HINTS & ANSWERS – PROBLEM SET -2

1)

a) $y(t) = 1 - \cos t$

b) $y = t - 1 + 2e^{-t} - H(t-1)\left(t - 2 + e^{-t+1}\right)$

c) $y = \frac{1}{2}\left[t\sin t + H(t-\pi)(t-\pi)\sin(t-\pi)\right]$

2)

a) $y = \left(-\frac{1}{2}t\cos t + \cos t + \pi\sin t\right)$

b) $y = \frac{t}{9} + \cos 3t + \frac{4}{9}\sin 3t$

3)

a) $y = t + ct^2$

b) $y = te^{-t}$

4)

a) $y(t) = te^{t}$

b) $y(t) = \frac{1}{2} - 2e^{-t} + \frac{5}{2}e^{-2t}$