

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE- SEMESTER-V (NEW) EXAMINATION – WINTER 2020****Subject Code:3150617****Date:22/01/2021****Subject Name:Remote Sensing and GIS****Time:10:30 AM TO 12:30 PM****Total Marks: 56****Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
<b>Q.1</b>	(a) Define Remote Sensing. Explain its advantages and limitations.	<b>03</b>
	(b) What are raster and vector? Write the basic differences between raster and vector.	<b>04</b>
	(c) What is resolution and pixel in image? Explain in detail spectral resolution and temporal resolution	<b>07</b>
<b>Q.2</b>	(a) Enlist various data formats of digital image.	<b>03</b>
	(b) Explain the principle of Remote Sensing.	<b>04</b>
	(c) Explain the systems of image classification in remote sensing.	<b>07</b>
<b>Q.3</b>	(a) Write a note on imaging sensors for digital image	<b>03</b>
	(b) Write a note on active and passive remote sensing	<b>04</b>
	(c) Explain the interaction Electromagnetic energy with the atmosphere in detail.	<b>07</b>
<b>Q.4</b>	(a) Explain microwave remote sensing.	<b>03</b>
	(b) Explain in brief different components of GIS.	<b>04</b>
	(c) Describe briefly properties as well as classification of map projections	<b>07</b>
<b>Q.5</b>	(a) Define metadata, attribute data & spatial data	<b>03</b>
	(b) Give the salient features of cadastral, thematic and topographic maps.	<b>04</b>
	(c) Explain 'vector data model' and 'raster data model' in GIS	<b>07</b>
<b>Q.6</b>	(a) Describe the Fundamentals of GIS Analysis functions	<b>03</b>
	(b) Explain the procedure of georeferencing in QGIS software	<b>04</b>
	(c) Write salient features of remote sensing tool ENVI or ERDAS.	<b>07</b>

- Q.7** (a) Explain the concept of “Overlay analysis”. **03**
- (b) Discuss the features of Mapwindow GIS and Arc GIS. **04**
- (c) Explain the concept of quadrant counts and nearest neighbour analysis with respect to GIS data processing **07**
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- Q.8** (a) Write a note on reference co-ordinate systems **03**
- (b) Explain applications of digital terrain model **04**
- (c) Explain the role of GIS and RS in assessing the impact of floods. **07**

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**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2021****Subject Code:3150617****Date:15/12/2021****Subject Name:Remote Sensing and GIS****Time:02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

**Simple and non-programmable scientific calculators are allowed**

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|-----|---|----|
| Q.1 | (a) Define Remote Sensing.                                | 03 |
|     | (b) What are the disadvantages of Remote sensing?         | 04 |
|     | (c) Explain concept of remote sensing.                    | 07 |
| Q.2 | (a) What are the atmospheric window?                      | 03 |
|     | (b) Explain the concept of orbital calendar.              | 04 |
|     | (C) Write short note on:Active and Passive Remote Sensor. | 07 |

**OR**

- |     |  |    |
|-----|--|----|
|     | (c) What do you understand by 'map'? Differentiate between topographic And thematic map. | 07 |
| Q.3 | (a) What is resolution for sensor in Image?  | 03 |
|     | (b) What are the seven elements in remote sensing?                                       | 04 |
|     | (c) Explain different resolution with their significance.                                | 07 |

**OR**

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|-----|---|----|
| Q.3 | (a) Explain platform of remote sensing,                         | 03 |
|     | (b) Explain image interpretation strategies.                    | 04 |
|     | (c) Give brief idea about GSLV and PSLV                         | 07 |
| Q.4 | (a) What do you understand by GIS?                              | 03 |
|     | (b) Explain various components of GIS?                          | 04 |
|     | (c) Explain 'vector data model' and 'raster data model' in GIS. | 07 |

**OR**

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|-----|---|----|
| Q.4 | (a) Define Meta data, Attribute data, spatial data. | 03 |
|     | (b) What are the advantages of GIS over map .       | 04 |
|     | (c) Explain input data for GIS and GIS products.    | 07 |
| Q.5 | (a) Define data encoding.                           | 03 |
|     | (b) Explain Georeferencing coordinate system.       | 04 |

(c) Explain Error in GIS data and managing the errors. 07

**OR**

Q.5 (a) Explain surface modelling in GIS. 03

(b) Describe features of important GIS software packages. 04

(c) Write about the function of DBMS. 07

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**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-V (NEW) EXAMINATION – SUMMER 2021****Subject Code:3150617****Date:07/09/2021****Subject Name:Remote Sensing and GIS****Time:10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

**MARKS**

- Q.1**
- |     |  |           |
|-----|--|-----------|
| (a) | Write the types of views a map can be visualised in GIS. | <b>03</b> |
| (b) | What are the requirements of ideal remote sensing?       | <b>04</b> |
| (c) | Explain the terms; Re-projection and Geo-referencing.    | <b>07</b> |

