

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM
IV B. Tech I Semester Advanced Supplementary Examinations March 2025

SOCIAL NETWORKS AND SEMANTIC WEB

(Computer Science & Engineering)

Time: 3 hours

Max. Marks: 70

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

All Questions Carry Equal Marks

UNIT-I

1. a) Discuss how Berners-Lee's vision of the Web aligns with the ideas of Gödel and Turing in developing intelligent web applications. [7M]
b) Analyze the role of inference engines and software agents in implementing the Semantic Web. [7M]

(OR)

2. a) Discuss the role of artificial intelligence and inference engines in enhancing web intelligence. [7M]
b) How software agents contribute to intelligent web applications and decision-making processes, Explain? [7M]

UNIT-II

3. a) Describe the importance of ontologies in knowledge representation for the Semantic Web. [7M]
b) Compare RDF, OWL, and XML Schema in terms of their ability to model and represent web-based knowledge. [7M]

(OR)

4. a) What is the role of RDF Schema in structuring and organizing semantic data on the web? Discuss using a real-world example problem. [7M]
b) Explain how the Ontology Web Language (OWL) enhances machine understanding and reasoning in the Semantic Web. [7M]

UNIT-III

5. a) Describe the key phases of ontology engineering and the challenges involved in constructing ontologies. [7M]
b) Explain the role of ontology development tools and methods in Semantic Web applications. [7M]

(OR)

6. a) Write the significance of ontology sharing and merging in improving web-based knowledge integration. [7M]
b) Discuss the impact of logic, rules, and inference engines in ontology-driven decision-making systems [7M]

UNIT-IV

7. a) Explain the role of XML-based web services in enabling Semantic Web applications. [7M]
b) How OWL-S ontology can be used to describe web services for intelligent applications. Justify with an example. [7M]

(OR)

8. a) Explain the impact of semantic search technologies in improving the accuracy of information retrieval. [7M]
b) How the Semantic Web is transforming e-learning and bioinformatics applications. [7M]

UNIT-V

9. a) Define social network analysis and explain its significance in the Semantic Web. [7M]
b) Examine the role of blogs and online communities as data sources for social network analysis. [7M]

(OR)

10. a) Discuss how web-based networks contribute to the development of intelligent Semantic Web applications. [7M]
b) Design a framework for integrating social network features into Semantic Web applications. [7M]
