

Pre Lab:-

1. What is McCulloch's pit neuron?

The McCulloch-Pitts neuron is an early computational model that processes binary inputs and produces a binary output based on a threshold.

2. What are the main parameters in McCulloch's pit neuron?

The main parameters are the inputs, weights, and a threshold value that determine if the neuron will fire or not.

3. How does McCulloch's pit neuron perform an AND operation?

The neuron performs an AND operation when all inputs are 1, and their weighted sum exceeds the threshold.

4. How does McCulloch's pit neuron perform an OR operation?

The neuron performs an OR operation when at least one input is 1, and the weighted sum meets or exceeds the threshold.

5. What is the significance of the weights and threshold in McCulloch's pit neuron's decision-making?

Weights assign importance to each input, while the threshold defines the boundary for whether the neuron activates or remains inactive.

VIVA:-

1. Provide a brief explanation of McCulloch's pit neuron concept.

The McCulloch-Pitts neuron is a simple computational model that processes binary inputs, applies weights, and outputs 0 or 1 based on a threshold value.

2. In your Python implementation of McCulloch's pit neuron, how did you determine the threshold and weights?

The threshold and weights are chosen based on the desired logical operation. For AND, OR, or other operations, specific values are assigned to match the expected output.

3. You implemented McCulloch's pit neuron for AND and OR operations. How did you set the parameters to perform these logical operations, and how does the neuron's output relate to the logic being implemented?

For AND, the threshold is set high, and weights ensure only a 1 output when both inputs are 1. For OR, the threshold is lower to trigger output with at least one 1 input.

4. If you wanted to extend its functionality to perform other logical operations, such as NOT, NAND, or XOR, how might you modify the neuron's parameters?

For NOT, you would use a single input and reverse the output. For NAND or XOR, you would adjust the weights and threshold or combine multiple neurons to achieve the desired logic.