

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VIII • EXAMINATION – WINTER • 2014

Subject Code: 180703

Date: 25-11-2014

Subject Name: Artificial Intelligence

Time: 02:30 pm - 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.

- Q.1** (a) Define AI? Explain the characteristics of AI problem. **07**
(b) Solve the following Crypt Arithmetic problem. **07**
- DONALD
+ GERALD

ROBERT
- Q.2** (a) Explain Depth first search and Breadth first search with example. **07**
(b) Explain AO* algorithm. **07**
- OR**
- (b) Explain simulated annealing algorithm. **07**
- Q.3** (a) Consider the following facts. **07**
- i) The member of the St. Bridge club are Joe, Sally, Bill and Ellen.
ii) Joe is married to Sally.
iii) Bill is Ellen's brother.
iv) The spouse of every married person in the club is also in the club.
v) The last meeting of the club was at Joe's house.
- 1) Translate the above sentences into formulas in predicate logic.
2) Prove that Ellen is not married.
- (b) Explain the different issues in Knowledge representation. **07**
- OR**
- Q.3** (a) Explain the algorithm of predicate logic resolution. **07**
(b) Explain Semantic Net and Frame with example. **07**
- Q.4** (a) What is an expert system? Explain Architecture of an Expert system. **07**
(b) Explain Artificial Neural Network. **07**
- OR**
- Q.4** (a) Solve Travelling Salesman Problem using any AI technique. **07**
(b) Solve Water Jug Problem using production rule system. **07**
- Q.5** (a) Explain cut and fail predicate with example. **07**
(b) Explain steps of Natural Language Processing. **07**
- OR**
- Q.5** (a) Write a prolog program to find sum of all the numbers of a list. **07**
(b) Write a prolog program to find maximum number from a list. **07**
