Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : **63311**

M.E. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

Elective

Computer Science and Engineering

CP 7004 – IMAGE PROCESSING AND ANALYSIS

[Common to M.E. Computer Science and Engineering (With Specialization in Networks)]

(Regulation 2013)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   Define image sensing.

2.   What do you mean by correlation and convolution?

3.   What is the role of sampling theorem?

4.   Define image smoothing.

5.   What do you mean by entropy thresholding?

6.   List the feature of Laplacian operator.

7.   What do you mean by SIFT operator?

8.   What are texels?

9.   Define pixel depth.

10. What is the basic difference between segmentation in HSI and RGB vector color space?

PART B — (5 × 16 = 80 marks)

11. (a) Explain the principles of sharpening shaping filters.   (16)

Or

(b) (i)   Write a note on Local histogram equalization.   (8)

(ii) Explain the broad classification of spatial operations.   (8)

12. (a) Describe the concepts of image sharpening using the homo-morphic and selective filtering. (16)

Or

(b) Explain the principles of wavelet based image processing. (16)

13. (a) (i) Describe the concept of hysteresis thresholding. (8)

(ii) Write short note on Active contours. (8)

Or

(b) What is the differential grading operator? Explain the circular operator implementation in detail. (16)

14. (a) By examining suitable binary images of corners, show that the median corner detector gives a maximal response within the corner boundary rather than half-way down the edge outside the corner. Show how the situation is modified for grayscale images. How will this affect the value of the gradient noise skimming threshold to be used in the improved median detector? (16)

Or

(b) Explain the Harris interest point operator and highlight on the performance over crossing points and junctions. (16)

15. (a) (i) Explain the concepts in image compression models. (8)

(ii) Write a short note on Digital watermarking. (8)

Or

(b) Write short notes on :

(i) Image segmentation based on colors (8)

(ii) Pseudocolor image processing. (8)

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