

AS per PSC Notification

PUBLIC SERVICE COMMISSION, WEST BENGAL
JUNIOR ENGINEERS (CIVIL/ MECHANICAL/ ELECTRICAL)
RECRUITMENT EXAMINATION, 2016
ADVERTISEMENT NO. 5/2016
SCHEME AND SYLLABUS

SYLLABUS FOR WRITTEN TEST FOR RECRUITMENT TO THE POST OF
JUNIOR ENGINEERS (ELECTRICAL) IN WEST BENGAL SUBORDINATE SERVICE OF
ENGINEERS

SCHEME

The examination will comprise two successive parts as follows :-

- a) **Written Examination - Full Marks - 200, Time - 2 hours** : The written examination will consist of one paper covering Engineering subjects (Multiple Choice Objective Type Questions) for each of the three branches. There will be 100 questions carrying 2 marks each. The standard and syllabus of the written examination are mentioned in the appendix (Appendix 'A', 'B' & 'C').
- b) **Personality Test - Full Marks - 100** : A limited number of candidates, selected on the results of the written examination, will be called to Personality Test carrying 100 marks. Final merit list will be prepared on the basis of the total marks obtained in the Written Examination and the Personality Test.

SYLLABUS

APPENDIX – “A”

SYLLABUS FOR WRITTEN TEST FOR RECRUITMENT TO THE POST OF
JUNIOR ENGINEERS (ELECTRICAL) IN WEST BENGAL SUBORDINATE SERVICE OF ENGINEERS

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 push-pull 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.
