(Pages : 4) **1274**

Reg. No. : .....

Name : .....

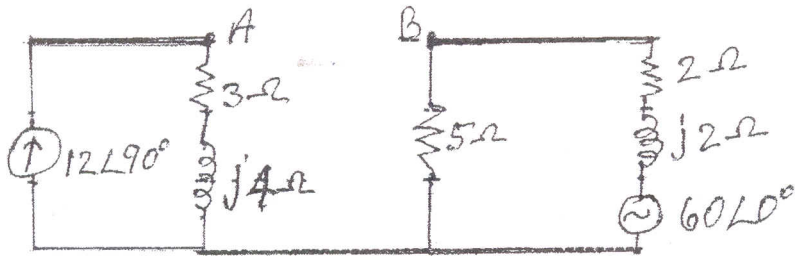
Third Semester B.Tech. Degree Examination, April/May 2012
(2008 Scheme)
08.303 : NETWORK ANALYSIS (TA)

Time : 3 Hours Max. Marks : 100

PART – A

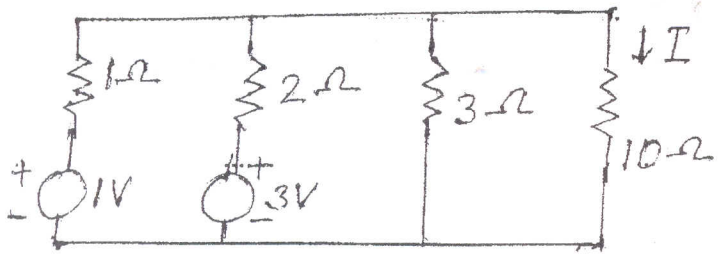
Answer **all** questions. **(10×4=40 Marks)**

1. Find the Thevenin's equivalent circuit at terminal AB for the circuit shown below.



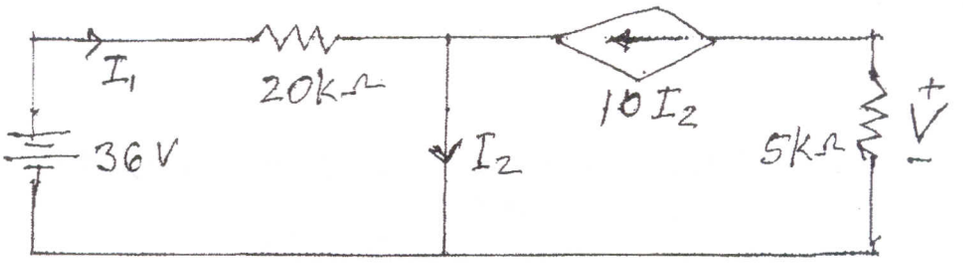
2. Plot the following functions :
   i) u(t – 5) – u (t – 8) ii) u(t – 6) + u(t – 4)
   iii) 5γ(t – 3) iv) δ (t – 2).

3. Calculate the load current in the following circuit using Millman's theorem.

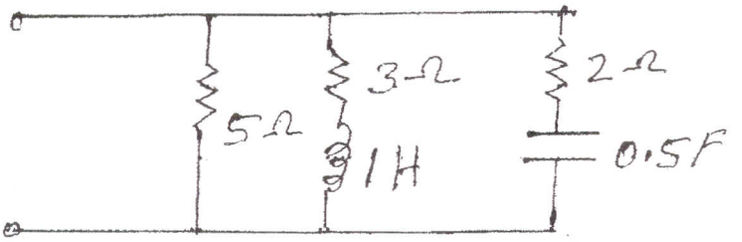


P.T.O.

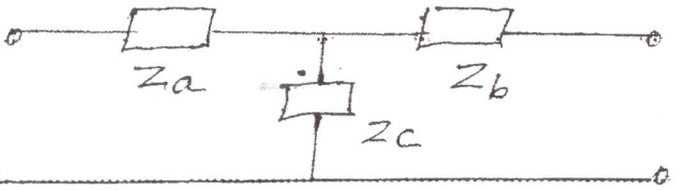
4. Calculate voltage V across 5 KΩ resistance in the following circuit.



5. Determine the driving point admittance function of the following circuit.



6. For the T-network, obtain the Z-parameters.



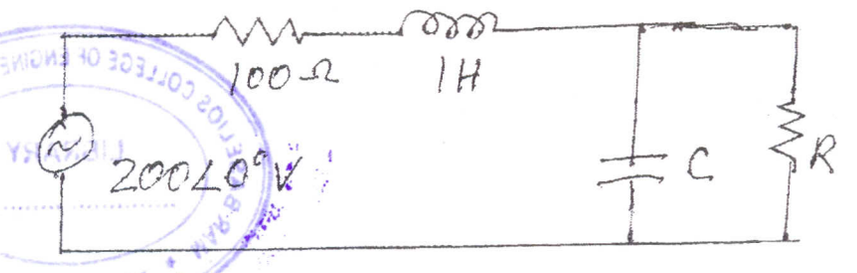
7. Show that in a series RLC circuit, resonant frequency is geometric mean of half power frequencies.
8. Distinguish between image impedance and characteristics impedance.
9. Draw the polar plot of first order RC-high pass circuit.
10. What is the significance of Bessel-Thomson response ?

