Artificial Intelligence Questions and Answers – Fuzzy Logic – 1

This set of Artificial Intelligence MCQs focuses on “Fuzzy Logic – 1”.

1. Fuzzy logic is a form of
a) Two-valued logic
b) Crisp set logic
c) Many-valued logic
d) Binary set logic
View Answer

Answer: c
Explanation: With fuzzy logic set membership is defined by certain value. Hence it could have many values to be in the set.

2. Traditional set theory is also known as Crisp Set theory.
a) True
b) False
View Answer

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 _____
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
View Answer

Answer: a
Explanation: Refer the definition of Fuzzy set and Crisp set.

4. Fuzzy logic is extension of Crisp set with an extension of handling the concept of Partial Truth.
a) True
b) False
View Answer

Answer: a
Explanation: None.

5. How many types of random variables are available?
a) 1
b) 2
c) 3
d) 4
View Answer
Answer: c
Explanation: The three types of random variables are Boolean, discrete and continuous.

6. The room temperature is hot. Here the hot (use of linguistic variable is used) can be represented by _____ .
a) Fuzzy Set
b) Crisp Set
View Answer

Answer: a
Explanation: Fuzzy logic deals with linguistic variables.

7. The values of the set membership is represented by
a) Discrete Set
b) Degree of truth
c) Probabilities
d) Both b & c
View Answer

Answer: b
Explanation: Both Probabilities and degree of truth ranges between 0 – 1.

8. What is meant by probability density function?
a) Probability distributions
b) Continuous variable
c) Discrete variable
d) Probability distributions for Continuous variables
View Answer

Answer: d
Explanation: None.

9. Japanese were the first to utilize fuzzy logic practically on high-speed trains in Sendai.
a) True
b) False
View Answer
Answer: a
Explanation: None.

10. 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
View Answer

Answer: c
Explanation: The version of probability theory we present uses an extension of propositional logic for its sentences.

Artificial Intelligence Questions and Answers – Fuzzy Logic – 2

This set of Artificial Intelligence MCQs focuses on "Fuzzy Logic – 2".

1. Fuzzy Set theory defines fuzzy operators. Choose the fuzzy operators from the following.
a) AND
b) OR
c) NOT
d) EX-OR
View Answer

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;

2. There are also other operators, more linguistic in nature, called _____ that can be applied to fuzzy set theory.
a) Hedges
b) Lingual Variable
c) Fuzz Variable
d) None of the mentioned
View Answer

Answer: a
Explanation: None.

3. Where does the Bayes rule can be used?
a) Solving queries
b) Increasing complexity
c) Decreasing complexity
d) Answering probabilistic query
View Answer

Answer: d
Explanation: Bayes rule can be used to answer the probabilistic queries conditioned on one piece of evidence.

4. What does the Bayesian network provides?
a) Complete description of the domain
b) Partial description of the domain
c) Complete description of the problem
d) None of the mentioned
View Answer

Answer: a
Explanation: A Bayesian network provides a complete description of the domain.

5. Fuzzy logic is usually represented as
a) IF-THEN-ELSE rules
b) IF-THEN rules
c) Both a & b
d) None of the mentioned
View Answer
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

6. Like relational databases there does exists fuzzy relational databases.
a) True
b) False
View Answer

Answer: a
Explanation: Once fuzzy relations are defined, it is possible to develop fuzzy relational databases. The first fuzzy relational database, FRDB, appeared in Maria Zemankova's dissertation.

7. _____ is/are the way/s to represent uncertainty.
a) Fuzzy Logic
b) Probability
c) Entropy
d) All of the mentioned
View Answer

Answer: d
Explanation: Entropy is amount of uncertainty involved in data. Represented by H(data).

8. _____ 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
View Answer

Answer: c
Explanation: Local structure is usually associated with linear rather than exponential growth in complexity.

9. Which condition is used to influence a variable directly by all the others?
a) Partially connected
b) Fully connected
c) Local connected
d) None of the mentioned
View Answer
Answer: b
Explanation: None.

10. What is the consequence between a node and its predecessors while creating Bayesian network?
a) Conditionally dependent
b) Dependent
c) Conditionally independent
d) Both a & b
View Answer

Answer: c
Explanation: The semantics to derive a method for constructing Bayesian networks were led to the consequence that a node can be conditionally independent of its predecessors

Artificial Intelligence Questions and Answers – Neural Networks – 1

This set of Artificial Intelligence MCQs focuses on “Neural Networks – 1”.

1. A 3-input neuron is trained to output a zero when the input is 110 and a one when the input is 111. After generalization, the output will be zero when and only when the input is:
a) 000 or 110 or 011 or 101
b) 010 or 100 or 110 or 101
c) 000 or 010 or 110 or 100
d) 100 or 111 or 101 or 001
View Answer

Answer: c
Explanation: The truth table before generalization is:
Inputs Output
000 $
001 $
010 $
011 $
100 $
101 $
110 0
111 1
where $ represents don’t know cases and the output is random.
After generalization, the truth table becomes:
Inputs Output
000 0
001 1
010 0
011 1
100 0
101 1
110 0
111 1
.

