

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-V (NEW) EXAMINATION – WINTER 2024

Subject Code:3155204

Date:28-11-2024

Subject Name:Image Processing

Time:10:30 AM TO 01:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		Marks
Q.1	(a) What are the Components of Image processing systems?	03
	(b) Explain Inverse filtering.	04
	(c) Explain Applications of Image processing system .	07
Q.2	(a) Explain Basic gray level transformations.	03
	(b) Demonstrate the use of mean filters.	04
	(c) Demonstrate the use Laplace operator for image sharpening.	07
	OR	
	(c) What is an Image formation and digitization concept?	
Q.3	(a) List and explain color models and explain RGB color model in detail.	07
	(b) Explain Fourier transform.	04
	(c) Demonstrate the smoothing spatial filters in Image Enhancements.	07
	OR	
Q.3	(a) Write a short note on HIS color model.	03
	(b) Demonstrate Error-free compression in Image compression.	04
	(c) Briefly differentiate lossless and lossy image compression techniques.	07
Q.4	(a) What is image restoration.	
	(b) Write a short note on pixel adjacency connectivity.	04
	(c) Explain Adaptive filters in brief.	07
	OR	
Q.4	(a) What is the use of image enhancement.	03
	(b) What is regions and boundaries.	04
	(c) Demonstrate the use of Colour transformation.	07
Q.5	(a) Explain in details the Multi-resolution expansion.	03
	(b) Explain wavelet transform.	04
	(c) Demonstrate Detection of discontinuities in Image segmentation.	07
	OR	
Q.5	(a) What are the Applications of Colour Image processing?	03
	(b) Briefly explain Colour segmentation.	04
	(c) Differentiate the smoothing frequency-domain filters, Sharpening frequency domain filters.	07