Roll No. ..... Total Pages : 03

BT-7/D-19 37026

ARTIFICIAL INTELLIGENCE

IT-473

Time : Three Hours] [Maximum Marks : 100

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) What is the difference between breadth first and depth first search ? When is it advisable to use depth first search over breadth first search ? Discuss.
   (b) Define AI and write a brief note on the evolution of AI.

2. (a) Write the algorithm of hill climbing search and discuss its limitations.
   (b) What is A* algorithm ? What are its characteristic features ? Discuss.

Unit II

3. (a) Discuss the Dempster-Shafer theory of evidence.
   (b) What is a rule ? How is the knowledge represented using rules ? Write a note on inference using rules.

4. What is Resolution ? Show why the basic axiom of resolution, viz. :
   ((aUb)&(~bUc))→(bUc)
   involves implication, i.e., show that it is not equality :
   ((aUb)&(bUc)) = (bUc)

Unit III

5. (a) What do you understand by learning by Induction ? Discuss the following rules for induction :
      (i) Replacement of a constant by a variable
      (ii) Generalization by disjunction.
   (b) What is the difference between fuzzy set and classical set ? Explain.

6. Write short note on simple Genetic Algorithm. What are the advantages and disadvantages of Genetic Algorithm ? Mention certain applications of Genetic Algorithm.

Unit IV

7. (a) What are the fundamental characteristics of an Expert System ? What are the differences between Expert Systems and Conventional programs ?

(b) What do you understand by Knowledge Engineering ? What are the problems faced in knowledge Aquisition ? Discuss the different knowledge acquisition techniques.

8. What do you understand by rule based architecture of Expert System ? What are its advantages ? Explain.