Q.P. Code: 19EE0240 **R19**

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY: PUTTUR

(AUTONOMOUS)

B. TECH II Year I Semester Regular Examinations Feb-2021

BASIC ELECTRICAL & ELECTRONICS ENGINEERING

(Mechanical Engineering)

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

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

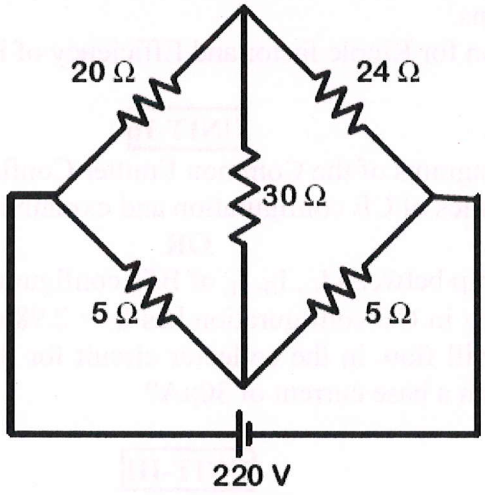
PART- A

UNIT-I

Q.1 Three resistances of values 20, 30 and 50 are connected in series across 20 V DC supply. Calculate, i) Equivalent resistance of the circuit. ii) Total current from the supply.iii) Voltage drop across each resistor. iv) Power dissipated in each resistor. **10M**

OR

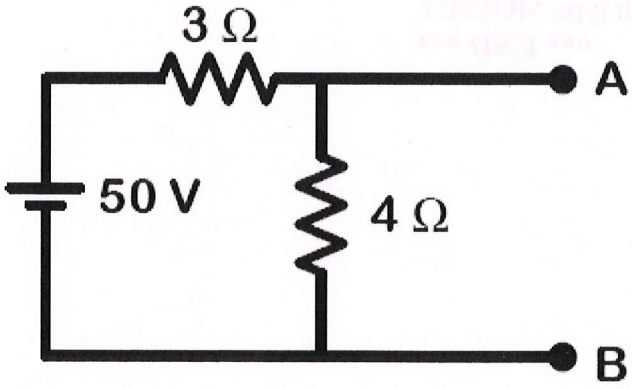
Q.2 Find the current delivered by the source for the circuit shown in figure. **10M**



UNIT-II

Q.3 a State Thevenin's theorem. **2M**

b Find the Thevenin's equivalent circuit across AB for the circuit shown. **8M**



OR

Q.4 a The given ABCD parameters are A=2, B=0.9, C=1.2, D=0.5. Find Y-parameters. **5M**

b The given Y-parameters are Y11=0.5, Y12=Y21=0.6, Y22=0.9. Find the impedance parameters. **5M**

UNIT-III

Q.5	a	Derive Torque equation of dc motor.	**5M**
	b	The counter emf of Shunt motor is 227 V. The field resistance is 160Ω and field current 1.5A. If the line current is 36.5A, find the armature resistance also find armature current when the motor is stationary.	**5M**

OR

Q.6	a	Explain constructional details of transformer.	**5M**
	b	A 20 kVA, 2000/200 V, 50 Hz transformer has 66 secondary turns. Calculate the number of primary turns and primary and secondary currents. Neglect losses.	**5M**

PART – B

UNIT-I

Q.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

Q.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-II

Q.9	a	Discuss with neat diagrams of the Common Emitter Configuration.	**5M**
	b	Draw the characteristics of CE configuration and explain it.	**5M**

OR

Q.10	a	Derive the relationship between I_C, I_B, I_E of BJT configuration.	**5M**
	b	A transistor operating in CB configuration has I_C = 2.98mA, I_E = 3.00 mA and I_{CO} =0.01 mA. What current will flow in the collector circuit for this transistor when connected in CE configuration with a base current of 30μA?	**5M**

UNIT-III

Q.11	a	Explain the Drain characteristics of JFET.	**5M**
	b	Explain the transfer characteristics of JFET.	**5M**

OR

Q.12	a	Draw the construction of Enhancement type MOSFET and explain its operation.	**5M**
	b	Explain the operation of Depletion type MOSFET	**5M**

***** END *****