

**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**

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