

FACULTY OF ENGINEERING

B.E. 4 / 4 (EE) II – Semester (Main) Examination, May / June 2011

Subject: Image Processing (Elective – III)

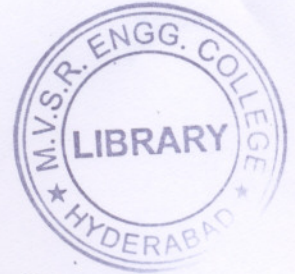
Time: 3 Hours

Max. Marks: 75

Note: Answer all questions from Part A. Answer any Five questions from Part B.

PART – A (25 Marks)

- | | | |
|-----|---|---|
| 1. | Which are the 4-neighbours of a pixel at (x,y) location? | 2 |
| 2. | Define the following terms:
(i) Radiance (ii) Luminance (iii) Brightness | 3 |
| 3. | Write any five properties of 2D-DFT? | 3 |
| 4. | What is ideal high pass filters? | 2 |
| 5. | Why histogram equalization is required in procuring an image? | 3 |
| 6. | Give the weights of a mask for a horizontal line detection. | 2 |
| 7. | What is the need of image compression in image processing? | 2 |
| 8. | What is run length coding? | 3 |
| 9. | Differentiate between local noise and global noise? | 3 |
| 10. | What is the role of neural networks in image processing? | 2 |



PART – B (5x10 = 50 Marks)

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|--------|---|----|
| 11.(a) | Discuss about image sampling and quantization? | 4 |
| | (b) Explain image acquisition using a single sensor, sensor strips and sensor arrays? | 6 |
| 12.(a) | Explain in detail about sharpening filters in frequency domain? | 5 |
| | (b) Differentiate spatial domain filtering and frequency domain filtering? | 5 |
| 13.(a) | Illustrate the image segmentation by global thresholding. | 6 |
| | (b) Discuss any two edge detection algorithms. | 4 |
| 14. | What is histogram modification? Explain the procedure used in histogram equalization with an example, for the enhancement of image quality? | 10 |
| 15. | Explain all the details of Galomb coding with an example? | 10 |
| 16. | Explain the Gaussian & Rayleigh noise probability density function. | 10 |
| 17. | Write short notes on the following:
a) Image formats
b) Inverse filtering
c) Electromagnetic spectrum. | |