**F20BC/F21BC – Lab**

**Tutorial exercises**

**Deep Learning II**

**Questions**

1. What is the vanishing gradient problem? Why is it becoming the main obstacle when using Back Propagation to train deep neural networks?

2. What are the problems that deep learning particular good at solving?

3. Deep Neural Networks are the only architecture to perform deep learning, is it true? Explain your answer.

4. Deep Learning can achieve unsupervised learning tasks, and give one example.

5. Increase the size of a convolutional kernel (in the filtering process) would necessarily increase the performance of a convolutional neural network.

A) TRUE B) FALSE

6. Given an n-character English word, we want to predict which character would be the n+1th character in this word. For example, our input is “Edinburg” (which is a 8 character word) and we would like to predict what would be the 9th character.

Which neural network architecture would be suitable to complete this task?

7. Suppose you have 6 convolutional kernels (or filters) of size 3 x 3 and stride 1 in the first layer of a convolutional neural network. You pass an input of dimension 100 x 100 x 3 through this layer (100\*100 means the size of the image, and 3 means RGB channels). What are the dimensions of the data which the next layer will receive?

A) 100 x 100 x 3

B) 33 x 33 x 5

C) 98 x 98 x 6

D) 300 x 300 x 7