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B.E. (FULL TIME) DEGREE END SEMESTER EXAMINATION, NOV./DEC. – 2012
AGRICULTURE AND IRRIGATION ENGINEERING
V Semester
AI 9303 REMOTE SENSING (R 2008)

Time: 3 Hours

Answer ALL Questions

Max. Marks: 100

Part A (10 x 2 = 20 marks)

1. With a sketch of the electromagnetic spectrum, label the positions of the spectral regions: UV, blue, green, red, near IR, thermal IR and microwave.
2. The light from a distant star displays an emission spectrum that peaks at a wavelength (λ_{\max}) of 0.25 μm . What is its apparent surface temperature?
3. List all the IRS satellites.
4. Explain why PAN sensor provides higher spatial resolution than LISS sensors?
5. Give reasons for selecting the same season for change detection studies.
6. Describe any two methods for correcting line striping error.
7. How do mixed pixels affect the image interpretation?
8. Draw neat sketches of the structure of colour and IR photographic films?
9. What is NDVI and discuss about its usefulness?
10. Define: IFOV and swath.

Part B (5 x 16 = 80 marks)

11. Describe in detail the contrast stretching and band ratio in image enhancement (16)
12. a. i. Explain the three types of scattering processes that occur. (10)
ii. Write short notes on atmospheric windows. (6)

(OR)

b. With a neat sketch, discuss the reasons for the differences of spectral reflectance curves for vegetation and water. How spectral reflectance curves are obtained from spectroradiometer? (16)
13. a. i. Enumerate the various remote sensing platforms. (10)
ii. Explain: Sun synchronous Satellites, Near Polar Satellites, Geostationary Satellites (6)

(OR)

b. With an example, discuss in detail the four types of image resolution? (16)
14. a. i. Why atmospheric correction is essential for an image and how it is carried out? Explain the difference between absolute and relative atmospheric corrections. (10)
ii. What is geometric correction and how it is carried out (6)

(OR)

b. i. What is a digital image? With neat sketches, discuss BIL, BSQ and BIP (10)
ii. On what occasion, data integration is needed? How it is carried out in image analysis? (6)
15. a. For any application, explain how basic keys of image interpretation are used for object identification. Give suitable examples for each key. (16)

(OR)

b. What is change detection? Explain in detail the image classification and elucidate how it is used for change detection studies. (16)