Unit 9 - Week 7: Two port parameters continued; Reciprocity in resistive networks

Assignment 7

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

1) The two-port network in the figure above is reciprocal. Determine $R_m$.

(The answer must be in kilohms ($k\Omega$). Round off fractional answers to one decimal place.)

No, the answer is incorrect.
Score: 0
Accepted Answers: (Type: Range) -2.2,-1.8

2) With $R_m$ chosen such that the two-port network in the figure above is reciprocal, determine the $h$-parameters of the circuit above.

$$[h] = \begin{bmatrix} h_{11} & h_{12} \\ h_{21} & h_{22} \end{bmatrix}$$

where,

$h_{11}$ is in kilohms ($k\Omega$), $h_{22}$ is in millisiemens ($mS$),
and $h_{12}, h_{21}$ are scalars.

e.g. If you get 1st row and 1st column of $[h]$ as $-1k\Omega$, then $h_{11} = -1$.

The answer is the value of the expression given below:

$$(h_{11} \times h_{22}) + (h_{12} \times h_{21})$$

(Round off fractional answers to one decimal place.)
3) The two-port network in the figure above is reciprocal. Determine $G_m$.

(The answer must be in millisiemens (mS). Round off fractional answers to one decimal place.)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 0.4,0.6

4) With $G_m$ chosen such that the two-port network in the figure above is reciprocal, determine the $g$-parameters of the circuit above.

$$[g] = \begin{bmatrix} g_{11} & g_{12} \\ g_{21} & g_{22} \end{bmatrix}$$

where, $g_{11}$ is in millisiemens (mS), $g_{22}$ is in kilohms (kΩ), and $g_{12}, g_{21}$ are scalars.

e.g. If you get 1st row and 1st column of $[g]$ as $-1$ mS, then $g_{11} = -1$.

The answer is the value of the expression given below:

$$(g_{11} \times g_{22}) + (g_{12} \times g_{21})$$

(Round off fractional answers to one decimal place.)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) -14.6,-14.4
5) The network $N$ in the figure above consists of only resistors. Given (a), determine $V_x$ in (b).

(The answer must be in volts (V). Round off fractional answers to two decimal places.)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 0.4, 0.6

6) Determine the Norton current $I_N$ in the circuit above.

(The answer must be in milliamperes (mA). Round off fractional answers to one decimal place.)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 0.6, 0.8

7) Determine the Norton resistance $R_N$ in the circuit above.

(The answer must be in kilohms (kΩ). Round off fractional answers to one decimal place.)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 4.8, 5.2
In the above circuit, two two-port networks are combined to form a single two-port network. Determine the y-parameters of the composite two-port.

\[ [y] = \begin{bmatrix} y_{11} & y_{12} \\ y_{21} & y_{22} \end{bmatrix} \]

where,

- \( y_{ij} \)'s are the numerical values in millisiemens (mS).
- e.g. If you get 1st row and 1st column of \([y]\) as \(-1 \text{ mS}\), then \(y_{11} = -1\).

The answer is the value of the expression given below:

\[ y_{11} + y_{12} + (y_{21} \times y_{22}) \]

(Round off fractional answers to one decimal place.)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 4.4, 4.6