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

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech II Year II Semester Supplementary Examinations March 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

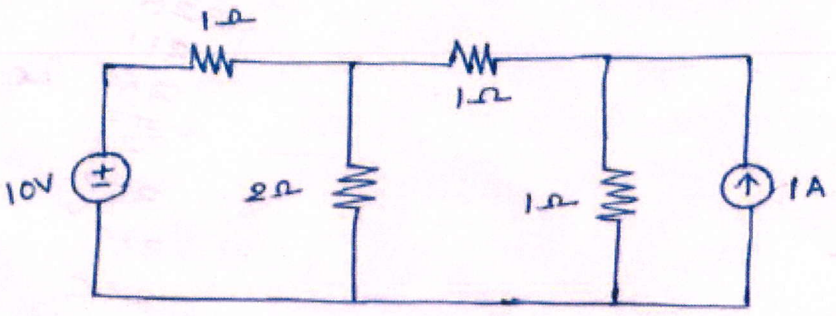
1 Three resistances of values 2Ω,3Ω and 5Ω are connected in series are connected in series across 20V DC supply. Calculate i) Equivalent resistance of the circuit. ii) The total current of the circuit. iii)The voltage drop across each resistor. iv) The power dissipated in each resistor. **10M**

OR

2 **a** Explain Resistive networks. **5M**
b Explain Inductive networks. **5M**

UNIT-II

3 **a** State super position theorem. **2M**
b Calculate the current in 2Ω resistor in the fig. using super position theorem.



8M

OR

4 **a** Define and explain about Impedance parameters. **5M**
b Define and explain about Y- parameters. **5M**

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 774 conductors, 2 paths in parallel, 24mwb flux per pole when the total armature current is 50A. **5M**

OR

6 **a** Derive EMF equation of a transformer. **5M**
b A 100KVA, 11000V/400V, 50Hz transformer has 40 secondary turns. Calculate the number of primary turns and primary and secondary currents. **5M**

PART-B

UNIT-IV

7 **a** What is Doping? Describe P-and N-type semiconductors. **5M**
b Explain the behavior of PN junction diode. **5M**

OR

8	a	With neat diagram, explain the working principle of Half Wave Rectifier. Draw its input and Output waveforms.		5M
	b	Derive the expression for Ripple factor and Efficiency of Half Wave Rectifier.		5M

UNIT-V

9	a	Describe the Voltage Divider Bias Network of BJT with diagram and equations.		5M
	b	What is the purpose of bias in a transistor circuit? Explain the Q point and DC load line in BJT.		5M

OR

10	a	Discuss the transfer and output characteristics of n-channel JFET with diagrams.		5M
	b	Compare BJT and JFET with its properties.		5M

UNIT-VI

11	a	With neat diagram, explain the operation of LC tuned transistor oscillator.		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 ***