Name: KEY Id#

COE 202, Term 151

Digital Logic Design

Quiz# 2

Date: Thursday, Sep. 17

# 

**Q1** Use Boolean algebra to simplify the following equations into the given number of literals in sum-of-product form. Show clearly all your steps.

|  |
| --- |
| = A B + A' C + B C + B C' + B' C [by consensus between A B and A' C]  = A B + A' C + B [C + C'] + B' C [by distributive law]  = A B + A' C + B + B' C  = A' C + B + B' C [by absorption]  = A' C + (B + B')(B+ C) [by distributive law]  = A' C + B + C  = B + C [by absorption] |
| = A' . (B' + C') + B [by Demorgan's law]  = A' B' + A' C' + B [by distributive law]  = (A' + B)(B' + B) + A' C' [by distributive law]  = A' + B+ A' C'  = A' + B [by absorption] |
| **Q2.** Given the Boolean function :   1. Express F as a **product-of-Maxterms**, .   F = X Z +X Y Z = X Z =∑m(5, 7) =   1. Find the ***algebraic* sum-of-minterms** expression for *F*. |
| F =∑m(5, 7) = X Y' Z + X Y Z |