311507

December 2022

BCA- V SEMESTER

Soft Computing (GEC-3)

Time: 3 Hours

Max. Marks:75

Instructions:
1. It is compulsory to answer all the questions (1.5 marks each) of Part -A in short.
2. Answer any four questions from Part -B in detail.
3. Different sub-parts of a question are to be attempted adjacent to each other.

PART -A

Q1 (a) Compare and contrast Human brain and Neural network (1.5)

(b) Discuss the following terms: - membership function - linguistic variable (1.5)

(c) Compare : Supervised Vs. Unsupervised learning (1.5)

(d) Write any two applications of artificial neural networks. (1.5)

(e) Define Support, Core, and alpha-cut for a fuzzy set. (1.5)

(f) Define Lattice of Fuzzy Numbers. (1.5)

(g) Name the various type of crossover techniques. (1.5)

(h) What are training rules in ANN. (1.5)

(i) Define Multilayer Perceptron model. (1.5)

(j) Write any three application areas of Genetic Algorithm. (1.5)

PART -B

Q2 (a) Explain the working and architecture of artificial neuron and explain how it differs from biological neuron. (10)

(b) Define Soft Computing? Distinguish between soft computing and hard computing. (5)

Q3 (a) Explain Fuzzy Prepositions and Linguistics Hedges in Fuzzy Logic. (5)

(b) Discuss in detail Genetic algorithm for solving 0/1 Knapsack problem. Explain various types of crossover in genetic algorithm. Apply any two types of crossover for the following two population(s). Mention the necessary assumptions. (10)

Parent P1: A B C D E F G H

Parent P2: C A H G D F E B

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