

• **Classification of LTI systems (using the impulse response):-**

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|-----------------|----|---------------------------|--|---|
| 1- Memoryless:- | if | $h(t) = k \delta(t)$ | | $h[n] = k \delta[n]$ |
| 2- Casual :- | if | $h(t)=0$ for $t < 0$ | | $h[n] = 0$ for $n < 0$ |
| 3- Stable :- | if | $\int h(t) dt < \infty$ | | $\sum_{n=-\infty}^{\infty} h[n] < \infty$ |

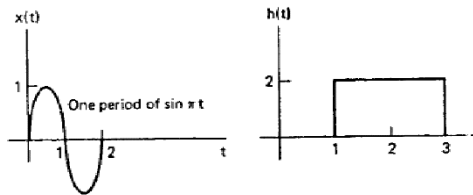
Q1) state weather the following is Memoryless, causal, and stable? (Ex.2.29)

a) $h(t) = e^{-4t} u(t-2)$

Q2) Asses the stability of the following LTI systems with

a) $h[n] = u[n]$ b) $h(t) = \sum_{k=0}^{\infty} 0.5^k \delta(t - k)$

Q3) Find $y(t)$ if $x(t)$ and $h(t)$ is given as :- (Ex.2.22c)



Q4) Find $y[n]$ if $x[n] = (1/2)^{n-2} u[n-2]$ and $h[n] = u[n+2]$ (Ex.2.3)