

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VIII EXAMINATION – SUMMER 2025

Subject Code:2180703

Date:26-05-2025

Subject Name: Artificial Intelligence

Time:10:30 PM 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.

- Q.1** (a) Discuss Turing Test. **03**
(b) What is Artificial Intelligence? List applications of it. **04**
(c) What is state space? Give state space representation of Water Jug problem. **07**
- Q.2** (a) Explain briefly backward reasoning with example. **03**
(b) Give the difference between BFS and DFS. **04**
(c) Give state space representation for 8 puzzle problem. Also state one heuristic function for this problem. **07**
- OR**
- (c) Explain in brief different approaches to knowledge representation. **07**
- Q.3** (a) Explain Bay's theorem. **03**
(b) Discuss AND-OR graph and its application. **04**
(c) Discuss A* algorithm. Give one example where it is suitable to apply **07**
- OR**
- Q.3** (a) Describe heuristic function for the Travelling Salesman Problem. **03**
(b) Discuss Goal Stack Planning. **04**
(c) Discuss AO* algorithm. Give one example where AO* is suitable to apply. **07**
- Q.4** (a) Write a short note on Recurrent Networks. **03**
(b) Differentiate Fuzzy logic and Crisp logic. **04**
(c) Discuss hill climbing search method with its limitations. **07**
- OR**
- Q.4** (a) What is a Horn Clause? Give examples. **03**
(b) List out the property of Monotonic and Non monotonic reasoning. **04**
(c) Explain alpha-beta cut off search with an example. **07**
- Q.5** (a) Define and describe list with an example. **03**
(b) Explain CUT, FAIL & REPEAT predicates in PROLOG. **04**
(c) Discuss Min-Max search method with an example. **07**
- OR**
- Q.5** (a) Enlist various de-fuzzification methods. **03**
(b) Write short note on Semantic Net. **04**
(c) Describe with example various stages of Natural Language Processing. **07**
