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 ----/\/\/\----/\/\/\---- 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: 5? + 10? = 15?. 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 ---/\/\/\---/\/\/\--- B

10? 5?

a. 10V

b. 15V

c. 20V

d. 25V

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 20V.

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

5? 10?

A ----/\/\/\----/\/\/\---- B

a. 7.5V voltage source in series with a 7.5? resistor

b. 10V voltage source in series with a 15? resistor

c. 20V voltage source in series with a 10? resistor

d. 15V 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 20V. Therefore, the equivalent circuit is a 7.5V 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?

6V 4V

A ---/\/\/\---/\/\/\---/\/\/\--- B

2? 4? 2?

a. 4V

b. 6V

c. 8V

d. 10V

Answer: b. 6V. 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 6V.

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

3?

A ---/\/\/\----/\/\/\--- B

6? 9?

a. 6?

b. 8?

c. 9?

d. 12?

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