## C.U.SHAH UNIVERSITY Winter Examination-2018

## Subject Name: Digital Signal Processing

	Subject Code: 4TE05DSP1			Branch: B.Tech (EC)	
	Semester	: 5	Date: 07/12/2018	Time: 10:30 To 01:30	Marks: 70
	Instructio (1) U (2) I (3) I (4) A	ns: Jse of Pro nstructio Draw nea Assume s	ogrammable calculator & any ns written on main answer bo t diagrams and figures (if nec uitable data if needed.	y other electronic instrument is p ook are strictly to be obeyed. ressary) at right places.	prohibited.
Q-1		Attemp	t the following questions		(14)
• • •	a) b) c) d) e) f) g) h) i) j) k) l) m) n)	State an Explain Define of State rea Define of What is What is What ar Define of What is Define of What is List the State the	y two disadvantages of DSP sy in brief aliasing concept in sar convolution. sidue theorem. linear system. harmonic? delay? e the basic elements of DSP? DFT. linear phase system? odd signal. ROC? applications of DSP. e condition for symmetry for	ystems npled data system. any signal.	
Q-2	1 2	Attemp Enlist th Draw th disadvar	<b>At all questions</b> the properties of DFT. Prove a e basic block diagram of DSP. ntages of DSP.	ny two properties. Explain in detail different advan	(14) 07 tages and 07
Q-3	1 2	Attemp Compar With the	<b>t all questions</b> re FIR and IIR filters. e help of a neat sketch, explain	Digital Signal Processor archited	(14) 07 cture. 07
Q-4	1	<b>Attemp</b> Explain	t all questions sampling in short.		(14) 03



	2	Define Stability of Discrete Time System. Derive the necessary and sufficient condition to test the stability.	04		
	3	Give the classification of signals in detail.	07		
Q-5		Attempt all questions	(14)		
	1	Define ACF (Auto-Correlation Function) of a sequence and explain ACF's main properties.	07		
	2	Explain Z- transform with applications and prove any one property of Z- Transform.	07		
Q-6		Attempt all questions			
	1	State the properties of FFT explain any two in brief.	07		
	2	Explain the Decimation in Time FFT algorithm.	07		
Q-7		Attempt all questions	(14)		
C	1	Explain types of system with its classification.	08		
	2	Briefly explain effect of coefficient quantization in filters.	03		
	3	What is frequency domain sampling? Why it is required?	03		
Q-8		Attempt all questions	(14)		
-	1	State and derive necessary and sufficient condition for a discrete time system to be BIBO stable.	07		
	2	State 'differentiation' and 'time convolution' properties for given transform (Discrete Time Fourier Transform (DTFT) or Z-transform). Prove any one of two properties.	07		

