BRAC University
Department of Computer Science and Engineering

CSE 422: Artificial Intelligence

Quiz 04: Fall 2024 Time: 30 Minutes Marks: 10

Name:	ID:

1. In Logistic Regression, how justified it is to use the following function in stead of the sigmoid function? Explain. [3]

$$f(z) = \frac{e^z - e^{-z}}{e^z + e^{-z}}$$

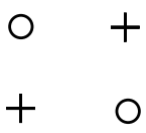

Figure 1: A very simple data

2. What will be training error of the logistic regression classification algorithms for the given data in Figure 1? Justify your answers. [3]

3. What are the possible advantages and disadvantages of Stochastic Gradient Descent Algorithm? How are the problems mitigated? [2]

4. Following are the two versions of the error function used in linear regression.

$$e_1 = \frac{1}{2m} \sum_{i=1}^{m} (\hat{y}(i) - y(i))^2$$

,

$$e_2 = \frac{1}{2} \sum_{i=1}^{m} (\hat{y}(i) - y(i))^2$$

Which one should be preferred and why? [2]