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

Consider the following statements regarding Resonance in RLC Circuit: 1. In series resonance, impedance becomes minimum and current becomes maximum. 2. At resonance,

A. 2 and 3 only

B. 1 and 4 only

C. **1, 2 and 3 only** — Correct

D. All of the above

Correct Answer: C

Full Detailed Explanation

Correct Answer: C - 1, 2 and 3 only Quick Concept Explanation For a series RLC circuit, XL=XC at resonance, so the impedance is purely resistive and minimum, current is maximum, and power factor is unity. In an ideal parallel resonant circuit the input impedance is high, not minimum. Key relation: =1/ (LC); f =1/(2 LC); at resonance XL=XC.Exam focus: Series resonance: Z minimum, I maximum. Parallel resonance: input Z maximum (ideal case). Common trap: Reactive voltages can be large even though net reactive voltage is zero. Statement-wise Verification Statement 1 - Correct.In series resonance, impedance becomes minimum and current becomes maximum.For a series RLC circuit, XL=XC at resonance, so the impedance is purely resistive and minimum, current is maximum, and power factor is unity. Statement 2 - Correct.At resonance, inductive reactance equals capacitive reactance. =1/ (LC); f =1/(2 LC); at resonance XL=XC. Statement 3 - Correct.Power factor at resonance becomes unity.For a series RLC circuit, XL=XC at resonance, so the impedance is purely resistive and minimum, current is maximum, and power factor is unity. Statement 4 - Incorrect.In parallel resonance, impedance becomes minimum.The correct principle is: For a series RLC circuit, XL=XC at resonance, so the impedance is purely resistive and minimum, current is maximum, and power factor is unity. Core