

S.C.C. Syllabus

Certificate For :-	:	Parts Compulsory
Wiring for systems not exceeding 650 Volts.	:	1 & 2
D.C. Apparatus not exceeding 650 Volts.	:	1, 2 & 3
A. C. Apparatus not exceeding 650 Volts.	:	1, 2 & 4
Installations exceeding 650 Volts	:	1, 2, 3, 4 & 5
Aerial lines exceeding 250 Volts.	:	1 & 6
Underground cables	:	1 & 7
Mining	:	1, 2, 4 & 8
Lifts	:	1, 2, 3, 4 & 9
Electric Signs	:	1, 2, 3, 4 & 10
Wiring for system not exceeding 250 Volts.	:	1 & 11 only
Transformer installation exceeding 650 Volts.	:	1, 2 & 12 only

Note 1 : Part 1 is compulsory to all candidates. The passing of the parts stated above are cumulative and progressive. That is the candidate must pass in all parts and the sequence shown.

Note 2 : Certificates endorsed for underground cable work and for work serial lines exceeding 250 Volts will be divided into sections A, B and C which are progressive and cumulative. Certificates granted to successful candidates will be endorsed to denote the section or sections in which they have qualified.

Note 3 : A candidate qualifying in part 5 need not qualify further in part 12.

Explanation : Part 12 is included in the syllabus in part-5.

SYLLABUS FOR SUPERVISORS

Part-1

Elementary Principles :

Electrical properties of material - Conductors and insulators. The effect of commonly occurring conditions such as moisture, heat, etc. Conditions which hasten deterioration.

Magnetic properties of materials - Magnetization by electric currents, electro-magnets and their application.

Conductors, bare and insulated. Their resistance and safe current carrying capacity, calculation of size of conductors for connected load with due regard to heating and voltage drop.

Electrical measurements - Application of Ohm's Law to simple method of ascertaining resistance, voltage and current. The use of ammeters, voltmeters, ohmmeters, wattmeters, ampere-hour meters, kilowatt-hour meters and their connections.

Electric shock - Action to be taken, method and duration of treatment in case of persons suffering from electric shock.

Drawing - Making and reading drawings of power and lighting circuit diagrams.

Grades and classes of cables - Their suitability for different kinds of installation work. The installation and systematic testing of cables for continuity, leakage, insulation-resistance and the testing of connections.

Indian Electricity Rules - A general knowledge, particularly of chapters V and VI of the rules.

Part-2

Wiring of systems up to but not exceeding 650 volts. Connection of low pressure installations to medium pressure supply mains.

Wiring installation including connections work specifications for power and other purposes but excluding the installation work specifically covered by parts 3 & 4.

Indian Electricity Rules - A working knowledge of the Indian Electricity Rules as applicable to installation work of this part.

Part-3

DC Apparatus exceeding 250 volts and not exceeding 650 volts.

Generators - D.C. Series, shunt and compound wound, elementary theory, installation, operation, parallel running of machines, balancers.

Motors - D. C. Series, shunt and compound wound, elementary theory, their uses, installation, operation and speed control.

Control Gear - The various type of switches, fuses, starters, controllers, regulators, their uses and installation.

Installations in general including portable appliances but work specifically covered by parts 4, 5 & 6.

Indian Electricity Rules - A working knowledge of the provisions of the Indian Electricity Rules as applicable to the installation work of this part.

Part-4

A.C. Apparatus exceeding 250 volts and not exceeding 650 volts.

Generators - A.C. single and poly phase, elementary theory, Installation, operation, parallel running of machines, rotary converters, power meters frequency meter, and synchrosopes.

Motors - A.C. single and poly phase, induction synchronous machines, elementary theory, their uses, installation, operation and speed control.

Control gears - The various types of switches, fuses, starters, controllers, regulators, their uses and installation. Installation in general including portable appliances but excluding that installation work specifically covered by parts 5 & 6.

Indian Electricity Rules - A working knowledge of the provisions of the Indian Electricity Rules as applicable to installation work of its part.

Part-5

Installation exceeding 650 volts.

Note :- A candidate must pass in parts 1, 2, 3 & 4 before appearing in an examination for part 5 : Provided that they appear for all the parts at the same examination but will not be granted certificate in part 5 should they fail in either part 1, 2, 3 and 4.

Generators - Motors and their control gear as in part 3 and 4 but exceeding 650 volts and also rectifiers and other high pressure apparatus.

