Lecture 4

y

x

0 1

1

0

|  |  |
| --- | --- |
|  |  |
|  |  |

* F3(x,y,z)=x’yz’+x’yz+xy’z’+xy’z(make the complete truth table in order to find out where the output is not zero)

|  |  |  |  |
| --- | --- | --- | --- |
| X | Y | Z | F3 |
| 0 | 0 | 0 | 0 (0) |
| 0 | 0 | 1 | 0 (1) |
| 0 | 1 | 0 | 1 (2) |
| 1 | 0 | 0 | (3) |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

F3(x,y,z)=∑(2,3,4,5)

yz

x

00 01 11 10

0

1

|  |  |  |  |
| --- | --- | --- | --- |
| 0 | 1 | 3  1 | 2  1 |
| 4  1 | 5  1 | 7 | 6 |

M3+M2=x’yz+x’yz’=xy’(z+z’)

=x’y(1)

=x’y

M4+Mz=xy’z+xy’z’

=xy’(z+z’)

=xy’(1)=xy’

F3(x,y,z)=x’y+xy’

* F4(x,y,z)=x’yz+xy’z+xyz

=∑(3,5,7)

00 01 11 10

1

0

|  |  |  |  |
| --- | --- | --- | --- |
| 0 | 1 | 1  3 | 2 |
| 4 | 5  1 | 7  1 | 6 |

F(x,y,z)=xz+yz

* F5(x,y,z)=x’y’z’+x’yz+x’yz’+xyz+xyz’

00 01 11 10

1

0

|  |  |  |  |
| --- | --- | --- | --- |
| 1 |  | 1 | 1 |
|  |  | 1 | 1 |

F(5)=y+x’z’

1)Form groups of adjacent 1s

2)Each group should be as large as possible, but a power of 2

3)Cover every 1 on the map at least once. A 1 may be covered more than once

4)Select least number of groups possible