SCOA Unit I MCQ

1. Membership function defines the fuzziness in a fuzzy set irrespective of the elements in the set, which are discrete or continuous.

A.True

B.False

2. The membership functions are generally represented in

A.Tabular Form

B.Graphical Form

C.Mathematical Form

D.Logical Form

3. Membership function can be thought of as a technique to solve empirical problems on the basis of

A.knowledge

B.examples

C.learning

D.experience

4. Three main basic features involved in characterizing membership function are

A.Intution, Inference, Rank Ordering

B.Fuzzy Algorithm, Neural network, Genetic Algorithm

C.Core, Support , Boundary

D.Weighted Average, center of Sums, Median

5. The region of universe that is characterized by complete membership in the set is called

A.Core

B.Support

C.Boundary

D.Fuzzy

6. A fuzzy set whose membership function has at least one element x in the universe whose membership value

is unity is called

A.sub normal fuzzy sets

B.normal fuzzy set

C.convex fuzzy set

D.concave fuzzy set

7. In a Fuzzy set a prototypical element has a value

A.1

B.0

C.infinite

D.Not defined

8. A fuzzy set wherein no membership function has its value equal to 1 is called

A.normal fuzzy set

B.Subnormal fuzzy set.

C.convex fuzzy set

D.concave fuzzy set

9. A fuzzy set has a membership function whose membership values are strictly monotonically increasing or strictly monotonically decreasing or strictly monotonically increasing than strictly monotonically decreasing with increasing values for elements in the universe

A.convex fuzzy set

B.concave fuzzy set

C.Non concave Fuzzy set

D.Non Convex Fuzzy set

10. The membership values of the membership function are nor strictly monotonically increasing or decreasing or strictly monoronically increasing than decreasing.

A.Convex Fuzzy Set

B.Non convex fuzzy set

C.Normal Fuzzy set

D.Sub normal fuzzy set

11. The crossover points of a membership function are defined as the elements in the universe for which a particular fuzzy set has values equal to

A.infinite

B.1

C.0

D.0.5

12. Fuzzy Computing

A.doesnt deal with 2 valued logic

B.mimics human behaviour

C.deals with information which is vague, imprecise, uncertain, ambiguous, inexact, or probabilistic

D.All of the above

13. ANN is composed of large number of highly interconnected processing elements(neurons) working in unison to solve problems.

A.True

B.False

14. Artificial neural network used for

A.Pattern Recognition

B.Classification

C.Clustering

D.All of these

15. A Neural Network can answer

A.For Loop questions

B.what-if questions

C.IF-The-Else Analysis Questions

D.None of these

16. Ability to learn how to do tasks based on the data given for training or initial experience

A.Self Organization

B.Adaptive Learning

C.Fault tolerance

D.Robustness

17. Feature of ANN in which ANN creates its own organization or representation of information it receives during learning time is

A.Adaptive Learning

B.Self Organization

C.What-If Analysis

D.Supervised Learniing

18. In artificial Neural Network interconnected processing elements are called

A.nodes or neurons

B.weights

C.axons

D.Soma

19. Each connection link in ANN is associated with ______ which has information about the input signal.

A.neurons

B.weights

C.bias

D.activation function

20. Neurons or artificial neurons have the capability to model networks of original neurons as found in brain

A.True

B.False

21. Internal state of neuron is called ______, is the function of the inputs the neurons receives

A.Weight

B.activation or activity level of neuron

C.Bias

D.None of these

22. Neuron can send ______ signal at a time.

A.multiple

B.one

C.none

D.any number of

23. Artificial intelligence is

- A.It uses machine-learning techniques. Here program can learn From past experience and adapt themselves to new situations
- **B.**Computational procedure that takes some value as input and produces some value as output.
- **C.**Science of making machines performs tasks that would require intelligence when performed by humans

D.None of these

24. Expert systems

- A.Combining different types of method or information
- **B.**Approach to the design of learning algorithms that is structured along the lines of the theory of evolution

C.an information base filled with the knowledge of an expert formulated in terms

of if-then rules

D.None of these

25. Falsification is

A.Modular design of a software application that facilitates the integration of new modules

B.Showing a universal law or rule to be invalid by providing a counter example

- C.A set of attributes in a database table that refers to data in another table
- **D.**None of these

26. Evolutionary computation is

- A.Combining different types of method or information
- **B.**Approach to the design of learning algorithms that is structured along the lines of the theory of evolution.
- **C.**Decision support systems that contain an information base filled with the knowledge of an expert formulated in terms of if-then rules.
- **D.**None of these

27. Extendible architecture is

A.Modular design of a software application that facilitates the integration of new modules

- **B**.Showing a universal law or rule to be invalid by providing a counter example
- C.A set of attributes in a database table that refers to data in another table

D.None of these

28. Massively parallel machine is

- A.A programming language based on logic
- **B.**A computer where each processor has its own operating system, its own memory, and its own hard disk
- **C.**Describes the structure of the contents of a database.
- **D.**None of these

29. Search space

- A.The large set of candidate solutions possible for a problem
- **B.**The information stored in a database that can be, retrieved with a single query.
- **C.**Worth of the output of a machine learning program that makes it understandable for humans
- **D.**None of these

