7 April, 14

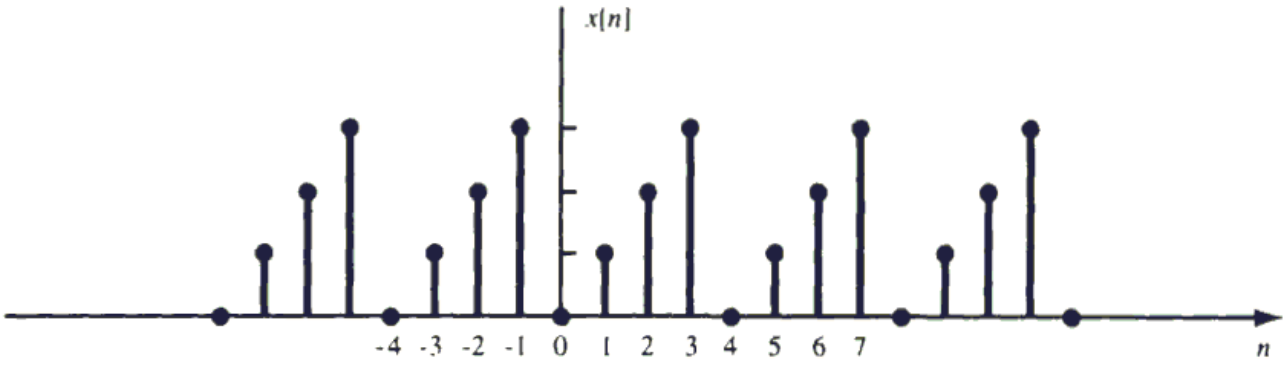
BLG 354E SIGNALS AND SYSTEMS

HOMEWORK 2

Question 1) Find the Fourier cosine series of the function.

$$f(x) = \begin{cases} x, & 0 \le x \le \dfrac{\pi}{2} \\ \pi - x, & \dfrac{\pi}{2} \le x \le \pi \end{cases}$$

Question 2) Determine the Fourier coefficients for the periodic sequence *x[n]* shown in the following figure:



Question 3) Consider a sequence:

$$x[n] = \sum_{k=-\infty}^{\infty} \delta\,[n - 4k]$$

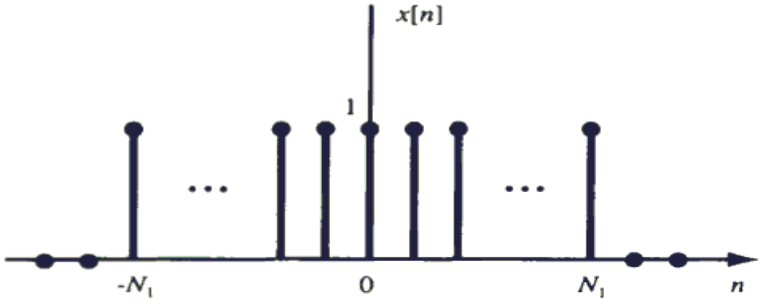
a) Sketch *x[n]*.

b) Find the Fourier coefficients c_k, of *x[n]*.

Question 4) Find the Fourier transform of:

$$x[n] = -\,a^n u\,[-n - 11]$$

Question 5) Find the Fourier transform $X(\Omega)$ of the rectangular pulse sequence shown in the following figure:



ATTENTION: You should submit your homework due to **28 April 2014 Monday 17:00**. Homeworks should be submitted to the Signals&Systems box in the Department Secretarial Office.