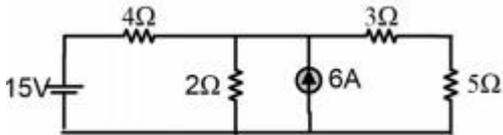
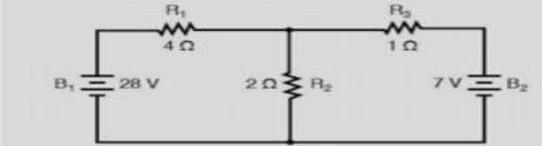
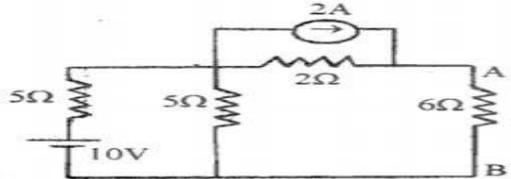
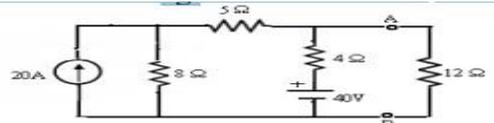
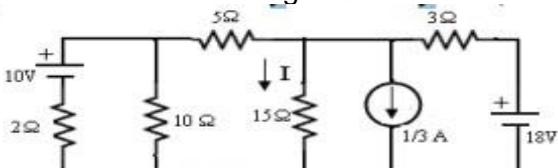


Vision institute of Technology aligarh  
 Subject- Basic Electrical Engineering (KEE202)  
 Assingment-1(Module -1 D.C Networks)

What do you understand by unilateral and bilateral elements? Give examples
What is the utility of superposition theorem?
Define ideal voltage and current sources
Explain (i) Ideal current source (ii) ideal voltage source
Define with examples: (i) Active and passive element (ii) bilateral and unilateral elements
Explain the duality between a Thevenin's and Norton's equivalent circuits.(2011-12)
Explain the Thevenin's theorem and its application.(2009-10)
Relate Thevenin's theorem with Norton"
Determine the current flowing through 5 ohms resistance in the network shown below (fig-1) using Thevenin's theorem.

Using superposition, find the current flowing through 2 ohm resistance in following circuit (fig-2).

Derive relation for delta to star transformation. Also, Use source transformation method to compute the current through 6 ohm resistor of Fig. 1.
 <p>Fig. 1</p>
Find the current in 12 ohm resistance using Norton's theorem for the given circuit.

Determine current through 15 ohm resistance by node analysis.
 <p>Figure 3</p>

Assingment-2(Module -2 A.C Fundamentals)

1	Determine the form factor of AC current $i = 200 \sin (157 t + \pi/6)$ .
2	Explain the term "Dynamic Impedence" in AC circuits.
3	Define form factor and peak factor
4	A series circuit has $R = 10\Omega$ , $L = 0.02H$ and $C = 3\mu F$ . Calculate Q-factor of the circuit.
5	Derive an expression of resonance frequency in series resonance circuit. If the bandwidth of a resonant circuit is 10 KHz and the lower half power frequency is 120 KHz, find out the value of the upper half power frequency and the quality factor of the circuit.
6	What is resonance? Derive the quality factor of the series RLC circuit at resonance.
7	Define power factor. What are the causes and disadvantages of low power factor? Explain the method of power factor improvement.
8	What is the necessity and advantage of 3-phase system? Derive $V_L = \sqrt{3}V_{ph}$ for star connected System.
9	Derive the expression for resonant frequency & quality factor for an ac circuit under the condition of parallel resonance.
10	Derive the relation between line current & phase current in case of three phase delta connected balanced load. Three identical coils of resistance $8\Omega$ and inductive reactance $6\Omega$ are connected in delta across 400V mains. Determine power, power factor and line current. Draw phasor diagram
11	What is meant by power factor? What is its signification? How will you obtain power factor from kVA triangle? (2009-10)
12	Enlist the advantages of three phase system over Single phase.

### Assignment Module -3 ( Transformer)

1	What will happen if the primary of a transformer is connected to dc supply
2	What are the advantages of auto-transformer over two winding Transformer
3	Draw and explain the no load and full load phasor diagrams for a single phase transformer.
4	(i) Explain single phase Auto transformer and give its application. (ii) In a 25 KVA, 2000/200 V transformer, the constant and variable losses are 350 W and 400 W respectively. Calculate the efficiency on unity power factor at (i) full load and (ii) half load.
5	Explain different types of Magnetic materials with examples.
6	List the various losses occurring in transformer and write the condition of maximum efficiency. In a 25 kVA, 2000/200V the iron and copper losses are 200W and 400 W respectively. Calculate the efficiency at half load and 0.8 pf lagging. Determine also the maximum efficiency and the corresponding load.
7	Describe the analogies between electric and magnetic circuit
8	Draw and explain the equivalent circuit of transformer. A 100kVA, 2,400/240V, 50Hz, single phase transformer has the following parameters-Primary winding (hv side): resistance $r_1 = 2.4\Omega$ , leakage resistance $X_1 = 6.0\Omega$ . Secondary winding (lv side): resistance $r_2 = 0.03\Omega$ , leakage resistance $X_2 = 0.07\Omega$ . Find the equivalent resistance & leakage reactance referred to secondary.
9	Discuss the principle of operation of a single phase transformer. Derive EMF equation for a single phase transformer
10	What is voltage Regulation in a single Phase Transformer? What should be its value for an ideal transformer?
11	Explain the efficiency of a transformer and condition for maximum
12	(i) Explain single phase Auto transformer and give its application. (ii) In a 25 KVA, 2000/200 V transformer, the constant and variable losses are 350 W and 400 W respectively. Calculate the efficiency on unity power factor at (i) full load and (ii) half load
13	Explain the efficiency of a transformer and condition for maximum