Computer Lab Assignment - 07 - Spring 2020

Signals & Systems,
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1 Sampling Theory

Given the following signal, determine and plot the fourier transform and then determine the Nyquist sampling rate.

$$x(t) = \begin{cases} ln(1+t) & 0 < t < 1 \\ ln(t) & 1 \leq t < 2 \\ 0 & elsewhere \end{cases}$$

For the given signal with $f_0 = 4$

$$x(t) = exp(-0.1t)cos(2\pi f_0 t + \frac{\pi}{7})(u(t) - u(t-1))$$

simulate and plot the sampled discrete signals at the following sampling rates
a) $f_s = 2f_0$, b) $f_s = 3f_0$ and c) $f_s = 10f_0$

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2 Instructions

Merge all the sections into a single pdf file and upload.
Deadline: 26, April, 2020.