Con. 2825-09.

B.E./Comp/Sem VII (R) Intelligent Systems

VR-4743

26/5/09

(3 Hours)

[ Total Marks : 100

11 – 2 p.m.

**N.B.** (1) Question No. **1** is **compulsory**.
(2) Attempt any **four** out of remaining questions.

1. Consider the following statements :—
   (i) John eats all kinds of food
   (ii) Apple is food
   (iii) Bread is food
   (iv) Anything any one eats and is not killed is food
   (v) Hari eats peanuts and is still alive
   (vi) Bill eats everything that Hari eats.
   (a) Translate the sentences into predicate logic and convert them to CNF form. **10**
   (b) Prove "John eats peanuts" using Resolution. **10**

2. (a) Give the PEAS representation for the following Indicate how different types of Agents will perform in these situations :— **10**
      (i) Internet shopping Agent
      (ii) Calendar scheduling Agent for an executive.
   (b) Describe the different types of task environments. Give examples for each. **10**

3. (a) Consider the eight puzzle problem. Use the distance heuristic. Assume an initial position and draw a solution tree using A* algorithm. Indicate clearly the values you consider at each step. **10**
   (b) Explain the Min-Max algorithm for a 2 player game using any tree. For the same tree indicate the Alpha Beta pruning technique. **10**

4. (a) Draw the block diagram of a Learning Agent and clearly explain the different Blocks. **10**
   (b) Explain the decision tree algorithm by using the example of an Agent which needs to Make a decision about **"Whether to buy a particular house or not"** ? **10**

5. (a) Explain General Ontology with respect to measures, composite events, times intervals using examples. **10**
   (b) Explain neural network learning and show how it can be used to realize an AND gate. **10**

6. (a) Describe the different components of an expert system using a medical diagnosis system as an example. **10**
   (b) An Agent has to help a human to reach the airport in time to catch his flight. Explain how this can be represented as a planning problem. **10**

7. Write notes on :— **20**
   (a) Bayes' Belief Networks
   (b) Agent Communication.