

**Sant Gahira Guru Vishwavidyalaya, Ambikapur, C.G.**  
**Syllabus For M.Sc. Entrance Examination 2024**  
**Subject: Biotechnology**

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**General Science:**

Basics of Chemistry, Physics, Mathematics, Computer Science

**Cell Biology:**

Prokaryotic and Eukaryotic Cells, Plasma Membrane, Cellular Organelles (Nucleus, Endoplasmic Reticulum, Golgi Bodies, Mitochondria, Chloroplast, Vacuoles, Peroxisomes), Cell Division (Fission, Budding, Mitosis and Meiosis), Cytoskeleton, Cell communication

**Biomolecules:**

Chemical Bonds, Concept of Enthalpy and Entropy, pH, Buffers, Amino acids, Structure and Functions of Protein, Carbohydrates (Monosaccharides, Di-saccharides and Polysaccharides), Structure and Function of DNA and RNA, Lipids, Enzyme classification & Kinetic parameters

**Metabolism:**

Photosynthesis, Glycogenesis; Gluconeogenesis; glycolysis, Krebs Cycle, Electron Transport Chain, ATP Synthesis, Urea Cycle, Lipid & Nucleic acid metabolism:  $\beta$ -oxidation, De novo and salvage pathway of biosynthesis of Purine & Pyrimidine

**Microbiology:**

Microbes (Bacteria, Fungi and Viruses): Structure and Organization of Microbial Cells, Microbial Growth and Division, Antimicrobial Agents, Drug Resistance, Transformation, Transduction, Conjugation, Microbial Culture Techniques.

**Molecular Biology:**

Prokaryotic and eukaryotic Replication, Mutation, DNA Repair Mechanism, Transcription, Translation, Recombination

**Immunology:**

Innate and adaptive immunity, T-cells and B-cells, Antigen and super antigens, Structure and functions of immunoglobulin, Vaccines

**Genetics:**

Mendelian laws of inheritance, Application Linkage and crossing over, Gene mapping, Theories of mutation and evolution, Genetic disorders

**Bioinstrumentation:**

Chromatography, Microscopy, Spectroscopy, Centrifugation, Agarose Gel-Electrophoresis, SDS-PAGE, ELISA, PCR

**Environment Science:**

Components and types of ecosystems, Various ecosystem & Conservation, Environmental pollution, Biogeochemical cycles, Biodiversity, Bioremediation, Ozone Depletion, Green House Effect, Acid Rain, Municipal Solid Waste Management and Waste Water Treatment

**Basics of Biotechnology:**

Enzymes and Vectors Used in Recombinant DNA Technology, Plant Tissue Culture, Animal Cell Culture, Animal Cloning

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**POINTS TO BE NOTED:**

1. Entrance Exam on the basis of the syllabus would be conducted on 14/07/2024, *(Tentative)* from 2.15 PM to 4.15 PM in Department of Biotechnology, UTD, SGGV.
2. The question paper would be comprised of 100 questions with one mark each and the questions would be entirely objective type-multiple choice.
3. There would be no negative marking.
4. The selection list of the students eligible in all respects would be prepared entirely on the basis of their performance in the entrance examination.
5. In case of any discrepancies arising due to one or more question or issues arising due to the selection procedure, the decisions taken by the university authorities would be taken into consideration.
6. Reservation policy would be applicable as per the norms of the Chhattisgarh State Government.
7. For any queries please contact:

Mr. Aseem Kerketta: 8871651803, aseem.2410@gmail.com

Dr. Amrita Kumari Panda: 7669347152, itu.linu@gmail.com

*Amrita Panda*

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