

Replication and division of nuclei and cells

Question Paper 6

Level	International A Level
Subject	Biology
Exam Board	CIE
Topic	The Mitotic Cell Cycle
Sub Topic	Replication and division of nuclei and cells
Booklet	Theory
Paper Type	Question Paper 6

Time Allowed : 22 minutes

Score : / 18

Percentage : /100

Grade Boundaries:

A*	A	B	C	D	E	U
>85%	'77.5%	70%	62.5%	57.5%	45%	<45%

- 1 Fig. 4.1 shows the results of an animal cell that has undergone meiosis I.

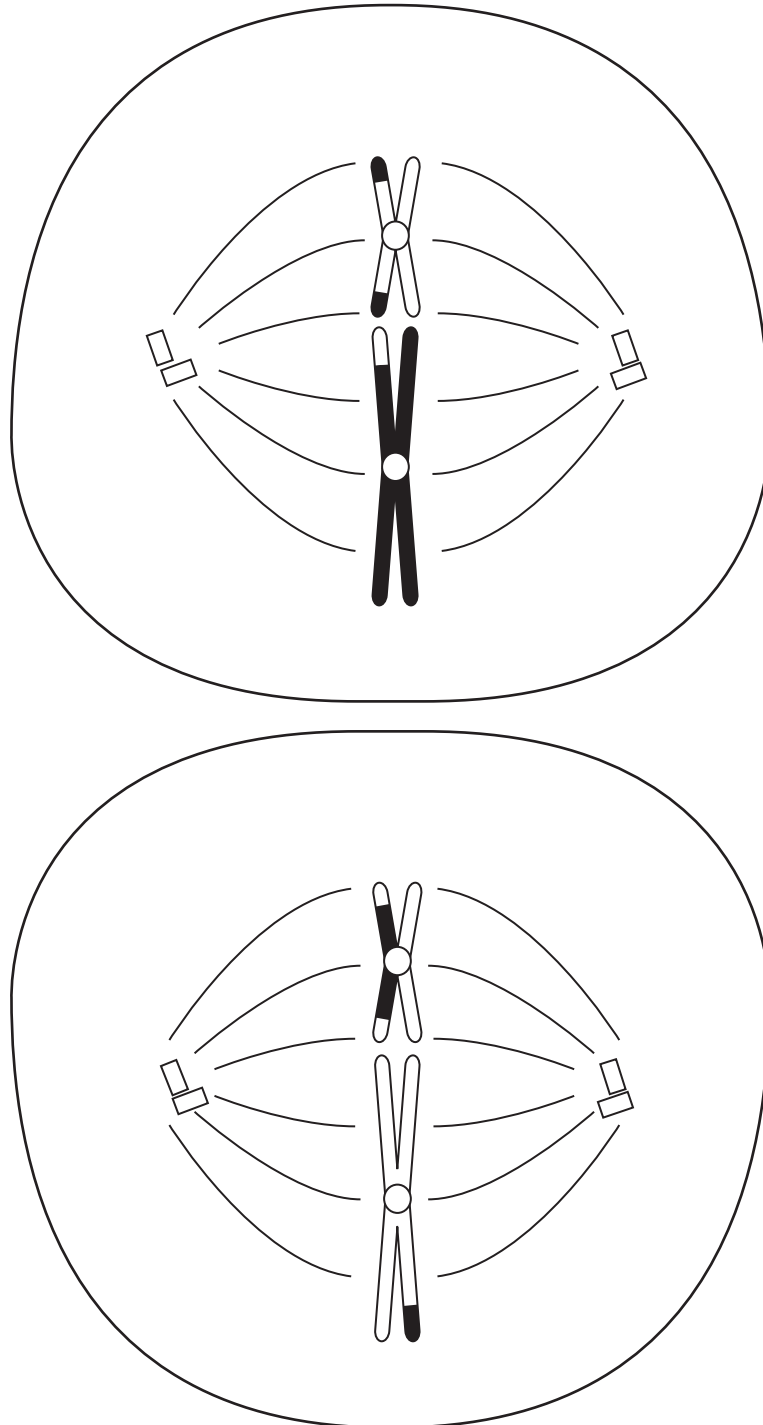


Fig. 4.1

- (a) State which stage of meiosis II is shown.

.....[1]

(b) Describe the next stage of meiosis II.

.....
.....
.....
.....[3]

(c) Describe what has happened before the start of meiosis to

(i) the nuclear membrane;

.....
.....[1]

(ii) the centrioles.

.....
.....[2]

(d) Name and explain two ways in which meiosis can lead to variation.

1.
.....
.....
2.
.....
.....[4]

[Total : 11]

2 DNA replication is an important event in the cell cycle.

(a) State when, during the cell cycle, DNA replication occurs.

.....[1]

(b) Fig. 2.1 shows pairing between two bases, **X** and **Y**, in a DNA molecule.

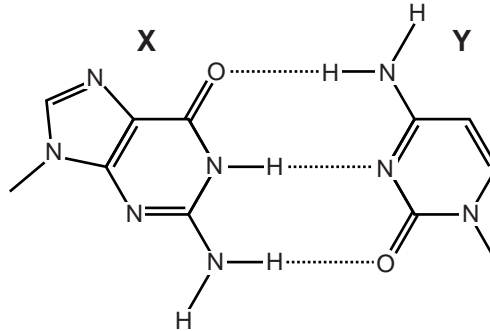


Fig. 2.1

(i) Name the type of bond shown by the dotted lines between the bases.

.....[1]

(ii) State which base, **X** or **Y**, is a pyrimidine **and** explain your answer.

.....
[1]

(c) The compound benzopyrene, found in tar from tobacco smoke, can become chemically changed in cells and interferes with DNA replication, causing gene mutations.

(i) State what is meant by the term *gene mutation*.

.....

[2]

- (ii) Mutations that occur in dividing cells of the gas exchange system may result in lung cancer.

Suggest the differences in the cell cycle of a cancer cell compared with that of a normal cell of the same type.

.....

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.....[2]

[Total: 7]