4.) Given the following truth table.

4.1) Write function in SOP form. Do not simplify.

SOP = sum of products, minterms

- want all 1's output

$= m_0 + m_1 + m_2 + m_5 + m_6$,

where: $m_0 = (\bar{A}\bar{B}\bar{C})$ $\quad m_5 = (A\bar{B}C)$

$m_1 = (\bar{A}\bar{B}C)$ $\quad m_6 = (AB\bar{C})$

$m_2 = (\bar{A}B\bar{C})$

so:

$$f(x) = \boxed{(\bar{A}\bar{B}\bar{C}) + (\bar{A}\bar{B}C) + (\bar{A}B\bar{C}) + (A\bar{B}C) + (AB\bar{C})}$$

4.2) Write function in POS form. Do not simplify.

POS = product of sums, maxterms

- want all 0's output

$= M_3 + M_4 + M_7$

where: $M_3 = (A + \bar{B} + \bar{C})$

$M_4 = (\bar{A} + B + C)$

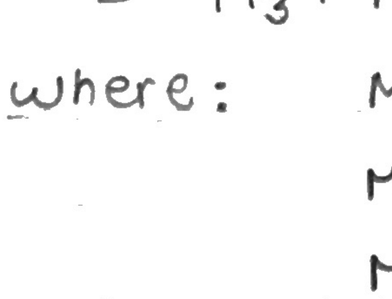
$M_7 = (\bar{A} + \bar{B} + \bar{C})$

so:

$$f(x) = \boxed{(A + \bar{B} + \bar{C}) * (\bar{A} + B + C) * (\bar{A} + \bar{B} + \bar{C})}$$

5.) most simplified SOP & POS form for ea. of the functions.

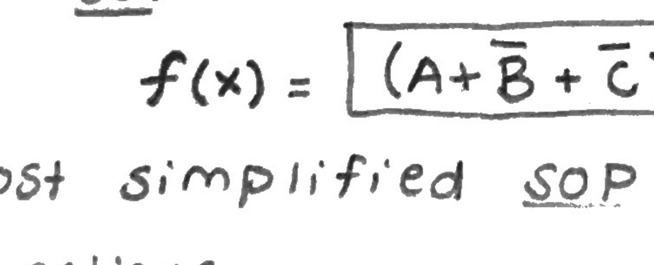
5.1) $m_0 + m_1 + m_2$



SOP = $(\overline{X_1} * \overline{X_0})$

POS = $(\overline{X_1} + \overline{X_0})$

5.2) $M_0 * M_3 * M_4 * M_7$



SOP = $(X_1 \cdot \overline{X_0}) + (\overline{X_1} \cdot X_0)$

POS = $(X_1 + X_0) * (\overline{X_1} + X_0)$