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MCA/M-17
ARTIFICIAL INTELLIGENCE
Paper: MCA-14-45 (ii)

Time: Three Hours   Maximum Marks: 80

Note: Attempt five questions including No. 1 which is compulsory. All questions carry equal marks.

Compulsory Question

1. (a) What is Turing Test?
   (b) What is Unit Resolution?
   (c) What is the time and space complexity of breadth first search?
   (d) What are the different components of expert system?

Unit-I

2. (a) What do you understand by Artificial Intelligence? What are the characteristic features of it? Discuss.

   (b) Differentiate between Modus Ponen and Modus Tollen using suitable examples.

   (c) What is the different between declarative and procedural frames?

3. (a) What is mgu? What are the rules for unification? Discuss.

   (b) What is clause? Discuss the procedure to convert a statement into clausal form.

Unit-II

4. (a) What is state space representation of problem? Discuss.

   (b) Write the algorithm of depth first search and discuss its time/space complexity and merits/demerits.

5. (a) What is forward and backward search? What are the factors deciding the direction of search? Explain.

   (b) What is Hill climbing search? What are its limitations? Discuss.

Unit-III

6. (a) Write a note on the different techniques of controlling the search in production systems.

   (b) What is Stanford Certainty Factor Algebra? Discuss.

7. (a) Define Expert System and discuss the merits of rule based architecture of it.

   (b) Explain the difference between commutative and non-commutative production systems using suitable examples.

Unit-IV

8. (a) What is the difference between crossover and mutation operators in Genetic Algorithm? Discuss.

   (b) What is Chomsky Hierarchy of formal language? Discuss

9. (a) What is learning? Explain learning by induction.

   (b) What is parser? What is TNP? Discuss.