

FUNDAMENTALS OF ELECTRICAL ENGINEERING LAB (P-3020)

1. (a) Determination of voltage-current relationship in a dc circuit under specific physical conditions and to draw conclusions (to verify ohm's law)
(b) Filament lamp
 - Measure the resistance of a cold lamp filament with the help of calculations.
 - Measure the current drawn by the lamp at different voltages from zero to 220 volts and the resistance of lamp at different voltages; plot a graph between current and voltage.
2. (a) To verify that $R_t = R_1 + R_2 + \dots$ where R_1, R_2 etc. are resistances connected in series
(b) To verify $\frac{1}{R_t} = \frac{1}{R_1} + \frac{1}{R_2} + \dots + \frac{1}{R_m}$ Where R_1, R_2 etc. are resistances connected in parallel.
3. Verification of Kirchhoff's current and voltage laws applied to DC circuits
 - a) To construct a circuit arrangement consisting of resistances in series, parallel combination.
 - b) Identification of node points in the circuit.
 - c) To see that algebraic sum of currents at node point is zero.
 - d) To see that algebraic sum of emfs and voltage drops in a closed loop is zero.
4. To observe the a.c and d.c wave shapes on CRO.
5. To find ratio of inductance values of a coil having air /iron core respectively and to see the effect of introduction of a magnetic core on coil inductance
6. To construct an RL and RC circuit and to measure
 - a) Impedance of the circuit
 - b) Phase angle between voltage and current
 - c) Construct impedance triangle
7. Measurement of power and power factor of a single phase RLC circuit. To calculate KVA and KVAR
8. Measurement of power and power factor of a 3-phase circuit by using 2- wattmeter method using induction motor as a load and to calculate KVA and KVAR
9. Testing a battery for its charged condition i.e testing of gravity