



QUESTION WORKBOOK

Specialisation: how one genome becomes two hundred kinds of cell

Cells, microscopy and biological organisation · Unit B01

AQA 3.2.1.1, 3.8.2.1 · OCR A 2.1.6 (a)–(d) · Edexcel A Topic 3.13–3.17 · CAIE 1.2, 5.1, 7.1

5 questions · 16 marks

NAVY SCREEN EDITION

SECTION A · Short, 1 to 2 marks

A1 State what is meant by a tissue, and state what is meant by an organ. [2]

SECTION B · Standard, 3 to 5 marks

B1 A stem cell in the bone marrow and a mature sperm cell carry exactly the same DNA. Explain how the two cells come to have such different structures. [4]

B2 A phloem sieve tube element has lost its nucleus and almost all of its organelles, yet it is still alive. Explain how this suits it to its function, and explain why it cannot work without a companion cell. [4]

B3 Compare a totipotent cell, a pluripotent cell and a multipotent cell, giving one place each type is found. [3]

B4 Long-term smokers secrete more mucus than usual and the cilia on their airway epithelium are damaged. Suggest why such a smoker develops a persistent cough and gets more chest infections. [3]
