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**Student IDs: , 2016400264**

**Group ID: 16**

**Session ID: 1**

# CMPE 240 2018 Experiment 2 Preliminary Work

## Truth Table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **#** | **i2** | **i1** | **i0** | **b** |  |
| **0** | 0 | 0 | 0 | 1 |  |
| **1** | 0 | 0 | 1 | 0 |  |
| **2** | 0 | 1 | 0 | 1 |  |
| **3** | 0 | 1 | 1 | 0 |  |
| **4** | 1 | 0 | 0 | 1 |  |
| **5** | 1 | 0 | 1 | 1 |  |
| **6** | 1 | 1 | 0 | 1 |  |
| **7** | 1 | 1 | 1 | 0 |  |

## Sum of Products (SOP)

**b = (i0’.i1’.i2’) + (i0’.i1’.i2) + (i0’.i1.i2’) + (i0’.i1.i2) + (i0.i1’.i2)**

## Minimized SOP

**b = (i0’.i1’). (i2’+i2) + (i0’.i1).(i2’+i2) + (i0.i1’.i2)** **- Distributive**

**= (i0’.i1’). 1 + (i0’.i1).1 + (i0.i1’.i2) - Complement**

**= (i0’.i1’) + (i0’.i1) + (i0.i1’.i2) - Identity**

**= i0’.(i1’+i1) + (i0.i1’.i2) - Distributive**

**= i0’.(1) + (i0.i1’.i2) - Complement**

**= i0’ + (i0.i1’.i2) - Identity**

**= (i0’+i0).(i0’+(i1’.i2)) - Distributive**

**= 1.(i0’+(i1’.i2)) - Complement**

**= i0’ + i1’.i2 - Identity**

1. **Student Names:**
2. **Student IDs: 2016400264**
   1. **Group ID: 16**

## Product of Sums (POS)

**b = (i0’+i1+i2).(i0’+i1’+i2).(i0’+i1’+i2’)**

## Minimized POS

**b = (i0’+i1+i2).[(i0’+i1’+i2).(i0’+i1’+i2’)] - Associativity**

**= (i0’+i1+i2).[(i0’+i1’)+(i2.i2’)] - Distributivity**

**= (i0’+i1+i2).[(i0’+i1’)+0] - Complement**

**= (i0’+i1+i2).(i0’+i1’) - Identity**

**= i0’+[(i1+i2).i1’] - Distributivity**

**= i0’+(i1.i1’+i2.i1’) - Distributivity**

**= i0’+(0+i2.i1’) - Complement**

**= i0’+ i2.i1’ - Identity**

**= (i0’+i2).(i0’+i1’) - Distributivity**

## Circuit

## C:\Users\fatih\AppData\Local\Microsoft\Windows\INetCache\Content.Word\DefensiveRobot.png