

JOAQUIN	SALAS
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For:		a care i o		
101.			Date:	
Subject:	731000141		Date	

ubject: 731	600141	Date:
1. CASUAL LT	SYSTEM DESCRIBED B	4:
	y[n] - 1 y[n-1] -18	y[n-2] = x[n]
(a) Find impul	se response henz.	
y[n] = Y(=	1), 4y(n-1) = 2-1 Y12),	, y[n-2] = = = = = = = = = = = = = = = = = = =
X (n) = X(2)	
	- 1 Z Y(z) - 8 Z Z Y(z)	
Y (Z) 1	1 2-1 - 1 2-2] = XC	٤)
H(z) =	1-12-1-182-2 (2-3)(2-3)
	$2 \times^{2} - \frac{1}{4} \times - \frac{1}{8}$	
H(z) = -	+ 1 (2 - 1) 2 + 1 2	-1/ ₂
	1 = A(z-1/2)	+ B(5+111)
H(=) = -413 =+1	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c} 3 & 3 & 3 & 3 & 3 & 4 & 3 & 4 & 3 & 4 & 4$
	ED=023	4
	h[n] = -4 (-4)	$L[n] + \frac{1}{3}(\frac{1}{2})^{2}u[n]$
		3 (2 /



Subject	For:	Date:
(b) Output = $y(n) = 35(n)$ $ x = 5(n) - 25(n)$ $ y(n) = x(n) + h(n) $ $ y(n) = x(n) + h(n) = 5 x x x x x x x x x $	9	Date.
(b) Output = y(n) = 35(n) Nevt -> X(n) = 5(n) - 25(n-1) y(n) = x(n) * h(n) 3 = 1 - 2		
$y(n) = x(n) * h(n)$ $3 = 1 - \frac{2}{3} e^{-ju} * h(n)$ $y(n) = x(n) * h(n) = \sum_{k=-\infty}^{\infty} x(k)h(n-k)$ $y(n) = x(n) * h(n) = \sum_{k=-\infty}^{\infty} x(k)h(n)$ $y(n) = x(n) * h(n) = \sum_{k=-\infty}^{\infty} x(k) * h(n)$ $y(n) = x(n) * h(n) = \sum_{k=-\infty}^{\infty} x(k) * h(n)$ $y(n) = x(n) * h(n) = \sum_{k=-\infty}^{\infty} x(k) * h(n)$ $y(n) = x(n) * h(n) = \sum_{k=-\infty}^{\infty} x(k) * h(n)$ $y(n) = x(n) * h(n) = \sum_{k=-\infty}^{\infty} x(k) * h(n)$ $y(n) = x(n) * h(n) = \sum_{k=-\infty}^{\infty} x(k) * h(n)$ $y(n) = x(n) * h(n) = \sum_{k=-\infty}^{\infty} x(k) * h(n)$ $y(n) = x(n) * h(n) = \sum_{k=-\infty}^{\infty} x(k) * h(n)$ $y(n) = x(n) * h(n) = \sum_{k=-\infty}^{\infty} x(k) * h(n)$ $y(n) = x(n) * h(n) = \sum_{k=-\infty}^{\infty} x(k) * h(n)$ $y(n) = $		
$y(n) = x(n) + h(n)$ $3 = 1 - \frac{2}{3}e^{-ju} + h(n)$ $y(n) = x(n) + h(n) = \sum_{k=-\infty}^{\infty} x(k)h(n-k)$ $y(n) = x(n) + h(n) = \sum_{k=-\infty}^{\infty} x(k)h(n)$ $y(n) = x(n) + h(n) = \sum_{k=-\infty}^{\infty} x(k)h(n-k)$ $y(n) = x(n) + h(n) = \sum_{k=-\infty}^{\infty} x(k)h(n)$ $y(n) = x(n) + h(n)$ $y(n) = $		(b) Output = 4(n) = 38(n)
$y(n) = x(n) + h(n)$ $3 = 1 - \frac{2}{3}e^{-ju} + h(n)$ $y(n) = x(n) + h(n) = \sum_{k=-\infty}^{\infty} x(k)h(n-k)$ $y(n) = x(n) + h(n) = \sum_{k=-\infty}^{\infty} x(k)h(n)$ $y(n) = x(n) + h(n) = \sum_{k=-\infty}^{\infty} x(k)h(n-k)$ $y(n) = x(n) + h(n) = \sum_{k=-\infty}^{\infty} x(k)h(n)$ $y(n) = x(n) + h(n)$ $y(n) = $		1,1,1
$3 = 1 - \frac{2}{3} e^{-ji\omega} * h(n)$ $y[n] = x[n] * h[n] = \sum_{k=-n} x[k]h[n-k]$ $h[n] = 2 - 2 = 0$ $h[-i] = 0 - 2$		10001 - 10001 - 300000000000000000000000
$3 = 1 - \frac{2}{3} e^{-ji\omega} * h(n)$ $y(n) = x(n) * h(n) = \sum_{k=-\infty}^{\infty} x(k)h(n-k)$ $y(n) = x(n) * h(n) = \sum_{k=-\infty}^{\infty} x(k)h(n)$ $y(n) = x(n) * h(n) = \sum_{k=-\infty}^{$		
