Iterative Consensus Method:

QM → fn had to be in canonical (std form) or minterm/maxterm form.

↓

Also for large no. of var's, terms were difficult to handle.

→ Iterative method overcomes these disadv.

consists of 2 basic process — Term generation / Term elimination

① Term generation: $XY + \bar{X}Z = XY + \bar{X}Z + YZ$

(Using Iterative consensus Th^m)

eg: If there are 2 terms : $B'C'D$ & ABC'

Then $X = B'$, $Y = C'D$, $Z = AC'$ then generation step can be applied provided $YZ \neq 0$

$\therefore B'C'D + ABC' + \underline{AC'D}$ can be added.

② Term elimination: $A + AB = A$ & $A + A\bar{B} = A$

$LHS = A + AB = A(B+\bar{B}) + AB = AB + A\bar{B} + AB = A(B+\bar{B}+B) = A$

$LHS = A + A\bar{B} = A(B+\bar{B}) + A\bar{B} = AB + A\bar{B} + A\bar{B} = A(B+\bar{B}+\bar{B}) = A$

$f(x_1, x_2, x_3, x_4) = \bar{x}_2 \bar{x}_3 x_4 + \bar{x}_1 x_2 \bar{x}_3 + x_1 x_2 \bar{x}_3 + x_1 x_2 x_3$

(1 $f = \bar{x}_2 \bar{x}_3 x_4 + \bar{x}_1 x_2 \bar{x}_3 + x_1 x_2 \bar{x}_3 + x_1 x_2 x_3$

1st cycle: $f = \bar{x}_2 \bar{x}_3 x_4 + \bar{x}_1 x_2 \bar{x}_3 + x_1 x_2 \bar{x}_3 + x_1 x_2 x_3 + \bar{x}_1 \bar{x}_3 x_4 + x_1 \bar{x}_3 x_4 + 0$

2nd cycle: $f = \bar{x}_2 \bar{x}_3 x_4 + \bar{x}_1 x_2 \bar{x}_3 + x_1 x_2 \bar{x}_3 + x_1 x_2 x_3 + \bar{x}_1 \bar{x}_3 x_4 + x_1 \bar{x}_3 x_4 + x_2 \bar{x}_3 + x_2 \bar{x}_3 x_4$

3rd cycle: $f = \bar{x}_2 \bar{x}_3 x_4 + x_1 x_2 x_3 + \bar{x}_1 \bar{x}_3 x_4 + x_1 \bar{x}_3 x_4 + x_2 \bar{x}_3 + x_1 x_2 x_4 + x_1 x_2$

4th cycle: $f = \bar{x}_2 \bar{x}_3 x_4 + \bar{x}_1 \bar{x}_3 x_4 + x_1 \bar{x}_3 x_4 + x_2 \bar{x}_3 + x_1 x_2 + \bar{x}_3 x_4 + x_2 \bar{x}_3 x_4$

$\therefore$ $f = x_1 x_2 + x_2 \bar{x}_3 + \bar{x}_3 x_4$ are PI.

After PI are obtained, selection of optimum set of these PI is then accomplished using methods described earlier.

Multiple o/p's: $f(a,b,c) = \sum m(2,3,7)$
$g(a,b,c) = \sum m(4,5,7)$

	a	b	c	f	g	
P	0	1	0	1	0	✓
Q	0	1	1	1	0	✓
R	1	0	0	0	1	✓
S	1	0	1	0	1	✓
T	1	1	1	1	1	
P¢Q	0	1	–	1	0	
Q¢T	–	1	1	1	0	
R¢S	1	0	–	0	1	
S¢T	1	–	1	0	1	

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$\therefore$ $f = \bar{a}b + bc + abc$

$g = a\bar{b} + ac + abc$

are PI.