

Name = M. Usama

ID = 14150

Subject = Signal & system

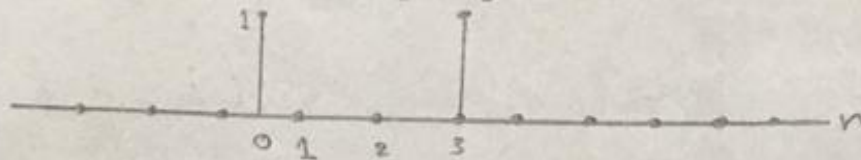
Submitted to = Engr: Muhammad - Amir - Aman

Semester = 6<sup>th</sup>

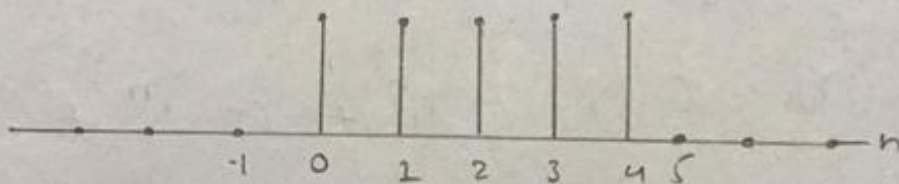
Program = B-tech -(E)

Question = 1

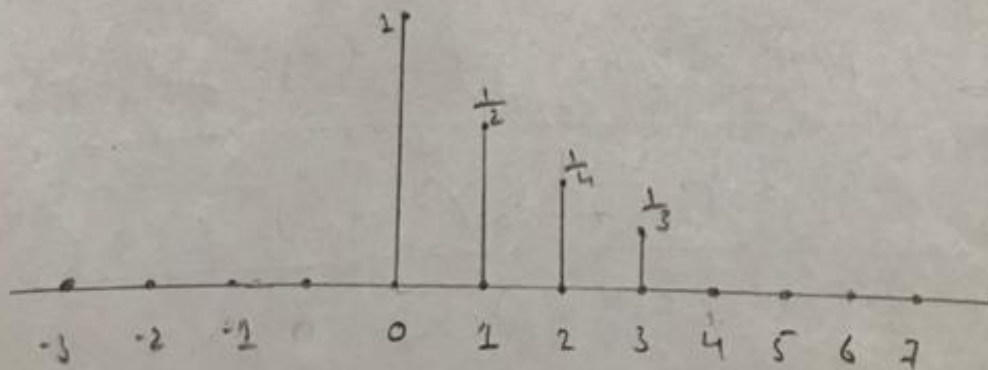
$$A = x[n] = \delta[n] + \delta[n-3]$$



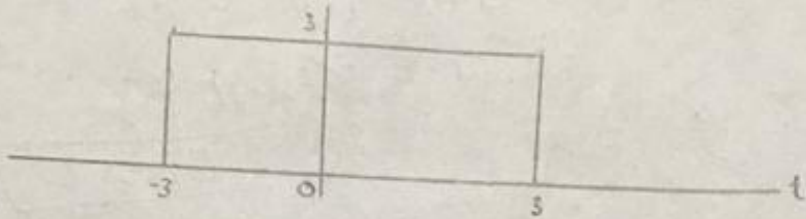
$$B \quad x[n] = u[n] - u[n-5]$$



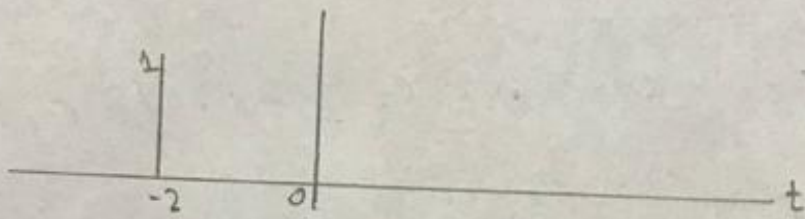
$$C \quad x[n] = \delta[n] + \frac{1}{2} \delta[n-1] + \left(\frac{1}{2}\right)^2 \delta[n-2] + \left(\frac{1}{2}\right)^3 \delta[n-3]$$



