Q.P. Code: 18EE0202 **R18**

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech II Year I Semester Supplementary Examinations November-2020

ELECTRICAL CIRCUITS-II

(Electrical & Electronics Engineering)

Time: 3 hours Max. Marks: 60

PART-A

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

1	**a**	Differentiate balanced and unbalanced circuits.	**2M**
	b	Draw the DC response of R-L circuit and the response curve.	**2M**
	c	Define tree.	**2M**
	d	State reciprocity theorem.	**2M**
	e	Summarize some of the properties of Laplace Transform.	**2M**

PART-B

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

UNIT-I

2	An unbalanced 4 wire star connected load has a balanced voltage of 400V. The load are Z_1= (4+j8) Ω , Z_2= (5+j4)Ω , Z_3= (15+j20)Ω.Calculate line currents, current in neutral wire, total power.	**10M**

OR

3	A 400V, 3Φ supply feeds an unbalanced 3 wire star connected 3 wire, star connected load. The branch impedances of the load are Z_R= (4+j8) Ω, Z_Y= (3+j4) Ω, Z_B= (5+j20) Ω. Find the line currents and voltages across phase impedance. Assume RYB phase sequence.	**10M**

UNIT-II

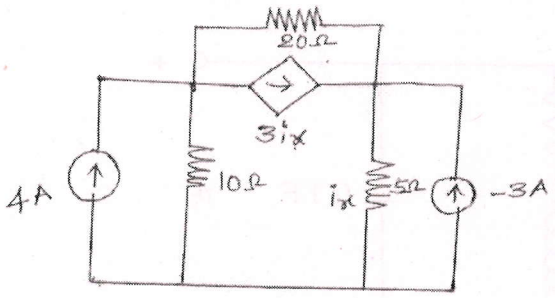
4	Derive the transient response of an RLC circuit with AC excitation.	**10M**

OR

5	Derive the transient response of an RC circuit with DC excitation.	**10M**

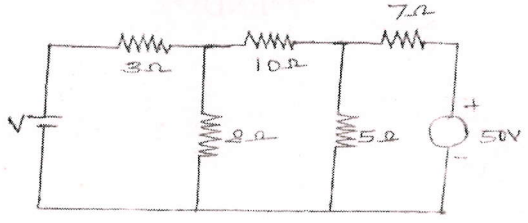
UNIT-III

6	Determine i_x for the following network using network topology.	**10M**



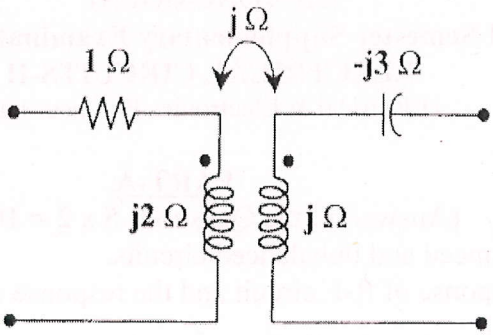
OR

7	Find voltage V for the circuit shown below which makes the current in the 10Ω resistor is zero by using nodal analysis using network topology.	**10M**



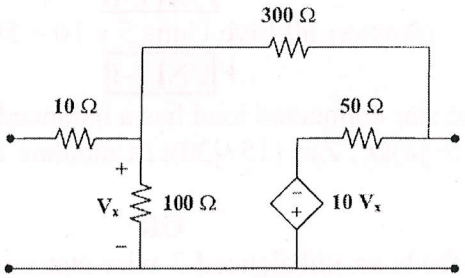
UNIT-IV

8 Obtain the T parameters of the following two-port network. **10M**



OR

9 Obtain h and g parameters of following two port network. **10M**



UNIT-V

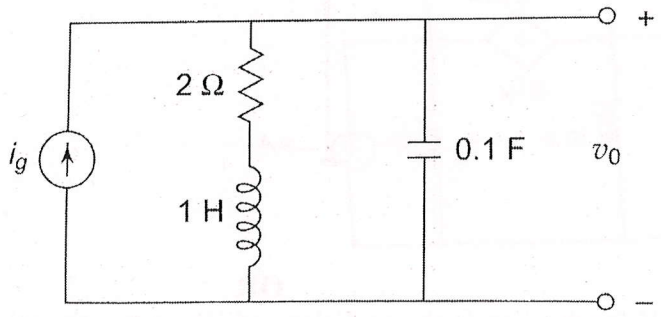
10 The unit impulse response of a circuit is **10M**

$v_o(t) = 10{,}000e^{-70t}\cos(240t + \theta)u(t)V$ *Where* $\tan\theta = \frac{7}{24}$.

(i) Find the transfer function of the circuit.
(ii) Find the unit step response of the circuit.

OR

11 Derive the numerical expression for the transfer function v_o/I_g for the circuit shown below. **10M**



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