M.Tech (with Credits)-Regular-Semester 2012-Computer Science and Engineering Sem II

MT-1008 - Advanced Digital Image Processing

P. Pages : 1 **GUG/W/16/3941**

Time : Three Hours * 4 7 4 1 * Max. Marks : 70

Notes : 1. Attempt **any five** questions.
2. All questions carry equal marks.
3. Due credit will be given to neatness and adequate dimensions.

1. a) Describe the fundamental steps in digital image processing. **8**

b) State and explain in brief any four application of image processing. **6**

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 correspondence between filtering in the spatial domain and frequency domain. **7**

b) Describe Golomb coding technique in Image compression. **7**

4. a) Explain the HSI color model in brief. Give RGB to HSI conversion. **7**

b) Explain Huffman coding image compression technique. **7**

5. a) State different masks for line detection and explain the process of line detection in brief. **7**

b) Write a short note on Region based segmentation. **7**

6. a) Obtain the shape number for the segment in fig. 1 by using directional number given in fig. 2. **7**

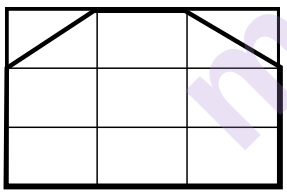

fig.1

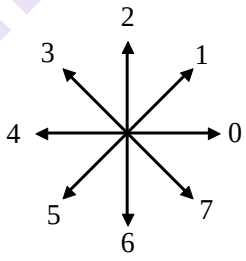

fig.2

b) Explain the following representation approaches. **7**
i) Chain codes.
ii) Polygonal approximations.

7. Discuss Fourier Descriptors and Topological Descriptors. Give an example. **14**

8. a) Explain optimum statistical classifiers for object recognition. **8**

b) Write short notes on : **6**
i) Shape numbers
ii) Digital image water marking.

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