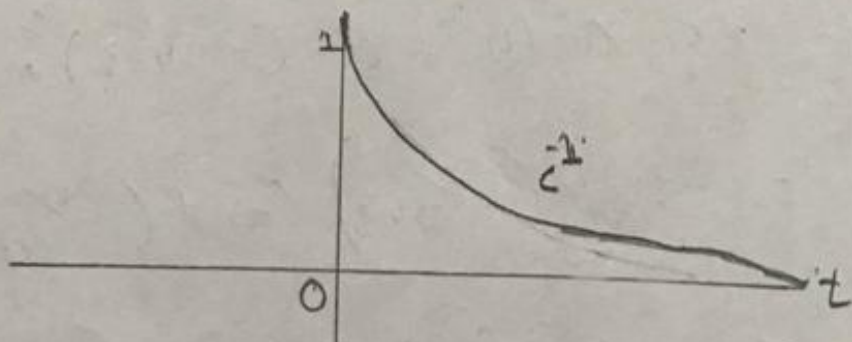
$$D = x(t) = u(t+3) - u(t-3)$$



$$(E) = x(t) = \delta(t+2)$$



$$(F) = x(t) = e^{-t} u(t)$$



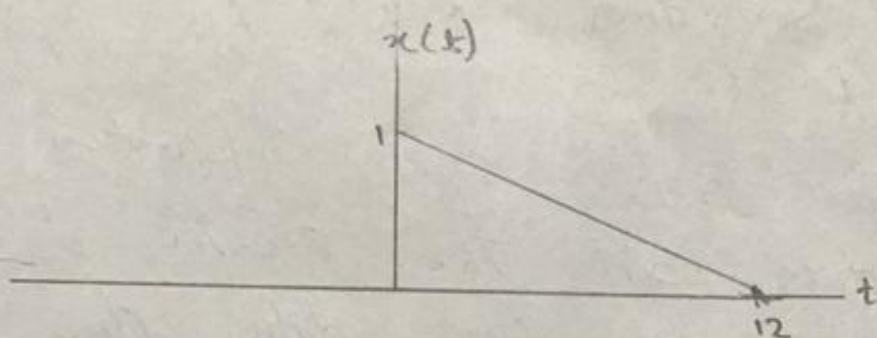
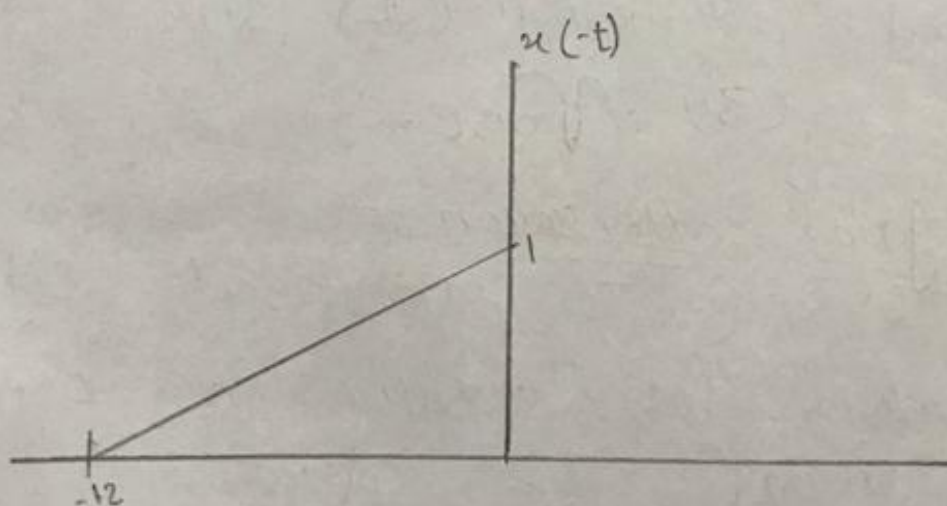


