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**B.E. / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL/MAY 2014
GEOINFORMATICS BRANCH**

FOURTH SEMESTER – (REGULATIONS 2004/2008)

GI 381 / GI 9252 DIGITAL IMAGE PROCESSING

Time: 3hrs

Max Marks: 100

Answer ALL Questions

Part – A (10 x 2 = 20 Marks)

1. Define Digital image processing. How image can be represented?
2. List out some of the image processing softwares with their features.
3. What do you mean by atmospheric attenuation?
4. What is preprocessing? Why is it required?
5. Write short note on topographic effect on satellite image.
6. Define histogram. What are its significances?
7. What do you understand by the term spectral signature? Where is it used?
8. Write short note on Baye's theorem.
9. What do you understand by the term "Expert system".
10. What is pattern recognition?

Part B (5 X 16 = 80)

Answer All Questions

- 11.i) Explain in detail image sampling and quantization. 4
ii) Discuss in detail the working principles and characteristics of any one of the imaging systems 12
- 12a.i) Describe in detail with neat sketch how the geometric correction of satellite image is carried out. 10
ii) Describe in detail various sources of geometric errors in remote sensing scanning systems. 6

(OR)

- 12b.i) What are the differences between absolute and relative radiometric corrections? 2
ii) Explain in detail how the absolute radiometric correction of atmospheric attenuation of the satellite image is carried out. 14
- 13a. Explain the following in detail
i) Scale space transform and its uses in digital image processing 8
ii) Image fusion in different domain 8

(OR)

- 13b.i) Explain the Principal Component Analysis(PCA) in detail and list out its use. 10
ii) What do you mean by edge enhancement? Discuss various methods of edge enhancement in detail. 6

(PTO)

- 14a.i) Define training sites. Discuss various methods of collecting it. **4**
ii) Describe in detail different supervised classification algorithms used to classify the satellite image. **12**

(OR)

- 14b.i) Discuss in detail various unsupervised classifications methods used to classify the satellite image. **10**
ii) Discuss in detail error matrix and accuracy assessment **6**

- 15a.i) Describe in detail different methods used to detect and represent the boundary **10**
ii) Describe briefly how the sub pixel classification is carried out. **6**

(OR)

- 15b.i) Define Artificial Neural Network (ANN). List out different types of ANN. Discuss how ANN technique can be used to classify the satellite image. **8**
ii) What is fuzzy logic? Differentiate between fuzzy set and crisp set. Explain in detail how Fuzzy logic is used to classify the satellite image. **8**