

Easy

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Consider the following statements regarding Pumping Systems in buildings: 1. Net Positive Suction Head (NPSH) is a critical parameter to prevent cavitation in

A

1 and 2 only

B

2 and 3 only

C

1 and 3 only

D

1, 2 and 3

Correct

Correct Answer: D

Full Detailed Explanation

Correct Answer: D - 1, 2 and 3 Quick Concept Explanation Centrifugal pumps require sufficient pressure at the suction to avoid local vaporization and cavitation; this is evaluated using NPSH. When a pump is above the liquid level, the casing/suction line must be primed because a centrifugal pump cannot normally evacuate air and establish suction by itself. Exam focus: Cavitation questions: compare available and required NPSH. Common trap: Priming is unnecessary only for self-priming arrangements or when suction is already flooded. Statement-wise Verification Statement 1 - Correct. Net Positive Suction Head (NPSH) is a critical parameter to prevent cavitation in pumps. Centrifugal pumps require sufficient pressure at the suction to avoid local vaporization and cavitation; this is evaluated using NPSH. Statement 2 - Correct. Priming is necessary for centrifugal pumps if the pump is located above the liquid level (suction lift). When a pump is above the liquid level, the casing/suction line must be primed because a centrifugal pump cannot normally evacuate air and establish suction by itself. Statement 3 - Correct. A booster pump is used to maintain constant pressure in high-rise water distribution systems. Booster pumps are used to maintain required pressure in tall-building distribution zones. Core Concept Centrifugal pumps require sufficient pressure at the suction to