

Foundation Separate version — Higher Tier (★) questions removed.

Q1. Define stem cell and explain why stem cells are important in medicine.

[2 marks]

Q2. Compare embryonic and adult stem cells in terms of their potency, source and ethical status.

[4 marks]

Total: 6 marks

Q1 (2 marks)

Define stem cell and explain why stem cells are important in medicine.

- Undifferentiated cell that can divide and differentiate into specialised cell types [1]
- Can potentially replace damaged or diseased tissue — e.g. treat leukaemia, Parkinson's, diabetes [1]

Q2 (4 marks)

Compare embryonic and adult stem cells in terms of their potency, source and ethical statu...

- Embryonic: totipotent — can become any cell type; adult: limited range e.g. blood cells only [1]
- Embryonic: from blastocyst stage embryo; adult: from tissues such as bone marrow [1]
- Embryonic: ethically controversial — requires destruction of embryo [1]
- Adult: less controversial — harvested from living donor [1]