2. A perceptron is:
a) a single layer feed-forward neural network with pre-processing
b) an auto-associative neural network
c) a double layer auto-associative neural network
d) a neural network that contains feedback
View Answer

Answer: a
Explanation: The perceptron is a single layer feed-forward neural network. It is not an

auto-associative network because it has no feedback and is not a multiple layer neural network because the pre-processing stage is not made of neurons.

3. An auto-associative network is:
a) a neural network that contains no loops
b) a neural network that contains feedback
c) a neural network that has only one loop
d) a single layer feed-forward neural network with pre-processing
View Answer

Answer: b
Explanation: An auto-associative network is equivalent to a neural network that contains feedback. The number of feedback paths(loops) does not have to be one.

4. A 4-input neuron has weights 1, 2, 3 and 4. The transfer function is linear with the constant of proportionality being equal to 2. The inputs are 4, 10, 5 and 20 respectively. The output will be:
a) 238
b) 76
c) 119
d) 123
View Answer

Answer: a
Explanation: The output is found by multiplying the weights with their respective inputs, summing the results and multiplying with the transfer function. Therefore:
Output = 2 * (1*4 + 2*10 + 3*5 + 4*20) = 238.

5. Which of the following is true?
(i) On average, neural networks have higher computational rates than conventional computers.
(ii) Neural networks learn by example.
(iii) Neural networks mimic the way the human brain works.
a) All of the mentioned are true
b) (ii) and (iii) are true
c) (i), (ii) and (iii) are true
d) None of the mentioned
View Answer
Answer: a
Explanation: Neural networks have higher computational rates than conventional computers because a lot of the operation is done in parallel. That is not the case when the neural network is simulated on a computer. The idea behind neural nets is based on the way the human brain works. Neural nets cannot be programmed, they cam only learn by examples.

6. Which of the following is true for neural networks?
(i) The training time depends on the size of the network.
(ii) Neural networks can be simulated on a conventional computer.
(iii) Artificial neurons are identical in operation to biological ones.

a) All of the mentioned
b) (ii) is true
c) (i) and (ii) are true
d) None of the mentioned
View Answer

Answer: c
Explanation: The training time depends on the size of the network; the number of neuron is greater and therefore the number of possible 'states' is increased. Neural networks can be simulated on a conventional computer but the main advantage of neural networks – parallel execution – is lost. Artificial neurons are not identical in operation to the biological ones.

7. What are the advantages of neural networks over conventional computers?
(i) They have the ability to learn by example
(ii) They are more fault tolerant
(iii)They are more suited for real time operation due to their high 'computational' rates
a) (i) and (ii) are true
b) (i) and (iii) are true
c) Only (i)
d) All of the mentioned
View Answer

Answer: d
Explanation: Neural networks learn by example. They are more fault tolerant because they are always able to respond and small changes in input do not normally cause a change in output. Because of their parallel architecture, high computational rates are achieved.

8. Which of the following is true?
Single layer associative neural networks do not have the ability to:
(i) perform pattern recognition
(ii) find the parity of a picture
(iii)determine whether two or more shapes in a picture are connected or not
a) (ii) and (iii) are true
b) (ii) is true
c) All of the mentioned
d) None of the mentioned
View Answer

Answer: a
Explanation: Pattern recognition is what single layer neural networks are best at but they don't have the ability to find the parity of a picture or to determine whether two shapes are connected or not.

9. Which is true for neural networks?
a) It has set of nodes and connections
b) Each node computes it's weighted input

c) Node could be in excited state or non-excited state
d) All of the mentioned
View Answer
Answer: d
Explanation: All mentioned are the characteristics of neural network.

10. Neuro software is:
a) A software used to analyze neurons
b) It is powerful and easy neural network
c) Designed to aid experts in real world
d) It is software used by Neuro surgeon
View Answer

Answer: b
Explanation: None.

Artificial Intelligence Questions and Answers – Neural Networks – 2

This set of Artificial Intelligence MCQs focuses on "Neural Networks – 2".

1. Why is the XOR problem exceptionally interesting to neural network researchers?
a) Because it can be expressed in a way that allows you to use a neural network
b) Because it is complex binary operation that cannot be solved using neural networks
c) Because it can be solved by a single layer perceptron
d) Because it is the simplest linearly inseparable problem that exists.
View Answer

Answer: d
Explanation: None.

2. What is back propagation?
a) It is another name given to the curvy function in the perceptron
b) It is the transmission of error back through the network to adjust the inputs
c) It is the transmission of error back through the network to allow weights to be adjusted so that the network can learn.
d) None of the mentioned
View Answer

Answer: c
Explanation: Back propagation is the transmission of error back through the network to allow weights to be adjusted so that the network can learn.

