# Practical (LOGISM)

Shah Aayush Umeshbhai

19BCE245

* Snapshot of logism practical gates :

## A close up of text on a white background Description automatically generated

* **Truth Tables :**

1.Half adder : Eq. for *Sum* : Ā.B + A.B (A xor B)

Eq. for *Carry* : A.B

|  |  |  |  |
| --- | --- | --- | --- |
| A | B | Sum | Carry |
| 0 | 0 | 0 | 0 |
| 0 | 1 | 1 | 0 |
| 1 | 0 | 1 | 0 |
| 1 | 1 | 0 | 1 |

2.Full adder : Eq. for *Sum* : A + B + C

Eq. for *Carry* : A.B + B.C + C.A

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| A | B | C | Sum | Carry |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 1 | 0 |
| 0 | 1 | 0 | 1 | 0 |
| 0 | 1 | 1 | 0 | 1 |
| 1 | 0 | 0 | 1 | 0 |
| 1 | 0 | 1 | 0 | 1 |
| 1 | 1 | 0 | 0 | 1 |
| 1 | 1 | 1 | 1 | 1 |

3.Half subtractor : Eq. for *Difference* : Ā.B + A.B (xor gate equation)

Eq. for *Borrow* : Ā.B

|  |  |  |  |
| --- | --- | --- | --- |
| A | B | Difference | Borrow |
| 0 | 0 | 0 | 0 |
| 0 | 1 | 1 | 1 |
| 1 | 0 | 1 | 0 |
| 1 | 1 | 0 | 0 |

4.Full subtractor : Eq. for *Difference* : A + B + C

Eq. for *Borrow* : (A.B) + [(A xor B)+C]

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| A | B | C | Difference | Borrow |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 1 | 1 | 1 |
| 0 | 1 | 0 | 1 | 1 |
| 0 | 1 | 1 | 0 | 1 |
| 1 | 0 | 0 | 1 | 0 |
| 1 | 0 | 1 | 0 | 0 |
| 1 | 1 | 0 | 0 | 0 |
| 1 | 1 | 1 | 1 | 1 |