

CRITERIA FOR SELECTION TO THE POST OF ELECTRICIAN

Section-A

70 MARKS

Electrical Fundamentals: Ohm's Law, Kirchhoff's Laws, Series & Parallel combination of Resistors, Inductors & Capacitors. Wheatstone bridge, PVC wires, Conductors & cables. Wire joints, Soldering. Heating, lighting, magnetic & chemical effect of electric current. Joule's law. Electrolysis & its laws. Cells and Batteries- Primary & secondary cell, Lead Acid battery, Hybrid cell, Alkaline cell. Charging of battery. Care & Maintenance of Battery.

Motor: Construction, parts, working principle, Concept of rotating magnetic field, Applications. Types of starters-DOL, Star delta, Auto transformer starter etc. Rotor resistance type starter. Introduction to Speed control of 3 phase Induction motor. Torque speed characteristics. Losses, efficiency, Classification, Working Principle & uses.AC Motor stator Rewinding. Single phase & Three phase winding development diagram

Basics of Wiring: Power & control circuits wiring. Machine control cabinet /control panel layout, assembly. control elements- Push button switches, contactor, overload Relay etc. Concept of neutral and earth. Earthing, types, methods of reducing earth resistance, Earth tester. Star & Delta connections. Concept-Principle of plan estimation and cost-preparation of wiring layout domestic/Industrial/Commercial. I.E rules for multi-storeyed building. National Electrical Code, SWG, common electrical Accessories – MCB, ELCB, MCCB, RCCB etc. Comparison between different types of wirings. Installation, Testing methods – Wiring estimations & cost.

Electrical Substation: Single Line Diagram of Substations. Electric supply system EHVAC transmission. Advantages of high voltage transmission Overhead lines: - Poles& Towers, bushings, Insulators & its types. Corona effect, Bundle conductors, Sag, Skin effect & Ferranti effect. Fault studies. 3 phase service cable fault. Sub- Station HT/LT –Function, equipment, types of distribution system. Protective relays over current, IDMT, overvoltage, differential, distance relay. Circuit breakers-lightning arrestor used in HT line. Cable- different types of cables, cable rating, derating factor. Fire Fighting, Safely handling Tools & Equipment, Rescue of person who is in contact with live wire, Treat a person for electric shock/ injury.

Section-B

30 Marks

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| Unit A | General Knowledge – Current events, sports, history, geography, basic economics, general politics, Indian Constitution, Science environment, General awareness of Haryana etc |
| Unit B | Questions on Mathematics of matriculation standard- Number system, simplification, decimals, corrections, simple and compound interest, percentage, average, profit and loss, discount, mensuration, Time & work and time & distance etc. |
| Unit C | English, covering Grammar- Prepositions, adverbs, conjunction, direct/indirect speech, singular & plural, tenses, antonyms/synonyms etc |
| Unit D | Questions on Reasoning |
| Unit E | Questions on analytical Ability |