2)	Respiratory	Circulatory	Digestive
(3)	Circulatory	Digestive	Respiratory
(4)	Digestive	Circulatory	Respiratory

( )

10. Study the table below about the human circulatory system and the plant transport system.

	Human circulatory system	Plant transport system
A:	Does not have tubes to transport materials.	Has tubes to transport materials.
B:	Transport undigested food.	Transports food produced by the leaves.
C:	Has an organ to pump blood through the system.	Has no organ to pump substances through the system.
D:	Transports oxygen, digested food, carbon dioxide, water and other materials.	Transports only water and mineral salts to other parts of the plant.

Which of the above comparisons are true about the human circulatory and plant transport systems?

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

( )

Section B (10 marks)

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

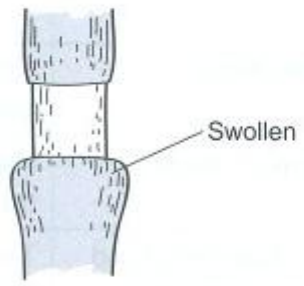
11. Bala cut out the outer ring of a plant's stem as shown in the diagram below. He then left the plant to continue to grow for 2 weeks.

(a) Which type of tubes were removed in the outer ring of the stem? (1m)

_____

_____

After 2 weeks, Bala drew his observation of the stem as shown in the diagram below.



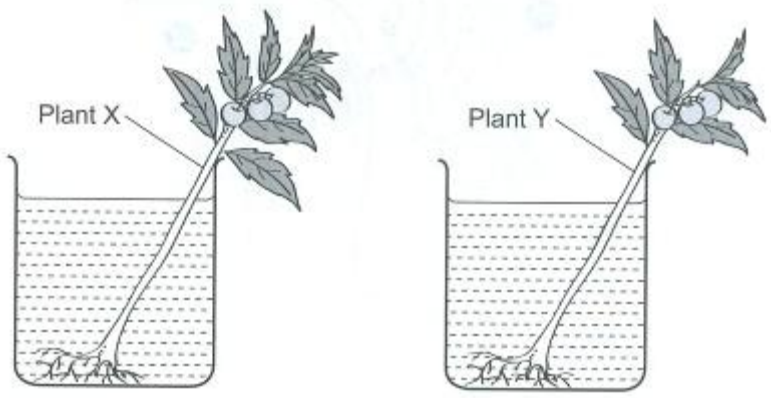
(b) Is his observation correct? Explain your answer. (2m)

_____

_____

_____

12. Yao Jia set up an experiment as shown below. He wanted to find out how the number of leaves on a plant affects the rate at which food is stored in the fruit. He got two identical plants with different number of leaves. Each plant has 3 fruit of the same size at the beginning of the experiment.



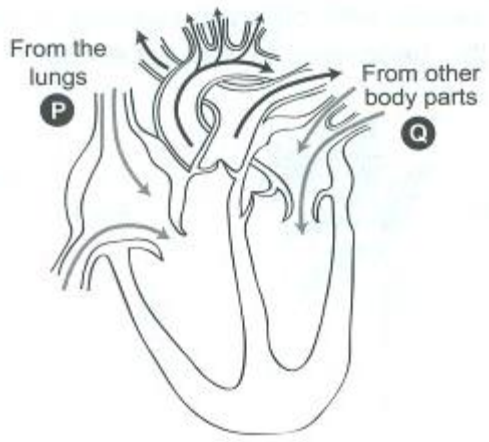
After 15 days, Yao Jia measured the size of the fruit and recorded the results in the table shown below.

Day	Size of fruit (mm)	
	Plant X	Plant Y
3	3	3
6	4	3
9	4.8	3.2
12	5.1	3.7
15	5.6	4.1

(a) Explain how the food made in the leaves is transported to the fruit. (1m)

(b) Based on Yao Jia's results, what is the relationship between the number of leaves on a plant and the amount of food stored in the fruit? (1m)

13. The diagram below shows the direction in which blood travels in and out of a heart.



(a) State one difference in the amount of oxygen and carbon dioxide flowing through Blood Vessel P and Blood Vessel Q. (1m)

