

Syllabus for Entrance Test (Food Technology) 2026

PG One Year

Unit I

- Cell and its organelles
- Cell Division and Cell Cycle-Mitosis and Meiosis
- Structure & replication of DNA
- Gene mutation and Chromosomal alterations
- Basics of Genetic Engineering

Unit II

- Metabolism of Carbohydrates, Fats, Proteins, Amino acid and Peptides
- Vitamins and their role in metabolism
- Photosynthesis and Respiration in plants
- Seed dormancy
- Plant hormones
- Membrane transport

Unit III

- Respiration in humans
- Physiology of digestion
- Basics of Nervous, Urogenital and Circulatory systems
- Environmental pollution-water and air pollution, its causes and effects

Unit IV

- Units and dimensions-different systems of units, dimensional formulae
- Basics of Elasticity & Deformation-Hooks law, elastic constants of an isotropic solid, torsion of a cylinder
- Kinematics of Moving Fluids-Equation of Continuity, Bernoulli's theorem,
- Viscous fluids, streamline and turbulent flow
- Concept of viscosity, Newtonian and Non-Newtonian fluids
- Waves-transverse and longitudinal waves in fluids,
- Ultrasonic waves and their applications

Unit V

- Atomic structure, Chemical bonding
- Laboratory safety measures and Qualitative analysis
- Dipole-Dipole interactions
- Thermodynamics
- Nuclear and radiation chemistry
- Gravimetry and Titrimetry
- Solutions, Raoult's law & its applications
- Bioinorganic Chemistry-metalloporphyrins and essential elements

Unit VI

- Cycloalkanes, Alkenes and Alkynes
- Alcohols and Phenols
- Aldehydes and Ketones
- Carboxylic Acids and their derivatives
- Chemical Kinetics and Catalysis
- Stereochemistry of organic compounds
- Spectroscopy and Photochemistry
- Synthetic dyes

Unit VII

- Basics of Enzymology
- Basics of Immunology: Cells, tissues and organs of the immune system. Innate immunity and acquired immunity.
- Polymerase Chain Reaction and its Applications.
- Theories of Evolution: Origin of Life; Historical review of evolutionary concept- Lamarckism, Darwinism (Natural, Sexual and Artificial selection).
- Modern synthetic theory of evolution.
- Use of enzymes in Food Processing

Unit VIII

Fruit, Vegetable and Cereal Processing

- Scope of fruit & vegetable preservation in India
- Principles & methods of preservation
- Canning, Drying/Dehydration, Freezing of fruits & vegetables
- Jam, Jelly, Marmalade, Pickles
- FSSAI specifications of value-added products
- Structure of different grains-wheat, rice, barley, oat and corn
- Milling of grains
- Flour and its uses
- Milling and parboiling of paddy
- Preparation of baked products-bread, biscuits & cakes
- Wheat Gluten-Structure and Importance

Unit IX

Meat and Dairy Technology

- Scope of meat processing in India
- Structure, composition, nutritive value and postmortem biochemical changes in relation to quality of meat tissues
- Principles and methods of meat preservation: Drying, Curing, Freezing, Pickling, Canning and Irradiation
- Description, chemical composition & nutritive value of egg
- Physico-chemical properties of milk
- Liquid milk processing-pasteurization & sterilization
- Preparation of milk products

Unit X

Microbiology

- Brief discussion on bacteria, yeast and molds
- Role of micro-organism in food, dairy and fermentation industries
- Microorganisms as food-single cell proteins
- Nutrition and growth of microorganisms
- Role of microorganisms in food, dairy and fermentation industries
- Fermentation & its types: Concepts of industrial fermentations-batch & continuous

Unit XI

- Natural and synthetic colorants used in foods, their properties and application.
- Artificial sweeteners: Types, recommended levels and safety concerns
- Texturizers and emulsifiers: Types and application in food processing
- Anticaking caking agents: Types and application.
- Antimicrobial agents: Classification, common food antimicrobial agents and their mode of action

Unit XII

- Measures of central tendency-mean, median mode
- Measure of dispersion-range, standard deviation & Coefficient of variation
- Tests of significance-t-test, chi square test
- Correlation & regression-concept and applications.
- Design of experiments: Randomized Block Design (RBD) and Complete Random Design (CRD)

Unit XIII

- Spectroscopy: Principle and working of different spectroscopic methods.
- Thermal analysis (DSC)–Basic Principles, Instrumentation, and application in foods.
- Nuclear magnetic resonance (NMR)–Principle, Components, and application of NMR.
- Structural analysis by FTIR-Basic principles, instrumentation and application.
- DLS-Differential Light Scattering.

Unit XIV

- Nutraceutical: Introduction, Classification, sources and mechanism of action
- Nutraceutical factors in specific foods
- Dietary fibre–Sources, classification, health benefits
- Probiotics–definition and health benefits
- Common probiotic products.
- Omega 3 fatty acids and health benefits.

Unit XV

- Legumes: Classification, Composition, structure of different legumes and pulses
- Importance of legumes and pulses in Indian diet
- Milling of pulses- Different types of pulse mills.

- Oil extraction–Preparation of oil seed for extraction, Mechanical (types of oils mills)
- Concept of cold pressing.
- Protein Isolates and Concentrates.

Unit XVI

- Genetically Modified (GM) Foods: Introduction, safety evaluation.
- GM Crops: Bt Corn, Bt Brinjal and Golden Rice.
- Genetic manipulation of fruit ripening & fruit softening.
- Immobilization of cells