



QUESTION WORKBOOK

Stem cells: what a cell can still become, and what fixes it

Cell cycles, reproduction and development · Unit B06

AQA 3.8.2.1 · OCR A 2.1.6 · Edexcel A Topic 3

8 questions · 26 marks

PRINT EDITION

SECTION A · Short, 1 to 2 marks

A1 State the two properties a cell must have if it is to be described as a stem cell.

[2]

A2 A cell is removed from the inner cell mass of a five-day-old human blastocyst. Name the level of potency this cell shows.

[1]

SECTION B · Standard, 3 to 5 marks

B1 Describe what is meant by totipotent, pluripotent, multipotent and unipotent, giving one example of a cell at each level.

[4]

B2 Induced pluripotent stem cells are made by treating an adult body cell with four transcription factors. Discuss the advantages and the limitations of using these cells rather than embryonic stem cells.

[4]

B3 A neurone contains the gene coding for insulin but never produces insulin. Explain how this is possible. [3]

B4 Compare stem cells obtained from adult bone marrow with stem cells obtained from an early embryo. [3]

B5 A patient is treated with nerve cells that have been grown from embryonic stem cells. Suggest three difficulties that this treatment may present. [3]

SECTION C · Long, 6 marks or more

- c1** Evaluate the use of embryonic stem cells as a source of cells for treating human disease. [6]
