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SARDAR PATEL UNIVERSITY
M. Sc. (Geoinformatics)
Semester – II
PS02CGIN21 (Digital Image Processing)
18TH March, 2019, Monday

Time : 10:00 a.m. to 01:00 p.m.   Marks : 70

> Note : Answers of all the questions (including multiple choice questions) should be written in the provided answer book only.

Q-1 Pick up the most appropriate answer from the given alternatives and write in your answer book.   (8)

(1) Which one is not a process of image processing
   (a) high level   (b) low level
   (c) mid level   (d) last level

(2) Which sensor is used for obtaining the video source in 3d face recognition system
   (a) optical   (b) electronic
   (c) 3d sensor   (d) 2d sensor

(3) Intensity levels in 3bit image are
   (a) 2   (b) 4   (c) 6   (d) 8

(4) DPI stands for _____
   (a) dots per image   (b) dots per inches
   (c) dots per intensity   (d) diameter per inches

(5) What is the process of moving a filter mask over the image and computing the sum of products at each location called as?
   (a) Correlation   (b) Convolution
   (c) Linear spatial filtering (d) Non linear spatial filtering

(6) What is Histogram Matching also called as?
   (a) Histogram Equalization (b) Histogram linearization
   (c) Histogram Specification (d) None of the Mentioned

(7) Compression is done for saving
   (a) storage   (b) bandwidth
   (c) money   (d) Both a and b

(8) For noise reduction we use
   (a) image contouring   (b) image enhancement
   (c) image recognition   (d) image smoothing

(P.T.O)

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Q-2 Attempt the following: (ANY SEVEN) (14)

1) Define Image. Explain various types of Images.
2) What is True color composite and False color composite of an image?
3) Define convolution and correlation
4) Define compression ratio, Histogram.
5) Describe the job of video controller.
6) Explain how digital image can be stored in various formats.
7) Define: Intensity Transformation, Spatial Filtering
8) List out and define all types of filters.
9) Explain Lossless and lossy compression.

Q-3 (a) Explain Translation, Rotation and scaling with example. [6]

(b) Write a note on 2D composite transformation. [6]

OR

(b) What you mean by chart? Explain all types of charts with example.

Q-4 (a) Write a note on 3 main levels of Image processing. [6]

(b) What is Image Resolution? List out and explain types of resolutions. [6]

OR

(b) Explain Radiometric and Geometric Errors in satellite image.

Q-5 (a) Write a note on basic intensity Transformation Function. [6]

(b) Write a note on Histogram Equalization. [6]

OR

(b) Write a note on various types of low pass filters in spatial domain.

Q-6 (a) Write a note on Image compression model. [6]

(b) List out and explain 3 basic types of data redundancy in an image. [6]

OR

(b) What is classification? Explain ISODATA classification algorithm in detail.

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