L-7 was solving L-8 Q.1

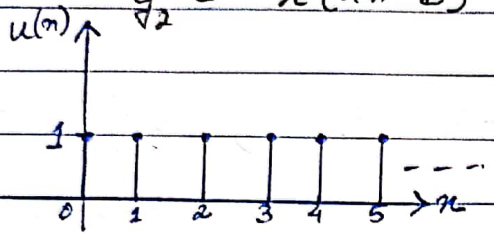
Lecture - 8

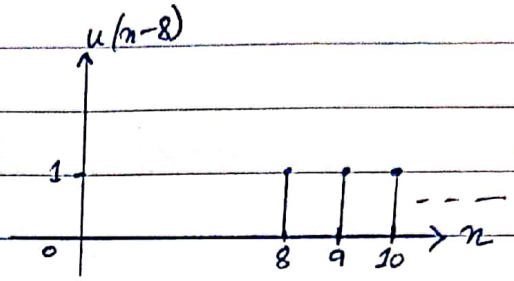
Q. $x(n) = (8-n)\{u(n) - u(n-8)\}$,

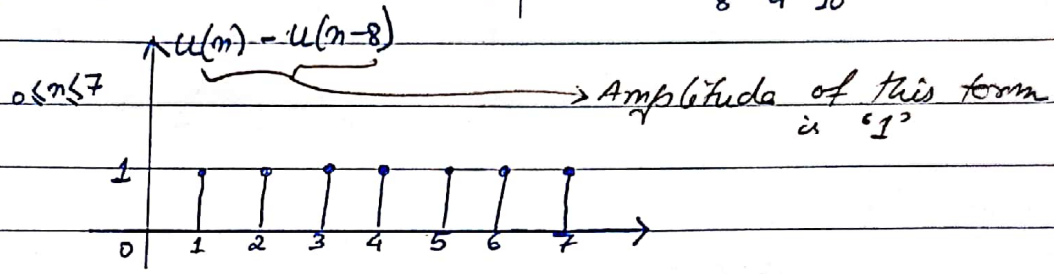
Find, $y_1 = x(4-n)$

$y_2 = x(2n-3)$

Sol^n:-



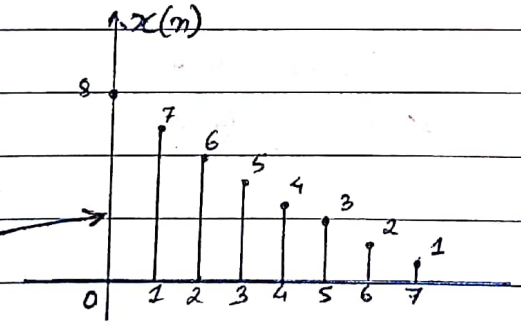




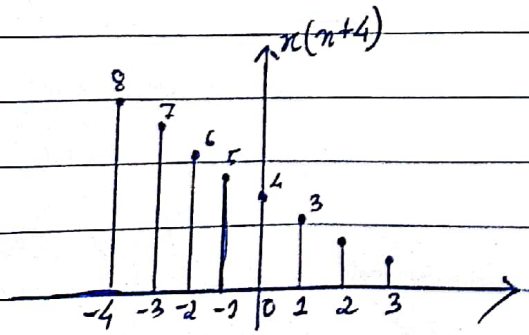
If we plot values for $0 \le n \le 7$, we will get $x(n)$

When $n=0$, Amplitude $= 8$

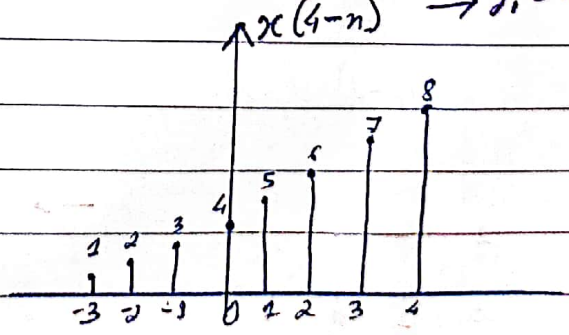
When $n=1$, " $= 7$ --- so on



At $n=0$



shifted ~~lifted~~ left by '4'

