

11. CELL CYCLE AND CELL DIVISION

(1 × 2) + (1 × 4) = 6 Marks

ROOT POINTS

1. **Cell cycle** is the **life of cycle of a cell**, which covers its birth, growth and cell division.
2. **Cell division** is the process by which a parent cell divides into two or more daughter cells.
3. Cell cycle is divided into two phases (i) **Inter phase** (ii) **Mitosis**
4. **Interphase** is a **period of preparation** for cell division.
5. **Mitosis** (M phase) is the **actual period** of cell division.
6. Inter phase is subdivided into **G₁ phase, S phase and G₂ phase.** [IPE]
7. **G₁ phase** is the period when the cell grows and carries out normal metabolism. [IPE]
8. In **S phase**, replication of DNA and duplication of chromosomes occur. [IPE]
9. **G₂ phase** is the period of Cytoplasmic growth. [IPE]
10. **Mitosis** is divided into **Prophase, Metaphase, Anaphase and Telophase.** [IPE]
11. Chromosome condensation occurs during **Prophase.** [IPE]
12. The **Prophase I** is longer and more complex when compared to prophase of mitosis. [IPE]
It is sub divided as (i) Leptotene (ii) Zygotene (iii) Pachytene (iv) Diplotene (v) Diakinesis.
13. **Metaphase** is marked by the alignment of chromosomes at equatorial plate. [IPE]
14. During **Anaphase** centromere divides and chromatids start moving towards opposite poles.
15. Once chromatids reach the poles, chromosomal elongation starts, nucleolus and nuclear membrane reappear. This is called **Telophase.**

FRUITY Qs OF IPE

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1. Which tissue of animals and plants exhibits meiosis?
2. Which of the four chromatids of a bivalent at prophase-I of meiosis can involve in cross over?
3. If a tissue has at a given time 1024 cells. How many cycles of mitosis had the original parental single cell undergone?
4. An anther has 1200 pollen grains. How many pollen mother cells must have been there to produce them?
5. At what stage of cell cycle does DNA synthesis occur?
6. Which division is necessary to maintain constant chromosome number in all body cells of multicellular organism and why?
7. Though redundantly described as a resting phase, interphase does not really involve rest. Comment.
8. Explain prophase I of meiosis