Roll No. _____ [Total No. of Pages : 2

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B.Tech. VIII Semester (Main) Examination, April/May 2016
Computer Science & Engineering
8CS2A Digital Image Processing
Common With 8IT2A

Time : 3 Hours

Maximum Marks : 80
Min. Passing Marks : 24

Instructions to Candidates:

*Attempt any **five** questions, selecting one question from **each unit**. All questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.*

Unit - I

1. Explain the concept of image representation and differentiate the image compression and representation (16)

OR

1. What is image quantization? Explain the scalar & image quantization in detail (16)

Unit - II

2. a)

Gray level	0	2	3	4	5	6	7	8
No of pixels	100	90	85	70	0	0	0	0

Perform histogram stretching so that the new image has a dynamic range of (0,8) (8)

b) What do you mean a Fourier transforms? Explain its properties in detail (8)

OR

2. Describe the basic principles of image enhancement by

a) spatial domain methods

b) Frequency domain methods (8×2=16)

Unit - III

3. Design homomorphic filtering. Explain homomorphic filtering model. How do we get back the modified image? (16)

OR

3. a) Explain the general image restoration models (8)

   b) Explain the various noise models in details (8)

Unit - IV

4. Find the Huffman coding for given seven letters along with probability of occurrence

Letters	Probability
B	0.110
A	0.154
G	0.011
D	0.063
E	0.059
C	0.072
F	0.015

(16)

OR

4. Describe JPEG in detail (16)

Unit - V

5. a) Given 5 points, use Hough transform to draw a line joining these points (1,4),(2,3),(3,1),(4,1),(5,0) (8)

   b) Explain region based segmentation with suitable example (8)

OR

5. Write short notes on (any two):-

   i) Image segmentation

   ii) EDGE linking

   iii) Thresholding

   iv) Boundary linking (8×2=16)

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