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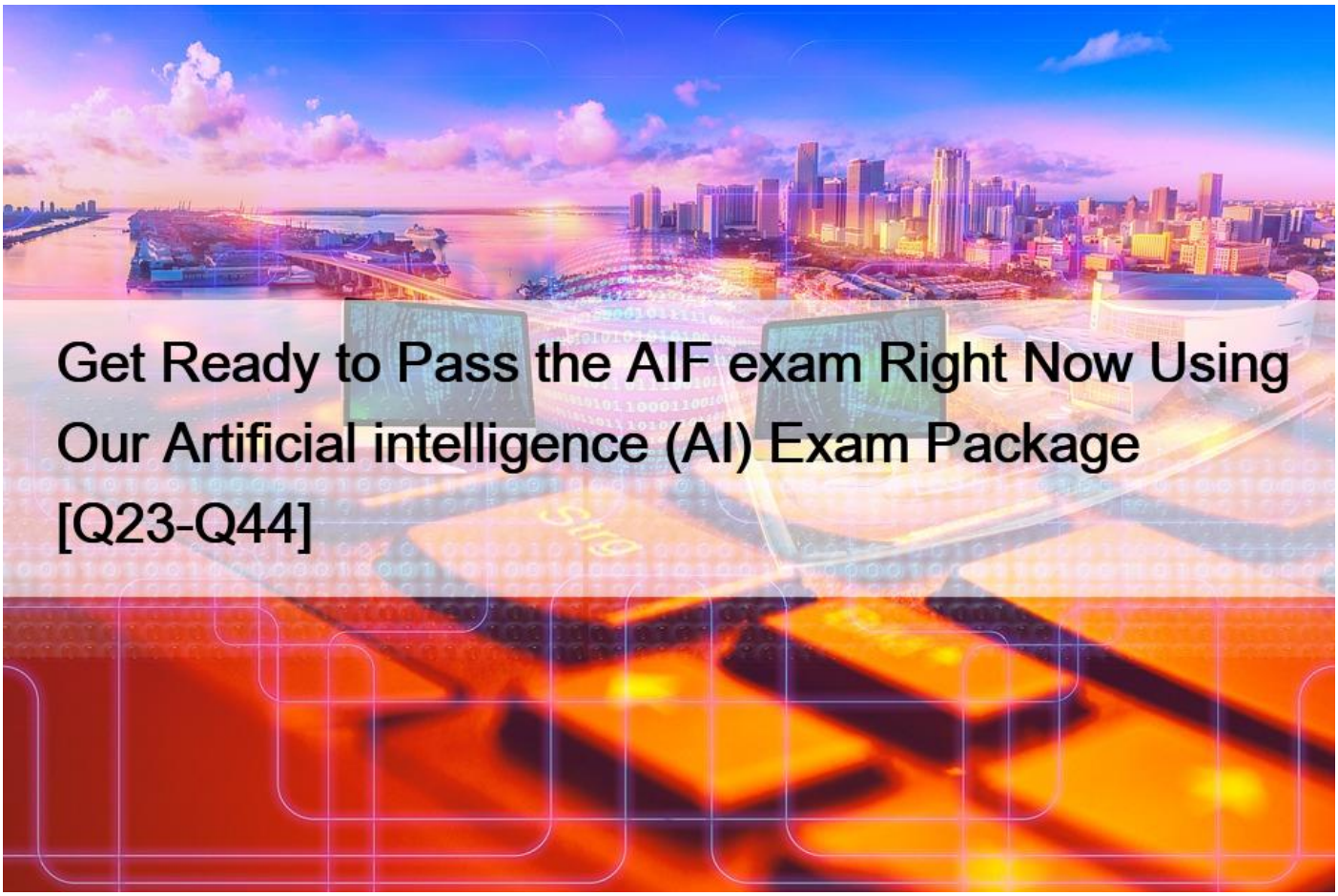

Get Ready to Pass the AIF exam Right Now Using Our Artificial intelligence (AI) Exam Package Enhance Your Career With Available Preparation Guide for AIF Exam NO.23 In the 1800’s the development of statistics led to_____theorem and is used in probabilistic inference.

