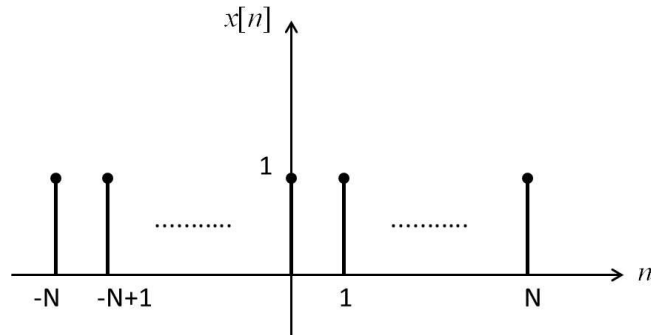


# ECE 218 Signals and Systems Laboratory 10

## I. EXPERIMENTAL WORK

### Question1



Fourier transform of  $x[\mathbf{n}]$  is:

$$x[\omega] = \sum_{n=-\infty}^{\infty} x[\mathbf{n}] e^{-j\omega n}$$

Compute  $x[\omega]$  for different values of N:

- N=2
- N=20
- N=50
- N=5

Plot the magnitude and the phase for different N values.

### Question2

a)  $x(t) = \cos(2t)$

Fourier transform of  $x(t)$  is:

$$x(\omega) = \int_{-\infty}^{\infty} x(t) e^{-j\omega t} dt$$

Compute  $x(\omega)$  by writing a Matlab program, plot the magnitude and the phase of  $x(\omega)$ .

b) Repeat part a) for  $x(t) = \sin(2t)$