1. **What is the difference between a neuron and a neural network?**

The main difference between a neuron and a neural network is that a neuron is a fundamental unit of a neural network, while a neural network is a collection of interconnected neurons. A neuron is a computational unit that takes input, processes it, and produces an output. It mimics the functioning of a biological neuron, where it receives signals from other neurons, processes them, and generates an output signal. On the other hand, a neural network is a network of interconnected neurons, organized in layers, and designed to solve complex computational tasks by learning from data.

2. Can you explain the structure and components of a neuron?

3. Describe the architecture and functioning of a perceptron.

4. What is the main difference between a perceptron and a multilayer perceptron?

5. Explain the concept of forward propagation in a neural network.

6. What is backpropagation, and why is it important in neural network training?

7. How does the chain rule relate to backpropagation in neural networks?

8. What are loss functions, and what role do they play in neural networks?

9. Can you give examples of different types of loss functions used in neural networks?

10. Discuss the purpose and functioning of optimizers in neural networks.