

Name _____ CM _____

Quiz 5

1) The integral $\int_{-t+2}^{\infty} \delta(\lambda - 5) d\lambda$ is equal to

- a) $u(t - 5)$ b) $u(-t + 2)$ c) 0 d) $u(t + 3)$ e) $u(t - 3)$ f) none of these

2) The integral $\int_{-\infty}^{t+3} \delta(\lambda + 2) d\lambda$ is equal to

- a) $u(t + 2)$ b) $u(t + 3)$ c) 0 d) $u(t + 5)$ e) $u(t - 5)$ f) none of these

3) The integral $\int_{-\infty}^t e^{-\lambda} \delta(\lambda - 2) d\lambda$ is equal to

- a) $e^{-2}u(t - 2)$ b) $e^{-2}u(t)$ c) $e^{-t}u(t)$ d) $e^{-t}u(t - 2)$ e) $e^2u(t - 2)$ f) none of these

4) The integral $\int_2^{t-1} \delta(\lambda - 1) d\lambda$ is equal to

- a) 0 b) $-u(1 - t)$ c) $-u(2 - t)$ d) $-u(3 - t)$ e) $u(t - 3)$ f) none of these

5) The integral $h(t) = \int_{-\infty}^{t+1} e^{-(t-\lambda)} \delta(\lambda + 3) d\lambda$ can be simplified as

- a) $e^{-(t+3)}u(t)$ b) $e^{-(t+3)}u(t+1)$ c) $e^{-(t+3)}u(t+3)$ d) $e^{-(t+3)}u(t+4)$

6) The integral $h(t) = \int_{-\infty}^t e^{-(t-\lambda)} \delta(\lambda - 1) d\lambda$ can be simplified as

- a) $e^{-(t-1)} u(t)$ b) $e^{-(t-1)} u(t-1)$ c) $e^{-(t-1)} u(t-3)$ d) $e^{-(t-1)} u(t-4)$

7) The **impulse response** for the LTI system $y(t) = \int_{-\infty}^{t+1} e^{-(t-\lambda)} x(\lambda - 3) d\lambda$ is

- a) $h(t) = e^{-(t-3)} u(t)$ b) $h(t) = e^{-(t-3)} u(t+1)$ c) $h(t) = e^{-(t-3)} u(t-3)$
d) $h(t) = e^{-(t-3)} u(t-2)$ e) $h(t) = e^{-(t-3)} u(t-1)$ f) none of these

8) The **impulse response** for the LTI system $y(t) = x(t-1) + \int_{-\infty}^{t-2} e^{-(t-\lambda)} x(\lambda - 3) d\lambda$ is

- a) $h(t) = \delta(t-1) + e^{-(t-3)} u(t)$ b) $h(t) = u(t-1) + e^{-(t-3)} u(t)$
c) $h(t) = \delta(t-1) + e^{-(t-3)} u(t-1)$ d) $h(t) = u(t-1) + e^{-(t-3)} u(t+1)$
e) $h(t) = \delta(t-1) + e^{-(t-3)} u(t-3)$ f) none of these

9) The **impulse response** for the LTI system $\dot{y}(t) - y(t) = x(t-1)$ is

- a) $h(t) = e^{(t-1)} u(t-1)$ b) $h(t) = e^{-(t-1)} u(t-1)$ c) $h(t) = e^{-(t-1)} u(t)$
d) $h(t) = e^{(t-1)} u(t)$ e) none of these