_____

_____

_____

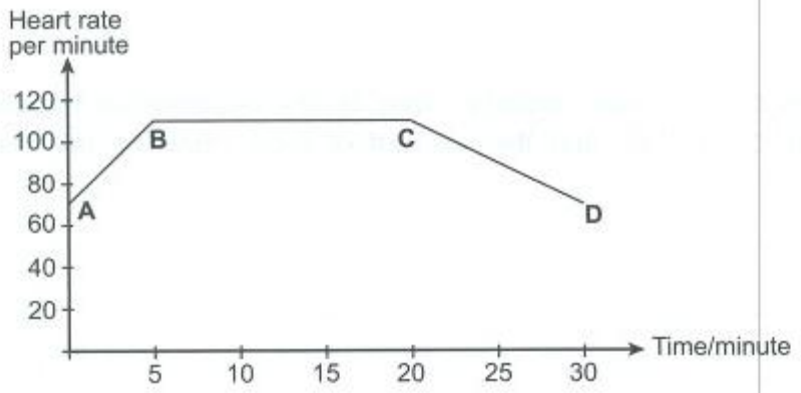
(b) Explain why a person's heart rate increases when he starts to run. (1m)

_____

_____

_____

14. Aman used a sensor to measure his heart rate and plotted his observation in the graph below.



(a) What could be the reason for the change in Aman's heart rate from Point A to Point B? (1m)

(a) Explain your answer in (a). (1m)

(c) What can be inferred from the graph about Aman's heart rate from Point B to Point C? (1m)

TOPICAL TEST 6B:

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. Arrange the following statements in the correct order to show how the circulatory system works in our body.

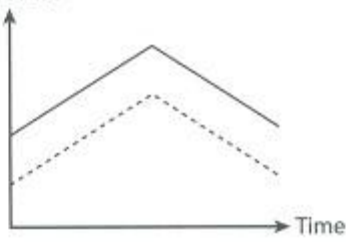
   A: Blood rich in oxygen flows to the heart.
   B: The heart pumps blood back to the lungs.
   C: The heart pumps blood to the rest of the body.
   D: Blood rich in carbon dioxide flows back to the heart.

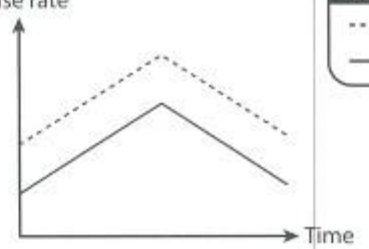
   (1) A, C, D, B
   (2) B, C, A, D
   (3) C, A, B, D
   (4) A, B, D, C ( )

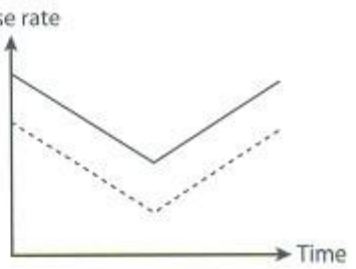
2. During a science lesson, Jasmine learnt that a more physically fit person's heart beats fewer times each minute than a less physically fit person.

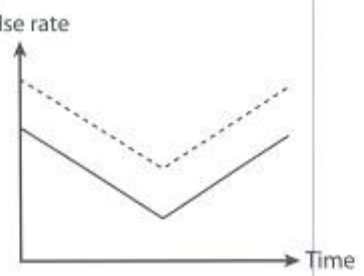
   A physically fit and a physically unfit person climbed up a flight of stairs and then walked down the same flight of stairs.

   Which of the following graphs shows the correct pulse rate of these 2 people?

(1)


(2)


(3)


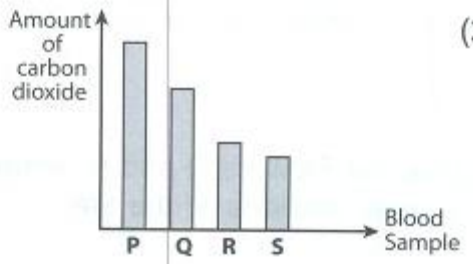
(4)


( )

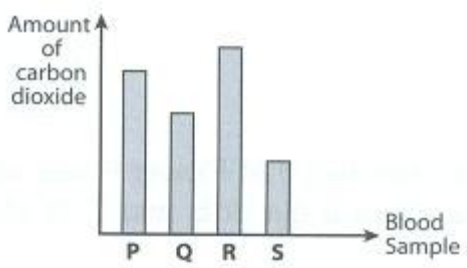
3. Study the diagram below.

Which graph below shows the correct amount of carbon dioxide in the blood samples at P, Q, R and S?

