NARASIMHA REDDY ENGINEERING COLLEGE

(Autonomous)

Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad

Accredited by NAAC with A Grade, Accredited by NBA

COMPUTER SCIENCE AND ENGINEERING

QUESTION BANK

Course Title :**AI**

Course Code :**AM3103PC(AI&ML)**

Regulation :**NR20**

Course Objectives

- Tolearnthedifferencebetweenoptimalreasoningvshumanlikereasoning
- Tounderstandthenotionsofstatespacerepresentation,exhaustivesearch,heuristicsearchalongwiththe timeandspace complexities
- Tolearndifferentknowledgerepresentationtechniques
- TounderstandtheapplicationsofAI:namelyGamePlaying,TheoremProving,ExpertSystems,Machine LearningandNaturalLanguage Processing

CourseOutcomes(CO's)

- Possesstheabilitytoformulateanefficientproblemspaceforaproblemexpressedin English.
- Possesstheabilitytoselectasearchalgorithmforaproblemandcharacterizeitstime andspace complexities.
- Possesstheskillforrepresentingknowledgeusingtheappropriatetechnique
- PossesstheabilitytoapplyAItechniquestosolveproblemsofGamePlaying,ExpertSystems,Machine Learning andNatural Language Processing

UNIT–I

S.No	Questions	BT	CO	PO
	Part –A(ShortAnswerQuestions)			
1	What is Constrain Satisfaction Problem ?	L1	CO1	PO1,PO2
2	What is A* search?	L1	CO1	PO1,PO2
3	Give a brief note on Alpha-Beta Pruning.	L1	CO1	PO1,PO2
4	What are the four basic types of agent program in any intelligent system?	L1	CO1	PO1,PO2
5	Describe the characteristics of Problem.	L1	CO1	PO1,PO2
6	What is structure of state space ?	L1	CO1	PO1,PO2
7	List out the Sub areas of Artificial Intelligence.	L1	CO1	PO1,PO2

8		What is Greedy Best First Search?	L1	CO1	PO1,PO2
9		Describe the characteristics of Artificial Intelligence.	L1	CO1	PO1,PO2
10		What are the four categories of AI?	L1	CO1	PO1,PO2
Part– B(LongAnswerQuestions)					
11	a)	Discuss the characteristics of AI problem. Can Towers of Hanoi problem be considered as AI problem? Justify your answer with suitable	L6	CO1	PO1,PO2
	b)	List and explain the applications of Artificial Intelligence	L5	CO1	PO1,PO2
12	a)	Explain the following uninformed search strategies with examples. Breadth First Search	L2	CO1	PO1,PO2
	b)	Uniform Cost Search	L2	CO1	PO1,PO2
13	a)	Explain the following local search strategies with examples.(i) Hill climbing	L2	CO1	PO1,PO2
	b)	Genetic Algorithms	L1	CO1	PO1,PO2
14	a)	Explain in detail about Uninformed Search Strategies.	L2	CO1	PO1,PO2
	b)	What is A* search? Explain various stages of A* search with an example.	L2	CO1	PO1,PO2
15	a)	What is Greedy Best First Search? Explain with an example the different stages of Greedy Best First search.	L2	CO1	PO1,PO2
	b)	What are the four basic types of agent program in any intelligent system? Explain how did you convert them into learning agents?	L2	CO1	PO1,PO2
16	a)	Explain the state space representation of Water –Jug problem.	L2	CO1	PO1,PO2
	b)	Explain the Constrain Satisfaction search strategies with example.	L2	CO1	PO1,PO2

UNIT–II

S.No	Questions	BT	CO	PO
Part –A(ShortAnswerQuestions)				
1	What is Knowledge Representation?.	L1	CO2	PO3,PO4
2	What is Axiomatic system?	L1	CO2	PO3,PO4
3	Define Predicate logic.	L1	CO2	PO3,PO4
4	What is Logic Programming?	L1	CO2	PO3,PO4
5	Define the Resolution Refutation Method.	L1	CO2	PO3,PO4
6	What is semantic network?	L1	CO2	PO3,PO4

