Chapter: EC,R, EMF and electric Measurement

**PLEASE GIVE THE EXAMPLES, DIAGRAMS AND FLOW CHARTS WHEREVER APPLICABLE.

1. Define the following

a) Thermistor b) Superconductor and their applications c) why constantan and Magnenin Used for making standard resistors d) EMF e) How Conductance of semiconductor changes with rise in temperature

2. What is principle of potentiometer? How it is used to compare emf of two cells

3. State and explain kirchoff,s laws. Derive the conditions for obtaining balance in wheatstone Bridge?

4. Why resistivity of metal increases with temp. Explain

5. Define drift velocity. Find its expression in term of electric field

6. How many electrons pass through a lamp in 5 sec. If the current of 0.1 ampere. Passes through it.

7. Define specific resistance. Express it in term of mass, charge, number density, relaxation time.

8. A wire has a resistance of 32 ohms. It is melt and recast to make a new wire of half the length. Calculate the new resistance of the wire? What is the percentage change in resistance?

9. Two cell of e.m.f 6V and 12 V internal resistance of 1 OHMand2 OHM are connected in || so as to send a current in the same direction through an external resistance of 15 OHM. Draw the circuit diagram. Calculate the current through each resistance of the circuit; also find the potential diff.across 15 Ω

10. At room temperature 27o C, the resistance of a heating element is 100Ω. What is the temperature of the element, if the resistance is found to be 117Ω? Temp. Coefficient of resistor is $1.70 \times 10^{-4}\ {}^{o}C^{-1}$