

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – SUMMER 2022****Subject Code:3161608****Date:08/06/2022****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) What is artificial intelligence? Define the different task domains of artificial intelligence.	03
	(b) Explain the production system.	04
	(c) Explain the State space search with the use of 8 Puzzle Problem.	07
Q.2	(a) Explain: 1) Local maximum 2) Plateau 3) Ridge	03
	(b) Explain depth first search algorithm.	04
	(c) Explain A* algorithm in detail.	07
OR		
	(c) Solve the following Cryptarithmic Problem.	07
SEND +MORE ----- MONEY		
Q.3	(a) Explain AND-OR graphs.	03
	(b) Differentiate declarative and procedural knowledge.	04
	(c) Consider the following sentences:	07
<ul style="list-style-type: none"> • 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: <ol style="list-style-type: none"> i. Translate these sentences into formulas in predicate logic ii. Use resolution to answer the question, "What food does Vinod eat?" 		
OR		
Q.3	(a) Explain Unification.	03
	(b) Differentiate forward chaining and backward chaining.	04
	(c) Discuss the different approaches to knowledge representation.	07
Q.4	(a) Explain Propositional logic.	03
	(b) Write a short note on statistical learning.	04
	(c) Explain Alpha-Beta cutoff procedure in game playing with example.	07
OR		
Q.4	(a) Explain Quantifier.	03
	(b) Discuss Bayesian network and its applications.	04
	(c) Explain minimax procedure for game playing with example.	07

- Q.5** (a) Discuss Bay's theorem. **03**
(b) Discuss Goal Stack Planning. **04**
(c) Explain CUT, FAIL and REPEAT predicates in PROLOG. **07**
- OR**
- Q.5** (a) Explain Predicate logic. **03**
(b) Explain Hierarchical Planning. **04**
(c) Write a PROLOG program to find the sum of elements of a list. **07**