Fino hen) $y[n] = x[n] * hen) = \sum_{k=-\infty}^{\infty} x[k]h[n-k]$ $y[n] = x[n] * hen) = \sum_{k=-\infty}^{\infty} x[k]h[n-k]$ $y[n] = x[n] * hen) = \sum_{k=-\infty}^{\infty} x[k]h[n-k]$ $h[n] = 2 - 2 = 0$ $h[-1] = -0)3 - 2$ $y[n] = x[n] * hen) = 2 - 2$		
Fino hen) $y[n] = x[n] * hen) = \sum_{k=-\infty}^{\infty} x[k]h[n-k]$ $y[n] = x[n] * hen) = \sum_{k=-\infty}^{\infty} x[k]h[n-k]$ $y[n] = x[n] * hen) = \sum_{k=-\infty}^{\infty} x[k]h[n-k]$ $h[n] = 2 - 2 = 0$ $h[-1] = -0)3 - 2$ $y[n] = x[n] * hen) = 2 - 2$		2 - 1 2 2 - ju
$y[n] = x[n] * h[n] = \begin{cases} x[k]h[n-k] \\ y[n] \end{cases}$ $h[n] = \begin{cases} x[n] * h[n] = \begin{cases} x[k]h[n-k] \end{cases} \end{cases}$ $h[n] = \begin{cases} x[n] * h[n] = \begin{cases} x[n] = \begin{cases} x[n] * h[n] = \begin{cases} x[n] * h[n] = \begin{cases} x[n] = \begin{cases} x[n] = \begin{cases} x[n] = \begin{cases} x[n] = x[n] = \begin{cases} x[n] = $		3 - 1 - 3 - 4 - 1 - 1
$y[n] = x[n] * h[n] = \begin{cases} x[k]h[n-k] \\ y[n] \end{cases}$ $h[n] = \begin{cases} x[n] * h[n] = \begin{cases} x[k]h[n-k] \end{cases} \end{cases}$ $h[n] = \begin{cases} x[n] * h[n] = \begin{cases} x[n] = \begin{cases} x[n] * h[n] = \begin{cases} x[n] * h[n] = \begin{cases} x[n] = \begin{cases} x[n] = \begin{cases} x[n] = \begin{cases} x[n] = x[n] = \begin{cases} x[n] = $	-	
h[n] = 2 - 2 = 0 $h[-1] = -2 - 3$ $h[$		FINO PEUJ
h[n] = 2 - 2 = 0 $h[-1] = -2 - 3$ $h[$	-	4[n] = X[n] * h[n] =] X[k] h[n-k]
h(n) = 2 - 2 = 0 $h(n) = 2 - 2 = 0$ $h(n)$		k=-0
h(n) = 2 - 2 = 0 $h(n) = 2 - 2 = 0$ $h(n)$		7 2 2 2 2
h(n) = 2 - 2 = 0 $h(n) = 2 - 2 = 0$ $h(n)$		78 78 7
h(n) = 2 - 2 = 0 $h(n) = 2 - 2 = 0$ $h(n)$		(y_1) -> 3
h(n) = 2 - 2 = 0 $h(-1) = -0) = -2$ $h(-1) = -$		
h(n) = 2 - 2 = 0 $h(-1) = -0) = -2$ $h(-1) = -2$ $h($		
h(n) = $\frac{1}{2}$		
$\begin{cases} 2^{1-1} \\ -2 \\ 0 \end{cases}$ $\frac{1}{2} \frac{1}{3} $ $\frac{1}{3} \frac{1}{3} $ $\frac{1}{3} \frac{1}{3} \frac{1}{3}$		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		h[n] = -0)3-2
$\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}$		93
$\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}$		(0) Convolution
$\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}$		
h(0) = 83, $h(0) = 83$, $h(0$		de la
h(0) = 83 (1) (1) (2) (3) (3) (3) (3) (3) (3) (4) (5) (6) (7) (7) (8)	-	-2/3
$\left\{\begin{array}{c} 0, 3, -2, 0 \\ 0, 3, -2, 0 \end{array}\right\} = h(n) = 35(n) - 25[n-1]$	-	
$\left\{\begin{array}{c} 0, 3, -2, 0 \\ 0, 3, -2, 0 \end{array}\right\} = h(n) = 35(n) - 25[n-1]$	-	h(0) (1) (1) (1)
$\{0, 3, -2, 0\} = h(n) = 35(n) - 25[n-$	_	
{ 0,3,-2,0} = h(n) = 35(n) - 25[n-		
1 Impulse Respond		
Theorise Respone		(2 2 N) - broz = 35rnz - 25rn-1
Thouse Respond		7 0 1 7 1 2 1 0 3 - 11113 302 - 22
Impulse Respond h[n] = 35(n] - 25(n-1)		
h [n] = 35 (n] - 25 (n-1)		Impulse Respond
[m[n] - 30[n] 2021	2	1 35(2-1)
	" -	(V[v] - 20(v)
	-	