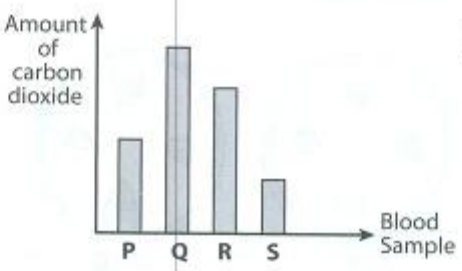
(1)



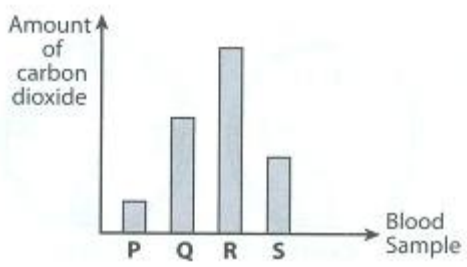
(2)



(3)

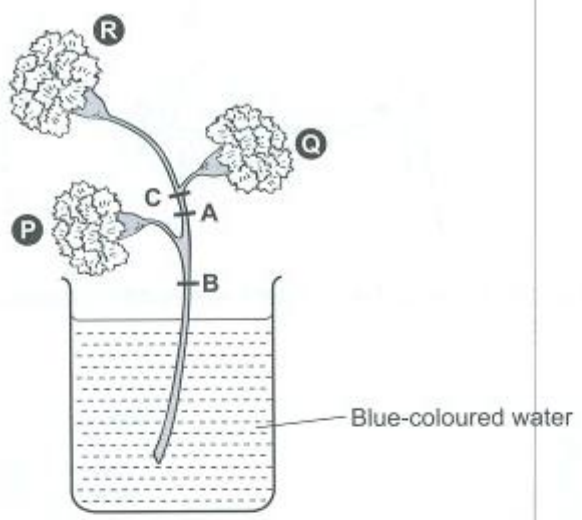


(4)



( )

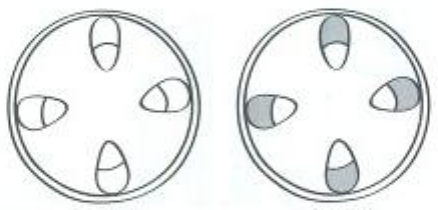
4. Julia set up an experiment as shown below. She cut out a deep ring of stem at A and placed the stalk of white flowers into some blue-coloured water for 2 hours.



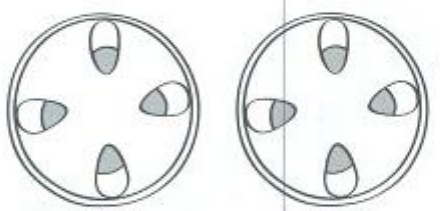
She observed that Flower P was stained blue but Flowers Q and R remained white. She made a cut at B and C to study the cross sections of the stem.

Which of the following best illustrates her observation?

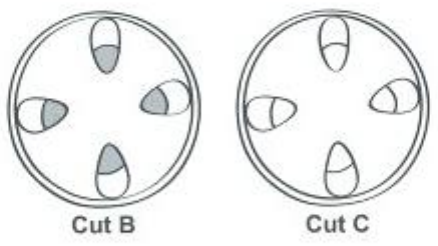
(1)



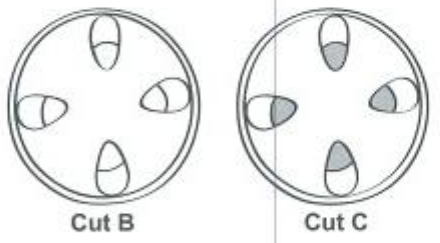
(2)



(3)

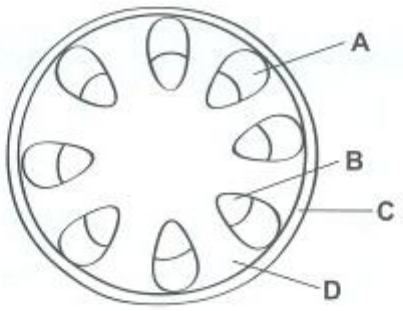


(4)



( )

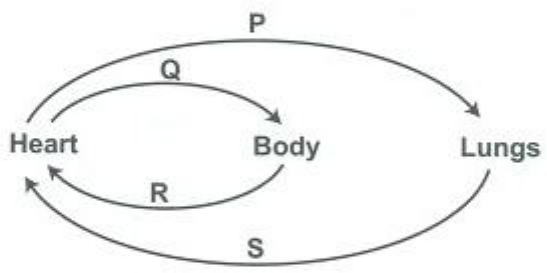
5. The diagram below shows the cross section of a stem of a plant. Insect X feeds on its plant sap for food.



