AIML

PRN:		Course Code :	AMT1701

Forth Year **B. Tech** End Semester Examination Winter 2023

Nature Inspired Computing

Day and Date: Tuesday, 28/11/2023 Max Marks: **100**

Time : 2-00 to 5-00 PM Duration: **03** hrs

Instructions:All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	Explain Simulated annealing algorithm in detail.	08	L2	CO1
	b)	Define algorithm and explain different types of nature inspired algorithms.	08	L2	CO1
		OR			
	b)	Discus Hyper Parametric Tuning using NIC.	08	L3	CO1
Q.2		**Attempt the following**			
	a)	Write general pseudo-code for genetic algorithm with basic structure.	08	L1	CO2
	b)	Solve maximize the function f(x)=(-x) ^2 +3x, in intervals of [0-50].	08	L3	CO3
		OR			
	b)	Solve minimize the function f(x)=(-x) ^2 +3x-5, in intervals of [0-100].	08	L3	CO3
Q.3		**Attempt any two from the following**			
	a)	Elaborate the Cuckoo search algorithm in detail	08	L5	CO2
	b)	Extend steps involved in cuckoo search algorithm.	08	L2	CO2
	c)	Illustrate the Fire fly algorithm with an example.	08	L2	CO2
Q.4		**Attempt any two from the following**			
	a)	Discuss in detail SWARM intelligence.	08	L3	CO3
	b)	Write a short note on a. Background of swarm intelligence. b. Steps in ant colony optimization.	08	L1	CO3
	c)	Design the algorithm where two paths which are P1&P2.C1 &C2 are the weights or the pheromone concentration along with path.	08	L4	CO3
Q.5		**Attempt any Two of the following**			
	a)	Elaborate variants of bat algorithm.	09	L2	CO4
	b)	Explain importance of fuzzy logic with their applications.	09	L2	CO4
	c)	Illustrate in brief combinatorial optimization and scheduling.	09	L2	CO4
Q.6		**Attempt any Two of the following**			
	a)	Explain the characteristics of flowers pollination algorithm	09	L2	CO4
	b)	Extend the concept of multi-objective flower pollination.	09	L3	CO4
	c)	Compare single-objective and multi-objective test function	09	L2	CO4

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