

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) - EXAMINATION – SUMMER 2017****Subject Code: 2170606****Date: 29/04/2017****Subject Name: Application of Geoinformatics in Civil Engineering****Time: 02.30 PM to 05.00 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) Define Geoinformatics and enlist various applications of Geoinformatics in Civil engineering. Explain any one such application in detail. **07**
- (b) Define Remote sensing . Explain principles of remote sensing and advantages of remote sensing **07**
- Q.2** (a) Discuss various applications of Remote sensing and GIS in brief. **07**
- (b) Discuss the role of spectral reflectance curves in remote sensing with neat sketch. including spectral reflectance of soil, water and vegetation **07**
- OR**
- (b) Discuss the Electromagnetic Radiation and Electromagnetic Spectrum with neat sketches **07**
- Q.3** (a) Discuss the following terms briefly : **07**
(1) GNSS (2) GPS (3) NRSA
- (b) Define Photogrammetry . Discuss various uses and limitations of Photogrammetry. **07**
- OR**
- Q.3** (a) Explain the working principle of GPS .Also discuss applications of GPS briefly. **07**
- (b) An aerial photograph has scale of 1cm=150 mt, The photograph size is 25cm x 25 cm. Determine the numbers of photographs required to cover an area of 15 km x15 km. Consider side lap =30% and longitudinal lap = 50% **07**
- Q.4** (a) Differentiate between **07**
(1) Raster and Vector Model (2) RAR and SAR
- (b) Write Short notes on : **07**
(1) Active and Passive Sensors (2) Data Input and Output devices in GIS
- OR**
- Q.4** (a) Define GIS. Enlist various components and functions of GIS. **07**
- (b) Discuss various advantages and limitations of GIS . Also discuss various maps used in GIS briefly. **07**
- Q.5** (a) Describe various elements of visual image interpretation **07**
- (b) Describe the terms Digital Elevation Model (DEM) and Relief Displacement in detail. **07**
- OR**
- Q.5** (a) Draw the flowchart and explain Digital Image Processing in detail. **07**
- (b) Enlist various GIS and Remote sensing software packages and explain one from both in detail. **07**
