Reg. No.						
					10000	

**Question Paper Code** 

11603

## M.E. - DEGREE EXAMINATIONS, NOV/DEC 2022

Third Semester

## M.E. - Computer Science and Engineering 20PCSEL309 - BIO-INSPIRED COMPUTING

(Regulations 2020)

**Duration: 3 Hours** 

Max. Marks: 100

## PART - A $(10 \times 2 = 20 \text{ Marks})$

Answer ALL Questions

			Marks, K-Level, CO					
1.	Classify optimization in terms of number of constraints.							
2.	State the four rules of Flower Algorithm.							
3.	Define isotropic Random walk.							
4.	Enumerate the Pseudo code of the eagle strategy.							
5.	List the genetic operators.							
6.	How Differential evolution is different from Genetic algorithms?							
7.	Define Swarm intelligence.							
8.								
9.	Recall Cuckoo search algorithm.							
10.	What are the Bio-inspired algorithms based on swarm Intelligence?							
			2,K1,CO5					
		$PART - B (5 \times 13 = 65 Marks)$						
		Answer ALL Questions						
11.	a)	Examine how optimal convergence is done using Newton-Raphson's method.	13,K3,CO1					
OR								
	b)	Explain in detail about Gradient descent algorithms.	13,K2,CO1					
12.	a)	Explain the step sizes, Stopping Criteria and Search efficiency in detail.	13,K2,CO2					
		OR						
	b)	Illustrate in detail about Simulated Annealing Algorithm.	13,K2,CO2					
13.	a)	Discuss genetic algorithm in detail with an example.	13,K2,CO3					
OR								
	b)	Summarize about Differential Evolution and its algorithm.	13,K2,CO3					
K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create								

14. a) Explain PSO algorithm in detail.

13,K2,CO4

OR

- b) Discuss in detail about Ant Colony Optimization towards feature 13,K2,CO4 selection.
- 15. a) Outline the various Bio-inspired computation and its applications in <sup>13,K2,CO5</sup> image processing.

OR

b) Explain the architecture of Probabilistic Neural Network.

13,K2,CO5

## PART - C $(1 \times 15 = 15 \text{ Marks})$

16. a) Choose an appropriate algorithm and discuss the algorithm for Image 15,K6,CO6 Contrast Enhancement.

OR

b) Discuss Ground Glass Opacity Nodules Detection and Segmentation 15,K6,CO6 using Snake Model.