

Name \_\_\_\_\_ CM \_\_\_\_\_

## Quiz 2

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 function  $x(t) = \cos(t) + 3e^{j3t}$  is

- |                                |                                |
|--------------------------------|--------------------------------|
| a) not periodic                | b) periodic with period $2\pi$ |
| c) periodic with period $3\pi$ | d) periodic with period 2      |

**6)** The function  $x(t) = \cos(3\pi t + 45^\circ) + j \sin(\pi t)$  is

- |                           |                                |
|---------------------------|--------------------------------|
| a) not periodic           | b) periodic with period $2\pi$ |
| c) periodic with period 2 | d) periodic with period 1      |

**7)** The function  $x(t) = 2\cos(t) + \cos(\sqrt{2}t + 30^\circ)$  is

- |                           |                                |
|---------------------------|--------------------------------|
| a) not periodic           | b) periodic with period 1      |
| c) periodic with period 2 | d) periodic with period $2\pi$ |

**8)** If  $z = \frac{j}{1+j}$ , the **magnitude** of  $z$ ,  $|z|$  is

- |      |                          |                         |                  |
|------|--------------------------|-------------------------|------------------|
| a) 1 | b) $\frac{-1}{\sqrt{2}}$ | c) $\frac{1}{\sqrt{2}}$ | d) none of these |
|------|--------------------------|-------------------------|------------------|

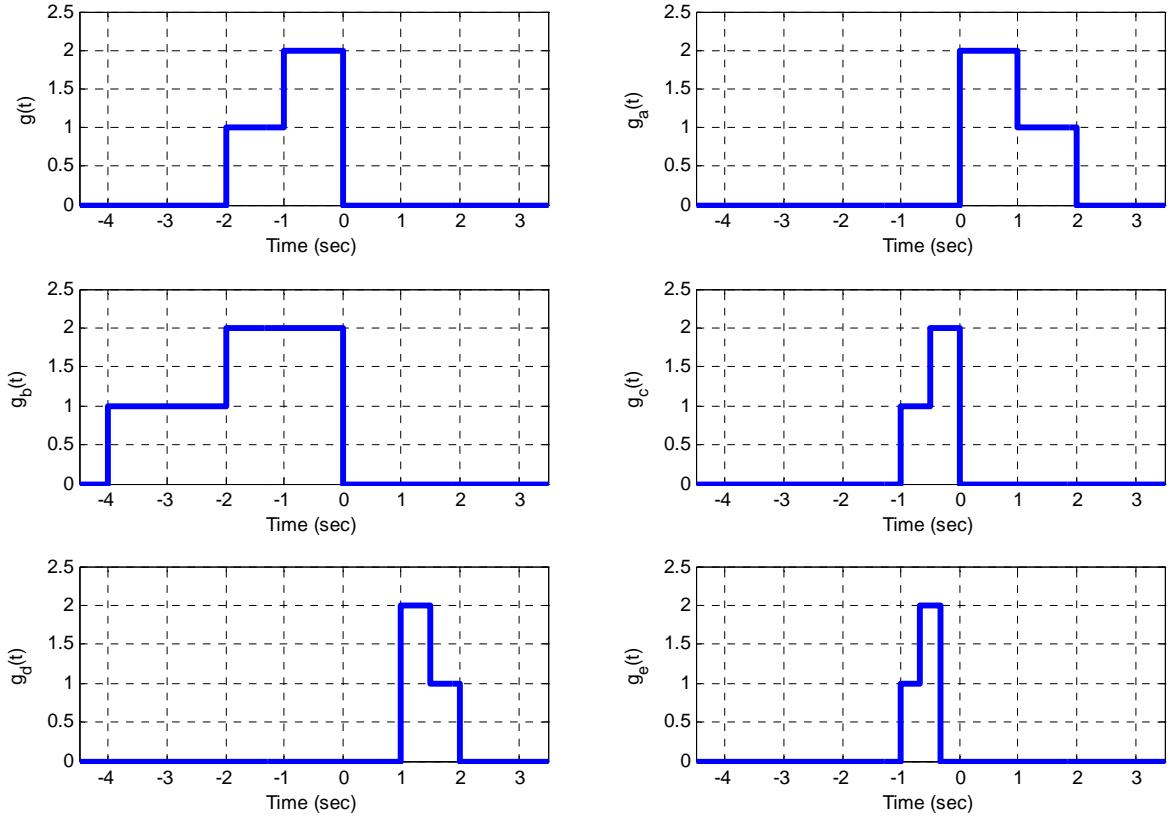
**9)** If  $z = \frac{1-j}{1+j}$ , the **phase** of  $z$ ,  $\angle z$ , is

- |               |                |               |                |                  |
|---------------|----------------|---------------|----------------|------------------|
| a) $45^\circ$ | b) $-45^\circ$ | c) $90^\circ$ | d) $-90^\circ$ | e) none of these |
|---------------|----------------|---------------|----------------|------------------|

**10)** If we made the variable substitution  $\sigma = \frac{\lambda}{2}$  in the integral  $\int_0^4 e^\lambda x\left(\frac{\lambda}{2}\right) d\lambda$ , the new integral is

- |  |   |  |   |                  |
|--|---|--|---|------------------|
| a) $2\int_0^2 e^{2\sigma} x(\sigma) d\sigma$ | b) $\frac{1}{2}\int_0^2 e^{\frac{\sigma}{2}} x(\sigma) d\sigma$ | c) $2\int_0^4 e^{2\sigma} x(\sigma) d\sigma$ | d) $\frac{1}{2}\int_0^4 e^{\frac{\sigma}{2}} x(\sigma) d\sigma$ | f) none of these |
|--|---|--|---|------------------|

In the figure below,  $g(t)$  is the original signal (in the upper left corner)



- 11) Which signal represents  $g(1+3t)$ ?  $g_a(t)$   $g_b(t)$   $g_c(t)$   $g_d(t)$   $g_e(t)$
- 12) Which signal represents  $g\left(\frac{t}{2}\right)$ ?  $g_a(t)$   $g_b(t)$   $g_c(t)$   $g_d(t)$   $g_e(t)$
- 13) Which signal represents  $g(2t)$ ?  $g_a(t)$   $g_b(t)$   $g_c(t)$   $g_d(t)$   $g_e(t)$
- 14) Which signal represents  $g(2(1-t))$ ?  $g_a(t)$   $g_b(t)$   $g_c(t)$   $g_d(t)$   $g_e(t)$
- 15) Which signal represents  $g(-t)$ ?  $g_a(t)$   $g_b(t)$   $g_c(t)$   $g_d(t)$   $g_e(t)$
- 16) Which signal represents a purely compressed  $g(t)$ ?  $g_a(t)$   $g_b(t)$   $g_c(t)$   $g_d(t)$   $g_e(t)$
- 17) Which signal represents a purely expanded  $g(t)$ ?  $g_a(t)$   $g_b(t)$   $g_c(t)$   $g_d(t)$   $g_e(t)$