Name_____ **CM**_____

Quiz 3
(no calculators)

1) The **average power** in the signal $x(t) = ce^{j\omega_0 t}$ is

a) 0   b) $\dfrac{|c|}{2}$ c) $|c|^2$ d) $\dfrac{|c|^2}{2}$

2) The **average power** in the signal $x(t) = A\cos(\omega_0 t + \theta)$ is

a) $\dfrac{|A|}{2}$ b) $|A|$ c) A^2 d) $\dfrac{A^2}{2}$

3) The signal $x(t) = te^{-t}u(t)$ is

a) an energy signal   b) a power signal   c) neither energy or power

4) The signal $x(t) = tu(t)$ is

a) an energy signal   b) a power signal   c) neither energy or power

5) The integral $h(t) = \displaystyle\int_{-\infty}^{t+1} e^{-(t-\lambda)}\delta(\lambda+3)d\lambda$ 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 $h(t) = \displaystyle\int_{-\infty}^{t} e^{-(t-\lambda)}\delta(\lambda-1)d\lambda$ 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) $e^{-(t-1)}u(t-4)$

Fill in the following table with a Y (yes) or N (no) for each of the system models given. Assume $-\infty < t < \infty$ for all of the systems.

System	System Model	Linear?	Time-Invariant?	Causal?	Memoryless?
7	$y(t) = 3e^{t+1}x(t)$				
8	$y(t) = x\left(\dfrac{t}{2}\right)$				
9	$y(t) = \dfrac{1}{2}\left[x(t-1) + x(t+1)\right]$				
10	$\dot{y}(t) + y(t) = x(t) + 2$				
11	$y(t) = \displaystyle\int_0^t e^{-(t-\lambda)}x(\lambda+1)d\lambda$				