SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

AN AUTONOMOUS INSTITUTION

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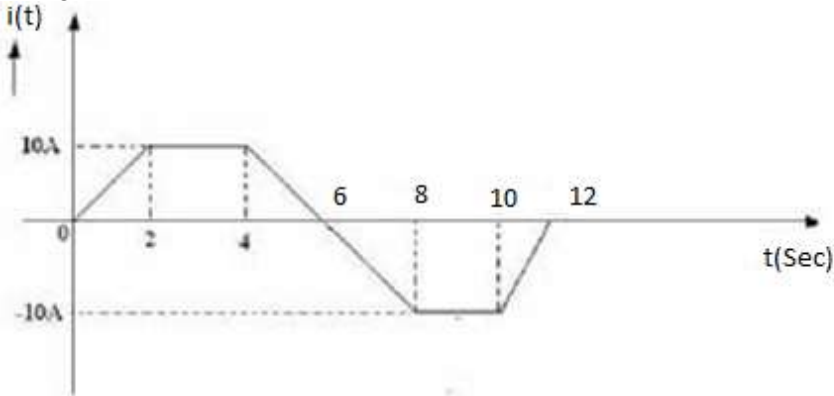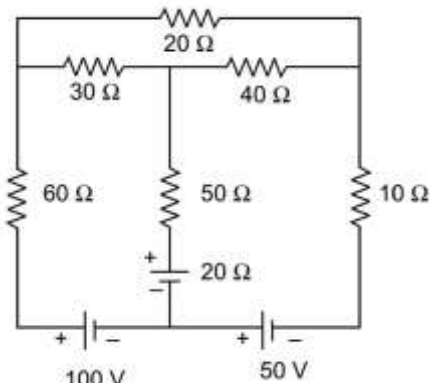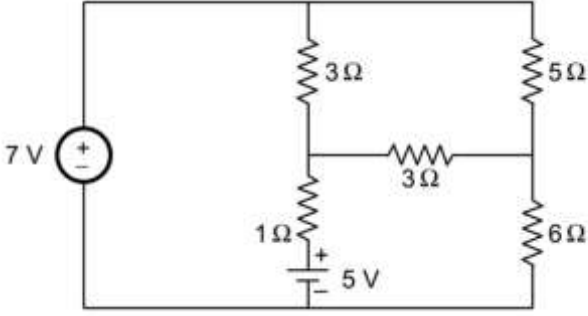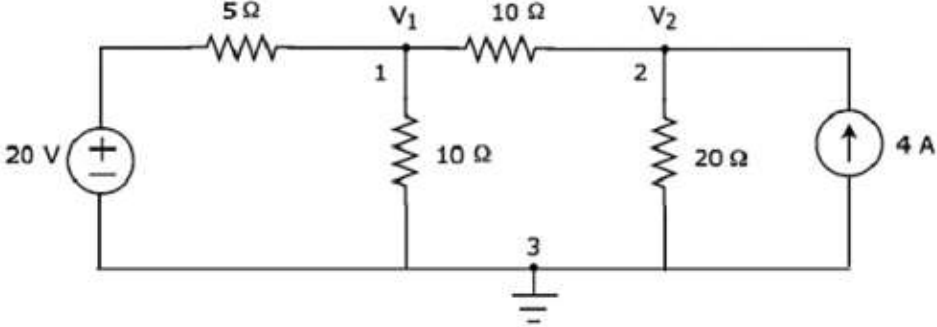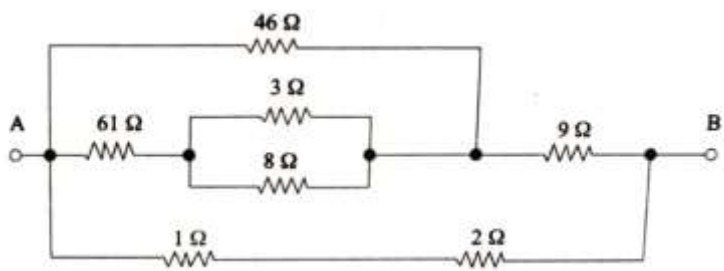
I Semester

B.E-Mechanical Engineering

19EE101 – Basic Electrical and Electronics Engineering

Regulations 2019

QUESTION BANK FOR IAE 1

	PART A
1	State Kirchhoff's Voltage Law.
2	State the limitations of ohms law.
3	List the essential requirements (torque) of an instrument.
4	Define Ohm's Law.
5	State Kirchhoff's Current Law.
6	Find the average value of
7	Write down the EMF equation of a DC generator.
8	List the functions of commutator.
9	Give the application of DC Motor.
10	Differentiate between separately excited DC Generator and self-excited DC generator.
11	Distinguish between series and parallel circuit.
12	Compare Mesh and Loop.
13	Write current division rule.
	PART B
1	Calculate the current in the 50 Ω resistor in the network shown in fig using mesh analysis. Also determine the voltage drop across the 20 Ω resistor.

2	Illustrate the mesh currents and also the current through 1 Ω resistance in the circuit shown in fig.
3	Use Kirchhoff's law to determine the node voltage V_1 and V_2 for shown in fig.
4	With a neat schematic diagram explain the operation of single phase energy meter.
5	Discuss the principle of operation of permanent magnet moving coil instruments with neat sketches.
6	Determine the amount of total resistance between points A and B of the circuit shown in fig.
7	Discuss the principle of operation of dynamometer type wattmeter.
8	Elaborate the constructional details and working principle of DC Generator with a neat sketch also list its applications.
9	Elaborate the construction and operation of rotating device, which convert electrical energy to mechanical energy.
10	A wave connected armature winding has 19 slots with 54 conductors per slot. If the flux per pole is 0.025wb and number of poles is 8, find the speed at which the generator should be run to give 513V. Also find the speed if the armature is lap connected.
11	(i) A 50 KW, 250 V Shunt generator operates on full load at 1500 rpm. The armature has 6 poles and is lap wound with 200 turns. Find the induced EMF and the flux per pole at full load. Given that the armature and field resistances are 0.01 Ω 125 Ω respectively. Neglect armature reaction. (ii) Obtain the mathematical expression for generated EMF of DC Generator and explain each term.
12	With a suitable sketch explain the principle of operation of attraction type and repulsion type of moving iron instruments.

13	Use circuit reduction techique, to determine the equivalent resistance between A and B for given circuit.