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| Question No | Question | Answer Key |
|  | **Membership function defines the fuzziness in a fuzzy set irrespective of the elements in the set, which are discrete or continuous.**   |  |  | | --- | --- | | **[A.](javascript:void(0);)** | True | | **[B.](javascript:void(0);)** | False | | A |
|  | **The membership functions are generally represented in**   |  |  | | --- | --- | | **[A.](javascript:void(0);)** | Tabular Form | | **[B.](javascript:void(0);)** | Graphical Form | | **[C.](javascript:void(0);)** | Mathematical Form | | **[D.](javascript:void(0);)** | Logical Form | | B |
|  | **Membership function can be thought of as a technique to solve empirical problems on the basis of**   |  |  | | --- | --- | | **[A.](javascript:void(0);)** | knowledge | | **[B.](javascript:void(0);)** | examples | | **[C.](javascript:void(0);)** | learning | | **[D.](javascript:void(0);)** | experience | | D |
|  | **Three main basic features involved in characterizing membership function are**   |  |  | | --- | --- | | **[A.](javascript:void(0);)** | Intution, Inference, Rank Ordering | | **[B.](javascript:void(0);)** | Fuzzy Algorithm, Neural network, Genetic Algorithm | | **[C.](javascript:void(0);)** | Core, Support , Boundary | | **[D.](javascript:void(0);)** | Weighted Average, center of Sums, Median | | C |
|  | **The region of universe that is characterized by complete membership in the set  is called**   |  |  | | --- | --- | | **[A.](javascript:void(0);)** | Core | | **[B.](javascript:void(0);)** | Support | | **[C.](javascript:void(0);)** | Boundary | | **[D.](javascript:void(0);)** | Fuzzy | | A |
|  | **A fuzzy set whose membership function has at least one element x in the universe whose membership value**  **is unity is called**   |  |  | | --- | --- | | **[A.](javascript:void(0);)** | sub normal fuzzy sets | | **[B.](javascript:void(0);)** | normal fuzzy set | | **[C.](javascript:void(0);)** | convex fuzzy set | | **[D.](javascript:void(0);)** | concave fuzzy set | | B |
|  | **In a Fuzzy set a prototypical element has a value**   |  |  | | --- | --- | | **[A.](javascript:void(0);)** | 1 | | **[B.](javascript:void(0);)** | 0 | | **[C.](javascript:void(0);)** | infinite | | **[D.](javascript:void(0);)** | Not defined | | A |
|  | **A fuzzy set wherein no membership function has its value equal to 1 is called**   |  |  | | --- | --- | | **[A.](javascript:void(0);)** | normal fuzzy set | | **[B.](javascript:void(0);)** | subnormal fuzzy set. | | **[C.](javascript:void(0);)** | convex fuzzy set | | **[D.](javascript:void(0);)** | concave fuzzy set | | B |
|  | **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.](javascript:void(0);)** | convex fuzzy set | | **[B.](javascript:void(0);)** | concave fuzzy set | | **[C.](javascript:void(0);)** | Non concave Fuzzy set | | **[D.](javascript:void(0);)** | Non Convex  Fuzzy set | | A |
|  | **The membership values of the membership function are nor strictly monotonically increasing or decreasing or strictly monoronically increasing than decreasing.**   |  |  | | --- | --- | | **[A.](javascript:void(0);)** | Convex Fuzzy Set | | **[B.](javascript:void(0);)** | Non convex fuzzy set | | **[C.](javascript:void(0);)** | Normal Fuzzy set | | **[D.](javascript:void(0);)** | Sub normal fuzzy set | | B |
|  | **Fuzzy Computing**   |  |  | | --- | --- | | **[A.](javascript:void(0);)** | doesnt deal with 2 valued logic | | **[B.](javascript:void(0);)** | mimics human behaviour | | **[C.](javascript:void(0);)** | deals with information which is vague, imprecise, uncertain, ambiguous, inexact, or probabilistic | | **[D.](javascript:void(0);)** | All of the above | | D |
|  | Defuzzification is done to obtain   1. Crisp output 2. The best rule to follow 3. Precise fuzzy value 4. None of the above | a |
|  | “The train is running fast”. Here ‘fast’ can be represented by   1. Fuzzy Set 2. Crisp Set 3. Fuzzy and Crisp Set 4. None of the mentioned | a |
|  | Suppose, a fuzzy set Young is defined as follows:  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   1. 25 2. 20 3. 35 4. 50 | a |
