ECE 232
Homework II
Due date: 22-5-2015

Q1) The impulse response of a LTI (linear time-invariant) system is given by the formula,

$$h(t) = e^{-t}\, u(t)$$

This system is excited by an input,

$$x(t) = u(t)-2u(t-1)+u(t-2)$$

Using convolution integral, find the output,

$$y(t) = x(t)*h(t)$$

(u(t) in the equations stands for unit step input).
(* stands for the convolution operation).

Q2) The impulse response of a LTI (linear time-invariant) system is given by the formula,

$$h(t) = u(t)$$

This system is excited by an input,

$$x(t) = u(t)-2u(t-1)+u(t-2)$$

Using convolution integral, find the output,

$$y(t) = x(t)*h(t)$$

(u(t) in the equations stands for unit step input).
(* stands for the convolution operation).

Q3) The impulse response of a LTI (linear time-invariant) system is given by the formula,

$$h(t) = u(t)$$

This system is excited by an input,

$$x(t) = r(t)-2r(t-1)+r(t-2)$$

Using convolution integral, find the output,

$$y(t) = x(t)*h(t)$$

(u(t) in the equations stands for unit step input).
(r(t) in the equations stands for unit ramp input).
(* stands for the convolution operation).