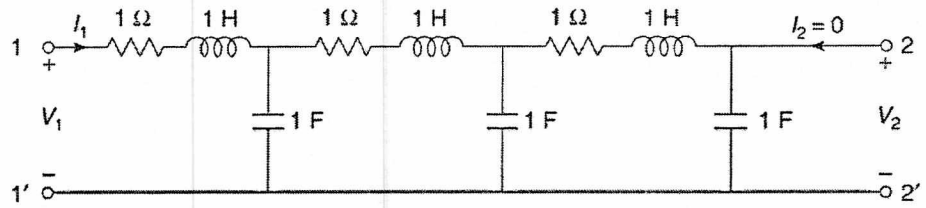


Fig. 3 (b)

B. For the ladder network of Fig. 3(b), find the driving point-impedance at the 1 – 1' terminal with 2 – 2'open. (5)

Q4. A. Find transmission parameters for the two-port network shown in Fig. 4 (a) (5)

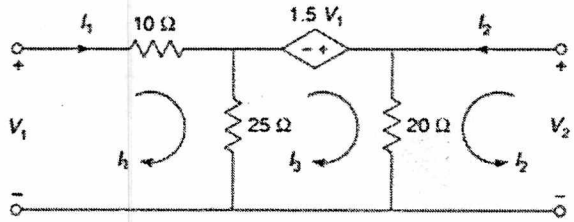


Fig. 4 (a)

B. Express the reciprocity and symmetry criteria in term of inverse hybrid and transmission parameter of two port network. (5)

Q5. A. Test the polynomial $P(s)$ of Hurwitz property. (5)

$$P(s) = s^6 + 3s^5 + 8s^4 + 15s^3 + 17s^2 + 12s + 4$$

B. Realize all Foster and Cauer forms of the following impedance function (10)

$$\boldsymbol{Z(s)} = \frac{(s+1)(s+3)}{s(s+2)}.$$

Dr Rajesh Kumar 25/11/2023

Roll No.:.....

National Institute of Technology, Hamirpur (HP)

End Semester Examination (November-2023)

Name of the Examination: B.Tech. Third Semester

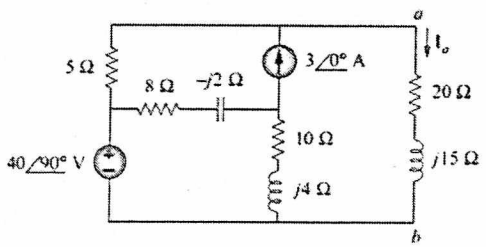
Course Name : Network Analysis and Synthesis **Course Code : EE-211**

Time: 3 Hours **Maximum Marks: 50**

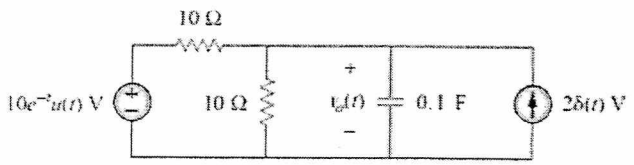
Note:

1. **All Questions are compulsory 2. Draw the relevant diagrams/figures**
3. **Assume data wherever required**

Q1. A. Obtain current Io in Fig. Fig.1 (a) using Norton's theorem. (5)



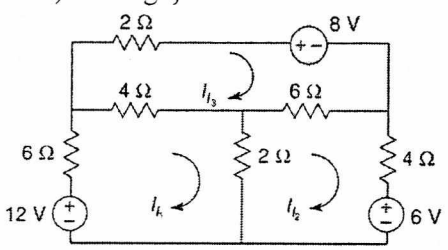
1 (a)



1 (b)

B. Find $v_o(t)$ in the circuit of Fig. 1 (b). Assume $v_o(0) = 5$ V. (5)

Q2. A. For the network shown in Fig. 2 (a), write down the tie-set matrix and obtain the network equilibrium equation in matrix form using KVL. Calculate loop currents. {Use branches with 4Ω, 6Ω, and 2Ω (T-Section) as twigs}. (5)



2 (a)

Q3. A. The transform voltage of a network is given as (5)

$$V(s) = \frac{3s}{(s+2)(s^2+2s+2)}$$

Draw its pole-zero diagram and hence obtain $V(t)$.