**Code converter :**

***EX***: design a logic cct. That convert BCD 8421 to EX-3 code :

Sol:

8421 EX-3

ABCD WXYZ

0000 0011

0001 0100

0010 0101

0011 0110

Dcc = 10,11,12,13,14,15

0100 0111

0101 1000

0110 1001

0111 1010

1000 1011

1001 1100

CD

AB

00 01 11 10

AB

CD

00 01 11 10

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| 1  W = | 1 | 1 |  |
| X | X | X | X |
| X | X | 1 | 1 |

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 1 | 1 |  |
| X = |  |  | 1 |
| X | X | X | X |
| X | X | 1 |  |

00

01

11

10

00

01

11

10

CD

CD

|  |  |  |  |
| --- | --- | --- | --- |
|  | 1 |  | 1 |
| Y = | 1 |  | 1 |
| X | X | X | X |
| X | X |  | 1 |

|  |  |  |  |
| --- | --- | --- | --- |
| 1 |  |  | 1 |
| 1  Z = |  |  | 1 |
| X | X | X | X |
| X | X |  | 1 |

AB

00 01 11 10

AB

00 01 11 10

00

01

11

10

00

01

11

10

***EX***: Design a code converter cct. That convert BCD 6311 to BCD 5421 by using k-map :

ABCD WXYZ

0000 0000

0001 0001

0011 0010

Dcc = 2,6,10,13,14,15

0100 0011

0101 0100

0111 1000

1000 1001

1001 1010

1011 1011

1100 1100

00 01 11 10

|  |  |  |  |
| --- | --- | --- | --- |
| X |  |  |  |
| X  X= |  | 1 |  |
| X | X | X | 1 |
| X |  |  |  |

CD

AB

CD

00 01 11 10

AB

|  |  |  |  |
| --- | --- | --- | --- |
| X |  |  |  |
| X  W = | 1 |  |  |
| X | X | X | X |
| X | 1 | 1 | 1 |

00

01

11

10

00

01

11

10

|  |  |  |  |
| --- | --- | --- | --- |
| X | 1 |  |  |
| X  Y = |  |  | 1 |
| X | X | X |  |
| X | 1 | 1 |  |

|  |  |  |  |
| --- | --- | --- | --- |
| X |  | 1 |  |
| X  Z= |  |  | 1 |
| X | X | X |  |
| X | 1 |  | 1 |

00

01

11

10

CD

AB

00 01 11 10

AB

CD

00

01

11

10

00 01 11 10