**ESO203A Tut 1 13.1.17**

Q1: In the circuits of Figure 1 let ‘e’ be sinusoidal at 50 Hz, 100V rms. In the steady state ‘i’ has a value of 10A and is in phase with ‘e’.L = 10 ohms. Find the value of voltage vector ‘v’. Draw a phasor diagram for the circuit. If R = 10 ohms, what is the power dissipated in R? Is |v| > |e|?



Fig 1

**Q2:** A three phase balanced star-connected load of 150kW, takes a “leading” current of 100A .The line voltage is 1100V, 50Hz.Find the circuit constants of the load per phase. Draw a phasor diagram of the circuit voltages and currents.

**Q3:** Three non-reactive resistors of 10, 20 and 25are star-connected to the A, B and C phases of a 400V three phase symmetrical system. Determine the current and power in each resistor and the voltage between the star point of the load and the neutral of the supply.

**Q4:** A balanced star connected load of  per phase is connected to a three phase 230V supply. Find the line current, real power (W), reactive power (VA) and total VA. Draw phasor diagram of line currents and phase voltages.

**Q5:** Repeat the circuit of Q4 assuming the load is connected in delta.