Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B Tech II Year I Semester Supplementary Examinations Feb-2021
NETWORK THEORY
(Electronics and Communication Engineering)

Time: 3 hours
Max. Marks: 60

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

1	a	Define Duality & Dual networks.	2M
	b	Draw the block diagram of band-pass and band-elimination filters.	2M
	c	What area the initial conditions? Explain briefly.	2M
	d	Define Two-port network.	2M
	e	Write the expression for exponential form of Fourier series.	2M

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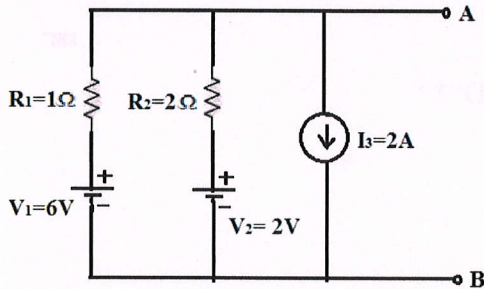(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

2 a Determine i_x for the following network.　　　　5M
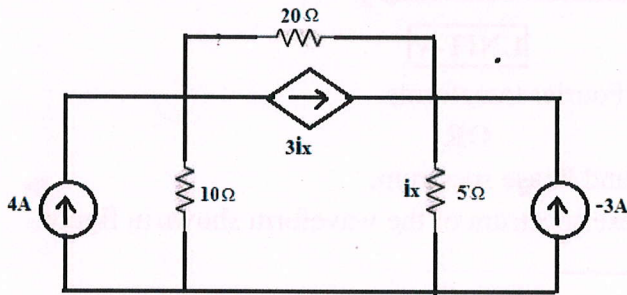
b Explain about source transformation briefly.　　　　5M

OR

3 a State and prove Tellegen's theorem.　　　　5M

b Determine the equivalent current source between the terminals A and B.　　　　5M

UNIT-II

4 a A series RLC circuit has R=10Ω, L=0.1H and C=50μF. The applied voltage is 100V. Find Resonant frequency & Quality factor of a coil.　　　　5M

b Explain about Propagation constant and Characteristic impedance in T-network filters.　　　　5M

OR

5 a Explain about Parallel resonance with phasor diagrams.　　　　5M

b Explain about classification of filters.　　　　5M

UNIT-III

6 a Derive the Transient Response of Series RC circuits with Pulse excitation   5M
   b A series RL circuit with R=30Ω and L= 15H has a constant voltage V=60v applied   5M
      at t=0. Determine the current "I", voltage across resistor and voltage across inductor.

OR
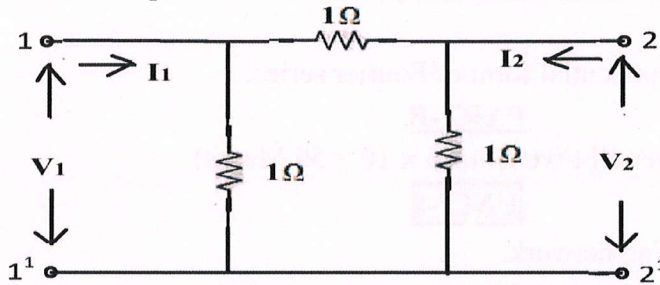
7 Derive the Transient Response of Series RLC circuit with Sinusoidal excitation.   10M

UNIT-IV

8 a The given ABCD parameters are, A=2, B=0.9, C=1.2, D= 0.5. Find Y-parameters.   5M
   b Derive the expressions for Chain parameters in terms of Z-parameters.   5M

OR

9 a Explain about h-parameters in terms of y-parameters.   5M
   b Find the Z-parameters of the network shown in below figure.   5M
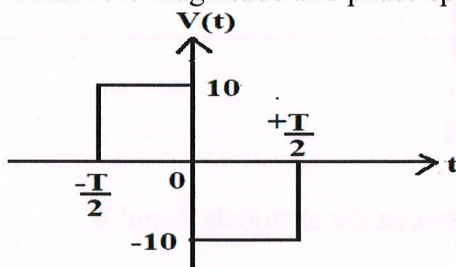

UNIT-V

10 Write and prove the properties of Fourier transforms.   10M

OR

11 a Explain about Line spectrum and Phase spectrum.   5M
    b Obtain the magnitude and phase spectrum of the waveform shown in figure.   5M

END