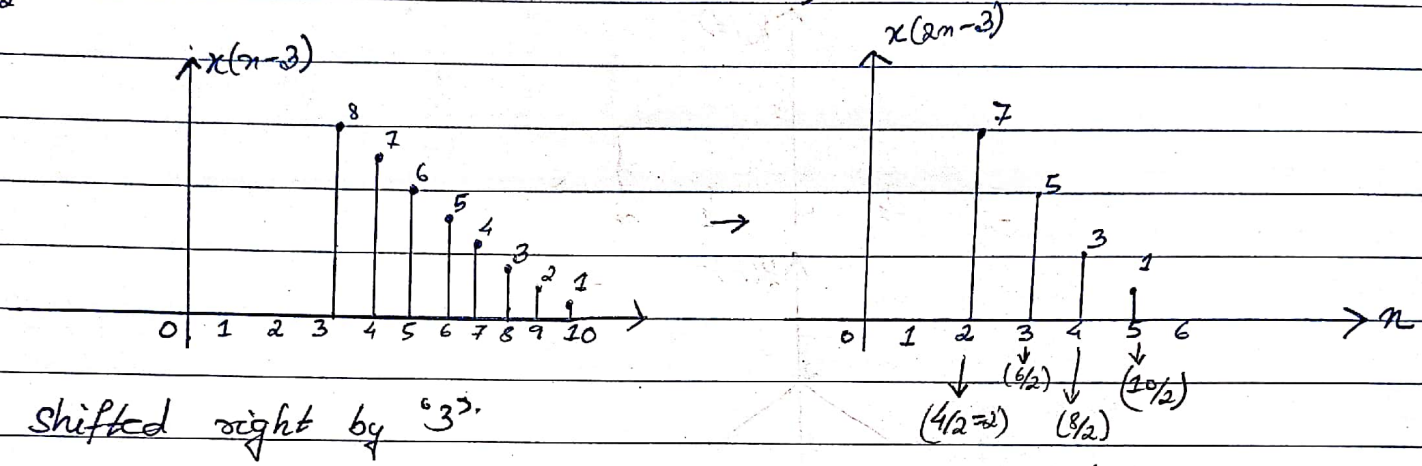


reflection of the s/g

$y_2(n) = x(2n-3)$

Precedence :-

$y_2(n) \longrightarrow x(n-3) \longrightarrow x(2n-3)$



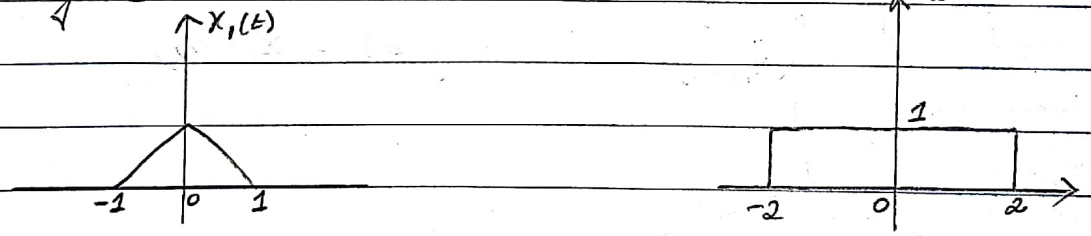
shifted right by '3'.

Divide by '2'

[3/2 = 1·5, 5/2 = 2·5, etc. not allowed in discrete]

—

Q.2) Given $x_1(t)$ & $x_2(t)$.



