

### **1. What is Machine Learning?**

Machine learning is a subset of artificial intelligence that focuses on the development of systems that can learn and improve from experience without being explicitly programmed.

### **2. Explain the concept of supervised learning.**

Supervised learning is a type of machine learning where the model is trained on labeled data. It involves input-output pairs, and the goal is to predict the output for new data.

### **3. What is the difference between classification and regression?**

Classification predicts discrete categories or labels, while regression predicts continuous values.

### **4. Define overfitting and how to prevent it.**

Overfitting occurs when a model learns the noise in the data instead of the actual pattern. It can be prevented using regularization techniques, cross-validation, or simplifying the model.

### **5. What is deep learning?**

Deep learning is a specialized subset of machine learning that uses artificial neural networks with many layers to process and learn from large amounts of data.