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242045
BEMTS-2-A
DLD (Theory)

## BCD TO Excess Three:-

| Index | Binary (BCD) | Excess Three. |
|---|---|---|
| 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 |
| | A B C D | w x y z |

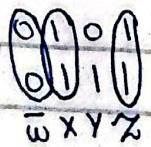
A: $\bar{w}x\bar{y}z+\bar{w}xy\bar{z}+\bar{w}xyz$. C: $\bar{w}\bar{x}\bar{y}\bar{z}+\bar{w}\bar{x}yz+\bar{w}x\bar{y}\bar{z}$

B: $\bar{w}\bar{x}\bar{y}z+\bar{w}\bar{x}y\bar{z}+\bar{w}xy\bar{z}$. D: $\bar{w}\bar{x}\bar{y}\bar{z}+\bar{w}\bar{x}yz+\bar{w}\bar{x}y\bar{z}+w$.

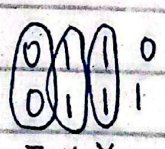
## K MAP OF A:

| wx \ yz | 00 | 01 | 11 | 10 |
|---|---|---|---|---|
| 00 | 0 | 1 | 3 | 2 |
| | 0 | 0 | 0 | 0 |
| 01 | 4 | 5 | 7 | 6 |
| | 0 | 1 | 1 | 1 |
| 11 | 12 | 13 | 15 | 14 |
| | X | X | X | X |
| 10 | 8 | 9 | 11 | 10 |
| | 0 | 0 | X | X |

By grouping:-



$\bar{w}xyz$

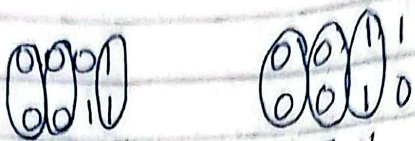


$\bar{w}xy$

$F_A=\bar{w}xz+\bar{w}xy=\bar{w}x(z+y)$.

## K MAP OF B:

| wx \ yz | 00 | 01 | 11 | 10 |
|---|---|---|---|---|
| 00 | 0 | 1 | 3 | 2 |
| 01 | 4 | 5 | 7 | 6 |
| 11 | 12 | 13 | 15 | 14 |
| 10 | 8 | 9 | 11 | 10 |
| | 0 | 0 | 0 | 0 |
| | 1 | 0 | 0 | 0 |
| | X | X | X | X |
| | 0 | 0 | X | X |



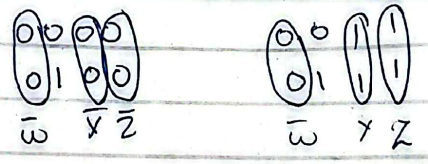
$\bar{w}\bar{x}z$ $\quad$ $\bar{w}\bar{x}y$ $\quad$ 0100 $\quad$ $\bar{w}x\bar{y}\bar{z}$

$$F_B = \bar{w}\bar{x}z + \bar{w}\bar{x}y + \bar{w}x\bar{y}\bar{z}$$

$$F_B = \bar{w}\bar{x}(z+y) + \bar{w}x\bar{y}\bar{z}$$

## K-MAP OF C:

| wx \ yz | 00 | 01 | 11 | 10 |
|---|---|---|---|---|
| 00 | 0 | 1 | 3 | 2 |
| 01 | 4 | 5 | 7 | 6 |
| 11 | 12 | 13 | 15 | 14 |
| 10 | 8 | 9 | 11 | 10 |

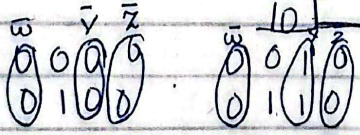


$\bar{w}\bar{y}\bar{z}$ $\quad$ $\bar{w}xz$

$$F_C = \bar{w}(\bar{y}\bar{z} + yz)$$

## K-MAP OF D:

| wx \ yz | 00 | 01 | 11 | 10 |
|---|---|---|---|---|
| 00 | 0 | 1 | 3 | 2 |
| 01 | 4 | 5 | 7 | 6 |
| 11 | 12 | 13 | 15 | 14 |
| 10 | 8 | 9 | 11 | 10 |



$\bar{w}\bar{z}$ $\quad$ $\bar{w}\bar{z}$

$$F_D = \bar{w}\bar{z}$$