3. Why are linearly separable problems of interest of neural network researchers?
a) Because they are the only class of problem that network can solve successfully
b) Because they are the only class of problem that Perceptron can solve successfully

c) Because they are the only mathematical functions that are continue
d) Because they are the only mathematical functions you can draw
View Answer

Answer: b
Explanation: Linearly separable problems of interest of neural network researchers because they are the only class of problem that Perceptron can solve successfully

4. Which of the following is not the promise of artificial neural network?
a) It can explain result
b) It can survive the failure of some nodes
c) It has inherent parallelism
d) It can handle noise
View Answer

Answer: a
Explanation: The artificial Neural Network (ANN) cannot explain result.

5. Neural Networks are complex _____ with many parameters.
a) Linear Functions
b) Nonlinear Functions
c) Discrete Functions
d) Exponential Functions
View Answer
Answer: a
Explanation: Neural networks are complex linear functions with many parameters.

6. A perceptron adds up all the weighted inputs it receives, and if it exceeds a certain value, it outputs a 1, otherwise it just outputs a 0.
a) True
b) False
c) Sometimes – it can also output intermediate values as well
d) Can't say
View Answer

7. The name for the function in question 16 is
a) Step function
b) Heaviside function
c) Logistic function
d) Perceptron function
View Answer

Answer: b
Explanation: Also known as the step function – so answer 1 is also right. It is a hard thresholding function, either on or off with no in-between.

8. Having multiple perceptrons can actually solve the XOR problem satisfactorily: this is because each perceptron can partition off a linear part of the space itself, and they can then combine their results.

a) True – this works always, and these multiple perceptrons learn to classify even complex problems.
b) False – perceptrons are mathematically incapable of solving linearly inseparable functions, no matter what you do
c) True – perceptrons can do this but are unable to learn to do it – they have to be explicitly hand-coded
d) False – just having a single perceptron is enough
View Answer

Answer: c
Explanation: None.

9. The network that involves backward links from output to the input and hidden layers is called as ____.
a) Self organizing maps
b) Perceptrons
c) Recurrent neural network
d) Multi layered perceptron
View Answer
Answer: c
Explanation: RNN (Recurrent neural network) topology involves backward links from output to the input and hidden layers.

10. Which of the following is an application of NN (Neural Network)?
a) Sales forecasting
b) Data validation
c) Risk management
d) All of the mentioned
View Answer

Answer: d
Explanation: All mentioned options are applications of Neural Network

Artificial Intelligence Questions and Answers – Learning – 3

This set of Artificial Intelligence MCQs focuses on “Learning – 3”.

1. Which is not a desirable property of a logical rule-based system?
a) Locality
b) Attachment
c) Detachment
d) Truth-Functionality

e) Global attribute
View Answer

Answer: b
Explanation: Locality: In logical systems, whenever we have a rule of the form A => B, we can conclude B, given evidence A, without worrying about any other rules. Detachment: Once a logical proof is found for a proposition B, the proposition can be used regardless of how it was derived .That is, it can be detachment from its justification. Truth-functionality: In logic, the truth of complex sentences can be computed from the truth of the components. However, there are no Attachment properties lies in a Rule-based system. Global attribute defines a particular problem space as user specific and changes according to user's plan to problem.

2. How is Fuzzy Logic different from conventional control methods?
a) IF and THEN Approach
b) FOR Approach
c) WHILE Approach
d) DO Approach
e) Else If approach
View Answer

Answer: a
Explanation: FL incorporates a simple, rule-based IF X AND Y THEN Z approach to a solving control problem rather than attempting to model a system mathematically.

3. In an Unsupervised learning
a) Specific output values are given
b) Specific output values are not given
c) No specific Inputs are given
d) Both inputs and outputs are given
e) Neither inputs nor outputs are given
View Answer

Answer: b
Explanation: The problem of unsupervised learning involves learning patterns in the input when no specific output values are supplied. We cannot expect the specific output to test your result. Here the agent does not know what to do, as he is not aware of the fact what propose system will come out. We can say an ambiguous un-proposed situation.

4. Inductive learning involves finding a
a) Consistent Hypothesis
b) Inconsistent Hypothesis
c) Regular Hypothesis
d) Irregular Hypothesis
e) Estimated Hypothesis
View Answer

Answer: a
Explanation: Inductive learning involves finding a consistent hypothesis that agrees with examples. The difficulty of the task depends on the chosen representation.

5. Computational learning theory analyzes the sample complexity and computational complexity of
a) Unsupervised Learning
b) Inductive learning
c) Forced based learning
d) Weak learning
e) Knowledge based learning
View Answer
Answer: b
Explanation: Computational learning theory analyzes the sample complexity and computational complexity of inductive learning. There is a tradeoff between the expressiveness of the hypothesis language and the ease of learning.

6. If a hypothesis says it should be positive, but in fact, it is negative, we call it
a) A consistent hypothesis
b) A false negative hypothesis
c) A false positive hypothesis
d) A specialized hypothesis
e) A true positive hypothesis
View Answer

Answer: c
Explanation: Consistent hypothesis go with examples, If the hypothesis says it should be negative but infect it is positive, it is false negative. If a hypothesis says it should be positive, but in fact, it is negative, it is false positive. In a specialized hypothesis we need to have certain restrict or special conditions.

