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

B.Tech I Year I Semester Regular 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

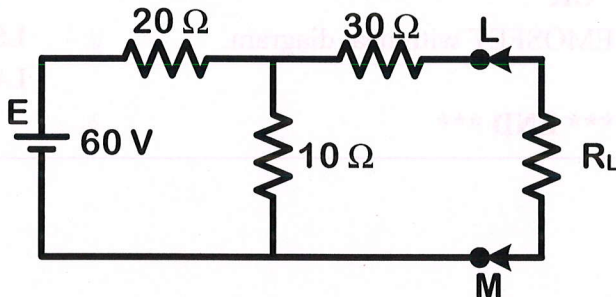
- 1 a State and prove Kirchoff's laws with suitable example. L2 5M
 b Define independent source and dependent source what are the types of dependent sources. L3 5M

OR

- 2 a Explain in detail about RMS value, Average value, Form Factor, Peak factor. L1 5M
 b What is the principle of AC Voltages? L2 5M

UNIT-II

- 3 Determine the maximum power delivered to the load resistance R_L . L3 10M



OR

- 4 a Explain Long Shunt Compound Generator and short shunt generator with neat diagram. L1 5M
 b List the applications of four types of dc generators. 5M

UNIT-III

- 5 a Discuss about the principle of operation of DC motors. L5 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. L4 5M

OR

- 6 a Derive EMF equation of a transformer L3 5M
 b A 100 kVA, 11000/400 V, 50 Hz transformer has 40 secondary turns. L4 5M
 Calculate the number of primary turns and primary and secondary currents.

PART-B**UNIT-IV**

- 7 Explain the working of a PN junction diode when it is connected in forward bias and reverse bias. Draw VI Characteristics of PN Junction Diode. L2 10M

OR

- 8 a Explain the working principle of Full Wave Rectifier. Draw its input and output waveforms with neat circuit diagrams. L2 5M
b Determine the expression for Ripple factor and Efficiency of Full Wave Rectifier. L5 5M

UNIT-V

- 9 a Discuss the operation of PNP transistor with diagram. L6 5M
b Explain the functioning of Common Collector Configuration of BJT. State why this arrangement is also called an emitter follower circuit. L2 5M

OR

- 10 Explain the Input and Output characteristics of a BJT in CE Configuration. Indicate the regions of operations in the output characteristics and list the applications in those regions. L2 10M

UNIT-VI

- 11 a Explain about the JFET and draw the construction of JFET (P Channel). L2 5M
b Explain the operation of JFET (P Channel). L2 5M

OR

- 12 a Explain its working operation of EMOSFET with neat diagram. L5 5M
b Compare BJT and JFET. L4 5M

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