

Medium

Deputy Executive Engineer (Electrician) 2026

Ports Authority of Gujarat / Assistant Engineer (Electrical)

Stability of a power system can be improved by

- 1. Using series compensations**
- 2. Using parallel transmission lines**
- 3. Reducing voltage of transmission**

Which of the

A

1 only

B

2 and 3 only

C

2 only

D

1 and 2 only

Correct

Correct Answer: D

Full Detailed Explanation

Correct Answer: D - 1 and 2 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.

Series compensation can increase transfer capability by reducing effective reactance, and parallel transmission paths can reduce transfer reactance. Key relation:

Simplified transfer $P = (EV/X)\sin \delta$; 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. Using series compensations Series compensation can increase transfer capability by reducing effective reactance, and parallel transmission paths can reduce transfer reactance.

Statement 2 - Correct. Using parallel transmission lines Series compensation can increase transfer capability by reducing effective reactance, and parallel transmission paths can reduce transfer reactance.

Statement 3 - Incorrect. Reducing voltage of transmission Lower transmission voltage generally worsens power-transfer capability/stability; higher voltage helps

Core Concept Power-system stability concerns the ability of synchronous machines and network states to remain or return to acceptable operation after disturbances. Series compensation can increase transfer