

Easy

Assistant Engineer (Electrical), Class 2025

Building Department

An open pipe resonates with a tuning fork of frequency 500 Hz. It is observed that two successive nodes are formed at distances 16 cm and 46 cm from the open end.

A

230 m/s

B

300 m/s

Correct

C

320 m/s

D

360 m/s

Correct Answer: B

Full Detailed Explanation

Concept & Reasoning Although an open pipe has displacement antinodes at an ideal open end, the spacing between successive nodes anywhere in the standing-wave pattern remains $\lambda/2$.

Therefore the end correction is not needed when two node locations are directly given; only their separation matters. **How to Solve It in the Exam** Successive nodes/antinodes are $\lambda/2$ apart. **Important Exam Point** Use separation of the two nodes, not either absolute distance from the open end. **Related Revision Path** This question sits in the revision path Power System → Waves and Acoustics → Standing Waves .

Open live question on website:

<https://sarkariresultout.com/pyq/question/gpsc-ae-electrical-q195-open-pipe-node-spacing/>