**ES0 203A INTRODUCTION to EE 20.1.17**

**TUT2**

**Q1:** A single phase load is being supplied from a 230V 50 Hz source. It draws 10KW at 0.8pf lagging (p.f is a common abbreviation for power factor).It is desired to connect a capacitor in parallel to the load to improve the p.f. of the source to unity. Calculate the value in microfarads and KVA rating of the capacitor.

**(Ans: 7.5 KVAR)**

**Q2:** (a)Write the loop equations for the circuit shown below.

(b) Find **** if ****



**Q3:** A delta connected load has impedances,,

, and is connected to a 400V supply of phase sequence RYB.

Calculate the readings of two wattmeters with current coils in line R and B and voltage coils connected to line Y.

**(Ans: 4.8 kW, 22.3 kW)**

**Q4:** A single phase transformer has 400 primary turns and 1000 secondary turns. The net cross sectional area of the core is 60 Cm2.If the primary winding is connected to a 50 Hz supply a500 Volts; calculate the peak value of flux density in the core and the voltage induced in the secondary windings.

**(Ans: 0.938Wb/m2, 1250V)**

**Q5:** Two identical 1000 turn coils X and Y lie in parallel planes such that 60% of the magnetic flux produced by one coil links the other. A current of 5A in X produces in it a flux of 0.05mWb.Calculate the self inductance of each coil and the mutual inductance

If the current in X changes from +6A to -6A in 10mS what will be the magnitude of e.m.f induced in Y?

**(Ans: 7.2V)**