Physiology and Biochemistry (BSCZO301)

UNIT WISE CONETENT (BSCZO301)

Block I. Physiology

Unit 1: Digestive System

Intracellular and extracellular digestion. Intestinal digestion - Pancreatic secretion, bile juices and digestion in small intestine, digestion and absorption in large intestine. Digestion and absorption of carbohydrate, fat and protein and regulation of enzyme action.

Unit 2: Respiration or Respiratory System

Types of respiration. Breathing mechanism, pulmonary ventilation, respiratory pigments, gaseous transport and respiratory quotient.

Unit 3: Blood Vascular System

Composition and functions of blood, Blood groups, Rh factor. Mechanism of blood clotting. Types of heart, Cardiac cycle and its regulation (Heart beat). Homeostasis. Blood pressure and ECG.

Unit 4: Excretory system

Structure of kidney. Mode of excretion of nitrogenous wastes in animals: ammonotelism, ureotelism, uricotelism and guanotelism.

Unit 5: Nervous system

Myelinated and non-myelinated nerve fibres. Neurotransmitters. Synapses: - Ultra structure and function. Resting and action potential of nerves, synapse and transmision of nerve impulse.

Unit 6: Muscular System

Ultra structure of smooth, striated and cardiac muscles. Muscle contraction and its machenism. Simple twitch and fatigue.

Block II. Endocrinology

Unit 7: Endocrine system

General characteristics of endocrine system. Structure and functions of Pituitary, Thyroid, Parthyroid, Pancreas, Adrenal, Testis and ovary in mammals. Mechanism of hormone action (cellular and sub cellular).

Unit 8: Hormonal dysfunction and diseases

Dwarfism, Gigantism, Acromegaly, Diabetes insipides and Diabetes mellitus, Goitre, Cretinism. Myxoderma and Addison's disease.

Block III Biochemistry

Unit 9: Amino Acids and Peptides.
Bimolecular structure, classification and properties of peptide bond

Unit 10: Carbohydrates and Lipids

Definition, Classification, Metabolism: - Glucogenesis, Gluconeogenesis, Glycolysis, TCA. & oxidative phosphoration of Carbohydrates. Definition, classification, simple, compound and derived lipids. Source, significance & deficiencies diseases of Carbohydrates and Lipids.

Unit 11: Vitamins

Classification, structure, occurrence and functions of fat and water soluble vitamins. Source, significance & deficiencies diseases of vitamins.

Unit 12: Proteins

Definition, classification, structure and metabolism of proteins. Source, significance and deficiencies of Proteins.

Unit 13: Enzymes

Definition, properties, classification, mechanism of enzyme action and factors affecting enzyme action. Source, significance & deficiencies of Enzymes.