Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY: PUTTUR
(AUTONOMOUS)
B. Tech II Year II Semester Supplementary Examinations February-2022
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	Define and Explain about ohms law.	5M
	b	Explain about passive elements in detail.	5M

OR

2	Three resistances of values 2Ω, 3Ω and 5Ω 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

UNIT-II

3	a	State Thevenins theorem.	2M
	b	Determine the maximum power delivered to the load in the circuit shown in fig	8M
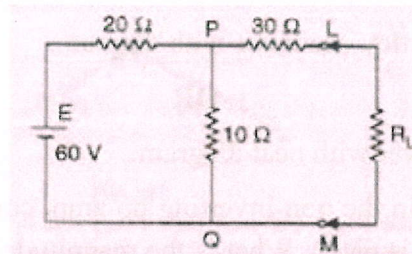
OR

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

UNIT-III

5	a	Explain about constructional details of dc motor.	5M
	b	Derive Torque equation of dc motor.	5M

OR

6	a	Explain OC and SC test of a single phase transformer.	5M
	b	A 20KVA, 2000V/200V, 50Hz transformer has 66 secondary turns. Calculate The number of primary turns and primary and secondary currents. Neglect losses	5M

PART – B

UNIT-I

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 Full Wave Rectifier. Draw its input and output waveforms. 5M

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

UNIT-II

9 a Explain the functioning of Common Collector Configuration of BJT. State why this arrangement is also called an emitter follower circuit. 5M

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

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 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 Discuss about voltage follower with neat diagram. 5M

    b If Rf = 45kΩ and R2=3kΩ in the non-inverting op amp, compute (i) AVC and (ii) output Voltage if the input voltage is 6MV. What is the magnitude of the feedback voltage at the Non-inverting point? 5M

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