Code No: RT41015 **R13** **Set No. 1**

IV B.Tech I Semester Regular/Supplementary Examinations, Oct/Nov - 2018

REMOTE SENSING AND GIS APPLICATIONS

(Civil Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B

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PART–A *(22 Marks)*

1. a) Write a short note on In situ data and Electromagnetic Radiation. [4]
   b) What are the advantages of human image interpretation and digital image processing? [4]
   c) List out the key components of Geographic Information system. [3]
   d) Write a short note on Spatial data analysis. [4]
   e) Write a short note on land use and land cover. [4]
   f) How remote sensing and GIS helps in modern life. Explain in brief. [3]

PART–B *(3x16 = 48 Marks)*

2. a) What do you understand by remote sensing? Briefly explain remote sensing process. [8]
   b) Explain wave model of electromagnetic radiation. What is electromagnetic spectrum? [8]

3. a) Explain the following elements of visual image interpretation:
   (i) Location (ii) Size (iii) Shape and (iv) Shadow. [8]
   b) Explain the typical entire process of digital image processing. [8]

4. a) Define GIS. Describe the key components of GIS. [8]
   b) Explain the importance and applications of GIS. [8]

5. What do you mean by Vector overlay? Explain Point-in-polygon overlay, Line-on-polygon overlay, Polygon-on-polygon overlay. [16]

6. Explain the remote sensing application in land use and land cover studies. [16]

7. Explain the importance and application of remote sensing in ground water studies. [16]

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Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B

*****

PART–A *(22 Marks)*

1. a) List the features of SPOT. [3]
   b) Write a short note on Unsupervised Classification. [4]
   c) What you understand by GIS? [3]
   d) Write a short note on Edge Matching. [4]
   e) List few Urban applications of GIS. [4]
   f) Write the importance of RS & GIS in Flood Monitoring. [4]

PART–B *(3x16 = 48 Marks)*

2. a) Explain the different divisions of electromagnetic spectrum with reference to wavelengths. [8]
   b) Discuss the various digital image data formats. [8]

3. a) Discuss the various elements of Visual Interpretation techniques. [8]
   b) Discuss the various image enhancement techniques. [8]

4. a) Discuss in brief various applications of GIS in civil engineering. [8]
   b) Discuss the various components of GIS in detail. [8]

5. a) Discuss the concept of Network Analysis with suitable examples. [8]
   b) Discuss the various raster overlay operations. [8]

6. Discuss the role and advantages of Remote Sensing and GIS in Land Use and Land Cover Mapping. [16]

7. Discuss various applications of Remote Sensing and GIS in Watershed Management. [16]

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REMOTE SENSING AND GIS APPLICATIONS
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Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any THREE questions from Part-B
*****

PART–A *(22 Marks)*

1. a) What is active remote sensing? [4]
   b) What is digital image processing? [4]
   c) Define GIS. [4]
   d) Define overlay function. [4]
   e) Which sensors are useful for land use/ land cover studies? [3]
   f) What are the GIS layers developed for ground water potential zoning mapping? [3]

PART–B *(3x16 = 48 Marks)*

2. a) What is electromagnetic spectrum? Explain with a neat sketch. [8]
   b) List out the important satellites and their sensors. [8]

3. a) What are image interpretation keys? Explain. [8]
   b) Explain the methods of image classification. [8]

4. a) Explain map projections. [8]
   b) Classify data in GIS context and explain spatial data editing. [8]

5. a) Explain the importance of overlaying index methods in GIS. [8]
   b) What is network analysis? Explain its uses. [8]

6. a) Explain crop inventory using remote sensing. [8]
   b) Give the details of the sensor requirements for forestry applications. [8]

7. a) What are the GIS layers developed for watershed characterization? Explain. [8]
   b) Mention the specific resolution needs in flood zone mapping and discuss the methodology used in such studies. [8]

RTU 6 Semester Remote Sensing and GIS (Elective) Question Paper 2014

Time : 3 Hours

Total Marks : 80

Min. Passing Marks : 24

Instructions to Candidates :

Attempt any five questions selecting one question from each unit. All questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

UNIT – I

1. (a) Define photogrammetry? Define classification of photographs. (8)

   (b) Compare between Aerial and Terrestrial photographs. (8)

OR

1. (a) Write about different types of stereo of stereoscopes. (8)

   (b) Define various methods used for measurements on aerial photographs. (8)

UNIT – II

2. (a) Define remote sensing and various stages of remote sensing system. (8)

   (b) Differentiate between electromagnetic radiation and spectrum. (8)

OR

2. Write short notes on any two:

   (a) Atomospheric window

   (b) Signatures

   (c) Scattering (8×2=16)

UNIT – III

3. (a) Discuss about various types of platforms. (8)

   (b) Write short note on multi concept of Remote sensing applications. (8)

OR

3. (a) Define sensors and write about the characteristic of sensors. (8)

   (b) Write about orbital parameters of satellite. (8)

UNIT – IV

4. (a) Write about various components used for interpretation of satellite images. (8)

   (b) Differentiate between digital and visual techniques. (8)

OR

4. (a) Write about principles of digital image processing. (8)

   (b) Discuss various techniques used in digital image processing. (8)