7		List out the approaches for Knowledge Representation.	L1	CO2	PO3,PO4
8		What is Propositional Calculus?	L1	CO2	PO3,PO4
9		Differentiate the inductive logic and deductive logic.	L1	CO2	PO3,PO4
10		What are the rules for Semantic tableau?	L1	CO2	PO3,PO4
Part– B(LongAnswerQuestions)					
11	a)	Explain the different rules in Sematic tableaux system in propositional logic.	L2	CO2	PO3,PO4
	b)	Define Logic. Explain the different types of logics?	L2	CO2	PO3,PO4
12	a)	Explain the knowledge representation using frames network.	L3	CO2	PO3,PO4
	b)	Explain the Proximal network.	L2	CO2	PO3,PO4
13	a)	What is propositional logic?		CO2	PO3,PO4
	b)	Explain the different rules in natural deduction system in propositional logic.	L2	CO2	PO3,PO4
14	a)	Explain the knowledge representation using Extended semantic network.	L2	CO2	PO3,PO4
	b)	Explain the Propositional Logic?		CO2	PO3,PO4
15	a)	Explain the knowledge representation using predicate logic.	L2	CO2	PO3,PO4
	b)	Explain the frame network.	L4	CO2	PO3,PO4
16	a)	Explain the knowledge representation using semantic network.	L2	CO2	PO3,PO4
	b)	Explain the Predicate logic.	L2	CO2	PO3,PO4

UNIT–III

S.No	Questions	BT	CO	PO
Part –A(ShortAnswerQuestions)				
1	Define Expert System.	L1	CO3	PO3,PO4.PO5
2	List out the advantages of expert system.	L1	CO3	PO3,PO4.PO5
3	What are the components in expert system?	L1	CO3	PO3,PO4.PO5
4	What is a knowledge base in expert system?	L1	CO3	PO3,PO4.PO5
5	List out the disadvantages of expert system.	L1	CO3	PO3,PO4.PO5
6	What is the backward chaining in expert system?	L1	CO3	PO3,PO4.PO5
7	Define the role of inference Engine	L1	CO3	PO3,PO4.PO5

8		What is Dempster - Shafer Theory?	L1	CO3	PO3,PO4.PO5
9		Describe Bayesian Belief Networks.	L1	CO3	PO3,PO4.PO5
10		What is a Probability Theory?	L1	CO3	PO3,PO4.PO5
Part– B(LongAnswerQuestions)					
11	a)	Describe the characteristics of expert system.	L2	CO3	PO3,PO4.PO5
	b)	Explain the architecture of expert system .	L2	CO3	PO3,PO4.PO5
12	a)	Explain the inference engine in expert system	L2	CO3	PO3,PO4.PO5
	b)	Explain the Phases in Building Expert System.	L2	CO3	PO3,PO4.PO5
13	a)	List and explain the applications of Expert System with examples.	L2	CO3	PO3,PO4.PO5
	b)	Differentiate between traditional system and expert system.	L1	CO3	PO3,PO4.PO5
14	a)	List out the List of Shells and Tools?	L2	CO3	PO3,PO4.PO5
	b)	Explain the Probability Theory with examples.	L2	CO3	PO3,PO4.PO5
15	a)	Explain the Certainty Factor.	L4	CO3	PO3,PO4.PO5
	b)	Discuss the characteristics of expert system. Explain the truth Maintenance system.	L1	CO3	PO3,PO4.PO5
16	a)	Give the brief note on Dempster - Shafer Theory .	L1	CO3	PO3,PO4.PO5
	b)	Discuss in detail about Bayesian Belief Networks.	L1	CO3	PO3,PO4.PO5

