Roll No. ..... Total Pages : 3

MCA/M-14 **10217**

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

http://www.kuonline.in

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. 7

   (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

http://www.kuonline.in

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