Subject Code : N3O8

HUMAN PHYSIOLOGY AND NUTRITION

UNIT – I

Blood : Composition of Blood: Origin – RBC, WBC, development : fate and functions of formed elements of blood: coagulation of blood, blood groups – hemoglobin, structure – abnormal types – anemia.

Heart: Structure, cardiac cycle, heart sounds, coronary circulation, elementary knowledge of electrocardiogram.

Circulation: Elementary principles of circulation; vasomotor circulation, blood pressure, circulation time – speen – lymph: normal composition and function of different lymph cells.

Respiration: Lungs and mechanism of respiration – regulation of respiration: maintenance of pH by the lung: blood gas analysis: transport of gases by blood and exchange: anoxia and hypoxia.

UNIT – II

Digestion : Digestive organs – salivary, gastric and intestinal functions; transport of digested food; absorption – acidity – pancreatic enzymes – malasorption syndrome.

Liver : Structure and function of liver in digestion and excretion – disorders of liver – hepatitis, cirrhosis and jaundice – differential diagnosis of jaundice.

Reproductive System : Outline of the structure and function of reproductive organs, reproductive cycle, physiology of pregnancy, parturition and lactation.

UNIT – III

Nervous system : Structure and function of nerves, transmission of nerve impulses: cerebrum and cerebellum; structure and function of spinal cord: CSF composition and functions.
Eye : Lens, retina, cornea and vitreous fluid.

UNIT – IV

Muscle : Structure – muscle contractions.
Bone : Functions of collagen, elastin and other fibrous proteins; deposition of calcium and inorganic phosphate.

UNIT – V

Body weight and body composition; determination of body fat and body water. Measurement of energy expenditure by calorimetry; respiratory quotient and basal metabolic rate.

Nutrition and Principles of dietetics:

a. Caloric requirement of the individual food composition and calorific value.
b. Proportion of carbodhydrate, protein and lipids in diet.
c. Mineral requirement
d. Vitamin requirement.

Nutritional requirement for infants, children, pregnant and lactating women and old people; anthropometric assessment of growth and nutritional status – in children.

Advances in food processing, food preservation, food fortification and enrichment. Novel foods. Sanitation and hygiene in food service.

References:

1. Physiological Basis of Medical Practice : CH Best and NBT Taylor.
2. Biochemistry : Lehninger (Kalyani, 1991).
3. Text Book of Biochemistry: ES West and WR Todd (Macmillan).
4. Text Book of Biochemistry and Human Physiology : GP Talwar, LM Srivatsara and KD Mondgil (Prentice Hall of India, 1989).
5. Essentials of Food and Nutrition (Vol.I & II) : Swaminathan.
6. Human Nutrition & Dietetics : Passmul.
7. Human Nutrition and Dietetics : Davidson and Passemore.
8. The Experimental Study of foods : Houghton Migghin Co., Boston New York, 1962.

Reference Books:

1. Modern nutrition in Health & Disease : MG Wahl and Good Hark (Lee & Fbinger).
2. Hawkes's Psysiological chemistry : L Bernard Oser (Tata McGraw Hill, 1976).