



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Seventh Semester, B.E. - Civil Engineering

Semester End Examination; Jan. / Feb. - 2021

Remote Sensing and GIS Applications in Water Resource Engineering

Time: 3 hrs

Max. Marks: 100

Note: Answer FIVE full questions, selecting ONE full question from each unit.

UNIT - I

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|------|---|----|
| 1 a. | Define remote sensing. With a neat sketch, explain the components of Ideal Remote Sensing system. | 10 |
| | b. Explain spectral reflectance curve of vegetation and water. | 10 |
| 2 a. | With a neat sketch, explain the electromagnetic spectrum with its wavelength and frequency. | 10 |
| | b. Explain how atmospheric window impacts remote sensing? | 6 |
| | c. What are the principles of electromagnetic radiation? | 4 |

UNIT - II

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|------|---|----|
| 3 a. | Briefly explain IRS, Landsat and Cartosat satellites with their series and characteristics. | 10 |
| | b. Differentiate between; | |
| | i) Active and Passive sensors | 4 |
| | ii) Panchromatic and Multispectral image | |
| | c. What are the advantages and disadvantages of various remote sensing platforms? | 6 |
| 4 a. | Briefly explain SPOT, ENVISAT and RESOURCESAT satellites with their series and characteristics. | 10 |
| | b. Define resolution and explain various types of resolutions. | 10 |

UNIT - III

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| 5 a. | Explain elements of visual image interpretation. | 10 |
| | b. Explain true colour and false colour composites. | 5 |
| | c. Explain image histogram. | 5 |
| 6 a. | Explain radiometric and geometric corrections. | 10 |
| | b. Define image enhancement and explain low pass and high pass filter technique. | 10 |

UNIT - IV

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|------|--|----|
| 7 a. | Define GIS. Describe the key components of GIS | 10 |
| | b. Explain how spatial data and attribute data integrated to make GIS? | 10 |
| 8 a. | What are the map projections? Explain the various map projections. | 10 |
| | b. Describe different types of coordinate systems. | 6 |
| | c. Differentiate between raster and vector data. | 4 |

UNIT - V

- 9 a. Explain the importance of morphometric analysis in watershed management. 10
- b. What are the applications of remote sensing and GIS in land use and land cover analysis? 10
- 10 a. Explain the applications of remote sensing and GIS in water resources management. 10
- b. Explain the importance of remote sensing and GIS in natural disaster management. 10

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