Q.P. Code: 19ME0345 **R19**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech II Year I Semester Supplementary Examinations August-2021
BASIC ELECTRICAL & MECHANICAL ENGINEERING
(Civil Engineering)

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

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

PART-A

UNIT-I

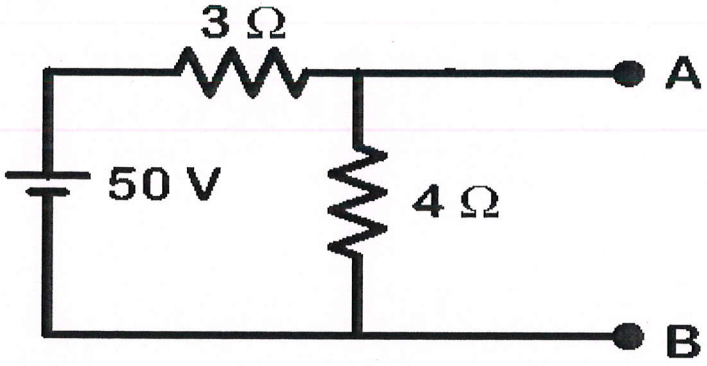
1 Three resistances of values 20Ω, 30Ω and 50Ω are connected in series across 20 V DC supply. Calculate, **10M**
i) Equivalent resistance of the circuit.
ii) Total current from the supply.
iii) Voltage drop across each resistor.
iv) Power dissipated in each resistor.

OR

2 a State and prove Kirchhoff's laws with suitable examples. **4M**
b Explain in detail about **6M**
(i) RMS value, (ii) Average value, (iii) Form factor

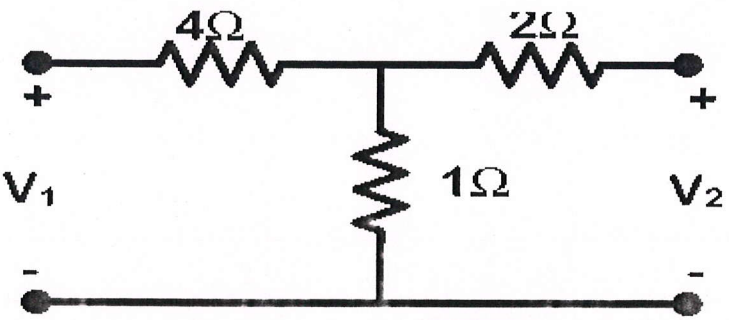
UNIT-II

3 a State Thevenin's theorem **3M**
b Find the Thevenin's equivalent circuit across AB for the circuit shown. **7M**



OR

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



UNIT-III

5 A 220V shunt motor takes a total current of 80A and runs at 800 r.p.m. Shunt field resistance and armature resistance are 50Ω and 0.1Ω, respectively. If iron and friction losses amount to 1600W. Find (i) Copper losses (ii) Armature torque (iii) Shaft torque (iv) Efficiency **10M**

OR

6	a	Explain about constructional details of dc motor	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.	5M

PART-B

UNIT-IV

7	a	List the various advantages and applications of casting?	5M
	b	What is pattern? Explain various pattern materials are used to making pattern.	5M

OR

8		Explain below with neat sketches (i) Soldering (ii)Brazing (iii) Adhesive bonding	10M

UNIT-V

9		What is a shaper? Draw the block diagram of a shaper machine with principal parts and specifications.	10M

OR

10		Explain the slotting and planning machine with block diagram with specifications.	10M

UNIT-VI

11		Explain below with neat sketches i) rear wheel drive ii) front wheel drive	10M

OR

12		Explain about (i) Heat Pump (ii) COP (iii) Energy Efficiency Rating	10M

***** END *****