

**CORE COURSE IV – GENERAL BIO-CHEMISTRY AND NUTRITION**

**UNIT – I**

Carbohydrates – Classification, properties, function, sources and requirements, (Digestion – absorption and metabolism – Glycolysis, TCA Cycle, HMP pathway, Uronic acid Cycle, Glucogenesis, Glycogenolysis, Gluconeogenesis) Mucopolysaccharides – Fibres – role of fibre in Nutrition.

**UNIT – II**

Proteins – Classification, properties, functions, sources and requirements. Digestion, absorption and metabolism – General pathways of metabolism of amino acids – deamination, Transamination, Decarboxylation, Urea Cycle, fate of deaminated amino acids – Methods for the determination of nutritive value of proteins – essential amino acids – protein energy malnutrition – etiology, symptoms, prevention and treatment.

**UNIT – III**

Lipids – Classification, properties, functions, sources and requirements, Digestion, absorption and metabolism – oxidation of unsaturated fatty acids – Essential fatty acids, sources, effects of deficiency – Relationship between fat metabolism and Adipose tissue.

**UNIT – IV**

Energy – Unit of energy, determination of energy content of foods, Basal metabolic rate, determination of BMR, determination of total energy requirements, SDA of food factors affecting total energy requirements. Carbohydrate protein and fats as sources of energy.

**UNIT – V**

1. Vitamins – History, properties, functions, sources, effects of deficiency of vitamins, A,D,E and K – Water soluble vitamins – Thiamine, riboflavin, Niacin, Vit, B12, Pyridoxine, Pantothenic acid, folic acid, Biotin and ascorbic acid.
2. Minerals – Absorption : Utilization, function requirements, sources, effects of deficiency of calcium, Phosphorus, Sodium, Potassium, Iron, Copper, Iodine, Fluorine, Zinc, Cobalt and Selenium
3. Water – distribution – function, sources, requirements & dehydration.

**Reference**

1. Lehninger A.L., 1979 : Text Book of Bio-Chemistry
2. Swaminathan M. : Bio-Chemistry for Medical Students.
3. Happer, 1980 : Review of Physiological Chemistry.
4. Anita F.R. 1973 : Clinical Nutrition and Dietetics.
5. Ambika Shanmugam, 1987 : Bio-Chemistry for Medical students.