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

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B. Tech II Year I Semester Supplementary Examinations August-2022

BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to AGE, CSE & CSIT)

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

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

PART- A

UNIT-I

1 **a** Explain about basic circuit components in detail. **5M**

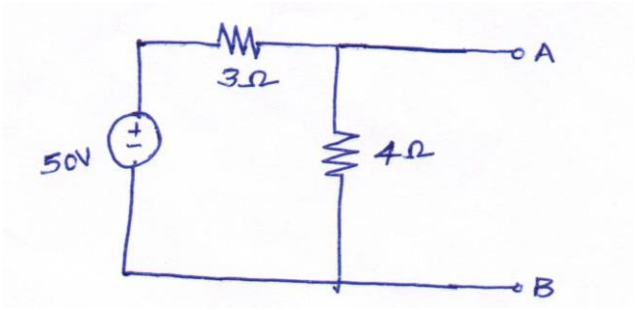
b Explain about KVL. **5M**

OR

2 Define and Explain about Energy sources in detail. **10M**

UNIT-II

3 State Thevenins theorem. Find Thevinins equivalent circuit across AB for the circuit shown in below. **10M**



OR

4 Define and explain about Impedance parameters. **10M**

UNIT-III

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

b A 220Vshunt 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. **5M**

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 120A from dc supply of 100V flux per pole is 20mwb. **5M**

PART – B

UNIT-I

7 Discuss the conduction properties of semiconductors and explain the process of electron hole Pair generation and recombination. **10M**

OR

8 Distinguish between intrinsic and extrinsic semiconductors and explain the process of conduction in each of them. **10M**

UNIT-II

9 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. **10M**

OR

10	**a**	Explain the functioning of Common Collector Configuration of BJT. State why this arrangement is also called an emitter follower circuit.	**5M**
	b	Discuss with neat diagrams, the Common Emitter Configuration and its characteristics.	**5M**

UNIT-III

11	**a**	What is an oscillator and how the oscillators are classified? Write Barkhausen criteria for Oscillator operation.	**5M**
	b	Discuss the operation of Hartley oscillator with diagram.	**5M**

OR

12	**a**	Draw an inverting amplifier of operational amplifier and derive its closed loop gain.	**5M**
	b	Determine the closed loop gain of a non inverting operational amplifier and draw its diagram.	**5M**

***** END *****