30. n(log n) is referred to

A.A measure of the desired maximal complexity of data mining algorithms

- **B.**A database containing volatile data used for the daily operation of an organization
- C.Relational database management system
- **D.**None of these

31. Perceptron is

- A.General class of approaches to a problem.
- **B.**Performing several computations simultaneously
- C.Structures in a database those are statistically relevant

D.Simple forerunner of modern neural networks, without hidden layers

32. Prolog is

- A.A programming language based on logic
- **B.**A computer where each processor has its own operating system, its own memory, and its own hard disk
- C.Describes the structure of the contents of a database
- **D.**None of these

33. Shallow knowledge

- A.The large set of candidate solutions possible for a problem
- **B.** The information stored in a database that can be, retrieved with a single query
- **C.**Worth of the output of a machine learning program that makes it understandable for humans
- **D.**None of these

34. Quantitative attributes are

A.A reference to the speed of an algorithm, which is quadratically dependent on the size of

the data

B. Attributes of a database table that can take only numerical values

C.Tools designed to query a database

D.None of these

35. Subject orientation

- A.The science of collecting, organizing, and applying numerical facts
- **B.**Measure of the probability that a certain hypothesis is incorrect given certain observations.
- **C.**One of the defining aspects of a data warehouse, which is specially built around all the existing applications of the operational data

D.None of these

36. Vector

- A.It do not need the control of the human operator during their execution
- **B.**An arrow in a multi-dimensional space. It is a quantity usually characterized by an ordered set of scalars

C.The validation of a theory on the basis of a finite number of examples

D.None of these

37. Transparency

A.The large set of candidate solutions possible for a problem

- **B.**The information stored in a database that can be retrieved with a single query
- **C.**Worth of the output of a machine learning program that makes it understandable for humans
- **D.**None of these

38. Core of soft Computing is

- A.Fuzzy Computing, Neural Computing, Genetic Algorithms
- B.Fuzzy Networks and Artificial Intelligence
- C.Artificial Intelligence and Neural Science
- D.Neural Science and Genetic Science

39. Who initiated the idea of Soft Computing

A.Charles Darwin

B.Lofti A Zadeh

C.Rechenberg

D.Mc_Culloch

40. Fuzzy Computing

- A.mimics human behaviour
- **B.**doesnt deal with 2 valued logic
- **C.**deals with information which is vague, imprecise, uncertain, ambiguous, inexact, or probabilistic

D.All of the above

41. Neural Computing

A.mimics human brain

B.information processing paradigm

C.Both (a) and (b)

D.None of the above

42. Genetic Algorithm are a part of

A.Evolutionary Computing

B.inspired by Darwin's theory about evolution - "survival of the fittest"

C.are adaptive heuristic search algorithm based on the evolutionary ideas of natural selection and genetics

D.All of the above

43. What are the 2 types of learning

A.Improvised and unimprovised

B.supervised and unsupervised

C.Layered and unlayered

D.None of the above

44. Supervised Learning is

A.learning with the help of examples

B.learning without teacher

C.learning with the help of teacher

D.learning with computers as supervisor

45. Unsupervised learning is

- A.learning without computers
- **B.**problem based learning

C.learning from environment

D.learning from teachers

46. Conventional Artificial Intelligence is different from soft computing in the sense

- **A.**Conventional Artificial Intelligence deal with prdicate logic where as soft computing deal with fuzzy logic
- **B.**Conventional Artificial Intelligence methods are limited by symbols where as soft computing is based on empirical data

C.Both (a) and (b)

47. In supervised learning

A.classes are not predefined

B.classes are predefined

- **C.**classes are not required
- **D.** classification is not done

Question No	Question	Answer Key
1.	Membership function defines the fuzziness in a fuzzy set irrespective of the elements in the set, which are discrete or continuous.	А
	<u>A.</u> True <u>B.</u> False	
2.	The membership functions are generally represented in	В
	<u>A.</u> Tabular Form	
	<u>B.</u> Graphical Form	
	<u>C.</u> Mathematical Form	
	<u>D.</u> Logical Form	
3.	Membership function can be thought of as a technique to solve empirical problems on the basis of	D
	<u>A.</u> knowledge	
	<u>B.</u> examples	
	<u>C.</u> learning	

	<u>D.</u> experience	
4.	Three main basic features involved in characterizing membership function are <u>A.</u> Intution, Inference, Rank Ordering	С
	 <u>B.</u>Fuzzy Algorithm, Neural network, Genetic Algorithm <u>C.</u>Core, Support , Boundary <u>D.</u>Weighted Average, center of Sums, Median 	
5.	The region of universe that is characterized by complete membership in the set is called <u>A.</u> Core <u>B.</u> Support <u>C.</u> Boundary <u>D.</u> Fuzzy	Α
б.	A fuzzy set whose membership function has at least one element x in the universe whose membership value is unity is called <u>A.</u> sub normal fuzzy sets	В

