SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech I Year I Semester Supplementary Examinations November-2022
BASIC ELECTRICAL AND MECHANICAL ENGINEERING
(Common to CE & AGE)

Time: **3 hours** Max. Marks: **60**

(Answer all Six Units **6 X 10 = 60** Marks)

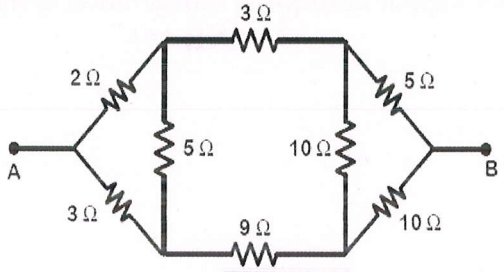
PART-A

UNIT-I

1	**a**	State and explain Ohm's law.	**L1**	**5M**
	b	Explain in detail about passive elements	**L1**	**5M**

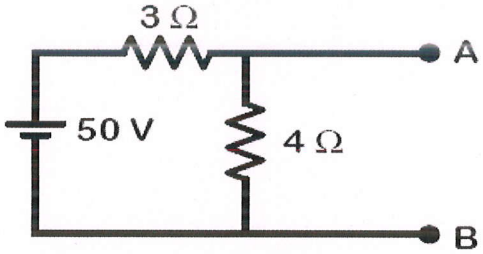
OR

2		Find the voltage to be applied across AB in order to drive a current of 5A into the circuit.	**L5**	**10M**



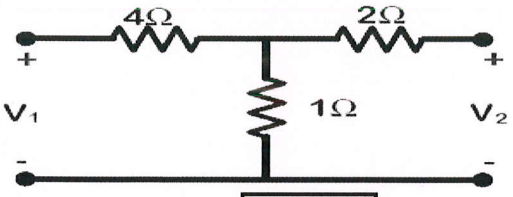
UNIT-II

3	**a**	State Thevenin's theorem	**L1**	**2M**
	b	Find the Thevenin's equivalent circuit across AB for the circuit shown.	**L3**	**8M**



OR

4		Find the Short circuit parameters for the given circuit.	**L4**	**10M**



UNIT-III

5	**a**	Derive Torque equation of dc motor.	**L3**	**5M**
	b	The counter emf of Shunt motor is 227 V. The field resistance is 160Ω and field current 1.5A. If the line current is 36.5A, find the armature resistance also find armature current when the motor is stationary.	**L5**	**5M**

OR

6	**a**	Derive EMF equation of a transformer.	**L3**	**5M**
	b	A 100 kVA, 11000/400 V, 50 Hz transformer has 40 secondary turns. Calculate the number of primary turns and primary and secondary currents.	**L4**	**5M**

PART-B

UNIT-I

7		Describe the permanent mould casting with neat diagram.	L2	10M
		OR		
8	**a**	Define welding. Classify the types of welding processes.	L1	5M
	b	Differentiate between Brazing and Soldering.	L4	5M

UNIT-II

9	**a**	Differentiate between shaper and slotter machines	L4	5M
	b	Briefly explain the working of drilling machine.	L2	5M
		OR		
10		What is CNC? Explain the working of CNC machine with a block diagram.	L2	10M

UNIT-III

11		Explain the components of four wheeler automobile with sketches.	L2	10M
		OR		
12		Describe the working of vapour absorption refrigeration system.	L2	10M

***** END *****