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12SCS151

First Semester M.Tech. Degree Examination, Dec.2013/Jan.2014

Advances in Digital Image Processing

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions.***

1 a. With a neat block diagram, explain fundamental steps in digital image processing. **(10 Marks)**

b. What is digital image processing? What are the various fields that use digital image processing? **(10 Marks)**

2 a. Describe the image formation in the eye with brightness adaptation and discrimination. **(10 Marks)**

b. Explain about the basic relationships and distance measures between pixels in a digital image. **(10 Marks)**

3 a. Explain types of gray level transformations used for image enhancement. **(10 Marks)**

b. Explain in detail smoothing spatial filters. **(10 Marks)**

4 a. Discuss about sharpening frequency domain filters. **(10 Marks)**

b. Explain homomorphic filtering approach for image enhancement. **(10 Marks)**

5 a. Explain various noise probability density functions. **(10 Marks)**

b. Explain about the restoration filters used when the image degradation is due to noise only. **(10 Marks)**

6 a. Explain about pseudo color image processing. **(10 Marks)**

b. Explain wavelet transform in detail. Also mention its properties and applications. **(10 Marks)**

7 a. Define image compression. Explain about redundancies in a digital image. **(10 Marks)**

b. Explain arithmetic coding process with an example. **(10 Marks)**

8 Write short notes on:

a. Region based segmentation

b. Hit-or-Miss transformation

c. Video compression techniques

d. Zooming and shrinking **(20 Marks)**

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