	<u>B.</u> normal fuzzy set	
	<u>C.</u> convex fuzzy set	
	<u>D.</u> concave fuzzy set	
7.	In a Fuzzy set a prototypical element has a value	А
	<u>A.</u> 1	
	<u>B.</u> 0	
	<u>C.</u> infinite	
	<u>D.</u> Not defined	
8.	A fuzzy set wherein no membership function has its value equal to 1 is called	В
	<u>A.</u> normal fuzzy set	
	<u>B.</u> subnormal fuzzy set.	
	<u>C.</u> convex fuzzy set	
	<u>D.</u> concave fuzzy set	
9.	A fuzzy set has a membershin function whose membership values	А

	are strictly monotonically increasing or strictly monotonically increasing than strictly monotonically decreasing with increasing values for elements in the universe A.convex fuzzy set <u>A.</u> convex fuzzy set <u>B.</u> concave fuzzy set <u>D.</u> Non concave Fuzzy set	
10.	The membership function are nor strictly monotonically increasing or decreasing or strictly monoronically increasing than decreasing.A.Convex Fuzzy SetB.Non convex fuzzy setC.Normal Fuzzy setD.Sub normal fuzzy set	В
11.	Fuzzy Computing <u>A.</u> doesnt deal with 2 valued logic	D

	<u>B</u>. mimics human behaviour	
	<u>C.</u> deals with information which is vague, imprecise, uncertain, ambiguous, inexact, or probabilistic	
	<u>D.</u> All of the above	
12.	Defuzzification is done to obtain	a
	a) Crisp output	
	b) The best rule to follow	
	c) Precise fuzzy value	
	d) None of the above	
13.	"The train is running fast". Here 'fast' can be represented by	a
	a) Fuzzy Set	
	b) Crisp Set	
	c) Fuzzy and Crisp Set	
	d) None of the mentioned	
14.	Suppose, a fuzzy set Young is defined as follows:	a
	Young = $(10, 0.5), (20, 0.8), (30, 0.8), (40, 0.5), (50, 0.3)$	
	Then the crisp value of Young using MoM method is	
	a) 25	
	b) 20	
	c) 35	
	d) 50	
15.	f the fuzzy set has two sub regions, then the centre of gravity of the sub	с
	region can be used to calculate the defuzzified	
	value.	
	a) with the median of all the area	

	b) with the mean of all the area	
	c) with the largest area	
	d) with the smallest area	
16.	Which of the following is not a centroid method?	d
	a) Centre of gravity method (CoG)	
	b) Centre of sum method (CoS)	
	c) Centre of area method (CoA)	
	d) Centre of Mass (CoM)	
17.	What are the following sequence of steps taken in designing a fuzzy	а
	logic machine?	
	(a) Fuzzification->Rule evaluation->Defuzzification	
	(b) Rule evaluation->Fuzzification->Defuzzification	
	(c) Fuzzy Sets->Defuzzification->Rule evaluation	
	(d) Defuzzification->Rule evaluation->Fuzzification	
18.	If A is a fuzzy set, then (A λ)complement \neq ——(A λ)complement	а
	(a) except for value of $\lambda = 0.5$	
	(b) except for value of $\lambda = 1$	
	(c) except for value of $\lambda = 0$	
	(d) for all values of λ	
19.	The cardinality of the given set $A = \{1, 2, 3, 4, 5\}$	В
	a) 2	
	b) 5	
	c) 4	
	d) 1	
20.	If x is A then y is B else y is c then the relation R is equivalent to	b
	a) $(\mathbf{A} \times \mathbf{B}) + (\mathbf{B} \times \mathbf{C})$	
	b) $A \times B$) $\cup (A \times C)$	

	c) $(A \times B) \rightarrow (B \times C)$	
	d) $(A \times C) \cup (B \times C)$	
21.	What are the applications of Fuzzy Inference Systems?	d
	a) Wireless services, heat control and printers	
	b) Restrict power usage, telephone lines and sort data	
	c) Simulink, boiler and CD recording	
	d) Automatic control, decision analysis and data classification	
22.	Fuzzy logic is a form of :	с
	a) Two valued logic	
	b) Crisp set logic	
	c) Many valued logic	
	d) Binary set logic	
23.	The main objective of fuzzy AHP is:	d
	a) To increase the ambiguity of human judgement	
	b) Eliminate the ambiguous and vagueness of the human judgement	
	c) Control human biasness	
	d) B and C	
24.	In triangular fuzzy number (l, m, u), what does 'm' represents:	С
	a) Smallest likely value	
	b) Most probable value	
	c) Largest possible value	
	d) None of the above	
25.	Which type of normalization method is used to eliminate the units of	b
	criteria in case of VIKOR analysis?	
	a) Vector normalization	
	b) Linear normalization	
	c) Both A and B	

	d) None of the above	
26.	 Fuzzy logic is a form of a) Two-valued logic b) Crisp set logic c) Many-valued logic d) Binary set logic 	Answer: c Explanation: With fuzzy logic set membership is defined by certain value. Hence it could have many values to be in the set.
27.	Traditional set theory is also known as Crisp Set theory. a) True b) False	Answer: a Explanation: Traditional set theory set membership is fixed or exact either the member is in the set or not. There is only two crisp values true or false. In case of fuzzy logic there are many values. With weight say x the member is in the set. 3. The truth values of traditional set theory is and that of fuzzy set is
28.	The truth values of traditional set theory is and that of fuzzy set is	Answer: a Explanation: Refer the