Transformers :- general principal, elementary calculation various type and uses, installation, wiring connection, operation phasing out and parallel operation.

A working knowledge of the India Electricity Rule as cable be installation work of this part.

Part-6

Aerial line exceeding 250 volts.

For (A) Voltage upto 650 volts.

(B) Voltage upto 33000 volts.

(C) Voltage exceeding 33000 volts.

General practical knowing of erection under varying climatic conditions, passing of conductor, the uses of guys, struts, guard wires, safety devices, lighting conductors and arresters, testing of the installation and earthing.

A working knowing of the Indian Electricity Rules as applicable to such aerial lines.

Part-7

UNDERGROUND CABLE

For (A) Voltage upto 1000 volts.

(B) Voltage upto 1 1000 volts.

(C) Voltage upto and exceeding 33000 volts. (Paper or-cambric) oil filled, gas filled or any other types.

General practical knowledge of lying direct in ground, in troughs and in pipes, handling, bending, jointing, plumbing, under ground and above ground joint boxes, junction boxes and distribution boxes and pillars, joint box compound, melting of compounds, filling boxes with a compound.

A working knowledge of the Indian Electricity Rules as applicable to such underground cable.

Part-8

REGULATIONS AS REQUIRED BY THE DEPARTMENT OF MINES GOVERNMENT OF INDIA

Mining installation (below ground)

Candidates for this part must have had a minimum of one year practical experience in electrical installation work in mines below ground.

This part will cover those features of installation work which are particular and peculiar to installations (below ground in mines).

Before a candidate will be granted a certificate for mining installation (below ground), I. E. (part-8), he must, in addition to satisfying the Board in part1, have qualified in parts 1, 2 and 4. general knowledge of cables used in mines : Joining, junction boxes, joint box compounds and testing.

Electric haulage and winders, mining and electrical machinery and apparatus, as applicable to mines.
Portion of the Indian Electricity Rules specially applicable to mines.

Note :(1) Those candidates who desire a certificates for **supervising** high pressure work below ground must also qualify in part-5.

(2) Any person who holds a certificate for mining installation (below ground) shall also be entitled to **supervise** surface installations of the nature covered by the syllabus for the part in which he was qualified. Similarly if a person is required to supervise work of the nature covered by the syllabus in part6 and 11 must also qualify in those parts.

(3) For the supervision of Electrical installation below ground in gassy mines, persons who hold certificates for supervising electrical installations in mines below ground shall have their certificate endorsed for supervising such installations in "Gassy Mines" if they can produce satisfactory evidence that they have a minimum of SIX months practical experience of electrical installation in gassy mines below ground.

Part-9

ELECTRICAL LIFTS

N.B :- The Indian Electricity Act and Rules do not extend beyond the electrical equipment installation and used in lifts.

General principles :- Installation and connection of A.C. and D.C. motors p to but no exceeding 650 volts, controllers and safety devices as used in lifts.

Part-10

ELECTRICAL SIGNS.

Filament lamps, electric discharge lamps, luminous tubes, flashers, etc.their installation, connections, operation and precautions to be taken.

A through knowledge of the special installation fur such signs as used under the Indian Electricity Rules.

Part-11

Wiring for systems not exceeding 250 volts

Cleat, Wood :- Casing, lead covered, cab-type sheathed, conduit and armoured cable together with main switches and out-cuts, distribution boards, and correct installation of switches. Low pressure electrical appliances - Such as heaters, cookers, small motors for pumps, refrigerators, electric bells and indicators worked off electric supply lines, Wither portable or otherwise.

Low pressure serial lines general principles of construction, strength of **posts**, length of spans, spacing of conductors, height of conductors, cross arms, guard wire, safety devices, earthing, lightning conductors and arrestors, testing.

Indian Electricity Rules :- A working knowledge of the Indian Electricity Rules as applicable to installation work of this part.

Part-12

TRANSFORMER INSTALLATION EXCEEDING 650 VOLTS.

TRANSFORMER :- General principles, elementary calculations, various types and uses, installation, wiring connections, operation, phasing out and parallel operations, earthings, tapchangings and safety precautions.

A working knowledge of the Indian Electricity Rules as applicable to installation works of the part.

Note :- A candidate must pass in parts 1 & 2 before appearing in an examination for part 12 provided that he may appear for all parts at the same time examination but will not be granted a certificate in part-12 (should he fail in either of parts 1 & 2).
