Name: _____          Date: _____

# Answer Key: Wired Wisdom: A High-Voltage 10th Grade AI Quiz

Analyzing how black-box algorithms and reinforcement learning shape modern ethics before students tackle their next independent tech ethics project.

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**1. In the context of AlphaGo's victory over Lee Sedol, which learning paradigm allowed the system to discover strategies previously unknown to human experts?**

**Answer:** B) Reinforcement Learning

> Reinforcement learning uses a system of rewards and penalties to allow an agent to learn through trial and error, often discovering creative solutions that surpass human-taught patterns.

**2. Convolutional Neural Networks (CNNs) are primarily designed to process sequential data like audio and text due to their iterative feedback loops.**

**Answer:** B) False

> CNNs are primarily used for spatial data like images; Recurrent Neural Networks (RNNs) or Transformers are more commonly used for sequential data like audio and text.

**3. The concept of "_____" refers to the inherent difficulty in understanding exactly how a deep learning model reached a specific decision or output.**

**Answer:** B) The Black Box Problem

> The 'Black Box' problem describes the lack of interpretability in complex neural networks, where the internal weights and biases are too numerous for humans to easily trace.

**4. Which of the following is an example of 'Edge AI' implementation, focusing on localized processing rather than cloud-based analysis?**

**Answer:** A) A smart thermostat adjusting temperature without an internet connection

> Edge AI refers to processing data on the local device itself, which reduces latency and improves privacy by not sending data to a central cloud.

**5. Artificial General Intelligence (AGI) currently exists and is used by logistics companies to manage global supply chains autonomously.**

**Answer:** B) False

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While we have Narrow AI (Specialized AI), AGI—which would match human cognitive abilities across all domains—remains a theoretical future milestone.

**6. When a facial recognition system performs poorly on certain demographics due to a lack of variety in its training data, this is known as:**

**Answer:** C) Algorithmic Bias

Algorithmic bias occurs when human prejudices or skewed data sets are reflected in the AI's decision-making process.

**7. In the context of generative AI, the term _____ refers to the AI confidently generating false or nonsensical information.**

**Answer:** B) Hallucination

Hallucination happens when Large Language Models (LLMs) generate text that is grammatically correct but factually incorrect or illogical.

**8. A 'Turing Test' is passed when a machine can successfully simulate human conversation to the point where a judge cannot distinguish it from a human.**

**Answer:** A) True

Proposed by Alan Turing in 1950, this test remains a benchmark for evaluating a machine's ability to exhibit intelligent behavior equivalent to that of a human.

**9. Which mathematical concept is most fundamental to how neural networks adjust their internal weights to minimize error during training?**

**Answer:** C) Calculus (Derivatives)

Calculus, specifically derivatives, is used in gradient descent to determine how much to change a weight to reduce the loss function.

**10. The use of AI to create highly realistic but fake video or audio recordings of people is known as a _____.**

**Answer:** A) Deepfake

Deepfakes use Deep Learning (Generative Adversarial Networks) to replace the likeness of one person with another in video or audio.