

**Perform Any eight experiment from given list as a part of practical submission**

**List of Experiments**

1. To perform the polarity test on single phase transformer
2. To perform the transformation ratio test on single phase transformer
3. To perform the following three phase transformer connections:
  - 1) Star-star
  - 2) Star-Delta
  - 3) Delta – Delta
  - 4) Delta –Star
  - 5)Open Delta
  - 6) Scott Connection
4. To perform the direct loading test on three phase transformer to calculate efficiency and regulation
5. To perform the indirect loading test on three phase transformer to calculate efficiency
6. To perform the parallel operation of two single phase transformers.
7. To study D. C. Machine
8. To draw the speed characteristics of DC shunt motor by- (1) Armature Control method (2) Field Control method
9. To perform the load test on DC Shunt motor.
10. To study the load characteristics of DC generator
  - I) Cumulative compound generator.
  - II) Differential compound Generator
11. To study the magnetization ,internal and External characteristics of a D. C. generator
12. To Study Starters for DC Shunt Motor.

**List of Experiments:** (Perform minimum 8-10 experiments from following list)

- 1) Measurement of Low resistance by Kelvin Double bridge.
- 2) Measurement of High resistance and Insulation resistance using Megger.
- 3) Measurement of Inductance by Maxwell bridge, Hays bridge, Anderson bridge.
- 4) Measurement of Capacitance by De Sauty bridge, Schering bridge.
- 5) Measurement of Earth resistance using Earth Tester.
- 6) Study the extension of Voltmeter, Ammeter and Wattmeter.
- 7) Measurement of three phase power by Two Wattmeter and One Wattmeter method.
- 8) Study of types of instrument: PMMC, Moving Iron, Electro-dynamometer, Hot wire, Thermocouple, Induction, Electrostatic, Rectifier.
- 9) Study of Energy Meter.
- 10) Study of Instrument T/F and its types.
- 11) Characterize the temperature sensor (RTD):
  - a) Static Characteristics of RTD: Study the change in resistance of RTD probe depending on the process temperature.
  - b) Dynamic characteristics: Study the dynamic response of RTD probe
- 12) Characterize the Thermocouple:
  - a) Static Characteristics of Thermocouple: Study the change in EMF of a thermocouple in response to the process temperature.
  - b) Dynamic characteristics of Thermocouple: Study the dynamic response of Thermocouple.
- 13) Characterize of LVDT: To find the effect of various parameters like change in supply voltage, change in supply frequency on output of given LVDT
- 14) Characterize the strain gauge sensor:
  - a) Study of Strain Gauge: To study the working principle of strain gauge.
  - b) Study of effect of change in position of weight applied on Strain Gauge performance.
  - c) Study of effect of change in temperature on the performance of Strain Gauge.
- 15) Measurement of phase difference and frequency of a sinusoidal ac voltage using C.R.O.
- 16) Study of storage oscilloscope and determination of transient response of RLC circuit.

**Any Eight Experiments from the following list**

Expt. No.	Title of Experiment
1	Verification of Kirchhoff's Laws
2	Verification of Superposition Theorem
3	Verification of Thevenin's Theorem
4	Verification of Norton's Theorem
5	Verification of Maximum Power Transfer Theorem
6	Verification of Reciprocity Theorem
7	Determination of transient response of RL & RC series circuits
8	To study Resonance in RLC series Circuit.
9	To study Resonance in parallel RLC Circuit.
10	Determination of driving point and transfer functions of a two port ladder network and verify with theoretical values
11	To calculate and verify 'Z' Parameters of a Two-Port Network.
12	To calculate and verify 'Y' parameters of Two-Port Network.

<b>Sr. No</b>	<b>Experiment Title</b>
1	To study the layout of a Thermal Power Plant with its components.
2	To study the layout, classification and components of a Hydro Power Plant.
3	To study the alternator excitation system
4	To study the types and properties of various Overhead insulators
5	To study the types and properties of various Overhead Conductors.
6	To study the Power cable and its various components and types.
7	To study the layout of a substation along with its components
8	To determine the ABCD parameters of a medium and long transmission line.
9	To Visit a Thermal Power plant and write a technical report on the observations

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1. Determination of sequence impedances of salient pole synchronous machine To perform
2. Determination of  $X_d$  and  $X_q$  of a salient pole synchronous machine from slip test.
3. V and inverted V curves of a 3-phase synchronous motor 1
4. Regulation of alternator by Direct loading method (R,L,C load)
5. Regulation of alternator by synchronous impedance method
6. Regulation of alternator by MMF method
7. Parallel operation of Synchronous generator
8. To study different types of starters for three phase Squirrel cage induction motor
9. Rotor resistance starter for slip ring induction motor.
10. To conduct no load and blocked rotor test and to determine performance characteristics of three phase induction motor from circle diagram
11. Load and block rotor tests on squirrel cage induction motor
12. Brake test on slip ring induction motor
13. To control speed of wound rotor induction motor by rotor resistance control method
14. To control speed of induction motor by V/F
15. To control speed of induction motor by i) star-delta ii) autotransformer

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**List of Experiment**

1. To plot input characteristics and Output characteristics of common emitter configuration.
2. To plot frequency response of RC coupled and Transformer coupled amplifier
3. To measurement of OP-AMP parameter
4. To verify the operation of op amp in Inverting & Non-inverting mode on AC input
5. Verify truth table of following basic and derived gates
  - a. AND, OR, AND
  - b. Ex-OR, NAND, NOR
6. Verification of truth table of flipflop
7. Design and implementation of 3-bit synchronous up/down counter
8. Design and implementation of half and full adder using logic gates
9. Design and implementation of Multiplexer and De-multiplexer and study of IC74150 and IC 74154
10. Design and implementation of code converters
  - a. Binary to gray code converter
  - b. BCD to Excess 3