K-MAP

ASSIGNMENT:

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ROLL NO:21

CLASS:BSSE(SEC A)

SUBJECT:CLD

TEACHER NAME:MISS MALEEHA

SEMESTER:FIRST SEMESTER

ASSIGNMENT

Q Solve these equations with K-MAP?

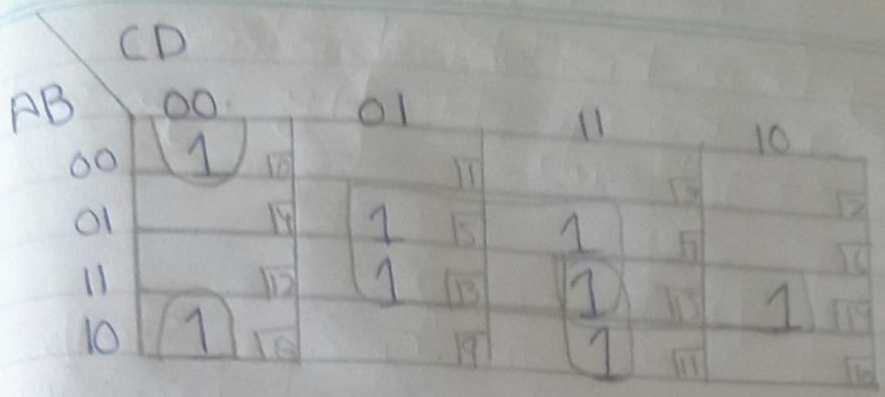
1) $\overline{A}BCD + A\overline{B}CD + \overline{A}B\overline{C}D + AB\overline{C}D + \overline{A}BCD + ABC\overline{D} + A\overline{B}CD$

SOLUTION:-

$= \overline{A}BCD + A\overline{B}CD + \overline{A}B\overline{C}D + AB\overline{C}D + \overline{A}BCD + ABCD + ABC\overline{D} + A\overline{B}CD$

$= 0000 + 1000 + 0101 + 1101 + 0111 + 1111 + 1110 + 1011$

$= 0 + 8 + 5 + 13 + 7 + 15 + 14 + 11$



$m1 = 0000 + 1000$

$m1 = \overline{A}\overline{B}\overline{C}\overline{D} + A\overline{B}\overline{C}\overline{D}$

