

## Biology (New Book) - 9th Class Biology Urdu Medium Chapter 4 Preparation

Q1. What are sister chromatides, and when do they separate in meiosis.

**Ans 1:** Sister chromatide are identical copies of a single chromosomess. These sister chromatides are separated during anaphase -II of mciosis.

Q2. Difference between Chromatin and Chromosome

**Ans 1:** Chromatin

In the beginning of prophase. The chromosome are not visibel as they are in the form of fine thread like structures called chromatin

**Ans 2:** Chromosome:

During prophase the chromatin begins to shorten, thicken and coil by a process called condensation. It results in the appearence of chromosmes.

Q3. What is the role of spindle fibres in mitosis.

**Ans 1:** During mitosis, spindle fibres ensure the accurate separation of sister chromatids of chromosoemes attache dwith spindle fibres in telephase.

Q4. Difference chrosomes and chromatids

**Ans 1:** Chrosome:

The chromatin begins to shorten, tickne and coil by a process called condensatin. It results in the appearance of chrosomes it consists of two chromatids.Two chromatids of a chromosome is joined by centromere

**Ans 2:** Chromatids:

Unseparated reliea of a chromosome is called chromatids

Q5. Difference between Cytokinesis and Karyokinesis.

**Ans 1:** Cytokineis:

The process of cytoplasmic division to called cytokinesis

**Ans 2:** Karyokinesis:

The process of nuclear division is called karyokinesis

Q6. How does crossing over contribute to genetic variation in meiosis?

**Ans 1:** During crossing over, exchange of segements of non -sister chromatide os homologous chromosomes take place. This

process leads to recombination of genetic material and increase genetic diversity.

---

#### Q7. Difference between Mitosis and Meiosis

**Ans 1: Mitosis:**

It takes place in somatic cells

It consists of one division

Crossing over does not take place during prophase

Chromatids divide at anaphase

Individual duplicated chromosomes align at the metaphase plate during metaphase

Daughter chromosomes move to opposite poles during anaphase

Two diploid daughter cells are formed.

The number of chromosomes remains constant.

**Ans 2: Meiosis:**

It takes place in germ line cells of sex organs.

It consists of two divisions

Crossing over takes place during prophase-I

Chromatids do not divide at anaphase-I

Paired homologous chromosomes align at metaphase plate during metaphase-I

Homologous chromosomes with two sister chromatids, separate and move to opposite poles during anaphase-I

Four haploid daughter cells are formed.

The number of chromosomes becomes half in meiosis.

Meiotic product cannot undergo further divisions.

---

#### Q8. Difference between Centromeres and Centrioles

**Ans 1: Centromeres:**

The centromere is a constriction in chromosome, where chromatids are joined with each other.

**Ans 2: Centrioles:**

A pair of centrioles located near the anterior surface of the nucleus. It consists of a triple of microtubules arranged to form a hollow cylinder.

---

#### Q9. Enlist the events that occur during the G1 Phase of interphase.

**Ans 1: During G1 phase of interphase following events occur.**

i. Cell makes proteins and organelles and so grows in size.

ii. Cell also makes enzymes required in S-phase for replication of DNA.

---

#### Q10. What are the key events of anaphase in mitosis.

**Ans 1: i. Constriction of spindle fibers towards their respective poles.**

ii. Equal separation of sister chromatids of chromosomes.