

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER-V EXAMINATION – WINTER 2018

Subject Code: 3650002**Date: 17/11/2018****Subject Name: Artificial Intelligence****Time: 10.30 am to 1.00 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)** Attempt the following questions. **07**
1. What is state space?
 2. What is the use of OPEN and CLOSED list in state space search?
 3. Mutation is basic operation in simulated annealing (True/False).
 4. What is formal logic?
 5. What is mean by Word Sense Disambiguation?
 6. What is Stemming in NLP?
 7. What is Machine Learning?
- (b)** i) Discuss the Generate and Test approach for searching. **04**
ii) Write an algorithm of Hill Climbing. **03**
- Q.2 (a)** Compare the Depth First Search with Breadth First Search in detail. **07**
(b) What is heuristic search? How the heuristic functions use to solve 8-puzzel problem? **07**
- OR**
- (b)** Discuss the Beam Search with example. **07**
- Q.3 (a)** How A* algorithm is used to find optimal paths? Explain in detail. **07**
(b) Differentiate Forward State Space Planning with Backward State Space Planning with appropriate block world problem. **07**
- OR**
- Q.3 (a)** Explain the Ant Colony Optimization in detail. **07**
(b) Write and explain the procedure of Goal Stack Planning. **07**
- Q.4 (a)** Discuss the Minimax algorithm for Game Playing in detail. **07**
(b) Explain Resolution Refutation in FOL by example. **07**
- OR**
- Q.4 (a)** Discuss the Forward Chaining in First Order Logic. **07**
(b) How the AlphaBeta algorithm is better than Minimax algorithm? Explain with example. **07**
- Q.5 (a)** Briefly explain all basic Natural Language Processing techniques. **07**
(b) Show how the Naïve Bayes Classifier is used in text classification? **07**
- OR**
- Q.5 (a)** Discuss the applications of Natural Language Processing. **07**
(b) Explain the K-means Clustering Algorithm in detail. **07**
