## 24 Lecture - PHY301

## Important Mcqs

What is the equivalent resistance for the circuit shown below when looking from terminals $A$ and $B$ using Thevenin's theorem?

5? 10 ?
A ----M $M---M M----B$
a. 3.33 ?
b. 7.5 ?
c. 15 ?
d. 50 ?

Answer: b. 7.5?. The equivalent resistance is the sum of the two resistors: $\mathbf{5 ? + 1 0 ? = 1 5 ?}$. Then, the Thevenin resistance is the same as the equivalent resistance: 7.5?.

What is the Thevenin voltage for the circuit shown below when looking from terminals A and B using Thevenin's theorem?

20V
A ---M $M--M M---B$
10? 5 ?
a. 10 V
b. 15 V
c. 20 V
d. 25 V

Answer: c. 20V. To find the Thevenin voltage, we need to calculate the voltage across the terminals A and $B$ when the circuit is open. This is the same as the voltage across the 5 ? resistor, which is given as 20 V .

What is the equivalent circuit for the circuit shown below when looking from terminals $A$ and $B$ using Thevenin's theorem?

## $5 ?$ <br> 10 ?

A ----M $M---M M----B$
a. 7.5 V voltage source in series with a 7.5 ? resistor
b. 10 V voltage source in series with a 15 ? resistor
c. 20 V voltage source in series with a 10 ? resistor
d. 15 V voltage source in series with a 5 ? resistor

Answer: a. 7.5V voltage source in series with a 7.5? resistor. We found in question 1 that the equivalent resistance is 7.5 ?, and in question 2 that the Thevenin voltage is 20 V . Therefore, the equivalent circuit is a 7.5 V voltage source in series with a 7.5 ? resistor.

What is the Thevenin voltage for the circuit shown below when looking from terminals A and B using Thevenin's theorem?
$6 \mathrm{~V} \quad 4 \mathrm{~V}$
A ---M M---M $M--M---B$
2? 4 ? 2 ?
a. 4 V
b. 6 V
c. 8 V
d. 10 V

Answer: b. 6 V . To find the Thevenin voltage, we need to calculate the voltage across the terminals $A$ and $B$ when the circuit is open. This is the same as the voltage across the 4? and 2? resistors in series, which is given as 6 V .

What is the Thevenin resistance for the circuit shown below when looking from terminals $\mathbf{A}$ and $B$ using Thevenin's theorem?

3 ?
A ---M $M---M M---B$
a. 6 ?
b. 8 ?
c. 9 ?
d. 12 ?

Answer: a. 6?. The equivalent resistance is the sum of the two resistors in parallel