- Q.2**
- |     |   |           |
|-----|---|-----------|
| (a) | Write any five file formats of raster data.                                     | <b>03</b> |
| (b) | Differentiate Active and Passive Remote Sensing.                                | <b>04</b> |
| (c) | Draw sketch of EMR spectrum explain each bands application in different fields. | <b>07</b> |

**OR**

- |     |   |           |
|-----|---|-----------|
| (c) | Define Remote sensing and Explain Components of Remote sensing. | <b>07</b> |
|-----|---|-----------|

- Q.3**
- |     |  |           |
|-----|--|-----------|
| (a) | Give a brief idea about GSLV and PSLV.                       | <b>03</b> |
| (b) | Explain air borne and space borne sensors.                   | <b>04</b> |
| (c) | Explain systematic errors in context of satellites examples. | <b>07</b> |

**OR**

- Q.3**
- |     |   |           |
|-----|---|-----------|
| (a) | Write the full forms of DEM, JPEG and GIF.                          | <b>03</b> |
| (b) | Name the different sources in India to obtain various spatial data. | <b>04</b> |
| (c) | Write any 10 different applications of GIS.                         | <b>07</b> |

- Q.4**
- |     |   |           |
|-----|---|-----------|
| (a) | Define swath and explain the concept of orbital calendar. | <b>03</b> |
| (b) | Write any five tools (softwares) used in GIS.             | <b>04</b> |
| (c) | Explain coordinate systems in GIS.                        | <b>07</b> |

**OR**

- Q.4**
- |     |   |           |
|-----|---|-----------|
| (a) | Write any five file formats of vector data.             | <b>03</b> |
| (b) | Discuss the features of important GIS software package. | <b>04</b> |
| (c) | Differentiate active & passive remote sensors.          | <b>07</b> |

- Q.5**
- |     |  |           |
|-----|--|-----------|
| (a) | Why geo-referencing is required in GIS?                              | <b>03</b> |
| (b) | Explain various applications of remote sensing and describe any two. | <b>04</b> |

- |     |  |           |
|-----|--|-----------|
| (c) | Write a note on Remote Sensing and its application to disaster management. | <b>07</b> |
|-----|--|-----------|

**OR**

- Q.5**
- |     |  |           |
|-----|--|-----------|
| (a) | What is image enhancement? Discuss.                    | <b>03</b> |
| (b) | Explain different resolutions with their significance. | <b>04</b> |
| (c) | Give your views on image interpretation strategies.    | <b>07</b> |

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**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-V(NEW) EXAMINATION – SUMMER 2022****Subject Code:3150617****Date:02/06/2022****Subject Name:Remote Sensing and GIS****Time:02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		<b>MARKS</b>
<b>Q.1</b>	(a) Write any five file formats of raster data.	<b>03</b>
	(b) Write any five tools (softwares) used in GIS.	<b>04</b>
	(c) Give your views on image interpretation strategies.	<b>07</b>
<b>Q.2</b>	(a) What do you mean by spatial data? Write in brief.	<b>03</b>
	(b) Differentiate active and passive remote sensing.	<b>04</b>
	(c) Write a note on EMR.	<b>07</b>
	<b>OR</b>	
	(c) Write a note on interaction of EMR with earth's surface.	<b>07</b>
<b>Q.3</b>	(a) Write the types of views a map can be visualised in GIS.	<b>03</b>
	(b) Differentiate supervised and unsupervised classification.	<b>04</b>
	(c) Write about different sensors in accordance to remote sensing.	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) Define swath and explain the concept of orbital calendar.	<b>03</b>
	(b) What are the different components of GIS? Explain in brief.	<b>04</b>
	(c) Write a note on image processing systems.	<b>07</b>
<b>Q.4</b>	(a) Give a brief idea about GSLV and PSLV.	<b>03</b>
	(b) Give a brief introduction of a digital image.	<b>04</b>
	(c) Explain the characteristics of different coordinate systems in GIS.	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) Why geo-referencing is required in GIS?	<b>03</b>
	(b) What is the significance of overlaying? Write in brief.	<b>04</b>
	(c) Explain Buffering and Neighborhood as a GIS analysis function.	<b>07</b>
<b>Q.5</b>	(a) Write any five file formats of vector data.	<b>03</b>
	(b) How do you differentiate public domain softwares with other softwares available in GIS? Explain with examples	<b>04</b>
	(c) Discuss in detail about any two case-studies of applications of remote sensing and GIS in the field of civil engineering.	<b>07</b>
	<b>OR</b>	
<b>Q.5</b>	(a) Write the full forms of GIF, DEM and JPEG.	<b>03</b>
	(b) What do you mean by attribute data? Write in detail.	<b>04</b>
	(c) Write about the applications of GIS in different field of civil engineering in detail.	<b>07</b>

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