A CT LTI system has the impulse response
\[ h(t) = u(t-2) - u(t-6) \]

Determine the output of this system when the input is \( e^{-3t} \) for all \( t \).
Consider 3 CT LTI systems $S_1$, $S_2$, and $S_3$ whose responses to a complex exponential input $e^{jst}$ are specified as:

- $S_1$: $e^{jst} \rightarrow te^{jst}$
- $S_2$: $e^{jst} \rightarrow e^{jst(t-1)}$
- $S_3$: $e^{jst} \rightarrow \cos(\omega t)$

For each system determine whether the given information is sufficient to conclude that the system is definitely not LTI.