Institut Teknologi Kalimantan	**UJIAN TENGAH SEMESTER** **PROGRAM STUDI TEKNIK ELEKTRO** **Semester Genap Tahun ajaran 2021-2022**	No. Dok. : Tgl. Terbit : dd/mm/yyyy No. Revisi : 00 Hal : 1/2

NAMA MATA KULIAH	**Sinyal dan Sistem**	**CAPAIAN PEMBELAJARAN MATA KULIAH**
KODE MATA KULIAH	**TE201416**	Mahasiswa mampu menganalisis permasalahan dari sinyal dan sistem sehingga diperoleh bentuk penyelesaian permasalahan dalam permasalahan sinyal.
SEMESTER/ SKS	**4 / 3 SKS**	
TANGGAL UJIAN	**13 April 2022**	
WAKTU UJIAN	**90 menit**	
RUANG	**F205/G205**	
JENIS UJIAN	**Close Book**	
DOSEN PENGAMPU	**Mifta Nur Farid, S.T., M.T.** **Risty Jayanti Yuniar,S.T.,M.T.**	

1. A continuous-time signal x(t) is shown in Figure 1. Sketch and label carefully each of the following signals.
   a. x (2t+1)
   b. x(t) u(1-t)

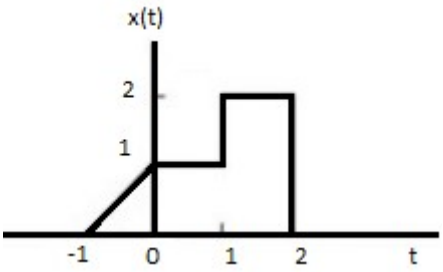

Figure 1. Continous-time signal x(t)

Score: 20

2. Consider an input x(n) and unit impulse response h(n) given by
   x(n)={-1,2,0,1}; h(n)={3,1,0,-1}
   ↑ ↑
   Determine and plot the output y(n) = x(n)*h(n) !

Score: 20

3. Consider a causal LTI system with frequency response
   $H(j\omega) = \frac{1}{j\omega+2}$
   For a particular input x(t) this system is observed to produce the output
   $y(t) = e^{-2t}u(t) - e^{-5t}u(t)$
   Determine x(t)!

Score: 20

4. Determine the complex exponential fourier series representations for Figure 2.

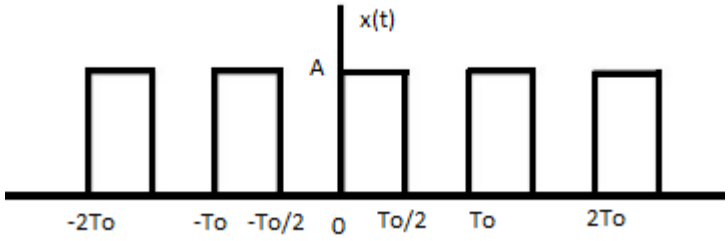

Figure 2

Score: 20

5. Determine the fourier transform representations for Figure 3.

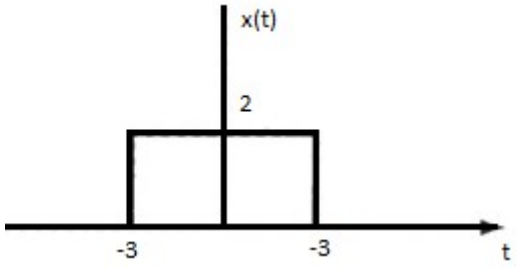

Figure 3

Score: 20

"Nothing is impossible, the word itself says 'I'm possible'! – Audrey Hepburn"