PVP 14

Code: CS5T4

III B.Tech - I Semester – Regular Examinations – December 2016

SOFT COMPUTING
(COMPUTER SCIENCE AND ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

Answer ***all*** the questions. All questions carry equal marks

11x 2 = 22 M

1.

a) What is the difference between crispest and fuzzy set?
b) What are the limitations of Fuzzy system?
c) Define defuzzification.
d) Mention the properties of lambda cut for fuzzy sets.
e) State the properties of the processing element of an artificial neural network.
f) State the importance of back propagation algorithm.
g) What is called as memorization and generalization?
h) Write short notes on vector quantization.
i) Narrate the energy function of BAM.
j) State the limitations of neural networks and fuzzy systems when operated individually?
k) List the characteristics of genetic programming.

PART – B

Answer any ***THREE*** questions. All questions carry equal marks. 3 x 16 = 48 M

2. a) List and explain the Fuzzy Set Operations with neat graphs. 6 M

b) Consider the following two fuzzy sets:

$$Fuzzy\ Set\ (A) = \left\{\frac{0.5}{x1} + \frac{0.2}{x2} + \frac{0.9}{x3}\right\}$$

$$Fuzzy\ Set\ (B) = \left\{\frac{1}{y1} + \frac{0.5}{y2} + \frac{1}{y3}\right\}$$

Perform the Cartesian product over these given fuzzy sets. 10 M

3. a) Explain the three defuzzification methods. 8 M

i) Max Membership principle
ii) Centroid Method
iii) Weighted average method

b) How can you justify the concept of fuzzy logic be implemented in Air Conditioner Controller? 8 M

4. a) Explain the recurrent networks with neat diagram and suitable example. 8 M

b) Discuss back propagation learning. 8 M

5. a) Illustrate the concept of addition and deletion of pattern pairs of Kosko's Discrete BAM. 9 M

b) Determine the process of dealing with sensitivities of ordering of data. 7 M

6. a) How can you apply genetic algorithms for encoding Applications? List out few case studies with suitable examples. 11 M

b) Explain fitness function. 5 M