

# Short Questions

## SECTION - B

### Q1:- Functions of Plasma membrane :-

- **Protection** : Acts as a physical barrier for the cell.
- **Selective Permeability** : Regulates the entry and exit of ions and molecules.
- **Cell Signaling** : Contains receptors for communication.

### Q2:- Intracellular digestive System Functions:

- Primarily carried out by **lysosomes**, which contain hydrolytic enzymes to break down macromolecules, old cell parts (autophagy), and foreign substances.

### Q3:- Functional roles of Smooth endoplasmic Reticulum (SER):-

- Synthesis of lipids and Steroids.
- Detoxification of harmful metabolic by products and drugs.
- Storage and release of calcium ions (especially in muscle cells).

**Q4:- Differentiate blw mitosis & meiosis.**

**A:- Mitosis:-** Results in two genetically identical daughter cells (diploid); used for growth and repair.

**Meiosis:-** Results in four genetically different daughter cells (haploid); used for Sexual reproduction. (gamete formation).

**Q5:- Main functions of connective tissues:-**

- Binding and Supporting other tissues.
- Protecting organs and insulating the body (fat tissue).
- Transporting substances (blood is a fluid connective tissue).

**Q6:- Differentiate blw Fibrous and Synovial joints:**

- **Fibrous:** Joined by dense connective tissue; immovable (e.g., Skull Sutures).
- **Synovial:** Fluid-filled joint cavity; freely movable (e.g., Knee, Shoulder).

**Q7:- Erythrocyte composition and erythropoietic factors:**

**Composition:-** Primarily hemoglobin, lipids, and proteins, they lack a nucleus.

- **Factors:-** Erythropoietin (hormone), Iron, Vitamin B12, and Folic Acid.

### Q8:- Variation in RBC Count:-

- **Physiological:** Increases with high altitude or exercise; Varies by age and Sex.
- **Pathological:** Decreases in anemia; increases in polycythemia.

### Q9:- Factors Critical for hemoglobin Synthesis:-

- Adequate iron supply, amino acids (for globin chains), and vitamin B6 (pyridoxine)

### Q10:- Differentiate b/w agglutination and agglutinin:

- **Agglutination:** The clumping of particles (like RBCs)
- **Agglutinin:** The specific antibody that causes the clumping.

### Q11:- Stages of blood clotting:-

1. Vascular Spasm (Constriction)
2. Platelet plug formation
3. Coagulation (fibrin mesh formation)

**Q12:- What is ECG and its applicability.**

- **Electrocardiogram (ECG) :-** A record of the electrical activity of the heart.
- **Application :** used to diagnose heart rhythm irregularities, heart attacks, and other cardiac conditions.

**Q13:- Lymph Corpuscles:**

- These are cells found in lymph, primarily lymphocytes (B cells and T cells), which are essential for the immune response.

**Q14: External vs. Internal Respiration:-**

- **External:** Gas exchange between the lungs (alveoli) and the blood.
- **Internal:** Gas exchange between the blood & the body's tissue cells.

**Q15: Inspiratory vs. Expiratory reserve Volume:-**

- **IRV:** Extra volume of air that can be inhaled after a normal breath.
- **ERV:** Extra volume of air that can be exhaled after a normal breath.

**Q16:- vital capacity vs. Functional Residual capacity:**

- **Vital capacity (Vc):** Max amount of air a person can expel from the lungs after maximum inhalation.
- **Functional Residual Capacity (FRC):** Volume of air remaining in the lungs after a normal passive exhalation.

### Q17:- Transport of $\text{CO}_2$ in blood:-

- Dissolved in plasma (approx. 7%).
- Bound to hemoglobin (carbaminohemoglobin, approx. 23%).
- As bicarbonate ions ( $\text{HCO}_3^-$ ) in plasma (approx. 70%).