

Moderate

Assistant Engineer (Electrical), Class 2025

Building Department

The impulse response of an LTI system which is continuous is $H(t) = e^{-|t|}$. The system is _____

A

Causal and stable

B

Causal but not stable

C

Stable but not causal

Correct

D

Neither causal nor stable

Correct Answer: C

Full Detailed Explanation

Concept & Reasoning For a continuous-time LTI system, causality requires $h(t)=0$ for $t<0$.

BIBO stability requires absolute integrability. Here $e^{-|t|}$ is symmetric and decays

exponentially on both sides, making its absolute integral finite, but its negative-time portion

violates causality. How to Solve It in the Exam Check causality and stability

independently. Important Exam Point Two-sided decaying impulse responses are often stable but

noncausal. Related Revision Path This question sits in the revision path Signals and Systems

LTI Systems Causality and Stability .

Open live question on website:

<https://sarkariresultout.com/pyq/question/gpsc-ae-electrical-q187-impulse-response-tests/>