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Part B - Exp-2

Aim:- To calculate and verify 'z' parameter of two port network.

Theory:- In z parameter of two port, the input and output voltage V_1 and V_2 can be expressed in terms of output current I_1 and I_2

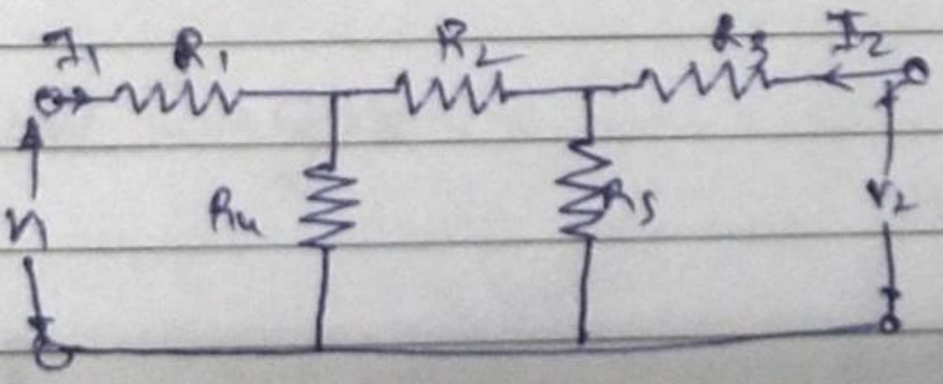
V_1 and V_2 are dependent variable
I_1 and I_2 are independent variable.

Thus,

$$V_1 = Z_{11} I_1 + Z_{12} I_2 \quad \cdots (1)$$
$$V_2 = Z_{21} I_1 + Z_{22} I_2 \quad \cdots (2)$$

Here, Z_{11} and Z_{22} are inputs and output driving point impedance while Z_{12} and Z_{21} are reverse and forward transfer impedance.

Circuit diagram:-



Procedure :-

a) Connect the circuit as shown in figure and switch on experiment board.

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b) First, open the o/p terminal and supply 5V to i/p terminal. Measure o/p voltage & i/p current.

c) Second, open the i/p terminal and supply 5V to o/p terminal, measure i/p voltage and o/p current using multimeter.

d) Calculate the values of z-parameter using eq^n ① and ②.

e) Switch off the supply after noting down the readings.

Sample Calculation:-

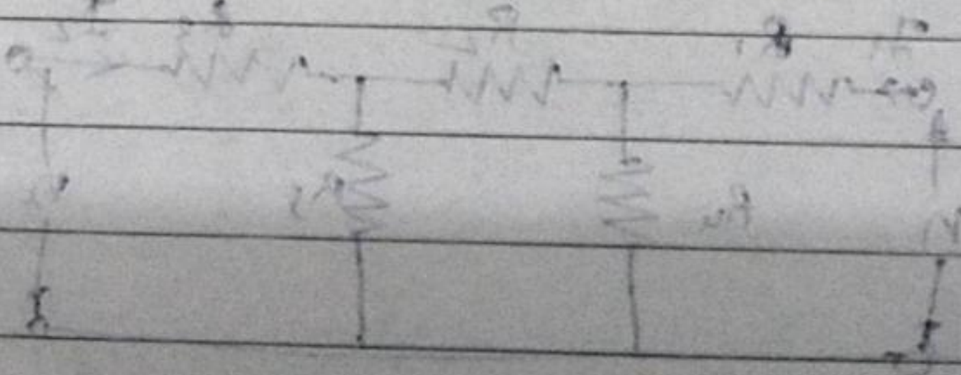
i) When o/p is open i.e $I_2 = 0$

$Z_{11} = V_1/I_1$, $Z_{21} = V_2/I_1$

ii) When i/p is open i.e $I_1 = 0$

$Z_{21} = V_1/I_2$, $Z_{22} = V_2/I_2$

Conclusion:- The z-parameter of two port network has been verified.



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