Code No: **R204105F** **R20** **Set No. 1**

IV B.Tech I Semester Regular Examinations, January – 2024

SOCIAL NETWORKS & SEMANTIC WEB

(PE-IV: Computer Science & Engineering and OE-III: CSE -IOTCSIBCT)

Time: 3 hours **Max. Marks: 70**

Answer any FIVE Questions
ONE Question from Each unit
All Questions Carry Equal Marks
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UNIT - I

1 a) What is web intelligence? Discuss about applications of Web intelligence. [7]
b) What is ontology? Give its significance. [7]

(OR)

2 a) Describe the semantic Web Road map. [7]
b) Examine the ethical considerations related to the implementation of Artificial Intelligence in the realm of web technologies. [7]

UNIT - II

3 a) Explain the concept of ontological reasoning and how it enhances the Semantic Web's ability to infer new knowledge from existing representations. [7]
b) Examine the relationship between RDF and RDF Schema and how they collectively contribute to creating a semantic layer on the World Wide Web. [7]

(OR)

4 a) Discuss the role of UML as a modelling language in capturing ontological concepts and relationships for the Semantic Web. [7]
b) Compare and contrast the Ontology Web Language (OWL) and Resource Description Framework (RDF) in the context of the Semantic Web. [7]

UNIT - III

5 a) Discuss the impact of advancements in logic and reasoning on the development of more sophisticated Inference Engines for ontological applications. [7]
b) Discuss Ontology Methods and their importance in ensuring the quality and effectiveness of ontologies. [7]

(OR)

6 a) Define Ontology Engineering and elaborate on its significance in knowledge representation. [7]
b) Examine the challenges and strategies involved in Ontology Sharing and Merging for collaborative knowledge representation. [7]

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UNIT - IV

7 a) Discuss the concept of a Knowledge Base and how it serves as a foundation for building intelligent applications on the Semantic Web. [7]

b) Explain how Semantic Bioinformatics facilitates the integration and analysis of diverse biological data for research purposes. [7]

(OR)

8 a) Examine the integration of Semantic Methods in Web Search Agents and how they contribute to more intelligent and context-aware search results. [7]

b) Discuss the impact of Semantic Web applications in improving data integration and interoperability across diverse domains. Provide examples. [7]

UNIT - V

9 a) Discuss the future trends and innovations in Social Network Analysis, especially in the context of emerging technologies and the Semantic Web. [7]

b) Describe Social Network Analysis and discuss its significance in understanding relationships and interactions within a network. [7]

(OR)

10 a) Examine the role of Semantic Web technologies in addressing the semantic heterogeneity of data within social networks for more effective analysis. [7]

b) Examine the historical development of Social Network Analysis and its evolution as a multidisciplinary field. [7]

Code No: **R204105F** **R20** **Set No. 2**

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Time: 3 hours **Max. Marks: 70**

Answer any FIVE Questions
ONE Question from Each unit
All Questions Carry Equal Marks
*****

UNIT - I

1 a) Analyse the benefits and challenges of using Software Agents to automate tasks and enhance user interactions on the web. [7]

b) Outline the Semantic Road Map and its importance in advancing the semantic capabilities of the web. [7]

(OR)

2 a) Explore the role of Ontology in knowledge representation and management within the context of the World Wide Web. [7]

b) Elaborate on the contributions of Tim Berners-Lee to the development of the World Wide Web and its impact on information accessibility. [7]

UNIT - II

3 a) Discuss the key features and applications of RDF in the context of representing resources and relationships on the Semantic Web. [7]

b) Elaborate on the strengths and limitations of the Ontology Web Language (OWL) as a language for expressing ontologies on the Semantic Web. [7]

(OR)

4 a) Compare and contrast UML (Unified Modelling Language) and OWL in the context of modelling ontologies for the Semantic Web. [7]

b) Evaluate the role of Ontologies in enhancing the interoperability and integration of diverse data sources on the Semantic Web. [7]

UNIT - III

5 a) Explore the concept of Ontology Libraries and how they contribute to the reusability and scalability of ontological resources. [7]

b) Explain the importance of Ontology Mapping in integrating heterogeneous ontologies for a more comprehensive understanding. [7]

(OR)

6 a) Discuss the role of Logic in ontology engineering and how it helps in formalizing knowledge representation. [7]

b) Elaborate on the Rule Engines used in ontology development and how they contribute to making inferences from ontological knowledge. [7]

UNIT - IV

7 a) Explain the process of creating an OWL-S Ontology for Web Services and how it enhances the description and discovery of web services. [7]

b) Examine the advantages of using XML-based Web Services over traditional web services, particularly in the context of semantic interoperability. [7]

(OR)

8 a) Discuss the role of Semantic Search Technology in revolutionizing traditional search methods on the web. [7]

b) Discuss the key components and considerations in creating an OWL-S Ontology for Web Services. [7]

UNIT - V

9 a) Discuss the role of Electronic Sources in Network Analysis, focusing on how Electronic Discussion networks contribute to social network studies. [7]

b) Discuss the challenges of integrating semantic features into social platforms and potential solutions for creating seamless user experiences. [7]

(OR)

10 a) Explain how Semantic Web Applications can leverage social network features to enhance user engagement and personalized experiences. [7]

b) Discuss the potential applications of Social Network Analysis in areas beyond sociology, such as marketing, healthcare, and cyber security. [7]

