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Printed Pages : 2

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MCA/M- 13
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.
. Question No. 1 is compulsory.

1. (a) What is modus ponen?
(b) What is inductive inference?
(c) What are the space complexities of Depth First Search and Breadth first Search?
(d) What is branching factor of a tree?
(e) What is anonymous variable in PROLOG?
(f) What is Prenex Normal Form (PNF) ?
(g) What are alpha and beta values in mini-max search?
(h) What is unit resolution?

UNIT-I

2. (a) What is Artificial Intelligence? What are the factors motivating the use of Artificial Intelligence? Explain.
(b) What do you understand by resolution? Differentiate between set of support And linear input form resolution strategies using suitable examples.
3. What is most general unifier (mgu) ? What are the rules of unification? Write The unification algorithm to find the mgu.

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. Differentiate between following :
(a) Admissibility and monotonicity
(b) Data driven and goal driven search.

UNIT-III

6. What do you understand by a production system? What are the components of it? Differentiate between commutative and non-commutative production system.
7. What is expert system? Write a note on Stanford certainty factor algebra to manage uncertainty in Expert System.

UNIT-IV

8. Explain the use of cut and fail predicates to prevent and enforce backtracking Respectively. Use suitable examples.
9. What do you understand by evolutionary algorithm? What is genetic

algorithm (GA) ? Explain the crossover and mutation operator using suitable examples.