

Q1. Artificial Intelligence refers to the capability of machines to mimic human intelligence and perform tasks such as reasoning, problem-solving, learning, and decision-making. It involves creating systems that can analyze data, understand patterns, and make autonomous decisions without human intervention. AI uses techniques like machine learning, neural networks, and natural language processing to simulate cognitive functions similar to humans. The major characteristics of Artificial Intelligence include adaptability, which allows systems to learn from experience; autonomy, where machines act independently; reasoning ability, which enables logical decision-making; problem-solving capability; and interaction through natural communication with humans. AI systems also show perception, allowing them to understand their surroundings through sensors and process information efficiently.

Q2. Natural or Human Intelligence is the biological intelligence possessed by humans, involving emotions, creativity, and consciousness. It allows learning from experience, understanding abstract ideas, and adapting flexibly to new situations. Artificial Intelligence, on the other hand, is developed through computer systems and algorithms. It operates within the limits of its programming, lacks emotions, and cannot think abstractly like humans. While human intelligence is self-aware and context-driven, AI relies purely on data and computational logic.

Q3. Weak AI, also known as Narrow AI, is designed to perform specific tasks such as voice recognition, image classification, or recommendations. It operates within a predefined scope and lacks true understanding or consciousness. Strong AI, in contrast, aims to replicate human-level intelligence capable of reasoning, learning, and adapting to any situation like a human mind. It can think independently and apply intelligence beyond the context of its programming, though such AI remains theoretical at present.

Q4. Agents are entities that perceive their environment through sensors and act upon it using actuators to achieve goals. They can range from simple software

bots to complex robotic systems. Intelligent agents are capable of analyzing the environment, making decisions, and improving performance based on feedback. The five main characteristics of intelligent agents are autonomy, meaning they operate without external control; reactivity, which allows them to respond to environmental changes; proactiveness, where they take the initiative to achieve goals; adaptability, allowing them to learn from experience; and social ability, enabling them to communicate and cooperate with other agents or humans.

Q5. Agent architecture defines how an intelligent agent is structured and functions internally. It includes components like sensors to perceive data, actuators to perform actions, and processing units that handle reasoning and decision-making. The architecture can be of various types, such as simple reflex, model-based, goal-based, and utility-based. Each type determines how the agent processes information and chooses actions to achieve its objectives effectively.