$m1 = \overline{B}\overline{C}\overline{D}$

$m2 = 0101 + 0111 + 1101 + 1111$

$m2 = A\overline{B}C\overline{D} + \overline{A}BCD + AB\overline{C}D + ABCD$

$m2 = BD$

$m3 = 1111 + 1110$

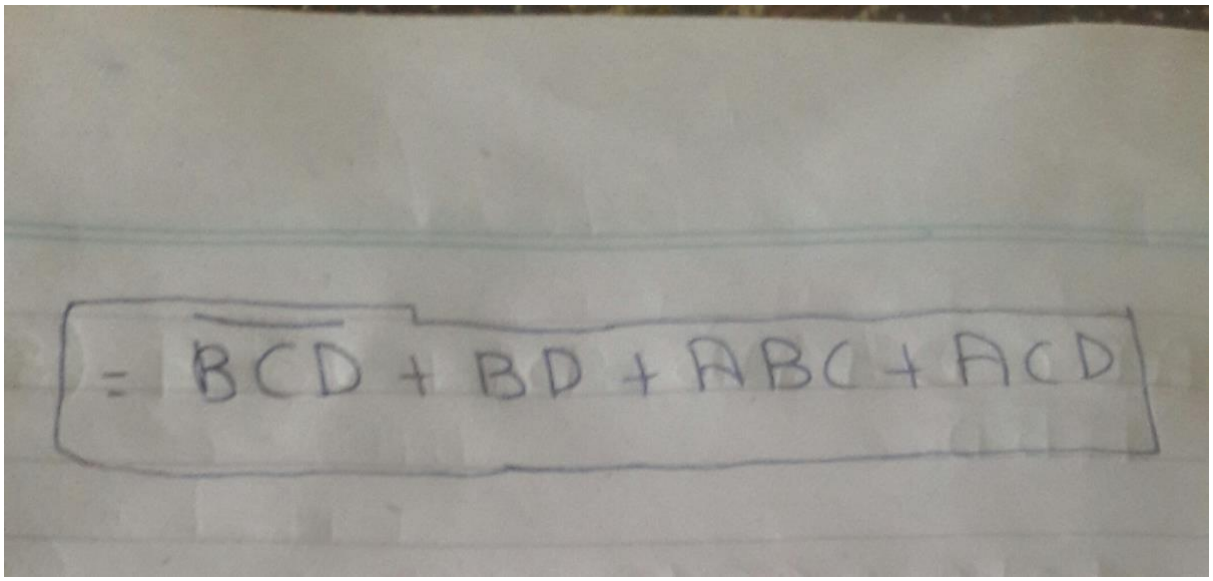
$m3 = ABCD + ABC\overline{D}$

$m3 = ABC$

$m4 = 1111 + 1011$

$m4 = ABCD + A\overline{B}CD$

$m4 = ACD$


= $\overline{\overline{BCD}} + BD + ABC + ACD$

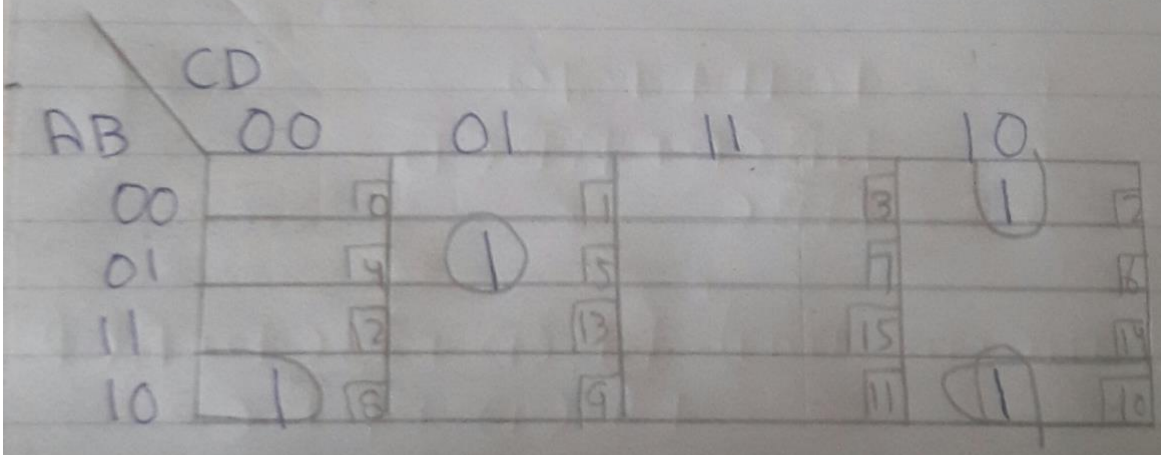
2) $\bar{A}\bar{B}C\bar{D} + A\bar{B}C\bar{D} + \bar{A}B\bar{C}D + A\bar{B}\bar{C}\bar{D}$ +

Solution:-

$= \bar{A}BC\bar{D} + A\bar{B}CD + \bar{A}B\bar{C}D + A\bar{B}C\bar{D}$

$= 0010 + 1000 + 0101 + 1010$

$= 2 + 8 + 5 + 10$



$m_1 = 0101$

$m_1 = \bar{A}B\bar{C}D$

$m_2 = 1000 + 1010$

$m_2 = A\bar{B}\bar{C}\bar{D} + A\bar{B}C\bar{D}$

$m_2 = A\bar{B}\bar{D}$

$m_3 = 1010 + 0010$

$m_3 = A\bar{B}C\bar{D} + \bar{A}\bar{B}C\bar{D}$

$m_3 = \bar{B}C\bar{D}$

$\overline{(m_1 + m_2 + m_3)} = \bar{A}\bar{B}\bar{D} + \bar{B}C\bar{D} + \bar{A}BC\bar{D}$

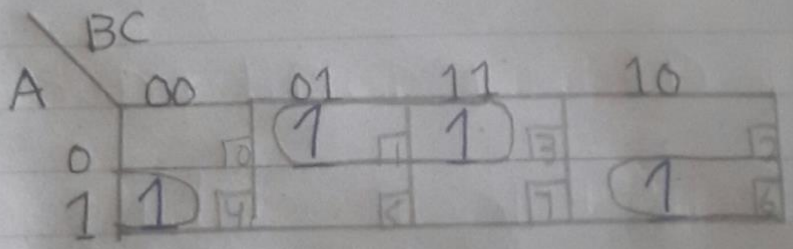
3) $\bar{A}\bar{B}C + \bar{A}BC + A\bar{B}\bar{C} + AB\bar{C}$

