

5.2 Chromosome Behaviour in Mitosis

Question Paper

Course	CIE A Level Biology (9700) exams from 2022
Section	5. The Mitotic Cell Cycle
Topic	5.2 Chromosome Behaviour in Mitosis
Difficulty	Easy





Time allowed: 10

Score: /10

Percentage: /100

Question 1

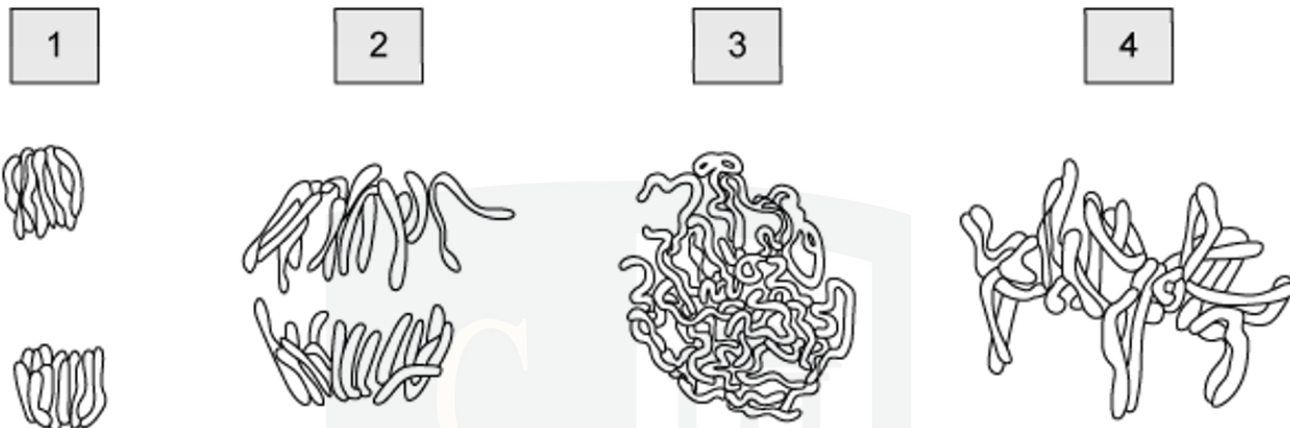
Which row is correct?

	Diagram	Stage
A		Interphase
B		Metaphase
C		Anaphase
D		Telophase

[1 mark]

Question 2

The diagrams show chromosomes at different stages of mitosis.



Which shows the correct order of the cell cycle?

- A** $1 \rightarrow 2 \rightarrow 3 \rightarrow 4$
- B** $2 \rightarrow 3 \rightarrow 4 \rightarrow 1$
- C** $3 \rightarrow 4 \rightarrow 2 \rightarrow 1$
- D** $1 \rightarrow 2 \rightarrow 4 \rightarrow 3$

[1 mark]

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Question 3

The diagram shows a cell nucleus in prophase of mitosis.



What is the correct description of the chromosomes found in each daughter nucleus immediately after division of this cell by mitosis?

- A** 4 chromosomes, each consisting of 4 chromatids
- B** 8 chromosomes, each containing 1 molecule of DNA
- C** 8 chromosomes, each consisting of 4 chromatids
- D** 16 chromosomes, each containing 1 molecule of DNA

[1 mark]

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Question 4

A scientist adds a fluorescent dye to dividing cells which stains the nuclear envelope.

At which stages of the cell cycle would the nucleus be visible?

- 1 Interphase
- 2 Prophase
- 3 Telophase
- 4 Anaphase

A 1 only **B** 1 and 3 only **C** 1,2 and 3 only **D** 1, 2, 3 and 4

[1 mark]

Question 5

What happens to a cell's DNA during metaphase of mitosis?

- A** Each chromosome forms two chromatids
- B** Chromatids reach the poles of the mitotic spindle
- C** Chromosomes become shorter and thicker
- D** Chromosomes attach to the equator of the mitotic spindle

[1 mark]

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Question 6

At which stages of mitosis do centromeres separate and the DNA condenses?

	centromeres separate	condensation of DNA
A	metaphase	interphase
B	anaphase	prophase
C	metaphase	telophase
D	anaphase	interphase

[1 mark]

Question 7

Which statement describes interphase of mitosis?

- A** chromosomes start to coil, becoming shorter and fatter
- B** chromosomes line up on the equator of the spindle
- C** chromatids are pulled apart by spindle fibres
- D** chromosomes are replicated ready for the next division

[1 mark]

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Question 8

Which is always true of cytokinesis?

- 1 cell structures are divided between two cells.
- 2 nuclear envelope reforms
- 3 cell structures replicate

A 1 only B 1 and 3 only C 2 only D 1, 2 and 3

[1 mark]

Question 9

During which stage of the mitotic cell cycle is DNA replicated?

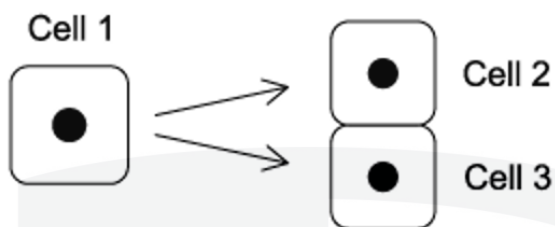
- A Metaphase
- B Telophase
- C Prophase
- D Interphase

[1 mark]

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Question 10

The diagram shows a human cell ($2n = 46$) at different stages of mitosis. Cell 1 is at the end of prophase and the cells 2 and 3 are daughter cells just after telophase.



How many DNA molecules are there in the nucleus of cell 1 and cell 2?

	cell 1	cell 2
A	46	46
B	46	23
C	92	46
D	92	23

[1 mark]