

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2021****Subject Code:3170617****Date:15/12/2021****Subject Name:Application of GIS in Civil Engineering****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.

		<b>MARKS</b>
<b>Q.1</b>	(a) Write a note on Co-ordinate systems used in GIS	<b>03</b>
	(b) Explain how GIS is useful in soil management	<b>04</b>
	(c) Discuss the planning of road network using GIS	<b>07</b>
<b>Q.2</b>	(a) Write few advantages of open-source GIS software 'QGIS'	<b>03</b>
	(b) Discuss application of GIS in storm water drainage network analysis	<b>04</b>
	(c) Explain the use of GIS to plan drainage upgrades by integrating terrain analysis with flooding information	<b>07</b>
	<b>OR</b>	
	(c) Compare the salient features of ArcGIS and QGIS	<b>07</b>
<b>Q.3</b>	(a) Write a note on Map Scales	<b>03</b>
	(b) Write a note on Spatial Aggregation	<b>04</b>
	(c) What is spatial overlay operator? Explain neighbourhood functions being implemented in GIS software	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) Explain the procedure of Georeferencing in QGIS	<b>03</b>
	(b) List all the types of Data errors. Explain any two.	<b>04</b>
	(c) Describe hierarchical data structure and relational data structure for managing data	<b>07</b>
<b>Q.4</b>	(a) Explain concept of decision making in GIS modelling	<b>03</b>
	(b) Explain the difference between GIS model implementation and model testing	<b>04</b>
	(c) Describe cartographic communication process with its diagram	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) Explain metadata and metadata standards	<b>03</b>
	(b) Discuss the post-processing scenario of GIS software output.	<b>04</b>
	(c) Explain the web-based GIS system with example	<b>07</b>
<b>Q.5</b>	(a) Write a note on 'creating new data sets for software'	<b>03</b>
	(b) Explain dynamic visualization concept in GIS modelling	<b>04</b>
	(c) What do you mean by Digital surface model (DSM)? Explain its application with example	<b>07</b>
	<b>OR</b>	
<b>Q.5</b>	(a) Enlist various spatial analyst tool commands used in ArcGIS	<b>03</b>
	(b) Explain the concept of analytical modelling in GIS	<b>04</b>
	(c) Discuss TIN and DEM giving their importance	<b>07</b>

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**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII (NEW) EXAMINATION – SUMMER 2022****Subject Code:3170617****Date:08/06/2022****Subject Name:Application of GIS in Civil Engineering****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) Enlist GIS tools which may be useful for transportation and utility system	<b>03</b>
	(b) Explain how GIS may be useful in solid and hazardous management.	<b>04</b>
	(c) Write a note on non-spatial data operations.	<b>07</b>
<b>Q.2</b>	(a) Explain the term: Geo-referencing.	<b>03</b>
	(b) Explain the use of LULC maps in GIS softwares	<b>04</b>
	(c) Write the applications of GIS in soil erosion risk mapping.	<b>07</b>
	<b>OR</b>	
	(c) Discuss the features of Arc GIS.	<b>07</b>
<b>Q.3</b>	(a) Explain the process of Raster Mosaicking and Clipping in QGIS.	<b>03</b>
	(b) Explain Map Design Controls in GIS output.	<b>04</b>
	(c) Explain the role of GIS in urban planning.	<b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) What do you mean by raster data compression in GIS?	<b>03</b>
	(b) What do you understand by map? Differentiate between topographic and cadastral map.	<b>04</b>
	(c) Describe briefly properties and classification of map projections.	<b>07</b>
<b>Q.4</b>	(a) Differentiate between DEM and TIN.	<b>03</b>
	(b) Give the overview of web-GIS interface.	<b>04</b>
	(c) Explain various co-ordinate systems in GIS.	<b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) What do you mean by modelling in GIS?	<b>03</b>
	(b) Explain various non-spatial database models	<b>04</b>
	(c) Explain the concept of dynamic visualization of high-resolution GIS datasets	<b>07</b>
<b>Q.5</b>	(a) Briefly describe the features of ESRI ArcScene environment.	<b>03</b>
	(b) List out various GIS spatial data sources from internet.	<b>04</b>
	(c) Describe various types of buffers of reclassification process.	<b>07</b>
	<b>OR</b>	
<b>Q.5</b>	(a) Enlist various file formats of raster data.	<b>03</b>
	(b) Explain the use of digital elevation model.	<b>04</b>
	(c) Write a note on GIS post-processing and output generation.	<b>07</b>

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