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

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY: PUTTUR

(AUTONOMOUS)

B. TECH II Year I Semester Supplementary Examinations December-2021

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

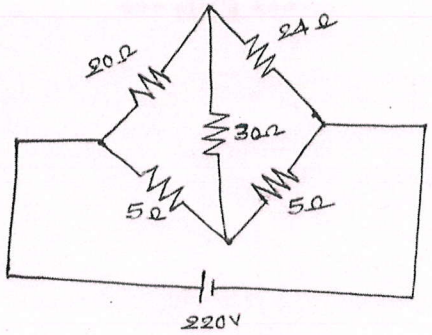
UNIT-I

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

b Show the form factor of the sine current is 1.11./ Find form factor of the sine current. **5M**

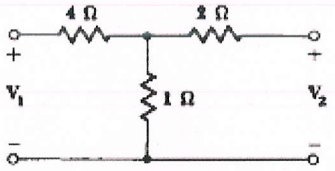
OR

2 Find the current delivered by the source for the circuit shown in figure. **10M**



UNIT-II

3 Find the Short circuit parameters for the circuit shown in fig. **10M**



OR

4 State and prove Reciprocity theorem with an example. **10M**

UNIT-III

5 **a** Explain about principle of operation of DC Motors in detail. **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 An ideal transformer has 1000turns on its primary and 500 turns on its secondary the driving voltage of primary side is 100V and the load resistance is 5 Ω, calculate V2, I1and I2. **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 **a** Write notes on Diode Specifications and Diode Applications. **6M**

b Explain Drift and Diffusion currents in a PN Junction Diode. **4M**

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** Describe the constructional features of a Junction Field Effect Transistor. What is the Difference between a P type and N type JFET? Draw the cross sectional view and show the Symbolic representation of each type of the transistor. **5M**

b Explain in detail the theory of operation of n-channel JFET. **5M**

UNIT-III

11 **a** Mention the types of RC oscillators. Explain RC phase shift oscillator with diagram. **5M**

b Explain Wein bridge oscillator with diagram. **5M**

OR

12 **a** Discuss the Characteristics of an ideal operational amplifier. **5M**

b With neat diagram, explain Summing Amplifier. **5M**

*** END ***