

AQA, OCR, Edexcel

A Level

A Level Biology

Cell Cycle Questions

Name:

M M E

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Total Marks: /28

The Cell Cycle

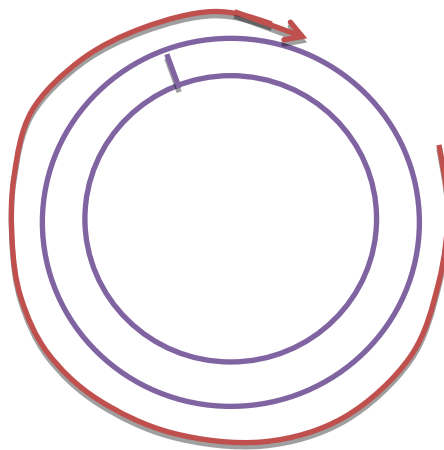
The body replicates cells from fertilisation until we die; this is how the body grows, develops and repairs itself.

1. The cell cycle is the process a cell undergoes to go from a single cell to two identical cells.

i) What is this type of cell replication called? (1 mark)

ii) The cell cycle is made up of a number of different stages. Using the diagram below identify the different stages and estimate how much of the cell cycle they require by dividing up the diagram below.

(5 marks)



iii) What does the arrow on the diagram above indicate? (1 mark)

2. DNA must be replicated prior to cell division to ensure each cell is diploid .

i) What two enzymes are used in DNA replication and what are their roles? (4 marks)

ii) What is a monomer of DNA called? (1 marks)

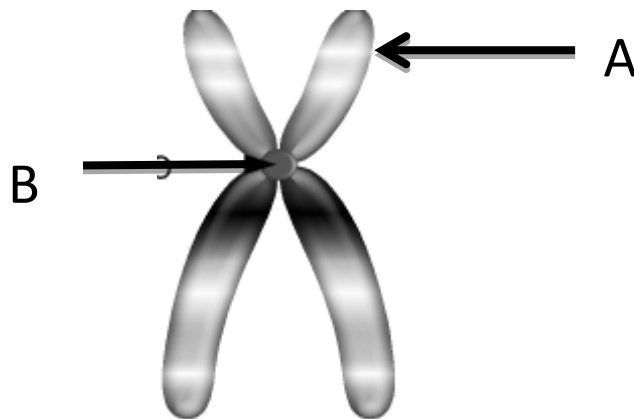
iii) What is meant by the term semi-conservative replication? (2 marks)

iv) Identify another important role of DNA replication that can help reduce the chances of disease and cancer. (1 mark)

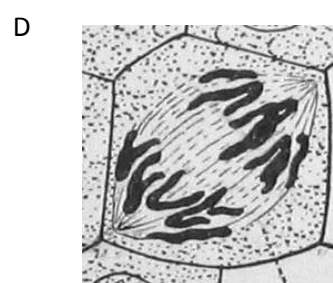
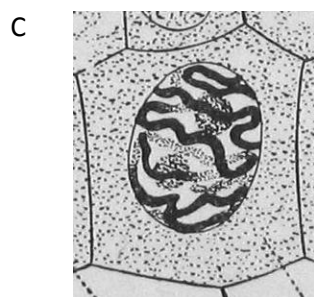
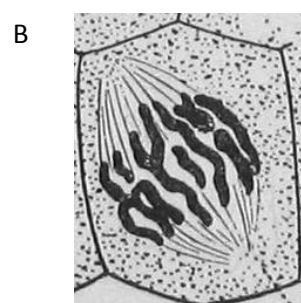
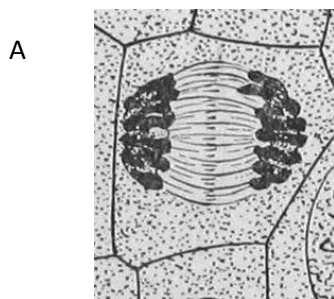
3. Mitosis is the process of cell division that produces two genetically identical cells and occurs during the cell cycle.

a) The process of mitosis can be divided into a number of stages. There are four stages that follow interphase.

- i) The diagram below shows a chromosome. Label the structures labelled A and B.
(2 marks)



- ii) Using the micrographs below identify what stage of mitosis is being depicted and describe what is happening in each stage? (8 marks)



B) Cancerous tumours form as a result of uncontrolled mitosis. When genes are faulty, they can no longer control cell division.

- i) Radiation damages DNA, how does this act as a cancer treatment? (2 marks)

- ii) Cancer treatments cannot differentiate between tumour cells and healthy cells. Why are tumour cells more affected than healthy cells. (1 mark)