

July 2022 Term
CSE 471 – Machine Learning
Class Test# 3 Time: 20 minutes

Name: _____ Student No. _____

No extra sheet shall be provided.

1. In a 3-class classification problem, a deep network is used with softmax. The loss function is cross entropy loss. For an input in the training set, the one-hot encoding of the class label is $[0 \ 1 \ 0]$ and the corresponding input to the softmax layer is $f = [0.8 \ 2.5 \ 3.2]^T$. Calculate the gradient of loss with respect to f . **(10 marks.)**
2. For the input and kernel below, calculate and write down the final output of convolution in the specified box. Also, show detailed calculations (anywhere in the script). **(10 marks.)**

Input (2 channels)	Kernel	Output																										
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