Code No: **R1641014** **R16** **Set No. 1**

IV B.Tech I Semester Regular/Supplementary Examinations, March - 2021

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) Briefly discuss about electromagnetic spectrum. [2]
   b) Discuss different types of resolutions in brief. [3]
   c) List out key components if GIS. [2]
   d) Discuss about different arithmetic operators on vector data. [3]
   e) How does RS involve in land use and land cover studies. [2]
   f) How RS and GIS improves the standards of modern life. [2]

PART–B *(4x14 = 56 Marks)*

2. a) Explain about different types of sensors based on [9]
      i) Orbit
      ii) Energy source
      iii) Data capture
   b) Describe how the effects of atmospheric scattering on RS data can be accounted for. [5]

3. Discuss about the following image enhancement techniques [14]
      i) Image reduction and magnification
      ii) Contrast enhancement

4. a) Discuss briefly process of combining spatial data and attribute data in GIS. [7]
   b) With figure , explain various UTM zones used in GIS. [7]

5. a) What is raster overlay? Explain with suitable examples. [7]
   b) Explain in detail about network allocation and network tracing. [7]

6. a) Explain the use of RS and GIS techniques in forestry applications. [7]
   b) Discuss about geology and morphological applications of GIS. [7]

7. Explain how GIS and RS can be used for identifying the sites for artificial recharge structures. [14]

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

IV B.Tech I Semester Regular/Supplementary Examinations, March - 2021

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)	Outline three types of scattering that occur in earth's atmosphere.	[3]
	b)	Distinguish between spatial and non-spatial data types.	[3]
	c)	Give the details of UTM projection.	[2]
	d)	Write a short note on comparison operators.	[2]
	e)	List out the RS requirements in forestry field applications.	[2]
	f)	Discuss about the role of RS in ground water targeting.	[2]

PART–B *(4x14 = 56 Marks)*

2.	a)	Explain about different parts/zones of electromagnetic spectrum with reference to energy, frequency and wave length.	[6]
	b)	Discuss about i) Band interleaved by pixel ii) Band interleaved by line.	[8]
3.	a)	Explain the term "visual image interpretation". Discuss various elements of it.	[7]
	b)	Discuss the entire process of digital image processing, by means of a flow chart.	[7]
4.	a)	Define GIS. What are the key components of GIS?	[7]
	b)	Explain the importance and various applications of GIS.	[7]
5.	a)	Discuss about various vector overlay operations.	[7]
	b)	What is data compression? Explain about any two methods.	[7]
6.		Discuss about the role and advantages of RS and GIS in land use and land cover mapping.	[14]
7.		Explain the role of RS and GIS in continuous monitoring of floods with a case study.	[14]

Code No: **R1641014** **R16** **Set No. 3**

IV B.Tech I Semester Regular/Supplementary Examinations, March - 2021

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)	Name the latest sensors of Indian RS satellites.	[2]
	b)	Discuss about radiometric correction.	[2]
	c)	Explain about map projection.	[2]
	d)	What is vector overlay operation?	[2]
	e)	Discuss about a few urban applications of GIS.	[3]
	f)	What are the GIS layers developed for watershed characterization.	[3]

PART–B *(4x14 = 56 Marks)*

2.	a)	Discuss in detail the energy interaction with the earth surfaces.	[7]
	b)	Explain about the characteristics of remote sensing systems.	[7]
3.	a)	Explain different methods of image classification.	[7]
	b)	What are different image interpretation elements? Explain briefly.	[7]
4.	a)	Explain the term GIS. What are the applications of GIS?	[7]
	b)	Distinguish between field-based and object-based raster models.	[7]
5.	a)	What do you understand by spatial data analysis? Why is it required?	[7]
	b)	Explain any two spatial analysis techniques.	[7]
6.	a)	Discuss about applications of remote sensing in geology and geomorphology.	[7]
	b)	What are the RS and GIS applications in the field of qualitative agriculture?	[7]
7.	a)	Mention about RS applications in groundwater potential recharge zones and improvement.	[7]
	b)	Discuss about the specific resolution needs in flood zone mapping and explain the methodology used in such studies.	[7]

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

IV B.Tech I Semester Regular/Supplementary Examinations, March - 2021

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)	Write a short note on electromagnetic spectrum.	[2]
	b)	Distinguish in brief active and passive remote sensing.	[3]
	c)	What do you mean by spatial entity and topology.	[3]
	d)	Explain the terms containment and adjacency.	[2]
	e)	List out the applications of GIS in geology.	[2]
	f)	Discuss about the role of RS in the process of flood zoning and mapping.	[2]

PART–B *(4x14 = 56 Marks)*

2.	a)	Explain in brief IRS and land sat satellites with their series and characteristics.	[7]
	b)	What are the types of errors in remote sensing. Explain them briefly.	[7]
3.	a)	Define resolution and explain the types of resolutions.	[7]
	b)	Explain in detail the image enhancement and image filtering techniques used in remote sensing.	[7]
4.	a)	Discuss in detail various components of GIS,	[7]
	b)	Explain the process of joining spatial and attribute data in GIS.	[7]
5.	a)	Explain in brief point-in -polygon overlay and line-on-polygon overlay.	[7]
	b)	What are map projections? Explain various map projection methods in brief.	[7]
6.	a)	What are the applications of RS and GIS in land use and land cover analysis. Explain briefly.	[7]
	b)	Discuss how best GIS is useful in environmental and urban planning.	[7]
7.		Discuss in detail about applications of remote sensing in disaster management.	[14]