

LAHORE UNIVERSITY OF MANAGEMENT SCIENCES
Department of Electrical Engineering

EE 514 (CS 535) Machine Learning – Spring 2025
Quiz 1

Name: _____

Campus ID: _____

Total Marks: 10

Time Duration: 15 minutes

Question 1 (5 marks)

1. What is the primary goal of supervised learning?
 - a) To find patterns in unlabeled data
 - b) To predict outputs based on labeled training data
 - c) To cluster data into groups
 - d) To reduce the dimensionality of data
2. The validation set is used to assess the performance of a model after it has been fully trained.
 True
 False
3. What is the main purpose of the train-test split in machine learning?
 - a) To ensure the model memorizes the training data
 - b) To reduce the size of the dataset
 - c) To evaluate the model's performance on unseen data
 - d) To increase the complexity of the model
4. Which of the following is a key assumption in supervised learning?
 - a) The data is linearly separable.
 - b) The labels are always binary.
 - c) The model must be a neural network.
 - d) The training and test data are drawn from the same distribution.
5. Cross-validation is a technique used to simulate multiple train-test splits on the training data.
 True
 False

Question 2 (2 marks)

Explain the difference between supervised and unsupervised learning. Provide one example of each. Use the back of the sheet to provide your answer.

Question 3 (3 marks)

What is the purpose of a loss function? For data formulated as $\mathcal{D} = \{(\mathbf{x}_1, y_1), (\mathbf{x}_2, y_2), \dots, (\mathbf{x}_n, y_n)\}$ and $h(\mathbf{x})$ is the hypothesis function (model) that predicts the output for a given input \mathbf{x} , formulate RMSE and MAE loss functions used in the regression.