Roll No. | | | | | | | | |

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

GEOINFORMATICS ENGINEERING BRANCH

Seventh Semester

GI 9401 THERMAL & HYPER SPECTRAL REMOTE SENSING

(Regulation 2008)

Time : 3 Hours | Answer ALL Questions | Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. List any three thermal sensors with spectral sensitivity.
2. Why radiation methods of heat transfer is important for Remote Sensing?
3. What is the basis of thermal infrared remote sensing?
4. State the inverse square law.
5. Define hyper spectral remote sensing.
6. What is BDRF?
7. What is Pixel Purity Index?
8. What is MNF transformation in Hyper spectral RS?
9. List the merits of Hyper spectral over multispectral Remote Sensing in forest study.
10. List any four data compression techniques.

Part – B (5 x 16 = 80 marks)

11. i) Explain the thermal radiation with terrain elements. (10)
    ii) Write Short notes on Stephan Boltzmann Law and Weins Displacement Law.(6)

12. a) i) Explain the radiometric calibration methods of thermal scanners.(8)
    ii) Write short notes on resolution cell size variations of across track scanner imagery.(8)

    OR

    b) Discuss the any one application of thermal Remote Sensing with case studies. (16)

13. a) i) Explain the experimental design and instrumentation of field spectrometry. (8)
    ii) Describe the factors affecting field spectrum.(8)

    OR

    b) i) Discuss the Block Based Maximum Likelyhood classification method.(8)
    ii) Describe the Hughes phenomenon or curse of Dimensionality.(8)

14. a) i) Discuss the Library matching techniques in spectral analysis. (8)

ii) Write short notes on spectral mixture analysis.(8)

OR

b) i) Discuss about band reduction in hyperspectral image using Principal components Analysis.(8)

ii) Describe the hyper spectral data calibration and normalization.(8)

15. a) Discuss the application of hyper spectral remote sensing for soil nutrient study with case study.(16)

OR

b) Explain the application of hyper spectral remote sensing for forest species mapping with case study.(16)