1.10 Cell Division and Stem Cells: 10-minute Pack

AQA 8464 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Cells divide by two main processes: mitosis and meiosis. Answer the following.

(a) State one purpose of mitosis in multicellular organisms. **(1)**

(b) Give one way in which a gamete differs from a body cell. **(1)**

(c) Explain why mitosis produces two genetically identical daughter cells. **(2)**

(Total for Question 1 is 4 marks)

2 State two corrections that should be made to this statement.

(Total for Question 2 is 2 marks)

3 Cell division by mitosis is normally tightly controlled by the body.

(a) State what is meant by a tumour. **(1)**

(b) Explain how uncontrolled mitotic cell division can lead to the formation of a tumour. **(2)**

(Total for Question 3 is 3 marks)

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Mark scheme · 1.10 Cell Division and Stem Cells: 10-minute Pack

Question 1

(a) growth or repair of tissues or replacement of cells, oe cao **B1**

(a) Answer: Growth, repair or replacement of cells.

(b) has half the number of chromosomes (haploid) compared with body cell (diploid) or is involved in sexual reproduction, oe **B1**

(b) Answer: A gamete is haploid (half the chromosome number) compared with a body cell.

(c) chromosomes are copied during DNA replication before division **M1**

(c) each daughter cell receives an identical set of chromosomes so they are genetically identical, oe **A1**

(c) Answer: Because chromosomes are replicated before division and each daughter cell receives an identical set of chromosomes.

Question 2

mitosis produces two daughter cells, not four, oe **B1**

the daughter cells are genetically identical to the parent cell, not different, oe **B1**

Answer: 1) Mitosis produces two daughter cells, not four. 2) The daughter cells are genetically identical to the parent cell, not different.

Question 3

(a) a mass/lump of cells resulting from uncontrolled cell division (by mitosis), oe **B1**

(a) Answer: A mass of cells resulting from uncontrolled cell division (mitosis).

(b) normally, the rate of cell division (mitosis) in the body is tightly controlled, oe **B1**

(b) if cells divide by mitosis in an uncontrolled way, this produces an increasing mass of cells, forming a tumour, oe **B1**

(b) Answer: Cell division is normally tightly controlled. If cells divide by mitosis in an uncontrolled way, this produces a growing, abnormal mass of cells, forming a tumour.

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