UNIT–IV

S.No	Questions	BT	CO	PO
Part –A(ShortAnswerQuestions)				
1	What is Clustering?	L1	CO4	PO3,PO4
2	What is Reinforcement Learning?	L3	CO4	PO3,PO4
3	What is a Neural Network?	L1	CO4	PO3,PO4
4	What is machine learning?	L1	CO4	PO3,PO4
5	What are the applications of Machine Learning?	L1	CO4	PO3,PO4
6	Is there a difference between Artificial Intelligence and Machine Learning?	L2	CO4	PO3,PO4
7	What are test data and training data?	L1	CO4	PO3,PO4
8	Explain multi-layer feed forward network?	L2	CO4	PO3,PO4
9	What is Unsupervised Machine Learning?	L1	CO4	PO3,PO4

10		What are the components of machine learning?	L1	CO4	PO3,PO4
Part– B(LongAnswerQuestions)					
11	a)	What is the Difference Between Supervised and Unsupervised Machine Learning?	L2	CO4	PO3,PO4
	b)	What is the Difference Between Inductive Machine Learning and Deductive Machine Learning?	L2	CO4	PO3,PO4
12	a)	What Are Unsupervised Machine Learning Techniques?	L2	CO4	PO3,PO4
	b)	Explain When Will You Use Classification over Regression?	L1	CO4	PO3,PO4
13	a)	Explain Decision Tree	L2	CO4	PO3,PO4
	b)	What are Support Vectors in SVM?	L4	CO4	PO3,PO4
14	a)	Explain the Difference Between Classification and Regression?	L1	CO4	PO3,PO4
	b)	What do you understand by Reinforcement Learning technique?	L2	CO4	PO3,PO4
15	a)	Explain single layer feed forward network?	L2	CO4	PO3,PO4
	b)	Explain design issue of artificial neural network?	L2	CO4	PO3,PO4
16	a)	Explain recurrent network?	L2	CO4	PO3,PO4
	b)	What Are Radial Basis Functions explain?	L1	CO4	PO3,PO4

UNIT–V

S.No	Questions	BT	CO	PO
Part –A(ShortAnswerQuestions)				
1	Define NLP	L1	CO4	PO3,PO5
2	What is Natural Language Processing? Discuss With some applications.	L1	CO4	PO3,PO5
3	What is Lexeme.	L1	CO4	PO3,PO5
4	Analyze the usage of feature structures in NLP.	L1	CO4	PO3,PO5
5	Define Parsing	L1	CO4	PO3,PO5
6	What is CFG.	L1	CO4	PO3,PO5
7	What are the rules of CNF.	L1	CO4	PO3,PO5
8	Explain the parsing of NLP	L1	CO4	PO3,PO5
9	Define semantic parsing	L1	CO4	PO3,PO5
10	What is supervised learning.	L1	CO4	PO3,PO5
Part– B(LongAnswerQuestions)				

11	a)	Definition and Examples of Case Grammar	L2	CO4	PO3,PO5
	b)	What are the issues and challenges of Morphology.	L2	CO4	PO3,PO5
12	a)	What is semi supervised learning explain	L2	CO4	PO3,PO5
	b)	Explain in detail about semantic interpretation.	L2	CO4	PO3,PO5
13	a)	Explain System paradigms	L2	CO4	PO3,PO5
	b)	Explain different types of parsers	L4	CO4	PO3,PO5
14	a)	Explain Elements of Semantic Analysis	L2	CO4	PO3,PO5
	b)	List and explain Different Types of Grammar in NLP	L2	CO4	PO3,PO5
15	a)	Explain the Techniques of knowledge representation	L1	CO4	PO3,PO5
	b)	Explain Dependency Parsing in Natural Language Processing with Examples	L2	CO4	PO3,PO5
16	a)	Explain Advantages and disadvantages in Semantic representation	L1	CO4	PO3,PO5
	b)	Explain What is semantic parsing?	L1	CO4	PO3,PO5

*__BloomsTaxonomyLevel(BT)__(L1–Remembering;L2–Understanding;L3–Applying;L4–analyzing; L5–Evaluating;L6–Creating)__Course Outcomes (CO)Program Outcomes(PO)__

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