QP Code: RM22BTECH209 | Reg. No | | | | | | | | | | | AY 22

GIET UNIVERSITY, GUNUPUR – 765022

B. Tech (Fourth Semester Regular) Examinations, May – 2024

22BCSPE24001 – Introduction to Soft Computing

(CSE)

Time: 3 hrs | Maximum: 70 Marks

(The figures in the right hand margin indicate marks)

PART – A **(2 x 5 = 10 Marks)**

		CO #	Blooms Level
Q.1.	Answer ***ALL*** questions		
a.	Discuss various types of Perceptrons.	CO2	KL2
b.	Discuss the benefits of Backpropagation.	CO3	KL2
c.	Describe the importance of RBF Network.	CO2	KL2
d.	Describe the various fuzzification Methods.	CO1	KL2
e.	Explain any two methods of composition techniques on fuzzy relations.	CO3	KL1

PART – B **(15 x 4 = 60 Marks)**

Answer ***ALL*** questions

		Marks	CO #	Blooms Level
2. a.	Calculate the Error using Forward Pass with the data as Input={0.1, 0.5}, Weight={.15, .2, .25, .3, .35, .4, .45, .5}, Bias={.3, .5}, Output={0.2, 0.9}	10	CO2	KL2
b.	Update the weight using Backpropagation method.	5	CO1	KL2
	(OR)			
c.	Construct the Kohonen's Self Organizing Map (KSOM) to cluster the 4-given vectors [0 0 1 1], [1 0 0 0], [0 1 1 0] and [0 0 1 1]. The number of clusters to be formed is two. W={0.18, 0.42, 0.6, 0.8, 0.9, 0.65, 0.5,0.35} Assume an initial learning rate 0.2.	10	CO2	KL2
d.	Explain the Learning Rules for Neural Network.	5	CO1	KL2
3.a.	Explain Sugeno Fuzzy Inference Systems.	7	CO2	KL2
b.	Briefly Explain about Activation Functions used in NN?	8	CO1	KL2
	(OR)			
c.	Discuss various types of selection procedures in GA	7	CO2	KL2
d.	Explain various types of binary-coded crossover techniques.	8	CO3	KL2
4.a.	Discuss the various Hybridization techniques in Soft computing?	8	CO2	KL2
b.	Describe the McCulloch-Pitts neuron model?	7	CO3	KL1
	(OR)			
c.	Discuss with example the backpropagation network with Fuzzy Logic and Genetic Algorithm?	7	CO2	KL2
d.	Explain Mamdani Fuzzy Inference Systems.	8	CO2	KL3
5.a.	Explain the different learning mechanisms used in Neural Networks?	7	CO2	KL2
b.	Explain Find the algebraic sum, algebraic product, bounded sum, and bounded difference of the given sets. A={.1/2 + .3/4 + .5/6 + .7/8} and B={.3/2 + .2/4 + .4/6 + .5/8}	8	CO4	KL3
	(OR)			
c.	Find R o S using max-min composition. X ={2, 4, 6}, Y ={2, 4, 6}, R ={(x, y) | y = x + 2}, S = {(x, y) | x < y}	7	CO4	KL3
d.	Explain graphically about Perceptron.	8	CO4	KL2

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