(Select the missing word.)
* Boltzmann’s
* Kolmogorov’s
* Bayes’
* The central limit

Explanation

The development of statistics in the 1800s led to the development of the Bayes’ theorem, named after Reverend Thomas Bayes. This theorem is used in probabilistic inference, which is the process of using data to calculate the likelihood of a hypothesis or outcome. The theorem is used for determining the probability of an event occurring given its prior probability, as well as its associated conditions. The Bayes’ theorem is also used in a variety of fields, such as machine learning, artificial intelligence, economics, and medical research.

Sources:

* BCS Foundation Certificate In Artificial Intelligence Study Guide: https://www.bcs.org/category/18071

* APMG

International: https://www.apmg-international.com/en/qualifications/qualification-resources/bcs-foundatio

* EXIN: https://www.exin.com/en/certification/bcs-foundation-certificate-in-artificial-intelligence

NO.24 Tensor flow is a typical open source what?
* Cloud based AI application.
* Intelligent robot paradigm.
* Machine learning library.
* Agent based modelling application

Explanation

TensorFlow is an end-to-end open source platform for machine learning. It has a comprehensive, flexible

ecosystem of tools, libraries and community resources that lets researchers push the state-of-the-art in ML and

developers easily build and deploy ML powered applications.

https://www.tensorflow.org/#:~:text=TensorFlow%20is%20an%20end%2Dto,and%20deploy%20ML%20power

NO.25 What are monotonous and repetitive tasks, that require accuracy BEST suited to?
* Human plus machine.
* Machine.
* Human.
* Artificial General Intelligence.

Explanation

Monotonous and repetitive tasks that require accuracy are best suited to machines. Machines are able to accurately and quickly perform tasks that require little to no creativity, such as data entry or image recognition.

This is because machines are able to process large amounts of data quickly and accurately, and are less likely to make mistakes than humans. Additionally, machines are able to process large amounts of data without becoming bored or distracted, making them ideal for tasks that require consistent accuracy. For more information, please see the BCS Foundation Certificate In Artificial Intelligence Study Guide or the resources listed above.

Search results: BCS Foundation Certificate in Artificial Intelligence Study Guide, Chapter 4: Machine Learning: https://www.bcs.org/category/19669

NO.26 Healthcare can benefit from Al, and in particular Machine Learning, an example of which is?
* Autonomous wheelchairs.
* Automated blood sampling.
* Autonomous vehicles.
* Diagnostic image analysis

Explanation

Healthcare can benefit from AI, and in particular Machine Learning, in a number of ways. One example is diagnostic image analysis, which can help to automatically identify and classify abnormalities in medical images such as X-rays, CT scans, and MRI scans. Machine Learning algorithms can be used to detect patterns in the data which can be used to accurately diagnose diseases and illnesses.

References:

[1] https://www.bcs.org/upload/pdf/foundation-certificate-ai-syllabus-v1.pdf [2] https://www.apmg-international

NO.27 A vector in vector calculus is a quantity that has magnitude and direction.

What is a vector in computer programming?
* An array with one dimension.
* A two-dimensional array of scalars.
* An array of complex numbers
* A constant

NO.28 Which of the following is an example of fitting a curve to a set of data?
* Python.
* Least squares regression.
* Bayesian network.
* Backward propagation.

NO.29 What does Prof David Chalmers describe the hard consciousness problem to be as comples as?
* Psychology.
* Turbulence.
* Quantum mechanics.
* The universe.

NO.30 Which of the following is an advantage of a machine based system?
* Able to judge ambiguous and unknown situations.
* Capable of sympathising with humans.
* Undertakes monotonous tasks reliably and accurately.
* Can explain the output of an Al system

NO.31 What is one of the MAIN contributions of Al to the rapid development of The Fourth Industrial Revolution?
* Enhanced design.
* Automation
* Big Data
* Al personal assistants.

https://research.com/careers/what-is-the-fourth-industrial-revolution

NO.32 The EU and United Nations have made designing for all individuals a core principle. What is this type of design called?
* Core design
* Universal design.
* Biophilic design.
* Utopic design.

https://universaldesign.ie/What-is-Universal-Design/

NO.33 Who was the pioneer of computer programming?

