

Subjective Assessment: Artificial Intelligence

Instructions:

Answer the following questions in detail. Support your answers with relevant examples and concepts from the provided AI Overview material. Each answer should demonstrate conceptual understanding and critical thinking.

Question 1

Define Artificial Intelligence (AI). Explain how AI differs from Machine Learning and Deep Learning. Illustrate the relationship among these three concepts with examples.

Answers:

Artificial Intelligence (AI) is a technology that allows computers or machines to perform tasks that normally require human intelligence. These tasks include learning, problem-solving, understanding language, and making decisions. The goal of AI is to make machines act smart like humans.

Machine Learning (ML) is a part of AI that allows computers to learn from data instead of being explicitly programmed. The machine improves its performance by finding patterns in the data. For example, a spam email filter learns to recognize unwanted emails based on previous examples.

Deep Learning (DL) is a more advanced part of Machine Learning. It uses artificial neural networks that are inspired by how the human brain works. Deep Learning is useful for complex tasks like image recognition or voice assistants.

Question 2

Analyze the role of Computer Vision, Speech Processing, and Natural Language Processing in modern AI applications. Provide practical examples for each technology.

Answers:

Computer Vision:

Computer vision allows machines to see and understand images or videos like humans. It is used in face recognition, self-driving cars, and security cameras.

Speech Processing:

Speech processing helps machines understand and respond to human voice. It is used in voice assistants and automated customer service systems.

Natural Language Processing :

NLP allows machines to read, understand, and generate human language. It is used in chatbots, translation apps, and text analysis.

Question 3

Explain the concept of Strong AI and Weak AI. Why is Strong AI still considered a future goal rather than a present reality?

Answers:

Strong AI is the idea of a machine that has real human-like intelligence. It would be able to think, understand, learn, and make decisions just like a human in any situation.

Weak AI is AI that is designed to perform a specific task only. It works smartly in its limited area but does not truly understand or think like a human.