

Roll Number.....

Enrollment No.....

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Odd Semester Examination-2024
Program Name: M.Sc. (Bioinformatics)

Paper Name: Soft Computing Techniques
Time: 2Hr 30 minutes

Paper Code: MCSBGE21/MCSBGE21(Backlog)
Max. Marks: 60

Section A (4 x 5 = 20) ALL Questions are compulsory				
Q.No.	Question	Marks	CO	BL
1.	Classify the various types of techniques used in soft computing	5	CO1	L1
2.	Differentiate between Breadth First Search and Depth First Search algorithm with suitable examples.	5	CO2	L4
3.	Sketch the basic model of Adaline network.	5	CO5	L4
4.	Evaluate the algebraic product of two fuzzy sets 'A' and 'B' where $A = \{(3, 0.8)(5, 0.6)(6, 0.9)\}$ and $B = \{(3, 0.7)(4, 0.8)(5, 0.3)\}$	5	CO4	L5

Section B (4x10 = 40) Attempt any FOUR Questions				
Q.No.	Question	Marks	CO	BL
1.	(a) Estimate the factors that improve the convergence of learning in Back Propagation Network	5	CO4	L4
	(b) Design a Hebb net to implement logical AND function (use bipolar inputs and targets)	5	CO4	L6
2.	(a) Why Genetic Algorithm (GA) is used. What are the basic operator used in GA.?	5	CO4	L2
	(b) Discuss the structure and function of a single neuron and explain ANN	5	CO3	L4
3.	Using Genetic Algorithm Maximize $F(x) = x^2$ over (1...31) with initial x values (12, 25, 5, 19). Show one cross over and mutation operation.	10	CO4	L5
4.	a) Explain the single perceptron with its learning algorithm.	5	CO2	L4
	b) Compare and Contrast traditional algorithm and Genetic algorithm.	5	CO3	L2
5.	a) Estimate the significance of error portions in BPN algorithm.	5	CO4	L4
	b) How are genetic algorithm utilized for optimizing the weights in neural network architecture	5	CO3	L4
6.	a) Illustrate in detail the operations and properties of fuzzy sets.	5	CO4	L2
	b) Why Hopfield network is called as recurrent neural network?	5	CO3	L1