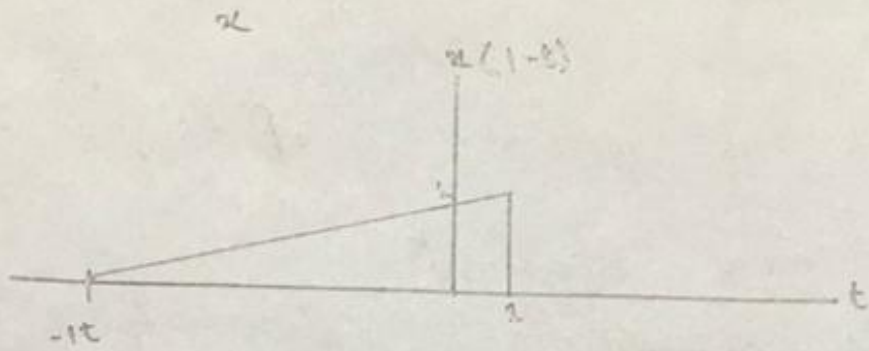
Question = '2'

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

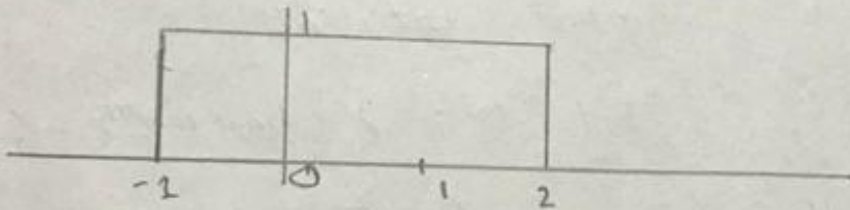
$$(b) = x(1-t)u(t+1) - u(2-3t)]$$

Given

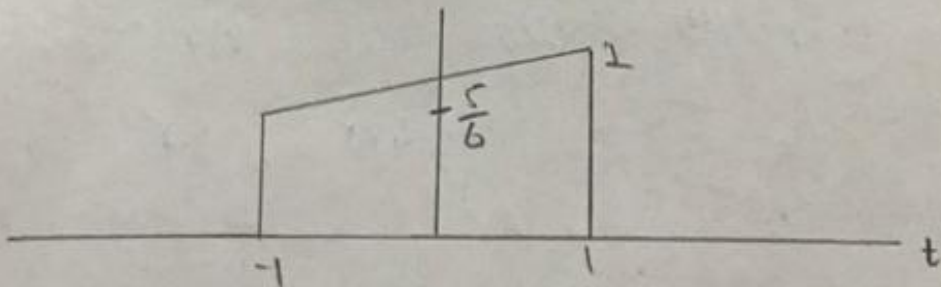

 $\Rightarrow x(-t)$  and  $x(1-t)$ 




