



Department of Artificial Intelligence and Machine Learning

Course Code: : 21A163

Date : 22.06.2024

Semester : VI

Time : 12.00-1.30

Max Marks : 50

Duration : 90 mins

Artificial Neural Networks and Deep Learning

CIE 1

Note: Answer all the Questions

SL. No	Questions	M	BT	CO
1	a With appropriate diagrams, elaborate role of multi-layer feed forward and RNN architectures in various applications. Give appropriate diagrams wherever necessary.	3+3	2	2
	b Summarize the differences between Learning with a teacher and learning without a teacher method.	4	2	2
2	a Discuss the properties of neural networks.	4	1	1
	b "Pattern Recognition makes competitive learning an important component of ANN." Justify the statement.	6	4	2
3	a Assume RV College of Engineering needs to prepare a NN Model to analyse student data to provide timely and personalized feedback and assessment. Illustrate the learning tasks associated in building a NN model for the same.	10	3	3
4	a "The neurons constitute a recurrent structure and operate in binary manner in Boltzmann Learning". Analyze the statement and discuss Boltzmann learning in detail.	5	2	1
	b Investigate how the method of steepest descent and Newtons method can be implemented as an unconstrained optimization technique.	5	2	2
5	a For the given network 5.a, assuming learning rate as 1 and initial weights as 0, Threshold =0.2. , perform the classification using perceptron network. The vectors (1,1,1,1) and (-1,1,-1,-1) belong to class one (target 1) and vectors (1,1,1,-1) and (1,-1,-1,1) belong to class -1. Write the activation function , solve the perceptron for 3 epochs and explain the steps in detail.	6+4	3	3

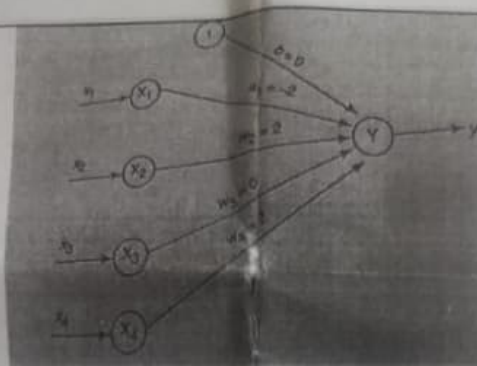


Figure 5.a

M-Marks, BT-Blooms Taxonomy Levels, CO-Course Outcomes

Marks	Particulars	CO1	CO2	CO3	CO4	CO5	L1	L2	L3	L4	L5	L6
Distribution	Max Marks CIE	09	21	20	--	--	4	20	20	6	--	--

Course Outcomes: After completing the course, the students will be able to:-

CO1	Describe basic concepts of neural network, its applications and various learning models
CO2	Analyse different Network Architectures, learning tasks, convolutional networks, and deep learning models
CO3	Investigate and apply neural networks model and learning techniques to solve problems related to society and industry
CO4	Demonstrate a prototype application developed using any NN tools and APIs
CO5	Appraise the knowledge of Neural Networks and Deep Learning as an Individual /as a team member