

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”. Ch 1	03
	(b) Explain the different issues in Knowledge representation.	04
	(c) Enlist and discuss major task domains of Artificial Intelligence. Ch1	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? Ch2	03
	(b) What are the limitations of Propositional Logic?	04
	(c) Consider the following sentences:	07
	• 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?”	
	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

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| 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 |
