राष्ट्रीय प्रौद्योगिकी संस्थान दिल्ली

NATIONAL INSTITUTE OF TECHNOLOGY DELHI

(शिक्षा मंत्रालय, भारत सरकार के अधीन एक स्वायत्त संस्थान)

(An autonomous Institute under the aegis of Ministry of Education (Shiksha Mantralaya), Govt. of India)

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Proficiency Test Syllabus for recruitment to the post of Technical Assistant (EE), vide the Advt. No.: 03/2024

EXPERIMENTS OF GENERAL/ ORAL NATURE

1) Familiarization with the operation and use of the following instruments: Ammeter, Voltmeter, Wattmeter, tachometer, Insulation tester, Earth tester, CRO/ DSO, Function Generator, and Regulated DC Power Supply etc.
2) Familiarization with connections of house wiring, godown wiring, and staircase wiring.
3) Colour/number coding of Resistors/Capacitors.

EXPERIMENTS OF PERFORMING NATURE

1) Fault current-time characteristics of an electromechanical overvoltage relay.
2) To determine fault current for L-G, L-L, L-L-G and L-L-L faults at the terminals of an alternator.
3) Measurement of unknown resistance/ inductance/ capacitance using suitable bridge circuit.
4) Calibration and Error Analysis of a Single- Phase Energy Meter.
5) Measurement of Power Using Ammeter-Voltmeter (AV) and Voltmeter-Ammeter (VA) methods.
6) Measure voltage, current, and power factor in AC circuits containing resistor and inductor in series.
7) Three-phase power measurement by two wattmeter method.
8) Performing open circuit and short circuit tests for single-phase transformer.
9) To find voltage ratio and current ratio of single -phase transformer.
10) To find the voltage regulation of single phase transformer on R – Load.
11) Performing no load test and block rotor test for 3-phase induction motor.
12) Magnetization characteristics of DC shunt (self-excited) generator.
13) Magnetization characteristics of DC separately-excited generator.
14) Verification of superposition theorem/maximum power transfer theorem.
15) Verification of waveform of single-phase half-wave/full wave rectifier.
16) Verification of waveform of three-phase half-wave/full-wave rectifier.
17) V-I characteristics of power electronic devices.

EXPERIMENTS OF PERFORMING NATURE (SIMULATIONS/ SOFTWARE)

1) Conduct a load flow study of a standard 5-bus test system in the MATLAB/Simulink environment.
2) Analyze the performance of a single-phase full-bridge rectifier circuit with R and R-L loads in the MATLAB/Simulink environment.

Sd/-
(Registrar)