Examination: **Quiz 2**   Semester: Spring2025
Duration: 25 Minutes   Full Marks: 15

Answer the following questions. You **MUST** show your workings/calculations where applicable.
Figures in the right margin indicate marks.

Name:	*Solution*	ID:	Section:

1. CO2	Convert the following function to its corresponding canonical **POS** form using boolean algebraic formulas and find the max terms: F(D, C, A, B) = A'+B+C'+AB' [5+3]
2. CO2	Simplify the following function to minimum literals: F(A,B,C,D) = $\sum$(0,1,5,6,7,9,10,11,13,14,15) [2+5]

1. $F(D, C, A, B) = A' + B + C' + AB'$

$$= (A' + B + C' + A)(A' + B + C' + B')$$

$$= (B + C' + 1)(A' + C' + 1)$$

$$= 1 \cdot 1 = 1$$

So, there is no max term.

2.

$F(A, B, C, D) = \sum(0, 1, 5, 6, 7, 9, 10, 11, 13, 14, 15)$

$= A'B'C'D' + A'B'C'D + A'BC'D + A'BCD' + A'BCD + AB'C'D + AB'CD' + AB'CD + ABC'D + ABCD' + ABCD$

$= C'D(A'B' + A'B + AB' + AB) + BC(A'D' + A'D + AD' + AD) + AB'C(D + D') + A'B'C'D'$

$= C'D(A' + A) + BC(A' + A) + AB'C + A'B'C'D'$

$= C'D + BC + AB'C + A'B'C'D'$

$= C'D + C(B + AB') + A'B'C'D'$

$= C'D + C(B + B')(B + A) + A'B'C'D'$

$= C'D + AC + BC + A'B'C'D'$

$= C'(D + A'B'D') + AC + BC$

$= C'(D + A'B') \cdot (D + D') + AC + BC$

$= C'(D + A'B') + AC + BC$

$= C'D + A'B'C' + AC + BC$ (Ans)