SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
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QUESTION BANK (DESCRIPTIVE)

Subject with Code: Artificial Intelligence And Its Applications (20CS1401)　　**Course & Branch**: B.Tech CAI

Regulation: R20　　　　　　　　　　　　　　　　　　　　**Year & Sem:** II & II

UNIT –I
INTRODUCTION TO ARTIFICIAL INTELLIGENCE

1		Explain in detail about Intelligent System and when it acts rationally.	[L2][CO1]	[12M]
2		Discuss in detail about the Foundations of Artificial Intelligence.	[L2][CO1]	[12M]
3	a	Define Artificial Intelligence and Elaborate about its think ability.	[L1] [CO1]	[6M]
	b	How AI evolve over Tic – Tac – Toe Game Playing? Deduce with an example. Write a program for tic-tac-toe game playing.	[L3] [CO1]	[6M]
4		Recall about the History of Artificial Intelligence in detail.	[L1] [CO1]	[12M]
5	a	Explain the role of AI in Education and Finance.	[L2] [CO1]	[6M]
	b	Explain the role of AI in Online and telephone customer service.	[L2] [CO1]	[6M]
6	a	Explain the role of AI in Media and E-commerce.	[L2] [CO1]	[6M]
	b	Explain the role of AI in News, publishing and writing.	[L2] [CO1]	[6M]
7		Briefly explain the water jug problem and its example. Write a program for water jug problem.	[L2] [CO1]	[12M]
8		Explain the towers of Hanoi with its example. Write a program for towers of hanoi using python.	[L2] [CO1]	[12M]
9		Discuss in detail about N-queens problem and its example. Write a program for N-queens problem using python.	[L2] [CO1]	[12M]
10	a	What are the languages that support AI over a period of time? Explain	[L4] [CO1]	[6M]
	b	Outline the current trends in Artificial Intelligence.	[L4] [CO1]	[6M]

UNIT –II

PROBLEM SOLVING, PROBLEM REDUCTION AND GAME PLAYING

1		Illustrate the concept of Problem-solving agent with an example.	**[L2][CO2]**	**[12M]**
2		Briefly explain an uninformed search strategy.	**[L1][CO2]**	**[12M]**
3	**a**	Explain about BFS. Deduce it with an example. List the Pros and Cons in it.	**[L4][CO2]**	**[8M]**
	b	Write an example program for BFS using python	**[L2][CO2]**	**[4M]**
4	**a**	Explain about DFS. Deduce it with an example. List its Pros and Cons.	**[L2][CO2]**	**[8M]**
	b	Write an example program for DFS using python	**[L1][CO2]**	**[4M]**
5		How Heuristic Search Techniques helps in Problem Solving. Explain in detail.	**[L2][CO2]**	**[12M]**
6	**a**	Explain greedy best first search with an example. Write an example program for greedy best first search.	**[L2][CO2]**	**[6M]**
	b	Differentiate informed search and uninformed search.	**[L2][CO2]**	**[6M]**
7	**a**	Write a short note on Problem Reduction "AND-OR" graphs with an example.	**[L1][CO2]**	**[6M]**
	b	Prepare a Graph tree for Minimax Search Procedure and explain it in detail with an example.	**[L3][CO2]**	**[6M]**
8		Write the algorithm for Iterative Deepening Search A*. Explain it with an example. Write an example program for IDA*.	**[L2][CO2]**	**[12M]**
9	**a**	How Heuristic Search Techniques helps in Problem Solving. Explain any two techniques.	**[L1][CO2]**	**[6M]**
	b	Explain an A* search and its example. Write an example program for A* search.	**[L2][CO2]**	**[6M]**
10		Explain about Alpha-Beta Pruning with α and β algorithms. Prepare a Graph Tree and explain it. Write an example program for alpha beta pruning.	**[L3][CO2]**	**[12M]**

