

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2023****Subject Code:3171105****Date:16-12-2023****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) Define Artificial Intelligence (AI). Explain the need of AI. **03**
(b) Discuss latest trends in the field of AI. **04**
(c) List and explain the applications of AI in detail. **07**
- Q.2** (a) What are the advantages of AI? **03**
(b) Explain using appropriate diagram: How agent interacts with environment. **04**
(c) What is problem solving by searching? Explain using suitable example. **07**
- OR**
- (c) List uninformed search techniques. Explain any one uninformed search techniques using example. **07**
- Q.3** (a) List and explain applications of breadth first search. **03**
(b) Briefly discuss admissibility of A* algorithm. **04**
(c) Write short note on Brute Force problem solving technique. **07**
- OR**
- Q.3** (a) What is meaning of finding optimal path? Explain in brief. **03**
(b) Explain working steps of A* searching algorithm. **04**
(c) Write short note on Branch and Bound algorithm. **07**
- Q.4** (a) What do you mean by optimal path? Why it is important? **03**
(b) Explain the disadvantages of forward state space planning. **04**
(c) Explain in detail: Recursive best first search. **07**
- OR**
- Q.4** (a) What is Game Theory? **03**
(b) Explain components of planning system. **04**
(c) Write short note on back ward state space planning. **07**
- Q.5** (a) What is the difference Between Natural Language Processing (NLP) and Text Mining? **03**
(b) What is Natural Language Processing in AI? Explain. **04**
(c) Explain working of Mini-max algorithm using suitable example. **07**
- OR**
- Q.5** (a) Define Parsing in the context of Natural Language Processing. **03**
(b) What is transfer model? What is its use in machine translation systems? **04**
(c) Explain Alpha-Beta pruning using suitable example. **07**
