Name _____ CM_____

ECE-300, Quiz #1

1) The function $x(t) = 3t\delta(t-2) + t$ can be simplified as

a) $x(t) = 8$ b) $x(t) = 6\delta(t-2) + t$ c) $x(t) = 6 + t$ d) none of these

2) The integral $\int_0^{10} \delta(\lambda - 1)\delta(\lambda - 2)d\lambda$ can be simplified as

a) 0 b) 1 c) none of these

3) The integral $\int_{-1}^{5} t\delta(t-2)dt$ can be simplified as

a) 0 b) 2 c) $2\delta(t-2)$ d) $t\delta(t-2)$

4) The integral $\int_{-1}^{2} \delta(t-3)dt$ can be simplified as

a) 1 b) 0 c) 3 d) $\delta(t-3)$

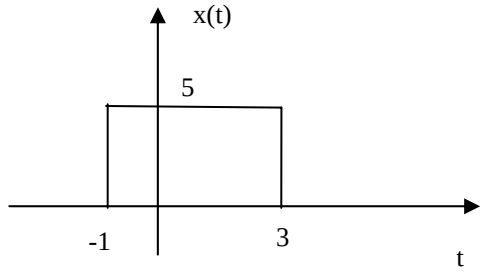
5) The integral $\int_{-1}^{5} u(\lambda)u(1-\lambda)d\lambda$ can be simplified as

a) 1 b) 0 c) 4 d) none of the above

6) The function $x(t)$ below can best be represented by the function

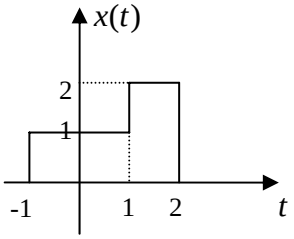
a) $x(t) = 5rect(\frac{t}{2})$ b) $x(t) = 5rect(\frac{t-1}{2})$

c) $x(t) = 5rect(\frac{t}{4})$ d) $x(t) = 5rect(\frac{t-1}{4})$



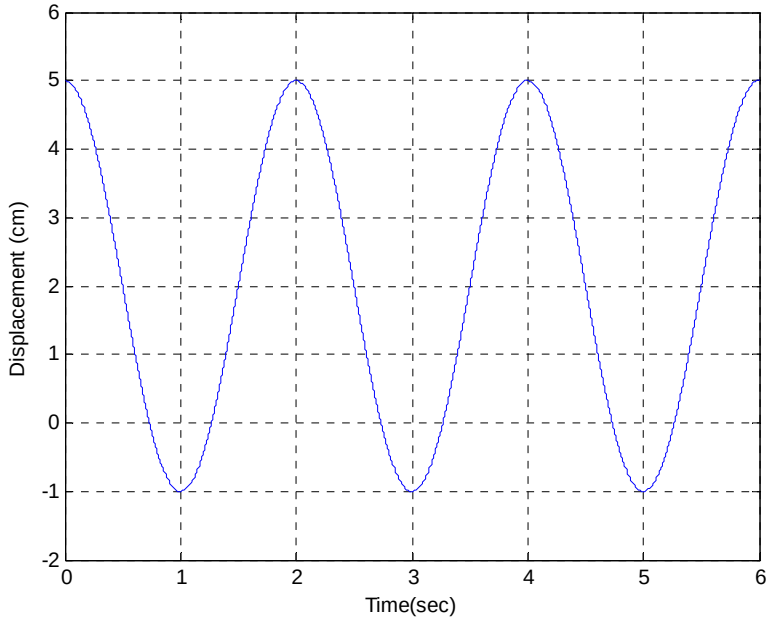
7) The function $x(t)$ below can best be modeled by the function

a) $x(t) = u(t+1) + u(t-1) - u(t-2)$ b) $x(t) = u(t+1) + 2u(t-1) - 2u(t-2)$
c) $x(t) = u(t+1) + u(t-1) - 2u(t-2)$ d) $x(t) = u(t+1) + 2u(t-1) - 3u(t-2)$



Problems 8-10 refer to the signal shown below, which we want to model as

$x(t) = A + B\cos(\omega t)$



8) Of the following, which is the best estimate of A?

a) 0 b) 1 c) 2 d) 3

9) Of the following, which is the best estimate of B?

a) 0 b) 1 c) 2 d) 3

10) Of the following, which is the best estimate of ω?

a) 1 b) 2 c) $\frac{\pi}{2}$ d) π