* Dame Wendy Hall.
* Karen Spark Jones.
* Ada Lovelace.
* Sophie Wilson

Explanation

https://www.techopedia.com/2/31564/watercooler/ada-lovelace-enchantress-of-numbers

Ada Lovelace was an English mathematician and writer who is widely credited as the pioneer of computer programming. In 1842, she wrote an article in which she outlined the fundamental principles of computing, making her the first person to recognize the potential of computers and to describe algorithms that could be used to program them. Her work laid the basis for modern computing and is recognized as one of the most significant contributions to the field of computing.

References: https://www.bcs.org/more/certifications/foundation-certificate-in-artificial-intelligence/

NO.34 What technique can be adopted when a weak learners hypothesis accuracy is only slightly better than 50%?
* Over-fitting
* Activation.
* Iteration.
* Boosting.

Weak Learner: Colloquially, a model that performs slightly better than a naive model.

More formally, the notion has been generalized to multi-class classification and has a different meaning beyond better than 50 percent accuracy.

For binary classification, it is well known that the exact requirement for weak learners is to be better than random guess. […] Notice that requiring base learners to be better than random guess is too weak for multi-class problems, yet requiring better than 50% accuracy is too stringent.

– Page 46, Ensemble Methods, 2012.

It is based on formal computational learning theory that proposes a class of learning methods that possess weakly learnability, meaning that they perform better than random guessing. Weak learnability is proposed as a simplification of the more desirable strong learnability, where a learnable achieved arbitrary good classification accuracy.

A weaker model of learnability, called weak learnability, drops the requirement that the learner be able to achieve arbitrarily high accuracy; a weak learning algorithm needs only output an hypothesis that performs slightly better (by an inverse polynomial) than random guessing.

– The Strength of Weak Learnability, 1990.

It is a useful concept as it is often used to describe the capabilities of contributing members of ensemble learning algorithms. For example, sometimes members of a bootstrap aggregation are referred to as weak learners as opposed to strong, at least in the colloquial meaning of the term.

More specifically, weak learners are the basis for the boosting class of ensemble learning algorithms.

The term boosting refers to a family of algorithms that are able to convert weak learners to strong learners.

https://machinelearningmastery.com/strong-learners-vs-weak-learners-for-ensemble-learning/

NO.35 Which of the following is an advantage of a machine based system?
* Able to judge ambiguous and unknown situations.
* Capable of sympathising with humans.
* Undertakes monotonous tasks reliably and accurately.
* Can explain the output of an Al system

Explanation

One of the main advantages of a machine-based system is its ability to reliably and accurately undertake monotonous and repetitive tasks. This is especially useful for tasks that require a high level of accuracy and precision, such as data entry or analysis. Machine-based systems are also able to process large amounts of data quickly, meaning that they are able to complete tasks more quickly and efficiently than humans. Additionally, machine-based systems can be programmed to take certain decisions and actions based on the input data, allowing them to automate certain processes without the need for human intervention. References:

* BCS Foundation Certificate In Artificial Intelligence Study Guide (2019), AI Systems, Chapter 8.

* https://www.apmg-international.com/en/al-adoption/advantages-of-al/

NO.36 What term do computer scientists and economists use to describe how happy an agent is?
* Index.
* Warm.
* Return
* Utility.

Explanation

https://griffinshare.fontbonne.edu/cgi/viewcontent.cgi?article=1008&context=ijds Computer scientists and economists use the term “utility” to describe how happy an agent is. Utility is a measure of satisfaction or preference, and it is used to evaluate an agent’s satisfaction with a particular outcome. Utility can be used to determine the optimal decision or action for an agent to take in order to maximize its satisfaction. References:

[1] BCS Foundation Certificate In Artificial Intelligence Study Guide, “Decision Making and Planning”, p.99-100. [2] APMG-International.com, “Foundations of Artificial Intelligence” [3] EXIN.com, “Foundations of Artificial Intelligence”

NO.37 In Machine learning what are a brain’s axons called?
* Dendrites
* Edges
* Tetrahedra.
* Nodes

Explanation

In Machine Learning, the brain’s axons are referred to as nodes. Nodes are the components of a neural network that are responsible for processing the input data and generating the output. A node is a mathematical function that takes input data, performs a computation on it, and produces an output. Each node is connected to other nodes in the network via edges, which represent the strength of the connection between the respective nodes. The strength of the connection between two nodes is determined by the weights assigned to each edge.

