



PRESIDENCY UNIVERSITY

BENGALURU

Roll No.														
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End - Term Examinations – May/June 2026

Date: 18-05-2026

Time: 01:00pm – 04:00pm

School: SOCSE	Program: B.Tech	
Course Code : CSI2505	Course Name: Soft Computing	
Semester: VI	Max Marks: 100	Weightage: 50%

CO - Levels	C01	C02	C03	C04	C05
Marks	16	24	24	20	16

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

10Q x 2M=20M

1.	Define global best (gBest).	2 Marks	L1	C05
2.	Show the importance of fuzzy sets over classical sets.	2 Marks	L2	C01
3.	What is a particle in PSO?	2 Marks	L1	C05
4.	Define fitness score.	2 Marks	L1	C05
5.	Define membership function.	2 Marks	L1	C01
6.	Find complement of $A = \{0.3/x_1, 0.6/x_2, 0.9/x_3\}$.	2 Marks	L3	C01
7.	Define triangular membership function	2 Marks	L1	C02
8.	Describe the types of fuzzy implications	2 Marks	L1	C02
9.	Define activation function and their types.	2 Marks	L1	C03
10.	What is the role of weights in ANN	2 Marks	L2	C03

Part B

Answer the Questions.

Total Marks 80M

11.	a.	Differentiate Soft Computing and Hard Computing.	10 Marks	L2	C01
Or					
12.	a.	Describe the applications of soft computing techniques.	10 Marks	L2	C01
13.	a.	Describe the structure of biological neuron with the help of diagram	10 Marks	L1	C03
Or					
14.	a.	Explain the working of artificial neural network.	10 Marks	L1	C03
15.	a.	Explain the architecture of Kohonen self organizing network.	10 Marks	L1	C03
Or					
16.	a.	Explain the architecture and working of a Hopfield Network with diagram.	10 Marks	L1	C03
17.	a.	Compare PSO (Particle Swarm Optimization) with Genetic Algorithm.	10 Marks	L2	C05
Or					
18.	a.	Discuss the advantages and disadvantages of ant colony optimization	10 Marks	L2	C05
19.	a.	Rule: IF x is A THEN y is B $A = \{0.2/x_1, 0.5/x_2, 0.9/x_3\}$ $B = \{0.3/y_1, 0.6/y_2\}$ $A' = \{0.4/x_1, 0.7/x_2, 0.8/x_3\}$ Find B' using Generalized Modus Ponens (GMP)	20 Marks	L3	C02
Or					
20.	a.	Rule: IF x is A THEN y is B $A = \{0.2/x_1, 0.6/x_2, 1/x_3\}$ $B = \{0.4/y_1, 0.5/y_2\}$ $B' = \{0.3/y_1, 0.7/y_2\}$ Find A' using Generalized Modus Tollens (GMT)	20 Marks	L3	C02
21.	a.	Explain various operators involved in Genetic Algorithm. What are the various types of crossover and mutation techniques? Create an example to show these operators.	20 Marks	L2	C04
Or					
22.	a.	Design and discuss the flowchart of GA. How Genetic algorithms are very different from most of the traditional optimization methods?	20 Marks	L2	C04