

**IV B. TECH I SEMESTER REGULAR EXAMINATIONS, NOVEMBER - 2023**  
**DEEP LEARNING**  
**(INFORMATION TECHNOLOGY)**

Time: 3 hours

Max. Marks: 70

**Note : Answer ONE question from each unit (5 × 14 = 70 Marks)**

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UNIT-I

1. a) What is deep learning. Explain its uses and applications? [7M]  
 b) Explain Biological Model of a Neuron? [7M]

(OR)

2. a) Compare and contrast the characteristics of popular activation functions like ReLU, Sigmoid, and Tanh. [9M]  
 b) What is Neuron in deep learning. [5M]

UNIT-II

3. a) Compare and contrast Single Layer Perceptron and Multilayer Perceptron. [7M]  
 b) Explain the architecture of a multilayer Perceptron? [7M]

(OR)

4. a) Define LMS? Explain the Least Mean Square (LMS) algorithm and its role in training a single-layer perceptron. [7M]  
 b) What are the functionality of neurons in different areas in deep learning? [7M]

UNIT-III

5. Illustrate Linear and logistic regression using MLP in detail. [14M]  
 (OR)  
 6. Discuss convolution and pooling operations. Explain architectural representation of CNN with MNIST dataset. [14M]

UNIT-IV

7. Define Recurrent Neural Networks (RNN) and explain their architecture in detail. [14M]  
 (OR)  
 8. a) Define different data types commonly used in deep learning, such as integers, floats, and tensors. [7M]  
 b) Explain Neuro scientific basis for convolution neural networks. [7M]

UNIT-V

9. a) Describe the following [10M]  
 (i) Long Short-Term Memory (ii) Other Gated RNNs.  
 b) What is Encoder? [4M]

(OR)

10. a) Describe Recursive Recurrent Neural Networks in detail. [7M]  
 b) Describe Denoising Autoencoders in detail. [7M]

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