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

MCA/M-15
ARTIFICIAL INTELLIGENCE
Paper-MCA-405

Time Allowed: 3 Hours] [Maximum Marks: 80

Note: Attempt five questions in all, selecting at least one question from each unit.
Question No. 1 is compulsory.

Compulsory Question

(a) What is modus tollen?
(b) What is tautology?
(c) What is unit-preference resolution strategy?
(d) What is the problem of Plateau in hill-climbing search?
(e) When is it advisable to use Depth-first search over Breadth-first search?
(f) What are the different section in PROLOG program?
(g) What are the advantages of using Genetic Algorithm over hill climbing search?
(h) What is MYCIN?

UNIT-I
2 (a) what do you understand by unification? What are the rules of unification? Discuss.
(b) What is Resolution principle? Differentiate between set of support and linear form resolution strategies.
3 (a) what is the difference between Declarative frames and Procedural frames? Explain using suitable examples.
(b) What is a Clause? Explain the procedure of converting a predicate statement into clauses. Use suitable examples.

UNIT-II
4 (a) what do you understand by data-driven and goal-driven search? When is it advisable to use data-driven search over goal-driven search and vice-versa? Discuss.

(b) Write the A* algorithm. How is it different from best first search?

5 Differentiate between the following:
(a) Admissibility and monotonicity
(b) Alpha pruning and beta pruning.

UNIT-III

6. What is production system? What is the difference between commutative and non-commutative production system? Discuss.

7. Write a detailed note on December shafer theory for managing uncertainty in Expert systems.

UNIT-IV

8 (a) what is the difference between Roulette wheel selection and Rank selection in GA?

(b) Explain the one-point and uniform crossover.

9. Write short notes on the following:

(a) Prolog's unification mechanism
(b) Learning automata.