GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER–VII EXAMINATION – WINTER 2025

Subject Code:3171105   **Date:28-11-2025**

Subject Name:Introduction of 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)**	Write down any three Artificial Intelligence techniques.	**03**
	(b)	Write advantages and disadvantages of Production Systems.	**04**
	(c)	Write properties of Minimax Algorithm and α-β pruning algorithm.	**07**
Q.2	**(a)**	Write down any three factors for measuring performance of Problem Solving algorithm.	**03**
	(b)	Differentiate between Breadth First Search (BFS) and Depth First Search (DFS).	**04**
	(c)	Write short note on Hill Climbing Algorithm.	**07**
		OR	
	(c)	Write short note on informed search.	**07**
Q.3	**(a)**	Write down properties of A* algorithm.	**03**
	(b)	Provide performance measurement of Best First Search in terms of Completeness Optimality, Time Complexity and Space Complexity.	**04**
	(c)	Explain Recursive Best First Search (RBFS) algorithm in detail.	**07**
		OR	
Q.3	**(a)**	Write down advantages and disadvantages of Branch and Bound algorithm.	**03**
	(b)	Explain Positive Sum game and Negative Sum game under non-zero sum games in brief.	**04**
	(c)	Explain implementation of Branch and Bound algorithm with an example.	**07**
Q.4	**(a)**	Write down any three assumptions about the task environment for a classical planning.	**03**
	(b)	Explain in brief four planning strategies for handling indeterminancy.	**04**
	(c)	Explain progression planners with an example.	**07**
		OR	
Q.4	**(a)**	Write down any three major approaches to solve planning problems.	**03**
	(b)	Give comparisons between Stanford research Institute Problem Solver (STRIPS) and Action Description Language (ADL).	**04**
	(c)	Explain Total Order planning with an example.	**07**
Q.5	**(a)**	Write down steps involved in Natural Language Processing (NLP).	**03**
	(b)	Write down two major components of Natural Lnaguage Processing (NLP) and explain any one in brief.	**04**
	(c)	Explain Parsing methods with its merits and demerits.	**07**

OR

Q.5 **(a)** Write down names of types of Grammar in NLP. **03**

(b) Write down main techniques used in analyzing Natural Language Processing (NLP) and explain any one in brief. **04**

(c) Write down any five application of NLP and explain any two in brief. **07**

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