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

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech II Year I Semester Supplementary Examinations November-2020
BASIC ELECTRICAL & ELECTRONICS ENGINEERING
(Common to CSE, CSIT & AGE)

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

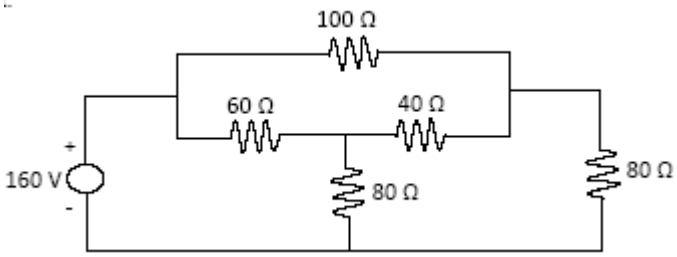
(Answer all Six Units **6 X 10 = 60** Marks)

PART-A

UNIT-I

1 **a** State and explain Kirchhoff Voltage law with suitable examples. **5M**

b Determine the equivalent resistance for the circuit shown below and hence find the total current flowing in the circuit. **5M**



OR

2 **a** Define the following terms: (i) Average value. (ii) RMS value. (iii) Form factor. (iv) Peak factor. **5M**

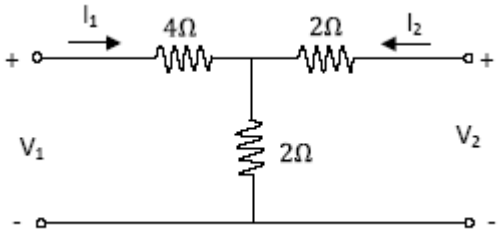
b Show the form factor of the sine current is 1.11. **5M**

UNIT-II

3 State and explain the maximum power transfer theorem. **10M**

OR

4 **a** Determine the impedance parameters of the T network shown in figure below. **10M**



b Define and explain about Y- parameters. **5M**

UNIT-III

5 **a** Explain about principle of operation of DC Motors in detail. **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 EMF equation of a transformer. **5M**

b Explain OC and SC test of a single phase transformer. **5M**

PART-B

UNIT-IV

7	**a**	Describe the working of a PN junction diode with neat diagram.	**5M**
	b	With a neat sketch explain the V-I characteristics of the diode.	**5M**
		OR	
8	**a**	With a neat sketch explain the operation of Full-wave rectifier.	**5M**
	b	Derive an expression for ripple factor of a Full- wave rectifier.	**5M**
		UNIT-V	
9	**a**	Describe in detail the working of an NPN bipolar junction transistor.	**5M**
	b	Explain with the help of diagrams various types of circuit configurations, which can be obtained from a bipolar junction transistor.	**5M**
		OR	
10	**a**	Explain in detail the theory of operation of n-channel JFET.	**5M**
	b	Compare Bipolar junction transistor and junction field effect transistor.	**5M**
		UNIT-VI	
11	**a**	Describe the working principle of Colpitts Oscillator with neat diagram.	**5M**
	b	In an RC phase shift oscillator if R1 = R2 = R3 = 200 kΩ and C1 = C2 = C3 = 100 PF. Then find the frequency of oscillator.	**5M**
		OR	
12	**a**	Explain the basic forms of Op-Amp as inverting and non-inverting amplifier.	**5M**
	b	Discuss the Characteristics of an ideal operational amplifier.	**5M**

***** END *****