SUBJECT CODE NO:- P-83
FACULTY OF ENGINEERING AND TECHNOLOGY
F. E. Examination MAY/JUNE-2016
Elements of Electrical Engineering
(Revised)

[Time:Two Hours]   **[Max Marks:40]**

"Please check whether you have got the right question paper."

N.B   i) Q.No.1 is compulsory.
                ii) Attempt any two questions from the remaining questions.
                iii) Assume suitable data, if necessary.

Q.1   Solve any five.   10
        a)   State the factors affecting the value of resistance.
        b)   Define RTC. What is its unit?
        c)   Define time constant of capacitor.
        d)   Define reluctance, permeability.
        e)   Define MMF, magnetic field strength.
        f)   State super position theorem.
        g)   State law of division of current.
        h)   State effect of temperature on resistance of pure metals and semiconductors.

Q.2   a)   Derive the charging equation of capacitor.   05
        b)   State and explain the neat fig. mutually induced E.M.F.   05
        c)   A capacitor having a capacitance of $50 \mu f$ is connected in series with a resistance of 500 Ω across 100 volt   05
             d.c supply. Find.
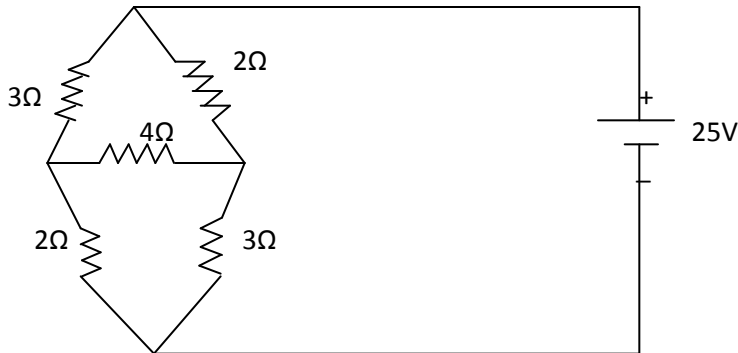   1)   Equation of voltage as a function of time.
             2)   Equation of current as a function of time.
             3)   Charge on the capacitor after 0.05 sec.
             4)   Charging current after 0.05 sec.
             5)   Voltage across resistor after 0.05 sec.

Q.3   a)   Find the current flowing through '5Ω' resistance using node analysis.   05
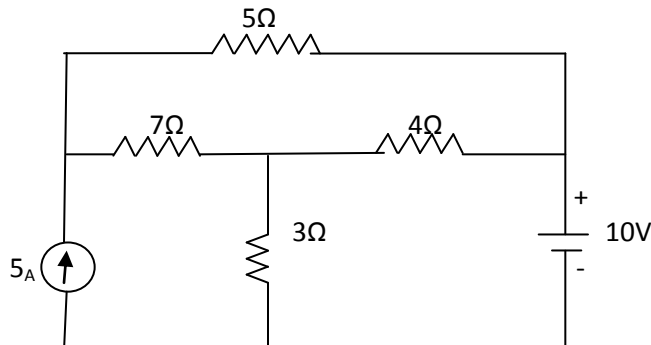
b) Find the current through '4Ω' resistor by using loop/mesh analysis.   05
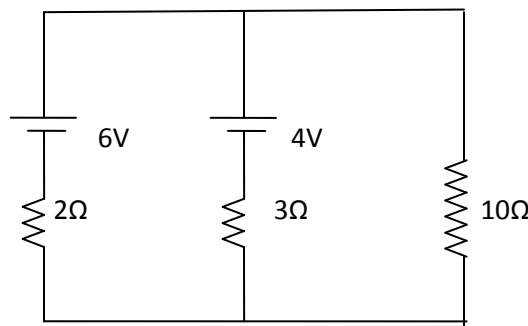

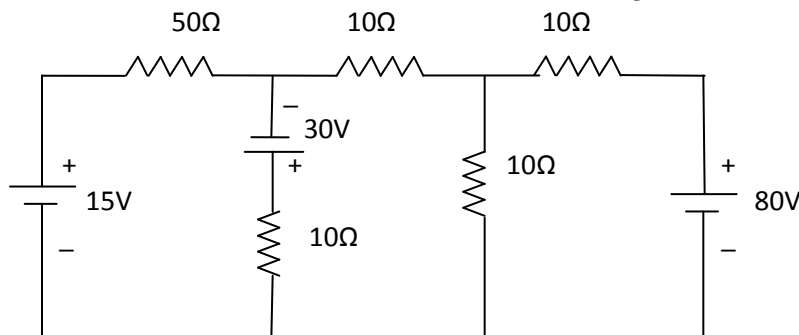c) State and explain maximum power transfer theorem.   05

Q.4   a) Calculate current flowing in 10 Ω resistance for the circuit show in fig. by using super position theorem.   05

b) Apply Thevenin's theorem to determine the current through 50 Ω resistor.   05

c) State & explain Thevenin's theorem.   05

Q.5   a) With the help of neat figure. Explain magnetic leakage & fringing.   05
        b) Explain Hysteresis loss.   05
        c) Explain the eddy current loss.   05