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

B.Tech II Year II Semester Supplementary Examinations July-2021

BASIC ELECTRICAL & ELECTRONICS ENGINEERING

(Mechanical Engineering)

Time: 3 hours

Max. Marks: 60

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

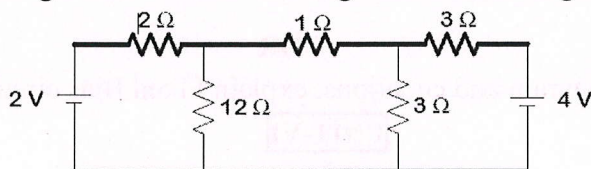
PART-A

UNIT-I

- 1 a State and explain Ohm's law. 5M
 b Explain in detail about passive elements. 5M

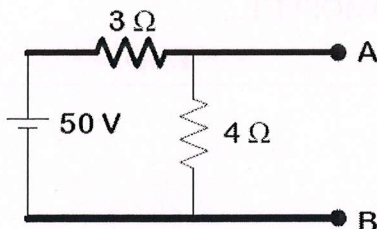
OR

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



UNIT-II

- 3 a State Norton's theorem. 2M
 b Find the Norton's equivalent circuit across AB for the circuit shown. 8M



OR

- 4 State and prove Reciprocity theorem with suitable example. 10M

UNIT-III

- 5 a Discuss about the principle of operation of DC motors 5M
 b Calculate the value of torque established by the armature of a 4-pole DC motor having 774 conductors, 2 paths in parallel, 24mwb flux per pole when the total armature current is 50A. 5M

OR

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

PART-B

UNIT-IV

- 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 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-V

- 9 a Describe in detail the working of an NPN bipolar junction transistor. Why is it called Bipolar? 4M
b Explain with the help of diagrams various types of circuit configurations, which can be obtained from a bipolar junction transistor. 6M

OR

- 10 With neat circuit diagram and equations, explain Fixed Bias circuit of BJT. 10M

UNIT-VI

- 11 a Explain the output characteristics of JFET. 5M
b Explain the transfer characteristics of JFET. 5M

OR

- 12 a Draw the construction of EMOSFET and explain its operation. 5M
b Explain the operation DMOSFET. 5M

*** END ***