Annexure-III

Department of Electrical Engineering

Technician

Stage-I (Screening Test)

Stage-I (Screening Test): A screening test shall be conducted in the first phase in form of multiple choice written test. Written test shall be of **90 minutes'** duration comprising of **75 questions**. Each **correct answer will be awarded One [1] mark** and for each **wrong answer One-fourth [1/4] mark shall be deducted**. Screening test shall consist of questions on **General English**(Tenses, Active and Passive, Direct and Indirect speech, Punctuation, Correction of sentences, One word substitutes, Modals, Articles, Clauses, Synonyms, Antonyms, Idioms and Phrases); **Numerical Aptitude Arithmetic**(Simplification of Fractions, Simple and Compound Interest, Profit and Loss, Percentage, Averages, Number System, Time and Work, Problems on Trains, Calendar, Area, Problems on Numbers, Square root, Cube root, Time and Distance and Other basic Arithmetic related matters);**Reasoning and Data Interpretation** (Number Series Compilation, Missing Number finding, Pattern series, Direction Sense Test, Series Compilations, Classification, Missing Character finding, odd man out, Blood relations, Analogy, Coding and Decoding, Letter and Symbol Series, Verbal reasoning, Statement and Conclusions, Letter and Symbol Series, Logical Problems, Arithmetic reasoning, Logical Sequence of words, Pie Chart and Bar Chart).

Eligible candidates **Ten Times** of the positions in each category will be screened for the Stage-II subject to the fulfillment of all educational qualification etc. as per the Recruitment Rules-2019.

Stage-II (Skill test)

Stage-II (Skill Test): The skill test will be of qualifying nature.

Laboratory Experiments etc. as per nature of the postshall be conducted in the respective laboratories/field. Minimum qualifying marks in the skill test will be [UR:30%; EWS:27%; OBC:27%; SC;20%; ST:20%; PwD:15%].

The candidates, who will qualify the skill test, will be called for the final written test. The Candidates appearing in the written test must ensure their eligibility for the particular category of post. The documents in support of their eligibility shall be verified before the Final test. If any

candidate will not have requisite qualification etc. as per the post for which he is appearing will not be allowed to sit in the final test (Stage-III).

Stage-III (Final test)

Stage-III (Final Test): Final written test shall be of 2 hours duration comprising of 100 multiple choice questions.

Each **correct answer will be awarded One [1] mark** and for each **wrong answer One-fourth [1/4] mark shall be deducted**. Only those who are screened in after the Screening test [Stage –I] and qualify the Skill Test [Stage-II] will be allowed to appear in the Final Test [Stage III]. The minimum passing marks in Final test will be [UR:30%; EWS:27%; OBC:27%; SC;20%; ST:20%; PwD:15%].

The final merit list shall be drawn on the basis of the stage-III written test.

SYLLABUS FOR SKILL TEST AND FINAL WRITTEN TEST IS AS PER ANNEXURE-IV.

Annexure-IV

Department of Electrical Engineering

Syllabus for Skill Test (Technician)

1. **Circuits and Principles**
   a. Maintain DC circuits
   b. Maintain single-phase AC circuits
2. **Installations and Testing**
   a. Install single-phase incoming supply system
   b. Install lighting circuits
   c. Install power circuits
   d. Install system wiring in a control panel
   e. Install Earthing System
   f. Maintain safety and health of the individual
3. **Machines and Control**
   a. Install DC motor and controller
   b. Maintain DC motor installation
   c. Maintain electrical motor starters and control circuits
   d. Maintain electrical drive systems
   e. Install AC motor and motor controller
   f. Maintain AC motor installation
4. **Drafting and Design**
   a. Electrical diagrams and drawings for residential premises;
   b. Electrical diagrams and drawings for commercial and industrial premises
   c. Switch-boards/ Control Panel drawings
5. **Measuring Instruments**
   a. Multimeter: Working Principle and Applications of Analog and Digital Multimeter and their differences.
   b. Working principle and Application of Oscilloscope (CRO and DSO).
   c. Power and Energy measurement using Wattmeter and Energy meter.

Department of Electrical Engineering

Syllabus for Final Written Test (Technician)

Mathematics:
Arithmetic, Geometric and Harmonic Progressions, Binomial expansion, Matrices, Elementary operations, Rank of a matrix
Parabola, Ellipse and Hyperbola, Differentiation of a function, implicit function, parametric function. Successive differentiation.
Maxima and Minima, Partial Differentiation, Definite and indefinite Integration.
First order and first degree ordinary differential equations.

Physics:
Units and Dimensions with Dimensional analysis and their Limitation, Motion in one and two dimensions and Newton's Laws of Motion.
Work and Energy and Conservation Laws of energy, Properties of matter i.e. Elasticity, Surface tension and viscosity in fluent motion, waves and vibration.
Characteristics of waves and Simple Harmonic Motion, Rotational Motion, Conservation on angular momentum, Gravitation, Newton's law of gravitation, Kepler's law and Satellite, Heat and temperature.
Measurement of temperature and mode of transfer of hear and their laws, geometric optics and simple optical instruments, Simple Law of electrostatics and their use to find the E and potential.
Capacitors and dielectric constant, Laser, its principle and use, Superconductivity, Conventional and Non-Conventional energy sources.

Communication Skills:
Words, Antonyms and Synonyms, Communication Technique Grammatical ability, Preposition, Correction, Voice, Narration, Punctuation, Tenses, Correction incorrect sentences.

Elements of Electrical Engineering:

- Electrical and Magnetic circuits, EMF, Kirchhoff's law and Faraday's Laws, Network Theorems, AC circuit, RMS value
- Behavior of RIC elements, Series and parallel circuits, series and parallel resonance circuits, Transformers, Introduction to single phase and three phase transformers
- DC Machines, Theory, Constructions and Operation of three phase induction motors, Transmission and Distribution
- Advantages of high voltages for transmission, Comparison of 3 phase, single phase, 2 Phase and three wire D.C. Systems.

Elements of Electronic Engineering:

- Measurements & Instrumentations, Errors, standards, accuracy precision resolution, Ammeters, Voltmeters, watt meters
- Energy meters, insulation tester, multimeter, CRO, measurement of V,I & F on CRO low, medium & high resistance measurement, AC bridges

- Transducers for measurement of temperature, displacement, communication system, types of modulation, demodulation, Analog Electronics
- Semiconductor diode circuits, zener diode and zener diode circuits, LED, photo diode, BJT, FET & their configurations and characteristics
- Biasing, small signal and Large signal amplifier, OP-AMPS, oscillators, regulated power supply.
- COMPUTER LITERACY: Characteristics of Computer, Computer Organization, Input/output Devices, Computer Software-Relationship between Hardware and Software, Operating Systems, MS-Office (exposure of Word, Excel/spread sheet, Power point). Digital Signature, Application of information technology in Government for e-Governance, mobile/Smartphone, Information tasks.