

## Conceptual/Application-Based Questions:

### 1. AI for Edge Computing:

- Define edge computing and explain how AI enhances its capabilities. Provide an example of a real-world application where AI-powered edge computing is critical.

Edge computing is a distributed computing paradigm that processes data closer to its source, reducing latency and bandwidth usage. AI enhances edge computing by enabling real-time decision-making, optimizing performance, and reducing reliance on cloud servers.

**Example:** AI-powered surveillance cameras use edge computing to detect suspicious activity in real-time, sending alerts only when necessary, reducing network congestion and response time.

### 2. AI and IoT Integration:

- How does the integration of AI with IoT improve the functionality of smart home systems? Explain with an example of an AI-powered IoT device and its benefits.

AI enhances IoT functionality by enabling smart decision-making, automation, and predictive capabilities in connected devices.

**Example:** AI-powered smart thermostats (e.g., Google Nest) learn user preferences and environmental conditions to optimize energy consumption, improving efficiency and user comfort.

### 3. AI and IoB (Internet of Bodies):

- What is the Internet of Bodies (IoB), and how does AI integration with IoB devices improve healthcare monitoring? Provide an example of an AI-powered IoB application.

The Internet of Bodies (IoB) refers to connected devices that monitor and interact with the human body. AI integration enables advanced health monitoring, personalized insights, and early disease detection.

**Example:** AI-driven smart implants, like the Medtronic pacemaker, use machine learning to adjust heart rhythms in real-time, improving patient outcomes.

#### 4. Human-AI Collaboration:

- What is human-AI collaboration, and how does it benefit industries like healthcare and creative arts? Provide an example of how AI can assist humans in a collaborative setting.

Human-AI collaboration involves AI systems working alongside humans to enhance productivity, creativity, and decision-making. This benefits industries like healthcare (diagnostics) and creative arts (content generation).

**Example:** In healthcare, AI-powered radiology tools (e.g., IBM Watson) assist doctors in analyzing medical images, improving accuracy and efficiency in diagnosing diseases.