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Question Paper Code: 6213058

M.C.A. DEGREE EXAMINATIONS, NOV / DEC 2024
Third Semester
Master of Computer Application
P23CAE36 – DEEP LEARNING
(Regulation 2023)

Time: Three Hours Maximum: 100 Marks

Answer ALL questions

PART – A (10 x 2 = 20 Marks)

1. Recall the concept of Identity Matrix.

2. Identify the role of Karush–Kuhn–Tucker approach in constrained optimization.

3. List out any four common Machine Learning tasks.

4. Outline the importance of feed forward network.

5. How Learning differs from Pure Optimization?

6. What is delta-bar-delta algorithm?

7. Name the important ideas that can help to improve a machine learning system in motivation.

8. Compare single-channel and multi-channel formats of data used in convolutional networks.

9. Give an example for Recursive Neural Networks.

10. Show the blocks of parameters and associated transformations that can be decomposed from RNNs.

PART – B (5 x 16 = 80 Marks)

11. (a) Enumerate the Eigen decomposition with an example of effect of eigenvectors and eigenvalues. (16)

(OR)

(b) Demonstrate the ways to establish the probability distributions with its properties. (16)

12. (a) Hyper parameter selection focuses on ensuring that the model neither overfits nor underfits the training dataset. Evaluate the statement with the proper explanation of parameters in optimization algorithm. (16)

(OR)

(b) Appraise the process of how the supervised learning algorithms are used to learn the mapping from inputs to outputs and making predictions. (16)

13.(a) (i) Examine how to improve generalization by pooling through Multi-task Learning. (8)

(ii) Inspect the process of early stopping meta-algorithm for determining the best amount of time to train. (8)

(OR)

(b) Analyze the most prominent challenges involved in neural network optimization for training deep models. (16)

14. (a) Survey the components of a convolutional neural network layer with an example of efficiency and edge detection. (16)

(OR)

(b) Assess the history of convolutional networks that begins with neuroscientific and the key design principles of neural networks drawn from neuroscience. (16)

15. (a) Develop a design patterns for recurrent neural networks and show with an example. (16)

(OR)

(b) Prepare the optimization solutions for Long-Term dependencies and the Long Short-Term Memory. (16)

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