

**AQA, OCR, Edexcel**

**GCSE Science**

# **GCSE Biology**

**Mitosis and the Cell Cycle  
Answers**

Name:

**M M E**

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**Total Marks: /22**

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Q1: Describe the process of mitosis.

A= Marks awarded for 3 points from the following list:

- Type of cell division
- Form 2 daughter cells
- Identical copies of genetic material/ DNA
- Identical copies of parent cell/ Clones

(3 marks)

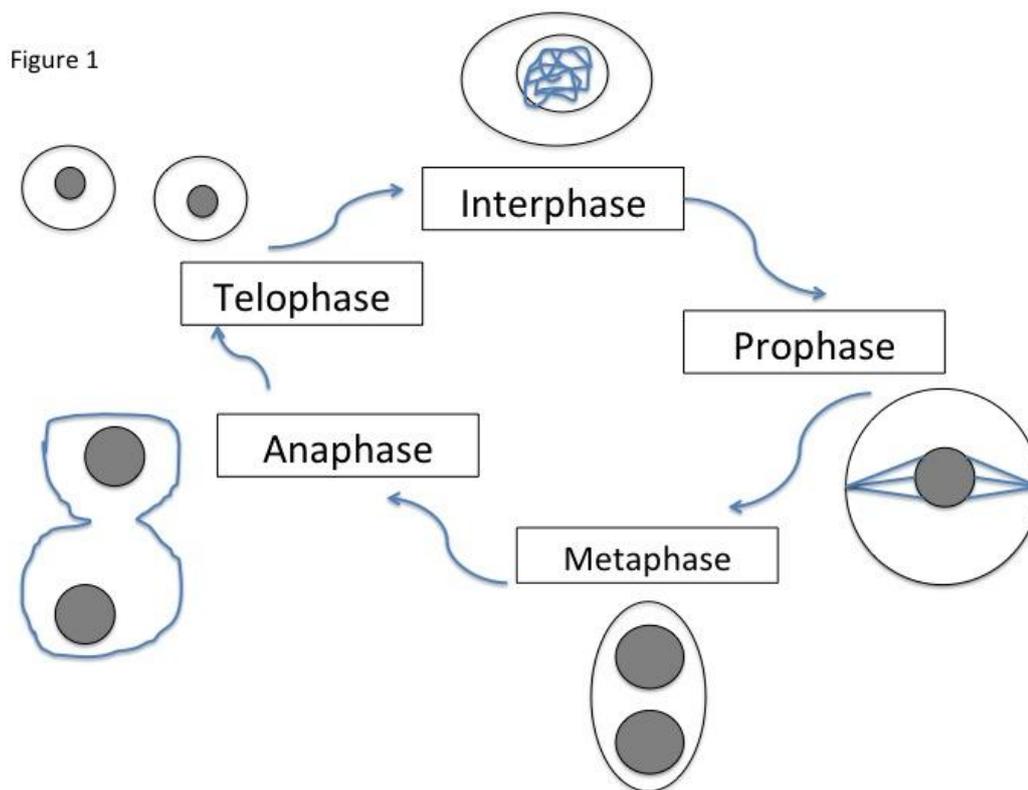
Q2: Mitosis is a vital part of the cell cycle. Give 2 reasons cells use mitosis.

A= Any 2 of the following:

- Growth
- Cell replacement/ Regeneration/ Repair
- Asexual Reproduction

(2 marks)

Q3: Figure 1 shows the stages of mitosis. Label the following diagram.



A= 1 mark awarded for each correct label.

(5 marks)

Q4: Bananas share 32% of their DNA with humans. The human genome contains 6600 million bases. Calculate the number of bases which are the same in bananas and humans.

A= 1 mark for working =  $6600 \div 100 \times 32 = 2112$  Million

1 mark awarded for correct answer (2 marks just for correct answer)

(2 marks)

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Q5: Explain how many cells would be present in a human embryo after 3 cell divisions' using mitosis.

A= 1 mark for working- 1 cycle = 2 / 2 cycles = 4/ 3 cycles = 8

1 mark for correct answer

Number of cells after 3 divisions = 8

(2 marks)

Q6: What is the difference between mitosis and meiosis?

A= 1 mark awarded for each difference

- Mitosis makes identical cells/ clones/ asexual reproduction
- Meiosis makes gametes / sexual reproduction

(2 marks)

Q7: The cells in a giraffe contain 2 sets of chromosomes, one from each parent. What term can be used to describe these types of cell?

A= Diploid

(1 mark)

Q8: Describe what happens during anaphase.

A= 1 mark per each of following points.

- Centromeres split/ Chromosomes separate
- Chromatid's are dragged to opposite ends of the cell

(2 marks)

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Q9: Describe what happens during prophase.

A= 1 mark per point max 3:

- Chromosomes become shorter
- Double the number of chromosomes as normal
- Nuclear envelop breaks down
- Centrioles move to opposite ends of the cell

(3 marks)