Physiology

POST GRADUATE DEGREE
STANDARD

UNIT I
General physiology
History of Medicine, Cell Physiology - Cell structure + function, Transport across Cell membrane, Intercellular communication, Chemical messengers and thier receptors. Blood:- Composition, plasma function, Erythrocytes - formation, function, breakdown, Jaundice, Anaemia, Cells - granulocytes, neutrophil function - free radicle, myeeperoxidase etc.

UNIT II
Agranulocytes - Lymphocyte function, basic immune mechanism, humoral and cellular immunity, Haemostasis, Blood group.

UNIT III
Excretory- Renal blood flow, glomerular filtration, G.F.R., Tubular absorption of glucose and other substances + secretion, renal clearance, Water excretion - countercurrent mechanism, Renal regulation of Acid Base balance, Disorders of renal function.

UNIT IV
Gastrointestinal system
Salivary secretion, Swallowing, Gastric secretion - mechanism + regulation, pathophysiology of peptic ulcer.

UNIT - V
BER, Migrating Motor Complex gastric emptying, Gastro intestinal Hormon, Exocrine pancreas - secretion, regulation, Liver, biliary system, small intestine - absorption, Colon function, defaecation.

UNIT VI
Endocrinology
Hypothalamo - hypophyscal axis, Anterior pituitary hormones - physiology and altered physiology of growth, Posterior pituitary hormones - Osmolality, volume control of ECF by ADH, oxytocin function.

UNIT VII
Adrenal cortex + functions of Corticoid, clinical syndrome of hypo - and hyper function; adrenal medulla, Thyroid - function + dysfucntion.

UNIT VIII
Calcium metabolism, parathyroid, Vit D, Calcitonin, Pancreas - structure, functions and receptors for insulin & glucogon, other hormones - Renin - Angiotensin, ANP etc, local hormones.

UNIT IX
Reproductive physiology:- Puberty - mechanism, Male - Spermatogenesis, Androgen formation + function regulation erection of penis, Ejaculation.

UNIT X
Female - Menstrual cycle, Oestrogen, Progestrone action, regulation, ovulation, pregnancy, parturition, lactation, Family Planning Methods.

PAPER - II
UNIT I

Respiratory system:-
Mechanics of respiration - respiratory muscles, compliance, surfactant, lung volume + capacities, Gas exchange - diffusion capacity, Gas transport - O2 dissociation curve, CO2 transport, Pulmonary circulation, ventilation perfusion ratio

UNIT II
Regulation of respiration - neural, chemical, Respiratory function and dysfunction in health, disease exercise, hypoxia acclimatization, cyanosis, Asphyxia, ventilaiton perfusion imbalance. Dysbarism Airembolism, O2-treatment, O2 - toxicity artificial respiration, Environmental physiology.

UNIT III
Cardiovascular system:-
Properties of heart muscle, orgin and spread of cardiac impulse, ECG, vector cardiography, HIS Bundle cardiogram cardiac arrhythmias, Cardiac cycle - pressure volume changes in arteria ventricles, aorta, and jugular veins, heart sound + murmurs.

UNIT IV
Cardiac output-measurement factors, controlling (intrinsic and extrinsic), cardiac function curve. haemodynamic consideration - pressure, flow, resistance, viscosity, law of Laplace, Bernouli's Principle, effect of gravity functions of artieries veins, capillaries, lymphatics. Regulation of arterial blood pressure - neural, local, endocrinal (long acting).

UNIT V
Regional circulation - cerebral coronary, cutaneous, skeletal muscle, splanchnic, foetal circulation. CVS functions in health + Disease posture, exercise, shock, hypertension, heart failure.

UNIT VI
Central Nervous System and Special Senses:- Neurons - structure, types, function Action potential, Synaptic transmission - neuromuscular transmission, Gross - structure of brain, CSF formation + function, Receptors - definition, classification receptor potential coding function of receptors, Sensory pathway, sensory cortex individual sensations - Touch, Cold Warmth, Pain, Central pain inhibitory mechanism; proprioception.

UNIT VII
Skeletal muscle structure, contractions. Motor areas, motor tracts, upper and lower motor neurons, decerebrate rigidity, spinal stock, hemiplegia, Basal ganglion-functions and dysfunction. Cerebellum - structure, function dysfunciton.

UNIT VIII
Postural reflexes, ANS, hypothalamus, limbic system, Higher function -s peed, learning and memory conditioned reflex, Reticular formation, EEG, sleep consciousness.

UNIT IX
Vision - optical mechanisms and errors, Retinal mechanisms, Visual pathways and resions Visual cortex, Colour vision.

UNIT X
Hearing - Middle ear function, cochlear function, Auditory pathway, Aud. cortrex, hearing tests, Olfactory and gustatory.