A

B

0 1

***EX***: AB Z

00 0

Z = B

0 0

0

1

01 0

1 1

10 1

11 1

***Ex***: ABC Z

000 0

001 1

010 0

011 0

100 0

101 0

110 1

111 1

BC

A

0

1

10 11 01 00

|  |  |  |  |
| --- | --- | --- | --- |
| 0 | 0 | 1 | 0 |
| 1 | 1 | 0 | 0 |

**Adjacent cells :**

The adjacent cells on k- map are those that differ by only one variable ( only one variable changes from 0 to 1 or 1 to 0 )

1 0

B

G1

A

|  |  |
| --- | --- |
| 1 | 0  01 |
| 1 | 0 |

G1 = B

00 01 11 10

BC

A

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

0

1

G1

G1 = AB

If more than one pair exist on k-map , we can OR the simplified products to get the final Boolean exp.

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

A quad is a group of four 1’s that are horizontally or vertically adjacent . two variables are eliminated in the quad group.

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

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

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

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

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

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

Octet is group of eight 1’s that are horizontally or vertically adjacent , so three variables can be eliminated .

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

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

**Over lapping :**

The same (1) can be used for more than one group

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

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