PART – B

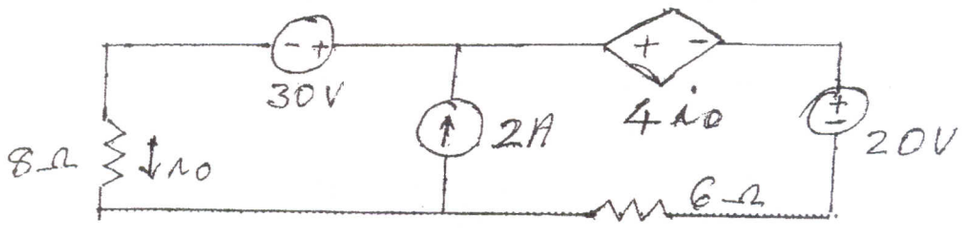
Answer **any two** questions from **each** Module. **Each** question carries **10** marks.

MODULE – I

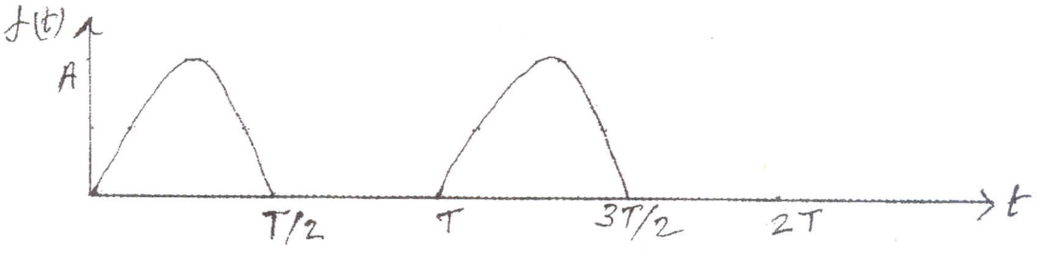
11. Determine the value of R and C in the following circuit, so that maximum power is absorbed by R at W = 200 rad/sec.



12. Calculate the current i_o in the following network.



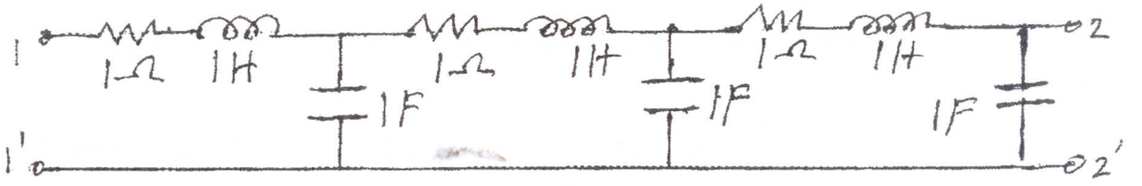
13. Find the Laplace transform of half-wave rectified sine wave.



MODULE – II

14. a) What are the necessary conditions for a network function to be transfer function ?

    b) Find the open circuit driving point impedance of the following Ladder network.

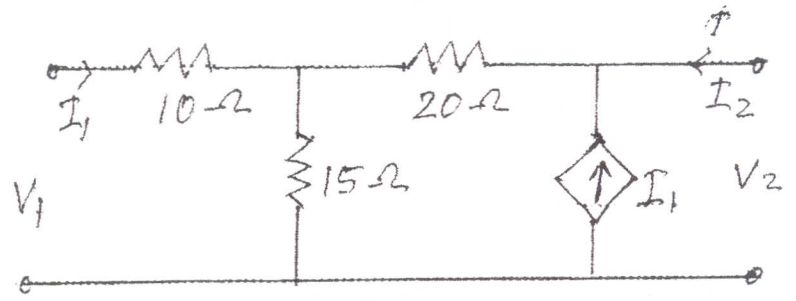


15. Draw the Bode-Plot of the transfer function $G(S) = \dfrac{1}{S(1+0.5S)(1+0.05S)}$

From the Bode-plot, determine :

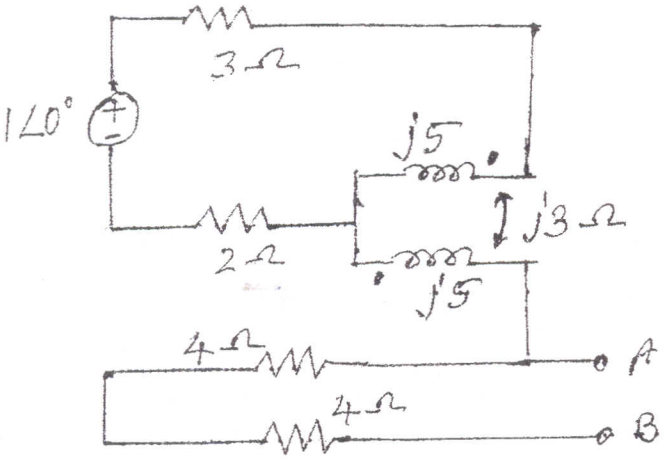
i) Phase-crossover frequency
ii) Gain crossover frequency
iii) Gain margined and
iv) Phase margin.

16. Determine the Z-parameters of the network shown below.



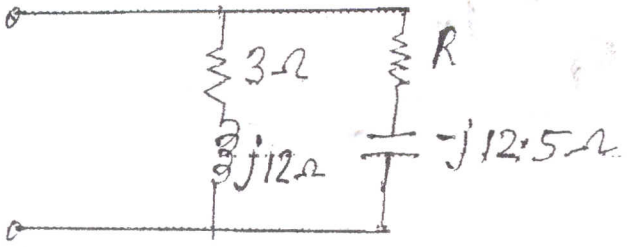
MODULE – III

17.



Obtain the Thevenin's equivalent circuit at the terminal AB for the coupled circuit given in the above diagram.

18. For the circuit shown below, determine the value of R for which the given circuit resonates.



19. a) Briefly explain the various types of filter approximations.

b) Explain the frequency transformation to high pass and band pass in analog filter design.