

Code No: R204105E

R20

SET - 1

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM**  
**IV B. Tech I Semester Advanced Supplementary Examinations March 2025**

**DEEP LEARNING TECHNIQUES**

(Open Elective)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions. **ONE** Question from **Each unit**

All Questions Carry Equal Marks

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**UNIT-I**

1. a) Explain the concepts of Overfitting and Underfitting. [7M]  
b) Explain how Gradient Boosting Machines work. [7M]

(OR)

2. a) Discuss the architecture and working principles of Generative Adversarial Networks. [7M]  
b) Describe the advantages and limitations of Decision Trees and Random Forests in classification tasks? [7M]

**UNIT-II**

3. a) Discuss the significance of Artificial Neural Networks in Deep Learning and their real-world applications. [7M]  
b) Describe the importance of activation functions in training Deep Networks? [7M]

(OR)

4. a) Explain the concept of batch normalization. [7M]  
b) How does biological vision differ from machine vision? Discuss key challenges in developing machine vision models. [7M]

**UNIT-III**

5. a) Explain the structure of a Neural Network and the functions of each layer. [7M]  
b) Compare Binary Classification and Multiclass Classification techniques in Deep Learning? [7M]

(OR)

6. a) Discuss Binary Classification and its applications with an example of classifying movie reviews. [7M]  
b) Describe the essential steps involved in setting up a Deep Learning workstation? [7M]

**UNIT-IV**

7. a) Explain the concept of Long Short-Term Memory networks and their advantages over traditional RNNs. [7M]  
b) How do Recurrent Neural Networks (RNNs) differ from traditional Neural Networks? [7M]

(OR)

8. a) How does PyTorch simplify the implementation of Deep Learning models? [7M]  
b) Analyze Representation Learning? [7M]

**UNIT-V**

9. a) Discuss the role of Natural Language Processing (NLP) in AI-driven applications. [7M]  
b) Explain the concept of Deep Reinforcement Learning. [7M]

(OR)

10. a) Compare Restricted Boltzmann Machines and Deep Belief Networks? [7M]  
b) Explain the role of Deep Generative Models in Data Synthesis. [7M]

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