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QUESTION NO: 1

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: 2

From the ELL's ethics guidelines for AI, what does 'The Principle of Autonomy,' mean?

- A. Robots will have freewill.
- B. AI agents will behave as humans.
- C. AI systems will be human-centric
- D. AI systems will preserve human agency.

ANSWER: D**Explanation:**

The Principle of Autonomy from the ELL's ethics guidelines for AI states that AI systems should be designed in a way that preserves human agency and responsibility. This means that AI systems should be designed in a way that allows humans to remain in control of their decisions, and that the AI system should not be able to act without human input or permission.

References: BCS Foundation Certificate In Artificial Intelligence Study Guide, <https://www.bcs.org/ai/certificate/> and APMG International, <https://www.apmg-international.com/qualifications/artificial-intelligence-foundation-certificate>.

QUESTION NO: 3

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: 4

What does Prof David Chalmers describe the hard consciousness problem to be as complex as?

- A. Psychology.
- B. Turbulence.
- C. Quantum mechanics.
- D. The universe.

ANSWER: D**Explanation:**

Prof David Chalmers describes the hard consciousness problem to be as complex as the universe. He argues that understanding consciousness is as hard as understanding the universe itself, due to the number of variables and dimensions involved. He has compared the complexity of the problem to that of turbulence, quantum mechanics, and psychology, but believes that the problem of consciousness is even more complex than all of these.

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] David J. Chalmers, "The Hard Problem of Consciousness", in J. Shear (ed.), Explaining Consciousness: The "Hard Problem", MIT Press, 1997.

QUESTION NO: 5

What function is used in a Neural Network?

- A. Linear.
- B. Activation.
- C. Statistical.
- D. Trigonometric.

ANSWER: B

Explanation:

Activation Functions

An [activation function](#) in a neural network defines how the weighted sum of the input is transformed into an output from a node or nodes in a layer of the network.

<https://machinelearningmastery.com/choose-an-activation-function-for-deep-learning/#:~:text=An%20activation%20function%20in%20a,a%20layer%20of%20the%20network.>

An activation function is a mathematical function used in a neural network to determine the output of a neuron. Activation functions are used to transform the inputs into an output signal and can range from simple linear functions to complex non-linear functions. Activation functions are an important part of neural networks and help the network learn patterns and generalize data. Types of activation functions include sigmoid, ReLU, tanh, and softmax. References: BCS Foundation Certificate In Artificial Intelligence Study Guide, <https://bcs.org/certifications/foundation-certificates/artificial-intelligence/>