B.E. Eighth Semester (Computer Engineering) (CGS)

10299 : Professional Elective-II : Soft Computing : 8 KE 04

P. Pages : 2 | **AU - 3022**

Time : Three Hours | Max. Marks : 80

Notes : 1. Due credit will be given to neatness and adequate dimensions.
2. Assume suitable data wherever necessary.
3. Illustrate your answer necessary with the help of neat sketches.

1.	a)	Explain the Neural Network Architecture.	**7**
	b)	What is soft computing? What are its goals and importance?	**6**
		OR	
2.	a)	What is learning in Neural Networks? Compare different learning rules?	**7**
	b)	Explain the characteristics of Artificial Neuron Network?	**6**
3.	a)	Explain backpropagation algorithm in details.	**8**
	b)	What the limitations of "Perception" model? Explain.	**6**
		OR	
4.	a)	Describe the concepts of neural networks with single layer & Multilayer perceptions.	**8**
	b)	Explain Steepest Descent / Gradient descent method briefly?	**6**
5.	a)	Explain crisp sets with its fundamental concepts.	**7**
	b)	Explain steps in fuzzy rule based model.	**7**
		OR	
6.		Write short notes on **any four.**	**14**
		a) Partition and covering.	
		b) Membership functions.	
		c) Cartesian product.	
		d) Fuzzy set.	
		e) Fuzzy Relations.	
7.	a)	Explain predicate logic with example.	**7**
	b)	Explain fuzzy Quantifiers.	**6**
		OR	

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8. a) What is Defuzzification? What are its applications. 8

b) Consider the following real variables from everyday life. 5
a) Income measured in $ US.
b) Speed measured in meters per second.
c) A TV show measured in how much you are interested in watching it.
d) A Meal measured in how much you like to eat it.
e) A traffic light measured in what colour is ON.
In each case, suggest a fuzzy variable corresponding to these real variables, for which of these five variables the use of a fuzzy variable is not really necessary? Why.

9. a) Describe the working principle of Genetic algorithm? 7

b) What is Reproduction? Give various methods of selecting chromosomes for parent to crossover? 6

OR

10. a) What is Fitness function? Why it is necessary? 6

b) Mention various application of Genetic algorithm? Discuss any one in detail? 7

11. a) Differentiate genetic algorithm verses traditional algorithm? 6

b) Discuss the crossover operators? 7

OR

12. a) Explain the concept of Generational cycle? 7

b) What is convergence of Genetic Algorithms? 6

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