

Medium

Deputy Executive Engineer (Electrician)

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Sports Authority of Gujarat / Assistant Engineer (Electrical)

In a 3-phase VSI in 120° conduction mode,
1. Each switch conducts for 120° in a cycle.
2. Only two switches conduct at any given time.
3. The phase voltage is zero for

A

1 and 2 only

B

1, 2 and 3 only

Correct

C

1 and 3 only

D

2 and 3 only

Correct Answer: B

Full Detailed Explanation

Correct Answer: B - 1, 2 and 3 only
Quick Concept Explanation Three-phase voltage-source inverters can be operated with 120° or 180° conduction sequences. In 120° conduction, each switch is on for 120° and only two devices conduct at a time, leaving one phase disconnected for intervals. Key relation: Conduction duration: 120° two switches at a time; 180° three switches at a time. Exam focus: Track pole voltage and load-neutral voltage separately. Common trap: Balanced load does not force the floating neutral to the DC midpoint at every switching state. Statement-wise Verification Statement 1 - Correct. Each switch conducts for 120° in a cycle. In 120° conduction, each switch is on for 120° and only two devices conduct at a time, leaving one phase disconnected for intervals. Statement 2 - Correct. Only two switches conduct at any given time. Conduction duration: 120° two switches at a time; 180° three switches at a time. Statement 3 - Correct. The phase voltage is zero for 60° in every half-cycle. Three-phase voltage-source inverters can be operated with 120° or 180° conduction sequences. Core Concept Three-phase voltage-source inverters can be operated with 120° or 180° conduction sequences. In 120° conduction, each switch is on for 120° and only two devices conduct at a time, leaving one phase disconnected for intervals. In 180° conduction, three devices conduct at a time and