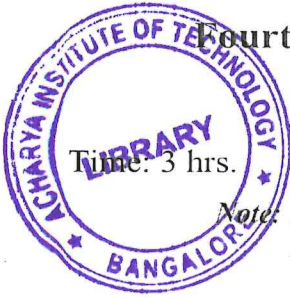


CBCS SCHEME

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22MCA422



Fourth Semester MCA Degree Examination, June/July 2026 Semantic Web and Social Networks

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

Module – 1			M	L	C
Q.1	a.	Explain the concept of web intelligence and how it contributes to the development of intelligent web application. Briefly discuss how these applications differ from traditional web applications.	10	L2	CO1
	b.	Explain the role of ontologies and inference Engines in representing and reasoning with knowledge on the semantic web. Briefly discuss how these technologies enable intelligent web applications to understand and process information beyond simple keywords.	10	L2	CO1
OR					
Q.2	a.	Discuss two key limitations of the current web and explain how the concept of semantic web aims to address them.	10	L2	CO3
	b.	Explain the key distinction between machine intelligence and artificial intelligence. Provide an example of each concept applied to a web application.	10	L2	CO3
Module – 2					
Q.3	a.	Explain the concept of knowledge representation and discuss how Ontologies play a crucial role in enabling machines to understand the meaning of information on the web. Briefly compare and contrast Ontologies with traditional classification schemes.	10	L2	CO3
	b.	Explain the purpose of the Web Ontology Language (OWL) and how it builds upon RDF to offer capabilities for representing complex knowledge and relationships within Ontologies. Briefly mention some advantages of using OWL for Ontologies compared to RDF.	10	L2	CO4

OR

Q.4	a.	Describe the Resource Description Frameworks (RDF) and its role in representing basic knowledge structures. Explain how RDF schema extends RDF to provide more complex relationships and hierarchies within Ontologies.	10	L2	CO4
	b.	Compare and contrast the role of Ontologies in semantic web with traditional markup languages like XML and its schema and UML(Unified Modeling Language). Discuss how Ontologies provide a more nuanced understanding of information compared to these other markup languages.	10	L3	CO1

Module – 3

Q.5	a.	Explain the core principles of ontology engineering. Discuss two key considerations when constructing an Ontology and how these considerations impact its effectiveness.	10	L2	CO3
	b.	Explain two challenges associated with Ontology sharing and merging. Discuss two strategies used to overcome these challenges and enable the integration of diverse ontologies.	10	L2	CO2

OR

Q.6	a.	Describe two commonly used methods for Ontology development. Briefly discuss the role of ontology development tools in this process. Mention some advantages of using dedicated tools for ontology creation.	10	L3	CO4
	b.	Explain how description logic is used to represent knowledge within Ontologies. Briefly describe the functionalities of Rule and Inference Engines and how they contribute to reasoning with Ontological knowledge.	10	L3	CO4

Module – 4

Q.7	a.	Explain the concept of semantic web applications and services and how they differ from traditional web applications. Discuss two specific application domains that can significantly benefit from semantic web technologies.	10	L3	CO1
	b.	Explain how semantic web technologies such as ontologies and inference engines, contribute to building and managing knowledge bases. Discuss two key benefits of using semantic web technologies for knowledge base management compared to traditional methods.	10	L3	CO4

OR

Q.8	a.	Explain the concept of semantic search and how it leverages ontologies and reasoning to understand the meaning behind search queries. Compare and contrast the strength and weakness of semantic search compared to traditional keyword –based search engines.	10	L3	CO2
	b.	Explain the purpose of OWL-S ontologies and how they enable the creation of machine – understandable descriptions of web series. Briefly discuss the advantages of using OWL-S for web service descriptions compared to traditional XML-based web service descriptions.	10	L2	CO2

Module – 5

Q.9	a.	Explain the core concepts of SNA and how it is used to analyze online communicates like discussion forums, belongs, and social media platforms. Discuss two metrics commonly used in SNA to analyze the structure and influence within online networks.	10	L3	CO3
	b.	Discuss two key challenges associated with incorporating social network data into semantic web framework. Briefly suggest potential solutions or strategies to overcome these challenges.	10	L2	CO2

OR

Q.10	a.	How can Social Network Analysis contribute to the development of the semantic web? Explain two ways in which information extracted from social networks can be used to enrich ontologies and improve the overall knowledge representation on the semantic web.	10	L2	CO2
	b.	Describe the concept of social semantic web applications. Provide two examples of applications that combine social network features with semantic web functionalities. Discuss the potential benefits these applications offer compared to traditional social networking platforms.	10	L3	CO3
