

**CMR ENGINEERING COLLEGE: : HYDERABAD**  
**UGC AUTONOMOUS**

**I–M.TECH–I–Semester End Examinations (Regular) - February- 2026**  
**MACHINE LEARNING AND DEEP LEARNING**  
**(VLSI SD)**

**[Time: 3 Hours]**

**[Max. Marks: 60]**

**Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 10 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**PART-A**

**(10 Marks)**

1. a) How does a dataset size affect overfitting? [2M]
- b) What are the challenges in training deep networks? [2M]
- c) Difference between L1 and L2 regularization. [2M]
- d) Mention any two applications of RNNs. [2M]
- e) Name any two NLP applications. [2M]

**PART-B**

**(50 Marks)**

2. Explain Bayesian statistics in machine learning. [10M]
- OR**
3. Compare supervised and unsupervised learning algorithms with examples. [10M]
4. Explain gradient-based learning in neural networks. [10M]
- OR**
5. Describe the working of a deep feed-forward neural network with a neat diagram. [10M]
6. Explain Dropout as a Regularization Technique. [10M]
- OR**
7. Discuss Optimization for Training Deep Models. [10M]
8. Explain optimization techniques for long-term dependencies in sequence models. [10M]
- OR**
9. Describe the motivation behind Convolutional Neural Networks. [10M]
10. Explain various performance metrics used in deep learning with examples. [10M]
- OR**
11. Describe the role of deep learning in computer vision applications. [10M]

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