7. Neural Networks are complex ——————with many parameters.
a) Linear Functions
b) Nonlinear Functions
c) Discrete Functions
d) Exponential Functions
e) Power Functions
View Answer

Answer: b
Explanation: Neural networks parameters can be learned from noisy data and they have been used for thousands of applications, so it varies from problem to problem and thus use nonlinear functions.

8. A perceptron is a ————————————.
a) Feed-forward neural network
b) Back-propagation algorithm
c) Back-tracking algorithm
d) Feed Forward-backward algorithm

e) Optimal algorithm with Dynamic programming
View Answer

Answer: a
Explanation: A perceptron is a Feed-forward neural network with no hidden units that can be representing only linear separable functions. If the data are linearly separable, a simple weight updated rule can be used to fit the data exactly.

9. Which of the following statement is true?
a) Not all formal languages are context-free
b) All formal languages are Context free
c) All formal languages are like natural language
d) Natural languages are context-oriented free
e) Natural language is formal
View Answer
Answer: a
Explanation: Not all formal languages are context-free.

10. Which of the following statement is not true?
a) The union and concatenation of two context-free languages is context-free
b) The reverse of a context-free language is context-free, but the complement need not be
c) Every regular language is context-free because it can be described by a regular grammar
d) The intersection of a context-free language and a regular language is always context-free
e) The intersection two context-free languages is context-free
View Answer

Answer: e
Explanation: The union and concatenation of two context-free languages is context-free; but intersection need not be.

Artificial Intelligence Questions and Answers – Learning – 2

This set of Artificial Intelligence MCQs focuses on “Learning – 2”.

1. Factors which affect the performance of learner system does not include
a) Representation scheme used
b) Training scenario
c) Type of feedback
d) Good data structures
View Answer

Answer: d
Explanation: Factors which affect the performance of learner system does not include good data structures.

2. Different learning method does not include:
a) Memorization
b) Analogy
c) Deduction
d) Introduction
View Answer

Answer: d
Explanation: Different learning methods include memorization, analogy and deduction.

3. Which of the following is the model used for learning?
a) Decision trees
b) Neural networks
c) Propositional and FOL rules
d) All of the mentioned
View Answer

Answer: d
Explanation: Decision trees, Neural networks, Propositional rules and FOL rules all are the models of learning.

4. Automated vehicle is an example of _____.
a) Supervised learning
b) Unsupervised learning
c) Active learning
d) Reinforcement learning
View Answer

Answer: a
Explanation: In automatic vehicle set of vision inputs and corresponding actions are available to learner hence it's an example of supervised learning.

5. Following is an example of active learning:
a) News Recommender system
b) Dust cleaning machine
c) Automated vehicle
d) None of the mentioned
View Answer
Answer: a
Explanation: In active learning, not only the teacher is available but the learner can ask suitable perception-action pair example to improve performance.

6. In which of the following learning the teacher returns reward and punishment to learner?

a) Active learning
b) Reinforcement learning
c) Supervised learning
d) Unsupervised learning
View Answer

Answer: b
Explanation: Reinforcement learning is the type of learning in which teacher returns award or punishment to learner.

7. Decision trees are appropriate for the problems where:
a) Attributes are both numeric and nominal
b) Target function takes on a discrete number of values.
c) Data may have errors
d) All of the mentioned
View Answer

Answer: d
Explanation: Decision trees can be used in all the conditions stated.

8. Which of the following is not an application of learning?
a) Data mining
b) WWW
c) Speech recognition
d) None of the mentioned
View Answer

Answer: d
Explanation: All mentioned options are applications of learning.

9. Which of the following is the component of learning system?
a) Goal
b) Model
c) Learning rules
d) All of the mentioned
View Answer
Answer: d
Explanation: Goal, model, learning rules and experience are the components of learning system.

10. Following is also called as exploratory learning:
a) Supervised learning
b) Active learning
c) Unsupervised learning
d) Reinforcement learning
View Answer

Answer: c
Explanation: In unsupervised learning no teacher is available hence it is also called unsupervised learning.

Artificial Intelligence Questions and Answers – Learning – 1

This set of Artificial Intelligence MCQs focuses on “Learning – 1”.

1. What will take place as the agent observes its interactions with the world?
a) Learning
b) Hearing
c) Perceiving
d) Speech
View Answer

Answer: a
Explanation: Learning will take place as the agent observes its interactions with the world and its own decision making process.

2. Which modifies the performance element so that it makes better decision?
a) Performance element
b) Changing element
c) Learning element
d) None of the mentioned
View Answer

Answer: c
Explanation: A learning element modifies the performance element so that it can make better decision.

