

MCA/ M-12
ARTIFICIAL INTELEGENCE
Paper-MCA-405 (iii)

Time allowed: 3 hours

M.M.: 80

Note: Attempt any five Questions, selecting at least one question from each Unit. Question No. 1 is Compulsory.

1.
 - (i) What is anonymous variable in PROLOG?
 - (ii) What is graceful decay of admissibility?
 - (ii) What is modus ponens ?
 - (iii) What is the time and space complexity of breadth first search?
 - (iv) What is fuzzy logic?
 - (v) What is the advantage of genetic algorithm over hill climbing?
 - (vi) What are the different sections in a PROLOG program?
 - (vii) What is unit preference resolution strategy?

UNIT-I

2.
 - (a) What do you understand by Artificial Intelligence? Discuss in brief important applications.
 - (b) What is Most General Unifier (mgu)? Write the unification algorithm to find mgu.
3. What do you understand by clausal form? Explain the procedure of converting a predicate statement into clausal form and convert the following statement into clausal form :

UNIT-II

4. What do you understand by heuristic search? Discuss the hill climbing search using suitable example. Also explain the problems of foothill and plateau in hill climbing search.
5.
 - (a) Write the algorithm for breadth first search? Give an example of a problem for which breadth first search would work better than depth first search.
 - (b) What is depth first iterative deepening search? Discuss.

UNIT-III

6. What do you understand by a production system? What are the components of it? Discuss the different conflict resolution strategies used in production system.
7. What can be the different approaches to expert system development? Discuss in detail the prototyping model to develop expert system. Discuss any approach to develop expert system.

UNIT-IV

8.
 - (a) Explain the use of cut and fail predicates to prevent and enforce backtracking respectively. Use suitable examples.
 - (b) What is genetic algorithm? Discuss the use of mutation operator in genetic algorithm.
9. What is learning? Distinguish between induction, abduction, and deduction. Discuss the following generalization rules of learning:
 - (a) Changing constants to variables
 - (b) Closing an interval
 - (c) Climbing a generalization tree

