Name: KEY Id#

COE 202, Term 142

Digital Logic Design

Quiz# 2

Date: Sunday, Feb. 22

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**Q1** Use Boolean algebra to solve the following questions. Show clearly all your steps.

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| = A` + AB + AC` (AB`C` is absorbed by AC`)  = A` + AB + AC` + B (by consensus between A` and AB)  = A` + AB + AC` + B + C` (by consensus between A` and AC`)  = A` + B + C`` (by Absorption; AB is absorbed by B and AC` is absorbed by C`) |
| = A`CD + AB + C`D + B`CD (demorgan's law)  = A`CD + AB + C`D + B`CD + BCD (by consensus between A`CD and AB)  = A`CD + AB + C`D + CD (B` + B) (By distributive law)  = A`CD + AB + C`D + CD  = A`CD + AB + D (C` + C) (By distributive law)  = A`CD + AB + D  = AB + D (by Absorption; A`CD is absorbed by D) |
| **Q2.** Given the Boolean function :   1. Express F as a **product-of-Maxterms**, .   F = XYZ` + X`Y`Z = ∑m(1,6) =  OR  F = (X + Z)(Y + Z)(X` + Z`)(Y` + Z`) =   1. Find the ***algebraic* sum-of-minterms** expression for *F*. |
| F = ∑m(1,6) = X`Y`Z+ XYZ` |
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