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B.Tech
PCIT4401

7th Semester Regular / Back Examination 2016-17
PRINCIPLES OF SOFT COMPUTING
BRANCH: IT, ITE
Time: 3 Hours
Max Marks: 70
Q.CODE: Y419

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1 **Answer the following questions:** **(2 x 10)**

a) What is Hebb's learning rule?
b) What is the convergence criteria of genetic algorithm?
c) What is gradient descent learning?
d) Describe Crossover and inversion.
e) What is mutation in genetic algorithm?
f) Give an example on fuzzy operation on Union and intersection.
g) What is a perceptron?
h) What drawbacks of Back propagation learning?
i) What is BAM?
j) Explain the difference between learning and Training.

Q2 Explain the problem of linear separability. How XOR gate problem be implemented using ANN. **(2+8)**

Q3 **a)** Explain the architecture of Adaptive Resonance Theory with the help of a schematic diagram. **(5)**

b) Draw and discuss the significance of recurrent network. **(5)**

Q4 **a)** Different the following: **(5)**

i. Fuzzy Set and Crisp set
ii. Fuzzy relation and crisp relation

b) Explain fuzzy decision making with help of an example. **(5)**

Q5 **a)** Explain generalized Modus Ponens and generalized Modus Tollens with help of an example. **(5)**

b) What is Genetic Algorithm? Give three methods of selecting chromosomes for parents to cross over. **(5)**

Q6 **a)** Explain the working principle of auto associative memory and hetero associative memory. **(5)**

b) Explain Back propagation algorithm in detail. **(5)**

Q7 Draw the ART2 network. And explain each components of its network. How does it satisfy the condition of plasticity and stability? **(10)**

Q8 **Write short answer on any TWO:** **(5 x 2)**

a) Fuzzy logic controlled GA

b) Neuro-Genetic System

c) Hopfield network

d) Evolutionary Algorithm