	 a) Either 0 or 1, between 0 & 1 b) Between 0 & 1, either 0 or 1 c) Between 0 & 1, between 0 & 1 d) Either 0 or 1, either 0 or 1 	definition of Fuzzy set and Crisp set.
29.	How many types of random variables are available? a) 1 b) 2 c) 3 d) 4	Answer: c Explanation: The three types of random variables are Boolean, discrete and continuous.
30.	The room temperature is hot. Here the hot (use of linguistic variable is used) can be represented by a) Fuzzy Set b) Crisp Set	Answer: a Explanation: Fuzzy logic deals with linguistic variables.
31.	The values of the set membership is represented by a) Discrete Set b) Degree of truth c) Probabilities d) Both b & c	Answer: b Explanation: Both Probabilities and degree of truth ranges between $0 - 1$.
32.	What is meant by probability density function?	d

[
	 a) Probability distributions b) Continuous variable c) Discrete variable d) Probability distributions for Continuous variables 	
33.	Which of the following is used for probability theory sentences?	Answer: c Explanation: The version of
	a) Conditional logic	probability theory we
	b) Logic	present uses an extension of
	c) Extension of propositional logic	propositional logic for its
	d) None of the mentioned	sentences.
34.	Fuzzy Set theory defines fuzzy operators. Choose the fuzzy operators	Answer: a, b, c
	from the following.	Explanation: The AND,
		OR, and NOT operators of
	a) AND	Boolean logic exist in fuzzy
	b) OR	logic, usually defined as the
	c) NOT	minimum, maximum, and
	d) EX-OR	complement;
35	Fuzzy logic is usually represented as	Answer: b
	ruzzy logie is usually represented as	Explanation: Fuzzy set
	a) IF-THEN-ELSE rules	theory defines fuzzy
	b) IF-THEN rules	operators on fuzzy sets. The
	c) Both a & b	problem in applying this is
	d) None of the mentioned	that the appropriate fuzzy

		operator may not be known. For this reason, fuzzy logic usually uses IF-THEN rules, or constructs that are equivalent, such as fuzzy associative matrices. Rules are usually expressed in the form: IF variable IS property THEN action
36.	 is/are the way/s to represent uncertainty. a) Fuzzy Logic b) Probability c) Entropy d) All of the mentioned 	Answer: d Explanation: Entropy is amount of uncertainty involved in data. Represented by H(data).
37.	 are algorithms that learn from their more complex environments (hence eco) to generalize, approximate and simplify solution logic. a) Fuzzy Relational DB b) Ecorithms c) Fuzzy Set d) None of the mentioned 	Answer: c Explanation: Local structure is usually associated with linear rather than exponential growth in complexity