UNIT –III
LOGIC CONCEPTS

1	**a**	Give a detail note on a generic knowledge-based agent	[L2][CO3]	**[6M]**
	b	What is Propositional Logic? Explain the facts and types in it in detail.	[L2][CO3]	**[6M]**
2		Explain in detail about Logical Connectives and its types in detail	[L2][CO3]	**[12M]**
3	**a**	What is the Limitations of Propositional logic?	[L1][CO3]	**[6M]**
	b	How effectively Propositional Calculus is used in AI? Explain	[L2][CO3]	**[6M]**
4		Explain in detail about Semantic Tableau in propositional logic.	[L2][CO3]	**[12M]**
5	**a**	How representation of Simple Facts in Logic is done? Explain	[L2][CO3]	**[6M]**
	b	What are the Uses of predicate logic? Make use of it and analyze the how it can create Resolution for it.	[L3][CO3]	**[6M]**
6		How representation facts in Propositional Logic are done? Explain	[L2][CO4]	**[12M]**
7	**a**	Write the algorithm of "Resolution in Propositional Logic" and explain with an example	[L1][CO4]	**[6M]**
	b	What is set-of-support strategy and how predicate logic complements by making use of it.	[L3][CO4]	**[6M]**
8		Give your inference about Axiomatic System with an example	[L4][CO4]	**[12M]**
9		Explain in detail about Forward and Backward Chaining in AI	[L2] [CO4]	**[12M]**
10	**a**	Write the algorithm of "Conversion to Clause Form" and explain	[L1] [CO4]	**[6M]**
	b	What is unit-preference-strategy and why it complements predicate logic	[L4][CO4]	**[6M]**

UNIT –IV
KNOWLEDGE REPRESENTATION AND TECHNIQUES

1	**a**	How representations and Mappings in KR is done? Explain.	[L2][CO5]	**[6M]**
	b	Describe the approaches to Knowledge Representation?	[L2][CO5]	**[6M]**
2	**a**	Distinguish Inferential Knowledge Vs Procedural Knowledge	[L4][CO5]	**[6M]**
	b	How non binary predicates are represented using semantic net. Explain with suitable example	[L2][CO5]	**[6M]**
3		How KR using Semantic Network is done. Explain in detail.	[L1][CO5]	**[12M]**
4	**a**	Justify the statement- "Set theory provides a good basis for understanding Frame Systems".	[L5][CO5]	**[6M]**
	b	Make use of Frames as Instances and explain how KR is effectively used.	[L3][CO5]	**[6M]**
5		Explain in detail about Extended Semantic Networks for KR with example	[L2][CO5]	**[12M]**
6	**a**	List the four properties that a KR system must have.	[L1][CO5]	**[6M]**
	b	Represent the following facts using semantic nets: • John gave the book to Mary • John is 6 feet tall and that he is taller than Bill	[L2][CO5]	**[6M]**
7	**a**	List the set of primitives and conceptual tenses used in Conceptual Dependency.	[L1][CO5]	**[6M]**
	b	List the ways in which classes are related to each other in frames, with suitable example?	[L1][CO5]	**[6M]**
8	**a**	How Script Structure in Conceptual Dependency Theory is used? Explain the rules in using it	[L2][CO5]	**[6M]**
	b	Explain four knowledge representation techniques	[L2] [CO5]	**[6M]**
9		Represent the following facts using partitioned semantic nets: • The dog bit the mail carrier. • Every dog has bitten a mail carrier. • Every dog in town has bitten the constable. • Every dog has bitten every mail carrier	[L2][CO5]	**[12M]**
10	**a**	Why Case Grammars are used in Knowledge Representation? Explain	[L4][CO5]	**[6M]**
	b	Why Semantic Web is used in Knowledge Representation? Explain	[L4] [CO5]	**[6M]**
	a	Represent the following sentence in CD: • Since smoking can kill you, I stopped	[L2] [CO5]	**[6M]**
	b	Describe the important components of a script, with a suitable example.	[L1] [CO5]	**[6M]**

UNIT –V
EXPERT SYSTEM AND APPLICATIONS AND PROBABILITY THEORY

1		Briefly explain the language model in AI and its application of AI.	[L1][CO6]	**[12M]**
2		Discuss about Text Classification and its approaches?	[L2][CO6]	**[12M]**
3	a	Describe the Information Retrieval in AI.	[L2][CO6]	**[6M]**
	b	Difference between Information Retrieval, Data Retrieval and Information Extraction	[L2][CO6]	**[6M]**
4		Explain Information Retrieval in AI.	[L1][CO6]	**[12M]**
5		Briefly explain Machine Translation in AI?	[L1][CO6]	**[12M]**
6		Describe the Speech Recognition in AI and explain the challenges in AI?	[L2][CO6]	**[12M]**
7		Define Perceptron. Explain the types, components and characteristics in Perceptron.	[L1][CO6]	**[12M]**
8		Discuss the components in Robotic Hardware.	[L3][CO6]	**[12M]**
9		Briefly explain the Robotic Perceptron in AI.	[L2][CO6]	**[12M]**
10		Discuss the planning and Moving in AI.	[L1][CO6]	**[12M]**

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