SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

AN AUTONOMOUS INSTITUTION

Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai

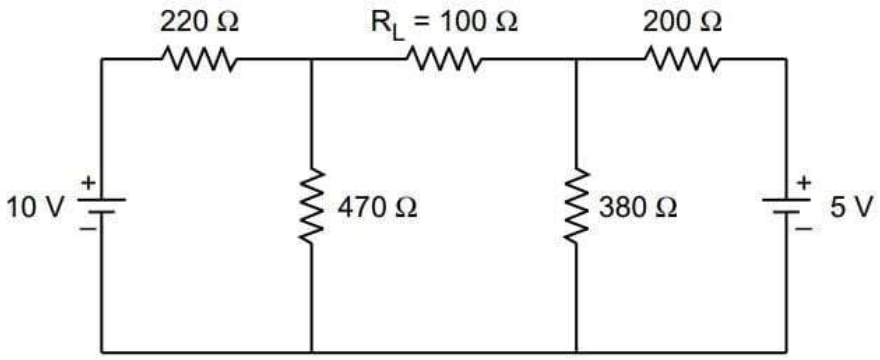
I Semester

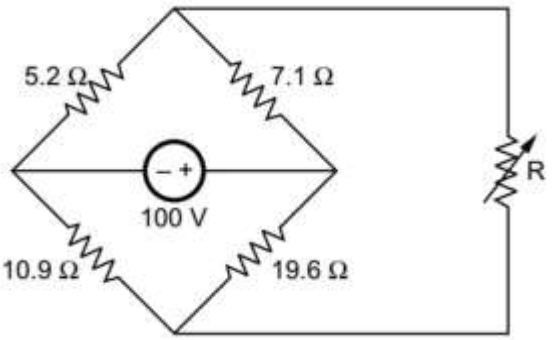
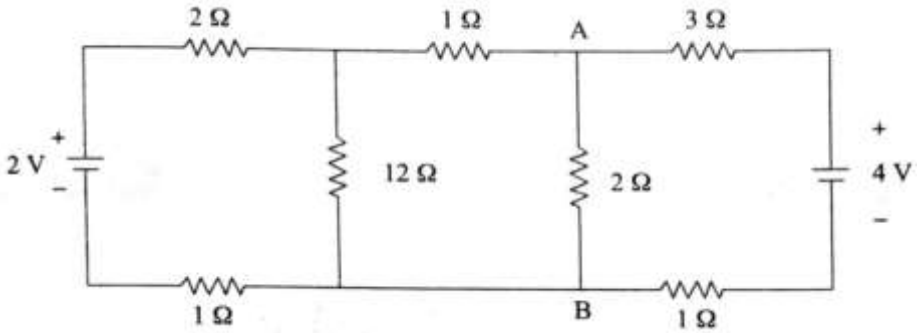
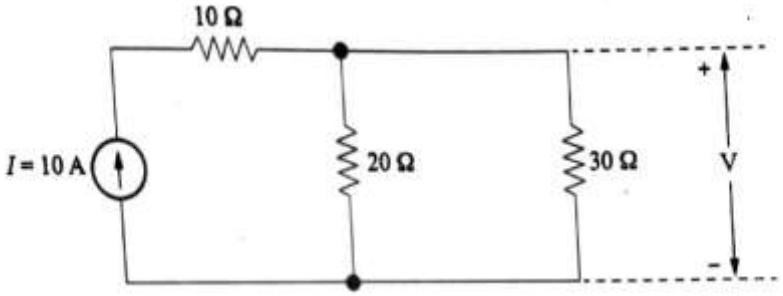
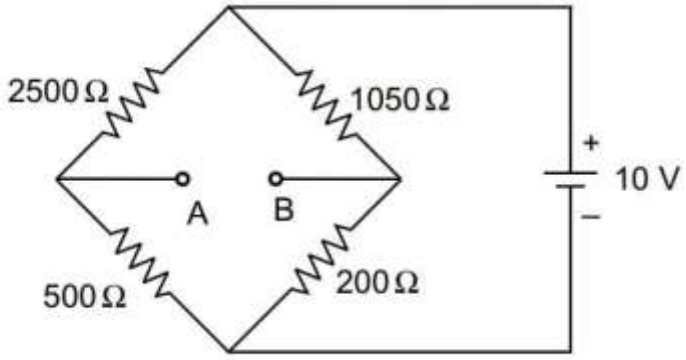
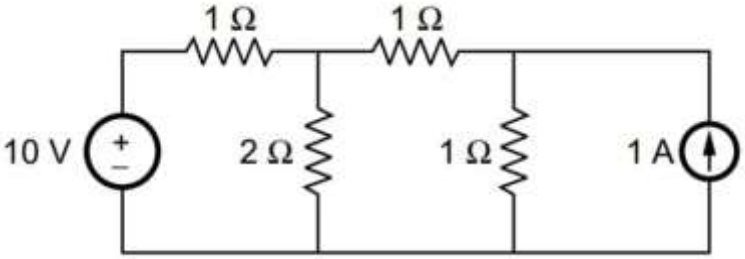
B.E-Electrical and Electronics Engineering

