YMCA UNIVERSITY OF SCIENCE& TECHNOLOGY, FARIDABAD
MCA 5th Sem (UNDER CBS)
SOFT COMPUTING (MCA-504)

Time: 3 Hours

Max. Marks:60

Note:
1. It is compulsory to answer the questions of Part -1. Limit your answers within 20-40 word in this part.
2. Answer any four questions from Part -2 in detail.
3. Different parts of the same question are to be attempted adjacent to each other.

PART -1

Q1 (a) Write the axioms related to t-norm. (2)
(b) Define Alpha-cut. (2)
(c) Describe the concept of attractors. (2)
(d) Describe Gaussian signal function. (2)
(e) Write the axioms related to t-conorm. (2)
(f) What are the implementation issues of GA. (2)
(g) Describe Supervised learning. (2)
(h) Differentiate Bio-logical and Artificial neuron. (2)
(i) Differentiate Artificial Intelligence and Artificial Neural Network (2)
(j) Explain the significance of Hidden-layer. (2)

PART -2

Q2 Design fuzzy set to express human age and compute membership function; (10) also evaluate arithmetic operator "+" and "-"on membership functions.

Q3 Describe back propagation in brief. Take a 2-2-2 (input-hidden-output) neural network and derive equation for weight connection using back propagation. (10)

Q4 Encode the following vectors in associative memory and retrieve the associated pattern and compute the hamming distance with the following (10) patterns:A1=001001,A2=100110,A3=111011

Q5 `What kind of problems can be solved using Genetic Algorithms (GA)? Describe (10) how TSP (traveling salesman problem) can be solved using GA.

Q6 Describe Neuro-Fuzzy system, its reasoning and controls in detail. (10)

Q7 Describe the applications of Soft Computing in "Image Processing" and (10) "Robotics and Sensors".

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