

INDIAN INSTITUTE OF TECHNOLOGY MADRAS, CHENNAI– 600036

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RECRUITMENT FOR THE POST OF
JUNIOR TECHNICIAN (BIOTECHNOLOGY / BIOMEDICAL)

Syllabus for 2 Levels of selection process

Level-1 Test: Syllabus for Computer-based Multiple Choice (MCQ) Test:

- 1. General Aptitude:** English Language & Grammar, Verbal and Non-Verbal Reasoning, Aptitude, General Knowledge and General Awareness & General Science.
- 2. Human Anatomy and Physiology:** Basics of Cells, types of tissues and organ systems; Basics of Musculoskeletal, Respiratory and Circulatory systems; Hemostasis.
- 3. Basics of Cell Biology:** Cell structure and functions of the organelles – Transport across bio membranes – Basics of cell culture and their morphological analysis
- 4. Biochemistry and Microbiology:** Classification, Structure and Properties of Carbohydrates, Proteins, Nucleic acids and Lipids and metabolic disorders associated with them.
- 5. Analytical Techniques in Biotechnology:** Foundations of UV and visible light spectroscopy- Qualitative and Quantitative absorption Measurements, IR spectroscopy, Raman spectroscopy, NMR spectroscopy, Xray crystallography– Principles and applications of Raman, NMR and X-Ray Photoelectron Spectroscopy - General principle of electrophoresis and Chromatography – Basics of thermogravimetry
- 6. Sensors and Bioinstrumentation:** Basics of Resistive, Capacitive, Inductive, Electro chemical and Optical Sensors –Origin of Biopotentials and their measurements –ECG, EEG and EMG- Blood pressure and temperature measurements –Operating principles of pulse oximeter, ventilator and defibrillator.
- 7. Signals and Systems:** Basics of periodic, aperiodic and impulse signals, Sampling Theorem, Laplace and Fourier Transforms, impulse response; Basics of IIR and FIR Filters
- 8. Medical Imaging:** Basic physics, Instrumentation and image forming methods in medical imaging modalities such as X-Ray, CT, and Ultrasound; Basic image processing operations such as noise removal and segmentations.
- 9. Biomaterials:** Basic properties of metallic, polymeric, and composite biomaterials; Fundamental characteristics of implants- biocompatibility and biodegradability; Basics of tissue engineering

Results of Level-1 test will be published in the Institute recruitment portal <https://recruit.iitm.ac.in>

Level – 2 Test: Syllabus for Trade Test

- Syllabus as above (Except Sl.No.1).
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