19EE201 – Circuit Theory

Regulations 2019

QUESTION BANK FOR IAE 1

	PART A
1	Transform the Norton's equivalent circuit to Thevenin's equivalent circuit.
2	Is Reciprocity Theorem applied to the circuit having resistors, capacitors and diodes? Give your reason.
3	State Thevenins theorem.
4	State Superposition Theorem.
5	List the applications of Thevenin's Theorem.
6	State the limitation of Thevenins theorm.
7	Write the formulae to determine Maximum power.
8	Define Form factor and Crest Factor.
9	Define Average and RMS value.
10	A current of repetitive function $i=10^5t$ A is applied through a resistor of 10 Ω. Determine the value of power between 0 and 4 ms.
11	Draw the voltage and current waveform for Ideal inductive circuit.
12	Draw the voltage and current waveform for Ideal capacitive circuit.
13	Compare Star and Delta connected system.
14	Calculate the power factor if $v(t)=V_m Sin\omega t$ and $i(t)=I_m Sin(\omega t-45^\circ)$.
15	Point out the advantages of three phase system over single phase system.
	PART B & C
1	Obtain the Norton's model and find the power that can be transferred to the 100 Ω load resistance, in the circit shown in fig. 

2	For the circuit, find the value of R that will receive maximum power. Determine this maximum power. 
3	Using Thevenin's theorem find the current in branch AB having 2 Ω resistor in the network shown in Fig. 
4	Verify Reciprocity theorem for the circuit shown below 
5	Determine the Thevenin's equivalent circuit of the network given. 
6	Apply Super Position Theorem to Calculate the current through 2 Ω resistor in the circuit shown below. 

7	A balanced star connected load of (8+j6) Ω/phase is connected to a three phase, 230 V, 50 Hz supply. Find the line current, power factor, active power, reactive power and total volt amperes.
8	Determine the average value, RMS value, form factor and peak factor for the full rectified sine wave and half rectified sine wave.
9	The voltage of a circuit is $v=200\sin(\omega t+30^{\circ})$ V and the current is $i=50\sin(\omega t+60^{\circ})$ A. Calculate (a) the average power, (b) volt-ampere reactive, (c) apparent power, (d) phasor diagram and power triangle, and (e) the circuit elements if $\omega=100\pi$ rad/s.
10	Discuss in detail about the three phase 3-wire circuits with Star connected balanced loads. Also illustrate the phasor diagram.
11	Each phase of a balanced star connected load consists of R= 10 Ω and C=10 μF. Calculate the line current and total real and reactive powers when a symmetrical 400 V, 50 Hz, three phase supply is applied to it. If two wattmeters are employed to measure total power, what will be the readings of the two wattmeters.
12	Derive the expression for measurement of three phase power by using two wattmeter method.