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.**

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

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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.**

			MARKS
Q.1	**(a)**	Enlist GIS tools which may be useful for transportation and utility system	**03**
	(b)	Explain how GIS may be useful in solid and hazardous management.	**04**
	(c)	Write a note on non-spatial data operations.	**07**
Q.2	**(a)**	Explain the term: Geo-referencing.	**03**
	(b)	Explain the use of LULC maps in GIS softwares	**04**
	(c)	Write the applications of GIS in soil erosion risk mapping.	**07**
		OR	
	(c)	Discuss the features of Arc GIS.	**07**
Q.3	**(a)**	Explain the process of Raster Mosaicking and Clipping in QGIS.	**03**
	(b)	Explain Map Design Controls in GIS output.	**04**
	(c)	Explain the role of GIS in urban planning.	**07**
		OR	
Q.3	**(a)**	What do you mean by raster data compression in GIS?	**03**
	(b)	What do you understand by map? Differentiate between topographic and cadastral map.	**04**
	(c)	Describe briefly properties and classification of map projections.	**07**
Q.4	**(a)**	Differentiate between DEM and TIN.	**03**
	(b)	Give the overview of web-GIS interface.	**04**
	(c)	Explain various co-ordinate systems in GIS.	**07**
		OR	
Q.4	**(a)**	What do you mean by modelling in GIS?	**03**
	(b)	Explain various non-spatial database models	**04**
	(c)	Explain the concept of dynamic visualization of high-resolution GIS datasets	**07**
Q.5	**(a)**	Briefly describe the features of ESRI ArcScene environment.	**03**
	(b)	List out various GIS spatial data sources from internet.	**04**
	(c)	Describe various types of buffers of reclassification process.	**07**
		OR	
Q.5	**(a)**	Enlist various file formats of raster data.	**03**
	(b)	Explain the use of digital elevation model.	**04**
	(c)	Write a note on GIS post-processing and output generation.	**07**

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