

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

Q.1. (A)	What is AI? Explain the components of AI with suitable example.	[10]
(B)	Describe the wumpus world according to the properties of task Environments.	[10]
Q.2. (A)	Explain General Ontology with reference to measures, composite objects, events, times, intervals with suitable examples.	[10]
(B)	How planning problem is represented? explain with suitable example.	[10]
Q.3.	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 missile; all of its missiles were sold to it by Colonel West, who is a American. Using first order logic prove that Colonel west is a Criminal.	[20]
Q.4. (A)	What do you mean by Intelligent agent? Explain various types of Intelligent agents. State limitation of each and how it is overcome in another type agent.	[10]
(B)	Consider a 8-puzzle problem and a heuristic function given by taking a sum of the distances of the tiles that are in proper positions. Tiles in proper position have value equal to zero. Using the A* algorithm draw a solution tree for the 8-puzzle problem.	[10]
Q.5. (A)	Explain Supervised, Unsupervised and reinforcement learning with examples.	[10]
(B)	Describe Hill Climbing Search Algorithm, what are problems faced by Hill Climbing Search? Suggest method for each problem to overcome.	[10]
Q.6. (A)	Show by resolution refutation that each of the following is Tautology. (i) $P \Rightarrow Q \Rightarrow ((R \vee P) \Rightarrow (P \vee Q))$ (ii) $P \Rightarrow Q \Rightarrow (\sim Q \Rightarrow \sim P)$ Explain Syntax and Semantics of Proportional logic with examples.	[10]
(B)	Explain Alpha-Beta Pruning in Min-Max search. Why it is suitable for Two player Games.	[10]
Q.7.	Write a notes on the following ( <b>any two</b> ) :- (i) Game playing (ii) Natural Language Processing (iii) Multilayer feed forward Neural Network (iv) Expert System: Components and Development.	[20]