Syllabus for B.Sc. Courses (B.Sc. (H) Biotechnology, B.Sc. (H) Microbiology, B.Sc. (H) Food Sciences, B.Sc. (H) Forensic Sciences)

PART 1 — WEIGHTAGE 70%

Verbal Ability

Vocabulary: Pure and Contextual (Phrasal Verbs, Idioms, Root Words, One word Substitution and Synonyms & Antonyms,) Gramatical Error based questions on (Pronoun and Antecendents, Tenses, Parallel Construction, Conditionals, Subject Verb Agreement), Reading Comprehension, Verbal Reasoning (Parajumbles, Critical Reasoning)

Logical Reasoning

Arrangement (Linear, Circular, Tabular, Any other type), Blood Relation, Grouping and Team Formation, Coding Decoding, Series Completion, Direction Sense, Puzzles, Syllogism, Data Sufficiency, Data Interpretation

Quantitative Ability

Number System, Percentage, Profit Loss, Simple Interest and Compound Interest, Ratio Proportion, Averages, Mixtures and Solutions, Time, Speed and Distance, Time and Work, Basic Algebra, Permutation and Combination, Probability, Set Theory, Clocks, Calendar, Logarithms

PART 2 — WEIGHTAGE 30%

1. **Diversity, Classification & Structural Organization**
   The Living World (Characteristics of life, biodiversity, taxonomic aids); Biological Classification; Plant Kingdom; Animal Kingdom; Morphology & Anatomy of Flowering Plants; Structural Organisation in Animals

2. **Cell Biology & Biomolecules**
   Cell: The Unit of Life; Prokaryotic/eukaryotic cells; cell organelles; cell wall, cytoskeleton. Biomolecules; Cell Cycle & Cell Division: Phases (interphase, mitosis/meiosis); significance; regulation

3. **Plant Physiology**
   Transport in Plants; Mineral Nutrition; Photosynthesis; Respiration; Plant Growth & Development

4. **Human Physiology**
   Digestion & Absorption; Breathing & Exchange of Gases; Body Fluids & Circulation; Excretory Products & Elimination: Human system, urine formation (GFR, reabsorption), counter-current, disorders (uremia); Locomotion & Movement Neural Control & Coordination; Chemical Coordination: Endocrine glands/hormones (hypothalamus-pituitary, thyroid, etc.); mechanism of action, disorders (diabetes)

5. **Reproduction**
   Sexual Reproduction in Flowering Plants; Human Reproduction; Reproductive Health

6. **Genetics & Molecular Biology**
   Principles of Inheritance: Mendel's laws, deviations, mutations, disorders (pedigree analysis); Molecular Basis: DNA/RNA structure, replication, transcription, genetic code, translation, regulation (lac operon), HGP, DNA fingerprinting

7. **Evolution**
   Origin of Life: Theories, evidences (paleontological, comparative anatomy).Mechanisms: Darwinism, natural selection, adaptive radiation, Hardy-Weinberg, human evolution

8. **Biology in Human Welfare & Microbes**
   Human Health & Disease; Microbes in Welfare: Products (dairy, beverages, antibiotics), sewage/biogas, biocontrol, biofertilizers

9. **Biotechnology & Applications**
   Principles & Processes: Tools (enzymes, vectors), rDNA technology, PCR, cloning; Applications: Agriculture (GM crops, RNAi), medicine (gene therapy, vaccines), transgenic animals, ethics

10. **Ecology & Environment**
    Organisms & Populations: Attributes, interactions, growth models. Ecosystem: Structure, productivity, decomposition, energy flow, pyramids. Biodiversity & Conservation: Patterns, threats, strategies (hotspots, ex-situ)