

Code No: **R204105F**

R20

SET - 1

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM

IV B. Tech I Semester Regular/Supplementary Examinations OCT/NOV 2025

SOCIAL NETWORKS AND SEMANTIC WEB

(CSE)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions. **ONE** Question from **Each unit**

All Questions Carry Equal Marks

UNIT-I

1. a) Define Web Intelligence? What are the key characteristics of an intelligent web application? [7M]
b) Explain the limitations of today's Web and describe how the Next Generation Web aims to overcome them. [7M]
(OR)
2. a) Illustrate how software agents and inference engines contribute to the development of intelligent web systems. [7M]
b) Compare the traditional World Wide Web with the Semantic Web proposed by Berners-Lee. Analyze how the Semantic Road Map supports logical reasoning on the Web. [7M]

UNIT-II

3. a) Define ontology in the context of the Semantic Web. Why is it considered a core concept in knowledge representation? [7M]
b) Explain the structure and purpose of Resource Description Framework (RDF) and RDF Schema (RDFS). [7M]
(OR)
4. a) Demonstrate how XML Schema and OWL can be used to model semantic relationships in web applications. [7M]
b) Differentiate between UML and OWL as representation languages. Analyze their suitability for Semantic Web data modeling. [7M]

UNIT-III

5. a) What is Ontology Engineering? List the main steps involved in ontology construction. [7M]
b) Describe the role of Ontology Libraries and Ontology Mapping in the reuse and integration of knowledge. [7M]
(OR)
6. a) Discuss how Ontology Development Tools can be used to create domain-specific ontologies. [7M]
b) Evaluate the challenges of Ontology Sharing and Merging in large-scale web environments. [7M]

UNIT-IV

7. a) List and briefly describe three real-world Semantic Web applications or services. [7M]
b) Explain the concept of Semantic Search and how it differs from traditional keyword-based search techniques. [7M]
(OR)
8. a) Develop an example of an OWL-S ontology for a simple web service. [7M]
b) Evaluate the impact of semantic methods and web search agents on improving the accuracy of information retrieval. [7M]

UNIT-V

9. a) Define Social Network Analysis (SNA) and explain its importance in the context of the Semantic Web. [7M]
b) Describe how blogs, online communities, and electronic discussion networks contribute to the formation of social networks. [7M]
(OR)
10. a) Analyze the relationship between social network features and semantic web applications. How can integration enhance user experience? [7M]
b) Construct a framework for building a semantic web application that integrates social network analysis to support personalized content delivery? [7M]
