

**SYLLABUS FOR WRITTEN TEST FOR RECRUITMENT TO THE POST OF  
SUB ASSISTANT ENGINEERS (ELECTRICAL) IN HOOGHLY ZILLA PARISHAD**

Materials : Conducting, Magnetic, Insulating, Contact, fuse materials, semi conductor.

ELEMENTARY CIRCUIT ANALYSIS :

**D.C. Circuit :** Star-delta conversion, Thevenin's theorem, Norton's theorem, Superposition theorem.

**A.C. Circuit :** Single Phase R, L & C Series, Parallel : resonance.

**Three Phase :** Star & delta connection, three phase 4 wire, neutral current measurement.

**Measuring Instruments :** D.C. & A.C. Ammeter & Voltmeter; A.C. Wattmeters, Energy meters, Frequency meters, Reactive power measurement, maximum demand indicator; testing & errors of energy meters, Megar Insulation Tester, Earth Megar Tester.

**Power Factor :** Effects of low power factor; methods of improving power factor.

**Motors :** Type of D.C. Motors - Speed Control; Induction motors; Different types of starters D.C. & A.C.; Applications of different motors - D.C. & A.C. (single phase, three phase); Selection of motors for various types of load.

**Transformers :** Single phase, Three phase connection, methods of cooling, oil testing, properties, Auto-transformers, Parallel operation.

**O.H. Line :** Conductors : Types of poles, stays & struts, type of insulators and their applications; Feeders, distributors, service mains, radial & ring main feeder; primary & Secondary distribution of single phase and poly phase system; line sag on level ground.

**Cable:** P.I.L.C. & P.V.C. cable, methods of cable laying; cable rating & devating factor.

**Protective Devices :** Fuses - fuse elements, types; current limiting reactors; Thermal, electromagnetic, Induction type relays; Types of Circuit breakers to principle of operation, Isolators.

**Earthing :** Domestic installation & motors; pole earthing, Earth resistance measurement; Horn gap & thyrite type lightning arrester.

**Design, Estimating :** Design of lighting Scheme in a hall, class room, workshop, electrical installation of machines in a small workshop, estimation of house service connection; design of small transformers upto 100 VA; Rate analysis factor governing it - specification & schedule of work.

**Battery :** Types of storage battery, different elements, charging methods, maintenance.

**Generation :** Various conventional & non-conventional sources of energy. Different tariff systems and bill calculation.

**Electronics :** Different types of transistors - their biasing & action; Amplifier - single stage transistor, multistage. Definition of gain, frequency response, bandwidth. Voltage & power amplifier difference; transformer coupled Class-B pushpull amplifier - advantages & disadvantages, uses, Feed back in amplifier.

**Oscillator :** Types; functions of filter circuits; different rectifier circuit. Indian Electricity Rules. Extra high voltage, High voltage Switchgears protections. Pumps, lifts, Air-conditioning-Basic principle of operation safety & control.

**Conservation of Energy -** G.L.S. Lamp - Energy Efficient Lamp. Illumination - Level of Illumination & Measuring.