Date: 12th June 2024

Updated Syllabus for Written Test and Selection Criteria for recruitment to the post of Technical Assistant (Electrical Engineering), Pay Level - 06	
Part – A (General)	**Part – B (Post Related)**
1. Maths & Numerical Ability: Averages, Profit and Loss, Time and Work, Simple Interest, Compound Interest, Decimal Fractions, Problems on Numbers, Square Root and Cube Root, Time and Distance, Simplifications, Problems on H.C.F and L.C.M, Numerical Computation etc. (Upto 10th Standard) **2. Logical Reasoning**: Number Series Compilation, Missing Number Finding, Continuous Pattern Series, Matching Definitions, Missing Character Finding, Odd Man Out, Blood Relations, Coding And Decoding, Logical Sequence Of Words, Arithmetic Reasoning, Letter and Symbol Series, Numerical Reasoning, Data Reasoning and Data Interpretation. etc. **3. Language & Comprehension:** Antonyms, Synonyms, Spelling Check, Common Error Detection, One word substitute, correct option, Grammatical error, Change of voice, Narration, Idioms and Phrases, English Grammar, Sentence Correction and Completion, Paragraph Summary, Reading Comprehension & Inferences, Spotting Errors, Sentence Improvement, Communication Skills, Sentence Formation. **4. General knowledge and Current Affairs**: Indian History, Indian Economy, Indian Culture, Indian Polity, Indian Constitution, Indian Geography, Environmental Science, Awards and Honors, Famous Personalities, Days And Years, Basic General Knowledge, Current Affairs, Government Schemes, etc. upto 10th standard. 5. Computer Fundamentals, MS Word, MS Excel, Power Point, Internet, Email System, etc.	1. BASIC ELECTRICAL ENGINEERING- Ohms and Kirchhoff's Laws, star/delta transformation, Network theorems, Power and Energy, Heating effects of Electric current, Magnetic effects, Electromagnetic Induction, Electrostatics, Batteries, Types of Electrical Engineering Materials –Conducting, Semi-conducting, Magnetic, Insulating, Di-electric – Properties and Uses. 2. D.C. MACHINES, BATTERIES & MEASURING INSTRUMENTS- D.C. Generators, Construction, Operation, types, EMF Equation, Windings, Characteristics, Efficiency and Parallel operation. DC Motors: Principle of operation, Back EMF, Torque Equation, Types, armature reaction. Characteristics, Starters, Speed Control, Losses, Efficiency and Testing, Measuring Instruments, Classification, Principle of Operation of moving Coil, Moving Iron, Dynamometer type, Induction type meters, Instrument Transformers, Induction type Energy meter, Measurement of Resistance, Transducers and Sensors – Types, Thermistor, Thermocouple, Pressure Transducers and Strain gauges, Electronic and Digital Instruments. 3. A.C. CIRCUITS AND TRANSFORMERS- A.C. Circuits, Fundamentals, Series and parallel R-L-C Circuits, Resonant circuits, Polyphase Circuits, Measurement of power by 2 Wattmeter's. Transformer, Single-phase Transformer, Construction, Operation, Equivalent circuit, regulation, efficiency, Testing and Parallel operation, Accessories of Transformers and Cooling. Three-phase Transformers, Auto-Transformers.

	4. A.C. MACHINES - Alternators, Construction, Operation, EMF equation, regulation, testing and parallel operation. Synchronous Motors, Operation and performance, effects of Excitation, 'V'- Curve and inverted 'V'- Curve, methods of Starting and uses. Three-Phase induction Motor, Construction, Principle of Operation, Torque Equation, Slip-torque characteristics, losses, efficiency, speed control, starters. 5. POWER SYSTEM GENERATION & PROTECTION - Generating Stations, Working, Components, Comparison of Thermal, Hydel, Nuclear and Gas Power stations, Pollution control, Combined Working, Power Stations auxiliaries, Characteristic Curves and Important Terms, types of tariffs, power factor correction and economy. Power Systems, Protection, Circuit Breakers – Types, Principles of operation and uses, Current Limiting reactors, Relays – Classification, Principle of Operation of Induction type over current relay, Directional and Non directional relays, differential relays and distance relays, Protection of alternators, Transformers, Bus-bars, Transmission lines, Lightening arrestors, neutral grounding. 6. TRANSMISSION AND DISTRIBUTION - Transmission and distribution, Types of supply systems, Transmission line parameters, inductance and capacitance, performance of short and medium lines, regulation, Ferranti effect, Corona, Basic concepts of HVDC Transmission, Advantage and disadvantages of HVDC Transmission. Components of lines, supports, conductor spacing, ground clearance and sag, insulators, voltage distribution across the string, string efficiency, methods of improving string efficiency. Earthing and layout of sub-stations. Cables – Classification, insulation resistance, specifications. Distribution – Radial and ring distributors, variation of load voltage. 7. BASIC ELECTRONICS AND DIGITAL ELECTRONICS - Semi-Conductor devices: N type & P type, Zener diode, PNP

	and NPN Transistors, Transistor configurations, characteristics, power supplies – half and full wave rectifiers, Filters, Zener diode regulation, Special devices – UJT, FET, LED, SCR, Opto Coupler, Photodiode, Photo Transistor, CRO and Timers. Amplifiers: Types, Principles of operation, Characteristics. Oscillators - Types, operation and application of each. Digital Electronics: Different numbering systems, inter Conversions Boolean Algebra, Logic families, performance of AND, OR, NOT, NOR, NAND gates, combinational Logic Circuits, sequential logic circuits, Resistors and Memories, A/D and D/A converters. 8. POWER ELECTRONICS AND MICRO CONTROLLER - Power Electronic Devices, Construction and working of SCR, GTOSCR, DIAC, TRIAC, Volt-ampere characteristics, Triggering of SCR using UJT, Protection. Converters, AC regulators, Choppers, Inverters and Cyclo converters: Types of Converters, working of AC regulators and Choppers. Types of inverters, Principles of working, Basic principle of working of Cyclo converters. Speed contro lof D.C. Motors by using converters and choppers, Speed control of induction motor by using AC Voltage regulators – V/F Control, Switched mode power supplies (SMPS), UPS. Micro Controllers: Architecture of 8051, instruction set of 8051, programming concepts, peripheral ICS – Function, features.

Scheme of Examination	Selection Criteria	Instructions (General Paper / Post Related)	Proficiency Test
Part A - General Paper: Questions - 50 Marks - 50 Duration: 01 Hour **Part B - Post Related Paper:** Questions - 50 Marks - 50 Duration: 1:30 Hour	1. Written Test (Part-A): Qualifying in Nature for evaluation of part B. Qualifying marks to be decided on the basis of performance of the candidates. 2. Written Test (Part-B): Merit list will be drawn on the basis of score of the candidate 3. Proficiency Test: The Candidates shortlisted based on the Written Test (Part B) will be called for Proficiency Test, to be conducted after the Document Verification process.	1. This Part will comprise of objective-type questions with one correct answer. 2. One (1) mark will be awarded for each correct answer & minus one forth (- 1/4) mark for each incorrect answer. 3. The unanswered questions will not attract negative marks.	The syllabus of the Proficiency Test will be shared with the shortlisted candidates.