## Title page

* Assignment No: 01*  * Digital Signal processing *  NAME: ASHFAQ AHMAD  Reg No: 19PW CSE 1795  Section: B  Submitted to:  Chairman: Nasix Sab  Dak 2-12-2021	M T W T F S	H/W -C/W	Dated:/20
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	METER HAW COVE	
	Question No: 1	/20
	140; 1	
	20 (+) = 20: 11	
-	$\Re(t) = 3\sin(40\pi t)$	-
	a) Ckohi	
	a) Sketch nalt) o < t < 73 ms	
	- 1h )	
	ert t=os	
	$N_{\alpha}(0) = 3 sin (40 \pi 0)$	
	$\mathcal{H}_{\alpha}(0) = 0$	
3	act $t = 0.01$ s	
	Na(0:01) = 3 sin (40x (0:01))	
	(8.61))	
	Na(0.01) = 2.8	
	at t= 0.012s	
	2(0.012) = 3 → max Amplitude.	-
# <del>**</del> **		
	at t= 0.02	
	1.00	
	ηα (0.02) = 3 sim (40 π (0.02))	
	$\chi(a)(0.02) = 1.8$	
	24 t= 0.03 Ma (0.03) = 3 sm (40 x (0.03))	
	VG (0.03) E S ZW (40 K (0.03))	1
	$\gamma(a(0.03) = -1.8$	
· · · ·	out t= 0.098	
	Ma(0.038) = 3 sin (40x (0.038))	
	0. 1. 0.91	
	$(\alpha(0.080) = -3)$	-
	$\chi_{\alpha}(0.038) = -3$	

	MUTUWUTUFUS H/WU-C/WU Dated:/	T
AM	at t= 0.05	
47-	Na(0.05) = 3x Sm(40xx x 0.05)	
4	Na(6,01) = 3× 3/11/2	
41-	Na(0.05) = 0	
KI	at t= 0.06	
	7a (0.04) = 3x sin (40xxx 0.064)	
	= 3	
	at t= 0.07	
	Na(0.07) = 3 x Sm (40 x x x 0.07)	
	= 1.8	<u> </u>
	at t= 0.078	# # #
	Na(0.077) = 3x Sin(40x1xx0.075)	34.5
	na (0.075) = 0.	
	,	
	Sketch:	
	- Jo way	
	30	
	S	
	· SE	
	38 0.38	lan-sul
		100
	6	3- Park 1
	7	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
LA C	600	
plih	000	1.18
Amplifuke		
	2 2 - 0 - 2 2	
	7 7 7 9	4 1 2 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
		XX

Part - (b)  Given: $F_{S} = 120 \text{ Hytz}$ $\chi(\eta) = \chi_{G}(\eta) T_{S}) \qquad T_{S} = F_{S}$ $f_{requerey}  \text{of discrete biograph} = f = ?$ $Sal$ $As$ $\chi(\eta) = 35 \text{ in } (40 \text{ t})$ $= \chi_{G}(\eta) = 35 \text{ in } (40 \text{ t}) T_{S}$	The second secon
Given: $F_{S} = 120 \text{ Hytz}$ $\chi(\eta) = \chi_{Q}(\eta) T_{S} \qquad T_{S} = F_{S}$ $f_{requercy}  \text{of discrete Signal} = f = ?$ $Sulth As$ $\chi(q(t) = 3 \sin(40x t)$	
$F_{S} =  20 \text{ Hytz}$ $\chi(\eta) = 21 \text{ q} (\eta) \text{ Ts} = F_{S}$ $frequency of discrete Support = f = ?$ $Sup$ $As$ $21 \text{ q}(t) = 35 \text{ in} (40 \text{ x} t)$	
$F_{S} =  20 \text{ Hytz}$ $\chi(\eta) = 21 \text{ q} (\eta) \text{ Ts} = F_{S}$ $frequency of discrete Support = f = ?$ $Sup$ $As$ $21 \text{ q}(t) = 35 \text{ in} (40 \text{ x} t)$	
$\chi(\eta) = \chi_{q}(\eta T_{s}) \qquad T_{s} = F_{s}$ $= \begin{cases} f_{requency} & \text{of discrete Signal} = f = ? \end{cases}$ $= \begin{cases} Sul \\ As \end{cases}$ $\chi(\eta) = \chi_{q}(\eta) = \begin{cases} \chi_{q}(\eta) & \text{of } \chi \neq 0 \end{cases}$ $= \begin{cases} \chi(\eta) & \text{of } \chi \neq 0 \end{cases}$ $= \begin{cases} \chi(\eta) & \text{of } \chi \neq 0 \end{cases}$ $= \begin{cases} \chi(\eta) & \text{of } \chi \neq 0 \end{cases}$ $= \begin{cases} \chi(\eta) & \text{of } \chi \neq 0 \end{cases}$ $= \begin{cases} \chi(\eta) & \text{of } \chi \neq 0 \end{cases}$ $= \begin{cases} \chi(\eta) & \text{of } \chi(\eta) & \text{of } \chi \neq 0 \end{cases}$ $= \begin{cases} \chi(\eta) & \text{of } \chi(\eta) & \text{of } \chi \neq 0 \end{cases}$ $= \begin{cases} \chi(\eta) & \text{of } \chi(\eta) & \text{of } \chi \neq 0 \end{cases}$ $= \begin{cases} \chi(\eta) & \text{of } \chi(\eta) & \text{of } \chi \neq 0 \end{cases}$ $= \begin{cases} \chi(\eta) & \text{of } \chi(\eta) &$	The second secon
Sup $As$ $Na(t) = 3sin(40xt)$	-
$Sus$ $As$ $Na(t) = 3sin(40\pi t)$	
$As $ $Na(t) = 3sin(40\pi t)$	77
$\mathcal{A}_{3} = 3 \sin(40\pi t)$	(17) I
	250
$=) 2 - (nT_1) - 3(in) (1/2 - nT_1)$	
So Xa(41.13) = 33411 (40 X 41.13)	
$r(n) = 3 \sin(40 \times nT_s)$	
As $T_s = \frac{1}{F_s}$ So	
$\chi(n) = 3 \sin \left( 40 \times n \pm 1 \right)$	
As Fs = 120 So	
71[n] = 3 sin (46 x n (1/26))	
3	-
$\pi[n] = 3 \lim_{\longrightarrow} (\underline{x} n)$	
W W	
$w = \frac{\pi}{3}n$ As $w = 2\pi f n$	
$2\pi f y = \frac{x}{3} y$	
6f=1 P 4 [ F0	

