Basic Electrical & Electronics Engineering
(EE-101, Dec-2007)

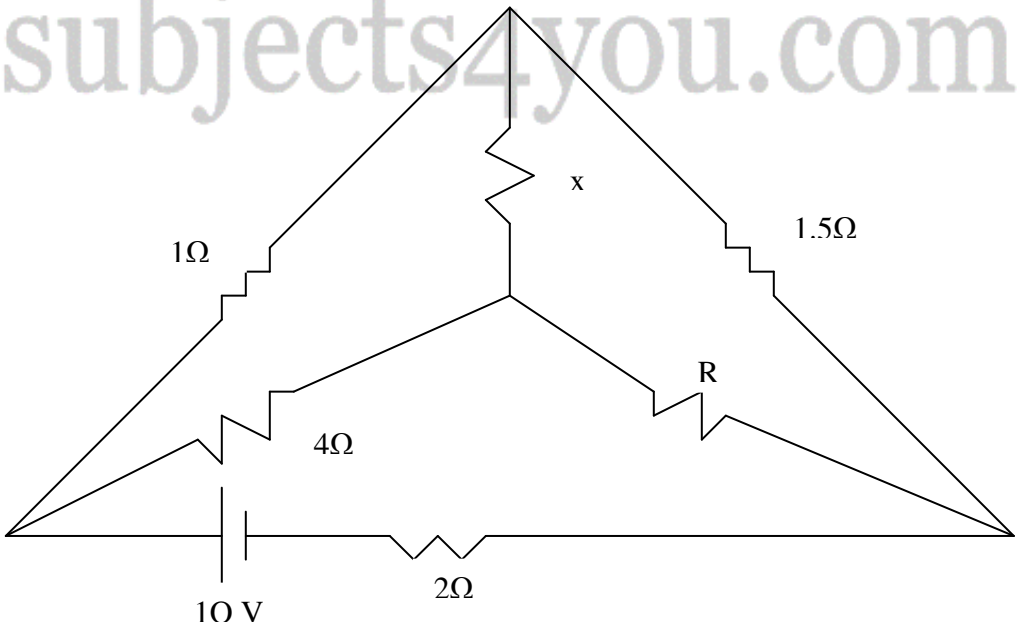
Note: Section A is compulsory. Attempt any five questions from section B & C taking at least two questions from each part.

Section-A

1. a) What is the effect of temperature on the resistance of the conductor?
   b) Instantaneous current is given by the relation I=20 Sin 314t, Find r.m.s and average value of a.c.
   c) What is mutual inductance? Give units.
   d) What are linear and no linear circuits?
   e) What do you mean by slip in induction motor?
   f) Name sources of errors in moving iron instruments.
   g) Find resultant of (8+j6) x (-10-j7.5).
   h) What is gauge factor?
   i) Draw symbols of BJT and Zener diode.
   j) Convert $(1245)_{10}$ into Binary number system.

Section-B

2. (a) State and explain Kirchoff's laws.
   (b) Find the value of R and current through each branch if current in branch AO is zero.



3. (a) Discuss the phasor relation between emf and current when a.c. flows through series L-R circuit.
   (b) Two impedances Z_1 = 10 + J 15 ohm and Z_2 = 6 – j8 ohm are connected in parallel and supply current is 20 amp. What is power dissipation in each branch?

4. (a) Derive an expression for emf equation of d.c. generator.

(b) The efficiency of a 1000 KVA, 110/220 V , 50 Hz single phase transformer is 98.5% at half load at 0.8 power factor leading and 98.8% at full load unit power factor. Find (i) Iron loss (ii) full load copper loss.

5. Explain the principle and working of attraction type moving iron instruments and derive expression for deflecting torque.

Section-C

6. Explain the principle and working of LVDT.
7. (a) Explain the action of PNP transistor.
   (b)Draw and explain static V-I characteristics of SCR.
8. (a) Describe pin diagram of 741.
   (b) Explain the working of thermocouple thermometer.
9. Describe in detail the operation of J-K flip flop with wave form.