Find ① $x_1(t) + x_2(t)$

② $x_2(t/2)$

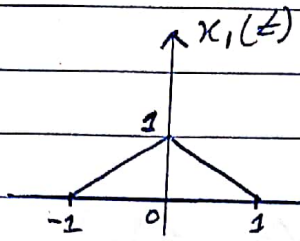
③ $x_1(t) * x_2(t)$

④ $x_2(2t)$

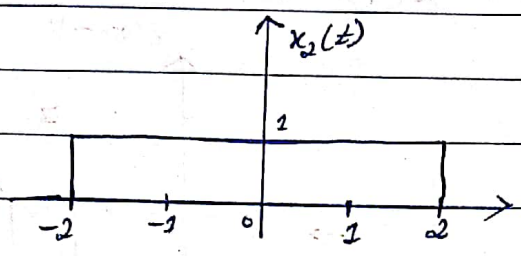
⑤ $x_2(t) - x_1(t)$

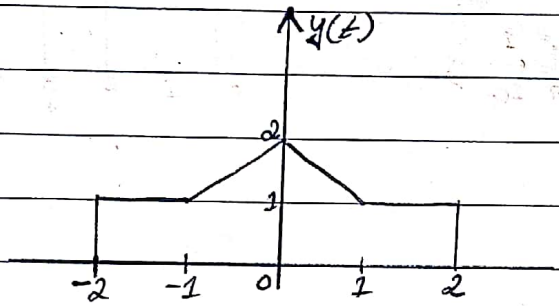
(22)

Soln:- (1)

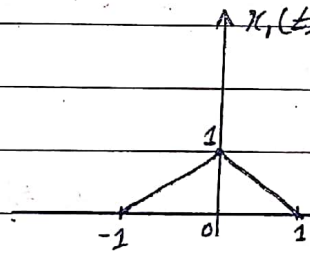


$y(t) = x_1(t) + x_2(t)$

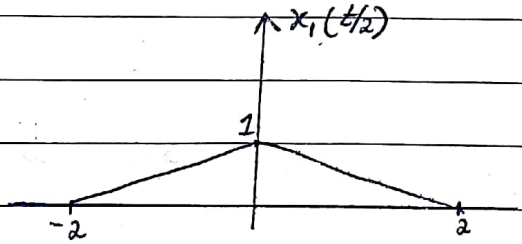




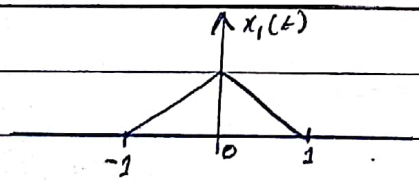
(2)

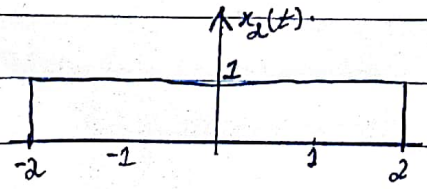


$y(t) = x_1(t/2)$

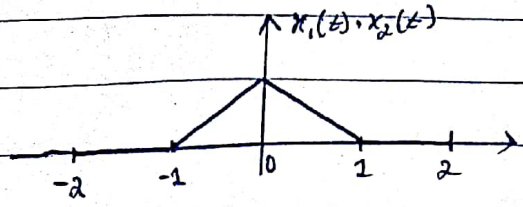


(3)

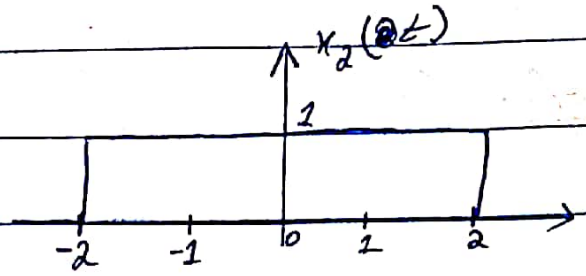




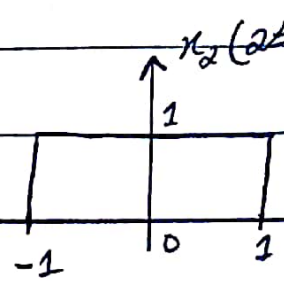
$y(t) = x_1(t) \cdot x_2(t)$



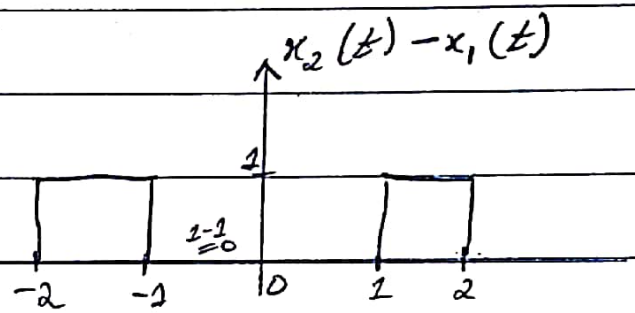
(4)



$y = x_2(2t)$



(5)



$y = x_2(t) - x_1(t)$

—x—