

LE 325 Assignment #3

Please show all details leading to solutions.

1. Find the impedance matrix (Z matrix), admittance matrix (Y matrix), transmission matrix (ABCD matrix) and hybrid matrix (H matrix) of the T-network shown in Fig. 1.

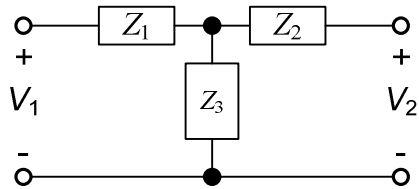


Fig. 1: a T-network

2. Repeat problem 1 for the π -network shown in Fig. 2.

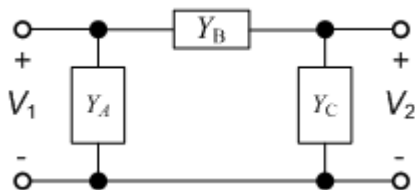


Fig. 1: a π -network

3. Repeat problem 1 for the bridged-T network shown in Fig. 3.

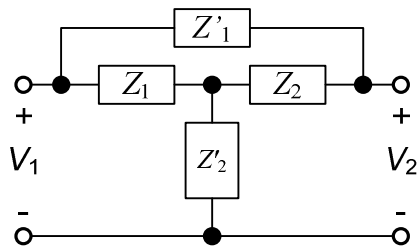


Fig. 3: a bridged-T network

4. Express hybrid parameters in terms of other parameters, i.e., impedance parameters, admittance parameters and transmission parameters.
5. Show that the admittance matrix of the bridged-T network shown below can be written in terms of sum of two admittance matrices.

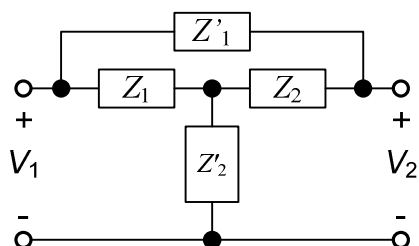


Fig. 4: a bridged-T network

6. Find the condition of reciprocity for the T-network and π -network shown below and verify the reciprocity theorem.

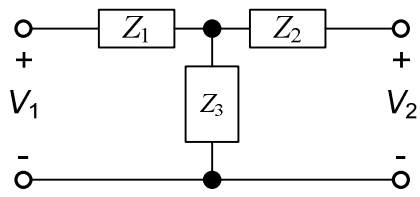


Fig. 5: a T-network

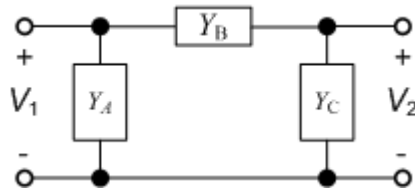


Fig. 6: a π -network