Q.P. Code: 16EE207 **R16**

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech II Year II Semester Supplementary Examinations July-2021

BASIC ELECTRICAL & ELECTRONICS ENGINEERING

(Mechanical Engineering)

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

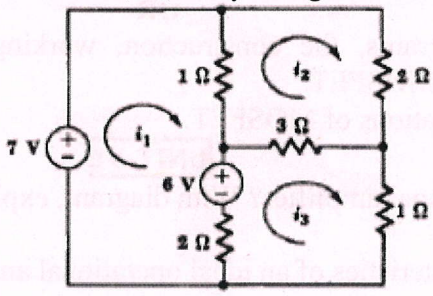
(Answer all Six Units **6 X 10 = 60** Marks)

PART-A

UNIT-I

1 **a** State and prove Kirchhoff law's with an example **5M**

b In the circuit shown below find i1, i2, i3 by using Kirchhoff's laws? **5M**



OR

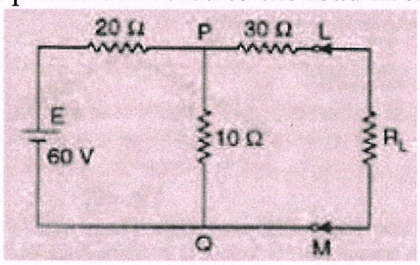
2 **a** Define RMS value, average value, form factor and peak factor. **5M**

b Explain about passive elements in detail **5M**

UNIT-II

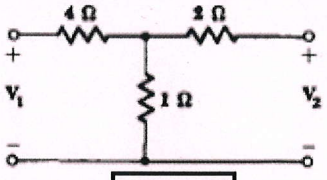
3 **a** State Nortons theorem **2M**

b Determine the maximum power delivered to the load in the circuit shown in fig. **8M**



OR

4 Find the Open circuit parameters for the circuit shown in fig. **10M**



UNIT-III

5 **a** Derive Torque equation of dc motor. **5M**

b Calculate the value of Torque established by the armature of a 4-pole motor having 774conductors, 2 paths in parallel, 24mwb flux per pole when the total Armature current is 50A. **5M**

OR

6 **a** Explain principle of operation of transformer. **5M**

b Derive EMF equation of a transformer. **5M**

PART-B

UNIT-IV

7		Describe the working of a PN junction diode when it is connected in forward bias And reverse bias. Draw VI Characteristics of PN Junction Diode.	10M

OR

8		Discuss Zener Diode breakdown mechanism. Draw the Zener diode in its reverse bias and explain its Volt-Ampere characteristics.	10M

UNIT-V

9	a	Draw the circuit diagram for a common base circuit arrangement and plot its input and Output characteristics. Show the different regions of the output characteristics and explain their occurrence.	5M
	b	Discuss with neat diagrams, the Common Emitter Configuration and its characteristics.	5M

OR

10	a	Explain with diagrams, the construction, working and characteristics of N-channel Depletion MOSFET.	5M
	b	Mention the applications of MOSFET.	5M

UNIT-VI

11	a	What is an operational amplifier? With diagram, explain single input and dual Input Op Amps.	5M
	b	Discuss the Characteristics of an ideal operational amplifier.	5M

OR

12	a	Explain Differential Amplifier with neat diagram.	5M
	b	In the inverting amplifier of op amp circuit, the input resistance is Ri = 12KΩ and The feedback resistance is Rf = 300kΩ. Determine the closed loop gain (i) as a dimension-less unit and (ii) in dB.	5M

***** END *****