

Answers for support worksheet – Chapter 9

- 1 a** Y is mostly likely to be a monocotyledon because it has approximately the same number of stomata on the upper and lower surfaces of its leaves. Monocotyledons with parallel veins have this arrangement. (2)
- b** X will survive dry conditions better than Y because it has fewer stomata through which water is lost. Also, most stomata are on the lower surfaces of its leaves, which are likely to be shaded. (2)
- 2** Female reproductive organs in a flower are the **stigma**, **style** and **ovary**. Male reproductive organs are the **anther** and **filament**. The transfer of pollen from the **anther** to the **stigma** is known as **pollination**. If pollen from one plant is transferred to a different plant, the process is called **cross-pollination**. This process promotes **variation**, which may affect the evolution of the plant. (10)
- 3 a** A tropism is a growth or movement response to a directional external stimulus such as light or gravity. (1)
- b** Phototropism allows plants to grow towards light and in a crowded area increases their chances of being able to photosynthesise efficiently. (3)
- c** Temperature increases the rate of evaporation of water from the mesophyll cells into the air spaces in the leaf, and the loss of water vapour from the air spaces via the stomata. As water vapour is lost from the air spaces, it is replaced with water from the xylem tissue in leaf veins. This in turn causes water to be drawn up from the roots and leads to the transpiration stream. In this way, an increase in temperature results in an increase in transpiration rate. (3)
- 4 a** **A** – yes
B – no
C – no
D – yes
E – no (5)
- b** Seeds require oxygen for respiration, warmth so that enzymes can work and water to germinate. Some seeds require certain lighting conditions. (3)
- c** Tube **A** provides a means of checking the normal germination process and the other tubes can be compared to it. (1)
- 5 a** The seed coat (testa) keeps the seed dry so that it does not go mouldy when it is dormant. It also protects the seed from digestion if it is eaten so that the seed passes through the digestive system of the animal and can germinate later. (2)
- b** A = testa, B = micropyle, C = scar (3)
- c** The scar is the point on the seed where it was attached to the seed pod. (1)