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

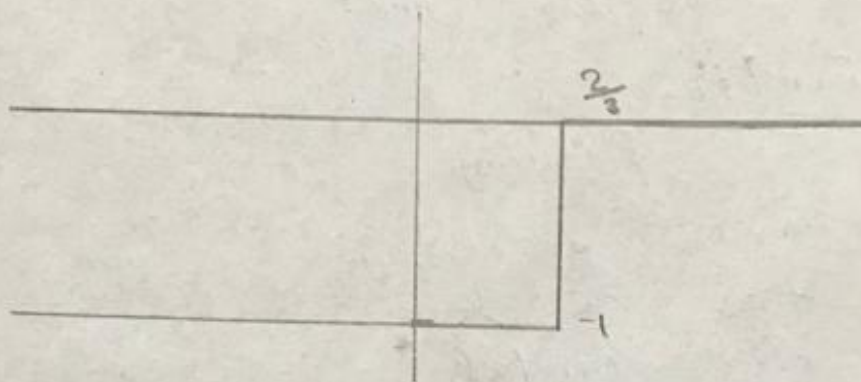


Hence,  $x(1-t)u(t+1) - u(t-2)$

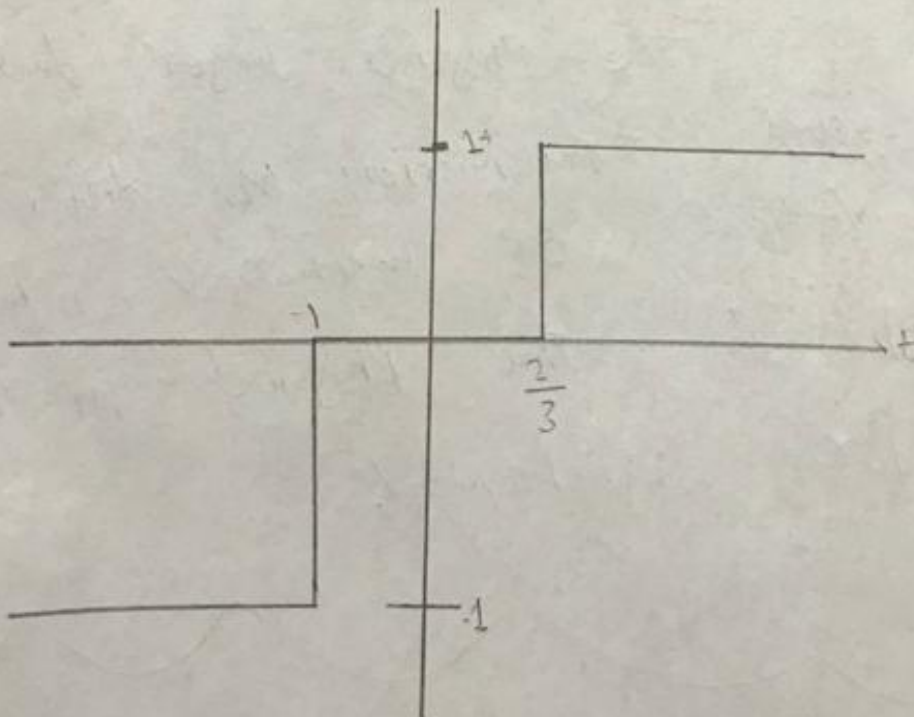




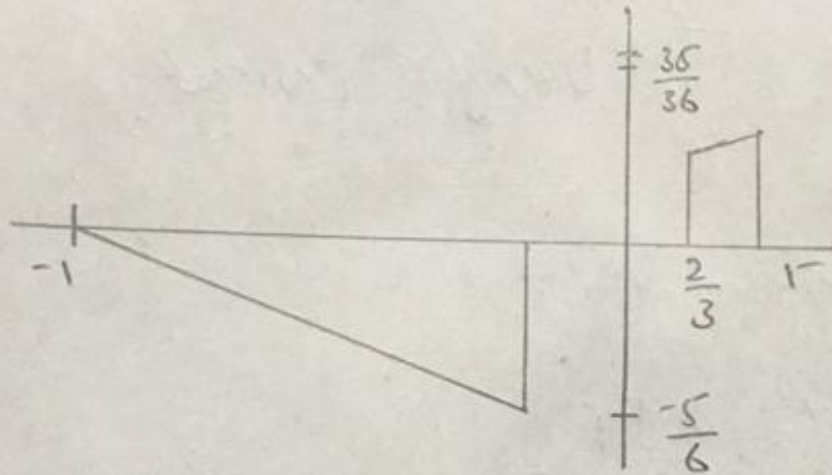
$$-u(2-3t)$$



$$u(t+1) - u(2-3t)$$



$$SO \propto (1-t) u(t+1) - u(2-3t)$$

