

1) – Write the continuous signals x[n] below as a linear combination of singular functions [ *impulse*  $u_0[n]$ , step  $u_1[n]$ , and ramp  $u_2[n]$ ].





 $\begin{array}{l} 2) - \mbox{ Write the continuous signals } x(t) \mbox{ below as a linear combination of singular functions} \\ \mbox{ [ impulse } u_o(t), \mbox{ step } u_1(t) \mbox{ and } ramp \ u_2(t) \mbox{ ].} \end{array}$ 





3) – Write a expression for the signal  $x_1(t)$  below as a sum of *ramps* and for the signal x(t) also below as a sum of *impulses*.



 $\begin{array}{l} 4) - \mbox{Verify if the signals below are periodic and, in affirmative case, calculate the fundamental period $N_o$, the frequency $\omega_o$ (in rad/s) and the frequency $f_o$ (in Hertz). \end{array}$ 

a) 
$$x[n] = cos[n]$$
;  
b)  $x[n] = cos(\pi n/4)$ ;  
c)  $x[n] = e^{j^{2n}}$ ;  
d)  $x[n] = e^{j\sqrt{2}\cdot\pi n}$ ;  
e)  $x[n] = e^{j\frac{\pi n}{5}}$ .