

# INDIRA TECHNICAL INSTITUTE EDUCATION SOCIETY NASHIK

## CERTIFICATE COURSE WIREMAN [ W ]

EXAM SCHEME: THEORY PAPER 100 MARKS – 3 HRS.  
PRACTICAL 100 MARKS – 2 HRS.

### THEORY SYLLABUS

#### 1. BASIC ELECTRICITY

- ❖ Study of Voltage, Current and Resistance and their units (Kilo, Mega, Milli, Micro)
- ❖ Study the meaning of circuit and know about close circuit, short circuit and open circuit.
- ❖ Ohm's Law, Formula's and problem's on this law.
- ❖ Study of series circuit, parallel circuit and compound circuit their formulas and solve simple problems.
- ❖ Study about power their formulas and units.
- ❖ Study about Electrical energy and Electric bill calculation.
- ❖ Types of supply, polarity testing and effects of electric current.

#### 2. TOOL'S

Study about different type's of Tool's, required for electrical work. (wiring or repairing), their names, sizes, precautions to be taken while using different Tolls.

- ❖ Types of Pillars → Combination Pillar, Nose Pillar, side cutting pillar, Cert clip pillar etc.
- ❖ Drilling Tool's → Rawal punch, center punch, chiesal, Hand drill, electric Drill, Gimlet etc.
- ❖ Cutting Tools → Hack saw, Hand saw, ordinary saw, Tenon saw, Scraper, Electrician knife etc.
- ❖ Hammering Tools → Ball pin hammer, Nail puller hammer, mallet etc.
- ❖ Measuring tools → Tape, Try square, sprit level, foot rule, S.W.G. etc.
- ❖ Other tools → Tester, screw driver, test lamp bearing puller, Blow lamp, spanners, files, soldering iron etc.

#### 3. ELECTRICAL ACCESSORIES

Study about various accessories use in wiring work their names, capacity and use.

- ❖ Controlling accessories → S. P. switch, two way switch, two way center of switch, Bell pust, Intermediate switch, I.C.D.P. and I.C.T.P. switch, Toggle switch etc.
- ❖ Holding accessories → Batten Holder, Angle Holder, Tube Holder, Starter Holder, Edison Screw type holder, pendent holder.
- ❖ Accessories for safety → Kit Kat fuse, Cut – Out, glass fuse, H.R.C. fuse, Cartridge fuse, MCB, ELCB etc.
- ❖ Other accessories → Two pin & Three pin plug, sockets, adaptors, ceiling rose, Gang box etc.

#### 4. CONDUCTOR, SEMI CONDUCTORS AND INSULATOR'S

##### WIRES AND CABLES

- ❖ Study about conductor, semi conductor and Insulator's, their definitions and examples and use.
- ❖ Study about construction of wire and cables their sizes and use's.
- ❖ P.V.C. wire, C.T.S. wire, V.I.R. wire, flexible wire weather proof cable, enameled copper wire etc.
- ❖ Armored and unarmored cable.

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## 5. TYPES OF WIRING, EARTHING

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Study about different types of wiring methods meaning of electrical points, layout drawing of flat wiring and how to prepare wiring work estimate.

Precautions to be taken while doing wiring work, their advantages and disadvantages.

C.T.S. wiring, pipe wiring (P.V.C. and Heavy gauge), Casing capping wiring, consild wiring, Cleat wiring etc.

- ❖ Study of earthing, types of earthing, testing of earthing, (pipe earthing and plate earthing)
- ❖ Study of lightning Arrestor.

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## 6. METER'S

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Study about different types of meters use commonly in electrical field, their construction, connection's, Capacity and precautions while using.

- ❖ Voltmeter, Ammeter, Watt meter, Ohm meter.
- ❖ Energy meter,
- ❖ Meger meter etc.

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## 7. JOINTS, SOLDERING, TAPPING

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- ❖ Why joints use in wiring work, types of Joints, precautions while make Joints. Simple twist Joint, 'T' Joint, straight Joint, western Union Joint, Britannia Joint.
- ❖ Study about soldering methods, precaution while solder the Joints.
- ❖ How Tapping is done after Joints.

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## 8. OTHER

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- ❖ I.S.I. Symbols
- ❖ Safety Rules
- ❖ Study about Various Long Forms.
- ❖ Tube light → Construction, parts, connection, faults and testing.
- ❖ Ceiling fan → Construction, Parts, Connection, faults and testing.
- ❖ Series parallel testing board.
- ❖ Electric Bell's

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## SCHEME OF EXAMINATION

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THEORY	100 MARKS
PRACTICAL	75 MARKS
JOURNAL	15 MARKS
ORAL	10 MARKS

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## GUIDELINE FOR PAPER SETTER (THEORY)

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**100 Marks**

**Inst. :-** Q. No. 1 is compulsory, Solve any Five questions from Q. 2 to Q. 7.

Q. 1. Compulsory and objective type 3 Sub Question's of five marks each, Fill in the blanks, True or false, match the pair, draw the symbol's, Long forms.	<b>20 Marks</b>
Q. 2. Topic 1	<b>16 Marks</b>
Q. 3. Topic 2 .	<b>16 Marks</b>
Q. 4. Topic 3.	<b>16 Marks</b>
Q.5. Topic 4.	<b>16 Marks</b>
Q. 6 Topic 5, 6.      50% Each Topic	<b>16 Marks</b>
Q. 7 Topic 7, 8.      50% Each Topic	<b>16 Marks</b>

- ❖ Paper setter are permitted for to ask any one wiring diagram in theory paper from practical list like → House wiring, Godown wiring, Stair case wiring, Hospital wiring etc.

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## REFERENCE BOOKS

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- ❖ WIREMAN (ENGLISH, MARATHI) → By Prakash Shah.
- ❖ Electrical wiring (HINDI) → By V. B. Joshi.
- ❖ Vidyut Yashodeep (MARATHI) → Shyam Pitke.
- ❖ Sulabh Vidyutshastra → by Trambak Wagmare.
- ❖ Basic Electrical Engineering – by M. L. Anwani

