Instructions: Make sure your questions and answers are on different pages. Do not include your name or any other identifying information. I will know that information from Canvas.

Question 1: What is a loss function and what value does it provide in machine learning?

Question 2: Why is it important to categorize and distinctify loss functions? In other words, why is there not just a single loss function/fewer number of loss functions that can be used regardless of task/application?

Question 3: What are the varying tasks/applications that supervised and unsupervised learning have in traditional machine learning?

Answer Question 1: Across the two aspects of traditional machine learning and deep learning, a loss function corresponds to a machine learning algorithm, and has immense value, specifically by helping determine how well the algorithm works for a dataset.

Answer Question 2: Because there are many loss functions that can be/are used across machine learning algorithms, it can be difficult to determine what loss function is the best for a specific algorithm/model. Using the partition criterion described in the paper, task/application across the traditional machine learning and deep learning categories, helps determine which loss function would be the best for the algorithm.

Answer Question 3: In traditional machine learning, supervised and unsupervised learning is the distinction between whether samples have label information (the former does, the latter does not), and supervised learning's tasks/applications consist of classification and regression, while unsupervised learning's tasks/applications consist of clustering and dimension reduction.