PRN:		Course Code :	PAD203

First Year **M. Tech** Artificial Intelligence and Data Science
End Semester Examination Winter 2024 000441

Soft Computing

Day and Date: Wed . 4 Dec 2024 Max Marks: **100**

Time : 02:00PM To 05:00PM Duration: **03** hrs

Instructions: All questions are compulsory.

			Marks	Bloom's Level	CO
Q.1		**Attempt the following**			
	a)	Write short notes on i) Membership function ii) Membership value assignment	08	L2	CO1
	b)	Illustrate with an example Natural Language in fuzzy logic	08	L2	CO1
		OR			
	b)	Explain the classical set. Find Crisp set using Maxima method Y={(15,0.5),(20,0.8),(30,0.5),(25,0.8),(35,0.5)}	08	L2	CO1
Q.2		**Attempt the following**			
	a)	Examine the simulated annealing with respect to soft computing.	08	L2	CO1
	b)	Explain Summarize the following concepts a) Crossover b) Mutation	08	L2	CO1
		OR			
	b)	Illustrate applications of Genetic Algorithm	08	L2	CO1
Q.3		**Attempt any two from the following**			
	a)	Explain ant colony optimization technique with example.	08	L2	CO2
	b)	Illustrate ACO algorithm for TSP problem	08	L2	CO2
	c)	Compare ACO and model-based search	08	L4	CO2
Q.4		**Attempt any two from the following**			
	a)	Explain with example a training set. How it is used to train Neural Network?	08	L2	CO2
	b)	Discuss How does clustering differ from dimensionality reduction in unsupervised learning?	08	L6	CO2
	c)	Explain the concept of topological ordering in the context of Kohonen context	08	L4	CO2
Q.5		**Attempt any Two of the following**			
	a)	Discuss fundamental principles of Adaptive Resonance Theory	09	L6	CO3
	b)	Discuss the importance of pattern completion in associative memory system.	09	L2	CO3
	c)	Explain the concept of associative memory in neural networks.	09	L5	CO3
Q.6		**Attempt any Two of the following**			
	a)	Illustrate the concept of deep learning with its applications	09	L4	CO4
	b)	Analyze deep neural network concepts	09	L4	CO4
	c)	Explain Recurrent Neural Network (RNN) in detail	09	L6	CO4

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