

**Course Name: Neural Networks****Course Outcome**

CO1- Understand the differences between networks for supervised and unsupervised learning

CO2- Design single and multi-layer Perceptron neural networks, activation functions

CO3- Understand Back Propagation Non-Linear Neural network architecture

CO4- Understand Convolutional Neural Network and Recurrent Neural Network

**Printed Pages:** 03

**University Roll No.**

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**Make Up Examination, Even Semester 2023-24**

**B. TECH (AIML), 3<sup>rd</sup> Year,  
VI<sup>th</sup> Semester**

**Subject Code & Subject Name- BCSC0706: Neural Networks**

**Time: 2 Hours**

**Maximum Marks: 30**

**Section – A**

*Attempt All Questions*

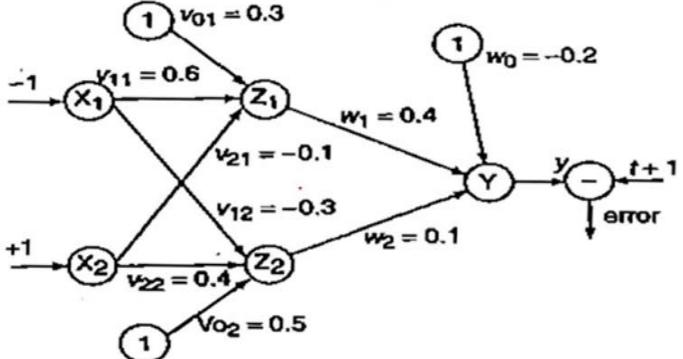
**3 X 5 = 15 Marks**

No.	Details of Questions	Marks	CO	BL	KL
1	Explain the learning process in a perceptron. Include the initialization of weights, activation of the perceptron, error computation, weight update, and the overall iterative process. Additionally, discuss the role of the activation function and the significance of the learning rate in the learning process of a perceptron. Finally, how does the perceptron's learning process contribute to its ability to classify input instances accurately?	3	3	E	P
2	How does Gradient Descent contribute to training neural networks?	3	3	E	P
3	"Explain the process of feedforward and backward propagation in the context of training a neural network for image classification tasks.	3	3	U	C
4	Implement AND function using McCulloch & Pitts Model	3	2	An	C
5	What are some common algorithms used in Unsupervised Learning, and how do they differ from Supervised Learning algorithms?	3	1	U	C

## Section – B

*Attempt All Questions*

$3 \times 5 = 15$  Marks

No.	Details of Questions	Marks	CO	BL	KL
6	Compare and contrast the ADALINE (Adaptive Linear Neuron) and MADALINE (Multiple ADALINE) networks in terms of their structure, learning algorithms, and applications.	5	2	U	C
7	Describe the key steps involved in updating the weights and bias of a neuron in a neural network during the training process. Briefly explain how the error signal and the learning rate influence the magnitude and direction of these updates.	5	2	An	P
8	Try to solve numerical using back propagation algorithm including sigmoid activation function with learning rate is 0.25 and target is 1 and reduce error.  	5	2	E	P