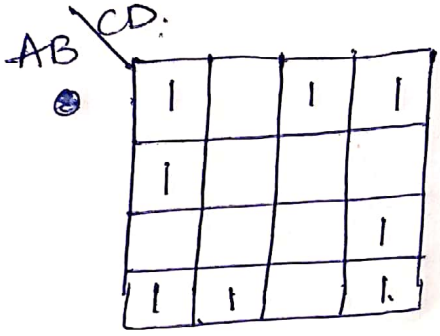
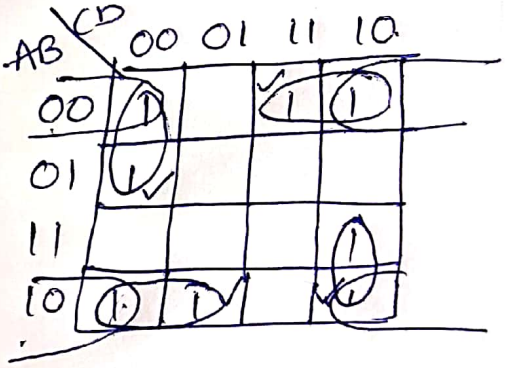
1) find no:of prime implicants, essential prime implicants, minimal expression of function



Sol



✓ → Essential prime

4 → EPI.

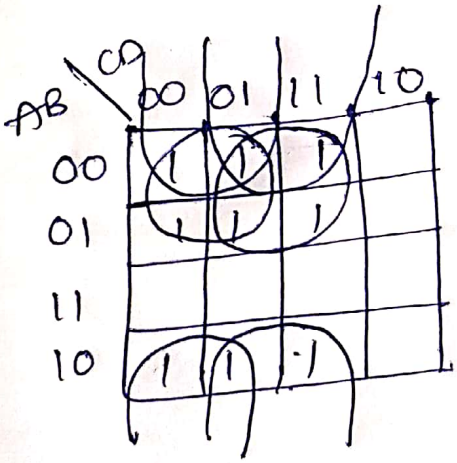
5 → PI.

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

2) The minimal expression of function

$f(A,B,C,D) = \sum m(0,1,3,4,5,7,8,9,11)$

Sol.

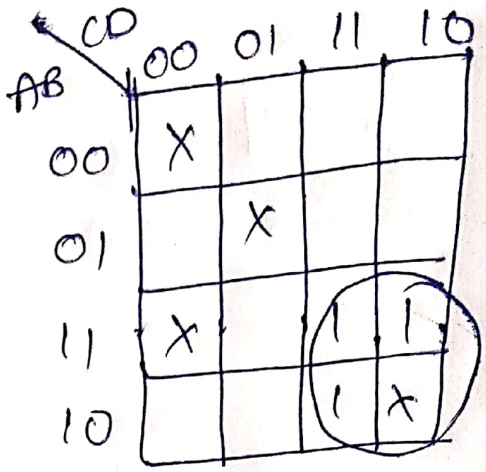


$\bar{A}\bar{C} + \bar{A}D + \bar{B}\bar{C} + \bar{B}D$

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

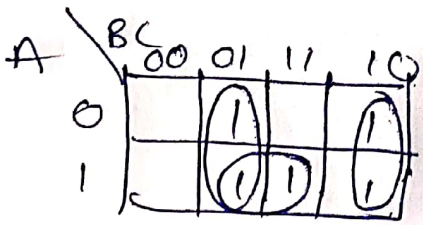
3) Minimal expression of ~~f~~ $f(A,B,C,D) = \Sigma m(1,14,15) + d\,\Sigma(0,5,10,12)$

Sol



AC

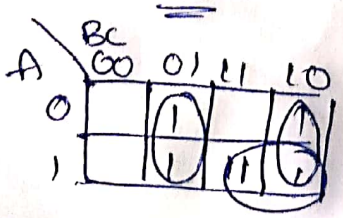
4) Minimal expression of $f(A,B,C) = \Sigma m(1,4,5,6,7)$



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

$(B \oplus C) + Ac$

Or



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

$(B \oplus C) + AB$