Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER I (NEW) – • EXAMINATION – SUMMER 2016

Subject Code: 2714107 **Date:18/05/2016**

Subject Name: Signal Analysis and Transform

Time:02:30 pm to 05:00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	(a)	Define: (1) Energy Signal (2) Power Signal (3) Unit Impulse Function (4) Unit Step Function and (5) Unit Ramp Function	07
	(b)	[1] List the Property of "Z-Transform" and explain any one [2] List the Properties of "DFT" and explain any one.	07
Q.2	(a)	Determine the Inverse Discrete Fourier Transform(IDFT) of sequence: $X[k] = \{3, (2+j), 1, (2-j)\}$ $\uparrow$	07
	(b)	Find the Inverse Z-Transform of the following using Partial Fraction Expansion (PEF) Method.	07
		OR	
	(b)	What is need of FFT algorithm? Explain "Decimation in time Fast Fourier Transform (FFT) algorithm Fundamentally.	07
Q.3	(a)	What is the need of Transform? Explain "Walsh Transform".	07
	(b)	Write Short Note on: Multi-Wavelet.	07
		OR	
Q.3	(a)	Explain "Fast Wavelet Transform" fundamentally.	07
	(b)	Write Short Note on: Radon Transform.	07
Q.4	(a)	Find Z-Transform for : $X[n] = 2^n u[n-2]$	07
	(b)	Write Short Note on: Quantization Effect in the Computation of DFT	07
		OR	
Q.4	(a)	Define: (1) Correlation of Signal (2) Orthogonal Signal (3) Eigen Value and (4) Eigen Vector.	07
	(b)	Explain Linear Filtering approach for computation of DFT	07
Q.5	(a)	Write Short Note on : Discrete Cosine Transform(DCT)	07
	(b)	Compate: Continuous Wavelet Transform and Discrete Wavelet Transform fundamentally.	07
		OR	
Q.5	(a)	Write Short Note on: Region of Convergence (ROC) of Z-Transform.	07
	(b)	Write Short Note on : Slant Transform	07

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