**Implement the function F(A, B, C, D) = Σ m (0, 1, 3, 4, 8, 9, 15) with**

**a) 8-to-1 MUX**

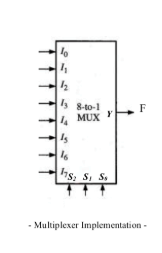
**using implementation table method:**

**A, B and C will be connected to the selection lines and D will be used for the inputs of the MUX.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | A | B | C | D | F |
| m0 | 0 | 0 | 0 | 0 | 1 |
| m1 | 0 | 0 | 0 | 1 | 1 |
| m2 | 0 | 0 | 1 | 0 | 0 |
| m3 | 0 | 0 | 1 | 1 | 1 |
| m4 | 0 | 1 | 0 | 0 | 1 |
| m5 | 0 | 1 | 0 | 1 | 0 |
| m6 | 0 | 1 | 1 | 0 | 0 |
| m7 | 0 | 1 | 1 | 1 | 0 |
| m8 | 1 | 0 | 0 | 0 | 1 |
| m9 | 1 | 0 | 0 | 1 | 1 |
| m10 | 1 | 0 | 1 | 0 | 0 |
| m11 | 1 | 0 | 1 | 1 | 0 |
| m12 | 1 | 1 | 0 | 0 | 0 |
| m13 | 1 | 1 | 0 | 1 | 0 |
| m14 | 1 | 1 | 1 | 0 | 0 |
| m15 | 1 | 1 | 1 | 1 | 1 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | I0 | I1 | I2 | I3 | I4 | I5 | I6 | I7 |
| D’ | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 |
| D | 1 | 3 | 5 | 7 | 9 | 11 | 13 | 15 |
|  | 1 | D | D’ | 0 | 1 | 0 | 0 | D |

**implementation table method:**



1

D

D’

0

1

0

0

D

A B C

**b) 4-to-1 MUX**

**using truth table:**

*C* and *D* will be connected to the selection lines and *A* and *B* will be used for the inputs of the MUX.

