

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-IV EXAMINATION – WINTER 2025

Subject Code:3145201

Date:20-11-2025

Subject Name:Introduction of Artificial Intelligence

Time:02:30 PM TO 05:00 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? List the task domains of AI.	03
(b) Briefly discuss the AI problem characteristics.	04
(c) Explain BFS and DFS. Also write the pros and cons of both the methods.	07
Q.2 (a) What is Heuristic Search?	03
(b) Explain Branch and Bound.	04
(c) Explain State Space Search using Water Jug Problem.	07
OR	
(c) Solve the following Constraint Satisfaction problem. B E S T + M A D E = M A S E R	07
Q.3 (a) Write Generate and Test Algorithm.	03
(b) What is Graceful Decay of Admissibility?	04
(c) Explain Minimax procedure using example of your own choice.	07
OR	
Q.3 (a) What is Local Maxima?	03
(b) Explain Recursive Best First search procedure.	04
(c) Write A* algorithm in detail	07
Q.4 (a) What is Plateau?	03
(b) Explain forward state space planning.	04
(c) Write Iterative Deepening A* algorithm in detail.	07
OR	
Q.4 (a) What is Ridge?	03
(b) Why does the search in game playing programs always proceed forward from the current position rather than backward from a goal state?	04
(c) Which are the components of the planning system?	07
Q.5 (a) Why Alpha-Beta Cutoff plays a major role in Minimax procedure?	03
(b) What is Conceptual parsing?	04
(c) Explain Goal Stack planning.	07
OR	
Q.5 (a) Write Hierarchical planning.	03
(b) Justify the role of iterative deepening in Minimax procedure.	04
(c) Explain the steps of Natural Language Understanding.	07
