

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

I–M.TECH–I–Semester End Examinations (Regular) - February- 2026

DEEP LEARNING

(CSE)

[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) What is ReLU activation function? [2M]
- b) Define convolution in CNNs. [2M]
- c) Mention two applications of deep learning in computer vision. [2M]
- d) What is Natural Language Processing (NLP)? [2M]
- e) Define Named Entity Recognition (NER). [2M]

PART-B

(50 Marks)

2. Explain the working of a feed-forward neural network and back propagation algorithm with diagrams. [10M]

OR

3. Explain heuristics for avoiding bad local minima and achieving faster training. [10M]

4. Explain CNN architecture and its components with suitable examples. [10M]

OR

5. Apply convolution and pooling operations to a given input image and compute the output feature map dimensions at each layer. [10M]

6. Describe object detection approaches and automatic image captioning using CNN-based models. [10M]

OR

7. Analyze an object detection system and explain how region proposals and classification are handled in CNN-based detectors. [10M]

8. Explain vector space models and word embeddings used in NLP. [10M]

OR

9. Apply the CBOW and Skip-Gram models to generate word embeddings for a small corpus and explain the training process in detail with examples. [10M]

10. Explain Named Entity Recognition and lemmatization using deep learning approaches. [10M]

OR

11. Apply CNN-based models for sentence classification and discuss feature extraction and pooling strategies. [10M]