	This sheet is for 1 Mark questions						
S.r No	Question	Image	а	b	С	d	Correct Answer
e.g	Write down question	img.jpg	Option a	Option b	Option c	Option d	a/b/c/d
1	When we say that the boundary is crisp		Distinguish two regio	Cannot Distinguis	Collection of ordere	None of these	а
2	In computing the output is called as		Consequent	Outfeed	Anticedents	Premise	а
3	Fuzzy logic is a form of		two valued logic	crisp set logic	many value logic	binary set logic	С
4	Control actions while computing should be		Ambiguous	Unambioguos	Inaccurate	None of these	b
5	Core of soft computing is		Fuzzy computing,neu	Fuzzy network an	Neural Science	Genetic Science	а
6	Hard computing perfforms what type of computation		Sequential	Parallel	approxiamate	both a and b	а
7	Who iniated idea of sofft computing		charles darwin	rich and berg	mc culloch	lofti a zadeh	d
8	Soft computing is based on		fuzzy logic	neural science	crisp software	binary logic	а
9	In soft computing the problems, algorithms can be		non adaptive	adaptive	static	all of the above	b
10	Fuzzy Computing		mimics human behav	deals with inpreci	exact information	both a and b	d
11	Hard computing is also called as		evolutionary comput	conventional com	non conventional co	probablistic computing	b
12	Which computing produces accurate results		soft computing	hard computing	both a and b	none of the above	b
13	Neural network computing		mimics human behav	information proce	both a and b	none of the above	С
14	Artificial neural network is used for		pattern recognition	classification	clustering	all of the above	d
15	How does blind search differ from optimization		Blind search represer	Blind search usua	Blind search cannot	none of these	В
16	In modeling, an optimal solution is understood to be		a solution that can or	a solution found i	a solution that is the	a solution that require	С
17	When is a complete enumeration of solution used?		When a solution that	When there is end	When the modeler	When there are an infi	В
18	All of the follwing are true about heuristics EXCEPT		heuristics are used w	heuristics are use	heuristics are used	heuristics are rules of g	С
19	Which approach is most suited to structured problem with little uncer	tainity	Simuation	human intuition	Optimization	genetic algorithm	С
20	Genetic algorithm belong to the family of method in the		artifical intelligence a	optimization area	complete enumerat	Non computer based is	А
21	What does the 0 membership value means in the set		the object is fully insi	the object is not i	the object is partial	none of the above	b
22	The union of two fuzzy sets is theof each element from two se	ets	maximum	minimum	equal to	not equal to	а
23	The process of fuzzy interference system involes		membership functior	fuzzy logic operat	if-then rules	all the above	d
24	What does a fuzzifier do		coverts crisp input to	coverts crisp oup	coverts fuzzy input	coverts fuzzy output to	а
25	Which of the folloowing is not defuzzifier method		centroid of area	mean of maximur	largest of maximum	hypotenuse of triangle	d
26	Which of the following is/are type of fuzzy interference method		mamdani	sugeno	rivest	only a and b	d
27	A Fuzzy rule can have		multiple part of ante	only single part of	multiple part of ant	only single part of ante	C
28	The α cut of a fuzzy set A is a crisp set defined by :-		$\{x \mid a(x) > \alpha\}$	$\{x _{u}a(x) \ge \alpha\}$	{x _a(x)<α}	$\{x _{u}a(x) \le \alpha\}$	b
29	The handwidth(A) in a fuzzy set is given by		$(\Delta) = x_1 * x_2 $	$(A) = x_1 + x_2 $	(A) = x - x	$(\Delta) = x / x $	~
30	The intersection of two fuzzy set is given by						t
31	A = [1/2, 0, 2/2, 0,	two sets		10/200/b07/c0	10 8/2 0 7/6 0 8/2 0	101207/b08/c00/d	2
31	$A = \{1/a, 0.3/b, 0.2/c, 0.8/d, 0/e\}$ $B = \{0.0/a, 0.3/b, 0.1/c, 0.3/d, 0.2/e\}$ WI	at will be the con	10/a, 0.7/b, 0.8/c, 0.2/c	10/8, 0.3/0, 0.7/0, 0.7/0, 0.0/0 0	10.0/0.0/0.0/0.0/0.0/0.0/0.0/0.0/0.0/0.0	1/2 0 0/6 0 2/c 0 8/d	a
22	$A = \{1/a, 0, 3/b, 0, 2/c, 0, 8/d, 0/e\}$ $B = \{0, 0/a, 0, 3/b, 0, 1/c, 0, 3/d, 0, 2/e\}$ WI	at will be the int	(1/a, 0.9/0, 0.1/c, 0.3/0)	(0.6/a, 0.9/b, 0.2/c)	1/a, 0.9/0, 0.2/c, 0.0	1/a, 0.9/0, 0.2/c, 0.0/0,	C
35	A={1/a,0.3/b,0.2/c,0.8/d,0/e} B={0.6/a,0.9/b,0.1/c,0.3/d,0.2/e} Wr	iat will be the inte	$\{0.0/3, 0.3/0, 0.1/0, 0.3/0, 0.3/0, 0.1/0, 0.3/0,$	$\{0.6/3, 0.8/0, 0.1/0,$	$\{0.6/3, 0.3/0, 0.1/0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0$	$\{0.0/3, 0.3/0, 0.2/0, 0.2/0,$	d
34	What denotes the support(A) in a fuzzy set?		{x _U a(x)>0}	{x _U a(x)<0}	{x _ua(x)<=0}	{x _U a(x)<0.5}	а
35	What denotes the core(A) in a fuzzy set?		{x _U a(x)>0}	{x _U a(x)=1}	{x _U a(x)>=0.5}	{x _∪ a(x)>0.8}	b
36	Fuzzy logic deals with which of the following		fuzzy set	fuzzy algebra	both a and b	none of the above	С
37	which of the following is a sequence of steps taken in designning a fuz	y logic machine	fuzzification->Rule Ev	deffuzification->r	rule evaluation->fuz	rule evaluation->defuz	а
38	can a crisp set be a fuzzy set?		no	yes	depends	all of the above	b
39	Genetic algorithm belong to the family of method in the		artifical intelligence a	optimization area	complete enumerat	Non computer based is	A
40	All of the follwing are suitable problem for genetic algorithm EXCEPT		pattern recognization	simulation of biol	simple optimization	dynamic process contr	С
41	Tabu search is an example of ?		heuristic	Evolutionary algo	ACO	PSO	а

