Assignment 1

The due date for submitting this assignment has passed. **Due on 2018-02-05, 23:59 IST.**
As per our records you have not submitted this assignment.

1) In the circuit shown in the figure, we want to obtain $I_2$ using superposition. What is $I_2$ when $V_S$ is included and $I_S$ deactivated?

```
\begin{aligned}
R_1 & = 2 \Omega \\
R_2 & = 2 \Omega \\
R_3 & = 2 \Omega \\
R_4 & = 6 \Omega \\
V_S & = 6 \text{ V} \\
I_S & = 6 \text{ A} \\
\end{aligned}
```

\[
\begin{array}{c}
\frac{1}{3} \text{ A} \\
\frac{4}{5} \text{ A} \\
\frac{3}{4} \text{ A} \\
\frac{1}{2} \text{ A} \\
\end{array}
\]

No, the answer is incorrect.
Score: 0

Accepted Answers:
\[
\frac{4}{3} \text{ A}
\]

2) For the circuit of Q-1, what is $I_2$ when $I_S$ is included and $V_S$ deactivated?

```
\begin{aligned}
R_1 & = 2 \Omega \\
R_2 & = 2 \Omega \\
R_3 & = 2 \Omega \\
R_4 & = 6 \Omega \\
V_S & = 6 \text{ V} \\
I_S & = 6 \text{ A} \\
\end{aligned}
```

\[
\begin{array}{c}
2 \text{ A} \\
\frac{5}{2} \text{ A} \\
\end{array}
\]
3) The figure shows a circuit along with the relationship between the current $I$ and the voltage $V$. If the resistance $R = 8 \Omega$ is connected between $A$ and $B$, it would draw a current of

No, the answer is incorrect.
Score: 0
Accepted Answers:
2A

4) In the circuit shown in the figure, what is the magnitude of the Thevenin voltage as seen from $AB$?

No, the answer is incorrect.
Score: 0
Accepted Answers:
0.33A

\[ R = 50 \Omega \quad 1k \quad V_s = 5 \text{ mV} \quad V = g_m V \quad g_m = 20 \text{ mS} \]
5) In the circuit of Q-4, what is the Thevenin resistance as seen from \(AB\)?

\[ g_m = 20 \text{ mS} \]

- 0.5\(\Omega\)
- 49\(\Omega\)
- 1k\(\Omega\)
- 2k\(\Omega\)

No, the answer is incorrect.
Score: 0

Accepted Answers:
1k\(\Omega\)

6) The voltage \(V\) in the figure is given by \(V = k_1V_1 + k_2V_2 + k_3V_3\). The constant \(k_1, k_2, k_3\) are, respectively,

\[ \frac{3}{11}, \frac{2}{11}, \frac{6}{11} \]

- \(\frac{3}{11}, \frac{1}{11}, \frac{6}{11}\)
- \(\frac{6}{11}, \frac{2}{11}, \frac{3}{11}\)
- \(\frac{3}{11}, \frac{4}{11}, \frac{6}{11}\)

No, the answer is incorrect.
Score: 0

Accepted Answers:
\(\frac{6}{11}, \frac{2}{11}, \frac{3}{11}\)
For the circuit shown in the figure, what is the Thevenin voltage seen from $AB$?

- $-0.8V$
- $-1V$
- $1.5V$
- $0.33V$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$0.33V$

8) In the circuit of Q-7, what is the Thevenin resistance as seen from $AB$?

- $15\,\Omega$
- $3.33\,\Omega$
- $6.7\,\Omega$
- $10\,\Omega$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$3.33\,\Omega$
9) What is the maximum power available from the network of Q-7?

- 75 mW
- 8.3 mW
- 120 mW
- 24.6 mW

No, the answer is incorrect.
Score: 0
Accepted Answers:
8.3 mW

10) In the circuit shown in the figure, what is the Thevenin resistance as seen from \( A \) to \( B \)?

- 10 Ω
- 4.8 Ω
- 2.5 Ω
- 2.1 Ω

No, the answer is incorrect.
Score: 0
Accepted Answers:
2.1 Ω

11)
In the circuit of Q-10, what is the Norton current $I_N$ as seen from $AB$?

![Circuit Diagram]

- 2.4 A
- 1.8 A
- 3.5 A
- 4.2 A

No, the answer is incorrect.
Score: 0
Accepted Answers:
- 2.4 A

12. What is the maximum power available from the network of Q-10?

![Circuit Diagram]

- 1.8 W
- 2.4 W
- 3 W
- 4.5 W

No, the answer is incorrect.
Score: 0
Accepted Answers:
- 3 W

13. The time-domain quantity corresponding to the phasor $X = 1 - j3$ is given by $A \cos(\omega t + \theta)$. $A$ and $\theta$ are given by

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https://onlinecourses-archive.nptel.ac.in/noc18_ee10/unit?unit=6&assessment=141
14. The impedance presented by an inductor with \( L = 6 \text{mH} \) at a frequency \( f = 2.5 \text{kHz} \) is \( \frac{\omega}{L} \). The options are:

- \( j47 \Omega \)
- \( j68 \Omega \)
- \( j94 \Omega \)
- \( j126 \Omega \)

No, the answer is incorrect.
Score: 0
Accepted Answers:
\( j94 \Omega \)

15. In the circuit shown in the figure, what is the impedance seen by the source?

\[ Z = R + jX \]

- \( 0.8 + j0.6 \Omega \)
- \( 1 \angle 53^\circ \Omega \)
- \( 1 + j1.5 \Omega \)
- \( 1.4 \angle 37^\circ \Omega \)

No, the answer is incorrect.
Score: 0
Accepted Answers:
\( 0.8 + j0.6 \Omega \)