(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0022 Roll No.

B. Tech.

(SEMESTER-IV) THEORY EXAMINATION, 2011-12

GEOINFORMATICS

Time : 3 Hours] *[Total Marks : 100*

Note : (i) This question paper has **three** sections **A, B** and **C**.

(ii) Attempt **all** questions.

(iii) Marks and number of questions to be attempted from each section is mentioned before the section.

(iv) Assume missing data suitably. Illustrate the answers with suitable sketches.

SECTION – A

1. This section has **ten** parts of short answer type questions. Attempt all parts. $10 \times 2 = 20$

(a) Describe aerial camera with the help of its neat sketch.

(b) List various Indian satellites.

(c) Write the various characteristics of any one satellite.

(d) Enumerate the concept of stereoscopy.

(e) What do you mean by relief displacement ?

(f) Derive the expression for relief displacement.

(g) List the characteristics of photographic images.

(h) Write a short note on photo interpretation.

(i) What do you mean by ideal remote sensing system ?

(j) How the data are obtained from a remote sensing satellite ?

SECTION – B

2. Attempt any **five** parts of the following : $5 \times 6 = 30$

(a) With the help of their comparative study, explain :

(i) Multi band and multi stage imaginary

(ii) Standard data and geocoded data

(b) Explain wave model of electromagnetic radiation.

(c) Write brief note on the interaction of electromagnetic energy with matter.

(d) Explain the method of image rectification.

(e) What do you mean by topology ?

(f) Explain the terms data modelling and data output.

(g) Distinguish between static, kinematic and differential GPS.

SECTION – C

Question No. **3** to **7** has **three** parts each. Attempt any **two** parts from each question.

5 × 10 = 50

3. (a) A tower **AB** is **40 m** high, and the elevation of its bottom **B** is **800 m** above mean sea-level. The distance of the image of the tower on a vertical photograph, taken at a flight altitude of **1800 m** above mean sea-level, is **8.42 cm**. Compute the displacement of the image of the top of the tower with respect to the image of its bottom.

(b) Explain the various geometric and radiometric corrections to satellite data.

(c) What are the various classification schemes of remote sensing data ? Explain any one in detail.

4. (a) What do you understand by the term GIS ?

(b) Describe the concept of GIS in detail.

(c) How the basic entities are represented in raster and vector data model ?

5. (a) How accuracy is being checked of the classified image ? Explain it with any one example.

(b) Describe the general topological vector data model.

(c) Differentiate between topological vector data model and spaghethi model.

6. (a) What do you understand by GPS ? How it is helpful in mapping ?

(b) Describe the working of GPS in detail.

(c) With the help of its comparative study; explain the kinematic and differential GPS.

7. (a) Briefly describe the satellite navigation system.

(b) Write short note on space-segment, control segment and user segment with reference to GPS.

(c) Explain in brief the GPS satellite signals and receivers.
