NAME : _____

CLASS : _____

DATE : _____

ML-1-F-3-May2021-Quiz1

7 Questions

1. [True/False] Backpropagation and Gradient Descent are the two different ways using anyone of them neural networks can be optimized.

☐ a) True ☐ b) False

2. [True/False] Backpropagation is used to update the weights of the network.

☐ a) True ☐ b) False

3. Aditi has designed a fully-connected multilayer perceptron having 3 hidden layers each having 10 neurons. Further, the input is a ten-dimensional feature and the output layer has 10 neurons. How many weights Aditi has to learn? (Include bias as well)

☐ a) 450 ☐ b) 440

☐ c) 430 ☐ d) 40

☐ e) None of above

4. What is the angle between vectors [1, 1, 1] and [0, 0, 1]?

☐ a) Exactly 90 degree ☐ b) Less than 45 degree

☐ c) Between 45 to 90 degree ☐ d) Between 90 to 135 degree

☐ e) None of above

5. If $W^TX = 0$ separates apples and oranges assuming apple as positive and orange as negative class. If Swati has assumed apple as negative and orange as positive class, which decision boundary will classify apple vs orange.

- ☐ a) $-W^TX = 0$
- ☐ b) $X^TW = 0$
- ☐ c) Swati has to retrain the classifier.
- ☐ d) None of the above is true.

6. Which among the following is/are true regarding Perceptron Learning Algorithm (PLA):(I). PLA only works for two-dimensional features.(II). PLA does not overfit the traindata and generalizes well to test data.(III) PLA leads to unique decision boundary irrespective of initialization given that samples are linearly separable.

- ☐ a) Only (III) is True
- ☐ b) Only (II) is True
- ☐ c) Only (II) and (III) are True
- ☐ d) All are True
- ☐ e) All are false

7. Given $z = w_1 - w_2$ what is the direction of gradient at [0,0].

- ☐ a) [1 -1]
- ☐ b) [-1 1]
- ☐ c) [0 0]
- ☐ d) [1 0]
- ☐ e) [0 1]

Answer Key

1. b
2. b
3. b
4. c
5. a
6. e
7. a