

ST. XAVIER'S COLLEGE (AUTONOMOUS), KOLKATA

PAPER FORMAT & SYLLABUS FOR PG ENTRANCE 2025

Department: **FOOD SCIENCE AND NUTRITION**

Time of examination: 2 hours and 30 mins

Total Marks: 100

Format of Question:

30 Multiple Choice questions (3 marks each): 30x3=90

1 Long Question (10 marks): 10x1=10

❖ Syllabus

- 1. Nutritional Biochemistry and metabolism** - Classification of carbohydrates, Properties, digestion, absorption and metabolism, Blood glucose level. Structure and classification of Proteins, properties. Digestion, absorption. Amino acid and nucleotide metabolism. Structure & Classification of Lipid, properties: Digestion and absorption. Lipid metabolism, Hyper-lipoprotein. Classification & structure of Vitamins and Minerals, properties and functions. Classification of enzymes, mechanisms of enzyme action, factors affecting enzyme activity and their role. Hormones – Endocrine Glands, mechanism of hormone action and biochemical role of hormones. Antioxidants – Definition, free radicals, oxygen free radicals, natural and diet derived antioxidants. Inborn Errors of metabolism – Concept disorders of protein metabolism, carbohydrates, metabolism, lipid metabolism and haemoglobinopathies.
- 2. Food & Industrial Microbiology-** Importance of microbes in food biotechnology: genetically engineered organisms, probiotics and single cell proteins. Microbial flora of fresh food (meats, milk etc.). Microbial spoilage of food, preservation of food, fermented foods, techniques for food analysis, food sanitation and control. Industrial products of microbial origin. Food borne diseases. Microbiological and biochemical analysis of food.
- 3. Fundamentals of Instrumentations** - Basic principles of spectrophotometry, Microscopy. Chromatography, Electrophoresis, pH meter and centrifugation.
- 4. Human Physiology** - Review of structure of gastrointestinal tract and accessory organs. Secretory, Digestive and absorptive function of GIT. Role of Liver, Pancreas and gall bladder and their dysfunction. Hormones of GIT. Mechanism of absorption of carbohydrates, Proteins and fats. Review of structure and function of endocrine glands. Mechanism of hormonal action. Control of hormonal secretion. Function and different syndromes resulting from hypo and hyper secretion of Endocrine gland mainly Pituitary, Adrenal, Thyroid, Ovary, Testes, Pancreas, Parathyroid. Basics of Immunology