

Signal & Systems

Fall Semester 2006

H O M E W O R K & R E C I T A T I O N P R O B L E M S

HW 1	Lab 1: Introduction to MATLAB Respond to the 4 “Explain ...” and hand in.	Sections 1,2 only
HW 2	1.21 a,b,c 1.22 a,b,c,e,f 1.25 (a), (b), (d) 1.26 (a), (d)	sketching continuous signals sketching discrete signals periodicity of continuous signals periodicity of discrete signals
Rec.2	1.1, 1.2 1.3(a), (c), (d) 1.6(a), (b) 1.10, 1.11	Polar, Cartesian Power, energy Periodicity - continuous and discrete Periodicity of sum
HW. 3	1.16 1.17 1.31 (a), (b) 2.1 (a), (b)	discrete system properties continuous system properties LTI and superposition discrete convolution (confirm using Matlab) Hand in MATLAB code.
Rec.3	Lab 2: MATLAB	Convolution and Image Processing. Hand in results
HW 4	2.11 2.22(a),(b) 2.23	continuous convolution continuous convolution (resonance) continuous convolution with δ train
Rec.4	2.8 2.10	continuous convolution continuous convolution
HW 5	2.17(a), (b) 2.18	first-order differential equation solution of difference equation
Rec. 5	2.20 2.32	integrals of singularity functions first-order difference equation
HW 6	2.46 2.47 2.48	determining impulse response inputs, impulse responses and outputs impulse responses and LTI systems

Rec.6	2.45 (a) only	continuous LTI system; finding output to differentiated input. Additional problems assigned
HW 7	3.3 3.5 3.7	Fourier series (cont. time) of sum of 2 signals Fourier series using FS properties Fourier series using FS properties
Rec.7	3.1 3.4 3.14	Simple Fourier series (cont.-time) Fourier series of square wave Discrete F.S. properties
HW 8	3.34 (a), (c) 3.35	Fourier series and I/O (cont.-time) Small filtering problem
Rec.8	3.13 3.19 3.40	Fourier series and I/O (cont.-time) RL circuit analysis using FS Fourier series from properties
HW 9	3.2 3.9 3.38	Simple Fourier series of discrete signal Fourier series of discrete signal Fourier series and I/O
Rec.9	3.31 3.37	Fourier series of disc. signal & properties Fourier series of discrete signal and I/O
HW 10	Lab.3: MATLAB	Convolution, filtering, steady-state, transient analysis, phase and time-delay
Rec.10	Lab.3: MATLAB	
HW 11	4.1 4.2 4.3 4.4(a) 4.6 (a), (b) 4.8 (a), (b)	Fourier transform of 2 signals Fourier transform of singularity functions Fourier transform of periodic signals Inverse Fourier transform Fourier transform and properties Fourier transform and properties
Rec.11	4.19 4.20	Transfer function and Fourier transforms Impulse response and its Fourier transform
HW 12	4.23 (a),(b),(c) 4.26 (a) only. 4.28 (a) only. 4.34 4.35	Fourier transform of specific signals $h(t)$, $H(j\omega)$ and Fourier transforms Fourier transform of periodic signals $h(t)$, $H(j\omega)$ and system dynamics $h(t)$, $H(j\omega)$ magnitude and phase

Rec.12	4.33	Differential equations, impulse response and Fourier transforms
	4.36	$h(t)$, $H(j\omega)$ and system dynamics
HW 13	Lab.4	DFT, LPC and Audio effects OR
Rec.13	Lab.4	Introduction to TMS320C6713 DSP chip