SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech I Year I Semester Supplementary Examinations November-2021
BASIC ELECTRICAL AND MECHANICAL ENGINEERING
(Common to CE & AGE)

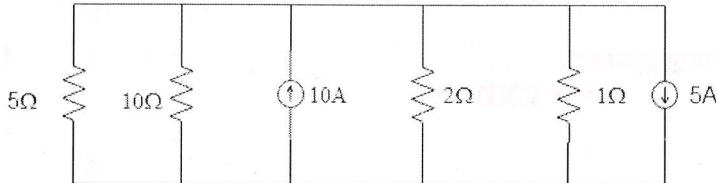Time: **3 hours**   Max. Marks: **60**
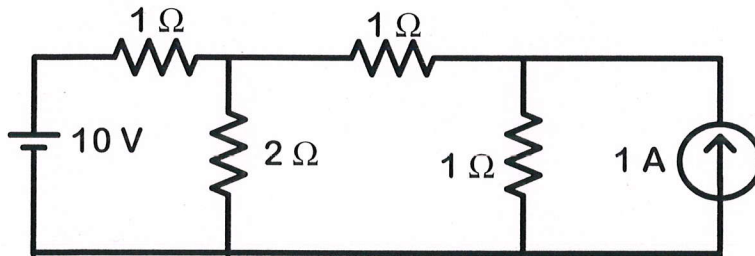
(Answer all Six Units **6 X 10 = 60** Marks)

PART-A

UNIT-I

1	**a**	State and prove Kirchhoff's laws with suitable example.	L2	**5M**
	b	Explain in detail about passive elements.	L1	**5M**

OR

2	For the given circuit as shown in figure find the voltage across 10 ohm resistor and the current passing through it.	L4	**10M**

UNIT-II

3	State and prove Thevenin's theorem with example	L3	**10M**

OR

4	Calculate the current in 20Ω resistor in the given circuit using super position theorem.	L3	**10M**

UNIT-III

5	**a**	Explain about constructional details of dc motor.	L2	**5M**
	b	A 6 pole lap wound shunt motor has 500 conductors, the armature and shunt field resistances are 0.05 Ω and 25 Ω, respectively. Find the speed of the motor if it takes 120 A from dc supply of 100 V. Flux per pole is 20 mWb.	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	a	Describe the permanent mold casting with neat sketch.	L1	5M
	b	Illustrate the process of investment casting with neat sketch.	L2	5M

OR

8	a	Classify the welding types? Explain the working of arc welding with neat sketch.	L2	5M
	b	Explain with neat sketch of Brazing?	L1	5M

UNIT-II

9	Draw the block diagram of a shaper machine with principal parts.	L1	5M
	Explain the Part programming.	L2	5M

OR

10	a	Explain the working procedure of milling machine with neat sketch.	L2	5M
	b	Differentiate Shaper, and Planner machine.	L1	5M

UNIT-III

11	a	Explain the four wheel automobile components with neat sketch.	L2	5M
	b	Differentiate between rear wheel drive and front wheel drive.	L2	5M

OR

12	a	What is meant by vapour absorption system? Explain its working with neat sketch.	L2	7M
	b	Write about air conditioning system.	L1	3M

*** END ***