CLASS: M.TECH   SEMESTER : III
BRANCH: IT   SESSION : MO/19

SUBJECT: CS607 INTELLIGENT SYSTEMS

TIME: 3 HOURS   FULL MARKS: 50

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. **Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.


Q.1(a)   What is back-propagation? Design a back-propagation Neural Network with hidden layers and show the   [5]
         output function. Justify the design.
Q.1(b)   Assume an application of your choice for Recurrent Neural Network. Map that application with   [5]
         parameter values in input level. Construct at least one level of hidden layer and the output for the
         hidden layer. Finally show the output layer results for that assumed application.

Q.2(a)   Fuzzy sets V and W are defined on the same universe of five individuals as follows: [5]
         V= {1.0/q + 0.8/r + 0.6/s + 0.2/t + 0/u}
         W= {1.0/q + 0.6/r + 0.45/s + 0.15/t + 0/u}
         For V and W, find
             (i)   V ∪ W (ii) V ∩ W (iii) ¬V ∪ W (iv) V ∩ ¬W (v) ¬V ∪ ¬W
Q.2(b)   With proper example illustrate the different steps of Genetic Algorithm. State the cases where GA is   [5]
         suitable for application.

Q.3(a)   Solve (show the steps in accordance with the algo) 8 puzzle problem using Steepest Ascent hill Climbing   [5]
         algorithm.

Start State   Goal State
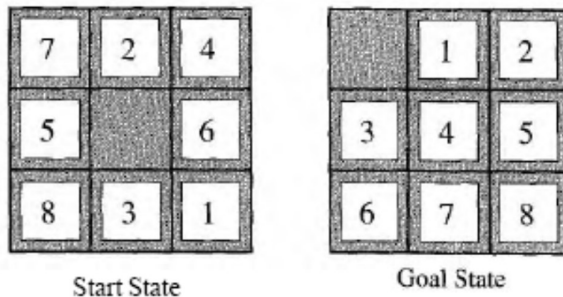
Q.3(b)   State and explain Stochastic annealing algorithm.   [5]

Q.4(a)   What are the components for knowledge-based system structures? Explain.   [5]
Q.4(b)   Design a suitable knowledge base representation scheme for the event of taking food in a restaurant.   [5]

Q.5(a)   Write short notes on   [5]
         (i) Bayes Theorem (ii) Statistical Learning
Q.5(b)   How non-monotonic reasoning can be solved? With proper example illustrate the solution strategy.   [5]