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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY: PUTTUR
(AUTONOMOUS)

B. TECH II Year I Semester Supplementary Examinations July-2022
BASIC ELECTRICAL & ELECTRONICS ENGINEERING
(Mechanical Engineering)

Time: 3 hours

Max. Marks: 60

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

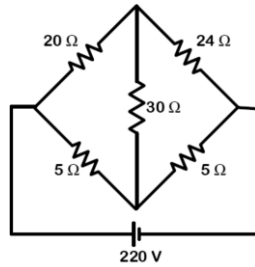
PART- A

UNIT-I

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

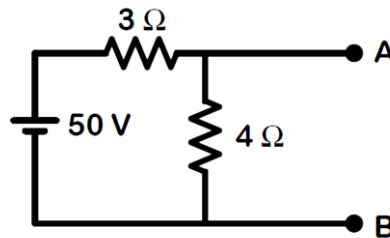
OR

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



UNIT-II

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



OR

- 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 $Y_{11}=0.5$, $Y_{12}=Y_{21}=0.6$, $Y_{22}=0.9$. Find the Impedance parameters. 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 constructional details of transformer. 6M
 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. 4M

PART – B**UNIT-I**

7 Discuss the conduction properties of semiconductors and explain the process of electron hole Pair generation and recombination. **10M**

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 Draw the circuit diagram for a common base circuit arrangement and plot its input and Output characteristics. Show the different regions of the output characteristics and explain their occurrence. **10M**

OR

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

UNIT-III

11 a Explain about the JFET and draw the construction of JFET(P Channel). **5M**

b Explain the operation of JFET(P Channel). **5M**

OR

12 a Draw the construction of EMOSFET and explain its operation. **5M**

b Explain the operation DMOSFET. **5M**

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