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2.	(ONSIDER XEN), FT IS X(e) = { 0,
la	
) (ompute X [0] X [0] = 1 X (e im) e im du [m] = 1 X (e im) e im du [m] = 1 Im Im Im Im Im Im Im Im
	$\frac{2 \operatorname{inter}_{a13}}{X \times a} = \frac{1}{2\pi} \left[2 \int_{0}^{\pi/3} 1 - \left[\frac{3\omega}{\pi} \right] d\omega \right]$
	$= \frac{1}{\pi} \left[\int_{0}^{\pi/3} d\omega \int_{0}^{\pi/3} \frac{3\omega}{\pi} d\omega \right] = \frac{1}{\pi} \left(\left[\frac{\pi}{3} - 0 \right] - \left[\frac{3\omega^{2}}{2\pi} - 0 \right]_{0}^{\pi/3} \right)$ $= \frac{1}{\pi} \left[\int_{0}^{\pi/3} d\omega \int_{0}^{\pi/3} \frac{3\omega}{\pi} d\omega \right] = \frac{1}{\pi} \left(\left[\frac{\pi}{3} - 0 \right] - \left[\frac{3\omega^{2}}{2\pi} - 0 \right]_{0}^{\pi/3} \right)$
	$= \frac{1}{\pi} \left(\frac{\pi}{c} \right) = \frac{1}{6} \left(\frac{\pi}{c} \right) = \frac{1}{10}$
	b) Compute $\sum_{n=-\infty}^{\infty} \chi(n)$ At $-\infty$, $w=0$ $\int_{-\infty}^{\infty} \chi(n) = 1$ $\int_{-\infty}^{\infty} \chi(n) = 1$ $\int_{-\infty}^{\infty} \chi(n) = 1$
	(C) Compute \(\sum_{n=-\infty} \) (1-1\frac{1}{\pi} \) Here, \(\frac{1}{3} \) (TT AND \(\sum_{n=-\infty} \)
P	$\sum_{n=-\infty}^{\infty} \frac{\chi(e^{jT})}{\sum_{n=-\infty}^{\infty} (-1)^n \chi(n)} = 0$