42	Genetic algorithms are example of		heuristic	Evolutionary algo	ACO	PSO	b
43	mutation is applied oncandidates.		one	two	more than two	noneof these	а
44	recombination is applied oncandidates.		one	two	more than two	noneof these	b
45	LCS belongs to based methods?		rule based learning	genetic learning	both a and b	noneof these	а
46	Survival is approach.		deteministic	non deterministic	semi deterministic	noneof these	а
47	Evolutionary algorithms are a based approach		heuristic	metaheuristic	both a and b	noneof these	а
48	Tabu search is an example of ?		heuristic	Evolutionary algo	ACO	PSO	а
49	Genetic algorithms are example of		heuristic	Evolutionary algo	ACO	PSO	b
50	Idea of genetic algorithm came from		machines	Birds	ACO	genetics	d
51	Chromosomes are actually ?		line representation	String representat	Circular representa	all of these	b
52	what are the parameters that affect GA are/is		selection process	initial population	both a and b	none of these	с
53	Evolutionary programming was developef by		Fredrik	Fodgel	Frank	Flin	b
54	Evolution Strategies is developed with		selection	mutation	a population of size	all of these	d
55	Evolution Strategies typically uses		real-valued vector re	vector representa	time based represe	none of these	а
56	in ES survival is		indeterministic	deterministic	both a and b	none of these	d
57	What is the first step in Evolutionary algorithm		Termination	selection	Recombination	Initialization	d
58	Elements of ES are/is		Parent population siz	Survival populatio	both a and b	none of these	с
59	What are different types of crossover		discrete and interme	discrete and conti	continuous and inte	none of these	а
60	Determining the duration of the simulation occurs before the model is	validated and te	TRUE	FALSE			В
61	cannot easily be transferred from one problem domain to a	nother	optimal solution	analytical solutior	simulation solutuor	none of these	С
62	Discrete events and agent-based models are usually used for		middle or low level o	high level of abstr	very high level of at	none of these	Α
63	doesnot usually allow decision makers to see how a solution to a	en en	Simulation ,Complex	Simulation, Easy p	Genetics,Complex p	Genetics, Easy problem	Α
64	EC stands for?		Evolutionary Comput	Evolutionary com	Electronic computa	noneof these	а
65	GA stands for		genetic algorithm	genetic asssuranc	genese alforithm	noneof these	а
66	LCS stands for		learning classes syste	learning classifier	learned class syster	noneof these	b
67	GBML stands for		Genese based Machi	Genes based mob	Genetic bsed machi	noneof these	с
68	EV is dominantly used for solving		optimization problem	NP problem	simple problems	noneof these	а
69	EV is considered as?		adaptive	complex	both a and b	noneof these	с
70	Idea of genetic algorithm came from		machines	Birds	ACO	genetics	d
71	Chromosomes are actually ?		line representation	String representat	Circular representa	all of these	b
72	Parameters that affect GA		initial population	selection process	fitness function	all of these	d
73	Fitness function should be		maximum	minimum	intermediate	noneof these	b
74	Evolutionary algorithms are a based approach		heuristic	metaheuristic	both a and b	noneof these	а
75	Tabu search is an example of ?		heuristic	Evolutionary algo	ACO	PSO	а
76	Genetic algorithms are example of		heuristic	Evolutionary algo	ACO	PSO	b
77	mutation is applied on candidates.		one	two	more than two	noneof these	а
78	recombination is applied on candidates.		one	two	more than two	noneof these	b
79	Applying recombination and mutation leads to a set of new candidates	s. called as ?	sub parents	parents	offsprings	grand child	с
	decides who becomes parents and how many children the	,					b
80	parents have.		parent combination	Parent selection	Parent mutation	Parent replace	-
				Survival		' 	С
81			Parent Selection	Selection			
	Basic elements of EA are ?		methods	methods	both a and b	noneof these	
82	LCS belongs to based methods?		rule based learning	genetic learning	both a and b	noneof these	а

83	Survival is approach.	deteministic	non deterministic	semi deterministic	noneof these	а
04	There are also other operators, more linguistic in nature, called				None of the	
04	that can be applied to fuzzy set theory.	Hedges	Lingual Variable	Fuzz Variable	mentioned	а
	A fuzzy set has a membership function whose membership values are strictly monotonically increasing or strictly monotonically					
85	decreasing or strictly monotonically increasing than strictly					
	monotonically decreasing with increasing values for elements in the			Non concave Fuzzy		
	universe	convex fuzzy set	concave fuzzy set	set	Non Convex Fuzzy set	а
86	Which of the following neural networks uses supervised learning? (A) Multilayer perceptron (B) Self organizing feature map	(4) colu	(D) est.	(A) and (D) anti-	(A) and (C) anti-	
	(C) Hopfield network	(A) only	(B) ONIY	(A) and (B) only	(A) and (C) only	d
87	What is the feature of ANNs due to which they can deal with poicy	associative pature of	nature of	both associative 8	none of the	
0/	fuzzy, inconsistent data?	associative nature of	nature or	distributive	mone of the	C
		networks	TIELWOIKS			
88	Feature of ANN in which ANN creates its own organization or					
	representation of information it receives during learning time is	Adaptive Learning	Self Organization	What-If Analysis	Supervised Learning	b
			Sen organization	what it / italy sis		~
89	Any soft-computing methodology is characterised by	Precise solution	control actions are unambiguous	control actions is	algorithm which can easily adapt with the change of dynamic environment	d
					none of the	4
90	For what purpose Feedback neural networks are primarily used?	classification	feature mapping	pattern mapping	mentioned	d
	Operations in the neural networks can perform what kind of			P	none of the	
91	operations?	serial	parallel	serial or parallel	mentioned	с
92		automatic	artificial	adaptive	none of the	
	What is ART in neural networks?	resonance theory	resonance theory	resonance theory	mentioned	с
93					Both Degree of truth	
	The values of the set membership is represented by	Discrete Set	Degree of truth	Probabilities	& Probabilities	b
	Given U = {1,2,3,4,5,6,7}					7
94	A = {(3, 0.7), (5, 1), (6, 0.8)}					
	then A will be: (where $\sim \rightarrow$ complement)	{(4, 0.7), (2,1), (1,0.8)	{(4, 0.3.): (5, 0), (6	{(l, 1), (2, 1), (3, 0.3)	{(3, 0.3), (6.0.2)}	c
05	What are the following sequence of steps taken in designing a fuzzy					
93	logic machine ?	Fuzzification \rightarrow Rule	eFvazlaifticantio)A Die Du	e Riufil e ciféixandi coart i I I R I I e	kuudiduomatioDefuDzeif	cautification → Fuzzification

