

Easy

Deputy Executive Engineer (Electrician)

2026

Gujarat Public Service Commission / Assistant Engineer (Electrical)

Consider the following statements regarding Logic Families: 1. CMOS logic family exhibits high noise immunity due to large voltage margins and high input impedance

A

1 and 3 only

Correct

B

2 and 3 only

C

1 and 2 only

D

1, 2 and 3

Correct Answer: A

Full Detailed Explanation

Correct Answer: A - 1 and 3 only Quick Concept Explanation CMOS inputs draw extremely small steady-state current and offer large noise margins, giving high input impedance and high fan-out in many logic applications. Traditional TTL uses bipolar transistors and has higher static power than CMOS under comparable conditions. Key relation: Fan-out is limited by input loading and output drive; CMOS input current is very small. Exam focus: CMOS usually wins on static power. Common trap: Do not assume bipolar TTL has lower static power than CMOS. Statement-wise Verification Statement 1 - Correct. CMOS logic family exhibits high noise immunity due to large voltage margins and high input impedance characteristics. CMOS inputs draw extremely small steady-state current and offer large noise margins, giving high input impedance and high fan-out in many logic applications. Statement 2 - Incorrect. TTL logic consumes less static power compared to CMOS due to bipolar transistor operation. Traditional TTL generally consumes more static power than CMOS Statement 3 - Correct. CMOS circuits allow higher fan-out due to negligible input current. Fan-out is limited by input loading and output drive; CMOS input current is very small. Core Concept CMOS inputs draw extremely small steady-state current and offer large noise margins, giving high input impedance and high fan-out in many logic