FOOD SCIENCE AND NUTRITION

Colloidal chemistry as related to foods; evaluation of food by subjective and objectivemethods. Carbohydrates in foods, sources and characteristics of sugar, starch, cellulose,pectin and gums, characteristics in foods; effect of cooking and processing techniques.Protein in foods: Plant and animal foods; chemical and physical properties related to foods;effect of cooking and processing techniques. Properties, uses, changes during heating andother processing and storage of fats and oils. Classification, importance, composition of fruitsand vegetables and effect of cooking and processing on their nutritive value. Classificationand importance of beverages; food pigments; browning reaction. Definition, classification,uses and legal aspects of food additives; classification, nature and uses of leavening agents.

Functions, sources, requirements, digestion and absorption of carbohydrates; definition,composition, classification, functions and role of dietary fibre in various physiologicaldisorders. Basis of requirement, functions, sources, digestion and absorption of protein;Methods of assessing protein quality .Basis of requirement, functions, sources, digestion,absorption and deficiency disorders of lipids; essential fatty acids and eicosanoids. Requirements, functions, sources, deficiencies and toxicities of fat and water solublevitamins. Requirement, functions, sources, deficiency, toxicity and factors affectingabsorption and utilization of macro and micro minerals .Water balance; acid and basebalance.

Familiarization to terms and calculations used in preparation of various standard solutions.Sample and sampling techniques. Principles, techniques and applications of colorimetric,spectrophotometer and atomic absorption spectrophotometer, fluorimeter, flame photometer,electrophoresis and different methods of chromatography. Introduction to animal assay.Techniques in separation of biomolecules and tracer techniques in biology – radioactivity.

Assessment of the nutritional status at individual, household and institutional level: direct andindirect methods. Ecological, socio-cultural, economic and demographic correlations ofmalnutrition; prevalence, etiology, biochemical and metabolic changes in vitamin Adeficiency, PEM, iron deficiency anemia, IDD. Major nutritional problems of the state,nation and world. Nutrition intervention- Definition, importance, methods of nutritionintervention and their impact evaluation. National nutritional programmes and

policies;nutritional surveillance. National programmes and policies regarding food production anddistribution.