

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2024****Subject Code:3145201****Date:01-07-2024****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.

- Q.1** (a) What is artificial intelligence? Define the different task domains of artificial intelligence. **03**
 (b) Explain Best First Search method. **04**
 (c) Discuss with examples: AI Problem Characteristic. **07**
- Q.2** (a) Define knowledge base agent in AI. **03**
 (b) What is heuristic search? Discuss with an example. **04**
 (c) Discuss Steepest-Ascent Hill climbing algorithm and also state its limitations. **07**
- OR**
- (c) Explain A* algorithm in detail. **07**
- Q.3** (a) Discuss limitations of Hill climbing search method **03**
 (b) Discuss various areas where Artificial Intelligence is used. **04**
 (c) Discuss various issues in design of search program **07**
- OR**
- Q.3** (a) Explain local maxima, plateau, and ridge in brief. **03**
 (b) Write short note on Admissibility of A*. **04**
 (c) Explain the State space search with the use of 8 Puzzle Problem. **07**
- Q.4** (a) Differentiate forward chaining and backward chaining. **03**
 (b) What is goal stack planning? Give example of initial state and goal state in goal stack planning using some predicates **04**
 (c) Explain min max procedure for game playing with example. **07**
- OR**
- Q.4** (a) Differentiate informed search and uninformed search. **03**
 (b) Explain Hierarchical Planning. **04**
 (c) Explain Alpha-Beta cutoff procedure in game playing with example. **07**
- Q.5** (a) Differentiate declarative and procedural knowledge. **03**
 (b) Differentiate supervised and unsupervised learning. **04**
 (c) Explain different Parsing techniques with example. **07**
- OR**
- Q.5** (a) Briefly explain any one application of Natural Language Processing. **03**
 (b) Solve the following Cryptarithmic Problem. **04**
 SEND
 + MORE

 MONEY
- (c) Explain steps of Natural Language Processing Agile testers. **07**
