SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech I Year II Semester Supplementary Examinations July-2021
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(Common to CSE, CSIT & AGE)

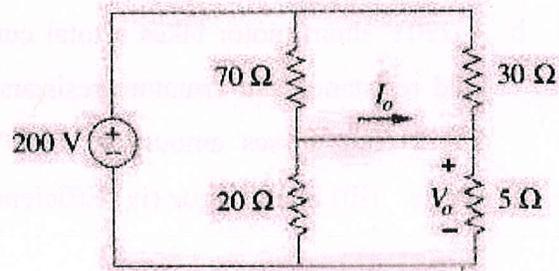Time: **3 hours**   Max. Marks: **60**
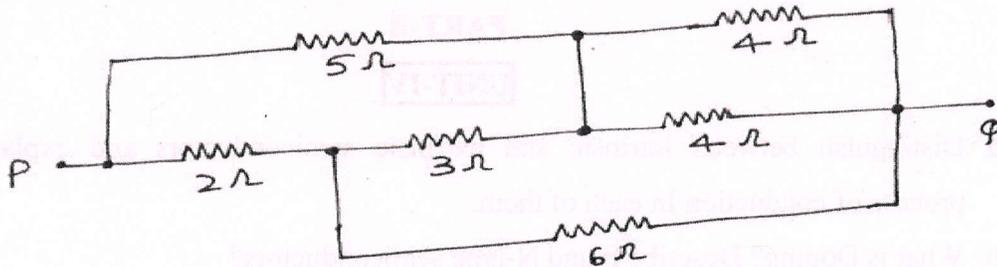
(Answer all Six Units **6 X 10 = 60** Marks)

PART-A

UNIT-I

1	a	Explain in detail about passive elements.	**5M**
	b	Find i_1, i_2, i_3 for the given circuit by using Kirchhoff's laws?	**5M**

OR

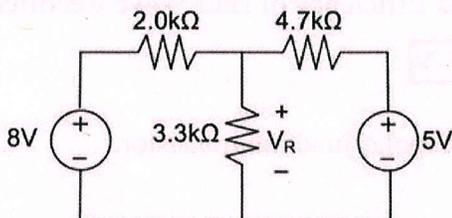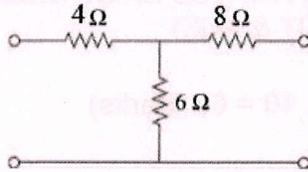|			
2	a	Define RMS value, average value, form factor and peak factor	**5M**
	b	Determine the equivalent resistance in between the terminals P & Q:	**5M**

UNIT-II

3	a	State and explain Nortons theorem:	**10M**
	b		

Determine the current flowing through 3.3kohm by using superposition theorem:

OR

4   a   Explain about short circuit parameters: **5M**

    b   **5M**

Find the h- parameters for the following circuit.

UNIT-III

5   a   Discuss about the principle of operation of DC motors   **5M**

    b   A 220V shunt motor takes a total current of 80A and runs at 800 r.p.m. Shunt   **5M**
        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.

OR

6   a   Derive the condition for maximum efficiency of the transformer.   **5M**

    b   A 20 kVA, 2000/200 V, 50 Hz transformer has 66 secondary turns. Calculate   **5M**
        the number of primary turns and primary and secondary currents. Neglect
        losses.

PART-B

UNIT-IV

7   a   Distinguish between intrinsic and extrinsic semiconductors and explain the   **5M**
        process of conduction In each of them.

    b   What is Doping? Describe P-and N-type semiconductors?   **5M**

OR

8   a   **5M**
        Discuss Zener Diode breakdown mechanism. Draw the Zener diode in its reverse
        bias and explain its Volt-Ampere characteristics.

    b   Derive the expression for Ripple factor and Efficiency of Half Wave Rectifier.   **5M**

UNIT-V

9   a   **5M**
        Describe in detail the working of an NPN bipolar junction transistor.
        Why is it called Bipolar?

    b   Draw the circuit diagram for a common base circuit arrangement and plot its   **5M**

input and Output characteristics. Show the different regions of the output characteristics and explain their occurrence.

OR

10 a Describe the Voltage Divider Bias Network of BJT with diagram and equations. **5M**

     b Write the application of a transistor and explain the transistor acts a switch. **5M**

UNIT-VI

11 a Explain the construction and principle of operation of N-channel JFET: **5M**

     b Define the JFET Volt-Ampere Characteristics and determine FET parameters: **5M**

OR

12 a Compare BJT and JFET. **5M**

     b Draw the construction of EMOSFET and explain its operation: **5M**

*** END ***

input and output characteristics. Show the different regions of the output

characteristics and explain their occurrence.

OR

10. a. Describe the Voltage Divider Bias Network of BJT with diagram and equations.   5M

    b. Write the application of a transistor and explain the transistor acts a switch.   5M

[UNIT-V]

11. a. Explain the construction and principle of operation of N-channel JFET.   5M

    b. Define the JFET Volt-Ampere Characteristics and determine FET parameters.   5M

OR

12. a. Compare BJT and JFET.   5M

    b. Draw the construction of DMOSFET and explain its operation.   5M

*** END ***