3. How many things are concerned in design of a learning element?
a) 1
b) 2
c) 3
d) 4
View Answer

Answer: c
Explanation: The three main issues are affected in design of a learning element are components, feedback and representation.

4. What is used in determining the nature of the learning problem?
a) Environment
b) Feedback
c) Problem
d) All of the mentioned
View Answer

Answer: b
Explanation: The type of feedback is used in determining the nature of the learning problem that the agent faces.

5. How many types are available in machine learning?
a) 1
b) 2
c) 3
d) 4
View Answer
Answer: c
Explanation: The three types of machine learning are supervised, unsupervised and reinforcement.

6. Which is used for utility functions in game playing algorithm?
a) Linear polynomial
b) Weighted polynomial
c) Polynomial
d) Linear weighted polynomial
View Answer

Answer: d
Explanation: Linear weighted polynomial is used for learning element in the game playing programs.

7. Which is used to choose among multiple consistent hypotheses?
a) Razor
b) Ockham razor
c) Learning element
d) None of the mentioned
View Answer

Answer: b
Explanation: Ockham razor prefers the simplest hypothesis consistent with the data intuitively.

8. What will happen if the hypothesis space contains the true function?
a) Realizable
b) Unrealizable
c) Both a & b
d) None of the mentioned
View Answer

Answer: b
Explanation: A learning problem is realizable if the hypothesis space contains the true function.

9. What takes input as an object described by a set of attributes?
a) Tree

b) Graph
c) Decision graph
d) Decision tree
View Answer
Answer: d
Explanation: Decision tree takes input as an object described by a set of attributes and returns a decision.

10. How the decision tree reaches its decision?
a) Single test
b) Two test
c) Sequence of test
d) No test
View Answer

Answer: c
Explanation: A decision tree reaches its decision by performing a sequence of tests

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

A.
True

B.
False

C.

D.

Answer Report Discuss

Option: A

Explanation :

2:
Artificial neural network used for

A.
Pattern Recognition

B.
Classification

C.
Clustering

D.
All of these

Answer Report Discuss

Option: D

Explanation :

3:

A Neural Network can answer

A.
For Loop questions

B.
what-if questions

C.
IF-The-Else Analysis Questions

D.
None of these

Answer Report Discuss

Option: B

Explanation :

4:

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

Answer Report Discuss

Option: B

Explanation :

5:

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

Answer Report Discuss

Option: B

Explanation :

Read more: http://www.avatto.com/computer-science/test/mcqs/soft-computing/ann/514/1.html#ixzz46VE8CQAp

6:

In artificial Neural Network interconnected processing elements are called

A.
nodes or neurons

B.
weights

C.
axons

D.
Soma

Answer Report Discuss

Option: A

Explanation :

7:

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

A.
neurons

B.
weights

C.

bias

D.

activation function

Answer Report Discuss

Option: B

Explanation :

8:

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

A.

True

B.

False

C.

D.

Answer Report Discuss

Option: A

Explanation :

9:

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

Answer Report Discuss

Option: B

Explanation :

10:
Neuron can send _____ signal at a time.

A.
multiple

B.
one

C.
none

D.
any number of

Answer Report Discuss

Option: B

Explanation :

Read more: http://www.avatto.com/computer-science/test/mcqs/soft-computing/ann/514/2.html#ixzz46VEVzf3a

1:

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

Answer Report Discuss

Option: C

Explanation :

2:

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

Answer Report Discuss

Option: C

Explanation :

3:
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

Answer Report Discuss

Option: B

Explanation :

4:
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

Answer Report Discuss

Option: B

Explanation :

5:
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

Answer Report Discuss

Option: A

Explanation :

Read more: http://www.avatto.com/computer-science/test/mcqs/soft-computing/questions/192/1.html#ixzz46VEoNPTw

6:
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

Answer Report Discuss

Option: B

Explanation :

7:
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

Answer Report Discuss

Option: A

Explanation :

8:
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

Answer Report Discuss

Option: A

Explanation :

9:
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

Answer Report Discuss

Option: D

Explanation :

10:

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

Answer Report Discuss

Option: A

Explanation :

Read more: http://www.avatto.com/computer-science/test/mcqs/soft-computing/questions/192/2.html#ixzz46VF3O07W

11:

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

Answer Report Discuss

Option: B

Explanation :

12:
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

Answer Report Discuss

Option: B

Explanation :

13:

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

Answer Report Discuss

Option: C

Explanation :

14:

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

Answer Report Discuss

Option: B

Explanation :

15:
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

Answer Report Discuss

Option: C

Explanation :

Read more: http://www.avatto.com/computer-science/test/mcqs/soft-computing/questions/192/3.html#ixzz46VFK5DKd

1:

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

Answer Report Discuss

Option: A

Explanation :

2:

Who initiated the idea of Soft Computing

A.

Charles Darwin

B.

