

**MODEL QUESTION PAPER Prepared by [ktubtechquestions.com](http://ktubtechquestions.com)  
THIRD SEMESTER B.TECH DEGREE EXAMINATION JANUARY 2017**

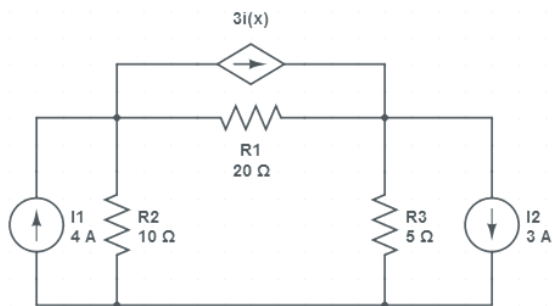
**EC 201 Network Theory**

**Time: 3 Hrs**

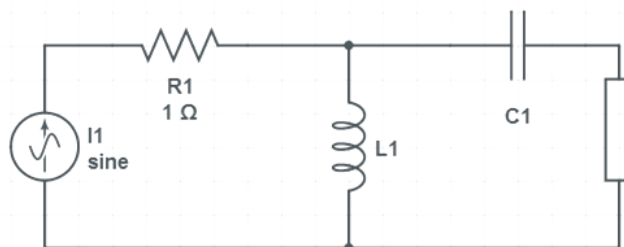
**Marks: 100**

**PART A**  
**( Answer any Three)**

1. Using node analysis, determine  $i_x$



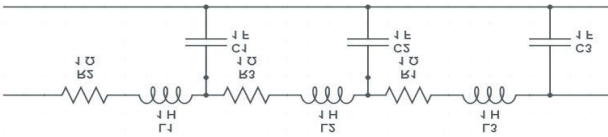
2. Explain (i) Graph (ii) Tree (iii) Cut-set matrix
3. In the network shown below, the load impedance is a complex quality. Find  $Z_L$  for the maximum power transfer. Also find the amount of maximum power transferred to the load.



4. a) What is a dual network?  
b). State superposition theorem.

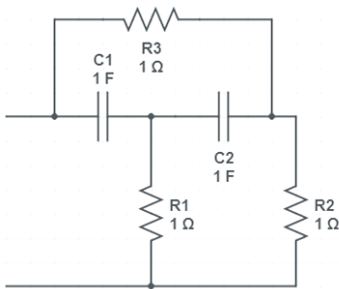
**PART B**  
( Answer any Three)

5. Find the open circuit driving point impedance of the following ladder network.



6. Obtain Laplace transform of a Gate pulse of width 2 sec and height 10V. Also prove initial value theorem.

7. For the circuit shown, obtain the driving point admittance  $Y_{11}(s)$  in Laplace domain



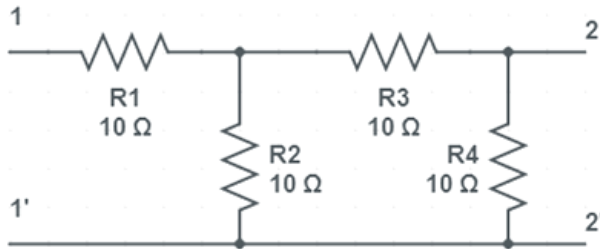
8. Draw pole-zero plot and hence obtain  $V(t)$  for the following network function

$$|V(s)| = \frac{4(s+2)s}{(s+1)(s+3)}$$

### PART C

( Answer any Four)

9. Find the h – parameter for the network. Check whether the network is  
(i) Reciprocal (ii) Symmetric

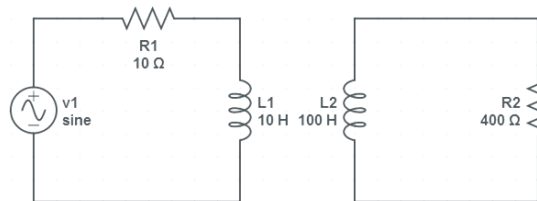


10. Show that the resonant frequency of an RLC circuit is the geometric mean of the lower and upper half power frequencies.

11. For the coupled circuit, find the ratio of output voltage to source voltage.

$$V_1 = 10V$$

$$\omega = 50$$



12. Define image and characteristic impedance. Obtain image impedance of a T network.

13.

a) Define Q factor & selectivity.

b) Explain dot rule for complex circuits.

14. Write a short note on single tuned and double tuned circuits