**Question 1 CNN - Convolution (10 points)**

1. The output size of a convolution is given by:

Output size = [​] + 1

In a class exploiting convolution, you see the expression

conv1 = Conv2d(in\_channel=3, out\_channel=6, kernal\_size=3,

stride=1, padding=0) using Pytorch,

1. What is the output size after this convolution if the input size is 3 X 3?

X

1. Briefly explain

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1. Given Stride= 1, the Grid-like topology data on the left and the filter on the

right. Answer the following questions.

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 4 | 2 | 5 |
| 9 | 7 | 6 | 4 |
| 3 | 5 | 1 | 3 |
| 6 | 8 | 7 | 2 |

|  |  |  |
| --- | --- | --- |
| -1 | 0 | 1 |
| -1 | 0 | 1 |
| -1 | 0 | 1 |

1. The input size is X
2. The kernel size is X
3. Is it reasonable to set Padding=0? Explain your answer.

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|  |

1. Complete the feature map after this convolution.

|  |  |
| --- | --- |
| -4 |  |
|  |  |

**Question 2 Reinforcement Learning (10 points)**