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PART-II

SECTION-A

QUESTION NO. 2

(d)

Structure and Function of cell Wall:

Cell wall is the outermost layer in the plant cell. It performs various functions including:

- Structural support and shape to the plant cell
- Protects the cell from mechanical injury, pathogens, environmental stress
- Being freely permeable, provides passage to pass nutrients and cellular waste

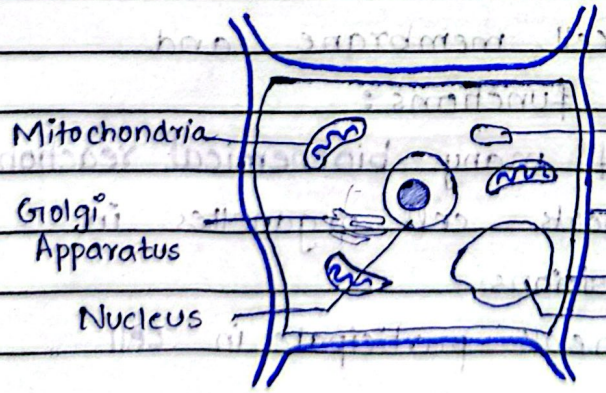

Fig: Structure of plant cell wall

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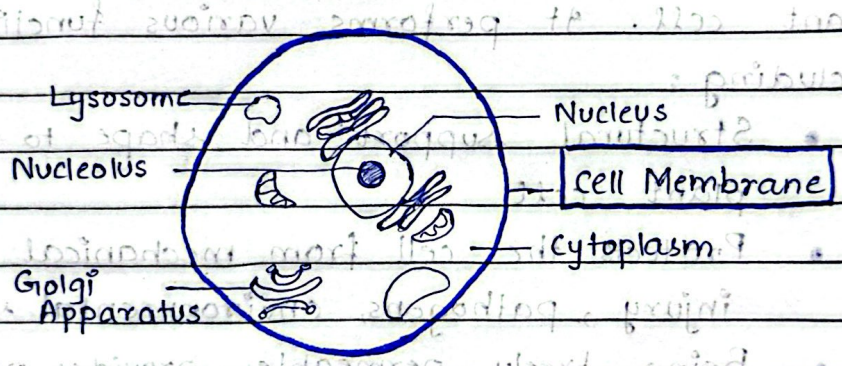
Structure and Function of cell Membrane:

Cell Membrane is also called plasma membrane and is present both in plant and animal cell.

(a) Functions of cell Membrane

- Provides **selective permeability**.
- Regulates the flow of ions, minerals, nutrients etc.
- Helps in transport of materials
- Allows intake of large molecules i.e **endocytosis** and secretion of substances.

(b) Structure of cell Membrane



Structure and Function of Cytoplasm

Cytoplasm is a **semi-fluid** substance present within cell membrane and performs various functions:

- Acts as a site of many **biochemical reactions**
- Holds and supports cell organelles in their proper positions.
- Cytoplasmic components participate in **cell Division**

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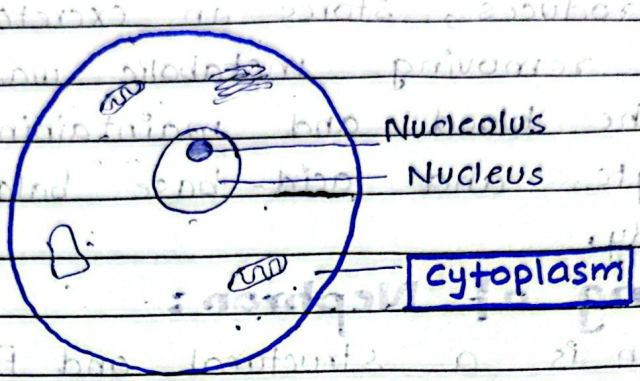
- Fascilitates transport of Genetic material
- Provides an aqueous environment necessary for Enzyme activities.



