

5.1 Replication & Division of Nuclei & Cells

Question Paper

Course	CIEA Level Biology
Section	5. The Mitotic Cell Cycle
Topic	5.1 Replication & Division of Nuclei & Cells
Difficulty	Easy

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

Question 1

A scientist counted 24 chromosomes in each of the root cells of a melon plant.

What is the diploid and haploid number of chromosomes for this species?

	haploid number	diploid number
A	24	12
B	12	24
C	48	24
D	24	48

[1 mark]

Question 2

What is the role of a telomere?

- A. to enable correct coiling of genetic material
- B. to aid the division of genetic material
- C. to prevent the loss of genetic material
- D. to initiate the replication of genetic material

[1 mark]

Question 3

When animal cells undergo mitosis, which structure organises spindle formation?

- A. centrosome
- B. nucleolus
- C. centriole
- D. centromere

[1 mark]

Question 4

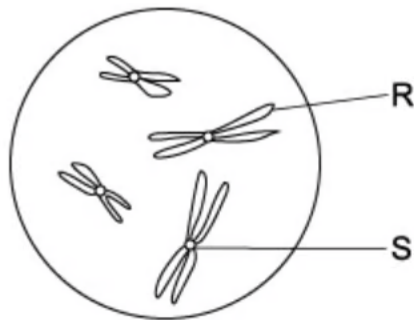
Which of the following processes involve mitosis?

- A. growth, repair and semi-conservative replication
- B. repair, growth and asexual reproduction
- C. reduction division, asexual reproduction and growth
- D. repair, reduction division and asexual reproduction

[1 mark]

Question 5

Chromosomes in a nucleus are shown in the diagram below.



What are the structures **R** and **S**?

	R	S
A	centromere	chromatid
B	centromere	centriole
C	chromatid	centromere
D	chromatid	centriole

[1 mark]

Question 6

Which statement about mitotic cell division is **incorrect**?

- A. DNA is replicated semi-conservatively during mitosis
- B. DNA is normally unchanged from one generation of cells to the next
- C. the daughter cells have the potential to produce the same enzymes as the parent cell
- D. the same quantity of DNA is distributed to the nuclei of two new cells

[1 mark]

Question 7

In which of the processes shown in the table is mitosis required?

	genetic variation	increase in cell number	replacement of damaged cells
A	x	✓	✓
B	✓	x	x
C	✓	✓	x
D	x	x	✓

key

✓ contributes to process

x does not contribute to process

[1 mark]

Question 8

What is the end result of mitosis?

- A. one dead cell and one new cell
- B. two genetically identical clones of the parent cell
- C. two cells with half the amount of DNA as the parent cell
- D. one parent cell and two daughter cells, all identical

[1 mark]

Question 9

At what stage of the cell cycle would a cell be producing the most mRNA molecules?

- A. mitosis
- B. G₁ phase
- C. S phase
- D. G₂ phase

[1 mark]

Question 10

Which statement does not describe a stem cell?

- A. a cell that is required in the immune system
- B. a cell only found in embryos
- C. a cell that produces cells capable of differentiating
- D. a cell that can divide an unlimited number of times

[1 mark]