Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER- VII EXAMINATION-SUMMER 2023

Subject Code: 3170716 Date: 28/06/2023

Subject Name: Artificial Intelligence

Time: 10:30 AM TO 01:00 PM Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Explain the "Turing test".	**03**
	(b)	Explain the different issues in Knowledge representation.	**04**
	(c)	Enlist and discuss major task domains of Artificial Intelligence.	**07**
Q.2	**(a)**	Define i) Local Maximum ii) Plateau iii) Ridge	**03**
	(b)	Explain Best First Search method.	**04**
	(c)	Discuss and Analyze Tower of Hanoi problem with respect to the seven problem characteristics	**07**
		OR	
	(c)	Explain Water Jug Problem With Example.	**07**
Q.3	**(a)**	Explain the Backward Reasoning.	**03**
	(b)	Discuss with example: Constraint Satisfaction Problem.	**04**
	(c)	Explain Semantic Net & Frame with suitable example.	**07**
		OR	
Q.3	**(a)**	List out the property of Non monotonic reasoning.	**03**
	(b)	Explain the steps of unification in predicate logic.	**04**
	(c)	State the Bayes theorem. Illustrate how a Bayesian Network can be used to represent causality relationship among attributes.	**07**
Q.4	**(a)**	What is State Space of a Problem?	**03**
	(b)	What are the limitations of Propositional Logic?	**04**
	(c)	Consider the following sentences: • Raj likes all kinds of food. • Apples are food. • Anything anyone eats and isn't killed by is food. • Sachin eats peanuts and is still alive. • Vinod eats everything Sachin eats. Now, attempt following: i. Translate these sentences into formulas in predicate logic. ii. Use resolution to answer the question, "What food does Vinod eat?"	**07**
		OR	
Q.4	**(a)**	Compare Fuzzy Vs Crisp Logic.	**03**
	(b)	Explain alpha-beta cut off search with and example	**04**
	(c)	Simulate the working of Tic-tac-toe problem with Minimax technique.	**07**
Q.5	**(a)**	Explain Hopfield Network.	**03**
	(b)	Explain Steps of Natural Language Processing.	**04**
	(c)	Write a prolog program to find minimum number from the given input list.	**07**

OR

Q.5	**(a)**	Explain Expert System Shells.	**03**
	(b)	Explain Cut and Fail Predicate With Example.	**04**
	(c)	Explain Various Types of Cross Over Operators in Genetic Algorithm.	**07**

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