

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER– VII EXAMINATION – SUMMER 2026

Subject Code:3174209

Date:03-06-2026

Subject Name: Social and Information Network Analysis

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) Define the concept of the Semantic Web and its primary goals. 03
(b) What is the social web, and how does it differ from the traditional web? 04
(c) Explain the challenges in Social Network Analysis. 07

- Q.2 (a) How is community detection defined, and what are its primary objectives in network analysis? 03
(b) Describe Social Network Analysis (SNA) and its main objectives. 04
(c) Explain the process of aggregating and reasoning with social network data using ontologies. 07

OR

- (c) Explain the concept of multi-layer and multiplex networks in social network analysis. 07

- Q.3 (a) What is an ontology, and how does it relate to knowledge representation in the Semantic Web? 03
(b) What are nodes and edges in a network, and how are they used in Social Network Analysis? 04
(c) Explain the applications of community mining algorithms in social networks? 07

OR

- Q.3 (a) What tools and software are available for detecting communities in social network infrastructures? 03
(b) Explain the importance of network density in characterizing social networks. 04
(c) Explain the state-of-the-art in representing social network data. 07

- Q.4 (a) What are the primary distinctions between social networks and social aggregates? 03
(b) Explain centrality and clustering in network analysis with their significance and differences. 04
(c) What are decentralized online social networks, and how do they impact community detection methods? 07

OR

- Q.4 (a) What are the privacy concerns associated with online social networks? 03
(b) List and elaborate on the different applications of Social Network Analysis. 04
(c) Discuss Trust models using subjective logic including their principles and benefits. 07

- Q.5 (a) Summarize the main features and uses of Co-Citation Networks. 03
(b) Describe how Trust Derivation is achieved through Trust Comparison. 04
(c) Describe how graph theory principles help in visualizing and analyzing social networks. 07

OR

Q.5 (a)	Explain how combining matrix and node-link diagrams provides a more comprehensive view of social networks.	03
(b)	How do emerging threats affect the attack spectrum, and what new countermeasures are needed to address these threats?	04
(c)	Explain the concept and process of Trust Network Analysis.	07
