

# Answers to end-of-chapter questions

## Chapter 2: Cells

- 1 starch grain, mitochondrion, nucleus, tracheal cell, stomach
- 2 a organ  
b organ  
c tissue  
d organ  
e organism  
f organism  
g organ
- 3 a chloroplast  
b mitochondrion  
c cell membrane  
d nucleus  
e vacuole  
f cell wall
- 4 a A chloroplast is an organelle that contains the pigment, chlorophyll. (A chloroplast is surrounded by two membranes. Folded membranes inside the chloroplast have molecules of chlorophyll on them.) Photosynthesis takes place inside chloroplasts, with the help of chlorophyll, which absorbs energy from light.  
b All cells have a cell membrane, which is a thin layer of protein and lipid that surrounds the cell and controls what enters and leaves it. Plant cells (and bacterial cells) also have a thicker layer surrounding them. In plant cells, this is made of cellulose. Cell membranes are partially permeable. Cell walls are fully permeable.
- c An organelle is a tiny structure inside a cell, for example a mitochondrion. An organ – for example the liver, an eye or a leaf – is made up of thousands of cells, which in turn are organised into tissues.
- 5 a i in the lining of the respiratory passages; [1]  
ii in the palisade mesophyll layer of a leaf; [1]  
b wall;  
cellulose;  
chloroplasts;  
vacuole;  
cell sap; [5]