Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER–VII (NEW) EXAMINATION – WINTER 2020

Subject Code:2170712 **Date:30/01/2021**

Subject Name:Image Processing

Time:10:30 AM TO 12:30 PM **Total Marks: 56**

Instructions:

1. **Attempt any FOUR questions out of EIGHT questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	List down Components of Digital Image Processing.	**03**
	(b)	What are the real world applications of Image Processing?	**04**
	(c)	Define the Image Enhancement. Explain different Spatial domain Enhancement method.	**07**
Q.2	**(a)**	Discuss any one filter method for smoothing in Frequency Domain.	**03**
	(b)	Difference between lossy and lossless image compression?	**04**
	(c)	How does the histogram equalization process enhance the image?	**07**
Q.3	**(a)**	Write a short note on inverse filtering.	**03**
	(b)	Define histogram of an Image and explain its applications.	**04**
	(c)	Draw the block diagram of Image enhancement in frequency domain and explain in brief.	**07**
Q.4	**(a)**	Explain Basic Gray Level Transformations.	**03**
	(b)	Explain Color Slicing and Color Complements in Color transformation	**04**
	(c)	Discuss any two filter in image restoration using spatial domain filtering	**07**
Q.5	**(a)**	Define (i) Spatial resolution, (ii) Gray level resolution	**03**
	(b)	Explain any two noise models in image restoration.	**04**
	(c)	Write a short note on Discrete Wavelet Transform.	**07**
Q.6	**(a)**	Compare the Laplacian and Gradient operators.	**03**
	(b)	Describe various arithmetic operations on image with its importance.	**04**
	(c)	List out the applications of each color model. Explain any one color model in brief.	**07**
Q.7	**(a)**	List out usages of X ray and Infrared ray imaging.	**03**
	(b)	Explain Source Encoder and Decoder in Image Compression.	**04**
	(c)	Describe image pyramid technique.	**07**
Q.8	**(a)**	What is Image segmentation? What is discontinuity based segmentation.	**03**
	(b)	Difference between Global Thresholding and Adaptive Thresholding.	**04**
	(c)	Explain Hough Transform in Edge Linking and Boundary Detection.	**07**

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