At which part, A, B, C or D, does Insect X insert its feeding tube to feed on the plant sap?

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

6. Study the diagram of the human circulatory system below carefully.



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

	Blood rich in carbon dioxide		Blood rich in oxygen	
(1)	P	Q	R	S
(2)	Q	R	S	P
(3)	S	P	R	Q
(4)	P	R	Q	S

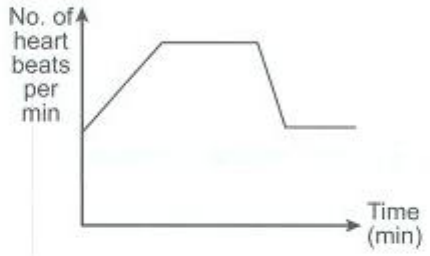
( )

Study the table below and answer Questions 7 and 8.

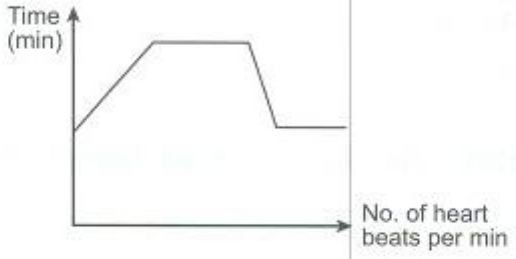
Time (minutes)	Activity
0 – 20	Jogging
20 – 40	Jogging
40 – 50	Slowing down
50 – 60	Resting

7. Which of the graphs below shows the relationship between the heart rate and the activities that were carried out.

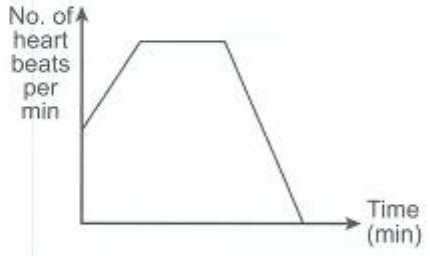
(1)



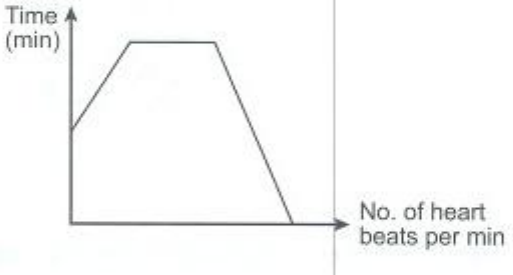
(2)



(3)



(4)



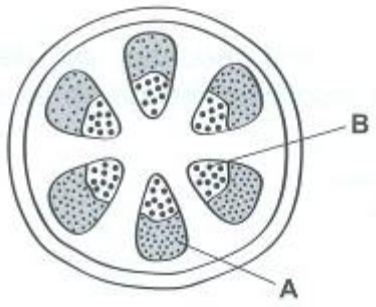
( )

8. During the run from the 20th to 40th minute, which of the following best represents what was happening in the runner's body?

	Amount of carbon dioxide released	Blood flow	Amount of digested food used
(1)	Increased	Decreased	Increased
(2)	Increased	Increased	Increased
(3)	Decreased	Increased	Increased
(4)	Decreased	Decreased	Decreased

( )

9. A plant which is placed under the sun is watered daily. A cross section of its stem is shown below.

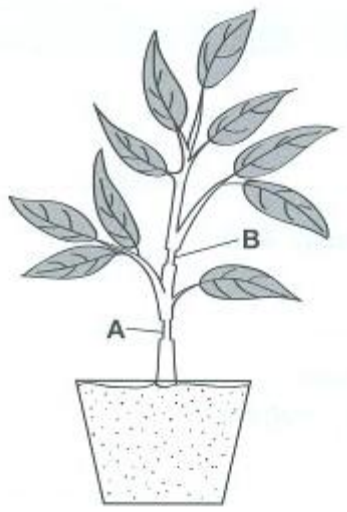


Which substances are transported by Parts A and B of the stem respectively?

