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Reg. No. : .....

Name : .....

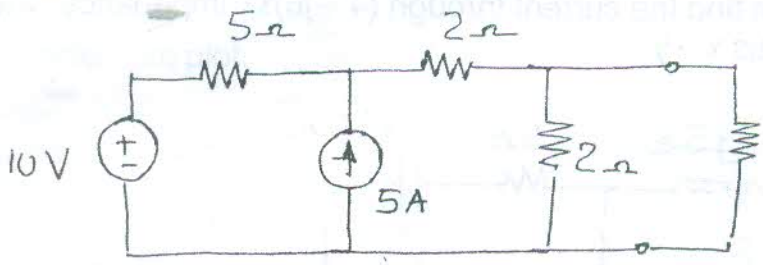
Third Semester B.Tech. Degree Examination, September 2014
(2008 Scheme)
(Special Supplementary)
08.303 : NETWORK ANALYSIS (TA)

Time : 3 Hours Max. Marks : 100

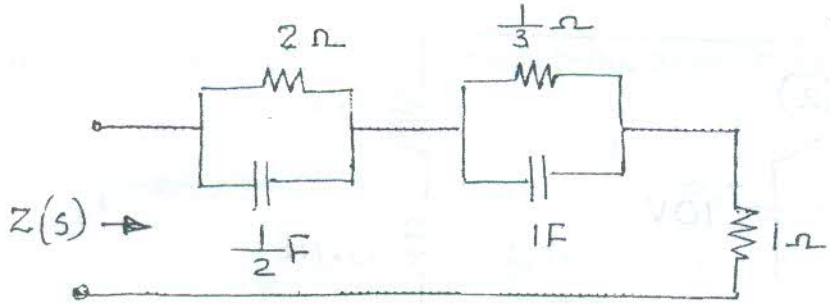
PART – A

Answer **all** questions, **each** question carries **four** marks.

1. State and prove maximum power transfer theorem in ac circuits.
2. Find the current through 1 Ω resistor using Norton's theorem.



3. State and prove initial and final value theorems.
4. Plot the following function
   a) u (t – 6) + u (t – 4) b) 5u (t + 4)
   c) δ (t + 5) d) 4r (t – 3)
5. Find the driving point impedance z(s) of the network shown



P.T.O.

6. What is gain margin and phase margin ?

7. A network function is given by $P(s) = \frac{2s}{(s+2)(s^2+2s+2)}$ obtain the pole-zero diagram.

8. Explain the terms resonance, bandwidth and Q-factor.

9. What is characteristic impedance and propagation constant ?

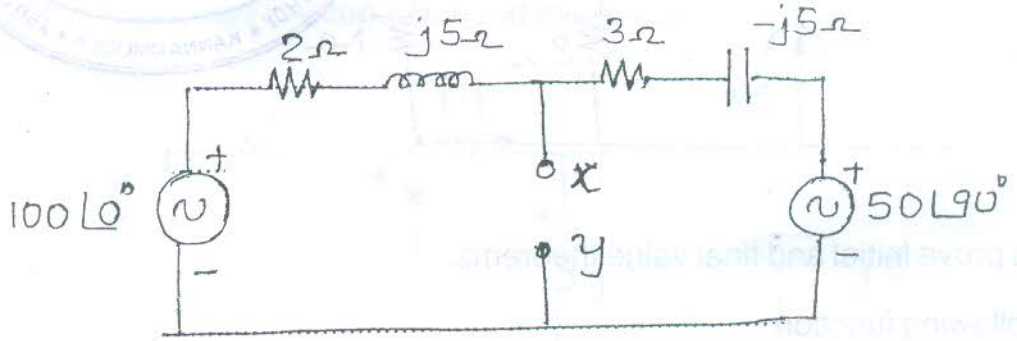
10. What is the significance of Bessel Thomson response.

PART – B

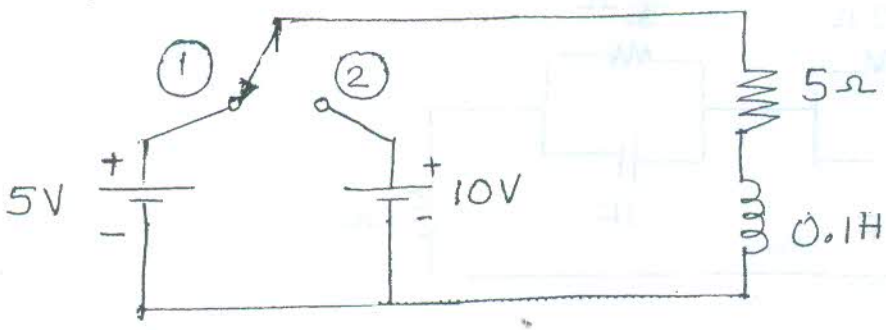
Answer **any two** questions from **each** Module. **Each** question carries **10** marks.

