

TILAK MAHARASHTRA VIDYAPEETH, PUNE
MASTER OF COMPUTER APPLICATIONS
(Specialization in Artificial Intelligence & Machine Learning)
EXAMINATION :MAY - 2024
SEMESTER - II
Sub: Artificial Neural Networks (MCAI 23-202)

Date : 23/05/2024

Total Marks :60

Time: 10.00 am to 12.30 pm

Instruction:

1. All questions are compulsory unless and otherwise stated.
2. Bold figures to the right of every question are the maximum marks for that question.
3. Candidates are advised to attempt questions in order.
4. Answers written illegibly are likely to be marked zero.
5. Use of scientific calculators, Log tables, Mollier Charts is allowed.
6. Draw neat and labelled diagram wherever necessary.

Q.1. Answer the following in 2-3lines. (Any 5) (10)

1. What are dendrites?
2. Enlist learning rule in neural network.
3. Define classification.
4. What is training error?
5. What is single layer feedback neural networks.
6. Give the advantages of ANN.
7. Define: i) Units ii) Connection

Q. 2. Answer the following in short. (Any 4) (20)

1. Distinguish between Biological neural network and artificial neural networks.
2. What is supervised learning? Draw and explain block diagram of supervised learning method.
3. Design a perceptron training rule to implement logical AND gate.
4. Draw and explain block diagram of pattern recognition and classification
5. Write a short note on multilayer perceptron neural network.
6. How to minimize the traveling salesman tour length.

Q. 3. Answer the following in detail. (Any 3) (30)

1. Explain following models of neural networks i)feedforward and ii)feedback networks
2. Using Hebb rule, find the weights required to perform the following classification of the given input patterns shown in figure.
The pattern is shown as 3*3 matrix form in the squares.

+	+	+
	+	
+	+	+

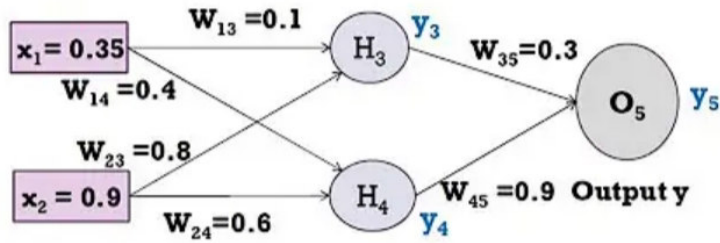
I

+	+	+
+		+
+	+	+

O

The “+” symbol represents the value “1” and empty square indicates “-1”

3. Write and explain algorithm of SDPTA (Single Discrete Perceptron Training Algorithm)
4. Assume that the neuron have a sigmoid activation function perform a forward pass and a backward pass on the network. Assume that the actual output of y is 0.5 and learning rate is 1. Perform another forward pass.



5. Explain in brief training and testing algorithm of Hopfield neural networks.
