Programming Assignment #1

CSCE 4510/5510

Spring 2018

Wireless Communication

100 Points

Objective:

Perform time division multiplexing (TDM) and demultiplexing of three analog signals using Matlab.

Requirements:

1. Sample the given analog signals and plot the samples using Matlab
2. Perform time division multiplexing of the samples using Matlab
3. Demultiplex the multiplexed signal and plot the samples using Matlab.

Procedure:

1. Sample the analog signals $y_1=\sin(300\pi t)$, $y_2=\cos(200\pi t)$, and $y_3=\sin(300\pi t) + \cos(150\pi t)$ with T_s = 1ms and for 0 < t < 300ms. Where T_s is the sampling interval
2. Plot the samples using Matlab
3. Collect the samples and multiplex the samples using time division multiplexing
4. TDM in this case would be just arranging the samples of the analog signals one after the other in a vector
5. Demultiplex the TDMed signal and recreate the samples from the signal
6. Demutiplexing in this case would be separating and arranging the samples from the vector
7. Plot the demultiplexed samples using Matlab
8. Make sure you do not use any functions from Matlab or from other sources for TDM or demultiplexing
9. Upload all the plots (label all the axes and caption the plot) along with the Matlab code to Blackboard.

Instructions: Comment your Matlab code and make sure it's working. Create a readme file that describes the working and usage of the code. Please create a zip archive of your assignment folder (code and labelled plots) and upload the zip file. Not following the above instructions could result up to 20% deduction from your program assignment score.