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

B.Tech I Year II Semester Regular Examinations October-2020
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to CSE, CSIT & AGE)

Time: 3 hours

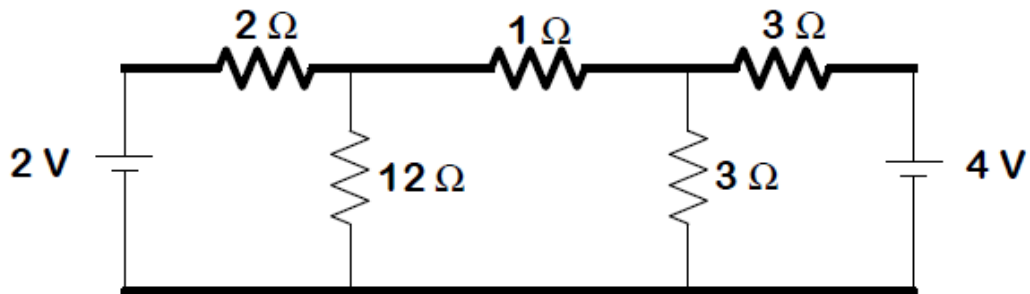
Max. Marks: 60

(Answer all Five Units 6 x 10 = 60 Marks)

PART - A

UNIT-I

- 1 Find the current through 12Ω resistor for the given circuit using Kirchoff's laws. **10M**

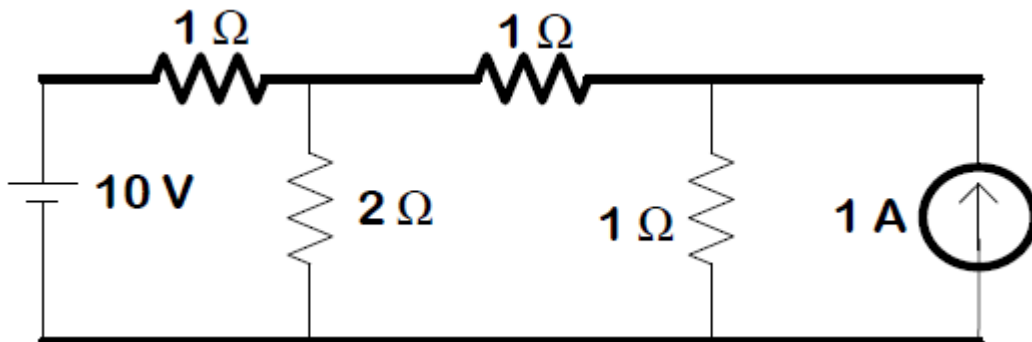


OR

- 2 a State and explain Ohm's law **5M**
 b Explain in detail about Passive elements **5M**

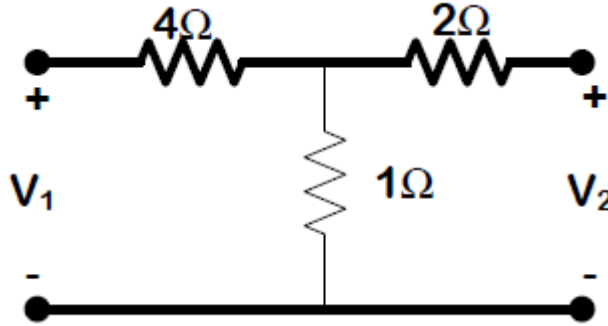
UNIT-II

- 3 a State superposition theorem. **3M**
 b Calculate the current in the 20Ω resistor in the given circuit using superposition theorem. **7M**



OR

- 4 Find the short circuit parameters for the given circuit 10M



UNIT-III

- 5 a Derive torque equation of a D.C motor. 5M
 b A 6-pole lap wound shunt motor has 500 conductors, the armature and shunt field resistances are 0.05Ω and 25Ω respectively. Find the speed of the motor if it takes 120A from dc supply of 100V, flux per pole is 20mWb. 5M

OR

- 6 a Derive the condition for maximum efficiency of the transformer. 5M
 b Discuss about the voltage regulation of the transformer. 5M

UNIT-IV

- 7 a Explain the behavior of PN junction diode. 5M
 b Derive the expression for ripple factor and Efficiency of Half wave rectifier. 5M

OR

- 8 a Write notes on diode specifications and Diode Applications. 6M
 b Discuss the operation of full wave rectifier with capacitor filter. 4M

UNIT-V

- 9 a Discuss the operation of PNP transistor with diagram. 5M
 b Explain the characteristics of CE configuration. 5M

OR

- 10 a 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
 b Describe the Voltage Divider Bias Network of BJT with diagram and equations 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 Draw the construction of EMOSFET and explain its operation. 5M
 b Write the comparisons for BJT and JFET. 5M

*** END ***