

AQA GCSE Biology Worksheet

Cell Division | Higher Tier | 4.1.2



HIGHER TIER

Student Name: _____ Date: _____ Total: 30 marks

1. [1 mark]

How many chromosomes are in a normal human body cell?

2. [2 marks]

What is a gene?

3. [2 marks]

State two reasons why cell division by mitosis is important in multicellular organisms.

4. [2 marks]

Describe what happens during the first stage of the cell cycle, before mitosis occurs.

5. [2 marks]

What is a stem cell?

6. [1 mark]

Give one difference between embryonic stem cells and adult stem cells.

7.

[2 marks]

Describe how stem cells from meristems can be used in agriculture.

8.

[2 marks]

Explain what is meant by therapeutic cloning.

9.

[4 marks]

A patient with paralysis is offered treatment using stem cells from a donor. Alternatively, they could be treated using therapeutic cloning. Evaluate the use of therapeutic cloning compared to using donor stem cells.

10.

[4 marks]

A scientist observes a cell undergoing mitosis. The initial cell has 8 chromosomes. Calculate the total number of chromosomes present in the two daughter cells combined. Explain your answer with reference to the events of the cell cycle.

11.

[6 marks]

Discuss the advantages and disadvantages of using embryonic stem cells in medical research and treatments. You should include ethical and medical considerations.

12.

[2 marks]

A student states: 'During mitosis, the cell simply splits in half to make two new cells.'
Explain why this statement is incomplete and describe the full sequence of events in the cell cycle.
