

Interdisciplinary paper –II (IV-Semester)

Health and Immune System

Unit-I: Health -I

Health, Determinants of health, Mental health, Maintaining health, Role of public health, Self-care strategies, Occupational health, Normal values for different blood tests and clinical implications, Clinical diagnosis of human diseases: anaemia, thalassemia, hypercholesterolemia, atherosclerosis, diabetes, Pregnancy test. Clinical importance of Enzymes and isoenzymes.

Unit-I: Health –II

Liver function tests: conjugated and total bilirubin in serum, albumin: globulin ratio. Liver diseases: jaundice, hepatitis. Biological buffers. Acid base balance
Balanced diet, Calorific values of foods and their determination by bomb calorimeter. Specific dynamic action of foods, BMR, RDA for infants, children, adults and expectant / nursing mothers, Malnutrition (PEM, Marasmus, Kwashiorkor), Eating disorders; Anorexia and bulimia; Obesity and starvation.

Unit-III: Immune System-I

History of immunology, Natural & acquired immunity, Specific & non-specific immune response. Cells & organs of immune system, Antigenic determinants, Epitopes, Haptens, Properties of strong antigens, Adjuvants – types, mode of action and applications. Classification, structure, and biological properties of immunoglobulins
Isotypes, allotype, idiotypes.

Unit-IV: Immune System-II

Humoral & cell-mediated immune response
Activation of T cells & B cells. MHC proteins structure & functions
Antigen processing & presentation, Hypersensitivity, Auto immune diseases; classification
Production of monoclonal antibodies
Immunoprecipitation methods - gel diffusion (Ouchterlony; Mancini);
Immune-electrophoresis (Rocket), Agglutination tests, ELISA, RIA, Western Blots.