

## Biology - 12th Class Biology Chapter 21 Short Questions Preparation

Q1. Define cell cycle.

**Ans 1:** The cell undergoes a sequence of changes, which involves period of growth, replication of DNA, followed by cell division. This sequence of changes is called cell cycle.

Q2. What changes occur in a cell during apoptosis?

**Ans 1:** During apoptosis the cell shrinks and condenses ultimately splits up thus releasing the small membrane-bounded apoptotic bodies which are generally phagocytosed by other cells. Intracellular constituents are not released freely in the extracellular environment which otherwise might have a toxic effect.

Q3. Give the main feature of metaphase of Meiosis-1.

**Ans 1:** Nuclear membrane disorganizes. Spindle fibers originate and attach to the kinetochores of homologous chromosomes from each pole and arrange bivalents at the equator.

Q4. Write about the stage of telophase of mitosis.

**Ans 1:** During telophase of mitosis, nuclear membrane and nucleolus reappear, mitotic apparatus disappears and two nucleoli are formed in one cell.

Q5. Define mitotic apparatus. Or Give its functions.

**Ans 1:** Mitotic apparatus is composed of spindle fibers, centrioles and asters. Mitotic apparatus plays an important role in cell division and equal distribution of chromosomes during cell division.

Q6. What events occur in anaphase-I in meiosis?

**Ans 1:** During the anaphase of meiosis -1, the spindle fibers contract and each member of homologous chromosomes moves towards each pole. In this way, half of the chromosomes reach to one pole and the other half reaches to another pole.

Q7. Give the chances of occurrence of Down's syndrome in teenage mothers and a forty years old mother's offspring.

**Ans 1:** The chances of a teenage mother having a Down's syndrome child is one in many thousands, while for a forty years old mother, it is one in a hundred chance and by forty-five the risk is three times greater.

Q8. How does cytokinesis differ in plant and animal cells?

**Ans 1: Cytokinesis in plants:** In plants cytokinesis occur by phragmoplast formation. Golgi vesicles arrange in the center and fuse with each other forming cell wall between two daughter nuclei which in turn divides into two daughter cells.

**Ans 2: Cytokinesis in animals:** In animals the cytokinesis occurs by inward pinching of cell membrane and parent cell divides into two daughter cells.

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Q9. What are the events of zygotene of prophase -I of meiosis?

**Ans 1:** First essential phenomenon of meiosis i.e, pairing of homologous chromosomes called synapsis starts. Each paired but not fused, complex structure is called bivalent or tetrad.

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Q10. What events occur in anaphase of mitosis?

**Ans 1:** During anaphase of mitosis spindle contract and centromere divides and two sets chromosomes are formed. Each set of chromosomes moves toward opposite poles. So that each pole receive one set of chromosomes.

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