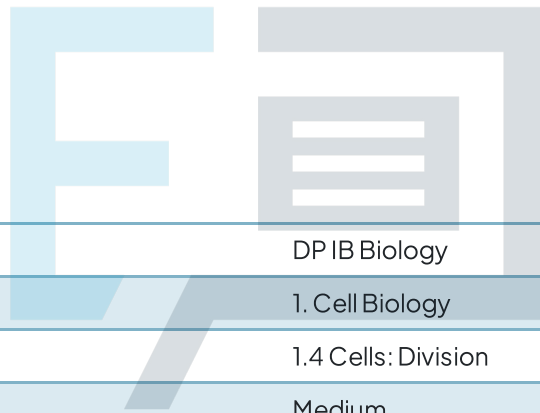




1.4 Cells: Division

Question Paper



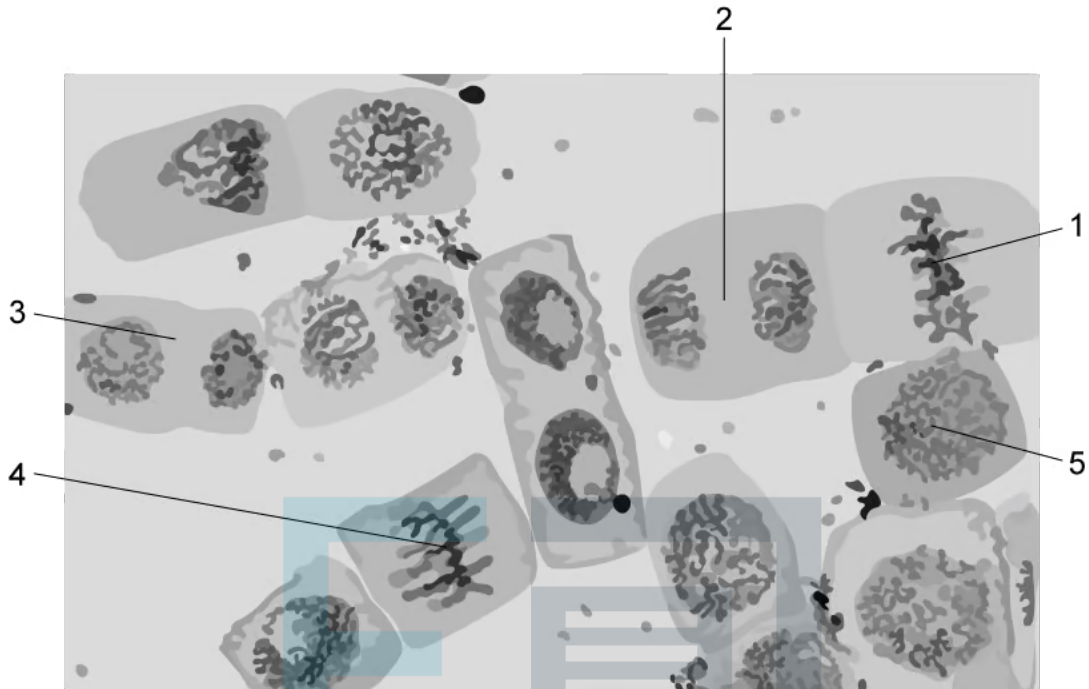
Course	DP IB Biology
Section	1. Cell Biology
Topic	1.4 Cells: Division
Difficulty	Medium

Exam Papers Practice

To be used by all students preparing for DP IB Biology HL
Students of other boards may also find this useful

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

Question 2

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

- 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?

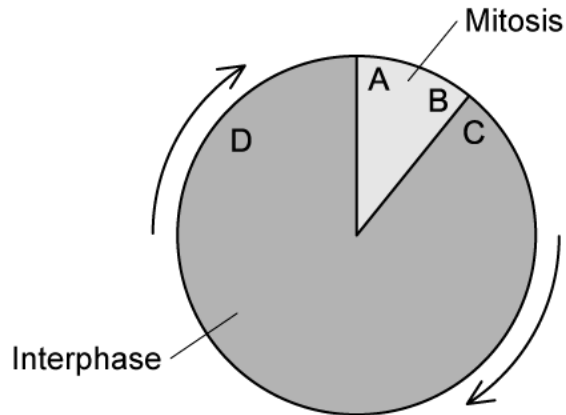
- A. Only cancer cells have mutated DNA.
- B. Cancer cells do not undergo cytokinesis.
- C. Cancer cells have a shorter interphase.
- D. Cancer cells do not have metaphase.

[1 mark]

Exam Papers Practice

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

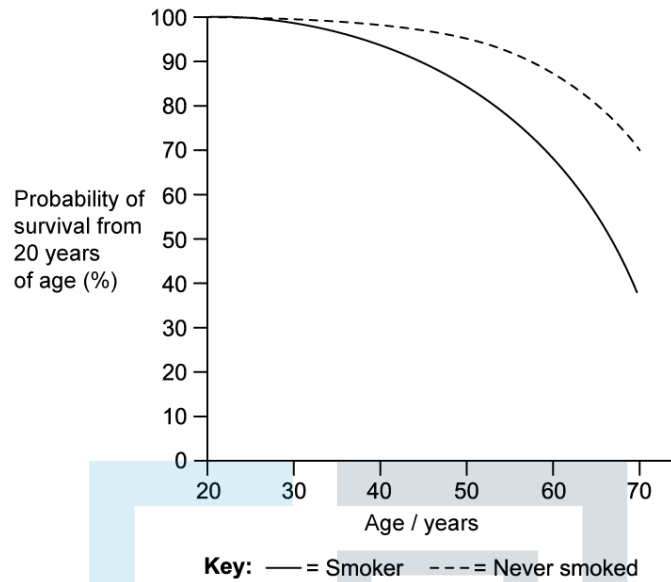
What properties does a human cell have just before it enters prophase?

	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.

Exam Papers Practice [1 mark]

Question 7

Each of the following events takes place during mitosis.

- 1 Chromosomes uncoil.
- 2 Chromatids move to opposite poles of the cell.
- 3 Centromeres divide.
- 4 Chromosomes line up along the equator of the spindle.
- 5 Two chromatids are joined by a centromere.

In which order do the events take place?

	First →→→→→→→→→→→→→→→→ Last				
A	1	2	4	5	3
B	3	1	2	4	5
C	4	5	3	1	2
D	5	4	3	2	1

[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?

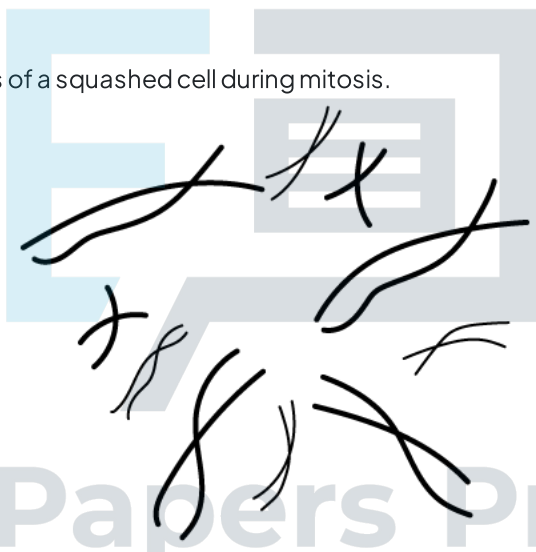
	Ultraviolet light	Viruses	Carbon monoxide	X-rays
A	✓	✓	x	✓
B	✓	x	x	✓
C	x	✓	✓	x
D	✓	x	✓	x

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]