No. of Printed Pages : **2**

Sl. No.

C9-R4 : SOFT COMPUTING

NOTE :
1. **Answer question 1 and any FOUR questions from 2 to 7.**
2. **Parts of the same question should be answered together and in the same sequence.**

Time : 3 Hours **Total Marks : 100**

1. (a) What is soft computing? What are the application areas of soft computing?

(b) Differentiate between supervised learning and unsupervised Learning.

(c) What is bias? How it is related with variance?

(d) What is significance of population in Soft computing? Which operator applied first to the population?

(e) What is difference between feed forward and feedback network?

(f) Explain crossover rate and mutation rate in Genetic Evolutionary algorithm with example.

(g) What is hybrid system in soft computing? Why we should do hybridization? List the types of hybrid system and its application domain. **(7x4)**

2. (a) Why back propagation is required? How back propagation give the performance through Time?

(b) What is specialized learning? How specialized learning can improve the learning process of Hybrid approach.

(c) What is Genetic Algorithm? How it is good for optimization? Justify that "Genetic Algorithm always performs Better". **(6+6+6)**

3. (a) Briefly mention the constituents of Soft Computing.

(b) Explain the following

(i) Recurrent Neural Network

(ii) Boltzman Machine

(c) What are the termination criteria for any optimization techniques of soft computing?

(d) Can we solve Travelling Sales Man Problem using Genetic Algorithm? How? Write the steps in brief **(4+6+4+4)**

4. (a) What is learning rate? What role it plays in learning? How can we improve the training of neural network?

(b) How genetic algorithms perform better result as compare to traditional approaches?

(c) List the various methods to generate offsprings while using genetic algorithm.

(d) How neuro-fuzzy modeling approach can be applied to any optimization problem? **(5+5+4+4)**

5. (a) How generational Cycle works with Genetic algorithm while learning? Discuss briefly.

(b) "Genetic-Fuzzy-Neural Network" Write hybridization steps for optimization problem.

(c) "Neural Network always learns faster than other Classifier" Justify.

(d) How genetic algorithm can solve the weight determination problem of neural Network? **(4+6+4+4)**

6. (a) How universal approximation play important role in hybrid approach of soft computing?

(b) How genetic algorithm can be controlled by Fuzzy Logic?

(c) Define learning. Differentiate inverse learning and simple learning.

(d) List out atleast four application domain of Neuro-Fuzzy Hybrid system. **(6+5+3+4)**

7. (a) What is Optimization and Optimized solution? Briefly discuss how optimization algorithm better than conventional search Based algorithms?

(b) Explain Reinforcement Learning control with respect to neuro-Fuzzy Control System

(c) Draw the architecture of fuzzy back Propagation network for neural network.

(d) Briefly mention the advantages and disadvantage of following parameters

(i) Momentum Coefficient

(ii) Elitism Selection scheme

(iii) Local Minima **(6+4+5+3)**

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