University of Mumbai
Examination 2020 under cluster 2 (FRCRCE)

Program: BE Information Technology

Curriculum Scheme: Revised 2016

Examination: Final Year Semester VII

Course Code: **ITDLO7035** and Course Name: **Soft Computing**

Time: 1 hour   Max. Marks: 50

Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	_____ is not a defuzzification method.
Option A:	Centroid method
Option B:	Center of sums
Option C:	Center of largest area
Option D:	Center of smallest area
Q2.	Projection operation on binary fuzzy relation results in
Option A:	Fuzzy set
Option B:	Crisp set
Option C:	Universal set
Option D:	Empty set
Q3.	Boundary elements in fuzzy set are those elements which possess _____ membership in fuzzy set.
Option A:	less than 0.1
Option B:	less than 0.2
Option C:	less than 0.3
Option D:	partial
Q4.	Consider two fuzzy sets, A= {0.2/x1 + 0.3/x2 + 0.4/x3 + 0.7/x4 + 0.1/x5} and B= {0.4/x1 + 0.5/x2 + 0.6/x3 + 0.8/x4 + 0.9/x5}. Lambda-cut for Intersection of fuzzy set A & B for lambda=0.5 is _____
Option A:	{x4}
Option B:	{x5}
Option C:	{x4, x5}
Option D:	{x3, x4}
Q5.	Consider two fuzzy sets, A= {0.2/x1 + 0.3/x2 + 0.4/x3 + 0.7/x4 + 0.1/x5} and B= {0.4/x1 + 0.5/x2 + 0.6/x3 + 0.8/x4 + 0.9/x5}. Lambda-cut for union of fuzzy set A & B for lambda=0.6 is _____
Option A:	{x1, x2, x3}
Option B:	{x3, x4, x5}
Option C:	{x1, x2}
Option D:	{x4, x5}

Q6.	The performance of a fuzzy logic controller depends on its
Option A:	Rule base
Option B:	Data base
Option C:	Crisp Input
Option D:	Rule base and data base
Q7.	Precise Fuzzy modelling is characterized by
Option A:	High interpretability and high accuracy
Option B:	Low interpretability and low accuracy
Option C:	High interpretability but low accuracy
Option D:	Low interpretability but high accuracy
Q8.	Which one of the following statements is true for a fuzzy reasoning tool?
Option A:	Its inputs are to be represented in normalized scale of (0.0,1.0) only
Option B:	Its inputs are to be represented in normalized scale of (-1.0, +1.0) only
Option C:	Its inputs are to be represented in real scales only.
Option D:	Its inputs are to be represented in normalized scale or real scales
Q9.	Hebbian learning rule is
Option A:	Supervised learning
Option B:	Unsupervised learning
Option C:	Semi – supervised learning
Option D:	Error correction based learning
Q10.	Given c as constant, and net equal to w x, the bipolar continuous activation function is defined as
Option A:	2+exp^ (-cnet)
Option B:	2 / (1+ exp^(-cnet))
Option C:	2 / exp^(-cnet)
Option D:	(1- exp^(-cnet)) / (1+ exp^(-cnet))
Q11.	Competitive learning is
Option A:	Supervised learning
Option B:	Unsupervised learning
Option C:	Semi supervised learning
Option D:	Error correction based learning
Q12.	Which of the following is the correct equation to determine the new weights in the delta learning rule? Where c is constant, d is the desired output, o is the actual output, X is the input pattern, f'(net)is the derivative of activation function and net is W X
Option A:	Wnew= Wold + c(d) f'(net) X
Option B:	Wnew = Wold + c(d – o) f'(net) X
Option C:	Wnew = Wold + c(o – d) f'(net)

Option D:	Wnew = Wold + c(o – d) X
Q13.	Which of the following is the correct equation to determine the new weights in perceptron learning rule? Where c is constant, d is desired output, o is actual output, Wold are previous weights and X is the input.
Option A:	Wnew= Wold + c(d) X
Option B:	Wnew = Wold + c(d– o) X
Option C:	Wnew = Wold + c(o– d)
Option D:	Wnew = Wold + c(o – (Wold X))
Q14.	ART1(Adaptive resonance theory 1) network designed for
Option A:	Continuous valued input vector
Option B:	Binary input vector
Option C:	Ordered input vector
Option D:	Biased input vector
Q15.	Write the correct sequence of operations in ART1(Adaptive resonance theory1) network---- (i). Test for reset condition (ii). Send the input signal from F1(a) layer to F1(b) layer (iii). update the weights (iv). Find the winner neuron in F2 layer (v). Test for the stopping condition
Option A:	(i)(ii)(iii)(iv)(v)
Option B:	(ii)(i)(iv)(iii)(v)
Option C:	(ii)(iv)(i)(iii)(v)
Option D:	(ii)(i)(iii)(iv)(v)
Q16.	What is true regarding error back propagation neural network?
Option A:	It is a feedback neural network
Option B:	Actual output is determined by computing the outputs of units for each hidden layer.
Option C:	Hidden layer output does not matter in results.
Option D:	It is a single layer unsupervised neural network.
Q17.	What is general limitation of back propagation rule?
Option A:	Slow convergence
Option B:	Low efficiency
Option C:	Fast convergence
Option D:	More error rate
Q18.	Which of the following are the components of Genetic Algorithm
Option A:	Encoding, selection, crossover, Mutation
Option B:	Decoding, selection, crossover, Mutation
Option C:	Encoding, generation, crossover, Mutation
Option D:	Decoding, population, crossover, Mutation
Q19.	In------------- scheme each chromosome will be a function represented as a tree

Option A:	Tree encoding
Option B:	Value encoding
Option C:	Permutation encoding
Option D:	Binary encoding
Q20.	Which of the following selection first ranks the population and chromosome receives fitness from this ranking
Option A:	Roulette Wheel
Option B:	Tournament
Option C:	Steady state
Option D:	Rank selection
Q21.	The process of copying best or very few best chromosomes(s) referred as
Option A:	Elitism
Option B:	population
Option C:	crossover
Option D:	Mutation
Q22.	Generation of new population include
Option A:	Selection, Crossover and Mutation
Option B:	Mutation, Deselection, substitution
Option C:	Selection, Crossover, substitution
Option D:	division, swapping, Scramble
Q23.	In ANFIS architecture layer 4 is
Option A:	Fuzzification layer
Option B:	Fuzzy rule layer
Option C:	Normalization layer
Option D:	Output membership layer
Q24.	Which of the following statements is false regarding genetic neuro hybrid system
Option A:	Neural network used for optimization of parameters of genetic algorithm
Option B:	The parameters of neural network are encoded by genetic algorithm as chromosomes
Option C:	Large amount of memory required for these kind of systems
Option D:	Learning rules of neural network used as fitness function of genetic algorithm
Q25.	Which of the following rule is valid for ANFIS model
Option A:	If x is A1 and y is B1 then z is C1
Option B:	If x is A1 and y is B1 then z is p1x+q1y+r1
Option C:	If x is A1 then y is B1
Option D:	Any rule