

**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 propositional & predicate logic. **03**

**(b)** What is clausal form? How is it useful? **04**

**(c)** Solve the following Cryptarithmic 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**

<b>Q.6</b>	<b>(a)</b>	Define Inductive Bias.	<b>03</b>
	<b>(b)</b>	Discuss the concept of LIST in prolog with suitable example.	<b>04</b>
	<b>(c)</b>	Explain steps of Natural Language Processing.	<b>07</b>
<b>Q.7</b>	<b>(a)</b>	Explain the difference between Boolean and Fuzzy Set membership using a suitable example.	<b>03</b>
	<b>(b)</b>	Discuss Bay's theorem.	<b>04</b>
	<b>(c)</b>	What is a "Semantic Net"? Illustrate 'property inheritance' in Semantic Network using "isa" and "instance" attributes.	<b>07</b>
<b>Q.8</b>	<b>(a)</b>	What is meant by Perceptron?	<b>03</b>
	<b>(b)</b>	Explain AO* algorithm.	<b>04</b>
	<b>(c)</b>	Explain Min Max procedure in game playing.	<b>07</b>

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