

25 Lecture - PHY301

Important Subjective

What is Norton's theorem in circuit theory?

Answer: Norton's theorem is a principle that states any linear circuit can be replaced by an equivalent current source and a resistor in parallel.

How is the Norton current determined in a circuit?

Answer: The Norton current is equal to the short-circuit current that would flow through the original circuit when the load resistance is set to zero.

What is the significance of the Norton resistance in a circuit?

Answer: The Norton resistance is equal to the resistance between the two terminals of the circuit when all the independent sources are turned off.

What is the difference between Norton's theorem and Thevenin's theorem?

Answer: Norton's theorem replaces a network of components with a single current source and a parallel resistor, while Thevenin's theorem replaces it with a single voltage source and a series resistor.

Why is Norton's theorem useful in circuit analysis?

Answer: Norton's theorem allows us to simplify complex circuits and model them as simpler equivalent circuits that are easier to analyze.

How is the Norton equivalent circuit different from the original circuit?

Answer: The Norton equivalent circuit has a single current source and a parallel resistor, while the original circuit may have multiple components.

Can Norton's theorem be applied to nonlinear circuits?

Answer: No, Norton's theorem is only applicable to linear circuits.

What is the equivalent resistance of a circuit in Norton's theorem?

Answer: The equivalent resistance is the resistance between the two terminals of the circuit when all the independent sources are turned off.

How is the Norton equivalent circuit useful in circuit design?

Answer: The Norton equivalent circuit can be used to calculate the voltage across any load resistance connected between the two terminals of the circuit.

What is the difference between Norton's current and load current in a circuit?

Answer: Norton's current is the current that would flow through the circuit when the load resistance is set to zero, while the load current is the current that flows through the circuit when the load resistance is nonzero.