

Physiology :

POST GRADUATE DEGREE STANDARD

UNIT I

GENERAL PHYSIOLOGY

Structure of cell membrane

Ionic Composition of body Fluids

Distribution of Body Fluids

Transport across cell Membrane & Cell

R M P and Action Potential

Applied Physiology

UNIT II

TISSUE( MUSCLE, BONE,NERVE)

Morphology,Structure of Muscle,Bone,Nerve Function,Innervation of Skeletal

Muscle, Smooth Muscle, Cardiac Muscle

Neuro Muscular Junction and Transmission

Rigor Mortis Denervation changes in Muscle

Types of Muscle Contraction

Work done by muscle

Applied and Clinical Physiology

UNIT III

HEAMATOLOGY

Plasma, Cellular Components

Plasma proteins, Functions

Blood Volume

R B C Life Span Structure, Function,Production, Destruction

Hemoglobin - Structure, Synthesis, Functions, Types and Degradation

W B C - Structure , Production, Function, Destruction

Immunity

Monocyte Macrophage System, Lymph, Spleen

Haemostasis - Platelets, Coagulation, Anticoagulants, Fibrino Lytic System

Blood Groups (Major and Minor, Rh)

Blood Transfusion, Transfusion Reactions Erythroblastosis foetalis

UNIT IV

GASTRO INTESTINAL PHYSIOLOGY

Secretions-Salivary,Gastric,Pancreatic,Small Intestinal, - Mechanism

Composition, Function and Regulation.

Digestion, of Carbohydrates, Proteins, Fats.

Absorption of Carbohydrates, Proteins, Fats.

Histological structure of GI Tract.

Deglutition,Movements of Stomach, Small Intestine, Large Intestine and Villi.

Structure of Liver, Biliary secretion, Composition.

Gall Bladder- Function, Bile.

Clinical and Applied Physiology.

UNIT V

RENAL PHYSIOLOGY

Structure of Kidney, Nephron, JG Apparatus, Renin Angiotensin System

GFR-Regulation,Glomerulo-Tubular and Tubulo Glomerular Balance.Clearance

Functions of Nephron

Urine Formation

Counter Current - Mechanism

Urine - Volume composition, Osmolarity pH etc.

Bladder - Structure - innervation

Micturition - reflex Abnormal BladderBody Fluids, Acid Base Balance

Clinical and Applied Physiology

UNIT VI

ENDOCRINES

Feed back Mechanisms, Circadian rhythm Up and Down Regulation Hypothalamus,

Pituitary, Thyroid, Parathyroid, Pancreas, Pineal, AdrenalCortical and Medullary,

Hormones, and Local Hormones

Structure of all the above Glands. Synthesis transport function mechanism

of action, Regulation, Metabolism of all the Hormones.

Calcium, Carbo Hydrate, Homeostasis

Applied and Clinical Physiology

UNIT VII

REPRODUCTION

MaleReproduction,StructureofGonads,AccessoryOrgans,Hormones,Puberty,

Climacteric, Spermatogenesis, Composition of Semen, Castration Female

Reproduction - Puberty, Menarche, Menopause

Structure and Secretion of Ovaries, Ovulation. Uterine Structure,

Menstrual Cyclical changes.

Hormonal basis of Menstruation

Tests for Ovulation

Physiology of Pregnancy, Lactation.

Male and Female Contraception

Applied and Clinical Physiology

## UNIT VIII

### EXPERIMENTAL PHYSIOLOGY

Nerve Muscle Preparation and related experiments

Hematological experiments

Functional test of Endocrine Glands

## PAPER - II

### UNIT I

#### CARDIO VASCULAR PHYSIOLOGY

Properties of Cardiac Muscle

Conducting Tissue

Cardiac Cycle

Cardiac Output & Factors regulating

Blood Pressure

Haemodynamics & Physical Principles

Regional Circulation (Coronary, Pulmonary Fetal, Splanchnic, Cerebral)

Electrical activities and ECG

Applied and Clinical Physiology

### UNIT II

#### RESPIRATORY PHYSIOLOGY

Pulmonary Function

Pulmonary Function Tests

Regulation of Respiration

Oxygen and Carbon di-oxide transport

Hypoxia

Clinical and Applied Physiology

### UNIT III

## EXERCISE AND SPORTS PHYSIOLOGY, ENVIRONMENTAL PHYSIOLOGY

### UNIT IV

#### NEURO PHYSIOLOGY

Neuron, Degeneration and Regeneration

Receptors, Action Potential, Reflex, Synapse & Synaptic Transmission, Neurotransmitters

Cutaneous and deep visceral sensation

Ascending and Descending Tracts of Spinal Cord

Organisation of Motor and Sensory Functions of CNS & Spinal Cord

Functions of Brainstem, Cerebellum, Basal Ganglia, Hypothalamus, Thalamus,

Cerebral Cortex,

Limbic system

Higher Function of Brain - Arousal, Sleep Learning Memory, Speech.

EEG, Conditioned reflex

Neural Basis of Instinctual and behaviour emotion

Control of posture and Equilibrium, Muscle Tone

Autonomic Nervous system

Clinical and Applied Physiology

### UNIT V

#### SPECIAL SENSES

Taste & Smell

Vision - Structure, Optics, Neuro Chemistry Neuro Ophthalmology

Hearing - Structure, Function of Middle Ear and Inner Ear, Path way

Equilibrium - Vestibular Apparatus - Structure Function, Postural

reflexes Clinical and Applied Physiology

### UNIT VI

## EXPERIMENTAL AND INVESTIGATORY PHYSIOLOGY

Heart Experiments

Interpretation of ECG & PFT