

4E 4172

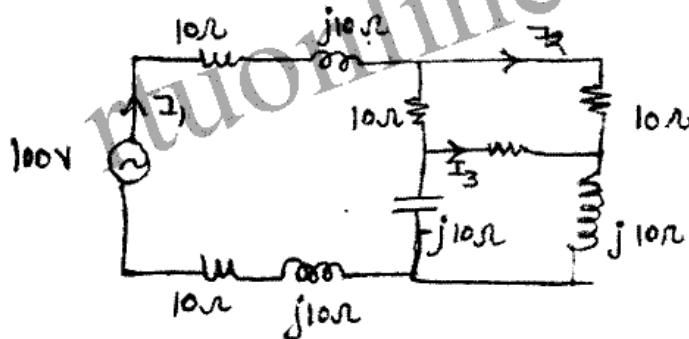
B.Tech. IV Semester (Main) Examination, June/July - 2015
Electrical Engineering
4EE2A Circuit Analysis-II

4E 4172**Time : 3 Hours**
Maximum Marks : 80
Min. Passing Marks : 26
Instructions to Candidates:

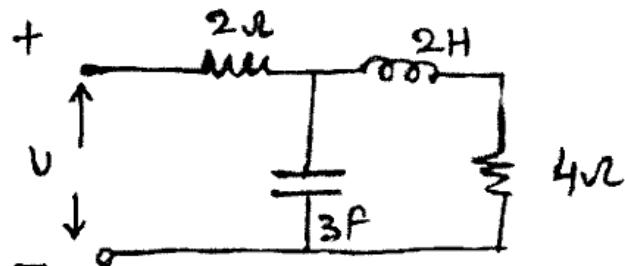
Attempt any five questions, selecting one question from each unit. All questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.)

Unit - I

- Explain the physical interpretation of complex frequency (6)
- Analysis the circuit on loop current basis & hence find I_1, I_2 & I_3 (10)

**OR**

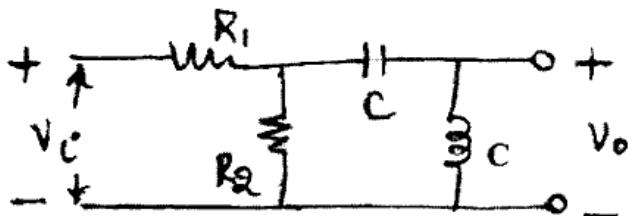
- For the given network determine the transform impedance (8)



2. Obtain the transform admittance of the inductor by using time domain relationship of voltage & current (8)

Unit - II

1. Determine the $\frac{V_o(s)}{V_i(s)}$ of network shown below (8)



2. Find the time domain response for the network function $I(s) = \frac{3s(s+2)}{(s+1)(s+4)}$ (8)

OR

1. Show the effects of pole position on stability (8)
 2. Check the stability of $p(s) = s^4 + 2s^3 + 4s^2 + 12s + 10$ (8)

Unit - III

1. Obtain foster I & foster II form for $Z(s) = \frac{s(s^2 + 4)}{(s^2 + 1)(s^2 + 9)}$ (16)

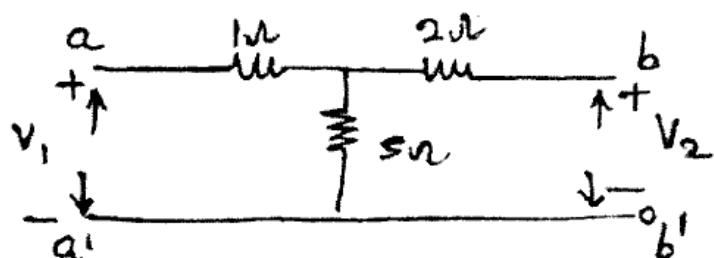
OR

1. Write down the properties of RC impedance function (8)
 2. Check whether the given function is positive real function or not (8)

$$Z(s) = \frac{s^3 + 5s^2 + 9s + 3}{s^3 + 4s^2 + 7s + 9}$$

Unit - IV

1. Find the transmission parameters for the given circuit (8)



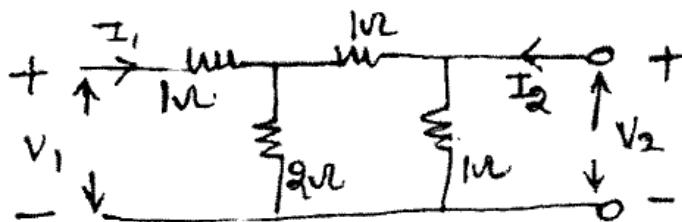
2. Derive the condition of reciprocity and symmetry in Z parameters

(8)

OR

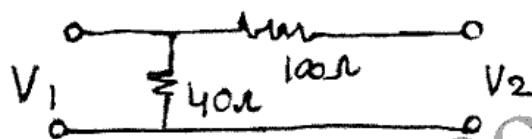
1. Explain image impedance calculate the value of image impedance of the following network

(8)



2. Find h - parameters of the network shown in figure

(8)

**Unit - V**

1. Derive the value of characteristic impedance for a T type constant k low pass filter

(8)

2. Write a short note on active filters

(8)

OR

1. Design a π section of m-derived Hpf having design impedance of 600Ω cut off frequency 4kHz and infinite attenuation at 3.6KHz

(8)

2. What do you understand by lattice filter. How a ladder filter network can be converted into lattice filter. find the cut off frequency for same

(8)