

9.1 Plant structure and growth – *summary of mark schemes*

9.1.1 Draw and label plan diagrams to show the distribution of tissues in the stem and leaf of a dicotyledonous plant.

Mark Scheme

- A. upper epidermis;
- B. palisade layer / mesophyll;
- C. spongy layer / mesophyll;
- D. lower epidermis;
- E. xylem (in a major or minor vein);
- F. phloem (in a major or minor vein);
- G. collenchyma (in the midrib);
- H. guard cells; (do not accept stoma / stomata only)

9.1.2 Outline three differences between the structures of dicotyledonous and monocotyledonous plants.

Mark Scheme

Structure	Monocotyledonous	Dicotyledonous
leaf	parallel veins	branched (net of) veins;
seed	one cotyledon	two cotyledons;
flower	floral parts in multiple of 3	floral parts in multiple of 4 or 5;
stem	scattered vascular bundles	ring of vascular bundles around central pith;
root	adventitious roots	branched tap roots;

9.1.3 Explain the relationship between the distribution of tissues in the leaf and the functions of these tissues.

9.1.4 Identify modifications of roots, stems and leaves for different functions: bulbs, stem tubers, storage roots and tendrils.

9.1.5 State that dicotyledonous plants have apical and lateral meristems.

9.1.6 Compare growth due to apical and lateral meristems in dicotyledonous plants.

9.1.7 Explain the role of auxin in phototropism as an example of the control of plant growth.

Mark Scheme

- A. auxin produced at apical meristem / tip;
- B. transported to growing area / zone of cell growth;
- C. lateral transport to cells on shade side;
- D. results in cell expansion;
- E. shoot “grows” towards light source;
- F. experimental detail;