R 8142

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2006.

Fifth Semester

Civil Engineering

CE 333 — BASICS OF REMOTE SENSING AND GIS

Time : Three hours   Maximum : 100 marks

Draw neat sketches wherever necessary.

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What do you mean by active remote sensing?

2. Explain few applications of Thermal Remote sensing.

3. What do you mean by 'Atmospheric Windows'?

4. Explain how EMR interact with Forest Cover on earth.

5. What do you mean by Geo-Synchronous satellite?

6. How speckle is removed from microwave imagery?

7. Explain horizontal and vertical datum for topographic maps.

8. Explain the use of Buffering technique in GIS analysis.

9. Explain visual interpretation keys.

10. What do you mean by image enhancement?

PART B — (5 × 16 = 80 marks)

11. (a) (i)   Explain EMR spectrum and wave length region of EMR used for remote sensing purposes.   (8)

        (ii) Explain black body radiation, Plank's law and Stefan – Boltzman law.   (8)

Or

    (b) (i)   Explain the multi concept in remote sensing.   (8)

        (ii) Explain the advantage of stereo data products.   (8)

12. (a) (i) Explain Raleigh, Mie and Raman scattering. (8)

      (ii) Explain the EMR interaction with atmospheric constituences. (8)

Or

(b) (i) Draw with neat sketches the interaction of visible of infrared part of EMR with soil, vegetation and urban features. (8)

      (ii) What do you mean by specular, and diffuse reflection? Explain with examples. (8)

13. (a) (i) Explain synthetic aperture radar concept. (8)

      (ii) Explain some application of radiometer. (8)

Or

(b) (i) Explain the geometric distortions in SLAR images. (8)

      (ii) Explain IRS series of remote sensing sensors. (8)

14. (a) (i) Explain the various components of GIS. (8)

      (ii) Explain different methods of spatial data input in to GIS. (8)

Or

(b) (i) Explain some of most commonly used projection systems used in India. (8)

      (ii) Explain the errors in GIS database creation and how it is removed. (8)

15. (a) (i) Explain the visual interpretation of satellite images. (8)

      (ii) How images are geometrically rectified? (8)

Or

(b) (i) Explain the application of high resolution remote sensing image for urban planning. (8)

      (ii) How GIS can be used in watershed management? (8)

———————