Name of subject: APPLIED PHYSICS   **Unit Test :I**
Subject code:17210   **Course : CM/IF/EJ/IE/IS**

Semester: II

CHAPTER 1: BASIC ELECTRIC CIRCUITS[16 marks]

Questions for 2 marks:

1. Define Electric Current.State its unit.
2. Define 1 Ampere and 1 Ohm.
3. Define Resistance and state its unit.
4. Explain concept of specific resistance and find its unit.
5. Explain specific conductance and state its unit.
6. What is Potential gradient? State the principle of Potentiometer.
7. Define Capacitance and state its formula with unit.
8. The Potential difference of 60 Volt is applied across a capacitor of capacitance 20 µF. Calculate the charge on the plates.

Questions for 3 marks:

1. Explain Ohm's Law and derive its Equation
2. Calculate the resistance of 60m length of wire having cross sectional area of 0.02×10^{-6} m^2 and having resistivity 3.5×10^{-7} Ωm.
3. Area of parallel plate capacitor is 0.7 m^2 and distance between the two plates is 2mm.The dielectric constant is 5.Calculate the Capacitance of the condenser.
4. Explain the factors affecting Capacitance of Parallel plate Capacitors.

Questions for 4 marks:

1. Obtain the balancing condition for Wheatstone Network.
2. Derive an expression for the effective capacitance, when three capacitors are connected in series with each other.
3. Two capacitors have an equivalent capacitance of 12 µF when connected in parallel and 2.25 µF when connected in series. Calculate their individual Capacitances.
4. Obtain an expression for Capacitance of a parallel plate capacitor.
5. Explain the Principle of a parallel Plate Capacitor.
6. Two capacitors of 1µF and 2 µF are connected in series across a 60v DC supply. Calculate a)Equivalent Capacitance. b)charge on Each condenser c)Potential drop across each condenser.
7. Four resistances in Wheatstone network are 3 Ω ,15 Ω, R3 Ω and 5 Ω respectively. Calculate R3 to get null deflection in galvanometer.

CHAPTER 2:NANOTECHNOLOGY[6 marks]

Questions for 2 marks:

1. State any two properties of nano material.
2. Mention nano material of zero dimensions and one dimension.

Questions for 3 marks:

1. State any three applications of nanotechnology in electronics field.
2. State any three applications of nanotechnology in automobiles.
3. Define :1 nanometer, nanotechnology and nanoscale.

Questions for 4 marks:

1. Explain methods of synthesis of nanoparticles.