INDRAPRASTHA INSTITUTE *of* INFORMATION TECHNOLOGY DELHI

Department of Electronics & Communication Engineering

ECE250| Signals and Systems
Section: A

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Assignment-1 Coding Output

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Q-6

I created an array n, from -20 to 20, containing 41 values, following which i created the signal z, and its inverse zinv

Creating z was rather simple since all I had to do was create an array that was nonzero(=1) from 0-9 (both inclusive) as the u(n)-u(n-10) was equal to 1 in the aforementioned range and 0 otherwise

Furthermore, I calculated zodd (Odd) and zeven (Even) by using the following formulae:-

   (a)   zeven= (z+zinv)/2
   (b)   zodd=(z-zinv)/2

Upon Calculating the same, I used 'subplot' to create 3 sub plots and used the stem function to further graph z, zeven and zodd in those spaces, I have attached a screenshot of the graph for your perusal.
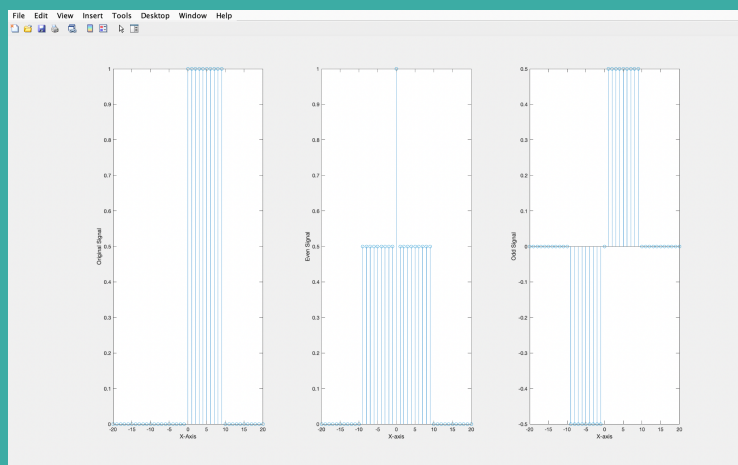
Q-5 (i) I had to plot n[u[n] − u[n − 10]] + 10e −0.3(n−10)[u[n − 10] − u[n − 20]], 0 ≤ n ≤ 20

I created n=0:20, then I created the signal n[u[n] − u[n − 10]] in its entirety, I did this by only adding integers from 0 to 9 for the first ten integers and zeroes for the rest of the range. I then created the second signal, in which the nonzero values would span from n=10 to 19, for which i used the exp function, for whose argument i took the array 0 to 9 as the previous values, when deducted by 10 would result in the same. this results in a decaying curve for that very duration. At n=20, It'd be equal to zero.
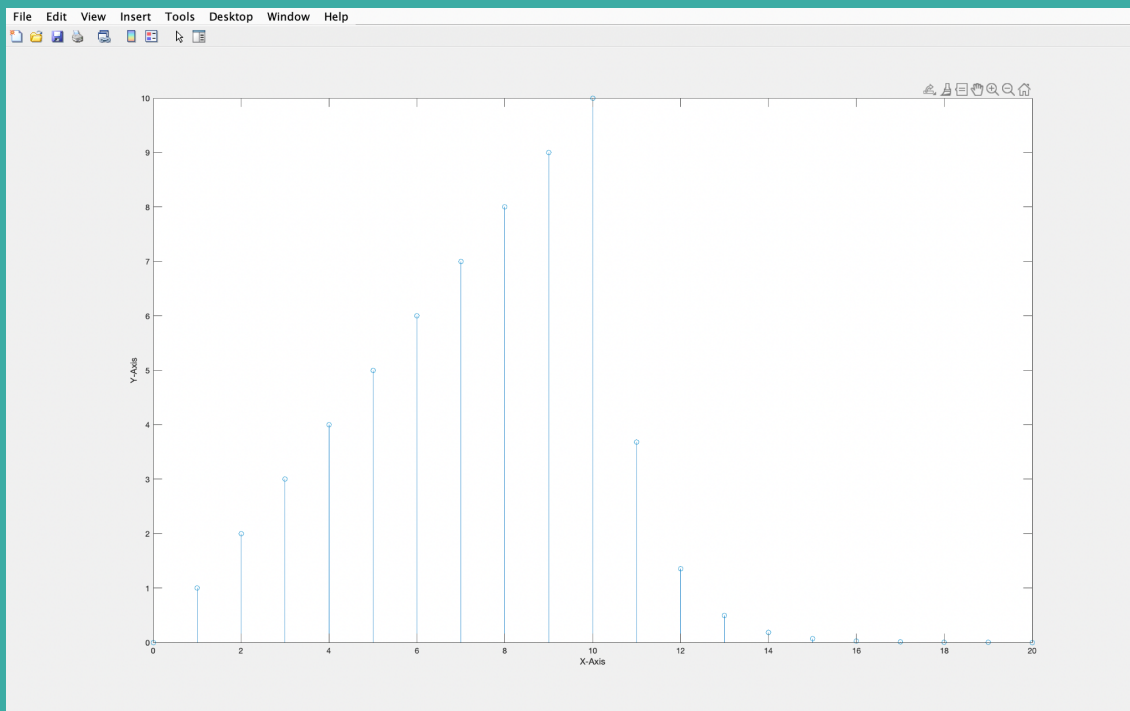
(ii) I had to plot $\cos[0.03\pi n] + u[n]$, $0 \le n \le 50$

It was rather simple, I created an array n 0:50 following which I used the cos function to create another array which was added to the unit step sequence, following that, i used the stem function to create the graph below