Reg. No. : | | | | | | | | | | |

Question Paper Code: 92031

M.E. DEGREE EXAMINATION, DECEMBER 2013.

Elective

Computer Science and Engineering

01PCS506 - DIGITAL IMAGING

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. Find city-block distance for the coordinate (2, 3) and (5, 7).
2. What are the various file formats used in image representation?
3. In which situation the gamma corrections will be useful?
4. Write two properties of DFT.
5. What is zero crossing in image segmentation?
6. What do you mean by local, global and dynamic threshold in image segmentation?
7. What is image pyramid?
8. Write short notes on quantizer and symbol encoder.
9. Draw one noisy object with its corresponding signature.
10. What is image mosaic?

PART - B (5 x 14 = 70 Marks)

11. (a) Explain, how image acquisition is obtained with single sensor, sensor strips and sensor array? (14)

Or

(b) Discuss about the effects of application of sampling and quantization in images. (14)

12. (a) (i) Explain Histogram equalization. For a 5 bit input perform equalization.

9	9	9	1	1
6	1	11	10	30
15	15	30	30	11
6	6	1	11	30
9	10	15	9	30

(8)

(ii) Explain, how Homomorphic filter is used in image enhancement? (6)

Or

(b) Describe how various spatial domain filters are useful in image sharpening and smoothening? . (14)

13. (a) Explain, how various discontinuities are detected by various operators? (14)

Or

(b) (i) How do you link edge pixels through Hough transform? (7)

(ii) Explain region based segmentation. (7)

14. (a) (i) Explain the different compersion standards. (7)

(ii) Illustrate the use of wavelet transform in image processing. (7)

Or

(b) (i) Find Huffman code for the source sequence with the given probabilities $a_1 = 0.3$, $a_2 = 0.1$, $a_3 = 0.1$, $a_4 = 0.4$, $a_5 = 0.1$. (6)

(ii) Write about arithmetic code with one example. (8)

15. (a) Explain in detail, how back propagation neural network is useful in classification. (14)

Or

(b) Write about i) Video Motion Analysis (7)

ii) Color slicing (7)

PART - C (1 x 10 = 10 Marks)

16. (a) Explain how matching by correlation technique is applicable for identification of cancers in medical imaging. (10)

Or

(b) Explain how segmentation is useful in industrial inspection. (10)