

## ELEG 3124 Assignment # 14

1. Find the Convolution Sum between  $x(n)$  and  $h(n)$ .

(a)  $x(n) = \left(\frac{1}{3}\right)^n u(n)$ ,  $h(n) = u(-n)$ .

(b)  $x(n) = [1, 2, 3]$ ,  $h(n) = [1, 2]$

2. Find the Bilateral Z-transform of the following signals

(a)  $x(n) = 3^n u(-n - 2)$

(b)  $x(n) = [2, 1, 3, 5, 6]$

3. Consider a system described by the following difference equation

$$y(n) - 0.5y(n - 2) = 2x(n) - x(n - 1) - 0.5x(n - 2) \quad (1)$$

(a) Find the transfer function in the Z-domain

(b) Is the system BIBO-stable?