Lofti A Zadeh

C.
Rechenberg

D.
Mc_Culloch

Answer Report Discuss

Option: B

Explanation :

3:
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

Answer Report Discuss

Option: D

Explanation :

4:

Neural Computing

A.
mimics human brain

B.
information processing paradigm

C.
Both (a) and (b)

D.
None of the above

Answer Report Discuss

Option: C

Explanation :

5:

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

Answer Report Discuss

Option: D

Explanation

Read more: http://www.avatto.com/computer-science/test/mcqs/soft-computing/introduction/512/1.html#ixzz46VFZ9z1x

6:
What are the 2 types of learning

A.
Improvised and unimprovised

B.
supervised and unsupervised

C.
Layered and unlayered

D.
None of the above

Answer Report Discuss

Option: B

Explanation :

7:
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

Answer Report Discuss

Option: C

Explanation :

8:
Unsupervised learning is

A.
learning without computers

B.
problem based learning

C.
learning from environment

D.
learning from teachers

Answer Report Discuss

Option: C

Explanation :

9:

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)

D.

None of the above

Answer Report Discuss

Option: C

Explanation :

10:

In supervised learning

A.

classes are not predefined

B.
classes are predefined

C.
classes are not required

D.
classification is not done

Answer Report Discuss

Option: B

Explanation :

Read more: http://www.avatto.com/computer-science/test/mcqs/soft-computing/introduction/512/2.html#ixzz46VFqvgSd

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

C.

D.

Answer Report Discuss

Option: A

Explanation :

2:

The membership functions are generally represented in

A.

Tabular Form

B.

Graphical Form

C.

Mathematical Form

D.

Logical Form

Answer Report Discuss

Option: B

Explanation :

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

Answer Report Discuss

Option: D

Explanation :

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

Answer Report Discuss

Option: C

Explanation :

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

A.

Core

B.

Support

C.

Boundary

D.

Fuzzy

Answer Report Discuss

Option: A

Explanation :

Read more: http://www.avatto.com/computer-science/test/mcqs/soft-computing/questions/369/1.html#ixzz46VG385ou

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

Answer Report Discuss

7:

In a Fuzzy set a prototypical element has a value

A.
1

B.
0

C.
infinite

D.
Not defined

Answer Report Discuss

Option: A

Explanation :

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

Answer Report Discuss

Option: B

Explanation :

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

Answer Report Discuss

Option: A

Explanation :

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

Answer Report Discuss

Option: B

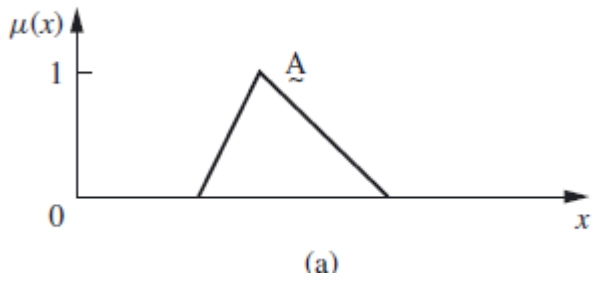
Explanation :

Read more: http://www.avatto.com/computer-science/test/mcqs/soft-computing/questions/369/2.html#ixzz46VGHJtYr

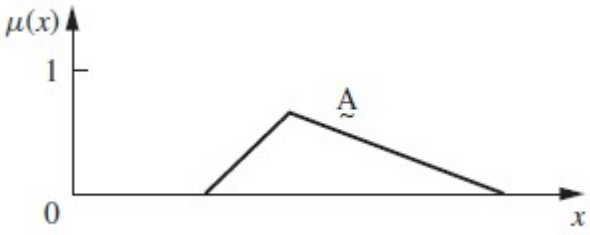
11:

Match the Column

List I



(a)



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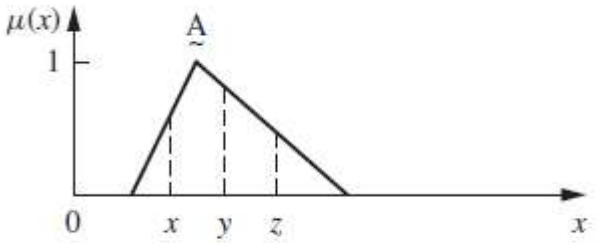
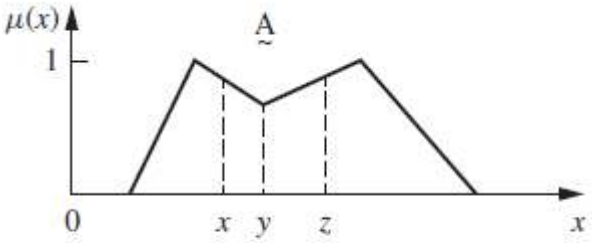


(c)



(d)

List II

1 Subnormal Fuzzy Set

2 Normal Fuzzy Set

3 Non Convex Normal Fuzzy Set

4 Convex Normal Fuzzy Set

A.

a b c d

2 1 4 3

B.

a b c d

1 2 3 4

C.

a b c d

4 3 2 1

D.

a b c d

3 2 1 4

Answer Report Discuss

Option: A

Explanation :

