

Assignment 4

Q1 ① $A\bar{B} + A(CD + C\bar{D})$

$$AB + (ACD + AC\bar{D})$$

$$AB + AC(U + \bar{D}) = AB + AC$$

② $(B\bar{C} + \bar{A}\bar{B})(A\bar{B} + C\bar{D})$

$$A\bar{B}B\bar{C} + B\bar{C}C\bar{D} + \bar{A}A\bar{B}\bar{D} + \bar{A}C\bar{D}\bar{D}$$

③ ③ $(\bar{A} + B)(\bar{A} + \bar{B})$

$$(\bar{A}\bar{B})(AB) = 0$$

④ $A + \bar{A}B + \bar{A}\bar{B}$

$$A + \bar{A}(B + \bar{B})$$

$$= A + \bar{A} = 1$$

⑤ $F = \bar{X}y + Xy\bar{Z}$

⑥ $\bar{X}y + Xy\bar{Z} = (x + \bar{y})(\bar{y} + \bar{y} + z)$

⑦ $(\bar{Y}y + Xy\bar{Z}) - ((x + \bar{y})(\bar{y} + \bar{y} + z)) = \text{zero}$

⑧ $F + \bar{F} = 1$

$$\bar{X}y + Xy\bar{Z} + (x + \bar{y})(\bar{y} + \bar{y} + z)$$

$$\bar{X}y + XY\bar{Z} + X\bar{Y} + X\bar{Z} + \bar{Y}\bar{X} + \bar{Y}\bar{Z} + \bar{Y}Z$$

$$Y(\bar{X} + X\bar{Z}) + X\bar{Y} + X\bar{Z} + \bar{Y}\bar{X} + \bar{Y}Z + \bar{Y}Z$$

$$Y(\bar{X} + \bar{Z}) + X\bar{Y} + X\bar{Z} + \bar{Y}\bar{X} + \bar{Y} + \bar{Y}Z$$

$$Y(\bar{X} + \bar{Z}) + YZ + \bar{X}\bar{Y} + \bar{Y} + \bar{Y}Z$$

$$Y(\bar{X} + \bar{Z}) + YZ + \bar{Y}$$

$$\bar{X} + \bar{Z} + XZ + \bar{Y}$$

$$\bar{X} + \bar{Z} + Z + \bar{Y}$$

$$\bar{X} + \bar{Y} + 1$$

$$\equiv 1$$

$$\text{Q1) } t_1 \rightarrow m_0 = m_1 + m_2$$

$$\bar{A}\bar{B}\bar{C} + \bar{A}\bar{B}C + \bar{A}B\bar{C}$$

$$\bar{A}\bar{B}(S+C) + \bar{A}B\bar{C}$$

$$\bar{A}(\bar{B}+BC)$$

$$\bar{A}(\bar{B}+\bar{C})$$

$$(Q2) t_2 = m_3 + m_4 + m_5 + m_6 + m_7$$

$$A\bar{B}\bar{C} + \bar{A}DC + \bar{A}D\bar{C} + \bar{A}\bar{B}C + \bar{A}\bar{B}\bar{C}$$

$$A\bar{D}\bar{C} + \bar{A}BC(C+E) + \bar{A}\bar{B}CC(C+E)$$

$$A\bar{D}\bar{C} + A(BL\bar{B})$$

$$A\bar{B}\bar{C} + \bar{A}$$

(5)	A	B	C	F ₁	F ₂
0	0	0	0	1	1
0	0	0	1	0	1
0	1	0	0	1	0
0	1	1	1	1	1
1	0	0	1	1	0
1	0	1	0	0	1
1	1	1	0	1	0

$$F_1 = \bar{A}\bar{B}\bar{C} + \bar{A}DC + \bar{A}\bar{B}C + \bar{A}\bar{B}\bar{C} + ADC$$

$$\bar{B}C(\bar{B}+\bar{A}) + BC(\bar{B}+\bar{A}) + \bar{A}\bar{B}\bar{C}$$

$$\bar{B}\bar{C} + \bar{B}C + \bar{B}\bar{C}$$

$$\bar{A}\bar{C}(B+\bar{E}) + \bar{A}BC + ABC$$

$$\bar{A}\bar{C} + \bar{A}BC + A\bar{B}E + ABC$$

$$\bar{A}C(BC+\bar{C}) + A\bar{B}\bar{C} + ABC$$

$$\bar{A}(B+\bar{C}) + \bar{A}\bar{B}\bar{C} + ABC$$

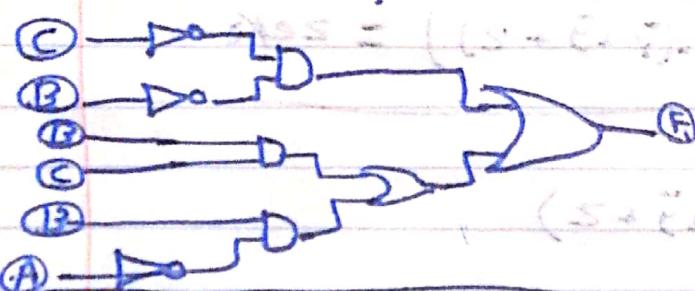
$$\bar{A}B + \bar{A}\bar{C} + A\bar{B}\bar{C} + ABC$$

$$\bar{A}B + \bar{C}(B+\bar{A}) + ABC$$

$$\bar{C}(B+\bar{A}) + B(ABC + \bar{A})$$

$$\bar{C}\bar{B} + \bar{C}A + BC + BA$$

$$\bar{C}\bar{B} + BC + BA$$



$$F_1 = \bar{A}\bar{B}\bar{C} + \bar{A}DC + A\bar{B}C = \bar{A}\bar{B}(C+\bar{E}) + \bar{A}\bar{C}(B+\bar{E}) + \bar{B}C(A+\bar{E})$$

$$= \bar{A}\bar{B} + \bar{A}C + \bar{B}C$$

