Code No: **R1641014**

R16

Set No. 1

IV B.Tech I Semester Regular Examinations, October/November - 2019
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 FOUR questions from Part-B
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PART–A *(14 Marks)*

1. a) Discuss about Rayleigh scattering. [3]
   b) What are Raster bands? [2]
   c) Briefly give an account of vector data structures. [3]
   d) Discuss about vector overlay operation. [2]
   e) How can Remote sensing and GIS improvise urban planning? [2]
   f) How do you apply GIS for watershed analysis and management? [2]

PART–B *(4x14 = 56 Marks)*

2. a) Describe briefly the different elements of remote sensing. [7]
   b) What are the different applications of remote sensing? State its uses. [7]

3. a) Explain the digital image processing sequence by means of a flow chart. [7]
   b) Discuss about the basic elements of image interpretation. [7]

4. a) Explain the classification of GIS operations. [7]
   b) What are the different major application areas of GIS? [7]

5. a) What is network analysis? Explain the functionality of optimal path finding with
      respect to shortest distance between two points. [7]
   b) Explain various arithmetic operators with examples on raster data. [7]

6. a) Discuss RS & GIS applications in land cover and land use. [7]
   b) Explain about important sensors and platforms currently used for natural
      resources management. [7]

7. a) Discuss steps involved in remote sensing based groundwater recharge zonation. [7]
   b) Explain advantages of using GIS in different aspects of disaster management. [7]

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R16

Set No. 2

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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 FOUR questions from Part-B
*****

PART–A *(14 Marks)*

1. a) What are the sensors used in SPOT satellites? [2]
    b) What are the three digital image processing techniques? [2]
    c) How do you classify the map projections? [3]
    d) Discuss about comparison operators. [2]
    e) Explain forest biomass. How can it be determined using GIS. [2]
    f) Explain advantage of using GIS in estimation of ground water potentiality. [3]

PART–B *(4x14 = 56 Marks)*

2. a) Explain the major divisions of electromagnetic spectrum. [7]
    b) Discuss advantages and disadvantages of usage of remote sensing data. [7]

3. a) Explain the difference between supervised and unsupervised classification. [7]
    b) Discuss about preprocessing and image enhancement. [7]

4. a) List out the devices used for data input in GIS system. [7]
    b) Explain how this data input is used in map preparation. [7]

5. a) Explain in detail about buffer analysis with example and proper diagrams. [7]
    b) Differentiate between network allocation and network tracing. [7]

6. a) Explain the applications of GIS in municipal planning. [7]
    b) Enlist different application uses of Remote sensing & GIS for geology and geomorphology. [7]

7. Explain in detail procedural steps of adaptation of GIS & Remote sensing for
    (i) ground water development   (ii) disaster management [14]

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R16

Set No. 3

IV B.Tech I Semester Regular Examinations, October/November - 2019
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 FOUR questions from Part-B
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PART–A *(14 Marks)*

1. a) What is meant by Rayleigh scattering?   [2]
    b) Distinguish between spatial and non spatial data types.   [3]
    c) Mention about spectral signatures in Remote sensing.   [2]
    d) Discuss about the various conditional expressions.   [2]
    e) How can we apply Remote sensing and GIS in agriculture?   [3]
    f) Discuss flood mapping procedure with the help of GIS.   [2]

PART–B *(4x14 = 56 Marks)*

2. a) Discuss in detail about
       (i) Planck's law   (ii) Stephen Boltzmann law   (iii) Wien's displacement law   [7]
    b) What are the current IRS satellite series? Discuss their applications.   [7]

3. a) Differentiate between Raster data models and vector data models.   [7]
    b) Explain in detail the various digital image processing techniques.   [7]

4. a) What are key components of GIS? Explain.   [6]
    b) Represent the four important M's schematically, in application of GIS.   [8]

5. a) Discuss the various vector overlay operations with neat diagrams and examples. [7]
    b) How do you perform overlay analysis using decision table.   [7]

6. a) Explain general Remote sensing and GIS applications in agriculture and forestry. [7]
    b) Discuss the applications of GIS in municipal works.   [7]

7. a) What are the advantages of using GIS in different divisions of water resources
       engineering?   [7]
    b) How can we use GIS and Remote sensing effectively for flood zoning and
       mapping?   [7]

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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 FOUR questions from Part-B
*****

PART–A *(14 Marks)*

1. a) Explain Wien's displacement law.   [2]
    b) What are the instruments used for visual image interpretation?   [2]
    c) State any five applications of GIS in Civil engineering.   [3]
    d) List out different arithmetic operators on vector data.   [2]
    e) How can we improve study of land use and land cover with remote sensing and
        GIS?   [2]
    f) What are Geostationary satellites? How they are used for the study of
        Hydrological aspects?   [3]

PART–B *(4x14 = 56 Marks)*

2. a) Write down the specifications of LANDSAT-8.   [7]
    b) What is electromagnetic radiation? Give a neat sketch of its spectrum and
        wavelength ranges?   [7]

3. a) What are the instruments used for visual image interpretation and transfer of
        data?   [7]
    b) What is the difference between supervised learning and unsupervised learning?   [7]

4. a) What are the data input and output devices used in a GIS?   [7]
    b) Explain about the maintenance and analysis of spatial data.   [7]

5. a) Discuss various raster overlay analysis operations with neat diagram and
        examples.   [7]
    b) Explain buffer analysis and its applications in civil engineering.   [7]

6. a) Explain the Remote sensing and GIS applications in agriculture.   [7]
    b) Discuss about Remote sensing applications in geology and geomorphology.   [7]

7. a) How can we adopt Remote sensing for watershed management?   [7]
    b) Discuss the methods of GIS useful for disaster management.   [7]

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