

Syllabi for screening tests and interviews

A Biology

1. General Biology

- Characteristics of living organisms
- Viruses, prokaryotic & eukaryotic organisms
- Plant, animal, microbial taxonomy
- Physiology, metabolism, and cellular organization

2. Biochemistry, Biophysics, Cell and Molecular Biology

- Buffers, trace elements in biological systems
- Enzymes and proteins
- Structure of biomolecules and bio-molecular interactions
- Carbohydrate, lipid, and nucleic acid metabolism
- Thermodynamics and kinetics of biological systems
- Biochemical, biophysical, and molecular biology methods
- Mutations, DNA repair, replication, and recombination
- Transcription, translation, gene regulation
- Structural organization and function of intracellular organelles
- Cell membrane structure and function
- Cell division & cell cycle
- Recombinant DNA technology

3. Plant and Animal Physiology

- Photosynthesis
- Respiration
- Growth and development
- Digestive, locomotory, circulatory, excretory, and nervous systems
- Immune systems, antigens, and antibodies

4. Genetics and Genomics

- Mendelian genetics and heredity
- Chromosome structure and function
- Genetic interactions
- Microbial genetics
- Genome composition and organization

5. Organismal Biology

- Diversity of organisms
- Principles of ecology and evolution
- Population biology, conservation biology

6. Chemistry, Mathematics and Physics

- Topics at 10+2 level