CT CONVOLUTION – PROBLEM SESSION

Problem 1

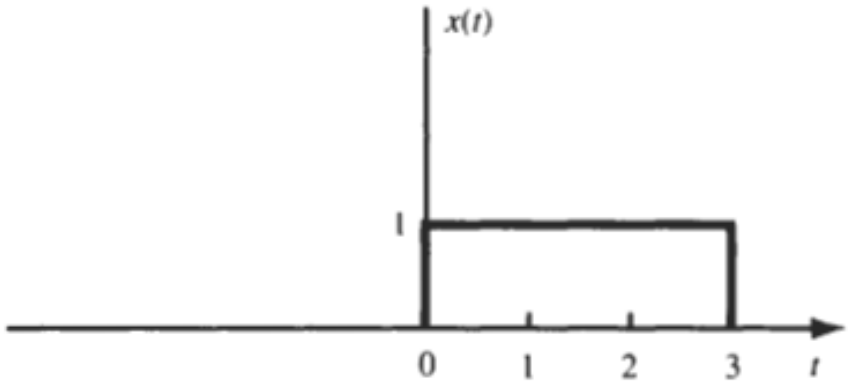
Compute the output $y(t)$ for a continuous-time LTI system whose impulse response $h(t)$ and the input $x(t)$ are given by

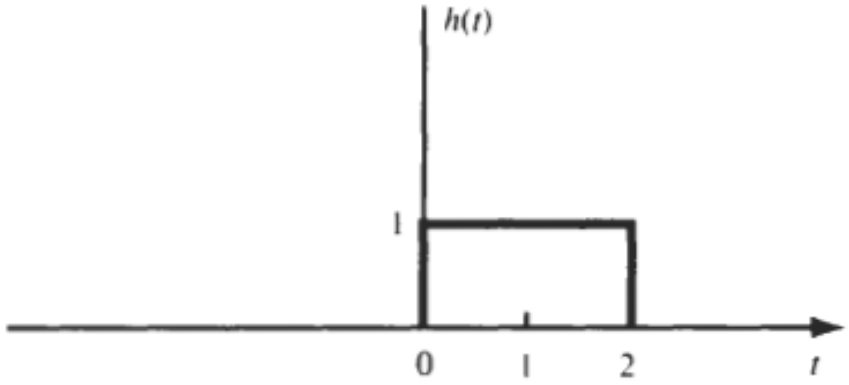
$$h(t) = e^{-\alpha t}u(t) \qquad x(t) = e^{\alpha t}u(-t) \qquad \alpha > 0$$

$$y(t) = \int_{-\infty}^{\infty} x(\tau)h(t-\tau)d\tau$$

Problem 2

- Evaluate y(t) = x(t) * h(t), where x(t) and h(t) are shown in Figure below, (a) by an analytical technique, and (b) by a graphical method.





$$y(t) = \int_{-\infty}^{\infty} x(\tau)h(t-\tau)d\tau$$