12: 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

Answer Report Discuss

Option: D

Explanation :

Read more: http://www.avatto.com/computer-science/test/mcqs/soft-computing/questions/369/3.html#ixzz46VGTKXoG

Questions

1. Which of the following(s) is/are found in Genetic Algorithms?

   (i)

   evolution

   (ii)

   selection

   (iii)

   reproduction

   (iv)

   mutation


: Your answer is

(a)

i & ii only

(b)

i, ii & iii only

(c)

ii, iii & iv only

(d)

all of the above

2. Matching between terminologies of Genetic Algorithms and Genetics:

Genetic Algorithms	Genetics (biology)
(a) representation structures	(i) external disturbance, such as cosmic radiation
(b) crossover	(ii) chromosomes
(c) mutation	(iii) survivability
(d) selection	(iv) sexual reproduction

: Your answer is .3

4. (a)
5. _____
6. (b)
7. _____
8. (c)
9. _____
10. (d)
11. _____

12. Where are Genetic Algorithms applicable?

(i)

real time application

(ii)

biology

(iii)

Artificial Life

(iv)

economics

 : Your answer is

(a)

i, ii & iii only

(b)

ii, iii & iv only

(c)

i, iii & iv only

(d)

all of the above

13. Which of the following(s) is/are the pre-requisite(s) when Genetic Algorithms are applied to solve problems?

(i)

encoding of solutions

(ii)

well-understood search space

(iii)

method of evaluating the suitability of the solutions

(iv)

contain only one optimal solution

 : Your answer is

(a)

i & ii only

(b)

ii & iii only

(c)

i & iii only

(d)

iii & iv only

14. Which of the following statement(s) is/are true?

(i)

Genetic Algorithm is a randomised parallel search algorithm, based on the principles of natural selection, the process of evolution.

(ii)

GAs are exhaustive, giving out all the optimal solutions to a given problem.

(iii)

GAs are used for solving optimization problems and modeling evolutionary phenomena in the natural world.

(iv)

Despite their utility, GAs remain a poorly understood topic.


: Your answer is

(a)

i, ii & iii only

(b)

ii, iii & iv only

(c)

i, iii & iv only

(d)

all of the above

15. If crossover between chromosome in search space does not produce significantly different offsprings, what does it imply? (if offspring consist of one half of each parent)

(i)

The crossover operation is not succesful.

(ii)

Solution is about to be reached.

(iii)

Diversity is so poor that the parents involved in the crossover operation are similar.

(iv)

The search space of the problem is not ideal for GAs to operate.

 : Your answer is

(a)

ii, iii & iv only

(b)

ii & iii only

(c)

i, iii & iv only

(d)

all of the above

16. Which of the following comparison is true?

 : Your answer is

(a)

In the event of restricted acess to information, GAs win out in that they require much fewer information to operate than other search.

(b)

Under any circumstances, GAs always outperform other algorithms.

(c)

The qualities of solutions offered by GAs for any problems are always better than those provided by other search.

(d)

GAs could be applied to any problem, whereas certain algorithms are applicable to limited domains.

17. Which of the following statement(s) is/are true?

(i)

Artificial Life is analytic, trying to break down complex phenomena into their basic components.

(ii)

Alife is a kind of Artificial Intelligence (AI).

(iii)

Alife pursues a two-fold goal: increasing our understanding of nature and enhancing our insight into artificial models, thereby providing us with the ability to improve their performance.

(iv)

Alife extends our studies of biology, life-as-we-know-it, to the larger domain of possible life, life-as-it-could-be.


: Your answer is

(a)

i & ii only

(b)

iii & iv only

(c)

i, ii & iii only

(d)

all of the above

18. Where is Artificial Life applicable?

(i)

film (movie, video) production

(ii)

biology

(iii)

robotics

(iv)

air traffic control

 : Your answer is

(a)

i, ii & iii only

(b)

ii, iii & iv only

(c)

i, iii & iv only

(d)

all of the above

19. Who can be benefited from Alife?

(i)

children

(ii)

designers

(iii)

artists

(iv)

patients

 : Your answer is

(a)

i, ii & iii only

(b)

ii, iii & iv only

(c)

i, iii & iv only

(d)

all of the above

: Answers

Q1.

Which of the following(s) is/are found in Genetic Algorithms?

The correct answer is *(d)*.

An initial population evolves to some optimal solutions. Selection biases for better individuals, judged by their fitness values; two individuals are chosen for reproducing offspring. By combining portions of good individuals, this process is likely to create even better individuals.


...Go Back

Q2.

Matching between terminologies of Genetic Algorithms and Genetics:

The correct answer is :

(a)

(ii)

(b)

(iv)

(c)

(i)

(d)

(iii)


...Go Back

Q3.

