

SYLLABUS OF SUBJECT AWARENESS FOR M.Sc (BIOTECHNOLOGY)

ENTRANCE EXAMINATION (GBU-ET)

Life Sciences: Organization of unicellular organisms, invertebrates and vertebrates. Nucleic acids, protein synthesis, Mendelian genetics. Morphology of angiosperms.

Cell Biology: Cell structure and function; Ultrastructure of plant and animal cells, chromosomes, Mitosis, Meiosis, crossing over, chromosomal abnormalities.

Genetics: Genotype and Phenotype, nucleic acid structure, Mutations and their role in evolution, Genetic Disorders, population genetics, Mendelism and extension of Mendelism

Molecular Biology: Central dogma of molecular biology, Properties of nucleic acids, DNA replication, damage and repair, Gene structure in prokaryotes and eukaryotes, Coding and non-coding DNA & RNA, Transcription, RNA processing, Protein synthesis, Gene regulation: lac operon, Molecular mechanisms of recombination, Transposons and rearrangement of DNA, DNA damage and repair, Post transcriptional and post-translational modification.

Genetic Engineering: Enzymes in Genetic Engineering, Cloning vectors, gene cloning strategies, mutagenesis, Cloning & expression of transgenes in Prokaryotic & Eukaryotic systems, DNA sequencing, PCR technologies, gene transfer in plant and animals, Applications and impact of recombinant DNA technology.

Biochemistry protein synthesis; genetic code; DNA & RNA; carbohydrate, protein and lipid metabolism, clinical biochemistry; Inborn errors of metabolism; hormones and their function. Enzymes- classification, nomenclature, kinetics etc., Metabolism & regulation of: carbohydrates, proteins, fats & nucleic acids, Metabolic disorders,

Microbiology: Classification and taxonomy of microorganisms; Growth and physiology; Laboratory cultivation of microbes, Methods of microbial enumeration; Microbial metabolism, photosynthesis, fermentation, aerobic & anaerobic respiration, Pathogenic microorganisms, Microbial genetics.

Immunology: Cells of the immune system, lymphoid tissues, complement, antibodies, hybridoma technology, applications of monoclonal antibodies, antigen recognition, processing and presentation, cell mediated immunity, cytokines, hypersensitivity, vaccines & vaccine technology, auto-immunity, transplantation, immune responses to various infections, Immunotechnology.

CHEMISTRY SYLLABUS FOR ET

Atomic Structure & Chemical Bonding , States of Matter & Ionic Equilibrium, Basics and Hydrocarbons, Chemical Thermodynamics and its Applications , s- and p-Block Elements, Oxygen Containing Functional Groups , Phase Equilibria and Chemical Kinetics, Coordination Chemistry , Heterocyclic Chemistry, Electrochemistry, Biomolecules, Quantum Chemistry & Spectroscopy, Organometallic Chemistry ,Spectroscopy, Chemical Technology & Society, Chemoinformatics , Analytical Clinical Biochemistry, Green Methods in Chemistry, Pharmaceutical Chemistry, Chemistry of Cosmetics & Perfumes, Pesticide Chemistry.

ENGLISH PROFICIENCY

Comprehension, Vocabulary, Basic English Grammar (like usage of correct forms of verbs, prepositions and articles), Word power, Synonyms and Antonyms, Meanings of words and phrases, Technical writing

GENERAL AWARENESS

Current Affairs of National and International Economy, History, Sports News, Science in everyday life, Politics, Geography, Culture, Economics, Trade Awareness, Personalities in News, Indian Constitution