SANTHIRAM ENGINEERING COLLEGE, NANDYAL

Department of Electrical and Electronics Engineering

Name of the Laboratory: **BASIC ELECTRICAL AND ELECTRONICS (Part – A)** ***Regulation:*** **R15**

Branch: **Computer Science Engineering** ***Year & Sem:*** **II- I**

Course Objectives

- Practical verification of Superposition and Thevenin's theorem
- Experimental determination of O.C. and S.C. parameters of two – port network
- Swinburne's Test on DC Shunt Machine and Predetermination of Efficiency of a Given DC Shunt Machine (i) while working as a Motor and (ii) while working as a Generator
- Brake Test on DC Shunt Motor and determination of Performance Characteristics
- OC & SC Tests on Single-Phase Transformer and Predetermination of Efficiency and Regulation at any given load and Power Factor.

Course Outcomes

- Practically verify Superposition and Thevenin's theorem.
- Experimentally determine the O.C. and S.C. parameters of two-port network.
- Conduct Swinburne's Test on DC Shunt Machine and Predetermine the Efficiency of a given DC Shunt Machine (i) while working as a Motor and (ii) while working as a Generator
- Conduct Brake Test on DC Shunt Motor and determine the Performance Characteristics
- Conduct OC & SC Tests on Single-Phase Transformer and Predetermine the Efficiency and Regulation at any given load and Power Factor.

List of Experiments

Part – A

1. Verification of Superposition Theorem.
2. Verification of Thevenin's Theorem.
3. Determination of Open circuit and Short circuit parameters of two – port network.
4. Swinburne's Test on DC Shunt Machine
5. Brake Test on DC Shunt Motor.
6. OC & SC Tests on Single-Phase Transformer

Part – B

(Any Six Experiments)

1. P-N Junction Diode and Zener Diode Volt-Ampere Characteristics.
2. Bipolar Junction Transistor in CB Configuration-Input and Output Characteristics, Computation of α.
3. Half-Wave Rectifier- a) Without Filter b) With Capacitor Filter.
4. Full-Wave Rectifier- a) Without Filter b) With Capacitor Filter.
5. Bipolar Junction Transistor in CE Configuration-Input and Output Characteristics, Computation of β.
6. Junction field effect Transistor in Common Source Configuration Output and Transfer Characteristics.
7. Verification of Logic Gates- AND, OR, NOT, NAND, NOR, EX-OR, EX-NOR.

List of Equipments

Part – A

1. Regulated Power Supply
2. Rheostats, Ammeters (MI & MC), Voltmeters (MI & MC), Wattmeter (UPF & LPF)
3. Dc Shunt Motor & Alternator Set
4. Dc Shunt Motor & Alternator Set
5. Single Phase Transformer With Auto Transformer Equipment

Part – B

1. Regulated Power Supply
2. Rheostats, Ammeters (MI & MC), Voltmeters (MI & MC), Wattmeter (UPF & LPF)
3. Decade Resistance Box, Decade Inductance Box, Decade Capacitance Box
4. Cathode Ray Oscilloscope (CRO's), Function Generators
5. Breadboard, Digital Multimeters

Lab Instructor:

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