4E 4172

Roll No. _____ [Total No. of Pages : 3

4E 4172

B.Tech. IV Semester (Main) Examination, June/July - 2015

Electrical Engineering

4EE2A Circuit Analysis-II

Time : 3 Hours **Maximum Marks : 80**

Min. Passing Marks : 26

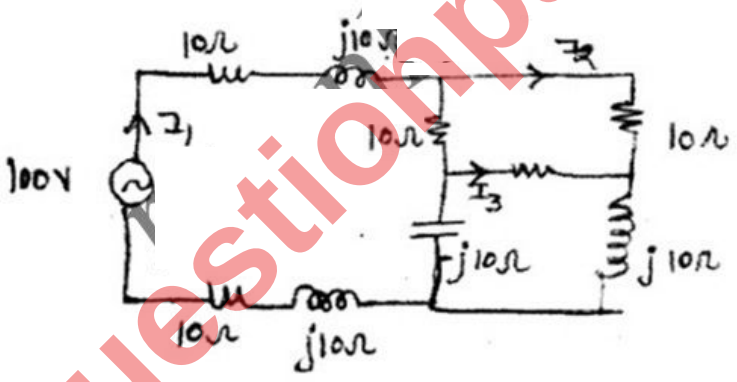
Instructions to Candidates:

*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

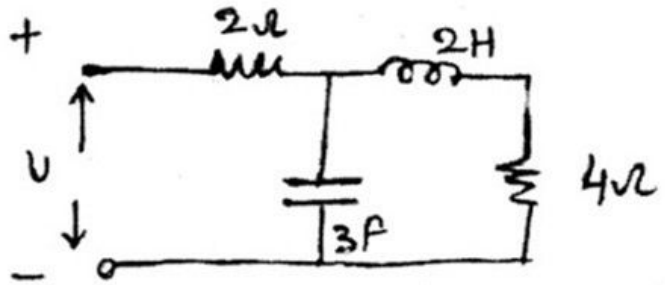
1. Explain the physical interpretation of complex frequency **(6)**

2. Analysis the circuit on loop current basis & hence find I_1, I_2 & I_3 **(10)**



OR

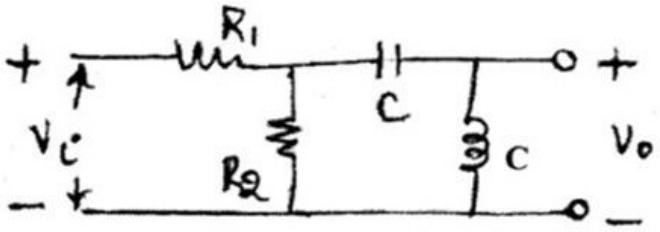
1. For the given network determine the transform impedance **(8)**



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

Unit - II

1. Determine the $\frac{V_c(s)}{V_i(s)}$ 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

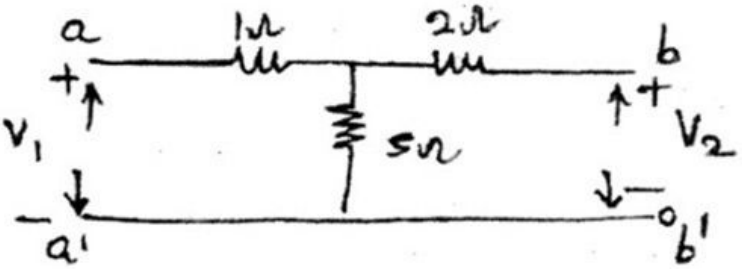
1. Write down the properties of RC impedance function **(8)**

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

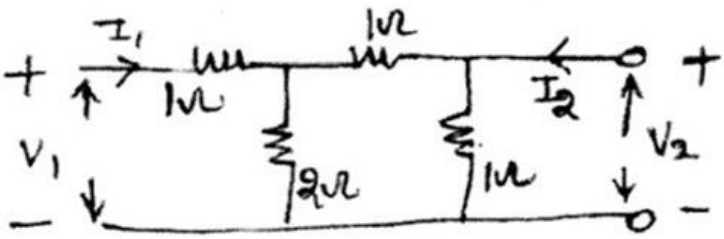
1. Find the transmission parameters for the given circuit **(8)**



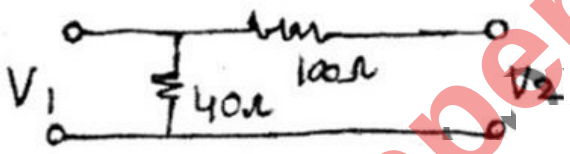
2. Derive the condition of reciprocity and symmetry in Z parameters **(8)**

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)**