Exam. Code: 1000
Sub. Code: 34993

2015

M.E. (Computer Science and Engineering)

Second Semester

CS-8203: Soft Computing

(Common with ME-Comp Sci. Cyber Security CSN-8202)

Time allowed: 3 Hours Max. Marks: 50

*NOTE:* *Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.*

*x-x-x*

1. Attempt the following:-
   a. Explain Swarm Intelligence system.
   b. Give the drawback and functioning of McCullah Pitts neural networks.
   c. Give the architecture for Boltzman machine based neural networks.
   d. Explain Radial Basis neural networks.
   e. Give a method to construct Bayesian networks. (5x2)

**UNIT - I**

2.
   a. Give the architecture and functioning of bidirectional associative memory. Give an example to store and extract some pattern with missing information from bidirectional associative memory. (5)
   b. Give the functioning of Hopfield neural networks with example. (5)

3. Differentiate LVQ neural networks from Kohonen neural network by giving neat architecture, functioning and example for each. (10)

4. Give a complete solution for travelling salesperson problem by using genetic algorithm. Explain the given solution by tracing it on a graph G=(V,E) where $|V| = 6$. Give the pros and cons of each intermediate operation used. (10)

**UNIT - II**

5. What do you understand by Adaptive Resonance Theory based neural networks? Give its complete architecture and functioning by using a suitable example. (10)

6. Consider a back-propagation based neural network with two hidden layer. Derive the general weight updation mechanism by giving the complete architecture. (10)

7. Design a complete fuzzy control system for controlling speed of an air conditioner based upon the present humidity and temperature. Assume the appropriate fuzzy variables and rules. (10)

*x-x-x*