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Question 2a - $F(A,B,C) = AB\bar{C} + A\bar{B} + \bar{A}C$

$= A\bar{C} + AB\bar{C} + A\bar{B} + \bar{A}C$ ↓ consensus wrt B.

$= A\bar{C} + A\bar{B} + \bar{A}C$ ↓ absorbtion of $A\bar{C}$.

→ $AB\bar{C}$ can be eliminated with consensus theorem therefor it is not prime implicant of $F(A,B,C)$.

Question 2b - $F(A,B,C,D) = U_1(1,4) + U_\phi(0,5,9,10,15)$

F

AB \ CD	00	01	11	10
00	ϕ	1		
01	1	ϕ		
11			ϕ	
10		ϕ		ϕ

- If we choose all don't cares as one there will be 4 groups $((0,1,4,5),(15),(9),(10))$.
- If we choose all don't cares as zero there will be two groups $((1),(4))$, both needs 4 variables.

- If we choose m_0 and m_5 as 1 and other don't cares as zero there will be one group $(0,1,4,5)$ whose SoP is $\bar{A}\bar{C}$ which needs 2 not 1 and gates, 2 variables.
- Third iteration is logical, SoP = $\bar{A}\bar{C}$ $m_0 = m_5 = 1$

$m_9 = m_{10} = m_{15} = 0$