Structure and Function of Mitochondria:

Mitochondria is a cellular organelle which is also known as "Power House of cell;" as it helps in:

- ATP production,
  Generates energy in the form of ATP through cellular respiration.
- Site of Aerobic respiration (krebs cycle)
- Regulation of Metabolism

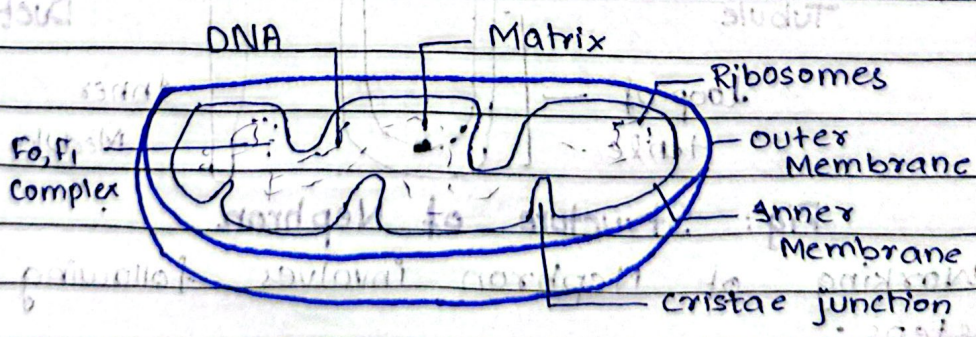


Fig. Structure of Mitochondria

(b)

Urinary Sytem:

Urinary system is an organ system that produces, stores an excretes urine, thereby removing metabolic wastes from the blood and maintaining wates, electrolyte, and acid-base balance in the body.

Working of Nephron:

Nephron is a structural and Functional unit of kidney.

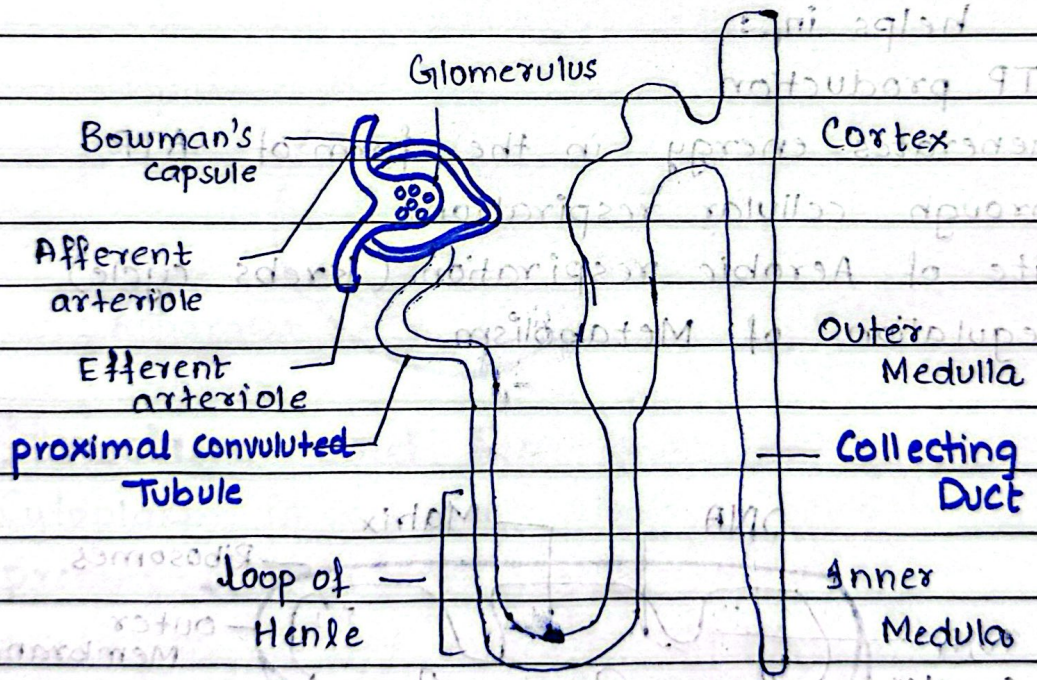


Fig: Structure of Nephron

Working of Nephron involves following steps:

- **Glomerular Filteration:**

Blood enters the ~~nephron~~ glomerulus through the

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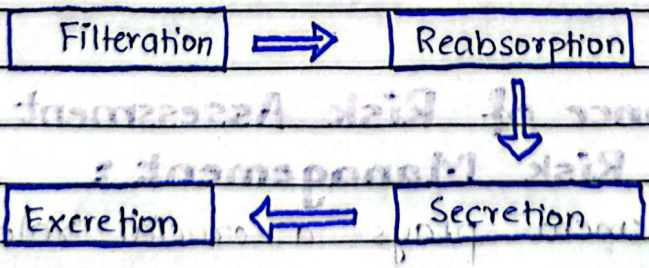
afferent arteriole. Due to high blood pressure, water, salts, glucose, urea etc are filtered into Bowman's capsule, while blood cells and protiens remain in blood.

