

1.4 Cells: Division

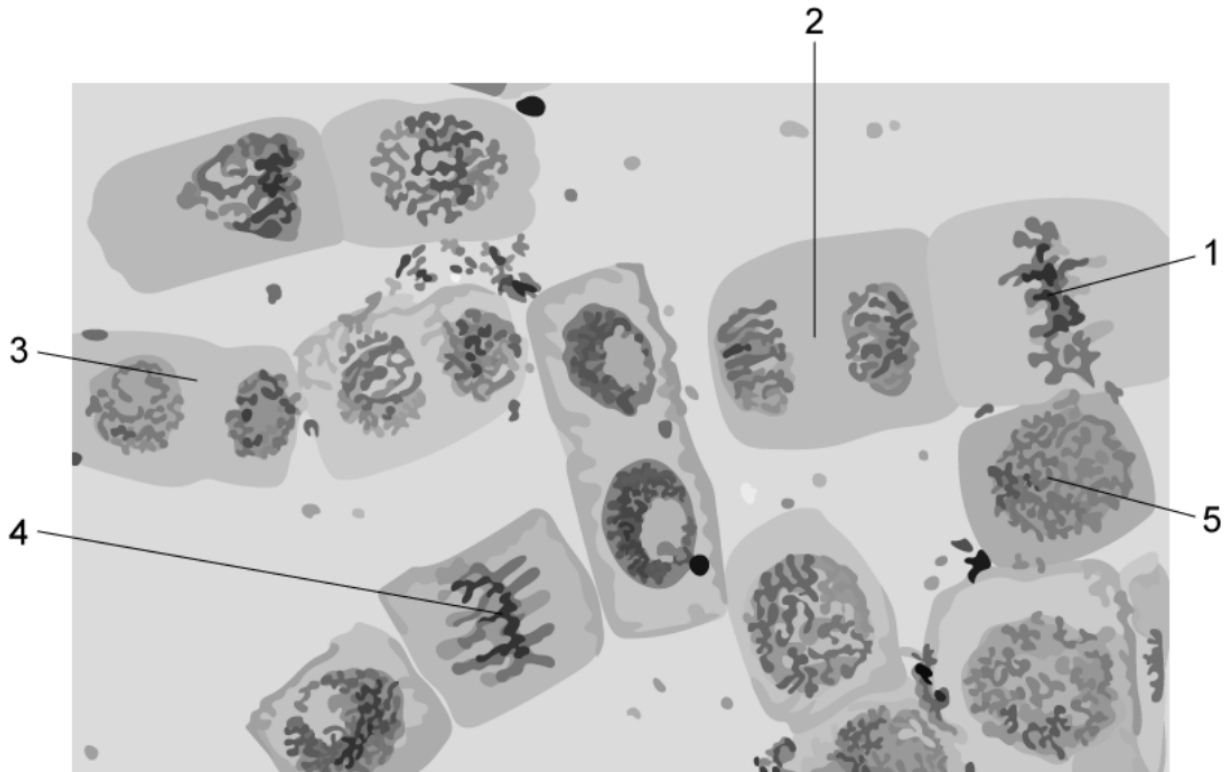
Question Paper

Course	DP IB Biology
Section	1. Cell Biology
Topic	1.4 Cells: Division
Difficulty	Medium

Time allowed: 20
Score: /10
Percentage: /100

Question 1

The photomicrograph shows cells in different stages of mitosis.



In which order do these stages occur?

- A** 4 → 1 → 3 → 2 → 5
- B** 4 → 1 → 2 → 3 → 5
- C** 4 → 3 → 5 → 1 → 2
- D** 4 → 5 → 1 → 2 → 3

[1 mark]

Question 2

Which of the following does not happen in an animal cell division?

- I. DNA is transcribed and translated.
- II. Spindle is formed from microtubules.
- III. Cell plate forms to divide daughter cells
- IV. Plasma membrane pulled inwards around cell equator to form cleavage furrow

- A** III only
- B** I and III only
- C** II only
- D** IV only

[1 mark]

Question 3

Tumors are formed from uncontrolled cell division of cancer cells.

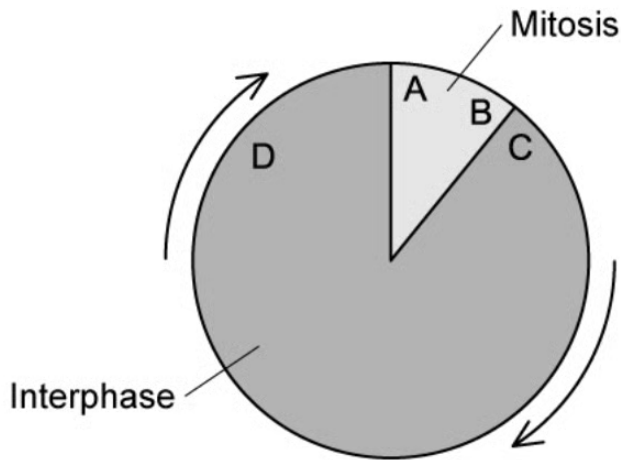
Which statement describes the difference between a normal cell and a cancer cell?

