Reg. No.												

Question Paper Code	12242

M.E. / M.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2023

Third Semester

M.E. - Computer Science and Engineering

20PCSEL309 - BIO-INSPIRED COMPUTING

(Regulations 2020)

Duration: 3 Hours Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks, K-Level, CO
1.	What are the applications of Nature inspired optimization algorithms?	*2,K1,CO1*
2.	Define Algorithm.	*2,K1,CO1*
3.	What do you mean by Boltzmann Distribution?	*2,K1,CO2*
4.	Define Step Size.	*2,K1,CO2*
5.	How Differential evolution is different from Genetic algorithms?	*2,K2,CO3*
6.	List the evolutionary operators.	*2,K1,CO3*
7.	Show the applications of the firefly algorithm.	*2,K1,CO4*
8.	What do you understand by Swarm robotics?	*2,K1,CO4*
9.	Compare bio-inspired algorithms with traditional algorithms.	*2,K2,CO6*
10.	Define feasibility problem.	*2,K1,CO6*

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11.	a)	Explain the need of Evolutionary Systems and explain in detail.	*13,K2,CO1*
		OR	
	b)	(i) Explain Parameter Tuning in detail.	*7,K2,CO1*
		(ii) Explain No-Free Lunch theorem.	*6,K2,CO1*
12.	a)	Describe how Optimization is done using Markov Chain.	*13,K2,CO2*
		OR	
	b)	(i) Discuss the Importance of Randomization.	*7,K2,CO2*
		(ii) Explain in detail Eagle Strategy.	*6,K2,CO2*
13.	a)	Discuss genetic algorithm in detail with an example.	*13,K2,CO3*
		OR	
	b)	Explain Differential Evolution and its algorithm in detail.	*13,K2,CO3*

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

14. a) Illustrate Firefly Algorithm and convergence analysis with an example. *13,K2,CO4*

OR

b) Explain PSO algorithm and the convergence analysis of PSO in detail. *13,K2,CO4*

15. a) Discuss Image Contrast Enhancement using BAT algorithm. *13,K2,CO6*

OR

b) Explain Mobile Object Tracking Using Cuckoo Search algorithm. *13,K2,CO6*

PART - C (1 × 15 = 15 Marks)

16. a) Demonstrate Fine-Tuning Enhanced Probabilistic Neural Networks Using Meta heuristic-driven Optimization. *15,K3,CO5*

OR

b) Illustrate the Fine-Tuning Deep Belief Networks using Cuckoo Search. *15,K3,CO5*