

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – SUMMER 2021****Subject Code:2170606****Date:03/08/2021****Subject Name:Application of Geoinformatics in Civil Engineering****Time:10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
Q.1	(a) Write possible bands (range) of EM energy in which remote sensing is possible.	03
	(b) How geoinformatics is useful in real time simulation modeling?	04
	(c) Compare ‘maps’ ‘thematic maps’ and, ‘GIS layers’ in tabular format and give at least seven comparison points.	07
Q.2	(a) Define: Datum, coordinates, and projections	03
	(b) Explain following vector operations with diagrams. Union, Intersect, Overlay, Clip	04
	(c) Explain Trilateration method to know the position of user through GPS with time and speed of the signals.	07
OR		
	(c) Compare aerial photography and remote sensing on their application scopes.	07
Q.3	(a) What is ‘geo-referencing’ and ‘registration’ of images?	03
	(b) Explain which data model is more suitable for natural resources mapping.	04
	(c) Write two types of ‘spatial data models’ used in GIS. Also give details of their data structures.	07
OR		
Q.3	(a) What is Digital Elevation Model? What are the sources to procure a DEM?	03
	(b) How flow direction and accumulation could be performed in GIS?	04
	(c) Explain watershed application of GIS pictorially.	07
Q.4	(a) Show the importance of micro waves. Describe imaging with microwave radar.	03
	(b) What is multi-spectral and hyper-spectral remote sensing?	04
	(c) Write step by step procedure for supervised image classification.	07
OR		
Q.4	(a) Explain elements of visual interpretation of image.	03
	(b) Explain in detail the position of the Indian remote sensing scenario.	04
	(c) How radiometric resolution enhances mineral level identifications?	07
Q.5	(a) How artificial intelligence (AI) is a boon in remote sensing.	03
	(b) Describe suitable GIS software for network analysis.	04

(c) Discuss *application* of geo-informatics in disaster mitigation. **07**

OR

Q.5 (a) Explain true color composite and false color composite. **03**

(b) Write details of GPS signals and carriers. **04**

(c) Describe suitable remote sensing software for image analysis. **07**
