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B.Tech DEGREE EXAMINATION, DECEMBER 2023

Fifth & Seventh Semester

18CSE352T - NEURO FUZZY AND GENETIC PROGRAMMING

(For the candidates admitted during the academic year 2020 - 2021 & 2021 - 2022)

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i. Part - A should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute. ii Part - B and Part - C should be answered in answer booklet. Max. Marks: 100 Time: 3 Hours Marks BL CO $PART - A (20 \times 1 = 20 Marks)$ Answer all Questions method in ANN used Euclidean distance between the weight vector and 1. the input vector to compute the output. (B) Widrow-Hoff learning (A) Perceptron learning (D) Reinforcement learning (C) Winner-takes-all learning 1 Learning by ADALINE net is sensitive to the value of 1 1 (B) zero (A) slope learning rate (D) weight (C) steepness value 1 1 1 is suitable for unsupervised learning. 3. (B) Multilayer Feed Forward Neural (A) Competitive Neural Network Network (D) Recurrent Network (C) Feed Forward Neural Network If a perceptron misclassifies the input pattern negatively then the weight is _____in the network. (B) Decreased (A) Increased (D) Set to 1 (C) Not changed method where the net repeatedly adjusts its Backpropagation is a interconnection weights on the basis of the error. (B) Supervised learning (A) Unsupervised learning (D) Reinforcement learning (C) Cluster learning 2 2 1 Hopfield Network is used for (A) Pattern Classification (B) Pattern Clustering (D) Pattern Prediction (C) Pattern Association How many vectors can be stored in an n-input auto-associative net? (B) n-1 (A) n (D) n^2 (C) n+12 Learning takes place through a number of (B) Iterations (A) Epochs (D) Atoms (C) Protocol Which operation produces the reverse effect of contrast intensification? 1 3 (B) Dilation (A) Normalization (D) Fuzzification (C) Concentration 10. A predicate expression, consisting of a predicate symbol followed by the list of parameters within a pair of parentheses, is said to be (B) Term (A) Atom

(D) Variable

(C) Quantifier

11.	Let U = {a, b, c}, and $P = 0.5/a + 0.75/c$ height of P?	be a fuzzy set on U. Then what is the	1	1 .	3
	(A) 0.5	(B) 0.75			
	(C) 1.25	(D) 1.0			
12.	Let $F\alpha$, $F\beta$ be the α -cuts of a fuzzy set F such following is true?		1	2	3
	(A) $F\alpha \subseteq F\beta$	(B) $F\alpha \supseteq F\beta$			
	(C) $F\alpha = F\beta$	(D) $F\alpha \neq F\beta$			
13.	Let us consider the basic tipping problem inputs and computes a tip percentage. Which a valid one to represent the fuzzy set tip percentage.	of the following linguistic values is not	1	2	4
	(A) cheap	(B) average			
	(C) delicious	(D) generous			
14.	In which variant of Fuzzy Neuron, the inputuzzy OR to produce the intermediate resutransformed to the output using fuzzy AND?	Ilt and the intermediate results are then	1	1	4
		(B) OR Fuzzy Neuron			
	(C) XOR Fuzzy Neuron	(D) AND Fuzzy Neuron			
15.	property is not satisfied by a T	-Norm operator.	1	2	4
	(A) Commutative	(B) Monotonic			
	(C) Distributive	(D) Associative			
16.	1	sible of fuzzification.	1	2	4
	(A) First Layer	(B) Second Layer			
	(C) Third Layer	(D) Fourth Layer			
17.	The average fitness of the mating pool is population.		1	2	5
	(A) lesser	(B) higher			
5 2	(C) equal	(D) not related			
18.		• •	1	2	5
		(B) Tournament selection			
		(D) Boltzmann Selection			
19.	If pc and pµ be the crossover probability an which of the following relations is true?		.1	2	5
	$(A) \cdot pc < p\mu$	(B) $pc > p\mu$			
	(C) $pc = p\mu$	(D) $pc \neq p\mu$			
20.	In genetic algorithm, the objective function called		1	1	5
	(A) Polynomial function(C) Fitness function	(B) Linear function(D) Quadratic function			
	$PART - B (5 \times 4 = 20)$	Marks)	Marks	BL	CO
	Answer any 5 Que	stions			
21.	Design a Hebb net to realize the logical OR f	function.	4	3	1
22.	How is Local Minima problem overcome in applications involving Delta Rule?			3	2
23.	- Life in the control of the control			2	2
24.					3
25.	Describe the various fuzzy membership func	tions in detail with neat diagrams.	4	2	3
26.	Discuss about Adaptive Neuro-Fuzzy Inferer	· ·	4	2	4
27.	Write short notes on Applications of Genetic		4	3	5
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	PART - C ($5 \times 12 = 60 \text{ Marks}$) Answer all Questions	Mark	s BL	СО
28.	(a) How should a neural network learn the clusters with the help of winner-takes all strategy? Explain with example (OR)	12	2	1
	(b) Construct an ADALINE networks to realize the logical AND- NOT function.			
29.	(a) Summarize the Radial Basis Function Neural Network Architecture in detail. (OR)	12	2	2
	(b) Construct an auto-associative net to store the input patterns given below: [1, -1, 1, -1] [1, 1, -1, -1] [1, -1, -1, 1]			
	 1. Find the number of nodes needed in each layer to store these associations and draw the auto-associative net. 2. Compute the weight matrix of the desired net for storing these patterns. 3. Show that for every input, the net is able to recognize the stored pattern. 4. Check whether the net is able to recognize the input vector with noise [1, -1, 0, -1] where the third element is missing (Actual input is [1, -1, 1, -1]) 			
30.	(a) Illustrate the Fuzzy Extension Principles with example. (OR) (b) Discuss the Fuzzy Reasoning in detail.	12	3	3
31.	(a) Explain the Fuzzy Rule based system in detail. (OR)	12	2	4
	(b) Illustrate the various Defuzzification methods in detail.			
32.	(a) Explain the Genetic Algorithm operators with example (OR)	12	2	5
	(b) Describe in detail about the Classifications of Genetic Algorithm.			

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