Module – I

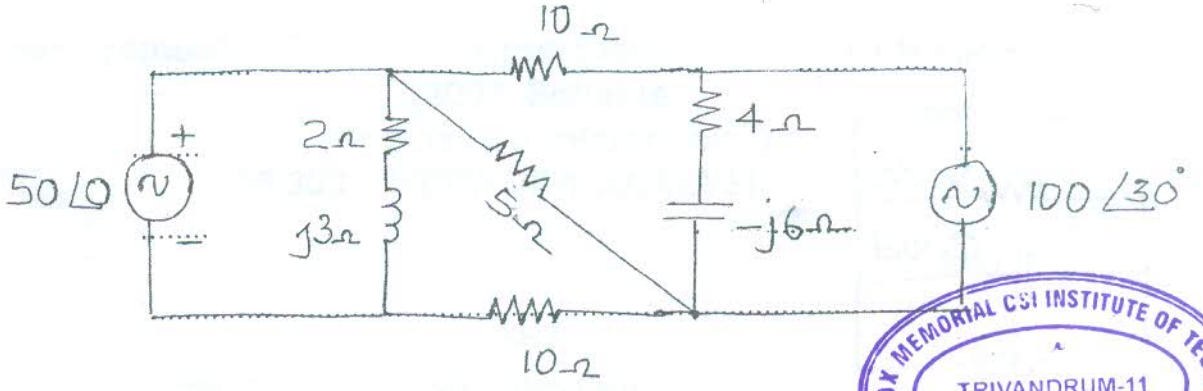
11. Using Thevenin's theorem find the current through $(4 + j6)\,\Omega$ impedance when connected across terminals x – y.



12. Obtain the expression for the current i(t) when the switch is moved from position 1) to position 2) at t = 0.

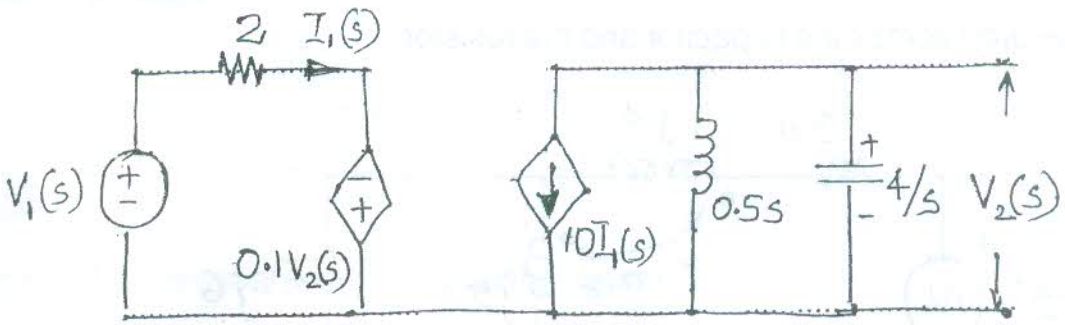


13. Find by the principle of super position the current through 5Ω resistor.



Module – II

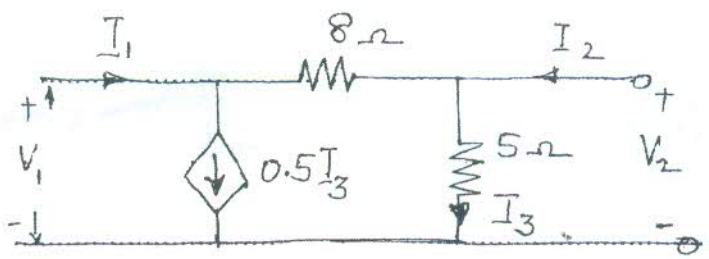
14. Find the driving point admittance function $\frac{I_1(s)}{V_1(s)}$ of the given network and its pole-zero plot.



15. Draw the Bode plot for $G(s) = \frac{20}{s(s+10)(s+2)}$. From the Bode plot determine

a) phase cross-over frequency b) grain cross over frequency c) gain margin d) phase margin.

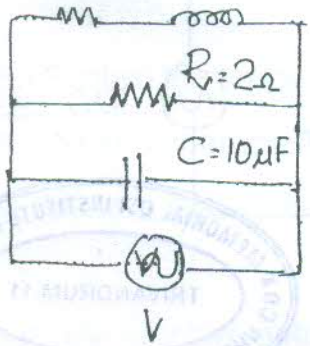
16. Obtain the z parameters of the network shown in figure



Module – III

17. Obtain the resonant frequency of the circuit

$R_c = 10\Omega$ $L_c = 0.1H$



18. Find the Butterworth transfer function that meets the following specifications

DC gain = 1 $f_p = 10$ KHz $A_{max} = 1$dB $f_s = 15$ KHz $A_{min} = 25$ dB

19. Find the drop across the capacitor and the resistor.