M.Tech 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 |||||||||||||||||||||| Max. Marks : 70
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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**
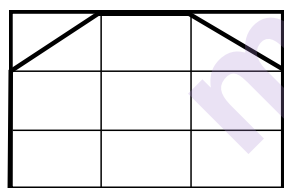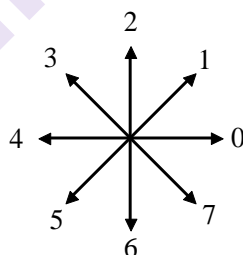

          fig.1   fig.2

     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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