

M. Tech. Computer Science & Engineering (CBCS Pattern) Semester-II
PCSS23 - Advanced Digital Image Processing

P. Pages : 1

Time : Three Hours



GUG/S/25/10994

Max. Marks : 70

- Notes :
1. Solve **any five** questions.
 2. All questions carry equal marks.
 3. Due credit will be given to neatness and adequate dimensions.
 4. Assume suitable data wherever necessary.

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| 1. | a) | Describe the fundamental steps in Digital image processing. | 7 |
| | b) | Explain sampling and quantization with help of example. | 7 |
| 2. | a) | Differentiate between Histogram equalization and histogram processing with neat sketches. | 7 |
| | b) | Explain the properties of Fourier transform. | 7 |
| 3. | a) | Explain the Golomb coding technique of image compression. | 7 |
| | b) | Explain Image averaging and image subtraction with example. | 7 |
| 4. | a) | Explain frequency domain sharpening filters in detail. | 7 |
| | b) | What is Image Compression? Explain methods for loss less image compression (any two method) | 7 |
| 5. | a) | Explain the following terms with respect to morphological hit or miss transformation.
i) Convex Hull.
ii) Thinning
iii) Thickening. | 7 |
| | b) | Write a short note on Region based segmentation. | 7 |
| 6. | a) | Explain the following representation approaches.
i) Chain codes.
ii) Polygonal approximations. | 7 |
| | b) | Explain object recognition technique based on Neural networks. | 7 |
| 7. | a) | Describe Fast Wavelet Transforms. (FWT). | 7 |
| | b) | Describe the structural object recognition method using matching shape number. | 7 |
| 8. | a) | Explain optimum statistical classifiers for object recognition. | 7 |
| | b) | Write short notes on Digital Image Watermarking. | 7 |
