

# St. Xavier's College (Autonomous), Kolkata

## PAPER FORMAT & SYLLABUS FOR PG ENTRANCE 2023

Department: MICROBIOLOGY

Time of examination: 2 hours and 30 mins

Total Marks 100

### **Format of Question:**

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

1 Long Question (10 marks)      10x1=10

### ❖ **Syllabus**

- **Introductory Microbiology-, Cell biology and Genetics**-microbial growth and nutrition, bacterial morphology and staining, control of microbes (antibiotics), eukaryotic microbes- algae, fungi, protozoa, Plasma membrane and other eukaryotic subcellular organelle structure and function, transport across membrane, cell cycle, cell signaling and protein secretion, Mendelian, Post Mendelian and Microbial genetics
- **Medical, Industrial, Food and Agricultural Microbiology**-common microbial diseases and toxins, normal microflora, of human being, bacterial pathogenicity, basic immunology-Types of immunization, Types of immunity, Immunoglobulin Structure and Function, Antigen Antibody Interaction, monoclonal antibody, Vaccine and Vaccination, virology- General Characteristics and Structural Components of virus , Lytic cycle of T odd and even bacteriophages and Lysogenic cycle of lambda phage, oncogenic and animal virus. industrial production of ethyl alcohol, beer, vitamins, microbial fermentation, Plant pathology, Biogeochemical Cycles, environmental microbiology including Air, Water (MPN, water treatment) and soil microbiology , Microbial Flora of fresh food (meats, milk **etc.**). Microbial Spoilage of food, Preservation of Food , fermented foods, Plant pathogen interaction.
- **Biochemistry and molecular Biology**-stereochemistry, biological application of thermodynamics and chemical kinetics, bioanalytical techniques viz. HPLC, TLC, gel electrophoresis, biochemistry of biomolecules like nucleic acid, amino acid and protein, lipid, carbohydrate, vitamins, enzymology, bioenergetics, microbial metabolism, Prokaryotic and eukaryotic replication, transcription and translation, prokaryotic gene regulation, Recombinant DNA Technology and gene therapy, mutation and repair, transposons.