

## Sensing the Synthetic: Ninth Grade Neural Network Quiz

Imagine diagnosing rare crop diseases or predicting urban traffic flow using complex algorithms that simulate human brain architecture and decision-making patterns.

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**1. In the context of computer vision, what is the primary function of a 'Convolutional Neural Network' (CNN)?**

- A. To generate human-like text responses for help desks
- B. To identify hierarchical patterns and features in visual data
- C. To store backup data in a decentralized cloud server
- D. To simulate chemical reactions in a laboratory setting

**2. Unsupervised learning requires a human to manually label every piece of training data before the algorithm can process it.**

- A. True
- B. False

**3. When an AI model performs exceptionally well on training data but fails to generalize to new, unseen information, this phenomenon is called \_\_\_\_.**

- A. Optimization
- B. Overfitting
- C. Backpropagation
- D. Hyper-threading

**4. Which field of AI is specifically concerned with enabling computers to understand, interpret, and generate human languages?**

- A. Genetic Algorithms
- B. Natural Language Processing (NLP)
- C. Robotic Process Automation
- D. Quantum Neural Computing

**5. Reinforcement learning is an AI training method based on rewarding desired behaviors and punishing undesired ones.**

- A. True
- B. False

**6. The ethical concern regarding AI systems making biased decisions based on historical data sets is known as \_\_\_\_.**

- A. Algorithmic Bias
- B. Digital Entropy
- C. Binary Conflict

Name: \_\_\_\_\_

Date: \_\_\_\_\_

D. Processing Lag

**7. In a neural network, what is the role of an 'Activation Function'?**

- A. To power down the hardware during overheating
- B. To determine if a neuron should be 'fired' based on its input signal
- C. To translate code from Python into English
- D. To encrypt the final output for security purposes

**8. Artificial General Intelligence (AGI), which can perform any intellectual task a human can, currently exists and is used in most smartphones.**

- A. True
- B. False

**9. The process of fine-tuning the weights of connections in a neural network to reduce error is called \_\_\_\_\_.**

- A. Data Mining
- B. Backpropagation
- C. Cloud Synching
- D. Logic Gating

**10. Which of these is a real-world example of AI improving environmental sustainability?**

- A. Algorithms optimizing power grid distribution to reduce waste
- B. Using AI to increase the speed of social media scrolling
- C. Neural networks that generate random passwords
- D. AI that predicts the winners of sporting events