**Postlab for Lab 1**

7. Truth table for the Sensor Error Detector:-

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| I4 (Lowest Priority with I3) | I3 (Lowest Priority with I4) | I2 (Second low priority) | I1 (High priority) | Output (F) |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 1 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 0 |
| 1 | 1 | 0 | 0 | 0 |
| 0 | 0 | 1 | 0 | 0 |
| 1 | 0 | 1 | 0 | 1 |
| 0 | 1 | 1 | 0 | 1 |
| 1 | 1 | 1 | 0 | 1 |
| X | X | X | 1 | 1 |

K-map:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | I1'.I2' | I1.I2' | I1.I2 | I1.I2' |
| I3'.I4' | 0 | 0 | 1 | 1 |
| I3'.I4 | 0 | 1 | 1 | 1 |
| I3.I4 | 0 | 1 | 1 | 1 |
| I3.I4' | 0 | 1 | 1 | 1 |

Sum of Products realization of F (Sensor Error Detector): F(I1,I2,I3,I4) = I1 + (I2 . I3) + (I2 . I4)

8.

Moore state transition diagram for “1101” detector: (next page)

1 1 0

0

0

1

0 1

1

Mealy Transition Diagram

0 / 0 1 / 0

1 / 0 1 / 0

0 / 0

0 / 0

1 / 1 0 / 0

RTL Diagrams:

Moore Model:

i/p

1 Next State

1

3

3 3

Previous State

Mealy Model:

i/p

1 Next State

1

2

2 2

Previous State