

Name of the Student: _____

Max. Marks : 20 Marks

Time : 20 Minutes

Q1.

- (a) Draw a ring around the correct answer to complete the sentence.

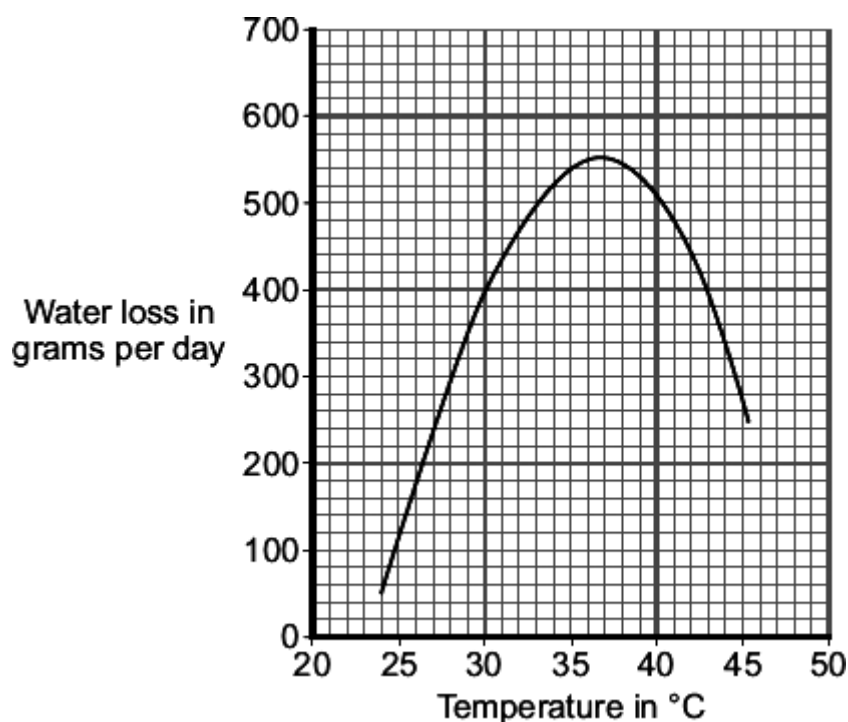
A plant loses water from its leaves by a process called

distillation.
respiration.
transpiration.

(1)

- (b) Some scientists investigated the effect of temperature on water loss from a plant.

The graph shows the results.



Describe the effect of increasing the temperature on water loss from the plant.

(c) Under different conditions, plants open or close their stomata.

(i) How does closing its stomata help a plant?

(1)

(ii) In the investigation described in part (b), which temperature range would cause most of the stomata to close?

Draw a ring around **one** answer.

25 - 30 °C

30 - 35 °C

40 - 45 °C

(1)

(Total 5 marks)

Q2.

Denim jeans can be coloured with blue dye. The dye joins on to the fibres of the material. Some people like their denim jeans to look faded. This is called 'stonewashed'. There are two different ways to make denim material look faded.

Traditional stone washing

- Denim material is put in a slowly spinning container with large stones.
- Very hot water is added.
- Washing takes up to five hours.
- Washing breaks some of the denim fibres and lets the dye come out from the fibres.
- Washing will work with any dye.

Bio-stonewashing

- Denim material is washed with enzymes in warm water.
- Washing takes half an hour.
- The enzymes let the dye come out from the fibres.
- Different enzymes are needed for different dyes.
- The enzymes are expensive.
- After the treatment the enzymes have to be removed from the denim.

(a) Use **only** the information above to answer this question.

(i) Suggest **two advantages** of using the bio-stonewashing method instead of the traditional stonewashing method.

1. _____

2. _____

(2)

(ii) Suggest **two disadvantages** of using the bio-stonewashing method instead of the traditional stonewashing method.

1. _____

2. _____

(2)

(b) Some blue dyes are made of protein.

What type of enzyme would be used to remove these blue dyes from denim?

