B. Tech 6th Semester Examination
Artificial Intelligence
IT-6003

Time : 3 Hours  Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt one question each from sections A, B, C, and D of the question paper and all the subparts of section E.

SECTION - A

1. (a) Describe the resolution method used in predicate logic by giving a suitable example. (10)

   (b) Differentiate between depth first search and breadth first search methods. (10)

2. (a) What are the necessary condition associated with A* method? Explain A* method with a suitable example. (10)

   (b) Discuss the min-max method to play tic-tac-toe game. Also state the advantages and disadvantages of min-max method. (10)

SECTION - B

3. (a) Write a program in Prolog for merging two un-ordered lists. (10)

   (b) Describe Prolog unification mechanism with example. (10)
4. (a) Discuss the use of Horn Clauses in logic programming. (10)
(b) What are the various types of control structure used in LISP? Explain with example. (10)

SECTION - C
5. Discuss different techniques that deal with uncertainty in AI systems. Also give examples of each. (20)
6. Describe the role of each component of a general learning model. Write the applications of Hopfield neural networks. (20)

SECTION - D
7. (a) How does the expert system infer the facts in rule based system? Explain. (10)
(b) Differentiate between Hierarchical planning and Conditional planning. (10)
8. (a) How the natural language processing is different than processing of high level languages? Explain. (10)
(b) Describe the tools available to acquire knowledge and to update knowledge automatically in expert system. (10)

SECTION - E
9. (a) What are the limitations of MYCIN? Explain.
(b) What is the importance of planning in AI?
(c) What are the applications of FAIL predicate of prolog in AI?
(d) What do you understand by conflict resolution?
(e) Describe the properties of Modus Ponens.
(f) Differentiate between monotonic and non-monotonic reasoning.
(g) State AI technique with example.
(h) What do you understand by frame? Explain. (8*2½=20)