



# Plant Organisation

1 Name a plant organ

- Leaf, stem, root, or reproductive structures

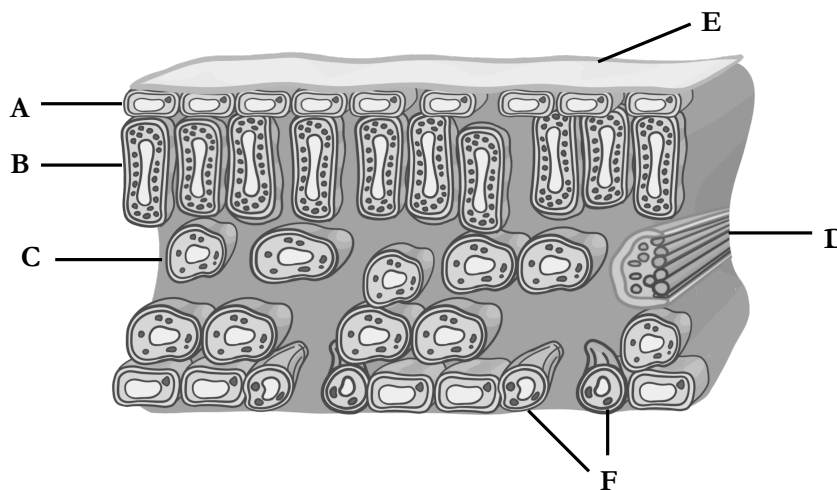
[ 1 mark ]

2 What do the roots, stem and leaves of a plant form?

- An organ system

[ 1 mark ]

3 Below is a cross section of a leaf



a) Name the tissues labelled A, B and C.

- A is upper epidermis. B is palisade tissue. C is spongy mesophyll tissue.

[ 3 marks ]

b) How are the cells in the tissue labelled B adapted for their function ?

- Lots of chloroplasts filled with chlorophyll to carry out photosynthesis. Close to the top of the cell to maximise light exposure.

[ 2 marks ]

c) What is the purpose of the air spaces in tissue C?

- To allow gases like carbon dioxide to diffuse through

[ 1 mark ]

d) What structures are in the tube labelled D?

- Xylem and phloem

[ 1 mark ]

e) What is the structure labelled E and how does it achieve its function?

- (Waxy) cuticle. It's a layer of fats, so water cannot diffuse through it very easily. So minimises water loss.

*[ 2 marks ]*

f) What are the cells labelled F? Explain their role and how they work.

- They are guard cells, and control the opening and closing of stomata in order to control water loss and carbon dioxide absorption
- When the plant has plenty of water the guard cells are turgid which open the stomata allowing lots of carbon dioxide absorption but minimising water loss.
- When the plant does not have much water, the guard cells are flaccid which closes the stomata.
- This works because the cells have a thin outer wall but a thicker inner wall.

*[ 5 marks ]*

2 An important tissue type in plants is meristem tissue

a) What is the role of meristem tissue?

- They are stem cells so can differentiate into any tissue allowing growth of the plant

*[ 2 marks ]*

b) Name two locations that meristem tissue can be found

- 1) Tips of the shoots
- 2) Tips of the roots

*[ 1 mark ]*

*[ Total 19 marks ]*