

Cell Cycle and Cell Division



TRY YOURSELF

ANSWERS

1. Cell cycle is a genetically controlled series of changes that occur in a newly formed cell by which it duplicates its genome, synthesises other constituents, undergoes growth and divides to form two daughter cells.

2. Difference between G_1 (first) and G_2 (last) phases of interphase is as follows:

S.No.	G_1 Phase	G_2 Phase
(i)	Cell grows in size but growth of nucleus is little.	Both cell and nucleus grow in size.

3. Two differences between mitosis in plant cell and animal cell are as follows:

S.No.	Plant mitosis	Animal mitosis
(i)	It occurs generally in the region of a meristem.	It occurs at several places.
(ii)	Plant mitosis is generally controlled by hormone cytokinin.	Animal mitosis is controlled by a number of mitogens like lymphokines, epidermal growth factor, platelet derived growth factor, etc.

4. Cytokinesis refers to division of cytoplasm. In an animal cell, it is achieved by the appearance of a furrow in the plasma membrane. The furrow gradually deepens and ultimately joins in the centre dividing the cell cytoplasm into two. In plant cell,

the formation of new cell wall begins with the formation of a simple precursor, called the cell plate that represents the middle lamella between the walls of two adjacent cells.

5. Amitosis is a simple method of cell division which is also called direct cell division. In this division, there is no differentiation of chromosomes and spindle. It occurs in metabolic nucleus of some protozoa. It also occurs in diseased cells.

6. Anaphase-I

7. Diakinesis

8. Differences between prophase stage of mitosis and meiosis are as follows:

S. No.	Mitotic prophase	Meiotic prophase
(i)	Chromomeres are not conspicuous.	Chromomeres are quite conspicuous.
(ii)	Prophase is of shorter duration.	Prophase-I is of longer duration while prophase-II is very short.
(iii)	Prophase is simpler and is hardly distinguishable into substages.	Prophase-I is complicated and is divisible into five substages. Prophase-II is, however, very simple.
(iv)	Each chromosome has two distinct chromatids.	Chromosomes of prophase-I do not show distinct chromatids.

9. The term meiosis was introduced by Farmer and Moore in 1905.

