Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V • EXAMINATION – SUMMER 2013

Subject Code: 150606 Date: 23-05-2013

Subject Name: Disaster Assessment using Geospatial Techniques

Time: 10.30 am - 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.**

Q.1	**(a)**	Draw sketches and explain the principles of remote sensing. Define panchromatic and multispectral remote sensing and give advantage of each.	**07**
	(b)	Explain the significance of spectral reflectance curve. Draw the curve to show how one can distinguish between dry soil, water bodies and vegetation.	**07**
Q.2	**(a)**	Discuss the interaction of electromagnetic spectrum with target in the context of remote sensing. Explain the importance of absorption, transmission and reflection.	**07**
	(b)	Explain the relative importance of air borne and space borne sensors and their conjunctive utility	**07**
		OR	
	(b)	Explain the basic principles of global positioning system to find the position of a point on the surface of earth. Enlist the practical utility of GPS.	**07**
Q.3	**(a)**	Define data encoding. Give the encoding methods for tabular data in analog and digital form; maps in analog and the digital form .	**07**
	(b)	Give the input, output and storage devices required to be used while using GIS software. Give the advantages of GIS software over traditional maps	**07**
		OR	
Q.3	**(a)**	Explain the concept of active and passive microwave remote sensing. Explain the components of radar as an active microwave remote sensor.	**07**
	(b)	Explain the importance of spatial data, meta data and attribute data in reference to GIS software. Give examples of spatial data and non spatial attribute data.	**07**
Q.4	**(a)**	Give an outline how remotely sensed data just before floods and during floods can be used in GIS software to assess the damage done due to floods.	**07**
	(b)	Give the salient features of cadastral, thematic and topographic maps. Give examples of thematic maps	**07**
		OR	
Q.4	**(a)**	Give a flow chart to show various steps in digital image processing. Explain the concept of supervised and unsupervised classification.	**07**
Q.4	**(b)**	Give an outline how geospatial technique can be used for marking land slide prone zones on a map and how they can be used for assessing damage done due to landslides.	**07**
Q.5	**(a)**	Explain how spatial and attribute data can be linked in a GIS software. Explain linking errors	**07**

	(b)	Give the advantage of image transformation. Explain image arithmetic operations giving examples and advantage of each process.	**07**

OR

Q.5	**(a)**	Explain image enhancement and Explain how image enhancement helps in better understanding of the captured data.	**07**
	(b)	Give the limitations of remote sensing and give the limitations of GIS.	**07**

****