Solution:-

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

$= 001 + 011 + 100 + 110$

$= 1 + 3 + 4 + 6$



$m_1 = 001 + 011$

$m_1 = \bar{A}\bar{B}C + \bar{A}BC$

$m_1 = \bar{A}C(\bar{B}+B)$

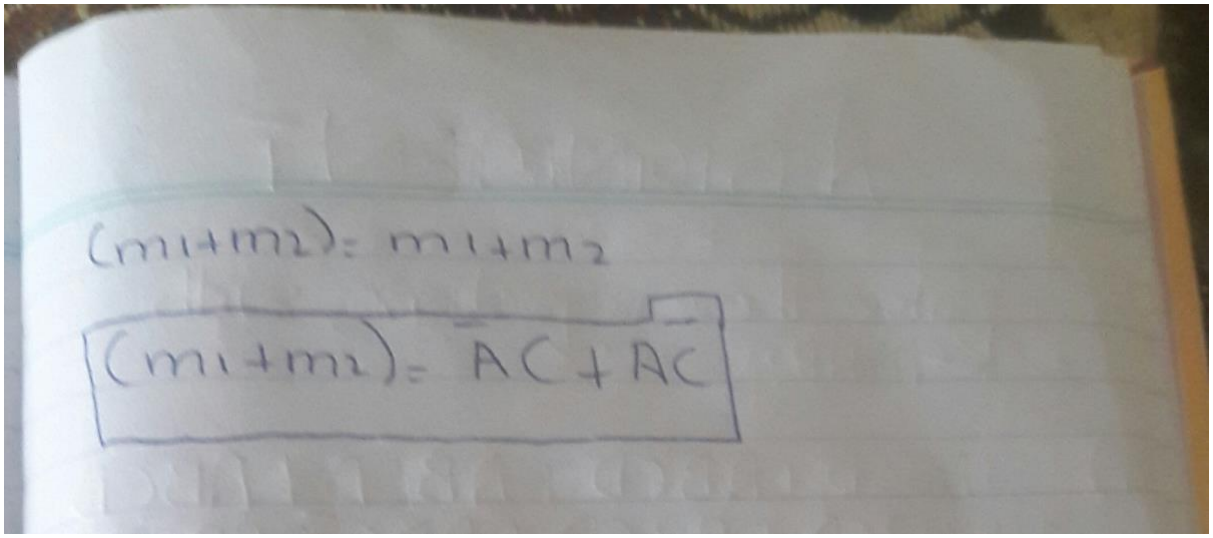
$m_1 = \bar{A}C(1)$

$m_1 = \bar{A}C$

$m_2 = 100 + 110$

$m_2 = A\bar{B}\bar{C} + AB\bar{C}$

$m_2 = A\bar{C}$


(m1+m2)= m1+m2
(m1+m2)= AC+AC

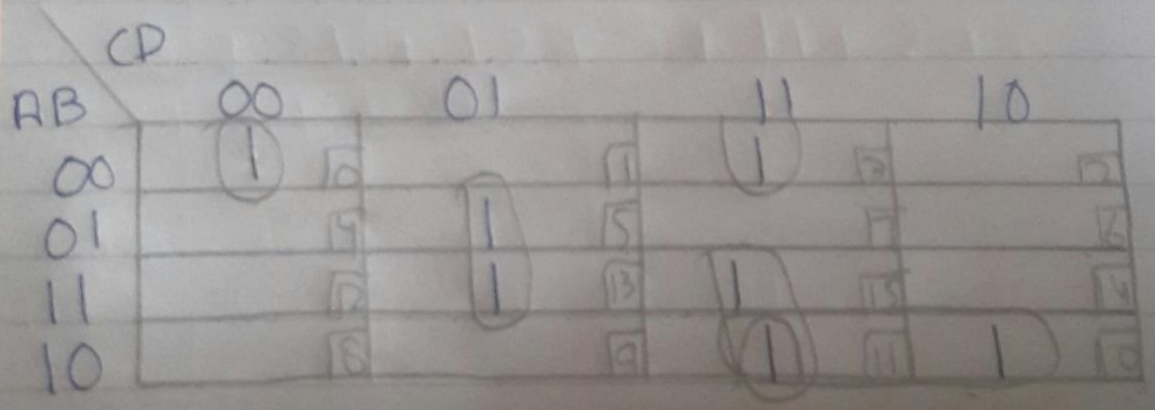
4) $\bar{A}B\bar{C}D + \overline{AB}CD + A\bar{B}CD + AB\bar{C}D + A\bar{B}C\bar{D} + \overline{ABCD} + ABCD$

Solution:-

$= \bar{A}B\bar{C}D + \overline{AB}CD + A\bar{B}CD + AB\bar{C}D + A\bar{B}C\bar{D} + \bar{A}\bar{B}\bar{C}\bar{D} + ABCD$

$= 0101 + 0011 + 1011 + 1101 + 1010 + 0000 + 1111$

$= 5 + 3 + 11 + 13 + 10 + 0 + 15$



$m_1 = \underline{0000}$

$m_1 = \overline{ABCD}$

$m2 = 0101 + 1101$

$m2 = \bar{A}B\bar{C}D + AB\bar{C}D$

$m2 = B\bar{C}D$

$m3 = 1111 + 1011$

$m3 = ABCD + A\bar{B}CD$

$m3 = ACD$

$m4 = 1011 + 0011$

$m4 = A\bar{B}CD + \bar{A}\bar{B}CD$

$m4 = \bar{B}CD$

$m5 = 1011 + 1010$

$m5 = A\bar{B}CD + A\bar{B}C\bar{D}$

$m5 = A\bar{B}C$

$$\overline{(m1 + m2 + m3 + m4)} = \overline{AB\bar{C}D + B\bar{C}D + ACD + \bar{B}CD + A\bar{B}C}$$