- A** Only cancer cells have mutated DNA.
- B** Cancer cells do not undergo cytokinesis.
- C** Cancer cells have a shorter interphase.
- D** Cancer cells do not have metaphase.

[1 mark]

Question 4

The cell cycle is shown in the diagram below.



If dividing cells are supplied with radioactive nucleotides, at which point will the nucleotides be incorporated into the chromosomes?

[1 mark]

Question 5

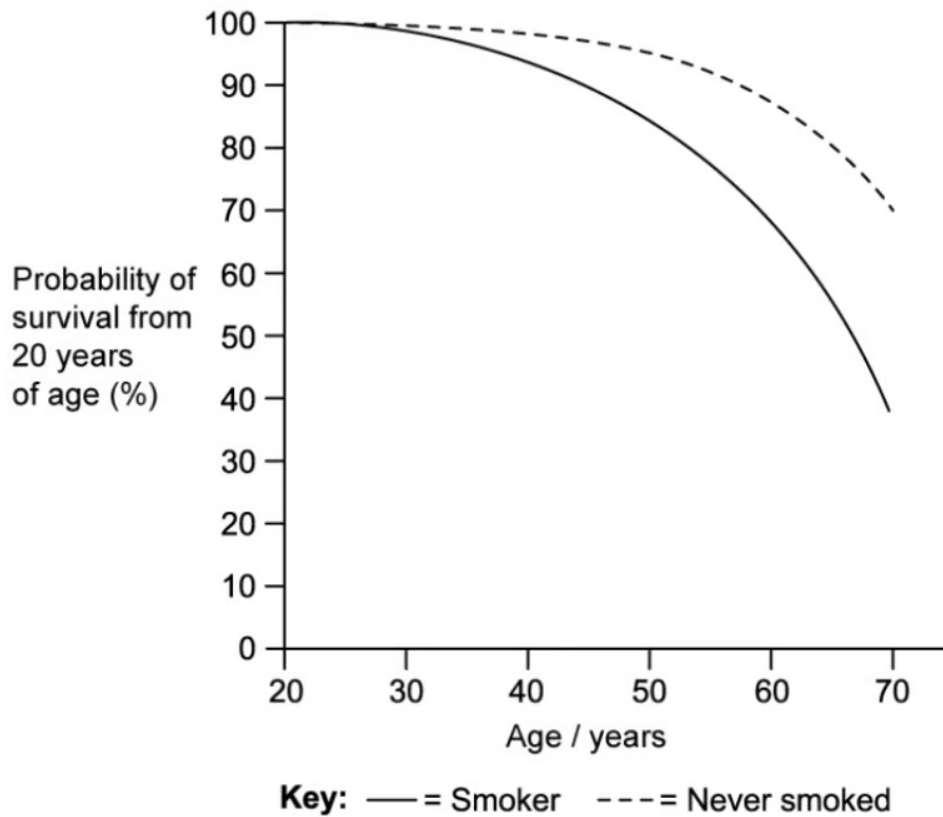
What properties does a human cell have just before it enters prophase?

	Nuclear membrane present	Spindle present	Number of chromatids
A	No	Yes	92
B	Yes	No	92
C	Yes	Yes	46
D	Yes	No	46

[1 mark]

Question 6

The graph shows the survival probabilities for current smokers and for those who never smoked among men 20 to 70 years of age.



What can be concluded from this graph?

- A** Smoking causes cancer.
- B** There is a correlation between smoking and cancer.
- C** Smoking reduces life expectancy.
- D** People who have never smoked can still die of cancer.

[1 mark]

Question 8

The table below shows the number of cells in different stages of mitosis in a sample from a garlic root tip.

Stage of mitotic cell cycle	Number of cells
Interphase	80
Prophase	11
Metaphase	2
Anaphase	4
Telophase	3

What is the mitotic index for this tissue?

- A** 0.20
- B** 20
- C** 0.80
- D** 4

[1 mark]

Question 9

The risk of developing a cancerous tumour is increased by exposure to which of the following?

	Ultraviolet light	Viruses	Carbon monoxide	X-rays
A	✓	✓	X	✓
B	✓	X	X	✓
C	X	✓	✓	X
D	✓	X	✓	X

Key: ✓ = increases risk, X = does not increase risk

[1 mark]

Question 10

The diagram shows the chromosomes of a squashed cell during mitosis.



Which stage of mitosis is the cell in and what is the haploid chromosome number of this species?

	Stage of mitosis	Haploid chromosome number
A	Early prophase	5
B	Late prophase	5
C	Metaphase	10
D	Anaphase	10

[1 mark]