Before answering the question paper the candidate should ensure that they have been supplied the correct question paper. Complaints in this regard, if any, shall not be entertained after the examination.

**Note:** Question No. 1 is Compulsory and attempt two questions from each section. All questions carry equal marks.

1. (5 x 4)
   i. Define Artificial Intelligence in terms of human performance.
   ii. Differentiate blind search & heuristic search.
   iii. Write down the main differences between artificial neural networks and biological neural networks.
   iv. What is a membership function of a fuzzy variable?

**SECTION-A**

2(a) What are Agents? How agents is use in AI. Explain any two. (10)

(b) What is search technique? Explain its type. Also discuss hill climbing search technique. (10)

3. Explain the algorithm of following searching with the help of an example (A* Algorithm). (20)

4(a) Describe the various categories of knowledge representation systems. (10)

(b) What are Knowledge Acquisition techniques explain all of them in brief. (10)

**SECTION-B**

5(a) What are back Propagation networks explain in detail. (13)

(b) Discuss the application of ANN. (7)

6(a) Define complement of a fuzzy set. If x= \{1,2,3\} and A= \{0.1/1, 0.7/2, 0.2/3\}, then compute complement of A^c. (10)

(b) Define union and intersection of a fuzzy set. If x= \{1,2,3,4\} and A= \{0.2/1, 0.5/2, 0.8/3, ¼\}, B= \{1/1, 0.8/2, 0.5/3, 0.2/4\} find A U B, A \cap B. (10)

7(a) Write a program in prolog to implement maximum of three numbers. (10)

(b) Write a program in prolog to concatenation of two lists. (10)