OCR AS/A-level Year 1 Biology A exam practice answers

**10 Transport in plants**

**1** The correct answer is row C. [1]

**2 (a)** Transpiration is the loss of water vapour from aerial parts of plant. [2]

 **(b)** Photosynthesis requires carbon dioxide, which enters the leaf through the stomata. Open stomata allow water vapour out of the leaf. [2]

 **(c)** The thick waxy cuticle reduces loss of water vapour through the epidermis, which reduces diffusion. Rolling the leaf traps water vapour in a chamber. The water (vapour) potential close to the leaf increases, which increases the length of the diffusion pathway. This reduces the water (vapour) potential gradient between the leaf air spaces and outside, leading to slower diffusion. [5]

**3 (a)** A source is where assimilates are produced or released — assimilates are put into the phloem.

 A sink is where assimilates are used or stored — assimilates are removed from the phloem. [3]

 **(b)** A leaf in summer; roots in spring. [2]

 **(c)** In summer, the leaf photosynthesises and produces sucrose. In early spring, the leaf needs energy to grow so it uses sugars from storage. [2]

**4 (a)** Many sieve tube elements are joined end to end. The end walls are perforated to produce sieve plates. There is no nucleus and only a small amount of cytoplasm to reduce obstruction to flow. [3]

 **(b)** They contain dense cytoplasm with many mitochondria to release energy for active transport of hydrogen ions. There are hydrogen ion pumps in the cell-surface membrane. There are co-transport proteins in the cell surface membrane, and many plasmodesmata linking to sieve tube elements. [3]