

Medium

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Gujarat Public Service Commission / Assistant Engineer (Electrical)

Consider the following statements:
Stability studies constitute 1. the major analytical approach to the study of power system electromechanical dynamic behaviour.

A

1, 2 and 3 only

B

All of the above

C

2, 3 and 4 only

D

1 and 4 only

Correct

Correct Answer: D

Full Detailed Explanation

Correct Answer: D - 1 and 4 only
Quick Concept Explanation Power-system stability concerns the ability of synchronous machines and network states to remain or return to acceptable operation after disturbances. Stability studies focus strongly on rotor-angle/electromechanical dynamics rather than ordinary steady-state voltage calculation alone. Key relation: Simplified transfer $P \propto (E V / X) \sin \delta$; reducing effective X raises transfer capability. Exam focus: Lower transfer reactance generally improves synchronizing power margin. Common trap: Do not confuse ordinary load flow with a dynamic stability study. Statement-wise Verification Statement 1 - Correct. the major analytical approach to the study of power system electromechanical dynamic behaviour. Stability studies focus strongly on rotor-angle/electromechanical dynamics rather than ordinary steady-state voltage calculation alone. Statement 2 - Incorrect. the involvement of one or just a few machines or gradual changes in undergoing slow operating conditions. The correct principle is: Power-system stability concerns the ability of synchronous machines and network states to remain or return to acceptable operation after disturbances. Statement 3 - Incorrect. the determination of the locus of essentially steady-state operating points of the system. The correct principle is: Stability studies focus strongly on