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]

Code No: **R1641014** **R16** **Set No. 2**

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
*****

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]

Code No: **R1641014** **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
*****

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]

Code No: **R1641014** **R16** **Set No. 4**

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
*****

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]