

RECRUITMENT FOR THE POST OF JUNIOR TECHNICIAN (CIVIL)

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. **Construction Materials and Construction Practice:** Soil, Bricks, Timber, Stone, Lime, Cement and Concrete, Steel, Glass – Materials properties and laboratory experiments; Foundations; Masonry; Flooring; Plastering and Painting; Formwork and scaffolding; testing of materials for properties.
3. **Soil Mechanics and Foundation Engineering:** Index properties of soil; hydraulic properties of soil; classification and strength of soil; sampling; soil stabilization; seepage analysis; bearing capacity and foundation settlement; basics of foundation engineering; Basic tests on soil.
4. **Basic Structural Engineering:** Simple stresses and strains; shear force and bending moment; geometrical properties of sections; stresses in beams and shafts. Slope and deflection of beams, propped cantilevers; Fixed beams and continuous beams, portal frames (including moment distribution method); Columns and struts; Masonry dams; Earth pressure and retaining walls; design of reinforced concrete structures – beams, one way slabs and columns; fundamentals of limit state design; design of simple steel members.
5. **Basic Transportation Engineering:** Classification of roads; Geometric design of highway; Rigid and flexible pavements.
6. **Estimating, Costing and Basics of Construction Management:** Areas and volumes; Embankments and Cuttings; Analysis of rates; Taking off quantities. Planning of civil engineering projects; contracts management; scheduling and time management; resource management; quality management and safety
7. **Surveying theory and practice:** Chain survey; compass survey; levelling; contour surveying; GPS; Theodolite survey; Tacheometric survey.
8. **Hydraulics and Water Resources Management:** Measurement of pressure; hydrostatic pressure on surfaces; flow of fluids; flow through orifices, mouthpieces, and pipes; flow through notches and weirs; flow through open channels; Basics of hydrology and ground water; management of ground water; storage and distribution works; canal irrigation; water harvesting and recycling.
9. **Environmental Engineering:** Water supply engineering – estimation of water requirements, selection of sources and pipe materials, methods of water purification, water supply and distribution; Sanitation engineering – methods of collection and conveyance of sewage, primary and secondary treatments, methods of disposal; Pollution control – identification of various pollution and their prevention, environmental impact assessment.

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

Email intimation will be sent to the short-listed candidates for Level-2 test.

Level-2 test will be scheduled tentatively during third week of August 2023.

Level – 2 Test: Syllabus for Trade Test

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