School of Biochemistry

Devi Ahilya University, Indore

Generic Courses offered :

The Generic Courses offered by School of Biochemistry during even semester to PG students of other UTDs under CBCS are :

GENERAL PHYSIOLOGY (BC5A 2.6) - 3 CREDITS

Composition, properties and functions of blood, plasma and blood corpuscles, functions of plasma proteins, structure and functions of hemoglobin, abnormal hemoglobins, blood coagulation - mechanism and regulation. Blood groups.

Respiratory unit, respiratory membrane, exchange and transport of respiratory gases in the body, role of 2,3 DPG, Bohr effect and chloride shift. Non respiratory functions, pulmonary function tests.

Structure of nephron, blood and nerve supply to nephron, composition and mechanism of urine formation, glomerular filtration, tubular reabsorption of glucose, water and electrolytes, tubular secretion. Autoregulation, Regulation of water and electrolyte balance, role of kidneys and hormones in their maintenance. Hydrogen ion homeostasis, acid-base balance - metabolic and respiratory acidosis and alkalosis. Kidney function tests.

Classification of muscles, Structure of skeletal, smooth and cardiac muscles. Actin, myosin, tropomyosin, troponin, Z disc and H line components. The sliding filament mechanism and subcellular ion movements during the contraction cycle in skeletal muscles. Role of ATP during muscle contraction, sources of energy. Types of muscle fibres.

Structure and types of neurons, nerve fibres, nerve impulse; origin and transmission, neuromuscular junction; mechanism of nerve conduction. Reflex action and reflex arc.General Physiology (BC5A 2.6)

NUTRITIONAL BIOCHEMISTRY (BC5A 2.5) - 3 CREDITS

Direct and indirect calorimetry, energy value of the foods, thermal equivalent of oxygen, respiratory quotient, calorigenic action of the foods, basal metabolic rate: definition and its measurement, factors affecting BMR, energy requirements of the human beings.

Nutritional aspects of the carbohydrates: Different dietary types, available and unavailable carbohydrates and their functions. Special role of the non-starch polysaccharides as dietary fibre.

Nutritional aspects of the lipids: Different dietary types and their functions. Fatty acid composition of dietary lipids and essential fatty acids.

Nutritional aspects of the proteins: Nutritional classification of proteins, essential amino acids, nutritive value of proteins and the methods for its determination: nitrogen balance, digestibility coefficient, biological value, NPU, chemical score and limiting amino acids.

Nutritional aspects of the water and fat soluble vitamins: Sources, requirements, functions and related disorders.

Nutritional aspects of the minerals: Sources, requirements, functions and related disorders.

Food processing and loss of nutrients during processing and cooking, naturally occurring anti-nutrients.

Balanced diet: Recommended dietary allowances for different categories of the human beings.

Protein energy malnutrition, starvation and obesity.