	A	B
(1)	Water and mineral salts	Food
(2)	Food	Water and mineral salts
(3)	Food and carbon dioxide	Water and oxygen
(4)	Water and oxygen	Food and carbon dioxide

( )

10. Jia Min removed a 0.3 cm thick outer ring from a plant at A. She also removed another ring which is 0.5 cm thick from the same plant at B. A few days later, she noticed that the leaves above B had begun to turn yellow while the leaves between A and B remained green.



Which of the following statements best explains the observation?

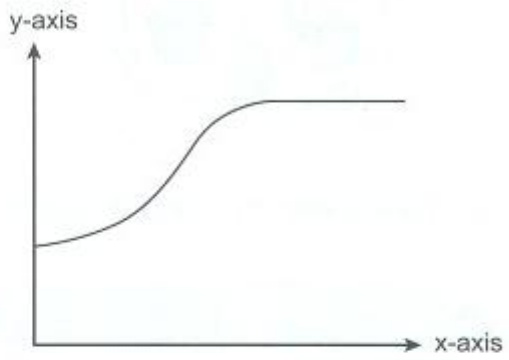
(1) The water-carrying tubes cannot carry water to all the leaves above B.
(2) The water-carrying tubes cannot carry water to all the leaves above A.
(3) The water-carrying tubes cannot carry water to all the leaves below B.
(4) The food-carrying tubes cannot carry food to all the leaves above B.

( )

Section B (10 marks)

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

11. Daphne did her 2.4 km run and recorded her heartbeat every minute using a datalogger. The datalogger displayed the graph as shown below.



(a) Write the label for each axis below. (1m)

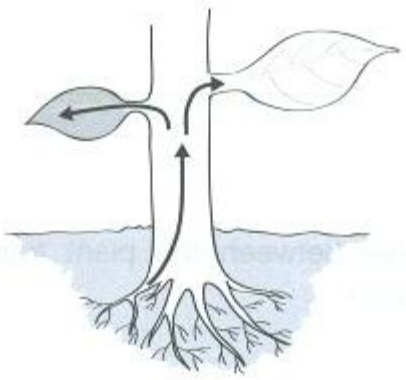
X-axis: _____

Y-axis: _____

(b) Arrange the order of activities which caused the increased in Daphne's heart beat by writing the numerals 1 to 4 in the boxes below. (1m)

Activity	Order of activities
Heart rate increases	
Body needs more energy and oxygen	
Heart pumps more blood carrying nutrients and oxygen around the body	
Daphne starts to run	1

12. The arrows in the diagram below show the movement of materials in a plant.

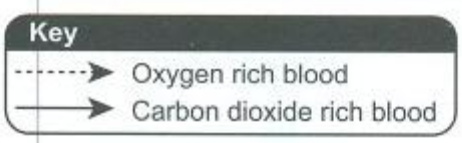


(a) Name two materials that are transported as shown by the arrows above. (1m)

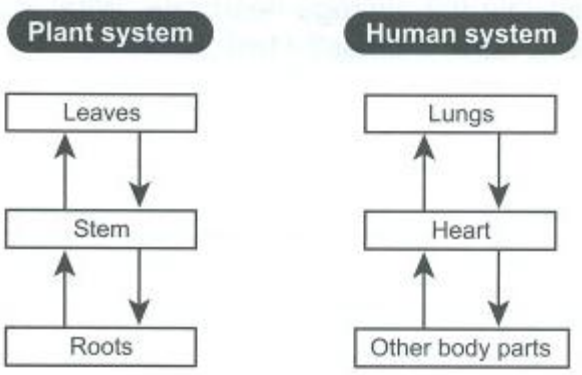
_____

_____

(b) Use the key given to **draw** and **complete** the diagram below to show the direction of blood flow from one part of the body to another. (2m)



13. The diagram below shows how a plant transport system and a human transport system transport materials.



(a) Identify two materials that the human system transports which the plant system does not. (1m)

(b) State two differences between the plant transport system and the human transport system. (2m)

14. Jia Jun and his friends wanted to conduct an experiment to find out if different activities affect one's heartbeat. Jia Jun measured his heart rate after performing each activity for 10 minutes.

Activity	Heartbeat per minute
Watching television	68
Jogging	120
Swimming	95
Walking	80

(a) Based on Jia Jun's observation above, what can he conclude from his experiment? (1m)

(b) Jia Jun's friends told him that he should repeat the experiment at least 3 times and calculate the average heart rate. What is the purpose of repeating the experiment at least 3 times? (1m)