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Paper Code: CE-402	**Roll No.**										

B.Tech.
(SEM IV) EVEN SEMESTER EXAMINATION, 2015-16
GEO INFORMATICS

[Time: 3 hrs.] **[Max. Marks: 100]**

Note- Attempt All questions. All questions carry equal marks.

1. Attempt any **TWO** parts of the following: **[10x2=20]**

   (a) Differentiate between Metric and Interpretative photogrammetry and the reason for scale variation in a vertical aerial photograph.

   (b) Discuss the underlying concept of stereoscopic viewing and explain the process of calculating elevation of ground points from stereopair.

   (c) Describe 'Relief displacement' in photogrammetry. A vertical photograph taken from an elevation of 550 m above mean sea level (MSL) contains the image of a tall vertical radio tower. The elevation at the base of the tower is 274 m above MSL. The relief displacement d of the tower was measured as 54.1 mm, and the radial distance to the top of the tower from the photo centre was 121.7 mm. What is the height of the tower?

2. Attempt any **TWO** parts of the following: **[10x2=20]**

   (a) Describe different types of resolutions associated with remote sensing data. Also discuss about atmospheric windows.

   (b) Describe interaction of EMR with the earth features and the method to differentiate between deciduous and the coniferous trees.

   (c) Describe 'Spectral Reflectance Curve' with suitable examples. Find out the dominant wavelengths emanating from Sun and Earth.

3. Attempt any **TWO** parts of the following: **[10x2=20]**

   (a) Discuss about Geometric and Radiometric corrections of satellite images and different methods of geometric corrections.

   (b) Describe Supervised and Unsupervised methods of image classification and their utility in Remote Sensing.

   (c) Discuss about any three important applications of remote sensing in civil engineering related areas.

4. Attempt any **TWO** parts of the following: **[10x2=20]**

   (a) Define GIS (Geographical Information System) and discuss various components of GIS. Explain the concept of topology with suitable examples.

   (b) Discuss various data models used in GIS with suitable examples along with their relative advantages and disadvantages. Explain the concept of buffering with suitable examples.

   (c) Discuss any three important applications of GIS in civil engineering and related areas.

5. Attempt any **TWO** parts of the following: **[10x2=20]**

(a) Discuss about 'Global Navigation Satellite System' with suitable examples along with various segments of Global Positioning System (GPS). Explain the resection concept of finding out coordinates of a point using GPS.

(b) What is a datum? Describe and differentiate between WGS 84 and Indian datum. Differentiate between Geographic and Grid coordinate systems.

(c) Discuss point positioning and various relative positioning methods of GPS surveying along with suitable examples of GPS applications in Civil Engineering.