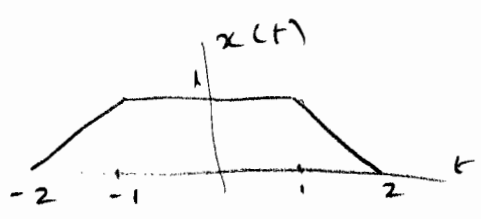


Midterm #1 - 282

- 1 (a)  $x_1[n]$  : Periodic ,  $N=15$   
 $x_2[n]$  : Aperiodic  
 $x_3[n]$  : Aperiodic

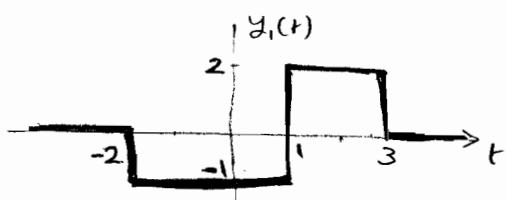


- (b) i)  $E_\infty = \frac{8}{3}$  ,  $P_{av} = 0$   
 ii)  $x(t)$  is a finite Energy signal.

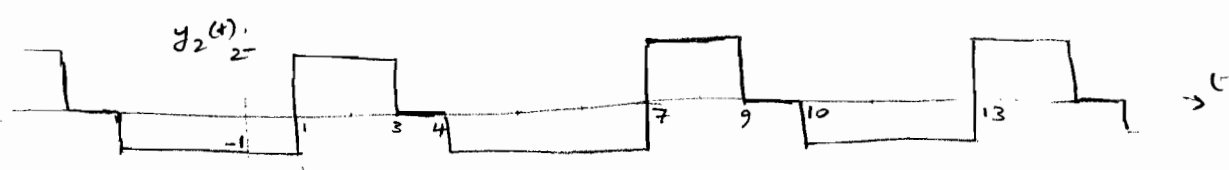
2 (a)



(b)



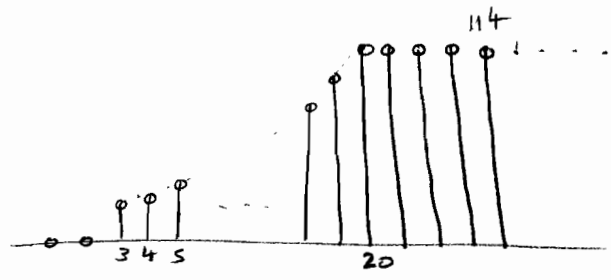
(c)



$$y_2(t) = \sum_{k=-\infty}^{\infty} y_1(t - 6k)$$

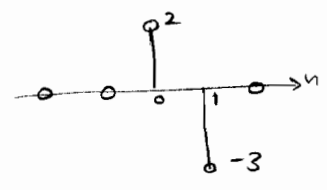
3

$$S[n] = \begin{cases} n^2 + n - 6 & 3 \leq n \leq 20 \\ 414 & n > 20 \\ 0 & \text{otherwise} \end{cases}$$



4 (a)

$$h[n] = 2\delta[n] - 3\delta[n-1]$$



- (b) Yes, the system is stable  
 explain why.