R20 Regulation *Subject code: 3E8FE*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VIII Semester Regular Examinations, April 2024

SEMANTIC WEB & SOCIAL NETWORKS

(Information Technology)

Maximum Marks: 70 Date:27.04.2024 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10×2M=20 Marks)		CO	Bloom Tx
1	How does the Semantic Web facilitate better knowledge representation and aggregation?	1	L1
2	What are some key technologies used in the Semantic Web?	1	L1
3	What is Resource Description Framework?	2	L1
4	How do RDF and RDF Schema work together to describe web resources?	2	L1
5	What does it mean to "follow your nose" in SPARQL?	3	L1
6	What methods are available for organizing result sets in SPARQL?	3	L1
7	What are some practical applications of OWL2 in real-world scenarios?	4	L1
8	What are the key requirements for ontology languages?	4	L1
9	How do monotonic rules differ in syntax and semantics?	5	L1
10	What is Semantic Web Rules Language?	5	L1

Part-B

Answer All the following questions. (10M× 5=50Marks)			
11	Explain the layered approach to Semantic Web development. How does this approach facilitate the gradual adoption and evolution of Semantic Web technologies? (10M)	1	L2
	OR		
12	A. Explain the process of aggregating and reasoning with social network data in the Semantic Web. B. Identify the challenges and potential solutions in modeling and aggregating heterogeneous data sources within the Semantic Web framework. (5M + 5M)	1	L2 L3
13	A. Compare and contrast different RDF syntaxes commonly used for representing semantic information. B. Explain the significance of RDF Schema (RDFS) in adding semantics to RDF data. (5M + 5M)	2	L2 L2
	OR		

14	Explain the function and significance of a direct inference system in RDF and RDFS. How does it enable the deduction of new information based on existing RDF statements and schema definitions. (10M)	2	L2
15	Explain the role of SPARQL in querying the Semantic Web. Explain its architecture and components? (10M)	3	L2
	OR		
16	Explain the concept of SPARQL Update and its significance in RDF data management? (10M)	3	L2
17	Explain the evolution of OWL2 as a key ontology language in the development of the semantic web? (10M)	4	L2
	OR		
18	Explain the process of creating an OWL-S ontology for web services? (10M)	4	L2
19	A. Explain the significance of rules in logic and inference on the semantic web. B. Evaluate the importance of Rule Interchange Format (RIF) in enabling rule interchange between different systems on the semantic web? (5M + 5M)	5	L2 L3
	OR		
20	Explain the syntax and semantics of Semantic Web Rules Language (SWRL). Provide examples of how SWRL rules can be used to enhance semantic web application. (10M)	5	L2