U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

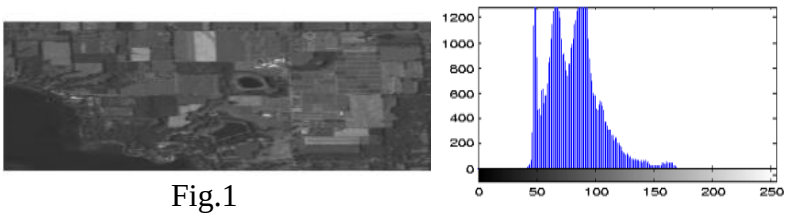
Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations

Programme: B.E. **Semester: V**
Branch: CIVIL ENGINEERING **Duration: 3 hrs.**
Course Code: 23CV5PEGSS **Max Marks: 100**
Course: Geospatial Surveying

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		UNIT - I	CO	PO	Marks
1	a)	Define remote sensing. Explain the working principle and the stages in a satellite remote sensing process.	CO1	PO1	**10**
	b)	Illustrate Electro-Magnetic Radiation (EMR) spectrum. Explain various regions of the EMR spectrum available for remote sensing and their applications.	CO1	PO1	**10**
		OR			
2	a)	Define atmospheric windows and explain the different atmospheric windows available for remote sensing.	CO1	PO1	**10**
	b)	Discuss various types of resolutions applicable in remote sensing.	CO1	PO1	**10**
		UNIT - II			
3	a)	Explain the significance and the procedure of image geometric correction.	CO1	PO1	**10**
	b)	A satellite image and its histogram are shown in Fig. 1. Suggest an appropriate method and explain the procedure for enhancing the image contrast.  Fig.1	CO1	PO1	**10**
		OR			
4	a)	Explain the necessity of image radiometric corrections. Discuss three important radiometric corrections applicable to satellite remote sensing data.	CO1	PO1	**10**

		b)	Discuss the colour composting technique used in remote sensing. Differentiate standard false colour composite from true colour composite and discuss its advantages.	CO1	PO1	**10**
			UNIT - III			
	5	a)	You are assigned the task of processing the image of an area where ground truth data is not available. Suggest an appropriate method for image classification in this context. Explain the method in detail, stating the procedure, its advantages and drawbacks.	CO1	PO1	**10**
		b)	Discuss band ratios and their importance in remote sensing. Explain the important band ratios used in digital image processing.	CO1	PO1	**10**
			OR			
	6	a)	In a project, IRS LISS-3 image is used to generate Land use / Land cover map with 4 classes viz., water, vegetation, built-up area, and bare soil. Elaborate on how the accuracy of the classified image can be analysed, with details of accuracy assessment of individual classes and the overall accuracy.	CO1	PO1	**10**
		b)	Discuss the indices NDVI, NDWI and NDBI and their applications in image processing.	CO1	PO1	**10**
			UNIT - IV			
	7	a)	Define GIS. Explain the functions and components of GIS.	CO2	PO1	**10**
		b)	Compare raster and vector data models used in GIS, listing their characteristics, advantages and drawbacks.	CO2	PO1	**10**
			OR			
	8	a)	Define database model. Differentiate between the Hierarchical and Relational database models used in GIS.	CO2	PO1	**10**
		b)	With a schematic diagram, explain the components of WebGIS. Also, list the advantages of WebGIS.	CO2	PO1	**10**
			UNIT - V			
	9	a)	Explain the map overlay operation in GIS, and its applications.	CO2	PO1	**10**
		b)	Discuss the application of drone surveying in enhancing the efficiency of engineering projects, taking any two case studies.	CO2	PO1	**10**
			OR			
	10	a)	Define a map, and discuss its components. Also, discuss the different types of maps with appropriate examples.	CO2	PO1	**10**
		b)	Define map projection and discuss various types of map projections.	CO2	PO1	**10**

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