

Easy

Assistant Engineer (Electrical), Class 2025

Building Department

KCL is based on the fact that

A

There is a possibility for a node to store energy

B

There cannot be an accumulation of charge at a node

Correct

C

Charge accumulation is possible at node

D

Charge accumulation may or may not be possible

Correct Answer: B

Full Detailed Explanation

Concept & Reasoning Kirchhoff's Current Law is the circuit form of charge conservation. If net current flowed continuously into an ideal node, charge would accumulate and its potential would change without bound. In lumped network analysis the node has negligible storage volume, so the net rate of charge accumulation is zero and the sum of incoming currents equals the sum of outgoing currents. More generally, continuity gives $\sum i = -dq/dt$; KCL is the $dq/dt = 0$ lumped-node case. How to Solve It in the Exam KCL = conservation of charge. Important Exam Point Use an algebraic sign convention: all entering positive or all leaving positive. Related Revision Path This question sits in the revision path Network Theory Kirchhoff's Laws KCL .

Open live question on website:

<https://sarkariresultout.com/pyq/question/gpsc-ae-electrical-q113-charge-conservation-at-a-node/>