

**(REVISED COURSE)**

( 3 Hours )

**[ Total Marks : 100**

- N.B. :** (1) Question No. 1 is **compulsory**.  
 (2) Attempt any **four** questions from the **remaining** questions.

1. The law says that it is a crime for an American to sell weapons to hostile nations. The country Nono, an enemy of America has some missiles ; all of its missiles were sold to it by Colonel West, who as an American. Using first order logic prove that Colonel West is a criminal. **20**
2. (a) What is AI ? Explain the components of AI with suitable diagram. **10**  
 (b) What do you mean by PEAS ? Explain the properties of task environment. **10**
3. (a) Prove that A\* search algorithm is complete and optimal among all search algorithms. **10**  
 (b) Explain various methods of Knowledge representation with examples. **10**
4. (a) What do you mean by Intelligent Agent ? Explain various types of Intelligent agents with suitable diagram. **10**  
 (b) Explain Alpha-Beta pruning in Min-Max search. Why it is suitable for two player game ? **10**
5. (a) Explain the Components and Structure of an Expert System. **10**  
 (b) Describe Hill climbing search algorithm, what are the problems faced by Hill climbing search ? Suggest method for each problem to overcome. **10**
6. (a) How planning problem is represented ? Explain with suitable example. **10**  
 (b) Explain Genetic algorithms and Evolutionary programming. **10**
7. Write a detail note on (any **two**) :- **20**
  - (a) Natural Language Processing
  - (b) Multilayer Feed forward Neural Network
  - (c) Applications of AI.