General Anatomy & Physiology BVOCOP-102

**Unit: 1**

**GENERAL ANATOMY:** Introduction to Human Anatomy: Anatomy: Definition and its relevance in medicine and optometry - Planes of the body, relationship of structures, organ system, Skeleton System Tissues of the Body: Epithelium, connective tissue, bone and cartilage, Embryology, histology, different types of each of them, types of cells, cellular differentiation and arrangements in different tissues Muscles: Different types of muscles, their functional differentiation, their relationship with different structures, and their neural supply Blood vessels: Differentiation between arteries and veins, embryology, histology of both arteries and veins, Functional differences between the two, anatomical differences at different locations

**Unit: 2**

**SKIN AND APPENDAGES:** Embryology, anatomical differences in different areas, functional and protective variations, innervations, relationship with muscles and nerves Lymphatic system: Embryology, functions, relationship with blood vessels and organs Glands: Embryology, different types of glands (exocrine and endocrine), functional differences, neural control of glands. NERVOUS SYSTEM: Parts of Nervous system, cell types of nervous system, Bloodbrain barrier, Reflex arc, Peripheral Nerves, Spinal nerves, Nerve fibers, Autonomic Nervous system Brain and Cranial nerves: Major parts of Brain, Protective coverings of the Brain, Cerebrospinal Fluid, Brain stem, Cerebellum, Diencephalon, Cerebrum, Cranial nerves

**Unit: 3**

**GENERAL PHYSIOLOGY-Cell** structure & organization, Tissue organization, Epithelium Connective tissue – Collagen fibers – Elastic fibers – Areolar fibers Cartilage – Bone, Contractile tissue – striated – skeletal – cardiac – non striated – plain – myoepithelial - General principles of cell physiology, Physiology of skeletal muscle BLOOD: Composition, Volume measurement & variations, Plasma proteins – classification & fonctions Red blood cells – development, morphology & measurements – functions & dysfunctions. White blood cells – development – classification, morphology – functions & dysfunctions Platelets – morphology – development, functions & dysfunctions, Clotting – factors – mechanism – anti- coagulants dysfunctions, Blood grouping – classification – importance in transfusion, Rh factor & incompatibility, Suspension stability DIGESTION: General arrangement : Salivary digestion – functions & regulations, Gastric digestion – functions & regulations, Pancreatic digestion – functions & regulations, Intestinal digestion – functions & regulations, Liver & bile, Absorption, Motility, Deglutition, Vomiting, Defecation, Functions of large intestine, Neurohumoral regulations of alimentary functions, summary **Unit: 4**

**EXCRETION:** Body fluids – distribution, measurement & exchange, Kidney – structure of nephron – mechanism of urine formation – composition of the urine and abnormal constituents – urinary bladder & micturition ENDOCRINES: Hormone mechanism – negative feed backs – tropic action – permissive action – cellular action, hypothalamic regulation Thyroid - hormones, actions, regulations Adrenal cortex

- hormones, actions, regulations Adrenal medulla – hormones, actions, regulations Parathyroid - hormones, actions, regulations Islets of pancreas – hormones, actions, regulations Miscellaneous \_ hormones, actions, regulations Common clinical disorders

**Unit: 5**

**REPRODUCTION:** Male reproductive system – control & regulation , Female reproductive system – uterus – ovaries – menstrual cycle – regulation – pregnancy & delivery – breast – family planning Respiration: Mechanics of respiration – pulmonary function tests – transport of respiratory gases- neural and chemical regulation of respiration – hypoxia, cyanosis, dyspnoea – asphyxia. CIRCULATION: General principles Heart: myocardium – innervations – transmission of cardiac impulse- Events during cardiac cycle – cardiac output. Peripheral circulation: peripheral resistances – arterial blood pressure – measurements – factors regulation variations – capillary circulation – venous circulation. Special circulation: coronary cerebral – miscellaneous - Environmental Physiology, Body temperature regulation (including skin Physiology). Exposure to low and high atmospheric pressure NERVOUS SYSTEM: Neuron – Conduction of impulse – synapse – receptor. Sensory organization – pathways and perception - Reflexes – cerebral cortex – functions. Thalamus – Basal ganglia, Cerebellum., Hypothalamus. - Autonomic nervous system – motor control of movements, posture and equilibrium – conditioned reflex, eye hand coordination, Special senses – (Elementary) Olfaction – Taste – Hearing

**Texts Books:**

1. B D Chaurasia: Handbook of general Anatomy, Third edition, CBS Publishers, New Delhi, 1996

2. GJ Tortora, B Derrickson: Principles of Anatomy and Physiology,11th edition,John Wiley & Sons Inc,

2007

3. John Wiley & Sons Inc, New Jersey, 2007

**Reference Books:**

1. AK Khurana, Indu Khurana: Anatomy and Physiology of Eye, Second edition,CBS Publishers, New Delhi, 2006

2. A C Guyton: Text book of Medical Physiology, 6th edition, saunders company, Japan, 1981.