GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER–VIII (NEW) EXAMINATION – WINTER 2020

Subject Code:2180703   **Date:25/01/2021**

Subject Name:Artificial Intelligence

Time:02:00 PM TO 04:00 PM   **Total Marks: 56**

Instructions:
1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1	**(a)**	What is artificial intelligence? Define the different task domains of artificial intelligence.	**03**
	(b)	Describe the production system.	**04**
	(c)	Explain state space representation for water jug problem.	**07**
Q.2	**(a)**	Differentiate prepositional & predicate logic.	**03**
	(b)	What is clausal form? How is it useful?	**04**
	(c)	Solve the following Cryptarithmetic Problem.	**07**

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Q.3	**(a)**	Define simulated annealing	**03**
	(b)	Define Non monotonic reasoning.	**04**
	(c)	Explain the Forward and Backward Reasoning.	**07**
Q.4	**(a)**	Define unification.	**03**
	(b)	How Knowledge is represented?	**04**
	(c)	Explain Inference Rules in Propositional Calculus.	**07**
Q.5	**(a)**	What is learning? What are its types?	**03**
	(b)	Write a PROLOG program to count total occurrence of a character in a given list of characters.	**04**
	(c)	Explain alpha-beta cut off search with an example. State a case when to do alpha pruning.	**07**

Q.6 **(a)** Define Inductive Bias. **03**

(b) Discuss the concept of LIST in prolog with suitable example. **04**

(c) Explain steps of Natural Language Processing. **07**

Q.7 **(a)** Explain the difference between Boolean and Fuzzy Set membership using a suitable example. **03**

(b) Discuss Bay's theorem. **04**

(c) What is a "Semantic Net"? Illustrate 'property inheritance' in Semantic Network using "isa" and "instance" attributes. **07**

Q.8 **(a)** What is meant by Perceptron? **03**

(b) Explain AO* algorithm. **04**

(c) Explain Min Max procedure in game playing. **07**

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