

Easy

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Consider the following statements

regarding Sequential circuit: 1.

Sequential circuits depend on both present inputs and previous states stored in memory

A

1 and 2 only

Correct

B

2 and 3 only

C

1 and 3 only

D

1, 2 and 3

Correct Answer: A

Full Detailed Explanation

Correct Answer: A - 1 and 2 only

Quick Concept Explanation Sequential circuits combine logic with memory, so outputs/state depend on present inputs and previous state. Flip-flops and latches provide storage. Key relation: $x[k+1]=F(x[k],u[k]); y[k]=G(x[k],u[k])$. Exam focus: Look for state/memory before classifying a circuit as sequential. Common trap: Do not equate sequential with asynchronous. Statement-wise Verification Statement 1 - Correct. Sequential circuits depend on both present inputs and previous states stored in memory elements. Sequential circuits combine logic with memory, so outputs/state depend on present inputs and previous state. Statement 2 - Correct. Flip-flops and latches provide storage capability in such systems. Flip-flops and latches provide storage. Statement 3 - Incorrect. All sequential circuits are necessarily asynchronous in operation. Sequential circuits may be synchronous or asynchronous

Core Concept Sequential circuits combine logic with memory, so outputs/state depend on present inputs and previous state. Flip-flops and latches provide storage. Sequential systems can be synchronous, driven by a clock, or asynchronous; being sequential does not imply asynchronous operation.

Formula / Key Relationship $x[k+1]=F(x[k],u[k]); y[k]=G(x[k],u[k])$

Why the Other Options Are Wrong Option B is incorrect