

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII (NEW) EXAMINATION – SUMMER 2022****Subject Code:3171105****Date:06/06/2022****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.

- Q.1** (a) What are Artificial Intelligence Problems? **03**  
(b) Give the difference between Artificial Intelligence and Machine Learning. **04**  
(c) Discuss the recent development of AI and its significance in brief. **07**
- Q.2** (a) Explain the concept of problem-Solving by searching. **03**  
(b) Explain the constraint satisfaction problem. **04**  
(c) Explain any one State-space Search technique. **07**
- OR**
- (c) Explain any one Heuristic Search technique. **07**
- Q.3** (a) Explain problem reduction. **03**  
(b) List advantages and disadvantages of brute force Problem-Solving method. **04**  
(c) Explain Algorithm A\*, Admissibility of A\*, and Iterative Deepening A\* **07**
- OR**
- Q.3** (a) Explain Production Systems Characteristics. **03**  
(b) Explain the Recursive best-first search technique. **04**  
(c) Explain branch and bound algorithm techniques. **07**
- Q.4** (a) Enlist components of a planning system. **03**  
(b) Explain Forward state-space planning. **04**  
(c) Explain Goal stack planning. **07**
- OR**
- Q.4** (a) Explain Hierarchical planning. **03**  
(b) Explain Backward state-space planning. **04**  
(c) Explain Plan space Planning. **07**
- Q.5** (a) Explain the concept of text generation. **03**  
(b) Explain Parsing techniques. **04**  
(c) Explain the concept of Natural language processing systems. **07**
- OR**
- Q.5** (a) Explain the MIN MAX algorithm. **03**  
(b) Explain the alpha-beta technique. **04**  
(c) Explain the concept of Heuristics in-game tree search. **07**

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