MOTOWO	$\frac{1}{6} = 1$ $Dated: / 20$
	0 - 1
	f = 1/6
As	We less
Sin	usiodal Signal discrete time
on Page	ly if and only if the
N	equency is Rational. So 1/6 Rational no this Signal is periodic.
	N. V
>The	
7	Sketch in drawn on Page 2.
	$T = \frac{1}{F} = \frac{1}{1/6}$
	T=6sec
M	ow In milli-sec
	T= baco 0 mas
	T= 6000 ms
1000000	
	- xx - xx - xx - xx -

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() usetim	NO: 2:	
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Gren:		
$\gamma_{o}(t) = Si$	n (480xt)+3s	in (720xt)
	The state of the s	
Sampling Rode	=f=600/sec	La La La Caración de
(a) NYQUIT San	npling Rate for	Na(t)=)
the state of the s	J Company	L bridge
these are to	is frequener	es un
nalt).	1+1 5 NIPIC	76.14
2/x f / = 480 /	< *	12047
l - 9 110 4+2	$f_{z} = 3$	36014+2
J- 240 m	12	30 - (112
According to MY	Ovit S.R.	-7,
the minimum	m sampling	Pale
Ws = 2 Wmax	or Fo = 2 Fmax	Regimes
ws = 2 Wmax to Recover again ù coulle	the analog	Signe
agam u coulle	el MY Quist	Theorem.
NYOvist \$ = 2 × Fa	19 cm 30 4	Someting Rate Persure Someting to Persure signal
11	num.	Soundant to bos
. NYQUIT \$ = 2 (360	2 Sed about	again
NY (1908) = 720	hotz.	
A CONTRACTOR OF THE CONTRACTOR		
(b) folding from	equency =?	
half of NY	Quist Campin	is Rale
half of My is could f	olding freque	vay.
$\int_{S} = \frac{f_{S}}{2}$	- 600	
J; = 2	4	

	MUTUWUTUFUS H/WU-C/WU Dated:	0.
	Compiled Recover.	
	-xx -xx -xx	
	Question No # 3	
	C	1
	Given:	1
	2 (n) = 705 Sin ( to + */6)	Transport of the last
	Partie A Land Carlotte	
	Required: no of bits Regumed in	
1000	A/O Conversion. Required in	ALC ALCOHOLOGY AND
	* * * * * * * * * * * * * * * * * * *	CONTRACTOR STATES
	lince sin fonction oscillate 5/w	
1	7+-5 (max). & -7.5(min) than	STORY THE STORY STORY
- 1	$\Delta = \frac{m\alpha x - min}{L - 1}$	
	$\Delta = \frac{7.5 + 7.5}{1 - 1} = \frac{15}{1 - 1}$	
	L = \(\frac{1}{15} + 1\)	
	when $\Delta = 0.1$ then $L = ft_{max}$	
	bits b is the smallest debags	
	greater than or equal to log_2(1)  for D=0.1 L=15 and	
	109 <sub>2</sub> (15) = 7.29 So [6=8]	
	80 [6=8]	
	b) When 0-0.05	
	t- (5)	
	T= 1+ TE	
	PITPO	

70 (301) = 8.95

(b=9)

 $\Delta = 0.01$ 

(a l= 1+ 15 0.01

L= 1501

1092(1501) = 10:055

So (b=11)

the END

XX