Name: _____ **Date:** _____

Answer Key: Dissect Electronic Minds: A 4th Grade Advanced AI Lab Quiz

Develop critical analysis skills by synthesizing how pattern recognition and feedback loops enable synthetic systems to solve complex environmental challenges.

---

1. An environmental scientist uses a computer program to identify different species of coral by looking at thousands of underwater photos. This is an example of what process?

Answer: B) Pattern recognition

Pattern recognition allows AI to find similarities and differences in visual data to categorize objects like coral species.

2. When an AI makes a mistake and a human developer corrects it, the process of the math adjusting to get closer to the right answer is known as _____.

Answer: C) Backpropagation

Backpropagation is a key part of training neural networks where the system adjusts its internal connections based on errors.

3. A 'training set' is a large collection of data used to teach an AI how to make accurate predictions before it is used in the real world.

Answer: A) True

AI models require a curated training set to learn patterns and establish a baseline for its decision-making logic.

4. Imagine an AI designed to help a robotic bee pollinate flowers. If the bee ignores a flower it has already visited, it is demonstrating which high-level trait?

Answer: C) Logical reasoning

Ignoring a visited flower to maximize efficiency is a form of logical reasoning used to solve a specific problem.

5. In a neural network, the artificial layers that sit between the 'Input' and the 'Output' are called _____ layers.

Answer: B) Hidden

Name: _____ **Date:** _____

The 'hidden layers' are where the complex calculations and feature extractions happen in a deep learning model.

6. Computer vision is the field of AI that allows a drone to 'see' and avoid a power line while flying autonomously.

Answer: A) True

Computer vision involves processing visual input from cameras so the AI can understand and navigate its environment.

7. Which of the following describes a 'False Positive' in an AI wildlife monitoring system?

Answer: C) The AI identifies a blowing bush as a wolf.

A 'False Positive' occurs when the AI signals that it found a target when that target is actually not present.

8. A self-correcting thermostat that learns your favorite temperature settings over a week is using _____ to improve its performance.

Answer: C) Iterative learning

Iterative learning is the process where a system becomes more accurate through repeated exposure to new data over time.

9. Large Language Models (LLMs) understand the 'meaning' of words exactly like humans do through life experiences.

Answer: B) False

LLMs use statistical probability to predict the next word in a sequence; they do not have biological life experiences.

10. Why is 'Biased Data' a major concern for scientists building AI to help doctors?

Answer: B) It can lead to unfair or incorrect medical decisions.

If the training data does not represent everyone fairly, the AI might provide poor or harmful advice to certain groups of people.