Name_____ **CM**_____

ECE-205 Quiz 6

Problems **1 - 4** refer to the following linear time invariant (LTI) system, with impulse response $h(t)$ shown below on the left, and input $x(t)$ shown below on the right. The output of the system, $y(t)$, is the convolution of the impulse response with the input, $y(t) = h(t) * x(t)$.
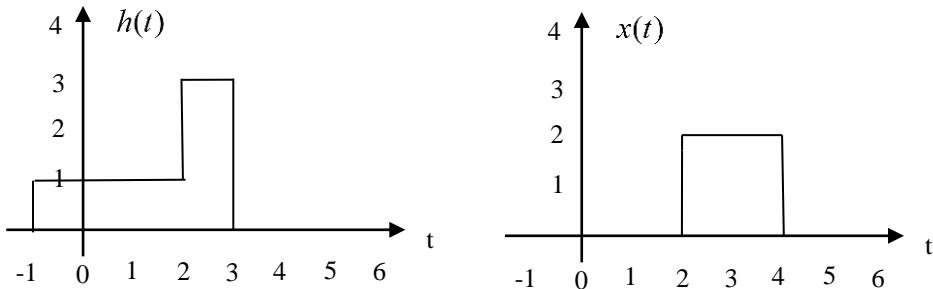
1) Is this LTI system causal?   a) Yes   b) No

2) The maximum value of $y(t)$ is   a) 4   b) 5   c) 6   d) 7   e) 8

3) $y(t)$ is zero until what time?   a) 0   b) 1   c) 2   d) 3   e) 4

**4)** $y(t)$ will return to zero at what time?   a) 6   b) 7   c) 8   d) 9   e) 10

For problems **5-10**, assume we are convolving two functions, and at some point we have the configuration shown below:
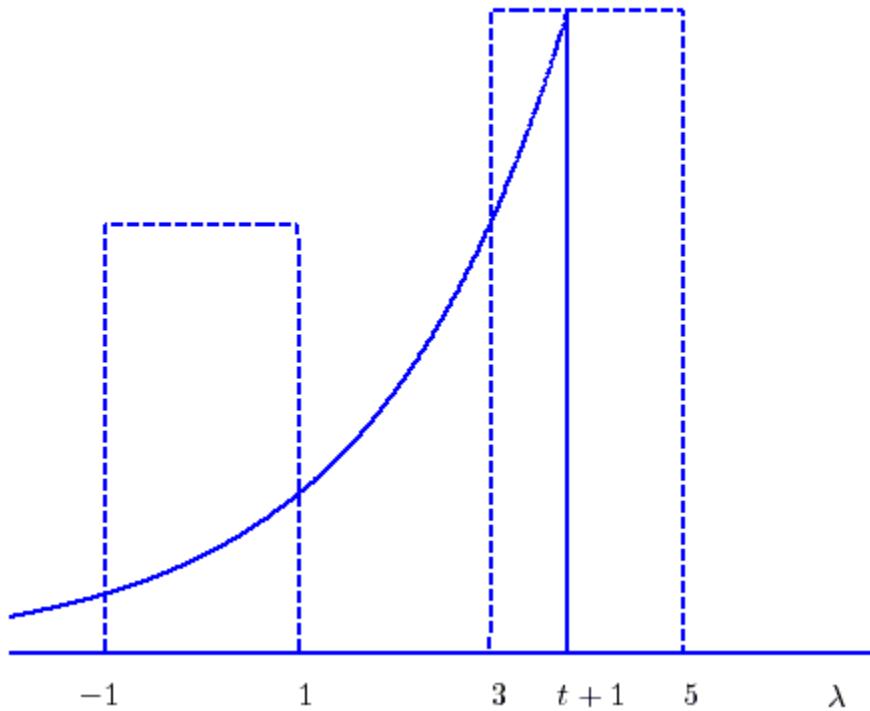
The output at this time can be written as the sum of two integrals,

$$y(t) = \int_a^b x(\lambda)h(t-\lambda)d\lambda + \int_c^d x(\lambda)h(t-\lambda)d\lambda \backslash$$

5) The value of the parameter a is   a) -1   b) 1   c) 3   d) 5   e) t f) $t+1$

6) The value of the parameter b is   a) -1   b) 1   c) 3   d) 5   e) t f) $t+1$

7) The value of the parameter c is   a) -1   b) 1   c) 3   d) 5   e) t f) $t+1$

8) The value of the parameter d is   a) -1   b) 1   c) 3   d) 5   e) t f) $t+1$

9) This sketch is valid for

a) $-1 < t < 1$ b) $3 < t < 5$ c) $0 < t < 2$ d) $0 < t < 1$ e) none of these

10) Is this a causal system?   a) yes   b) no   c) it is not possible to tell