Practice Question Set For GCSE
Subject : Biology
Paper-1 Topic: B1 Cell Biology

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Name of the Student:_____
Max. Marks : 22 Marks **Time : 22 Minutes**

Q1.

This question is about plant transport systems.

(a) Which **organ** in a plant absorbs water from the soil?

_____

(1)

(b) The concentration of nitrate ions in the soil is lower than the concentration of nitrate ions inside a plant.

How would the nitrate ions move from the soil into the cells of this plant?

Tick (✓) **one** box.

By active transport ☐

By diffusion ☐

By osmosis ☐

(1)

Dissolved sugars are transported in the phloem.

(c) What is the name of the process that moves dissolved sugars through the phloem?

Tick (✓) **one** box.

Evaporation ☐

Osmosis ☐

Translocation ☐

(1)

(d) Give **one** use of sugars in a plant.

_____

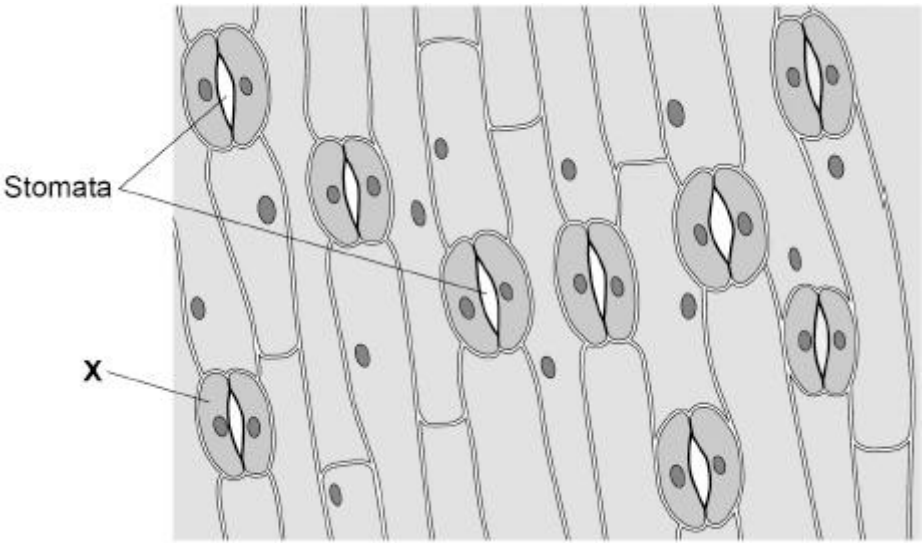
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(1)

Stomata are openings on the surface of a leaf.

Stomata allow gases to move into and out of a leaf.

The figure below shows the surface of a leaf.



(e) What is cell **X**?

Tick (✓) **one** box.

Guard cell ☐

Meristem cell ☐

Palisade cell ☐

(1)

(f) Why do the stomata open during the day?

Tick (✓) **one** box.

To allow carbon dioxide in ☐

To allow nitrogen in ☐

To allow oxygen in ☐

(1)

(g) The area of the leaf shown in the figure above is 0.25 mm^2.

Calculate the number of stomata per mm^2 for the leaf in the figure above.

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Use the equation:

$$\text{number of stomata per mm}^2 = \frac{\text{number of stomata}}{\text{area in mm}^2}$$

Number of stomata per mm^2 = _____

(2)

A student investigated the number of stomata per mm^2 on the upper and lower surfaces of leaves.

The leaves were taken from the same plant.

The table below shows the results.

Leaf	**Number of stomata per mm^2**	
	Upper surface	**Lower surface**
1	0	37
2	1	36
3	2	30
4	1	32
5	1	35
Mean	1	**X**

(h) Calculate mean value **X** in the table above.

X = _____

(2)

(i) Water vapour is lost through stomata.

Explain the difference in the number of stomata on the upper and lower surfaces of the leaves.

Use the table above.

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_____

_____

(3)

(Total 13 marks)

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Q2.

A single-celled organism has a large surface area to volume ratio.

(a) How does oxygen enter a single-celled organism?

