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

Consider the following statements regarding three-phase systems: 1. Total power = 3 VL IL cos . 2. Power is constant in balanced system. 3. Neutral current

A 1 and 2 only

B 2 and 3 only

C 1 and 3 only

D **1, 2 and 3** Correct

Correct Answer: D

Full Detailed Explanation

Correct Answer: D - 1, 2 and 3 Quick Concept Explanation A balanced three-phase system has three equal-magnitude phase quantities displaced by 120 . For a balanced load, the instantaneous total three-phase power is constant and the phasor sum of phase currents is zero, so a neutral conductor carries no current in the ideal balanced case. Key relation: P= 3 V_L I_L cos .Exam focus: Balanced load I_R+I_Y+I_B=0. Common trap: Do not apply zero-neutral-current result to unbalanced or harmonic-rich loads. Statement-wise Verification Statement 1 - Correct.Total power = 3 VL IL cos .P= 3 V_L I_L cos . Statement 2 - Correct.Power is constant in balanced system.For a balanced load, the instantaneous total three-phase power is constant and the phasor sum of phase currents is zero, so a neutral conductor carries no current in the ideal balanced case. Statement 3 - Correct.Neutral current is zero in balanced load.For a balanced load, the instantaneous total three-phase power is constant and the phasor sum of phase currents is zero, so a neutral conductor carries no current in the ideal balanced case. Core Concept A balanced three-phase system has three equal-magnitude phase quantities displaced by 120 . For a balanced load, the instantaneous total three-phase power is constant and the phasor sum of phase currents is zero, so a neutral conductor carries no current in the ideal balanced case. Formula / Key