

Hard

Deputy Executive Engineer (Electrician) 2026

Gujarat Public Service Commission / Assistant Engineer (Electrical)

Consider the following quantities: 1. Real power 2. Reactive power 3. Power factor 4. Input current 5. Bus voltage magnitude 6. Bus voltage phase-angle For the purpose of the

A

1, 3, 4 and 5

B

2, 3, 5 and 6

C

1, 2, 3 and 4

D

1, 2, 5 and 6

Correct

Correct Answer: D

Full Detailed Explanation

Correct Answer: D - 1, 2, 5 and 6 Quick Concept Explanation Load-flow studies determine the steady operating state of a power network: bus voltage magnitudes/angles, line real and reactive power flows and system losses. One bus is designated slack to absorb the power mismatch; Newton-Raphson is generally preferred for large systems because of its convergence characteristics.Exam focus: PQ, PV and slack buses differ by which two variables are specified. Common trap: Transient stability is not a direct output of ordinary load flow. Statement-wise Verification Statement 1 - Correct.Real powerLoad-flow studies determine the steady operating state of a power network: bus voltage magnitudes/angles, line real and reactive power flows and system losses. Statement 2 - Correct.Reactive powerLoad-flow studies determine the steady operating state of a power network: bus voltage magnitudes/angles, line real and reactive power flows and system losses. Statement 3 - Incorrect.Power factorThe correct principle is: The bus-admittance matrix is sparse. Statement 4 - Incorrect.Input currentThe correct principle is: The bus-admittance matrix is sparse. Statement 5 - Correct.Bus voltage magnitudeLoad-flow studies determine the steady operating state of a power network: bus voltage magnitudes/angles, line real and reactive power flows and system losses. Statement 6 - Correct.Bus voltage