Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY ME – SEMESTER-1 (NEW) EXAMINATION – WINTER 2016

Subject Code: 2712308 Date:06/01/2017

Subject Name: Image Processing

Time: 2:30 pm to 5:00 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)	Explain Components of Digital Image Processing.	07
	(b)	What is the difference between degradation and noise? Explain image degradation and restoration model.	07
Q.2	(a)	Explain how DCT can be useful in image processing.	07
	(b)	Explain HSI color model with necessary mathematical equations. OR	07
	(b)	Explain RGB color model with necessary mathematical equations.	07
Q.3	(a)	Explain dilation and erosion morphological operations	07
	(b)	Define Low Pass filter in frequency domain. Differentiate between Butterworth Low pass and Gaussian low pass filter	07
0.2	(-)	OR	07
Q.3	(a) (b)	Explain the process of Image sharpening. Explain High-boost filtering and Unsharp masking.	07 07
Q.4	(a) (b)	Briefly explain Wiener and Inverse filtering. Explain Sampling and quantization with example. Discuss spatial and intensity resolution.	07 07
		OR	
Q.4	(a) (b)	Write a short note on Huffman Coding with appropriate example. Explain basic principle of homomorphic filtering. Draw and explain implementation block diagram of homomorphic filtering	07 07
Q.5	(a) (b)	Explain methods for lossy image compression technique. Discuss any one of them. What is Histogram? Explain in detail process of Histogram Equalization. OR	07 07
Q.5	(a)	Explain Lossless Compression Methods	07
•	(b)	Discuss steps of image filtering in frequency domain. Discuss 2D discrete Fourier transform with help of equations.	07