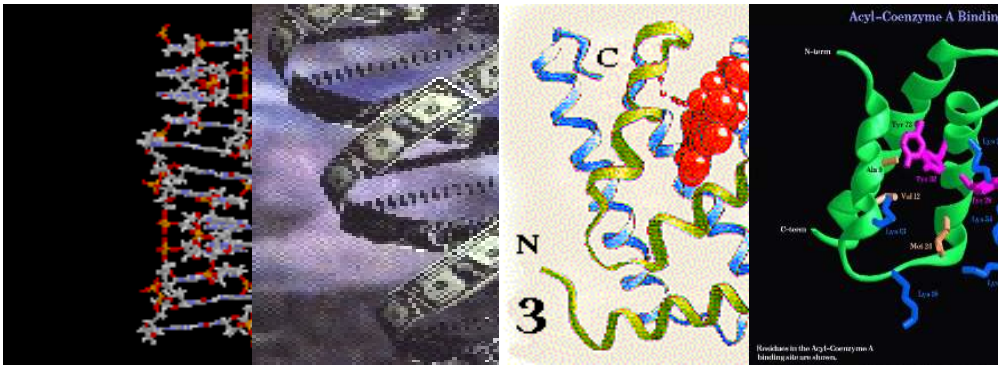
Where are Genetic Algorithms applicable?

The correct answer is *(b)*.

Genetic Algorithms can be used to evolve strategies for interaction in the Prisoner's Dilemma in economics. GAs are used as a computational method in

Alife - simulation of living systems starting with single cells and evolving to orgranisms, societies or even whole economic systems. These features compete for the limited resources in this virtual world. In biology, GAs are used in protein structure prediction, protein folding, stability of DNA hairpins .and modeling of immune system

DNA structures Protein Structures



It cannot be applied in real time systems. The response time is critical. However, GAs cannot guarantee to find a solution. The time spent in evaluation of fitness function and other genetic operations is substantially .large, especially in a poorly- understood, complex search space

...Go Back

Q4.

Which of the following(s) is/are the requirement(s) when Genetic Algorithms are applied to solve problems?

The correct answer is *(c)*.

The problem is mapped into a set of strings with each string representing a potential solution (i.e. chromosomes). A fitness function is required to compare and tell which solution is better. GA performance is heavily .dependent on the representation chosen

GAs are designed to efficiently search large, non-linear, poorly understood search space where expert knowledge is scarce or difficult to encode and where traditional techniques fail. However, domain knowledge guides GAs to obtain the optimal solutions. Moreover, GAs are powerful enough to solve for .a set of (nearly) optimal solutions

...Go Back

Q5.

Which of the following statement(s) is/are true?

The correct answer is *(c)*.

The search space is too complex for exhaustive search such that GAs successfully find robust solutions after evaluating only a few percent of the full parameter space.

It can never be guaranteed that GAs will find an optimal solution or even any solution at all.

Their probabilistic nature and reliance on frequent interactions of members of a large population make a complete analytic understanding of GAs extremely difficult.


...Go Back

Q6.

If crossover between chromosome in search space does not produce significantly different offspring, what does it imply? (if offspring consist of one half of each parent)

The correct answer is *(b)*.

When crossover operation does not produce siginificantly different offsprings, it shows that the parents involved are almost identical. Hence, it means that solution is about to be reached. However, this solution derived is not neccessarily the optimal solution. From here, we could see that mutation is necessary to maintain the diversity of the population so that GAs would not be trapped in partial solutions.


...Go Back

Q7.

Which of the following comparison is true?

The correct answer is *(a)*.

- This is true since GAs require only information that would evaluate the fitness function for the possible soulutions (individuals in search space). But for other searches which generally require more information, like differentiability of problem function, might find it hard to find them.
- This holds true in most circumstances. However, if the search space is small enough, other search like hill-climbing or heuristic, which are very effective in explorating small space, would just perform as good.
- GAs have only been developed for a couple of decades while traditional searches have been investigated for a longer time. Thus GAs do not necessarily produce a better quality solution.
- Evidently certain algorithms are only applicable to limited domains . However, certain difficulties, like encoding of problems, might hinder the use of GAs.

Q8.

Which of the following statement(s) is/are true?

The correct answer is *(b)*.

Alife is characterised by a bottom-up synthesis approach, so that the robotics work tends to aim for insect-like capability rather than human, and complex hebaviours are developed by putting together more simple ones. Artificial forms of evolution such as Genetic Algorithms and Genetic Programming are widely used to evolve solutions or behaviours rather than designing them in a .top-down fashion in Artificial Intelligence

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Q9.

Where is Artificial Life applicable?

The correct answer is *(d)*.

Alife is applicable in many fields, such as a walking robot .shown on the right

...Go Back

Q10.

Who can be benefited from Alife?

The correct answer is *(d)*.

Children can use various computational tools (including [illegible] Logo and Electronic Bricks) to build artificial creatures, exploring

.some of the central ideas of Alife

GAs can be applied to the design of laminated composite structures, circuit designs and the improvement of Pareto optimal designs. Genetic programming can help artists to create many pictures. Medical problems can also be .detected: Medibrains

 ...Go Back