

- B. Senior Technical Examination : Pass marks, 75 per cent.
 C. Telephone Exchange Clerk's Technical Examination : Pass marks, 75 per cent.
 D. Overhead telegraph- and telephone-line construction : Pass marks, 50 per cent.
 E. Telegraph and telephone apparatus : Pass marks, 50 per cent.
 F. Electric light and power; direct current : Pass marks, 50 per cent.
 G. Hydraulics : Pass marks, 50 per cent.

DETAILS OF SYLLABUS.

D. Overhead Telegraph- and Telephone-line Construction.

Preliminary surveys and estimates.
 Methods of setting, staying, and strutting poles.
 Running wires and cables—binding, jointing, regulating, reconstructing.
 Precautions against accidents at crossings.
 Methods of terminating and transposing.
 Static and kinetic stresses on poles and wires; relation between sag and stress.
 Methods of minimizing inductive disturbances.
 Deterioration of cables; causes and precautions.
 Tools and appliances used in aerial construction.
 Precautions for securing the safety of workmen and the public.
 Methods of protecting lines from contact with power and lighting wires.

E. Telegraph and Telephone Apparatus.

Telegraph.—Construction, use, principle, and testing of the under-mentioned instruments :—

Sounders (ordinary and polarized).
 Wheatstone apparatus.
 Keys, relays, switches, condensers.
 Galvanometers—Kelvin, astatic, differential, tangent, and suspended coil.
 Shunts.
 Resistance coils.
 Wheatstone bridge, ammeters, voltmeters, ducters, ohmmeters, meggers.

Telephone.—Construction, use, principle, and testing of the under-mentioned apparatus :—

The various transmitters and receivers in common use.
 Transformers, repeating-coils, impedance coils.
 Magneto and other call-bells.
 Magneto-generators.
 Indicators, jacks, plugs, relays, keys, and meters.

Testing.—Measurement of resistance, insulation, capacity, and inductance :—

Measurements of E.M.F. and internal resistance of batteries.
 Tests for efficiency of apparatus.
 Localization of line troubles.

F. Electric Light and Power; Direct Current.

Electrical units.

D.C. measuring-instruments, voltmeters, ammeters.

D.C. dynamo-electric machines :—

Construction, general characteristics, and field of application of D.C. generators and motors (series, shunt, and compound).
 Starting-devices.
 Overload and underload releases.
 Speed-regulation.
 Switchboard protective devices.
 Diseases of D.C. motors and generators; remedies.
 Testing for machine-faults.

Storage batteries :—

Chemistry, capacity, and efficiency.
 Construction of modern types of accumulators.
 Charging and discharging.
 Testing.
 Ailments and remedies.
 Switch-gears and protective arrangements.
 Installation and first charge.