Easy | Deputy Executive Engineer (Electric | 2026 | orts Authority of Gujarat / Assistant Engineer (El

Consider the following statements regarding Flip Flops: 1. SR flip-flop has invalid state when both inputs are high causing undefined output. 2. JK flip-flop resolves

A All of the above

B 2 and 3 only

C 1 and 3 only

D **1 and 2 only** Correct

Correct Answer: D

Full Detailed Explanation

Correct Answer: D - 1 and 2 only Quick Concept Explanation Flip-flops and latches store state. In the basic active-high SR form, S=R=1 is forbidden/invalid. Key relation: JK with J=K=1 toggle.Exam focus: Race-around is associated especially with level-triggered JK at long clock pulses. Common trap: Do not credit level triggering itself with eliminating race-around. Statement-wise Verification Statement 1 - Correct.SR flip-flop has invalid state when both inputs are high causing undefined output.In the basic active-high SR form, S=R=1 is forbidden/invalid. Statement 2 - Correct.JK flip-flop resolves this issue by toggling when both inputs are high.The JK design removes that invalid combination by toggling when J=K=1. Statement 3 - Incorrect.D flip-flop eliminates race condition by using level triggering.The correct principle is: Race-around concerns are addressed by edge triggering or master-slave design rather than simply 'level triggering'. Core Concept Flip-flops and latches store state. In the basic active-high SR form, S=R=1 is forbidden/invalid. The JK design removes that invalid combination by toggling when J=K=1. D storage forces complementary set/reset behavior from one data input, but race-around concerns are addressed by edge triggering or master-slave design rather than simply 'level triggering'. Formula / Key Relationship JK with J=K=1