Dld lab#12

Mohammad Yehay Hayati , 21K-3309

Table of Contents

[**Lab #11:** 2](#_Toc103357570)

[**Exercise #1:** 2](#_Toc103357571)

[**Exercise #2:** 2](#_Toc103357572)

[**Exercise #3:** 3](#_Toc103357573)

[**Exercise #4:** 3](#_Toc103357574)

# **Lab #11:**

## **Exercise #1:**



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S** | **R** | **Q** | **Q’** | **Comment** |
| 0 | 0 | X | X | No Change/Previous State |
| 0 | 1 | 1 | 0 | Set State/Q = 1 |
| 1 | 0 | 0 | 1 | Reset State/Q = 0 |
| 1 | 1 | X | X | Invalid State |

## **Exercise #2:**



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **E** | **D** | **Q** | **Q’** | **Comment** |
| 0 | 0 | X | X | No Change/Previous State |
| 0 | 1 | X | X | No Change/Previous State |
| 1 | 0 | 1 | 0 | Set State/Q = 1 |
| 1 | 1 | 0 | 1 | Reset State/Q = 0 |

## **Exercise #3:**



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **J** | **K** | **CLK’** | **CLR’** | **Q** | **Q’** | **Comment** |
| - | - | - | ↓ | 0 | 1 | Defined State |
| 0 | 0 | ↓ | ↑ | X | X | No Change |
| 0 | 1 | ↓ | ↑ | 0 | 1 | Reset State/Q = 0 |
| 1 | 0 | ↓ | ↑ | 1 | 0 | Set State/Q = 1 |
| 1 | 1 | ↓ | ↑ | X | X | Toggle State/Q↔Q’ |

## **Exercise #4:**



|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **D** | **CLK** | **PR** | **CLR** | **Q** | **Q’** | **Comment** |
| - | - | ↓ | ↓ | **1** | **1** | **Error State/PR and CLR should not be on at same time** |
| - | - | ↑ | ↓ | 0 | 1 | Defined State/Set Q = 0 |
| - | - | ↓ | ↑ | 1 | 0 | Defined State/Set Q = 1 |
| 0 | ↓ | ↑ | ↑ | X | X | No Change |
| 0 | ↑ | ↑ | ↑ | 0 | 1 | Reset State/Q = 0 |
| 1 | ↑ | ↑ | ↑ | 1 | 0 | Set State/Q = 1 |