R18

Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech I Year II Semester Supplementary Examinations February-2022
BASIC ELECTRICAL ENGINEERING
(Common to ECE, CSE & CSIT)

Time: 3 hours   Max. Marks: 60

PART-A
(Answer all the Questions **5 x 2 = 10** Marks)

1	a	What are the Limitations of Superposition Theorem?	**2M**
	b	Define Form Factor and Peak Factor.	**2M**
	c	What happens when transformer is given DC supply?	**2M**
	d	Why an induction motor is called a rotating transformer? Justify.	**2M**
	e	Define Fuse and Circuit Breaker.	**2M**

PART-B
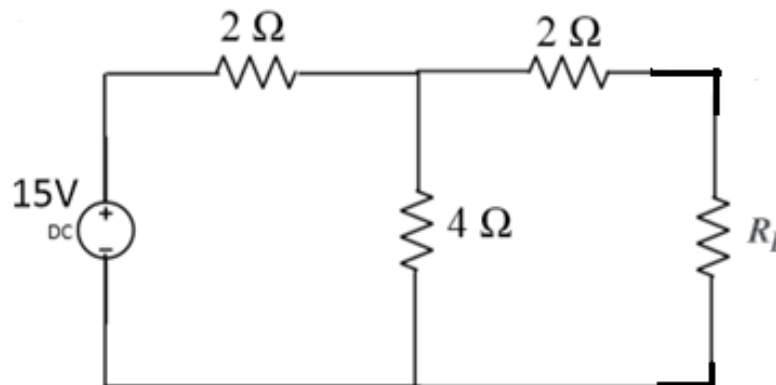(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

2	a	Derive the time response of RC circuit.	**5M**
	b	Determine the current in branch A-B by using KVL.	**5M**
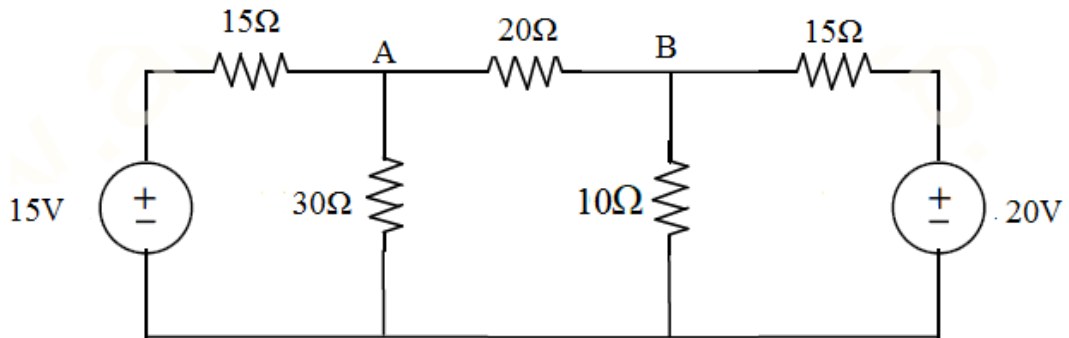
OR

3	a	State and Explain Thevenin's Theorem.	**4M**
	b	Find load current by using Thevenin's theorem for the following circuit where $R_L = 3\Omega$	**6M**

UNIT-II

4	a	Derive an expression for RMS values of sine wave form.	**6M**
	b	An alternating current is expressed as $I = 14.14 \sin 314t$. Determine (i). Maximum current (ii). RMS Current (iii). Frequency (iv). Instantaneous current when t = 0.02msec	**4M**

<center>**OR**</center>

5	**a**	Explain resonance for series RLC circuit and derive the equation for resonant frequency?	**5M**
	b	A series RLC circuit of R=50 ohms, L= j25 ohms. Determine the value of capacitive reactance and impedance at resonance.	**5M**

<center>**UNIT-III**</center>

6	**a**	Explain the various losses in a transformer.	**5M**
	b	The efficiency of a 200 KVA,1-Φ transformer is 98% when operating at full-load,0.8 p.f lagging, the iron loss in the transformer is 400 W. Calculate: (i)Full load copper loss (ii) Half load copper loss.	**5M**

<center>**OR**</center>

7	What are three phase transformer connections and explain it?	**10M**

<center>**UNIT-IV**</center>

8	Explain the various method of speed control of separately excited DC motor.	**10M**

<center>**OR**</center>

9	Explain the construction details and working principle of Alternator.	**10M**

<center>**UNIT-V**</center>

10	Explain in detail different methods used for improvement of power factor.	**10M**

<center>**OR**</center>

11	**a**	How many types of batteries are there?	**5M**
	b	Explain the characteristics of batteries?	**5M**

<center>***END***</center>