

20th November 2025

Selection Process for the post of Junior Engineer

(Staff Recruitment Advt. No: IITDh/ Admin/SR/33/2025-26 dated 17th April 2025)

All the shortlisted candidates are required to appear in person for the Written Test (s) scheduled on 12th December 2025. The venue for Written Test (s) is IIT Dharwad, Karnataka.

Candidates securing minimum qualifying marks as laid down by the selection committee in Written Test I shall be shortlisted for Written Test II.

The final selection will be based on aggregate marks obtained from both the Written Tests (I & II) with weightage of 40% in Written Test I and 60% in Written Test II.

Examination Pattern:

Written Test - I (MCQ Type) (40% Weightage)

Section	Topics/Subjects	Time Duration
1	General Ability Test	90 Minutes
2	Technical	

Note: 0.25 Negative Marks for every wrong answer MCQ test.

Written Test - II (60% Weightage)

Section	Topics/ Subjects	Time Duration
3	Technical	30 Minutes
4	Technical Trade/Skill Test (Pen and Paper)	80 Minutes

Note: 0.25 Negative Marks for wrong answer in MCQ questions for every 1 mark.

Syllabus:

Section	Broad syllabus
1	Synonyms and Antonyms, Error Spotting/ Correction, Phrasal Verbs, Idioms, and Phrases, etc. Number Series, Letter Series, Coding-Decoding, Direction Sense, Logical Reasoning, Mental Reasoning, Percentage, Average, Profit & Loss, Ratio & Proportion, Speed, Distance and Time, Simple and Compound Interest, Simplification, Mathematical Reasoning.
2,3 & 4	<p>Measurement and measuring instruments: Different methods for measurement of power (1 phase and three phase, both active and reactive) and energy. Measurement of frequency and phase angle. Ammeter and voltmeter, extension of range wattmeter, Multimeters, Megger. Use of Cathode Ray Oscilloscope, Signal Generator, Current Transformer, Potential Transformer, and their uses. Earth Fault detection.</p> <p>Transformers – Dry type and oil cooled transformers – voltage regulation, efficiency, operation, maintenance, and preventive maintenance – relays- protection– On Load Tap Changer – parallel operations – Programmable Logic unit control etc.</p> <p>High Tension panel – various types of circuit breakers – operation, maintenance and preventive maximum Theoretical Conversion efficiency– different relays and controls- protection – programmable logic unit control etc.</p> <p>Medium Voltage panels – circuit breakers – bus bars - protection – operation, maintenance and preventive Maximum Theoretical Conversion efficiency – Programmable Logic unit control etc.</p> <p>Automatic Power Factor Correction panel for different loads – maintenance of automatic power factor Correction panel – contactors – capacitors and reactors – programmable Logic unit control etc.</p>

Diesel Generators– operation and Maximum Theoretical Conversion efficiency synchronization- protection – fuel system distribution – programmable Logic unit control etc.

Pumps – different types of pumps incoming drinking water, fire and sewage treatment plant pumps - different types of valves - operation and maintenance of pumps starters etc.

Fire system - fire detection, fighting and suppression systems– operation and maintenance etc.

HVAC system – chiller/Air handling units/cooling towers /pumps/ Variable refrigerant flow units /split air conditioners c and their controls –different type of valves – operation and Maximum Theoretical Conversion efficiency.

Cables – HT/LT cables and their laying - continuity tests, faults location, Maximum Theoretical Conversion efficiency etc.

Access control – o & m of access control system etc.

Earthing – Different types of earthing and their connectivity for equipment and lightning conductor Incoming Maximum Theoretical Conversion efficiency etc.

Solar system – water heating system – heat pumps – power generation – street lighting- operation and Maximum Theoretical Conversion efficiency – connection to main grid etc.

Building management systems (BMS) – BMS monitoring and control of various MEP equipment.

Generation, Transmission and Distribution: Different types of power stations, Load factor, diversity factor, demand factor, cost of generation, inter-connection of power stations. Power factor improvement, various types of tariffs, types of faults, short circuit current for faults. Switchgears – circuit breakers, Principles of arc extinction by oil and air, High. Rupturing. Fuses, different types of relays, etc. Merz-Price system of protection of generators & transformers, protection of feeders and bus bars. Lightning arresters, various transmission and distribution systems, comparison of conductor materials. Cable – Different types of cables, cable rating and derating factor, Methods of Cable laying, Cable Jointing, terminations, Cable tests such as Insulation resistance test (Megger Test), Continuity test, High Voltage withstand test, Sheath test.

Estimation and costing: Estimation of lighting scheme, electric installation of machines and relevant Inspectorate of electrical rules. Earthing practices.

Roof Top Solar and Supervisory Control And Data Acquisition: Basics of Operations and maintenance of Roof top Solar, Supervisory Control And Data Acquisition and Building monitoring system.