Draw a ring around **one** answer.

carbohydrase

lipase

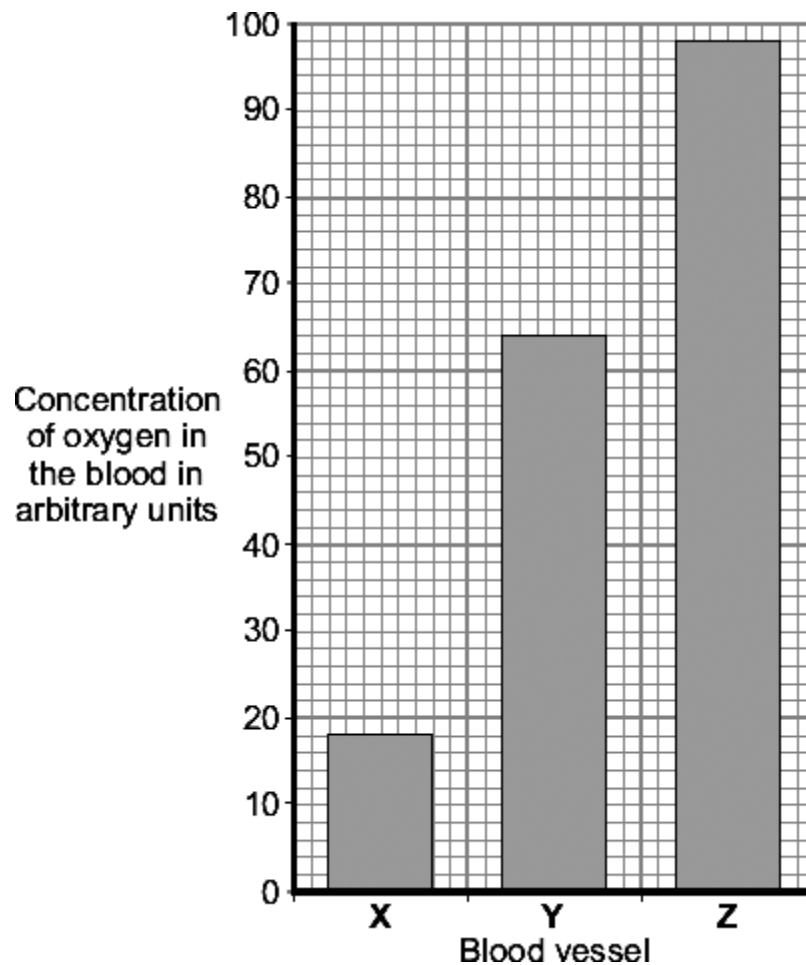
protease

(1)

(Total 5 marks)

Q3.

The bar chart shows the concentration of oxygen in the blood in three different blood vessels, X, Y and Z.



- (a) (i) What is the concentration of oxygen in blood vessel X?

Answer _____ arbitrary units.

(1)

- (ii) Which blood vessel, X, Y or Z, carries blood from the lungs to the heart?

(1)

- (b) Draw a ring around the correct answer to complete each sentence.

- (i) Most of the oxygen in the blood is carried by the

plasma.
red blood cells.
white blood cells.

(1)

- (ii) Oxygen combines with a coloured pigment in the blood.

alveoli.

This coloured pigment is called

haemoglobin.

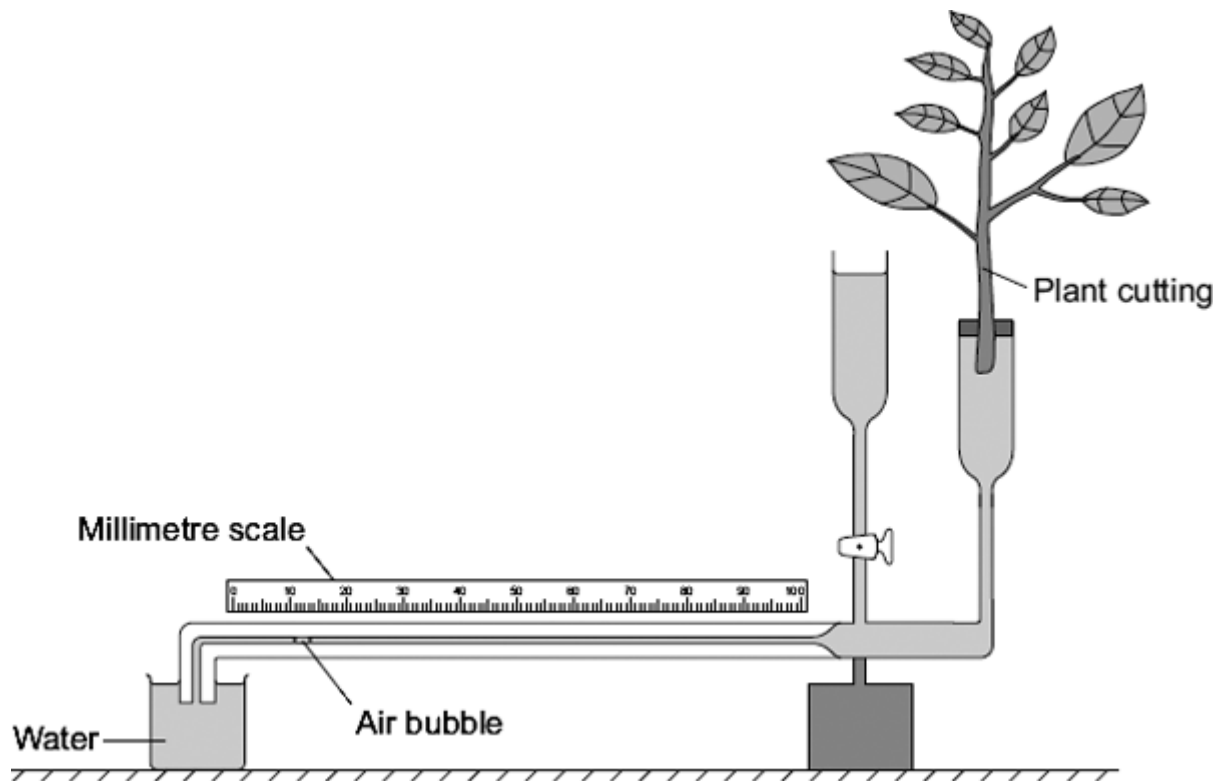
lactic acid.

