

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII(NEW) • EXAMINATION – WINTER 2016

Subject Code:2170606

Date:18/11/2016

Subject Name:Application of Geoinformatics in Civil Engineering(Departmental Elective - II)

Time:10.30 AM to 1.00 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)** Explain flight planning for aerial photo grammetry and state the reasons for overlaps in photo grammetry. **07**
- (b)** Discuss the wave model of electromagnetic energy used for remote sensing with the help of a neat sketch. **07**
- Q.2 (a)** What are vector and raster data? What things can be represented by point, line, and polygon? Also list the vector and raster file formats. **07**
- (b)** What do you understand by geospatial analysis? Why is it required? Give classification of geospatial analysis. **07**
- OR**
- (b)** Discuss: Differential GPS. Explain why higher accuracy in positioning is achieved in DGPS. **07**
- Q.3 (a)** What are the key components of a GIS? List the commercially available GIS software. **07**
- (b)** What is a Spectral reflectance curve? Sketch the spectral reflectance curves for vegetation, clear water, turbid water and wet soil. **07**
- OR**
- Q.3 (a)** What do you mean by image interpretation? Discuss elements of visual image interpretation. **07**
- (b)** Explain in brief term 'Digital Image'. How is the satellite data recorded at the ground station? **07**
- Q.4 (a)** Write comparative analysis of the following: **07**
i) Panchromatic images, ii) Multi-spectral images, iii) Hyper-spectral images
- (b)** The scale of an aerial photograph is 1 cm = 100 m and photograph size is 15 cm x 15 cm. Determine the number of photographs required to cover an area of 15 km x 15 km if longitudinal lap is 60% and side lap is 30%. **07**
- OR**
- Q.4 (a)** Describe Spatial data and Attribute Data of GIS. **07**
- (b)** Write function of GIS, Advantage and disadvantage of GIS **07**
- Q.5 (a)** Write various applications of Geo-informatics in Civil Engineering and explain use of GIS in Water Resources engineering. **07**
- (b)** Discuss the use of remote sensing in disaster management **07**
- OR**
- Q.5 (a)** Discuss application of remote sensing in land use and land cover mapping. **07**
- (b)** Explain in brief application of GIS in town planning **07**
