Code No 20EC2T01

R20

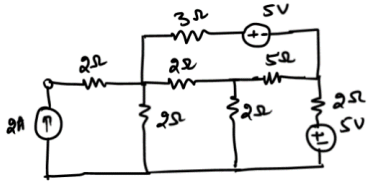
I B.TECH II SEMESTER REGULAR EXAMINATIONS, SEP - 2021
NETWORK ANALYSIS
(ELECTRONICS AND COMMUNICATION ENGINEERING)

Time: 3 Hours **Max. Marks: 70**

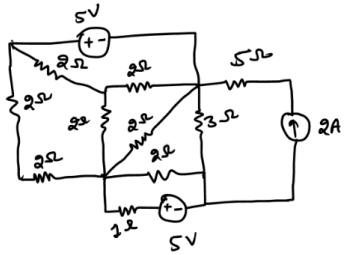
Note: Answer **ONE** question from each unit **(5 ×14 = 70 Marks)**

UNIT-I

1. a) Calculate the current in each branch of the following network. [7M]

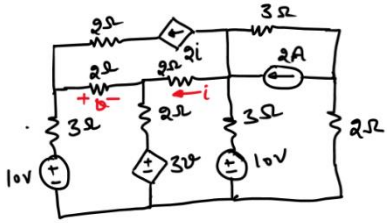


b) Find the current in each branch of the following network. The star-delta transformation must be utilized in the analysis. [7M]

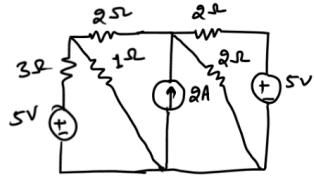


(OR)

2. a) Find the current in each branch of the following network using nodal analysis. [7M]

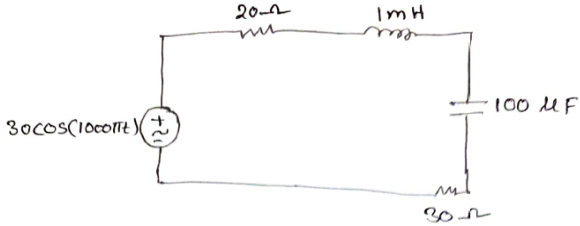


b) Calculate the voltage across all the resistances of the following network using Mesh analysis. [7M]

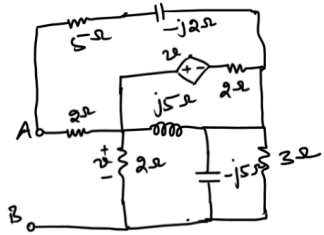


UNIT-II

3. a) Find the current in the following circuit thus find the power supplied by the source. [7M]

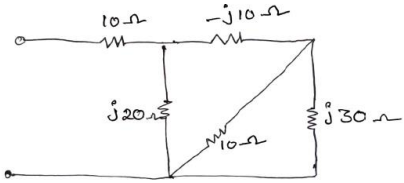


b) Calculate the equivalent impedance of the following network across the terminals A-B. [7M]

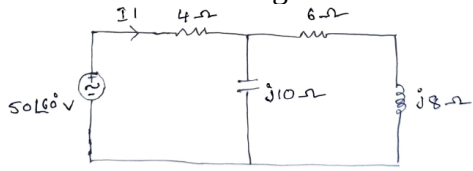


(OR)

4. a) Find the impedance between terminals a and b in the following circuit. [7M]

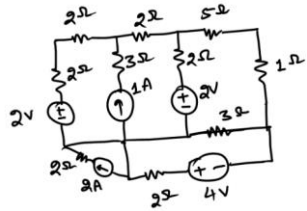


b) Find the current I_1 in the following ac circuit. [7M]

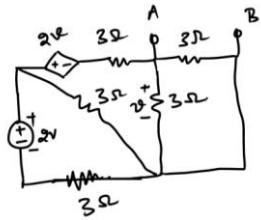


UNIT-III

5. a) Apply the superposition theorem and find the current in each branch of the following network. [7M]

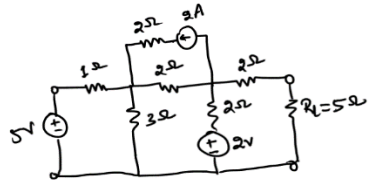


b) Find the Norton's equivalent circuit across the terminal AB. [7M]



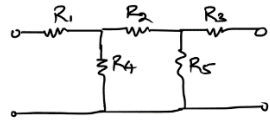
(OR)

6. a) State and prove the Thevenin's theorem by taking an example. [7M]
b) Find the maximum paper transferred to the load of 5Ω given in the following network. [7M]

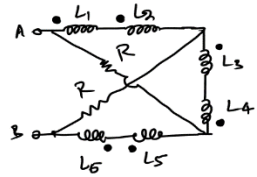


UNIT-IV

7. a) Make the $ABCD$-parameter model of the following network. [7M]

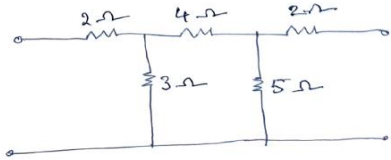


b) Find the equivalent impedance of the following network. [7M]



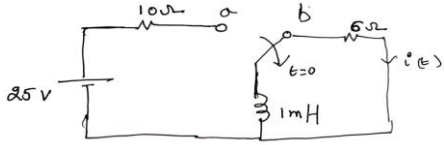
(OR)

8. a) Convert the *Y*-parameters to transmission parameters. [7M]
   b) Find the Z-parameters of the following network. [7M]



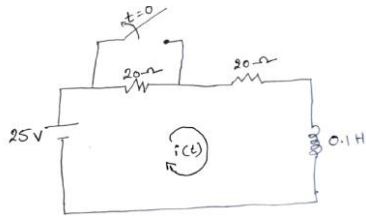
UNIT-V

9. a) Explain initial and final (steady state) behaviours of R, L and C for the dc excitation. [7M]
   b) In the following circuit the switch is moved from a to b at t = 0. Find i(t) for t >0. [7M]



(OR)

10. a) Obtain the voltage across capacitor for t > 0 in the first order series RC circuit when the DC voltage V applied at t = 0. Assume all initial conditions to be zero. [7M]
    b) In the following circuit the switch is opened at t = 0. Determine the expression for i(t) for t>0. [7M]



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