The weights are adjusted during the training process to generate the desired results.

For more information, please refer to the BCS Foundation Certificate In Artificial Intelligence Study Guide

(https://www.bcs.org/upload/pdf/bcs-foundation-certificate-in-artificial-intelligence-study-guide.pdf) or the EXIN Artificial Intelligence Foundation Certification (https://www.exin.com/en/exams/artificial-intelligence-foundation).

NO.38 The EU’s Ethical Guidelines use what to demonstrate trustworthy Al?
* A quality assurance plan.
* UN’s sustainability goals.
* Customer feedback.
* A human-centric value system.

NO.39 An agent based model is a simul-ation of autonomous agents (individual and collective). What can be used to learn from the data generated by the simul-ations?
* Paraview.
* Machine Learning.
* Python.
* A spreadsheet

Explanation

An agent based model is a simulation of autonomous agents (individual and collective). Machine learning can be used to learn from the data generated by the simulations. Machine learning algorithms can analyze the data generated by simulations and identify patterns, which can then be used to help the agent make decisions and take actions. References:

[1] BCS Foundation Certificate In Artificial Intelligence Study Guide, “Simulation and Modelling”, p.101-104.

[2] APMG-International.com, “Foundations of Artificial Intelligence” [3] EXIN.com, “Foundations of Artificial Intelligence”

NO.40 Narrow or weak Al can be useful to robots.

Which of the following is an example of narrow Al?
* Conscioussimul-ation.
* Artificial General Al.
* Conscious integration.
* NLP – Natural Language Processing.

NO.41 Reflex andModel-based Reflex are two types of what?
* Robot
* Artificial intelligent agents.
* Algorithms.
* Compilers.

Explanation

Reflex and Model-based Reflex are two types of Artificial Intelligent Agents. Artificial Intelligent Agents are computer systems designed to act and think in a manner similar to humans, incorporating elements of problem solving, decision-making, communication, and learning. Reflex agents are reactive agents which act based on the current environment and conditions, while Model-based Reflex agents use a model of the environment to make decisions. References: BCS Foundation Certificate In Artificial Intelligence Study Guide, https://bcs.org/ai/certificate/ and APMG International, https://www.apmg-international.com/qualifications/artificial-intelligence-foundation-certificate.

NO.42 Splitting data into Training and Test data sets is part of what?
* Machine learning data preparation.

* Batch learning.
* Machine learning post processing.
* High performance computing strategy.

NO.43 Splitting data into Training and Test data sets is part of what?
* Machine learning data preparation.
* Batch learning.
* Machine learning post processing.
* High performance computing strategy.

Explanation

Splitting data into training and test data sets is an important step in the machine learning data preparation process. This process involves splitting the data into subsets, usually in a 70:30 ratio, to create a training set and a test set. The training set is used to train the machine learning model, while the test set is used to evaluate the model’s performance. This process allows for the model to be tested and evaluated on data that it has not seen before, in order to ensure that it is accurate and able to generalize to new data. References: BCS Foundation Certificate In Artificial Intelligence Study Guide, https://bcs.org/certifications/foundation-certificates/artificial-intelligence/

NO.44 In the 1800’s the development of statistics led to_____theorem and is used in probabilistic inference.

(Select the missing word.)
* Boltzmann’s
* Kolmogorov’s
* Bayes’
* The central limit

BCS AIF exam is designed for individuals with a basic understanding of computer science and programming. It is a multiple-choice exam that consists of 40 questions, which must be completed in 60 minutes. AIF exam is computer-based and can be taken at any Pearson VUE test center. The passing score for the exam is 26 out of 40, and the certification is valid for three years.

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