

# Department of Electrical

Name # Kamban Khan

ID # 6990

Assignment # 2

Subject # Signal &  
System

Submitted to, Engr. Amir  
Aman

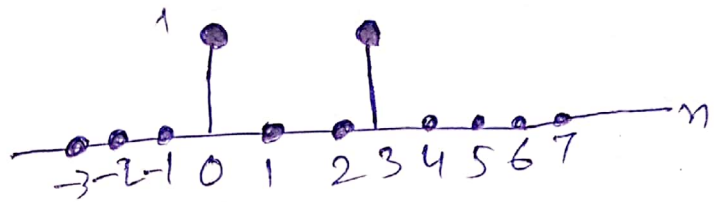
Semester # 6th

(Pg 1)

Kamran # 10# 6990

Q1  $\Rightarrow$   
(A)

$$x[n] = \delta[n] + \delta[n-3]$$



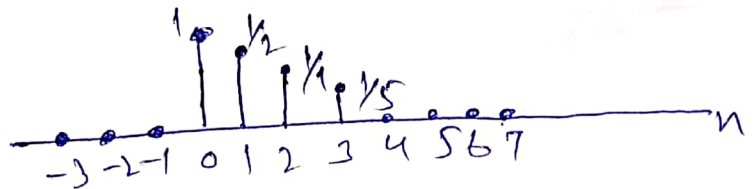
(b)

$$x[n] = u[n] - u[n-5]$$



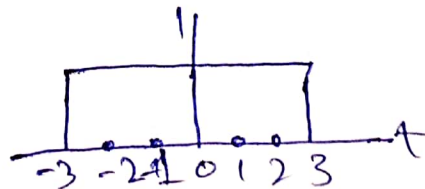
(c)

$$x[n] = \delta[n] + \frac{1}{2} \delta[n-1] + \left(\frac{1}{2}\right)^2 \delta[n-2] + \left(\frac{1}{2}\right)^3 \delta[n-3]$$



(d)

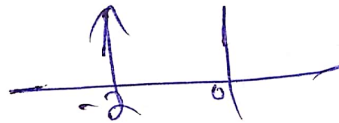
$$x[t] = u[t+3] - u[t-3]$$



(page) (2)

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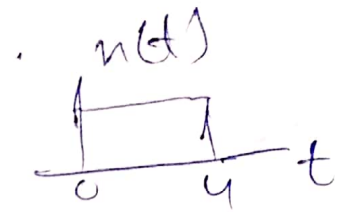
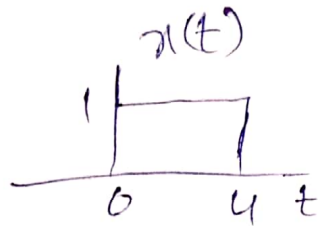
$$(e) x(t) = f(t+2)$$



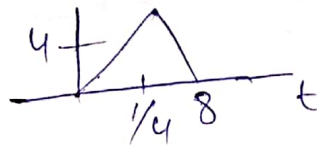
(Pg 3)

Ramran #10# 6990

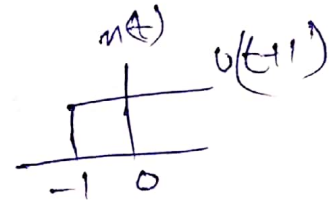
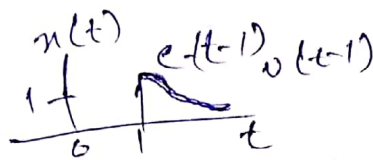
Q4) Ans)



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



Q4) Ans)



the limit can be verified by graphically visualizing the convolution.

$$\begin{aligned}
 y(t) &= \int_{-\infty}^{\infty} n(x) v(t-x) dx \\
 &= \int_{-\infty}^{\infty} e^{-(x-1)} v(x-1) v(t-x+1) dx \\
 &= \begin{cases} \int_0^{t+1} e^{-(x-1)} dx, & t > 0, \\ 0, & t < 0, \end{cases}
 \end{aligned}$$

let  $x' = x-1$ , then

$$y(t) = \begin{cases} \int_0^t e^{-x'} dx' = 1 - e^{-t}, & t > 0 \\ 0, & t < 0 \end{cases}$$