

## SYLLABUS FOR NIFTEM K- M.SC ENTRANCE EXAM (PART-B)

### 2. M. SC. FOOD SCIENCE AND TECHNOLOGY

1. Fundamentals of Food Science & Chemistry: Basics of food science: definitions, physical and chemical properties of food and processing effects; Nutrition: Balanced diet, essential amino acids and fatty acids, PER, Water soluble and fat soluble vitamins, Role of minerals in nutrition, Antinutrients, Nutrition deficiency diseases; Food chemistry: carbohydrates, proteins, lipids, water activity, vitamins, and minerals; Maillard's browning, caramelisation, and lipid oxidation.
2. Food Microbiology & Food Safety: Microorganisms (bacteria, yeast, moulds), growth factors (temperature, pH, water activity), spoilage, and common foodborne pathogens; basics of fermentation; food safety concepts: food adulteration, food hygiene, food safety, FSMS, FSSAI regulations, Codex Alimentarius, international regulations (USFDA, EU, FSANZ, etc.), WHO/FAO expert bodies, Quality certifications, quality assessment
3. Food Processing, Engineering & Packaging: Major preservation methods including pasteurisation, sterilisation, refrigeration, freezing, drying, fermentation, and chemical preservatives; Fundamental food engineering concepts: heat transfer, unit operations and equipment; and basics of packaging: materials, functions, and shelf life.
4. Processing of Food Commodities & Product Technology: Processing of major commodities: grains (milling, parboiling, bakery and extruded products, oil extraction and refining), fruits and vegetables (juice processing, jams, jellies, pickles, pectin), milk and dairy products (pasteurisation, butter, cheese, milk powder), and animal products (meat, fish, egg processing). Basic concepts of enzymes, probiotics, nutraceuticals, food additives, and product development and simple statistics (mean, median, standard deviation).

