Total No. of Questions : 8] *[Total No. of Printed Pages : 3*

Roll No .....

EC-3003-CBGS

B.E. III Semester

Examination, December 2020

Choice Based Grading System (CBGS)

Network Analysis

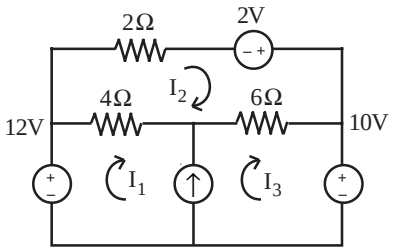
Time : Three Hours

Maximum Marks : 70

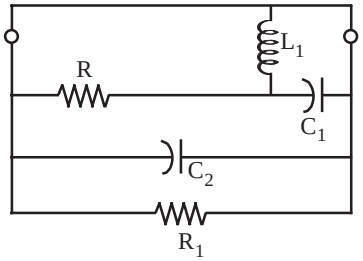
Note: i) Attempt any five questions.

ii) All questions carry equal marks.

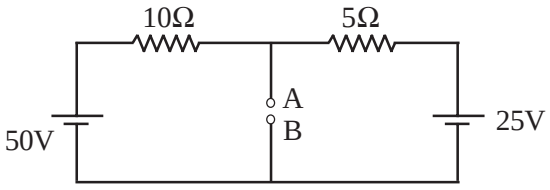
1. a) State KCL and KVL and determine the mesh current I_1, I_2 and I_3.



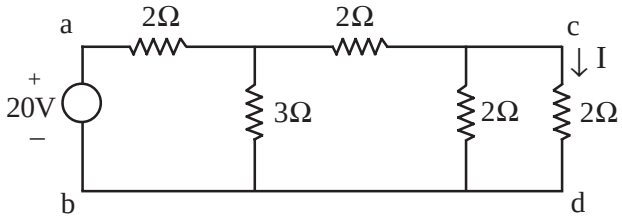
b) Define graph of the network and draw the graph for the given circuit.



2. a) Determine the Thevenin's equivalent circuit across 'AB' for given circuit.



b) Verify the reciprocity theorem for the network shown in figure.



3. a) Explain the Transient analysis of series RL circuit.

   b) A series RC circuit consists of resistor of 10Ω and capacitor of 0.1F as shown in figure. A constant voltage of 20 V is applied to the circuit at t = 0. obtain the current equation. Determine the voltages across the resistor and the capacitor.

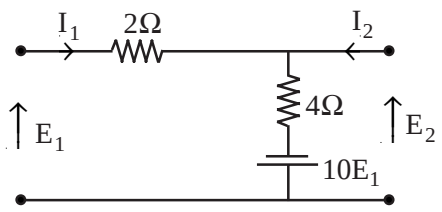
4. What are the uses of knowing initial conditions in a circuit? Explain the initial conditions in

   i) Resistor

   ii) Inductor

   iii) Capacitor

5. a) The z parameters z_{11} and z_{21} for the 2-port networks in figure are:



b) Derive hybrid parameters in terms of z-parameters.

6. Discuss the following in brief:
   a) Network graph, tree, branch, link and incidence matrix
   b) Node analysis and Mesh analysis

7. Write short notes (any two)
   a) Millman's theorem and reciprocity theorem
   b) Various kinds of sources
   c) Dual networks
   d) Initial and final value theorems
   e) Y-parameters in terms of h-parameters

8. Write short notes on any two of the following:
   a) Parallel resonance
   b) Maximum power transfer theorem
   c) Hybrid parameters

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