Code No: **R204105F** **R20** **Set No. 3**

IV B.Tech I Semester Regular Examinations, January – 2024

SOCIAL NETWORKS & SEMANTIC WEB

(PE-IV: Computer Science & Engineering and OE-III: CSE -IOTCSIBCT)

Time: 3 hours **Max. Marks: 70**

Answer any FIVE Questions
ONE Question from Each unit
All Questions Carry Equal Marks
*****

UNIT - I

1 a) Explain about reasoning with semantic networks. [7]
b) Discuss the role of Software Agents in enhancing the functionality and efficiency of web-based systems. [7]

(OR)

2 a) Explain the role of logic in shaping the Semantic Web and how it facilitates the meaningful exchange of information on the internet. [7]
b) Discuss the challenges and opportunities associated with integrating Machine Intelligence into web applications. [7]

UNIT - II

3 a) Give the classification of ontology languages for semantic web. [7]
b) Explore the ways in which XML facilitates the exchange of structured data on the Semantic Web and the role of XML Schema in ensuring data consistency. [7]

(OR)

4 a) Evaluate the advantages of using OWL in comparison to traditional approaches for representing ontologies and knowledge on the web. [7]
b) Discuss the role of XML (extensible Mark-up Language) in knowledge representation and its relationship with the Semantic Web. [7]

UNIT - III

5 a) Evaluate the significance of Inference Engines in the context of reasoning and decision-making based on ontological knowledge. [7]
b) Discuss the challenges of ensuring consistency and coherence in ontology construction and how tools assist in addressing these challenges. [7]

(OR)

Code No: **R204105F** **R20** **Set No. 3**

6 a) Examine the differences between top-down and bottom-up approaches in Ontology Engineering and their respective advantages. [7]

b) Discuss the role of Ontology Engineering in knowledge representation for emerging technologies such as the Internet of Things (IoT). [7]

UNIT - IV

7 a) Discuss the advantages and challenges of XML-based Web Services in the context of semantic interoperability and data exchange. [7]

b) Explain the role of Semantic Search Technology in handling multimedia and unstructured data on the web. [7]

(OR)

8 a) Explain the concept of a Knowledge Base in the context of the Semantic Web and its role in organizing and storing structured information. [7]

b) Discuss the potential applications of Semantic Methods in Web Search Agents for tasks beyond traditional keyword-based searching. [7]

UNIT - V

9 a) Examine the role of Semantic Technologies in enhancing the representation and analysis of social networks within the Semantic Web. [7]

b) Discuss the challenges of analysing Web-Based Networks, considering issues such as data quality, scalability and dynamic nature. [7]

(OR)

10 a) Examine the role of Electronic Discussion Networks in facilitating communication and information exchange and their relevance in social network studies. [7]

b) Discuss the challenges of analysing Web-Based Networks, considering issues such as data quality, scalability and dynamic nature. [7]

Code No: **R204105F** **R20** **Set No. 4**

IV B.Tech I Semester Regular Examinations, January – 2024

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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 the key components of a Semantic Road Map and how they contribute to the realization of a more intelligent web. [7]

b) Define Machine Intelligence and provide examples of its applications in the context of web technologies. [7]

(OR)

2 a) Explain the concept of Web Intelligence and its significance in the Information Age. [7]

b) Examine the concept of Ontology and its role in enhancing the intelligence of web systems. [7]

UNIT - II

3 a) Examine the significance of XML Schema in providing a structured framework for defining and validating the structure of XML documents on the Semantic Web. [7]

b) Evaluate the role of RDF Schema in extending the capabilities of RDF for knowledge representation. [7]

(OR)

4 a) Examine the different levels of expressivity provided by OWL and how they cater to various complexities in knowledge representation. [7]

b) Discuss the challenges associated with representing complex knowledge structures and relationships in RDF and how RDF Schema addresses these challenges. [7]

UNIT - III

5 a) Evaluate the advantages and disadvantages of different Ontology Development Methods and their suitability for specific domains. [7]

b) Explain the challenges and strategies associated with Ontology Sharing in open and collaborative environments. [7]

(OR)

6 a) Explore the role of Ontology Libraries in fostering knowledge reuse and the development of a standardized vocabulary. [7]

b) Examine the concept of Ontology Mapping and its role in resolving semantic heterogeneity when integrating ontologies. [7]

UNIT - IV

7 a) Discuss the ethical considerations and privacy concerns associated with the use of Semantic Web technologies, especially in the context of Semantic Search and personalized services. [7]

b) Explain the concept of Semantic Web applications and services, highlighting their significance in enhancing information retrieval. [7]

(OR)

8 a) Discuss the role of Semantic Search in improving search accuracy and relevance on the web. Provide examples of how semantic technologies contribute to this. [7]

b) Examine the challenges and benefits of incorporating Semantic Web technologies into the field of e-learning for adaptive and personalized learning experiences. [7]

UNIT - V

9 a) Explore the use of Online Communities as valuable sources for Social Network Analysis and how they contribute to the understanding of social structures. [7]

b) Discuss the process of Building Semantic Web Applications with Social Network Features, emphasizing the integration of semantic technologies into social platforms. [7]

(OR)

10 a) Explain the concept of Social Capital in the context of Social Network Analysis and how it is measured and utilized. [7]

b) Discuss the impact of Blogs on Social Network Analysis, considering how they contribute to the dissemination of information and the formation of online communities. [7]