



Dayananda Sagar University

Faculty of Engineering

Ph. D Entrance Test- 2025

Syllabus for Ph. D Entrance Test in Biological Sciences

PART B

Biological science as per the general syllabus of M.Sc.

These are usually based on **postgraduate level (M.Sc.) biological sciences** and cover fundamental and applied concepts:

- **Biochemistry:** Biomolecules (proteins, lipids, carbs, nucleic acids), enzyme kinetics, metabolism (glycolysis, TCA, ETC), bioenergetics, pH, buffers, thermodynamics.
- **Molecular Biology:** DNA/RNA structure & function, replication, transcription, translation, gene regulation.
- **Cell Biology:** Organelle structure/function, cell cycle, cell division, membrane dynamics, cell signaling.
- **Genetics & Evolution:** Mendelian/non-Mendelian genetics, population genetics, speciation, phylogenetic analysis.
- **Physiology:** Animal & Plant Physiology (cellular, systemic: respiratory, cardiovascular, renal, etc.).
- **Microbiology:** General & Medical Microbiology, bacterial structures, cultivation, pathogenesis.
- **Immunology:** Principles of immunity, immunoglobulins, immune responses.
- **Ecology and Environment:** Ecosystems, population/community ecology
Biodiversity and conservation principles, pollution, types and control strategies.
- **Biotechnology & Applied Biology:** Recombinant DNA, genetic engineering basics
Applications of modern biotech methods
- **Analytical Techniques:** Laboratory analytical techniques (microscopy, electrophoresis, spectroscopic, PCR), Statistical and research methods