Roll No. | | | | | | | | | | |

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. /B.Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, NOV / DEC 2024

INFORMATION TECHNOLOGY
V Semester
IT 5021 SEMANTIC WEB
(Regulation2019)

Time:3hrs Max.Marks: 100

CO1	To learn the fundamentals of semantic web and to conceptualize and depict ontology for semantic web.
CO2	To make a study of languages for semantic web.
CO3	To learn about the ontology learning algorithms and to utilize in the development of an application.
CO4	To know the fundamental concepts of ontology management.
CO5	To learn the applications related to semantic web.

BL – Bloom's Taxonomy Levels
(L1-Remembering, L2-Understanding, L3-Applying, L4-Analysing, L5-Evaluating, L6-Creating)

PART- A(10x2=20Marks)
(Answer all Questions)

Q.No.	Questions	Marks	CO	BL
1	List the layers of Semantic Web.	2	CO1	L1
2	Justify the need for Semantic Web.	2	CO1	L5
3	Which OWL property is used to indicate that two resources are the same? Give an example.	2	CO2	L4
4	<?xml version="1.0"?> <Sea rdf:ID="**EastChinaSea**" xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns="http://www.geodesy.org/water/naturally-occurring#"> **<containedIn>** <Sea rdf:about="http://www.china.gov#**ChinaSea**"/> **</containedIn>** </Sea> **EastChinaSea.rdf** <?xml version="1.0"?> <Sea rdf:about="http://www.china.gov#**ChinaSea**" xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns="http://www.geodesy.org/water/naturally-occurring#"> **<containedIn>** <Ocean rdf:about="http://www.geodesy.org#**PacificOcean**"/> **</containedIn>** </Sea> **EastChinaSea.rdf** What do you infer from the above two rdf documents?	2	CO2	L4
5	Draw the Ontology Learning Cycle.	2	CO3	L2
6	∀ x, y Solves (X, Y) ⇒ isSolvedBy(Y , X) . What type of property is inferred from the above statement?	2	CO3	L4
7	Ennumerate the pros and cons related to Ontology standardization.	2	CO4	L3
8	Give the significance of Owl:Thing Class	2	CO4	L3
9	What are the dialects included in RIF?	2	CO5	L1

10	Write down the objectives of Semantic web in life sciences.	2	CO5	

PART- B(5x 13=65Marks)

(Restrict to a maximum of 2 subdivisions)

Q.No.	Questions	Marks	CO	BL
11 (a)	Explain the Semantic Web layered architecture in detail.	13	CO1	L3
	OR			
11 (b)	Discuss in detail on the three main concepts underlying Semantic Web.	13	CO1	L3
12 (a)	Modify the given XML document into a valid RDF document. <?xml version="1.0"?> <Retailer id="BarnesAndNoble" xmlns="http://www.retailers.org"> <webLocation> <url>http://www.bn.com</url> <url>http://www.barnesandnoble.com</url> </webLocation> </Retailer>	13	CO2	L4
	OR			
12 (b)	"The range of a FunctionalProperty of OWL can be either a Resource or a Literal or a datatype". Define a functional property and give example for each case.	13	CO2	L4
13 (a)	How do you classify ontologies based on domain scope. Discuss with an example for each case.	13	CO3	L2
	OR			
13 (b)	Discuss on the various approaches of extracting Taxonomy from documents.	13	CO3	L2
14 (a)	Discuss on the Development, Post development and Support oriented activities related to Ontology Management.	13	CO4	L2
	OR			
14 (b)	How will you use Protégé tool for Creating, Merging and Querying Ontology? Explain with an example.	13	CO4	L2
15 (a)	How are Semantic Wikis Created? Explain the process in detail.	13	CO5	L4
	OR			
15 (b)	Discuss about Semantic web service Modelling and Execution environment in detail with an example web service creation process.	13	CO5	L4

PART- C(1x 15=15Marks)

(Q.No.16 is compulsory)

Q.No.	Questions	Marks	CO	BL
16.	Develop a book Ontology and create book.rdf file. Also define symmetric and transitive property in the OWL document.	(3+4+ 4+4)	CO1 CO2 CO3 CO4	L6