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or:	Date:
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(0)	DRAW FT of yond = xend cos (T)
*	multiply by XEND by cosine = shift.
	Cos(won) ← 1/2 [S(w-wo) + S(w+wo)]
	2 2 2 (0-00)
	1777
	$\cos(\frac{\pi}{3}) = \frac{1}{2} \left[5(\omega - \frac{\pi}{3}) + 5(\omega + \frac{\pi}{3}) \right]$
	ying wy Y(esw)
	Y(e)~) = \frac{1}{2} \[\times (e) (w-\pi 13) \] + \(\text{le} \frac{1}{2} (w+\pi 1)
	Y(e)) = = X(e)) + X(e)
	X(ejw) Shift 773 Left AND RIGHT
	1(ejw)
	(eju) Shift "13 Lett AND RIGHT
	
	ω · · · · · · · · · · · · · · · · · · ·
	$\frac{2\pi}{3} - \frac{\pi}{3}$
	-3 3 3
(8)	DRAW FT OF \$000 Z[n] = X[n] cos(\pin)
	COS(TIN) = = 1 S(W-TT) + S(W+TT)
	$Z(ej\omega) = \frac{1}{2} \left[X(e^{j(\omega-\pi)}) + X(e^{j(\omega+\pi)}) \right]$
	$\frac{7(e^{j\omega})}{7} = \frac{1}{2} \left[\frac{1}{2} \left(e^{j(\omega-\pi)} \right) + \frac{1}{2} \left(e^{j(\omega-\pi)} \right) + \frac{1}{2} \left(e^{j(\omega-\pi)} \right) \right]$
	π - 2π π - 2 - 7
	3 3 3 7 3 1
	112
	KI MINING THE STATE OF THE STAT
	-17 -2 1 2 1
	$\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$ $\frac{1}{3}$

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Subjec	t:							Bv:				
											_	
	3.	Signal	KENJ	2-+1	ansfor	m X(2	.),2	ooles	7=	1 A	NO -	2=2
	(a)		X(2)				24		- 12 2	-1 = (2	
		an	u(n) =	1-a	2-1	- 1-	1 2-1	'	1 = =	2 2-1		
		an	u(n) =	1-02	-1		2 -1	= 1	Z=	1/2		
		V(2):	1	2~l		12-1			1 = 2			-2 v
		7,007		,								
			X(Z)	=	1/2 2	-1)2+	1-2	2 -1				
	(b)	R	oc: 12									
						15,		- \				
			×C	n) =)^u	[n]		
								- 2				
	(८)	11-	X[n] 200	: 12	Kdo	Do A	ত ব্য	D				
					151	> 2 ,	LAR	GEST	VAL	-VE	OF	7

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4. Bon	ios Sampo	ED WITH T	= 21 to form	XCN) = XCINT
(0)	SKETCH			
	125 = 2TF	ANO 9 = 1		
	= 2	$T = \frac{2\pi}{\Omega_s}$	$= n_s = 2\pi = \frac{2\pi}{7}$ (eiw)	2/17 = 312 °
			(80)	
		-31T -312TT	3/ ₂ π 3π	
		311 -31211	3/2п 3п	
(6)	Recover x	(LE) from KC	n]	
	X[n] IS	Digital So,	DIA conu.	
	X(n) -	IDEAL BOIA	Lowpers filter	AlD > X
		4	\(\sigma - \dots \)	6 T = 21T
		T = 211 3.12.		320
(()	Sample &		= 310 = f	= 1
		$\frac{1}{1} = 30$	-0 → [T=	13
12				

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