

GUJARAT TECHNOLOGICAL UNIVERSITY
ME - SEMESTER- 2 • EXAMINATION – WINTER - 2023

Subject Code:3722322**Date: 17 Jan 2024****Subject Name:Web Analytics and Development****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.

		MARKS
Q.1	(a) Define the concept of social networks in the context of the web. Develop a comprehensive overview of the methods used to collect and analyze web-based social network data. Discuss the challenges associated with web data collection and provide solutions.	07
	(b) Discuss the importance of graph and matrices in analyzing social networks on the web. Provide practical examples of how graph and matrices concepts apply in social network analysis.	07
Q.2	(a) Explain the basic principle behind A/B testing. Walk through the steps involved in conducting an A/B test for a website element, such as a call-to-action button. Include details on hypothesis formulation, test execution, and data analysis.	07
	(b) Provide a comprehensive overview of Click Stream Analysis, covering its data sources, tools, and techniques for extracting actionable insights.	07
	OR	
	(b) Describe the role of online surveys in web analytics. Explain how Online Surveys can be used for both quantitative and qualitative data collection in web analytics. Provide examples of questions suitable for each type of data.	07
Q.3	(a) Discuss the key principles of SEO and its role in improving a website's visibility on search engine results pages (SERPs). Include both on-page and off-page SEO factors. Discuss the challenges of SEO	07
	(b) Compare and contrast different ranking algorithms used in web search engines, such as PageRank, TF-IDF, and BM25. Discuss their strengths and weaknesses.	07
	OR	
Q.3	(a) Explain the concept of Indexing and web crawling in the context of search engines.	07
	(b) Discuss the role of web traffic models in predicting and modeling user behavior on websites and search engines. How can these models be used to optimize web content and user experience?	07
Q.4	(a) Explain link analysis in detail with example.	07
	(b) Describe the concept of random graphs and how they are used to model network evolution. Provide a simple example of a random graph.	07
	OR	
Q.4	(a) Explore the concept of network evolution in social networks. What are the driving forces behind the changes in network structures over time?	07
	(b) Explain affiliation and indemnity for making connection with	07

- example.
- Q.5 (a)** Provide a comprehensive overview of Connection Search techniques, covering various algorithms and methodologies for finding connections or paths in networks. Include practical examples of their applications. **07**
- (b)** Explore the concept of robustness in complex networks, including methods for improving network resilience. Provide case studies illustrating the consequences of network failures and recovery strategies. **07**
- OR**
- Q.5 (a)** Define the concept of network collapse and its significance in understanding the stability of a network. Provide an example scenario. **07**
- (b)** Explain Diffusion of Innovation model with its characteristics. **07**