

Code No: M157AA

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, January/February - 2023

DEEP LEARNING**(Minor Program in Artificial Intelligence and Machine Learning)****Time: 3 Hours****Max.Marks:75****Note:** i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A**(25 Marks)**

- 1.a) Write the heuristics for faster learning. [2]
- b) What is the significance of Gradient Descent algorithm? [3]
- c) What is pooling in CNN? [2]
- d) What are deep recurrent networks? [3]
- e) What is difference between object detection and image segmentation? [2]
- f) How does LSTM work in image captioning? [3]
- g) What are the applications in word similarity? [2]
- h) What is word vector representation? [3]
- i) What is named entity recognition? [2]
- j) Why is Convolutional Neural Network better for classification? [3]

PART – B**(50 Marks)**

- 2.a) Explain the architecture of feed forward neural network.
 - b) What are computational graphs? Give examples of computational graphs. [5+5]
- OR**
- 3.a) Explain algebraic and graph based representations. Give example to symbol-to-symbol approach to computing derivatives.
 - b) Discuss about the common hidden units and their types. [5+5]
- 4.a) Explain operation of Convolutional Neural Network.
 - b) Explain Auto-encoder and DBM Attention and memory models. [5+5]
- OR**
- 5.a) What are Adversarial Generative Networks? Explain their importance.
 - b) List and explain different auto-encoders and their applications. [5+5]
- 6.a) Why do we prefer Convolutional Neural networks (CNN) over Artificial Neural networks (ANN) for image processing?
 - b) Explain the process of image generation with generative adversarial networks. [5+5]
- OR**
- 7.a) How does LSTM models work for video to text generation and classification?
 - b) Describe various attention models for computer vision tasks. [5+5]

- 8.a) How is deep learning used in natural language processing?
b) Explain continuous skip-gram model in detail. [5+5]

OR

- 9.a) Discuss about continuous Bag-of-words model.
b) Write a technical note on vector space model of semantic. [5+5]

- 10.a) Explain the process of Parsing with Recursive Neural Networks.
b) What is Chatbot and how it works? Explain. [5+5]

OR

- 11.a) How to implement CNN for sentence classification? Explain.
b) Explain opinion mining with deep recurrent neural networks. [5+5]

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Used papers 2023