Tick (✓) **one** box.

Active transport ☐

Diffusion ☐

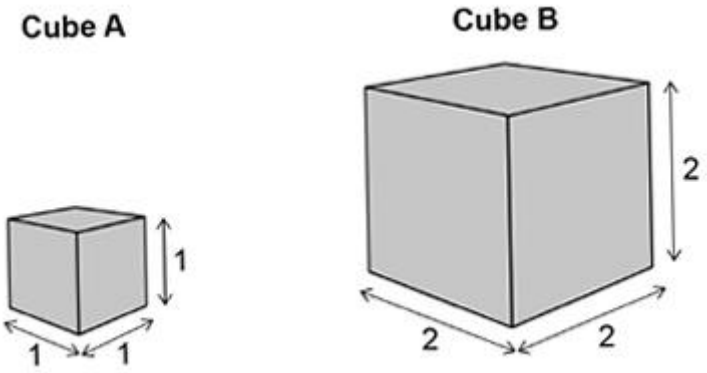
Osmosis ☐

(1)

Figure 1 shows two cubes.

The surface area to volume ratio for cube **A** is 6:1

Figure 1



(b) Calculate the surface area to volume ratio of cube **B**.

Surface area of one face of cube **B** _____

_____

Surface area of one face = _____

Total surface area of cube **B** _____

_____

Total surface area = _____

Volume of cube **B** _____

_____

Volume = _____

Surface area to volume ratio = _____ : _____

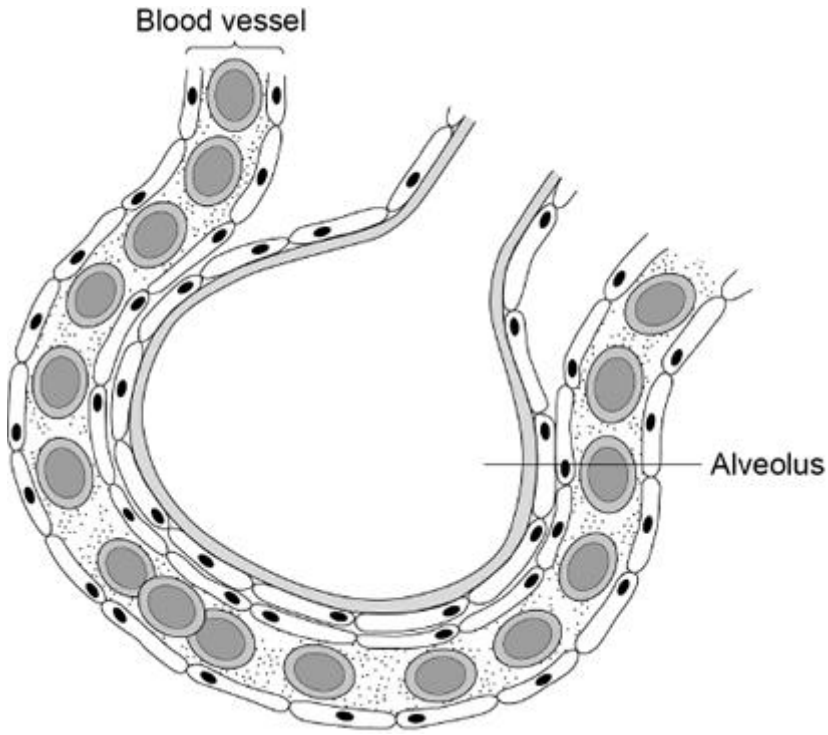
(4)

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Multicellular organisms have exchange surfaces to absorb substances.

Figure 2 shows part of the exchange surface in the lungs.

Figure 2



(c) Oxygen passes from the alveolus into the blood.

Name the part of the blood that carries the most oxygen.

_____

(1)

(d) Name the gas that passes out of the blood into the alveolus.

_____

(1)

(e) Alveoli provide a large surface area for gas exchange.

Give **two** other ways the lungs are adapted for efficient gas exchange.

1 _____

_____

2 _____

_____

(2)

(Total 9 marks)

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