



(Answer any three of the following questions)

16. Examine whether the following signal is periodic or not? If periodic determine the fundamental period.

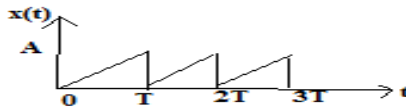
(i)  $je^{j6t}$ ,

(ii)  $X(t) = 3u(t) + 2 \sin 2t$ ,

(iii)  $x(n) = \cos 4n$

(iv)  $x(n) = 1 + e^{j2\pi n/3} - e^{j4\pi n/7}$ . (10)

17. Determine the trigonometric form of the Fourier series of the ramp signal shown in Fig. (10)



18. Develop  $H(S) = S(S+3)/(S+2)(S+1)(S+4)$  Using Cascade form. (10)
19. Describe a real value band limited signal having no spectral components above a frequency of B Hz is determined uniquely by its values at uniform interval spaced no greater than  $1/2B$  second apart. (10)
20. Find the state variable matrices  $A$ ,  $B$ ,  $C$  and  $D$  for the equation (10)

$$y(n) - 3y(n-1) - 2y(n-2) = x(n) + 5x(n-1) + 6x(n-2).$$