Easy | Deputy Executive Engineer (Electric | 2026 | orts Authority of Gujarat / Assistant Engineer (El

A circuit contains two independent voltage sources connected with resistors. Then 1. Superposition considers one independent source at a time. 2. Total current is sum of

A. 1, 2 and 4 only — Correct

B. 1 and 3 only

C. 2 and 3 only

D. All of the above

Correct Answer: A

Full Detailed Explanation

Correct Answer: A - 1, 2 and 4 only Quick Concept Explanation Superposition is a linear-circuit method used to find voltages or currents caused by multiple independent sources. Analyze one independent source at a time, replace other independent voltage sources by shorts and independent current sources by opens, and keep dependent sources active. Key relation: x = x + x + for a linear response; P = V /R = I R is not a superposable quantity.Exam focus: Deactivate only independent sources; never suppress a dependent source. Common trap: Adding powers from separate source cases is a classic trap. Statement-wise Verification Statement 1 - Correct.Superposition considers one independent source at a time.Analyze one independent source at a time, replace other independent voltage sources by shorts and independent current sources by opens, and keep dependent sources active. Statement 2 - Correct.Total current is sum of individual source contributions.Power is nonlinear in voltage/current and therefore individual power contributions are not directly added. Statement 3 - Incorrect.Power can be directly added from individual source contributions.Superposition applies to linear voltage/current responses; power is quadratic and cannot be summed from isolated-source powers Statement 4 - Correct.Dependent sources remain active in analysis.Analyze one independent source at a time