

# General Instructions and Sample Question Paper for Entrance Exam for Admission to M.Sc. Food Technology

**Scheme:** It will consist of 100 Objective Type Questions (Multiple Choice with four responses i.e. A, B, C & D) carrying a total of 100 marks.

**Instruction:**

- a. There will be NO negative marking for wrong or unanswered questions.
- b. Rough sheets will be provided at the end of each question paper for rough work.
- c. The candidate should ensure that he / she does not write anywhere else on the question paper except the rough sheets.
- d. Use of pencil will not be allowed and cutting, erasing, over-marking or multiple marking of answers will lead to cancellation of that question.
- e. Exchange of stationery / any other items amongst students will NOT be permitted.
- f. Use of unfair means in the examination will lead to cancellation of the candidature.
- g. Carrying the mobile phone inside the examination hall is strictly prohibited.

**Note:** The admission will be based on merit of the candidate in the Entrance Test to be conducted by the IKGPTU. The students appearing for the entrance will chose either the Food Science and Technology module or Basic Science module.

**Syllabus for the Food Science and Technology Module**

1. General principles of food processing and preservation by additives, high and low temperature, drying, irradiation, sugar, salt, etc.
2. food laws and food safety (HACCP, GMP, GHP, ISO 9000 series, ISO 22000, Codex alimentarius, FPO, MPO, MMPO, FSSAI, BIS, PFA etc.), Food adulteration.
3. Preparation of jams, jellies, marmalades, juices, squashes, ketchup, pickles and chutneys.
4. Liquid milk processing, fermented milks. Preparation of milk products cheese, condensed and evaporated milk, whole and skim milk powder and ice cream.
5. Structure of cereals and their proximate composition, flour and its use in bakery products- bread, biscuits, cakes, doughnut and buns. Additives for bakery industry. Milling of different cereals, parboiling of rice.
6. Pulses: composition, antinutritional factors and utilization.
7. Structure, composition, nutritive value and functional properties of eggs. Slaughter and dressing of poultry and other pet animals. Meat tenderization. Principles of meat preservation.
8. Dimensions and Units. Material and energy balance. Unit operations in food processing.
9. Biochemistry of food constituents such as water, lipids, proteins, carbohydrates, minerals, vitamins, enzymes, tannins, coloring and flavoring components.
10. Food spoilage-sources and preservation by physical and chemical means. Microbiology of foods-cereals based products, meat, poultry, eggs, fruits, vegetables, milk, milk products, salts, sugars, etc.
11. Role of microorganisms in fermented foods-bread, malt beverages, wine, vinegar, butter and cheese, etc.
12. Food poisoning and their causative organisms, food borne infections.
13. Principles of food packaging, packaging materials, packaging methods and machinery. Packaging requirements for different food products.

## Syllabus for the Basic Science Module

**Note: Physics and Chemistry are compulsory subject whereas, choice in Mathematics and Biology subject)**

**1. PHYSICS:** Elements of mechanics, colligative properties, laws of thermodynamics, modes of heat transfer, electrostatics, magnetism and electrodynamics, outlines in optics and sound, electromagnetic radiation, radioactivity and elements in quantum physics.

**2. CHEMISTRY:** The gas laws, properties of gases, electrolytes, thermo-chemistry, chemical equilibria, chemical kinetics, concept of pH and buffer, molecular orbital theory, chemical bonds and the forces involved therein, periodic table, aliphatic and aromatic hydrocarbons, organic substitution reactions, electrophilic and nucleophilic reactions, isomerism, structural and optical isomers, food chemistry, composition of foods, minerals in foods, water activity in foods, carbohydrates, mono and di-saccharides, reducing and non-reducing sugars, starch, cellulose, pectins, plant acids and proteins, primary, secondary and tertiary structures of proteins, protein denaturation, peptide bonds, amino acids, saturated and unsaturated fats, rancidity.

**3. MATHEMATICS:** Theory of quadratic equations, binomial theorem, uses of natural and common logarithms, trigonometry, ratios and their relations, basics of matrices, vectors, determinants.

**OR**

**3 BIOLOGY:** Botany, systematics of plants, ecology, cytology and physiology of plants, economic botany, zoology, molecular basis of life, nucleic acids and their role in life, elements of genetics, organization of animal tissues, elements in human physiology, endocrine glands, digestion, absorption, respiration, general physiology of animals, systematics of animals.