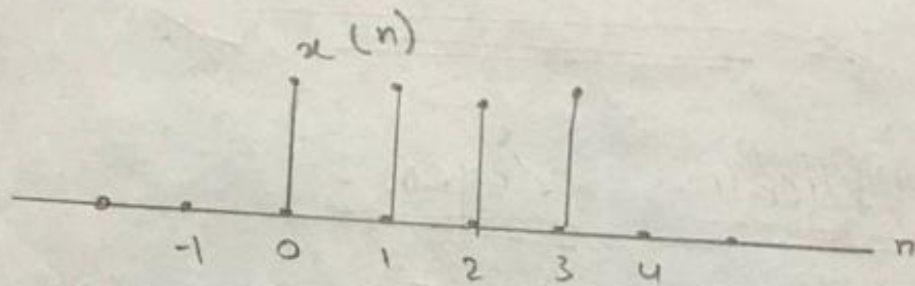




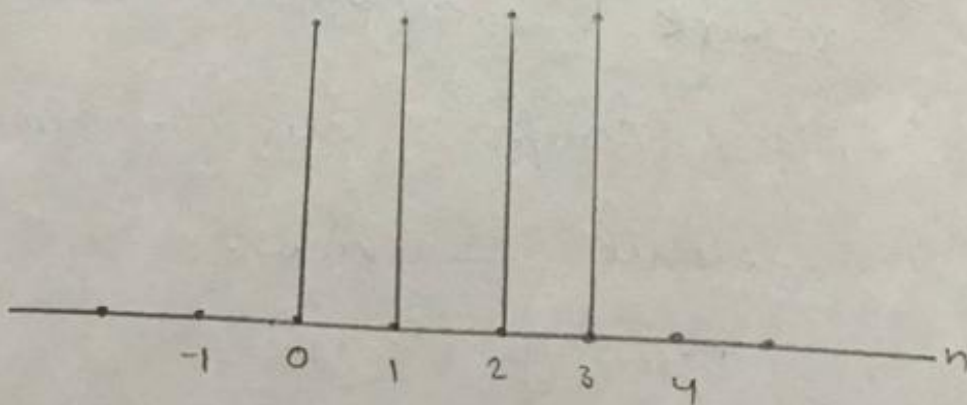
## Question # 3

Determine the discrete-time convolution of  $x[n]$  and  $h[n]$  for the following two cases.

Case No 1



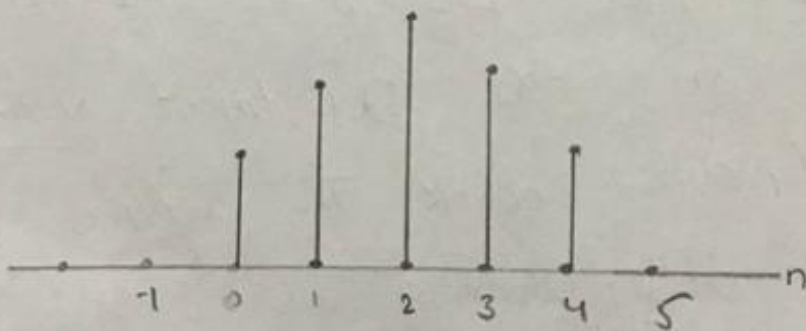
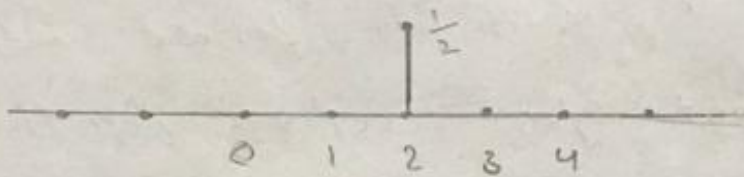
for  $h[n]$





