75. Food Science & Technology

I. Food chemistry:

Carbohydrates, amino acids and proteins, Lipids, Vitamins and minerals – classification, sources, functions, deficiencies, nutritional significance, digestion, absorption and metabolism. Enzymes and its classification and action; Water and electrolyte balance.

General Chemistry:

Atomic structure, gaseous state, electrochemistry, thermodynamics, chemical equilibria, chemical kinetics, chemical bonding, periodic properties of s- and p-block elements, nomenclature, structure and reactivity of organic compounds, types of reactions, structural and optical isomerism, carbohydrates, amino acids, heterocyclic compounds, basics of molecular spectroscopy and radioactivity.

II. Food Science & Quality Control:

Cereals & Millets, Pulses & Legumes, milk & milk products, Egg & Fleshy foods, Vegetables & Fruits, Sugar & Sugar products, Fats & oils – composition, nutritive value, methods of processing, nutrient losses, uses & storage, anti-nutritional factors. Food adulteration, food laws and food safety.

III. Food Microbiology

Introduction to microbiology and its relevance to everyday life-General morphology of micro-organisms – General characteristics of bacteria, fungi, virus, protozoa, algae. Microbiology of foods-cereals based products, meat, poultry, eggs, fruits, vegetables, milk, milk products, salts sugars etc. Role of microorganisms in fermented foods-bread, malt beverages, wine, vinegar, butter and cheese etc. Food poisoning and their causative organisms, food borne infections.

IV. Food Processing and Preservation;

General principles of food processing , preservation by high and low temperature, drying irradiation, sugar, salt etc. Preparation of jams, jellies, marmalades, juices, squashes, ketchup, pickles and chutneys. Preparation of milk products- cheese condensed and evaporated milk, whole and skim milk powder and ice cream.

V. Nutrition:

Balanced diet, RDA, Food groups, Food Pyramid, Food exchange list, Nutritional requirements for different age groups. Disorders of malnutrition, GIT disorders, Obesity, hypertension, renal diseases, cardiovascular diseases, Diabetes, Cancer & Inborn errors of metabolism – Etiology, symptoms and dietary management.