(1)

(Total 4 marks)

Q4.

Some students used the apparatus shown in the diagram to measure the rate of water uptake by a plant cutting.



The students set up the apparatus in three different conditions:

- no wind at 15 °C
- no wind at 25 °C
- wind at 25 °C

For each experiment, the students recorded the movement of the air bubble along the scale.

(a) (i) Name the **two** variables that the students chose to change in these experiments.

1. _____

2. _____

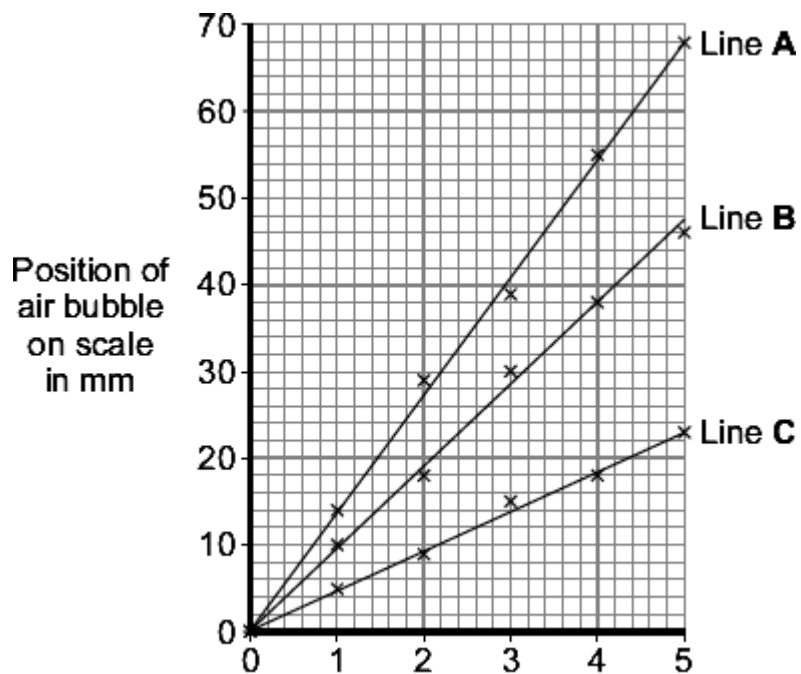
(2)

(ii) It was important to use the same plant cutting each time to make these experiments fair.

Explain why.

(1)

(b) The graph shows the students' results.



Which line on the graph, **A**, **B** or **C**, shows the results for each of the three different experiments?

Write each of the letters **A**, **B** or **C** in the correct boxes in the table.

Condition	Letter
No wind at 15 °C	
No wind at 25 °C	
Wind at 25 °C	

(2)

(c) Water is lost from the leaves of the plant cutting.

Name this process.

Draw a ring around **one** answer.

distillation

respiration

transpiration

(1)

(Total 6 marks)