**Student Names: Elif Güler, Samed Düzçay**

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**Group ID: 5**

# CMPE 240 Experiment 1 Lab Work

## Truth Table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **#** | **x2** | **x1** | **x0** | **y** |  |
| **0** | 0 | 0 | 0 | 0 |  |
| **1** | 0 | 0 | 1 | 1 |  |
| **2** | 0 | 1 | 0 | 1 |  |
| **3** | 0 | 1 | 1 | 1 |  |
| **4** | 1 | 0 | 0 | 0 |  |
| **5** | 1 | 0 | 1 | 1 |  |
| **6** | 1 | 1 | 0 | 0 |  |
| **7** | 1 | 1 | 1 | 1 |  |

## Sum of Products (SOP)

**y = x2’x1’x0 + x2’x1x0’ + x2’x1x0 + x2x1’x0 + x2x1x0**

## Minimized SOP

**y = x2’(x1’x0 + x1x0) + x2’x1x0’ + x2(x1’x0 + x1x0)**

**= (x2’ + x2)(x1’x0 + x1x0) + x2’x1x0’**

**= (x2’ + x2)( x0(x1’ + x1) ) + x2’x1x0’**

**= x0 + x2’x1x0’**

**=**

**=**

**=**

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## Product of Sums (POS)

**y = (x2+x1+x0)(x2’+x1+x0)(x2’+x1’+x0)**

## Minimized POS

**y = (x2x2’ + x2x1 + x2x0 + x1x2’ + x1x1 + x1x0 + x0x2’ + x0x1**

**+ x0x0)(x2’ + x1’ + x0)**

**=**

**=**

**=**

**=**

**=**

## Circuit