

AI-511 Machine Learning

Quiz-4

General instructions:

- 1) 1 hr quiz
- 2) Total marks-10
- 3) You will be given two sheets (write the answer to question 1 on the 1st sheet and answer to the 2nd question on the 2nd sheet) **[NO EXTRA SHEETS WILL BE GIVEN]**
- 4) No request for clarification will be entertained

Questions:

- 1 Find the gradient of the loss function for the weights of the second-last layer of a neural network.,First assume a generic neural architecture and a generic loss function. Then, assume the loss function to be the categorical cross entropy loss, the final activation to be softmax, and the second-last activation to be ReLU. [5]
- 2
 - a. Derive the gradient for the Relu and Tanh activation functions. [2.5]
 - b .Suppose that in a particular layer, the inputs to the RELU activation are all negative.How will this affect learning? [2.5]