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BCS Foundation Certificate In Artificial Intelligence

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QUESTION NO: 1

Sustainability focuses on which three core areas?

A. Scientific, Environmental and Economic.

B. Social, Economic and Environmental.

C. Social, Economic and Entrepreneurial.

D. Social, Entrepreneurial and Environmental.

ANSWER: B

Explanation:

The term sustainability is broadly used to indicate programs, initiatives and actions aimed at the preservation of a particular resource. However, it actually refers to four distinct areas: human, social, economic and environmental – known as the four pillars of sustainability.

https://www.futurelearn.com/info/courses/sustainable-business/0/steps/78337#:~:text=However%2C%20it%20actually%20refers%20to,the%20four%20pillars%20of%20sustainability.&text=Human%20sustainability%20aims%20to%20maintain%20and%20improve%20the%20human%20capital%20in%20society.

Sustainability focuses on these three core areas because they all have an impact on the environment and society. Social sustainability is concerned with the relationships between people and how to create a society that is equitable and fair for all members. Economic sustainability focuses on the creation of a viable economic system that provides for the needs of the present without compromising the ability of future generations to meet their own needs. Environmental sustainability focuses on protecting natural resources, ecosystems and habitats, and minimizing the impact of human activities on the environment. References: https://www.bcs.org/more/certifications/foundation-certificate-in-artificial-intelligence/ https://www.apmg-international.com/en-gb/courses/sustainability/sustainability-foundation-and-certification/

QUESTION NO: 2

Healthcare can benefit from AI, and in particular Machine Learning, an example of which is?

A. Autonomous wheelchairs.

B. Automated blood sampling.

C. Autonomous vehicles.

D. Diagnostic image analysis

ANSWER: D

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.com/en/qualifications-and-certifications/bc-foundation-certificate-in-artificial-intelligence/ [3] https://www.exin.com/en/certifications/bc-foundation-certificate-in-artificial-intelligence/ [4] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3859976/

QUESTION NO: 3

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?

A. Paraview.

B. Machine Learning.

C. Python.

D. A spreadsheet

ANSWER: B

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"

QUESTION NO: 4

Who was the pioneer of computer programming?

A. Dame Wendy Hall.

B. Karen Spark Jones.

C. Ada Lovelace.

D. Sophie Wilson

ANSWER: C

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/ https://www.apmg-international.com/en-gb/courses/computing-and-programming/computing-and-programming-foundation-and-certification/

QUESTION NO: 5

With a large dataset, limited computational resources or frequent new data to learn from, we can adopt what type of machine learning?

A. Batch learning.

B. Big Data learning.

C. Patchwork learning.

D. Online learning.

ANSWER: D

Explanation:

Batch learning describes learning from large data sets. All of the data are used to train and test the algorithm. The computer resources required are governed by the volume, velocity, variety and veracity of data. This learning is done offline. Online learning is undertaken with data in small or mini batches. Learning occurs as data become available – an example is a system that learns from stock market prices.

Online learning is a type of machine learning that can be used when a large dataset is limited in computational resources or if the data is frequently changing. It allows the system to learn from new data as it is being presented, rather than having to re-train the entire dataset each time new data is added. This makes it more efficient and effective than batch learning, as it only needs to process the new data and not the entire dataset. Online learning is often used in applications such as fraud detection, where new data is constantly being added and needs to be analyzed quickly.

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).