Name: Maryam Fatima

BEMTS-III-A

242138.

Assignment

DLD (Theory).

BCD to Exces Three :-

INDEX	BINARY				EXCESS THREE			
	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

$A := WX\overline{Y}Z + WXY\overline{Z} + WXYZ$

$B := W\overline{X}\overline{Y}Z + W\overline{X}Y\overline{Z} + W\overline{X}YZ + WX\overline{Y}\overline{Z}$

$C := W\overline{X}\overline{Y}\overline{Z} + W\overline{X}YZ + WX\overline{Y}Z + WXYZ$

$D := W\overline{X}\overline{Y}\overline{Z} + W\overline{X}Y\overline{Z} + WX\overline{Y}\overline{Z} + WXY\overline{Z}$

K-MAP OF A :-

WX \ YZ	00	01	11	10
00				
01		1	1	1
11				
10				

By grouping:-
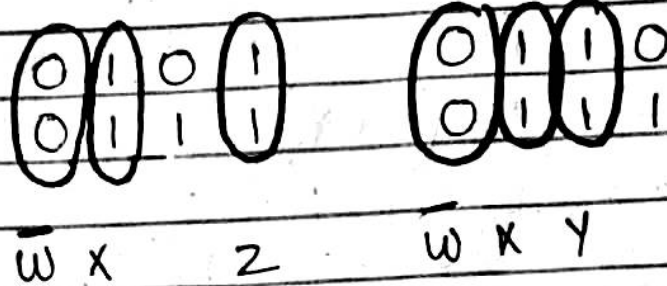
$$\overline{W}X \qquad Z \qquad \overline{W}X \qquad Y$$

$$F = \overline{W}XZ + \overline{W}XY$$

$$\boxed{F = \overline{W}X(Z+Y) = F_A}$$

K-MAP OF B:-

WY\\XZ	00	01	11	10
00		1	1	1
01	1			
11				
10				
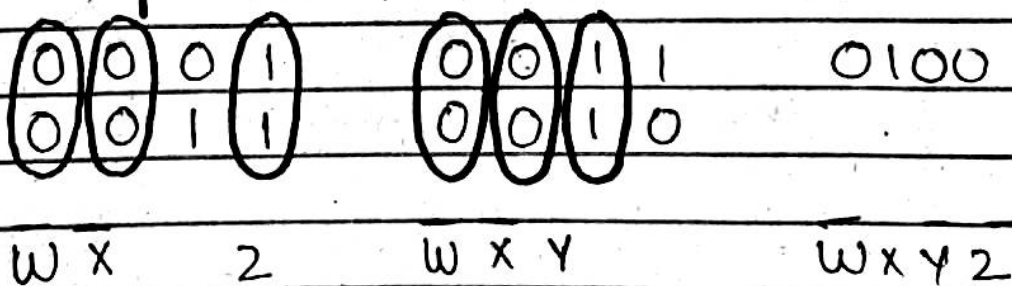
$$W X \qquad Z \qquad W X Y \qquad \overline{W}XYZ$$

$$0100$$

$$F_B = WXZ + WXY + \overline{W}XYZ$$

$$\boxed{F_B = WX(Z+Y) + \overline{W}XYZ}$$

K - MAP OF C:-

$$\begin{array}{c|cccc}
WX\backslash YZ & 00 & 01 & 11 & 10 \\
\hline
00 & 1 & & 1 & \\
01 & 1 & & 1 & \\
11 & & & & \\
10 & & & & \\
\end{array}$$

$$\overline{W} \qquad \overline{Y}\,\overline{Z} \qquad\qquad W \qquad YZ$$

$$F_C = \overline{W}Y\overline{Z} + WYZ$$

$$\boxed{F_C = W(YZ + YZ)}$$

K- MAP OF ∇:-

$$\begin{array}{c|cccc}
WX\backslash YZ & 00 & 01 & 11 & 10 \\
\hline
00 & 1 & & & 1 \\
01 & 1 & & & 1 \\
11 & & & & \\
10 & & & & \\
\end{array}$$

$$\begin{array}{cccc \quad cccc}
0 & 0 & 0 & 0 & & 0 & 0 & 1 & 0 \\
0 & 1 & 0 & 0 & & 0 & 1 & 1 & 0 \\
\end{array}$$

$$\overline{W} \qquad \overline{Y}\,\overline{Z} \qquad\qquad \overline{W} \qquad Y\,\overline{Z}$$

$$F_D = \overline{W}YZ + WYZ$$
$$= \overline{W}\overline{Z}(Y + Y)$$

$$\boxed{F_D = WZ}$$