

B.E. AGRICULTURAL AND IRRIGATION ENGINEERING

Semester - V

AI 9303 – Remote Sensing
(Regulation – 2008)

13

Time: 3 Hours

Answer ALL Questions

Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. List the various components of remote sensing system.
2. The temperature of a radiating surface is 42°C. Calculate the total radiation emitted from the surface? (Assume $\sigma = 5.6697 \times 10^{-8} \text{ W/m}^2/\text{K}^4$)
3. Differentiate: Geosynchronous and Sun-synchronous satellites.
4. Define swath.
5. How will you differentiate clouds and snow from a satellite imagery.
6. List the different types of aerial photographs?
7. Define BIL, BIP and BSQ.
8. Give the special features of anyone French satellite.
9. Name one sensor for optical, thermal and microwave spectrum.
10. Differentiate active and passive remote sensing.

Part – B (5 x 16 = 80 marks)

11. (i) Enumerate the different atmospheric scattering and absorption mechanisms. (12)
(ii) With a neat sketch of atmospheric windows, explain their importance in remote sensing. (4)
12. a. (i) Explain in detail the various resolutions of a remote sensing data (12)
(ii) Discuss the various remote sensing platforms (4)
(OR)
b. (i) Elaborate along track and across track scanning mechanisms with neat sketches. (12)
(ii) Explain the principle of thermal imaging. (4)
13. a. (i) Discuss the different types of drainage patterns and how do they help to infer the subsurface features. (12)
(ii) What is a false colour composite? Give a neat sketch of a false colour formation (4)
(OR)
b. Give a detailed account of the Image interpretation keys. (16)
14. a. Explain in detail - Contrast enhancement, Band Ratio, Fourier Transform and PCA image enhancement techniques (16)
(OR)
b. (i) Elucidate the causes for radiometric errors and how a satellite image can be corrected radiometrically. (12)
(ii) What are the sources of internal and external geometric errors? (4)
15. a. Discuss in detail about the steps followed in creating a Land Use/Land Cover map using image classification and assess the classification accuracy. (16)
(OR)
b. Explain how different satellite data products are used for assessing the health of a given paddy field from its initial stage till the harvest, include estimation of yield. (16)