CSE231 Lab -04

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Decimal  Digit |  | Binary Coded Decimal |  |  |  | Exess-3 |  |  |
|  | W | X | Y | Z | A | B | C | D |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 |
| 2 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| 3 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 |
| 4 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 5 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 |
| 6 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 |
| 7 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 |
| 8 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| 9 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 |
| 10 | 1 | 0 | 1 | 0 | X | X | X | X |
| 11 | 1 | 0 | 1 | 1 | X | X | X | X |
| 12 | 1 | 1 | 0 | 0 | X | X | X | X |
| 13 | 1 | 1 | 0 | 1 | X | X | X | X |
| 14 | 1 | 1 | 1 | 0 | X | X | X | X |
| 15 | 1 | 1 | 1 | 1 | X | X | X | X |

K-Maps

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Y’Z’ | Y’Z | YZ | YZ’ |  |  |  | Y’Z’ | Y’Z | YZ | YZ’ |
| W’X’ | 0 | 0 | 0 | 0 |  |  | W’X’ | 0 | 1 | 1 | 1 |
| W’X | 0 | 1 | 1 | 1 |  |  | W’X | 1 | 0 | 0 | 0 |
| WX | X | X | X | X |  |  | WX | X | X | X | X |
| WX’ | 1 | 1 | X | X |  |  | WX’ | 0 | 1 | X | X |

A=W+XZ+XY B=X’Z+X’Y+XY’Z’

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Y’Z’ | Y’Z | YZ | YZ’ |  |  |  | Y’Z’ | Y’Z | YZ | YZ’ |
| W’X’ | 1 | 0 | 1 | 0 |  |  | W’X’ | 1 | 0 | 0 | 1 |
| W’X | 1 | 0 | 1 | 0 |  |  | W’X | 1 | 0 | 0 | 1 |
| WX | X | X | X | X |  |  | WX | X | X | X | X |
| WX’ | 1 | 0 | X | X |  |  | WX’ | 1 | 0 | X | X |

C=Y’Z’+YZ D=Y’Z’+YZ’

D=Z’(Y’+Y)

D = Z’