

Name _____ CM _____

Quiz 9

(no calculators allowed, you may use the transform tables)

1) If $x(t) = 2\delta(t-3)$, then $X(\omega)$ is

- a) $2u(t-3)$ b) $2u(\omega-3)$ c) $2e^{j3\omega}$ d) $2e^{-j3\omega}$ e) none of these

2) If $X(\omega) = \frac{j\omega}{2+j\omega}$, then $x(t)$ is

- a) $te^{-2t}u(t)$ b) $-2e^{-2t}u(t)$ c) $-2e^{-2t}u(t) + \delta(t)$ d) $-2e^{-2t}\delta(t)$ e) none of these

3) If $x(t) = 3e^{-2t^2}$, then $X(\omega)$ is

- a) $3\sqrt{\frac{\pi}{2}}e^{-\omega^2/2}$ b) $3\sqrt{2\pi}e^{-\omega^2/8}$ c) $3\sqrt{\frac{\pi}{2}}e^{-\omega^2/4}$ d) none of these

4) If $X(\omega) = \text{sinc}\left(\frac{\omega}{3}\right)$, then $x(t)$ is

- a) $\frac{2\pi}{3}\text{rect}\left(\frac{3t}{2\pi}\right)$ b) $\frac{3}{2\pi}\text{rect}\left(\frac{3t}{2\pi}\right)$ c) $\text{rect}\left(\frac{3t}{2\pi}\right)$ d) $\frac{3}{2\pi}\text{rect}\left(\frac{2\pi t}{3}\right)$ e) none of these

5) If $x(t) = \text{sinc}^2\left(\frac{3t-9}{2}\right)$, then $X(\omega)$ is

- a) $\frac{2}{3}e^{-j\omega 3}\Lambda\left(\frac{\omega}{3\pi}\right)$ b) $\frac{2}{3}e^{-j\omega 9/2}\Lambda\left(\frac{\omega}{3\pi}\right)$ c) $\frac{2}{3}e^{-j\omega 9}\Lambda\left(\frac{\omega}{3\pi}\right)$ d) none of these

6) If $X(\omega) = \text{sinc}\left(\frac{\omega T}{\pi}\right)$, the first nulls (zero points) are at

- a) $\omega = \pm 1$ b) $\omega = \pm \frac{\pi}{T}$ c) $\omega = 0$ d) $\omega = \pm \frac{T}{\pi}$ e) none of these

7) If $x(t) = A \cos(2t)$, $X(\omega)$ will be nonzero

- a) for all ω b) for all $\omega = 2k$, k an integer c) for $\omega = 2$ only d) for $\omega = \pm 2$

8) If we have the transfer function

$$H(s) = \frac{1}{(s+2)(s+20)}$$

the bandwidth of the system is

- a) 2 rad/sec b) 2 Hz c) 20 rad/sec d) 20 Hz e) none of these