For case 2

$x(n)$



Convolution

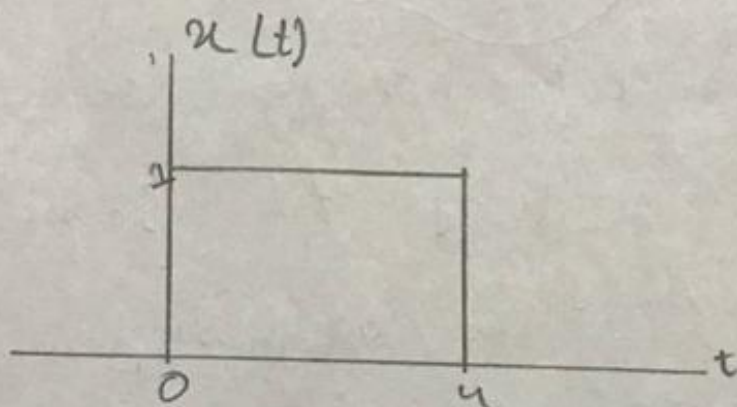
$$y(n) = \sum_{-\infty}^{\infty} x(k) h[n-k]$$

Q Determine the continuous-time convolution  $x(t)$  and  $h(t)$  for the following three cases

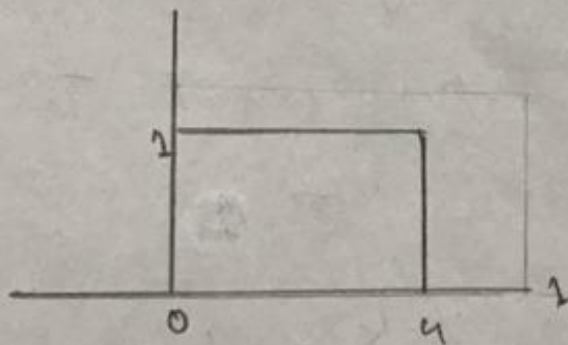
Question 4

Solution.

Case = 1

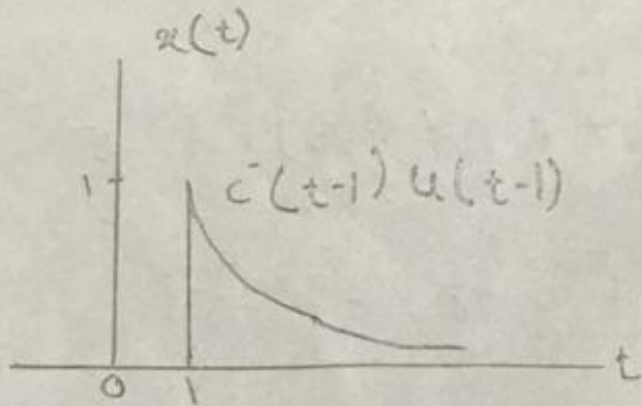


$h(t)$

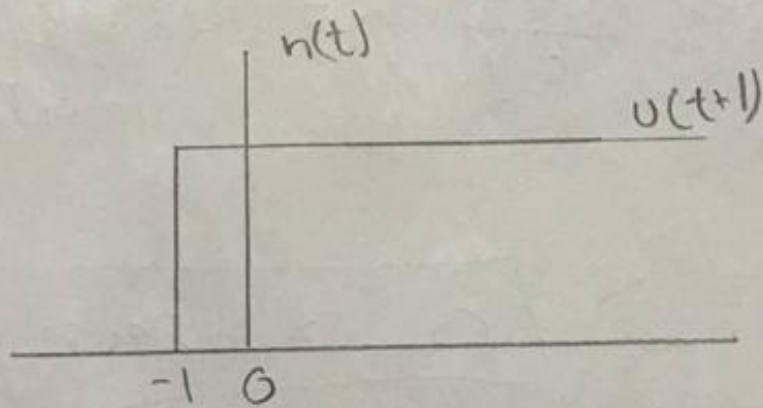




Case No:2



for  $h(t)$



Case no = 3

