RV College of Engineering®, Bengaluru-560 059
Autonomous Institution affiliated to Visvesvaraya Technological University
Model Question Paper

UG

COURSE CODE: **CD365TDB**	Dr. Vinay V Hegde	
COURSE TITLE: **SEMANTIC WEB AND SOCIAL NETWORK ANALYSIS**	NAME	Professor,
Category: PROFESSIONAL CORE ELECTIVE-III (Group-D)	SIGNATURE	

B E Examinations Feb/Mar-2025 Sem: 6th

Duration of Paper: 3 Hrs Maximum Marks**:100**

Instructions to Candidates:

1. Answer all questions from Part A. Part A questions should be answered in the first three pages of the answer book only
2. Answer FIVE Full questions from Part B. In Part B Question Number 2 is compulsory Answer any one full question from 3 and 4, 5 and 6, 7 and 8,9 and 10.

Question No	Part A - Quiz (20 Marks)	Marks
1	What is the primary goal of Semantic web?	1
2	Which language is primarily used to define ontologies?	1
3	In RDF, a triple consists of: -----,--------,---------.	2
4	Which query language is used to retrieve data from RDF datasets?	1
5	FOAF stands for:	1
6	In social network analysis, "degree centrality" refers to:	2
7	List 2 examples of a directed graph in social networks?	2
8	A clique in a social network is:	2
9	_____ provides vocabulary for describing resources in RDF?	1
10	The Semantic Web Stack was proposed by:_____	1
11	----------is used to assign meaning to web data?	1
12	Social network data is often represented as:_____	1
13	In OWL, which construct is used to define a subclass relationship?	1
14	_____is used for rule-based reasoning in the Semantic Web?	1
15	_____is most appropriate to find influential users in information diffusion?	1
16	In a social network graph, a strongly connected component is:_____	1
	PART-B	
2 a	Define the Semantic Web and explain its core vision.	5
b	Describe how semantic web is different from the traditional Web?	5
c	Analyze how a real-world platform like Facebook or Twitter can be integrated with Semantic Web technologies. Discuss the benefits and challenges.	6
3 a	Describe the architecture of the Semantic Web. Explain the role of each layer.	5
b	Discuss the role of Ontologies in the Semantic Web	5
c	Interpret Key concepts and measures in network analysis with examples.	6

	OR	
4 a	Name any two popular Ontology languages used for the Semantic Web ? Discuss in detail with examples for eatch.	**10**
b	What are the key features of OWL (Web Ontology Language)?	**6**
5 a	Discuss in detail the concepts of Modelling and aggregating social network data	**10**
b	Compare and contrast RDF, RDFS, and OWL with suitable examples.	**6**
	OR	
6 a	Define Flink: "the social networks of the Semantic Web community depends on the Flink capability" Justify the statement.	**10**
b	List and Discuss the steps involved in developing social-semantic applications?	**6**
7 a.	Design a simple ontology for an academic social network. Define classes, properties, and relationships using OWL.	**10**
b	Illustrate the concept of goodness of fit with an example	**6**
	OR	
8 a	Briefly explain the concept and significance of ontologies in the Semantic Web.	**10**
B	What is centrality in social network analysis? Mention its types.	**6**
9a	Discuss the ethical implications of data mining in social networks, especially with semantic data. How can privacy be protected while enabling advanced analytics?	**10**
b	Differentiate between SPARQL and SQL.	**6**
	OR	
10 a	Design an RDF-based knowledge graph for a small social network that includes people, their interests, and friend relationships. Show how data can be queried using SPARQL.	**10**
b	Give examples of rules and their use in reasoning.	**6**