

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VIII EXAMINATION – SUMMER 2016

Subject Code:180703

Date:16/05/2016

Subject Name:Artificial Intelligence (Department Elective - II)

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.

- Q.1** (a) Explain the State Space with the use of 8 Puzzle Problem. **07**
(b) Consider the following axioms: **07**
1. Anyone whom Mary loves is a football star.
2. Any student who does not pass does not play.
3. John is a student.
4. Any student who does not study does not pass.
5. Anyone who does not play is not a football star.
Prove using resolution process that “If John does not study, then Mary does not love John”.
- Q.2** (a) Explain A* algorithm in detail. **07**
(b) Solve The following Crypt arithmetic problem: **07**
C R O S S
+ R O A D S

D E N G E R
- OR**
- (b) Solve The following Crypt arithmetic problem: **07**
B A S E
+ B A L L

G A M E S
- Q.3** (a) Given an example of a problem for which breadth-first search would work better than depth-first search. **07**
(b) Explain the Forward and Backward Reasoning. **07**
- OR**
- Q.3** (a) What is Hill Climbing? Explain Simple Hill Climbing and Steepest- Ascent Hill Climbing. **07**
(b) Explain the Nonmonotonic reasoning. **07**
- Q.4** (a) Explain the different issues in Knowledge representation. **07**
(b) Explain Semantic Net and Frame with example. **07**
- OR**
- Q.4** (a) Explain steps of Natural Language Processing. **07**
(b) Write a short note on: Hopfield Networks. **07**
- Q.5** (a) What is an expert system? Explain Architecture of an Expert system. **07**
(b) Write a prolog program to find maximum number from a list. **07**

OR

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| Q.5 | (a) | Write a prolog program to find sum of all the numbers of a list. | 07 |
| | (b) | Solve Travelling Salesman Problem using any AI technique. | 07 |