	If A and B are two fuzzy sets with membership functions					
96						
	μA(x) = {0.6, 0.5, 0.1, 0.7, 0.8}					
	μB(x) = {0.9, 0.2, 0.6, 0.8, 0.5}					
	Then the value of $\mu(A\cup B)'(x)$ will be	{0.9, 0.5, 0.6, 0.8, 0.8	{0.6, 0.2, 0.1, 0.7,	{0.1, 0.5, 0.4, 0.2, 0.	{0.1, 0.5, 0.4, 0.2, 0.3}	с
	Compute the value of adding the following two fuzzy integers:					
	$A = \{(0.3,1), (0.6,2), (1,3), (0.7,4), (0.2,5)\}$					
97	$B = \{(0.5, 11), (1, 12), (0.5, 13)\}$					
	Where fuzzy addition is defined as					
	where fuzzy addition is defined as					
	$\mu(A+B(z) = \max x + y = z (\min(\mu(A(x) - \mu(B(x))))$					
	Then, f(A+B) is equal to	{(0.5.12), (0.6.13), (1.	{(0.5.12), (0.6.13)	{(0.3.12), (0.5.13), ({(0.3.12), (0.5.13), (0.6	d
98	A U (B U C) =	$(A \cap B) \cap (A \cap C)$	(A U B) U C	$(A \cup B) \cap (A \cup C)$	$B \cap A \cup C$	b
	Consider a fuzzy set A defined on the interval X = [0, 10] of integers	(,	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		~
	by the membership Junction					
99	$\mu A(x) = x / (x+2)$					
	Then the α cut corresponding to α = 0.5 will be	{0, 1, 2, 3, 4, 5, 6, 7, 8	{1, 2, 3, 4, 5, 6, 7,	{2, 3, 4, 5, 6, 7, 8, 9,	None of the above	с
100	The fuzzy proposition "IF X is E then Y is F" is a	conditional unqualifie	unconditional und	conditional qualified	unconditional qualified	а
	Choose the correct statement					
	1. A fuzzy set is a crisp set but the reverse is not true					
	2. If A,B and C are three fuzzy sets defined over the same universe of					
101	discourse such that $A \le B$ and $B \le C$ and $A \le C$					
	3. Membership function defines the fuzziness in a fuzzy set					
	irrespecive of the elements in the set, which are discrete or	4	2	1.0	No. of the sec	L-
	continuous	1 only	2 and 3	1,2 and 3	None of these	d
102	Energy and the second s	Euzzu ~ Drodiction	Euzzu ~ Eorocastir	Drobability ~ Eoroca	None of these	h
	Both fuzzy logic and artificial neural network are soft computing	Fuzzy ~ Frediction	ruzzy ~ rorecastii	FIODADIIILY ~ FOIECA	None of these	
103	techniques because	Both gives precise an	ANN gives accurat	In each no precise i	Fuzzy gives exact result	C
<u> </u>	A fuzzy set whose membership function has at least one element x in	Both Bives precise an			Turry Bives exact result	<u> </u>
104	the universe whose membership value	sub normal fuzzy				
	is unity is called	sets	normal fuzzy set	convex fuzzy set	concave fuzzy set	b
105			·	-		
105	defines logic funtion of two prepositions	prepositions	Lingustic hedges	truth tables	inference rules	с
106						
	In fuzzy propositions, gives an approximate idea of the number of	Fuzzy predicate and				
	elements of a subset fulfilling certain conditions	predicate modifiers	Fuzzy quantifiers	Fuzzy qualifiers	All of the above	b
107						
<u> </u>	Multiple conjuctives antecedents is method of in FLC	decomposition rule	tormation of rule	truth tables	All of the above	а
108	Multiple distortions and a static method of the DC		former the set	an ab a bla a		
	iviuitiple disjuctives antecedents is method of In FLC	uecomposition rule	iormation of rule	truth tables	All of the above	a