|  | f the fuzzy set has two sub regions, then the centre of gravity of the sub region \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can be used to calculate the defuzzified value.   1. with the median of all the area 2. with the mean of all the area 3. with the largest area 4. with the smallest area | c |
|  | Which of the following is not a centroid method?   1. Centre of gravity method (CoG) 2. Centre of sum method (CoS) 3. Centre of area method (CoA) 4. Centre of Mass (CoM) | d |
|  | What are the following sequence of steps taken in designing a fuzzy logic machine?  (a) Fuzzification->Rule evaluation->Defuzzification  (b) Rule evaluation->Fuzzification->Defuzzification  (c) Fuzzy Sets->Defuzzification->Rule evaluation  (d) Defuzzification->Rule evaluation->Fuzzification | a |
|  | If A is a fuzzy set, then (A λ)complement ≠ ⎯⎯⎯⎯⎯( Aλ)complement  (a) except for value of λ=0.5  (b) except for value of λ=1  (c) except for value of λ=0  (d) for all values of λ | a |
|  | The cardinality of the given set A = {1, 2, 3, 4, 5}   1. 2 2. 5 3. 4 4. 1 | B |
|  | If x is A then y is B else y is c then the relation R is equivalent to   1. (A × B) + (B × C) 2. A × B) ∪ (A × C) 3. (A × B) → (B × C) 4. (A × C) ∪ (B × C) | b |
|  | What are the applications of Fuzzy Inference Systems?   1. Wireless services, heat control and printers 2. Restrict power usage, telephone lines and sort data 3. Simulink, boiler and CD recording 4. Automatic control, decision analysis and data classification | d |
|  | Fuzzy logic is a form of :   1. Two valued logic 2. Crisp set logic 3. Many valued logic 4. Binary set logic | c |
|  | The main objective of fuzzy AHP is:   1. To increase the ambiguity of human judgement 2. Eliminate the ambiguous and vagueness of the human judgement 3. Control human biasness 4. B and C | d |
|  | In triangular fuzzy number (l, m, u), what does ‘m’ represents:   1. Smallest likely value 2. Most probable value 3. Largest possible value 4. None of the above | C |
|  | Which type of normalization method is used to eliminate the units of criteria in case of VIKOR analysis?   1. Vector normalization 2. Linear normalization 3. Both A and B 4. None of the above | b |
|  | 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. |
|  | 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 \_\_\_\_\_\_\_\_\_\_ |
|  | The truth values of traditional set theory is \_\_\_\_\_\_\_\_\_\_\_\_ and that of fuzzy set is \_\_\_\_\_\_\_\_\_\_  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 | Answer: a  Explanation: Refer the definition of Fuzzy set and Crisp set. |
|  | 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. |
|  | 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. |
|  | 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. |
|  | What is meant by probability density function?  a) Probability distributions  b) Continuous variable  c) Discrete variable  d) Probability distributions for Continuous variables | d |
|  | Which of the following is used for probability theory sentences?  a) Conditional logic  b) Logic  c) Extension of propositional logic  d) None of the mentioned | Answer: c  Explanation: The version of probability theory we present uses an extension of propositional logic for its sentences. |
|  | Fuzzy Set theory defines fuzzy operators. Choose the fuzzy operators from the following.  a) AND  b) OR  c) NOT  d) EX-OR | Answer: a, b, c  Explanation: The AND, OR, and NOT operators of Boolean logic exist in fuzzy logic, usually defined as the minimum, maximum, and complement; |
|  | Fuzzy logic is usually represented as  a) IF-THEN-ELSE rules  b) IF-THEN rules  c) Both a & b  d) None of the mentioned | Answer: b  Explanation: Fuzzy set theory defines fuzzy operators on fuzzy sets. The problem in applying this is 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 |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_ 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). |
|  | \_\_\_\_\_\_\_\_\_\_\_\_ 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 |