- **Reabsorption:**
  In the proximal convoluted tubule, useful substances such as glucose, amino acids, salts, and most of the water are reabsorbed back into the blood.
- **Loop of Henle Function:**
  The descending limb of loop of Henle reabsorbs water, while the ascending limb reabsorbs salts. This helps in concentrating the urine.
- **Tubular Secretion:**
  In the Distal convoluted tubule, extra ions and wastes are actively secreted into the tubule.
- **Collection of Urine:**
  The collecting duct reabsorbs more water, forming concentrated urine, which is then passed to the renal pelvis.



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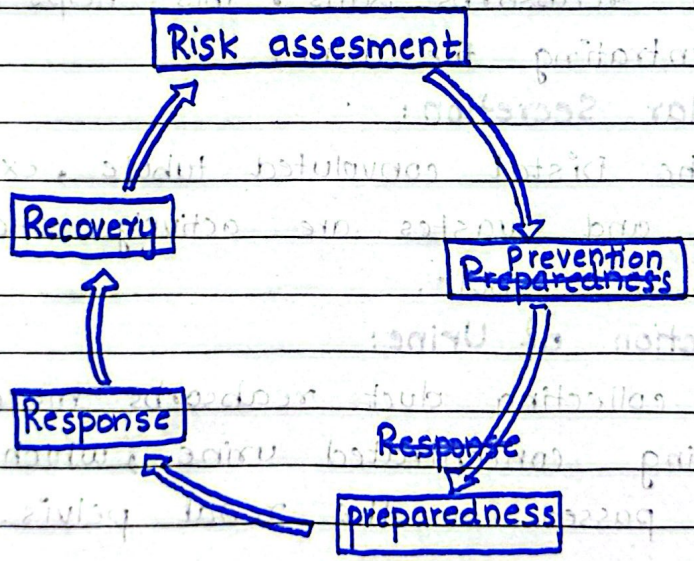
QUESTION NO. 5

(a)

Disaster Risk Management:

Disaster Risk management is the systematic process of identifying, assessing, reducing and controlling disaster risks through strategies and policies aimed at preventing or minimizing losses, protecting lives and property and ensuring effective preparedness, response, and recovery.



Importance of Risk Assessment in Disaster Risk Management:

Risk assessment plays a crucial role in Disaster Risk management.

- **Identifies hazards**

It helps recognize potential hazards

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and identifies populations, infrastructure and areas which are at most risk.

- **Improves preparedness and planning:** Risk assessment enables better contingency planning, early warning systems and evacuation plans etc.
- **Guides mitigation and preventive measures:** It provides basis for designing effective mitigation strategies e.g land use planning.
- **Reduce loss of life and property** By identifying risks, timely actions can be taken to minimize casualties and economic damage.
- **Supports evidence-based decision making:** Policymakers and disaster managers rely on risk data to prioritize investments.
- **Efficient use of resources:** It ensures limited resources are directed toward high risk areas and vulnerable groups.
- **Enhances Community Resilience:** Understanding risks helps communities adapt, strengthen coping capacities, and recover faster.

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(c)

Digestive System:

The digestive system is the organ system responsible for breaking down food into simpler molecules, absorbing nutrients, and eliminating undigested wastes from the body.

⇒ Role of Stomach:

- Stomach temporarily stores ingested food and releases it gradually into small intestine.
- Allows mechanical digestion, its muscular contractions churn and mix food, breaking it into smaller pieces.
- Gastric glands secrete **HCL** and **Pepsin** to breakdown protiens into peptides.
- The acidic environment of stomach kills **pathogens** (Harmful Bacteria)
- Helps in formation of Chyme. Food is convested into a semi-liquid mixture, ready for absorption in the small intestine.

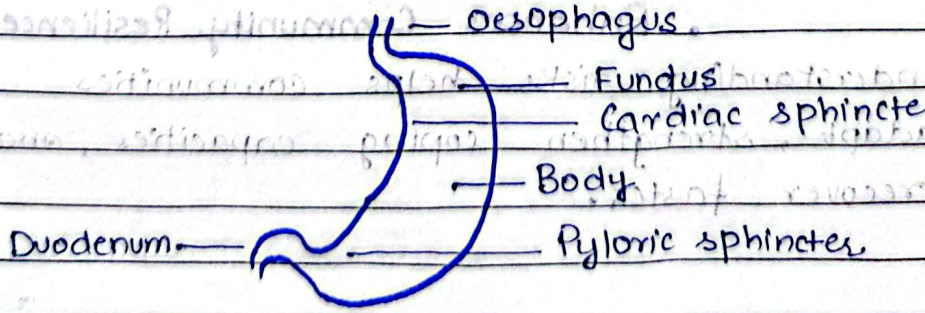

Fig. Structure of Stomach