

Graduate Aptitude Test – Biotechnology (GAT-B) – Syllabus

For admission to DBT supported Post Graduate (DBT PG) Programme in Biotechnology at participating host institutions and universities.

The question paper for GAT-B will have two sections:

Section A: Section A will have 60 compulsory multiple choice questions of the level of 10+2 in the subjects: Physics, Chemistry, Mathematics and Biology. Each correct answer is of One (1) mark. There will be negative marking and for each wrong answer, Half (1/2 or 0.5) mark will be deducted.

Section B: Section B will have multiple choice questions of Bachelor's (Graduate) level requiring thinking and analysis. There will be questions from Basic Biology, Life Sciences, Biotechnology and allied areas as per syllabus given here. There will be 100 questions out of which candidates will have to attempt 60 questions. Each correct answer is of Three (3) marks. There will be negative marking and for each wrong answer, One (1) mark will be deducted.

Un-answered/un-attempted question will be given Zero (0) mark.

To answer a question, candidate needs to choose one option as correct option.

GRADUATE APTITUDE TEST-BIOTECHNOLOGY (GAT-B)			
Sections	Number of Questions	Number of Questions to be attempted	Marks
Section A (Multiple choice questions of 10+2 level in the subjects: Physics, Chemistry, Mathematics and Biology).	60	60	1*60 = 60
Section B (Multiple choice questions of Graduate level in the subjects: Basic Biology, Life Sciences, Biotechnology and allied areas as per syllabus given here).	100	60	3*60 = 180
Total	160	120	240

Syllabus for Section A is of 10+2 level in the subjects of Physics, Chemistry, Mathematics and Biology.

Syllabus for Section B is of Graduate level as given here:

Biomolecules-structure and functions; Biological membranes, structure, action potential and transport processes; Enzymes- classification, kinetics and mechanism of action; Basic concepts and designs of metabolism (carbohydrates, lipids, amino acids and nucleic acids) photosynthesis, respiration and electron transport chain; Bioenergetics.

Viruses- structure and classification; Microbial classification and diversity (bacterial, algal and fungal); Methods in microbiology; Microbial growth and nutrition; Aerobic and anaerobic respiration; Nitrogen fixation; Microbial diseases and host-pathogen interaction.

Prokaryotic and eukaryotic cell structure; Cell cycle and cell growth control; Cell-Cell communication, Cell signaling and signal transduction.

Molecular structure of genes and chromosomes; Mutations and mutagenesis; Nucleic acid replication, transcription, translation and their regulatory mechanisms in prokaryotes and eukaryotes; Mendelian inheritance; Gene interaction; Complementation; Linkage, genetics (plasmids, transformation, transduction, conjugation); Horizontal gene transfer and Transposable elements; RNA interference; DNA damage and repair; Chromosomal variation; Molecular basis of genetic diseases.

Principles of microscopy-light, electron, fluorescent and confocal; Centrifugation- high speed and ultra; Principles of spectroscopy-UV, visible, CD, IR, FTIR, Raman, MS, NMR; Principles of chromatography- ion exchange, gel filtration, hydrophobic interaction, affinity, GC, HPLC, FPLC; Electrophoresis; Microarray.

