Roll No ……..10217

MCA/M-14
ARTIFICIAL INTELLIGENCE
Paper -[MCA -405 (iii)]

Time Allowed: 3 Hours] [Maximum Marks : 80

Note: Attempt five questions in all, selecting at least one question from each Unit.

Q.No.1 is compulsory. All questions carry equal marks.

(Compulsory Question)

1. (a) What are Modus ponen? 3

(b) What is the difference between CNF and DNF? 3

(c) What are the space complexities of Breadth first and Depth first search? 3

(d) What is the problem of Foot hills in hill climbing? 3

(e) Define Expert System. 3

(f) What is a Commutative production system? 3

(g) What is the use of mutation operator in Genetic Algorithm? 3

(h) What is anonymous variable in PROLOG? 3

UNIT -I

2. (a) What do you understand by:

(i) Satisfiable proposition,

(ii) Valid proposition,

(iii) Invalid proposition? Explain using suitable examples. 7

(b) What do you understand by most general unifier (mgu)? Write the algorithm to identify mgu. 7

3. (a) What do you understand by Universal instantiation and skolemization?

Explain using suitable examples. 7

(b) What is Artificial Intelligence? What is the need of it? Discuss. 7

UNIT -II

4. (a) What is state -space representation? What do you understand by generate and test search? Discuss.

(b) What is Admissibility? What is graceful decay of _admissibility? Discuss. 7

5. (a) Write the algorithm of Hill climbing? Discuss its limitations. 7

(b) What is Depth first iterative deepening search? Discuss its merits and demerits over breadth first and depth first search. 7

UNIT—III

6. (a) Write a note on rule -based architecture of Expert System. 7

(b) Discuss the different strategies to resolve the conflict among the applicable rules. 7

7. Write a detailed note on Stanford Certainty Factor Algebra. 14

UNIT—IV

8. (a) What do you understand by Evolutionary computing? What are the essential conditions for evolution? Discuss. 7

(b) Write the Simple genetic algorithm. 7

9. Write notes on the following:

(a) Learning by induction. 7

(b) Operators in PROLOG. 7