Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.Tech/ECE/SEM-8/EC-804D/2013

2013

REMOTE SENSING

Time Allotted : 3 Hours *Full Marks* : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : $10 \times 1 = 10$

   i) Remote sensing is the non-contact recording of information from the

      a) ultraviolet region

      b) visible region

      c) infrared and microwave region

      d) all of these.

   ii) GIS stands for

      a) General Information System

      b) Greyscaling Information System

      c) Geographic Information System

      d) GSAT Information System.

iii) In thermal remote sensing, sensors record objects emitted energy. How much energy is radiated can be expressed by

a) Plank's law b) Stefan-Boltzmann law

c) Snell's law d) Kepler's third law.

iv) Imaging and non-imaging is related to

a) active microwave sensors

b) passive microwave sensors

c) both active and passive microwave sensors

d) none of these.

v) Remote sensing is the techniques of acquiring raster data means

a) spectral b) spatial

c) physical d) all of these.

vi) Which of the following is not GIS packages ?

a) MapInfo b) ArcGIS

c) Netscape d) Idrisi 32.

vii) Which technology can be used for day or night data collection ?

a) RADAR b) LIDAR

c) Photogrammetry d) SONAR.

viii) To replace film-based aerial cameras, enabling small, medium or large-scale mapping we use

a) metric cameras

b) stereometric cameras

c) digital metric cameras

d) amateur cameras.

ix) To obtain the information about the Earth's weather, what type of satellites use for remote sensing of the Earth ?

a) Meteorological satellites

b) Oceanographic satellites

c) Terrestrial satellites

d) None of these.

x) Which of the following is not an example of spatial data ?

a) Lines showing the routes of linear objects

b) Times of particular events

c) Points showing location of discrete objects

d) Polygons showing the area occupied by a particular landuse or variable.

xi) Which of the following is not a method of energy scattering in the atmosphere ?

a) Rayleigh scattering

b) Mie scattering

c) Non-selective scattering

d) Amalgamated scattering.

xii) The internal geometry of a digital camera is defined by specifying

a) only focal length

b) both focal length and pixel size of CCD

c) only pixel size of CCD

d) none of these.

GROUP – B
(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. What are the functions of GIS ? State some advantages of GIS. 3 + 2

3. What are the parameters of remote sensors need to be considered in remote sensing system ? Why microwave is preferred for remote sensing ? 2 + 3

4. How does GIS perform spatial analysis of data ?

5. What do you understand by a digitizing of films ?

6. Differentiate between Global Noise and Local Noise. What is the use of Sigma Filter ?

GROUP – C
(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. Explain role of remote sensing to monitor land-use changes. What are the utilities of remote sensing in mapping science ? 8 + 7

8. What is the reason for unsuccessful GIS ? Explain the process in brief. What do you understand by multi-spectral remote sensing system ? What do you understand by "integration of multimedia and GIS" ? (2 + 4) + 4 + 5

9. What do you understand by image transformation ? What are the differences between supervised and unsupervised classification ? Explain the requirement and concept of PCT. 5 + 5 + 5

10. What do you understand by multiapproach of image analysis ? Explain role of remote sensing to monitor land-use changes. Explain the application of remote sensing in ocean and coastal monitoring. 4 + 5 + 6

11. Write short notes on any *three* of the following : 3 × 5
    a) Thermal remote sensing system
    b) Radargrammetry
    c) ISODATA clustering
    d) LIDAR
    e) 3D representation of DEM.