

Roll No.

Total Pages : 3

MCA/M-20

10544

ARTIFICIAL INTELLIGENCE

Paper–MCA-14-45

Option–(ii)

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. All questions carry equal marks.

Compulsory Question

1. (a) What is the difference between propositional logic and FOPL.
- (b) Discuss the time and space complexities of depth first search.
- (c) Define a commutative production system.
- (d) What is the difference between regular grammar and context free grammar?

UNIT-I

2. (a) Write the procedure of converting a predicate statement into the clauses. Make the use of suitable examples.

10544/K/595

P. T. O.

- (b) Define Artificial intelligence. Also discuss Turing test and its significance.
- 3. (a) What is the difference between Conjunctive normal form and Disjunctive normal form?
(b) Illustrate the procedure of unification using suitable example.

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 search with iterative deepening? What are its merits and demerits?

UNIT-III

- 6. (a) What are the fundamental characteristics of an Expert system? What are the differences between Expert systems and Conventional programs?
(b) What is a conflict set of rules in production system? How can we resolve a conflict? List and describe the basic conflict resolution methods.

7. Discuss the Dempster-Shafer theory of Evidence.

UNIT-IV

8. What is the difference between selective, constructive and expedient induction? Give examples of each.

9. (a) What do you understand by natural language processing? What are the problems in it? Explain.

(b) Define Inductive learning. Discuss the generalization and specialization concepts with respect to inductive learning.

