Q.P. Code: 16EE207 **R16**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.TECH II Year II Semester Regular & Supplementary Examinations May 2019

BASIC ELECTRICAL & ELECTRONICS ENGINEERING

(MECHANICAL ENGINEERING)

Time: **3 hours** Max. Marks: **60**

(Answer all SIX Units **6 X 10 = 60** Marks)

PART A

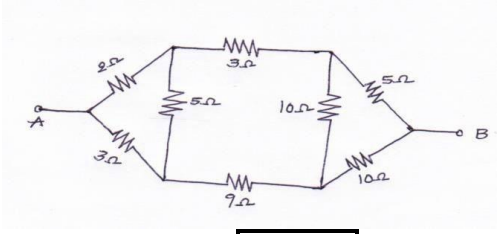
UNIT-I

1 **a** Explain about passive elements in detail. 5M

b State and prove Kirchhoff law's with an example 5M

OR

2 Find the voltage to be applied across AB in order to drive a current of 5A into the circuit



10M

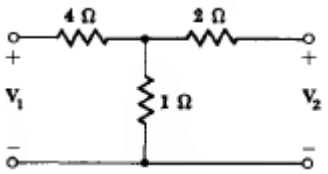
UNIT-II

3 **a** State Nor tons theorem 5M

b Define and explain about Y- parameters 5M

OR

4 Find the short circuit parameters for the circuit shown in fig.



10M

UNIT-III

5 A 220Vshunt motor takes a total current of 80A and runs at 800 r.p.m .Shunt field RESISTANCE AND ARMATURE RESISTANCE ARE 50Ω AND 0.1Ω RESPECTIVELY. If iron and friction losses amount to 1600W.
find (i) Copper losses (ii) Armature torque (iii) Shaft torque (iv) Efficiency. 10M

OR

6 **a** Derive EMF equation of a transformer 5M

b A 6 pole lap wound shunt motor has 500 conductors ,the armature and shunt field resistances are 0.05 Ω AND 25 Ω RESPECTIVELY FIND THE SPEED OF THE MOTOR IF IT TAKES 120A from dc supply of 100V flux per pole is 20mwb 5M

P.T.O

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** What is Doping? Describe P-and N-type semiconductors? 5M

b Derive the expression for Ripple factor and Efficiency of Full Wave Rectifier. 5M

UNIT-II

9 **a** Describe the constructional features of a Junction Field Effect Transistor. What is the Difference between a P type and N type JFET? Draw the cross-sectional view and show the Symbolic representation of each type of the transistor. 5M

b Explain the different configurations of JFET with neat diagrams. 5M

OR

10 **a** Draw the circuit diagram for a common base circuit arrangement and plot its input 6M and Output characteristics. Show the different regions of the output characteristics and explain their occurrence. 5M

b Compare the characteristics of BJT CB, CE and CC transistor configurations 5M

UNIT-III

11 **a** Explain the block diagram representation of an oscillator circuit. 5M

b Discuss the operation of Hartley oscillator with diagram. 5M

OR

12 **a** Determine the closed loop gain of a non-inverting operational amplifier and draw its diagram. 5M

b Derive the expression for output voltage of a differential amplifier. 5M

*****END*****