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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)**

**B.Tech I Year II Semester Supplementary Examinations February-2022
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(Common to CSE, CSIT & AGE)**

Time: 3 hours

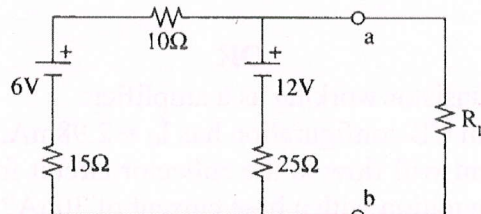
Max. Marks: 60

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

PART-A**UNIT-I**

- 1 Explain about Resistive networks, inductive networks and capacitive networks in detail: 5M

b



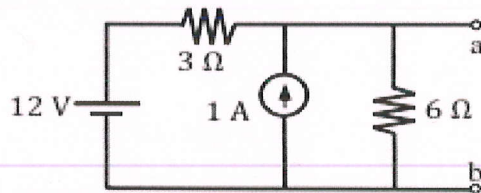
5M

Determine the current flowing the 25 ohm resistance when $R_L = 5 \text{ ohm}$.**OR**

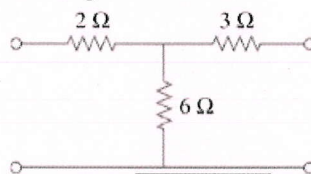
- 2 a Discuss about various energy sources in detail. 5M
 b Three resistances of values 20, 30 and 50 are connected in series across 20 V DC supply. Calculate, 5M
 i) Equivalent resistance of the circuit. iii) Total current from the supply.
 ii) Voltage drop across each resistor. iv) Power dissipated in each resistor.

UNIT-II

- 3 a State and explain Super position theorem. 10M
 b Determine Thevenins equivalent circuit

**OR**

- 4 a Explain in detail about Impedance parameters 5M
 b Determine h-parameters for the given circuit: 5M

**UNIT-III**

- 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

- 6 a Explain the working principle of transformer? 5M
 b Explain in detail about various transformer losses. 5M

PART-B**UNIT-IV**

- 7 a Explain the behavior of PN junction diode. 5M
b Distinguish between conductors, semiconductors and insulators. 5M

OR

- 8 a Draw the circuit diagram of a Bridge Rectifier and explain its operation with input and output waveforms. 5M
b Explain Drift and Diffusion currents in a PN Junction Diode. 5M

UNIT-V

- 9 a Discuss the operation of PNP transistor with diagram: 5M
b Discuss with neat diagrams, the Common Emitter Configuration and its characteristics: 5M

OR

- 10 a Explain in detail the transistor working as a amplifier: 5M
b A transistor operating in CB configuration has $I_C = 2.98\text{mA}$, $I_E = 3.00\text{mA}$ and $I_{CO} = 0.01\text{mA}$. What current will flow in the collector circuit for this transistor when connected in CE configuration with a base current of $30\mu\text{A}$? 5M

UNIT-VI

- 11 a Explain about the JFET and draw the construction of JFET: 5M
b Explain the working of JFET as amplifier 5M

OR

- 12 a Explain the static characteristics of MOSFET and draw its characteristics: 5M
b Write the application of MOSFET: 5M

***** END *****