

Registration No. :

--	--	--	--	--	--	--	--	--	--

Total number of printed pages – 2

B. Tech  
PCIT 4401

Seventh Semester Examination – 2013

PRINCIPLES OF SOFT COMPUTING

BRANCH : CSE

QUESTION CODE : C-253

Full Marks – 70

Time : 3 Hours

Answer Question No. 1 which is compulsory and any **five** from the rest.

The figures in the right-hand margin indicate marks.

1. Answer the following questions : 2 × 10
- (a) State the important properties of soft computing.
- (b) Differentiate AI problems and conventional problems.
- (c) If  $A' = \{(X1, 0.2), (X2, 0.5), (X3, 0.6)\}$   
 $B' = \{(X1, 0.1), (X2, 0.4), (X3, 0.5)\}$   
Find  $A' - B'$ .
- (d) What is Transfer Function ?
- (e) What is the main difference between probability and fuzzy logic ?
- (f) What are fuzzy quantifiers ?
- (g) Enumerate different defuzzification techniques.
- (h) What is crossover operation in GA ?
- (i) Define Adaptive Resonance Theory.
- (j) What do you mean by hybrid neural network.
2. (a) What is ANN ? Discuss the basic models of an artificial neuron. 5
- (b) Write the fixed increment perceptron algorithm for a classification problem with n input features  $(x_1, x_2, \dots, x_n)$  and two output classes(0/1). 5



P.T.O.

3. (a) What do you mean by back propagation network ? Discuss the architecture of a back propagation network. 5
- (b) Explain the effect of tuning parameters of the back propagation neural network. 5
4. (a) What is the use of associative memory in the context of neural networks ? Explain the working of an autocorrelator. 5
- (b) What is Crisp set ? Write the different Crisp relations. 5
5. Explain, in brief, about the inference in Predicate logic. 10

Given :

- (i) Every soldier, is strong willed.
- (ii) All who are strong willed and sincere will succeed in their career.
- (iii) Joseph is a soldier.
- (iv) Joseph is sincere.

Prove : Will Joseph succeed in his career ?

6. (a) Explain the Roulette-Wheel selection in chromosome selection of reproduction. 5
- (b) Describe two point cross-over in genetic model. 5
7. (a) What do you mean by hybrid soft computing ? Explain with example. 5
- (b) What is GA base weight determination ? Explain. 5
8. Explain the following terms in brief : 2.5×4
  - (a) ART1
  - (b) RBF Network
  - (c) Convergence of Genetic Algorithm in real life problems
  - (d) Hebb Network.

