

TCE-605

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**B.Tech. (CE) (VI Semester)**

End Semester Examination 2015

THEORY AND APPLICATION OF GPS AND GIS

*Time: 3.00 Hours]**[Total Marks: 100***Note:** Attempt all questions. Each question carry equal marks.

Q1. Attempt any four parts of the following: (5×4=20)

- What are the component subsystems of GIS? Describe them briefly with the help of neat sketch.
- What are the functionalities of GIS?
- Comparing the terms "GIS and Remote sensing".
- Describe the types of vector overlays with neat sketches.
- Define Differential GPS with its error sources with the help of neat sketch.

Q2. Attempt any four parts of the following: (5×4=20)

- What do you mean by data conversion? Explain any one type of data conversion with the help of a suitable example.
- What are the neighborhood functions of GIS? Explain it briefly.

- c) Explain the filtering technique of map overlay analysis?
- d) What is the principle of DGPS? Explain its working with the help of neat sketch.
- e) Discuss the difference between vector and raster formats for storing data in GIS. For what types of data is raster format best suited?

Q3. Attempt any two parts of the following: (10×2=20)

- a) Name and describe the simple spatial object used for representing geographical data in digital form. Which objects are used in vector format representations?
- b) What is the relational database system? Explain with suitable example.
- c) Write a short note on:
  - (i) Buffering in GIS
  - (ii) Feature identifier
  - (iii) Map overlay
  - (iv) Line data
  - (v) Aerial data

Q4. Attempt any two parts of the following: (10×2=20)

- a) Write down the characteristics of aerial photographs, which make them a good data source of GIS.

b) What are filters? How are they used for reclassification processes?

c) Discuss the following GIS functions:

(i) Point buffering

(ii) Line buffering

(iii) Polygon buffering

Q5. Attempt any two of the following: (10×2=20)

a) What are the applications of GIS in water resources?

b) Explain GPS Surveying Techniques with the help of neat sketch. Also explain static surveying and dynamic surveying techniques.

c) Describe briefly the concept of three-dimensional position location via intersection of multiple spheres.

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