

Question 3a) $f(a,b,c,d,e) = U_1(2,6,14,18,22,30)$

$U_1 \Rightarrow m_2 = 00010$

$m_6 = 00110$

$m_{14} = 01110$

$m_{18} = 10010$

$m_{22} = 10110$

$m_{30} = 11110$

	a	b	c	d	e
m_2	0	0	0	1	0 ✓
m_6	0	0	1	1	0 ✓
m_{18}	1	0	0	1	0 ✓
m_{14}	0	1	1	1	0 ✓
m_{22}	1	0	1	1	0 ✓
m_{30}	1	1	1	1	0

\Rightarrow

	a	b	c	d	e
m_2, m_6	0	0	-	1	0 ✓
m_2, m_{18}	-	0	0	1	0 ✓ \Rightarrow
m_6, m_{14}	0	-	1	1	0 ✓
m_6, m_{22}	-	0	1	1	0 ✓
m_{18}, m_{22}	1	0	-	1	0 ✓
m_{14}, m_{30}	-	1	1	1	0
m_{22}, m_{30}	1	-	1	1	0 ✓

	a	b	c	d	e
m_2, m_6, m_{18}, m_{22}	-	0	-	1	0
m_2, m_{18}, m_6, m_{22}	-	0	-	1	0
$m_6, m_{14}, m_{22}, m_{30}$	-	-	1	1	0
$m_6, m_{22}, m_{14}, m_{30}$	-	-	1	1	0

$\begin{matrix} > \text{same, } \bar{b}d\bar{e} \\ > \text{same, } cd\bar{e} \end{matrix}$

Question 3b) POS = $(A+\bar{D})(\bar{B}+\bar{D})(A+\bar{B}) \rightarrow$ zero producing points

F	CD	00	01	11	10
AB	00	1	0	0	1
	01	0	0	0	0
	11	1	0	0	1
	10	1	1	1	1

$\bar{B}\bar{D}, A\bar{B}, A\bar{D}, \bar{B}C, C\bar{D}$ is the set of all prime implicants.