**Student Names:**

**Student IDs:**

**Group ID:**

**Session ID:**

# CMPE 240 2018 Experiment 2 Preliminary Work

## Truth Tables

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **#** | **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 = (i2’ i1’ i0’) + (i2’ i1 i0’) + (i2 i1’ i0’) + (i2 i1’ i0)**

**+ (i2 i1 i0’)**

## Minimized SOP

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

**from distributive Law**

**=(i2’ i0’) 1 + (i2 i1’ i0’) + (i2 i1’ i0) + (i2 i1 i0’)**

**from complement Law**

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

**from identity Law**

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

**from commutative Law**

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

**from distributive Law**

**=(i2’ i0’) + (i2 i0’)1 + (i2 i1’ i0)**

**from complement law**

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

**from identity law**

**= (i2 i0’) + (i2 i1’ i0)**

**from idempotency law**

**= (i2) (i0’+ i1’ i0)**

**from distributive law**

**= (i2) (i0’+ i1’ i0)**

**from distributive law**

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

## Product of Sums (POS)

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

## Minimized POS

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

**from distributive Law**

**=(i2 + i1 + i0’) (i1’+ i0’)+0**

**from complement Law**

**=(i2 + i1 + i0’) (i1’+ i0’)**

**from identity Law**

**=(i2 + i1 + i0’) (i1’+ i0’)**

**from identity Law**

**=(i0’) + (i2 i1’)**

**from distributive Law**

## Circuit