1. If you have an input of size  $10 \times 10$  and a filter of size  $3 \times 3$ , what will be the size of the resulting feature map? Assume you apply no padding and your stride is 1. (2 points)

2. Briefly explain how the learning rate is different from the step size in deep learning. (2 points)

3. Briefly explain the fine-tuning process in deep learning. (3 points)

4. Briefly explain the purpose of max pooling in CNNs. (3 points)

1. Assume you have an input of size  $N \times N \times 3$ . What filter size would you need to get a feature map of size  $N-3\times N-3$ ? (2 points)

2. True/False: There is no way to exactly replicate a fully connected network with a CNN. Briefly explain. (2 points)

3. Briefly explain the fine-tuning process in deep learning. (3 points)

4. Briefly explain the purpose of max pooling in CNNs. (3 points)