

**ANNA UNIVERSITY, CHENNAI**  
**END SEMESTER EXAMINATIONS, NOVEMBER 2011**  
**B.E. AGRICULTURAL AND IRRIGATION ENGINEERING**  
**V SEMESTER (R2008)**  
**AI 9303 REMOTE SENSING**

Time: 3 Hours

Max. Marks: 100

**Answer All Questions**

**PART-A**

**10 X 2 = 20 marks**

1. What are the ways in which energy can be transferred?
2. Draw a neat sketch of EMR spectrum and indicate the wavelengths of major domains.
3. Mention two examples of the application of TIR data.
4. Compare MSS and TM.
5. Distinguish primary and complementary colours.
6. What are the types of stereoplotters used for photointerpretation?
7. With an example, compare the point and local operations in DIP.
8. Explain atleast one application of FFT in image processing.
9. Name any two satellites with their sensors launched by other countries used for crop studies.
10. Write short notes on remote sensing applications to soil erosion.

**PART-B**

**5 X 16 = 80 marks**

11. Differentiate: 16
  - i. Passive and active systems
  - ii. Across track and along track Scanning
  - iii. Spectral and spatial resolution
  - iv. Emittance and reflectance
  - v. Energy radiated from Sun and Earth
  - vi. High and low resolution with examples
  - vii. Airborne and spaceborne platforms
  - viii. Sunsynchronous and geostationary satellites
- 12.a.i. Give a schematic diagram of the principle of Remote Sensing data collection. 6
  - ii. Elaborate the wave and particle theories. 10
- (OR)
- 12.b.i. Explain the sources and types of scattering. 10
  - ii. How spectral reflectance curves are constructed with spectroradiometer? 6
- 13.a.i. Enumerate the different types of aerial photographs based on the Camera axis, Film used and Camera type 10
  - ii. List the factors governing the selection of satellite data products and explain the browsing facilities provided by NRSA to search the area of interest. 6

(OR)

- 13.b.i. What are the factors governing the Image Quality and Interpretability? 4  
ii. Elaborate the elements of Image Interpretation and drainage pattern. 12

- 14.a. i. Discuss the different digital image formats. 6  
ii. What are the sources of errors in a digital image and how are they rectified? 10

(OR)

- 14.b.i. What are GCPS? How they are selected? Explain how an image is rectified with GCPS. 6  
ii. List the various image enhancement techniques. Explain the image classification with neat sketches. 10

- 15.a.i. With a neat sketch, discuss the spectral reflectance of leaves, water and soil. 9  
ii. Define NDVI. What are the different types of NDVI? What do they predict and give its limitations. 7

(OR)

- 15.b.i. Give an account of SPOT mission and highlights the special features of SPOT 1.6  
ii. List the resources satellites launched by ISRO and explain the features of LISS IV and PAN sensors. 10