109		rule in zero order	rule in first order			
10)	IF x is A and y is B then z=c (c is constant), is	FIS	FIS	both a and b	neither a nor b	a
110	A fuzzy set wherein no membership function has its value equal to 1		subnormal fuzzy			
	is called	normal fuzzy set	set.	convex fuzzy set	concave fuzzy set	b
			Control any two			
			combinations of			
		Control any two	any two products	Control a steam		
1111		combinations of any	by synthesising a	engine and a boiler	Control a air craft and	
		two products by	set of linguistic	combination by	fuel level combination	
		synthesising a set of	control rules	synthesising a set	by synthesising a set	
		linguistic control	obtained from	of linguistic control	of linguistic control	
		rules obtained from	experienced	rules obtained	rules obtained from	
		experienced human	human	from experienced	experienced human	
	Mamdani's Fuzzy Inference Method Was Designed To Attempt What?	operations.	operations.	human operations.	operations.	с
112		Model-Type and	Momfred-type	Mamdani-type and	Mihni-type and	
	What Are The Two Types Of Fuzzy Inference Systems?	System-Type	and Semigi-type	Sugeno-type	Sujgani-type	с
113				Fuzzy Logic		
	What Is Another Name For Fuzzy Inference Systems?	Fuzzy Expert system	Fuzzy Modelling	Controller	All of the above	d
			(μ, λ) - selection			
114			based on the			
			children only			
			(μ+λ)- selection			
		Probabilistic	based on both			
		selection (µ+µ)	the set of parent	Children replace		
	In Evolutionary programming, survival selection is	selection	and children	the parent	All the mentioned	a
			(μ, λ) - selection			
115			based on the			
			children only			
			(μ+λ)- selection			
		Probabilistic	based on both			
		selection (μ+μ)	the set of parent	Children replace		
	In Evolutionary strategy, survival selection is	selection	and children	the parent	All the mentioned	b

		description	recombination			
116						
		recombination to	such as cross			
		produce offspring. It	over to produce	recombination	none of the	
	In Evolutionary programming, recombination is	only uses mutation	offspring	operators	mentioned	а
			uses			
117		doesnot use	recombination			
		recombination to	such as cross	uses various		
		produce offspring. It	over to produce	recombination	none of the	
	In Evolutionary strategy, recombination is	only uses mutation	offspring	operators	mentioned	b
			deviation in step			
118			sizes change over			
			time using some	deviation in step		
		deviation in step	deterministic	size change		
	Sten size in non-adaptive FP :	sizes remain static	function	dynamically	size=1	
				aynamically		u
			doviation in stan			
110						
119			sizes change over			
			time using some	deviation in step		
		deviation in step	deterministic	size change		
	Step size in dynamic EP :	sizes remain static	function	dynamically	size=1	b
			deviation in step			
120			sizes change over			
			time using some	deviation in step		
		deviation in step	deterministic	size change		
	Step size in self-adaptive EP :	sizes remain static	function	dynamically	size=1	с
	What are normally the two best measurement units for an					
	evolutionary algorithm?					
1.21	1. Number of evaluations					
121	2. Elapsed time					
	3. CPU Time					
	4. Number of generations	1 and 2	2 and 3	3 and 4	1 and 4	d
<u> </u>		(μ.λ): Select	(μ+λ): Select			
		survivors among	survivors among	(μ-λ): Select		
122		narents and	narents and	survivors among	$(\mu \cdot \lambda)$ · Select survivors	
	Evolutionary Strategies (ES)	offsnring	offspring	offspring only	among offsnring only	h
		loushing	onspring			Г Р

			Individual			
			solution is			
123		Individuals are	represented as a	Individuals are		
		represented by real-	Finite State	represented as	none of the	
	In Evolutionary programming,	valued vector	Machine	binary string	mentioned	b
			Individual			
			solution is			
124		Individuals are	represented as a	Individuals are		
		represented by real-	Finite State	represented as	none of the	
	In Evolutionary Strategy,	valued vector	Machine	binary string	mentioned	a
		offspring becomes				
		parent if offspring's				
125		fitness is as good as				
		parent of next	offspring become	offspring never	none of the	
	(1+1) ES	generation	parent by default	becomes parent	mentioned	a
		λ mutants can be				-
126		generated from one	one mutant is	2λ mutants can be	no mutants are	
	(1+λ) ES	parent	generated	generated	generated	a
		P = = =	total number of	80.000	80.0000	-
			fitness	population		
127			evaluations	diveristy drops		
12,		mazimally allowed	reaches a given	under a given		
	Termination condition for EA	CPU time is elapsed	limit	threshold	All the mentioned	d
			Proportional	tournament		
128	Which of the following operator is simplest selection operator?	Random selection	selection	selection	none	а
					evolutionary	
129					programming doesnot	
12		Single point	two point		use crossover	
	Which crossover operators are used in evolutionary programming?	crossover	crossover	Uniform crossover	operators	d
		Operates on	operates on	operates on		
130		population size of	populantion size	populantion size of	operates on	
100	(1+1) FS	two	of one	zero	nonulantion size of λ	a
		Evolutionary	Genetic			
131	Which of these emphasize of development of behavioral models?	nrogramming	programming	Genetic algorithm	All the mentioned	a
		p. 08. 0	p. 08. d			<u> </u>
		variation through				
132		application of			none of the	
	EP applies which evolutionary operators?	mutation operators	selection	both a and b	mentioned	c
			Stochastic			<u> </u>
133		Roulette wheel	universal	tournament		
1.55	Which selection strategy works with negative fitness value?	selection	sampling	selection	Rank selection	d
	the second states, were were repaired and the		6A.			<u>~</u> ا