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

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech II Year II Semester Supplementary Examinations October-2020
BASIC ELECTRICAL & ELECTRONICS ENGINEERING
(Mechanical Engineering)

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

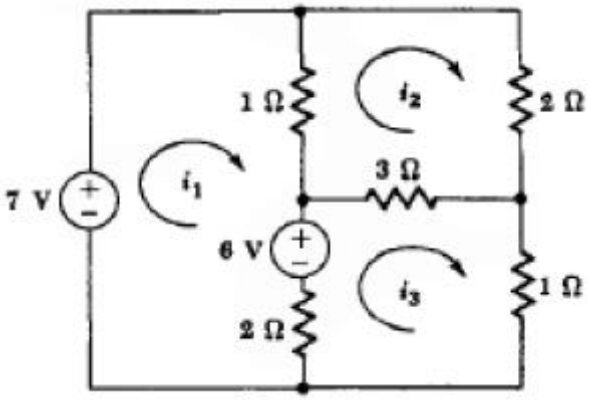
(Answer all Six Units **6 X 10 = 60** Marks)

PART-A

UNIT-I

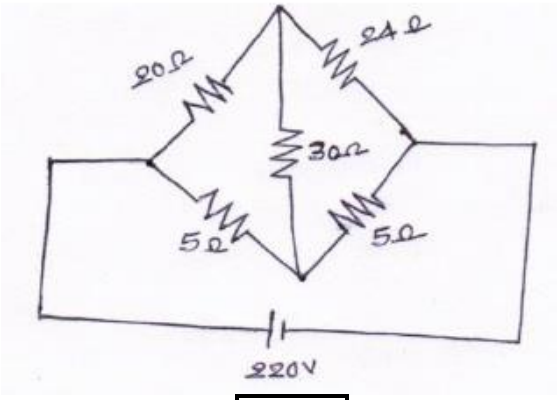
1 a State and prove Kirchhoff law's with an example. **5M**

b In the circuit shown below find i_1, i_2, i_3 by using Kirchhoff's laws? **5M**



OR

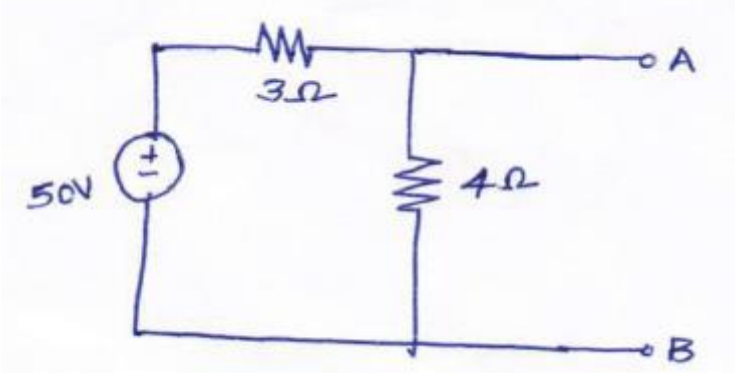
2 Find the current delivered by the source for the circuit shown in figure. **10M**



UNIT-II

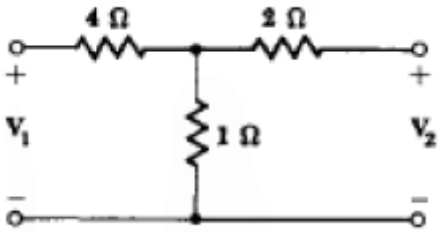
3 a State Norton's theorem **4M**

b Find Norton's equivalent circuit across AB for the circuit shown in below. **6M**



OR

4 Find the Short circuit parameters for the circuit shown in figure. **10M**



UNIT-III

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

b The counter EMF of shunt motor is 227 Volts. The field resistance is 160Ω, field current is 1.5A and the line current is 36.5A. Find the armature resistance also find armature current when the motor is stationary. **5M**

OR

6 a Explain OC and SC test of a single-phase transformer. **5M**

b A Single phase 2200/250V, 50Hz transformer has a net core area of $36cm^2$ and a maximum flux density of $6wb/m^2$. Calculate the number of turns of primary and secondary. **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 a Draw the circuit diagram of a Bridge Rectifier and explain its operation with input and output waveforms. **5M**

b Discuss the operation of half wave rectifier with capacitor filter. **5M**

UNIT-V

9 a Discuss with neat diagrams, the Common Emitter Configuration and its characteristics. **5M**

b Compare the characteristics of BJT CB, CE and CC transistor configurations. **5M**

OR

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

b For a voltage divider biasing using BJT, R_C = 1kΩ, R_E = 2kΩ, R_1 = 10kΩ, R_2 =5kΩ, and V_{CE} = 10V. Find the coordinates of the extremities of the load line and the Q-point. Assume Silicon Transistor. **5M**

UNIT-VI

11 a What is an oscillator and how the oscillators are classified? Write Barkhausen criteria for Oscillator. **5M**

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

OR

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

b Describe Integrator amplifier of op amp with diagram. **5M**

***** END *****