Department of Electronics Engineering
National Chiao Tung University

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Logic design (2018 fall)

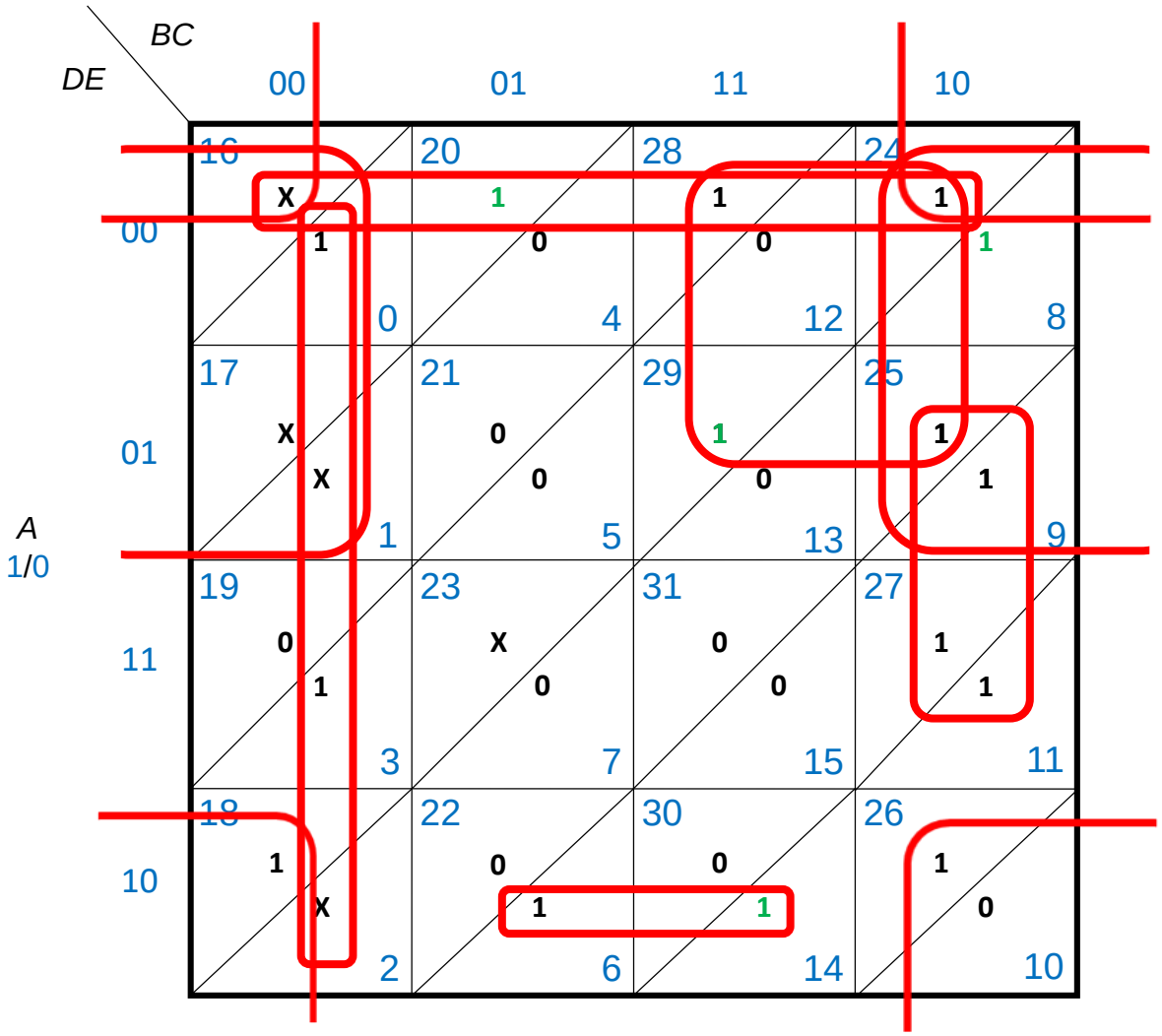
Quiz # 5

Name:_____ID:_____

1. Given F(A,B,C,D,E) = ∑ *m*(0 ,3, 6, 8, 9, 11, 14, 18, 20, 24, 25, 26, 27, 28, 29) + ∑ *d*(1, 2, 16, 17, 23). Solve the problems below by using the given 5-variable Karnaugh map:

   (a.) (40%) Find a minimum sum-of-products expression for *F*.
   (b.) (20%) Underline all essential prime implicants in your answer to problem (a).
   (c.) (40%) Find a minimum product-of-sums expression for *F*.

Ans:



(a) (b) F = C'D' + AD'E' + ABD' + A'B'C' + BC'E + AC'E' + A'CDE'

(c) F = (A' + B + E')(A + C' + D)(A + C' + E')(A' + C' + D')(A + C + D' + E)

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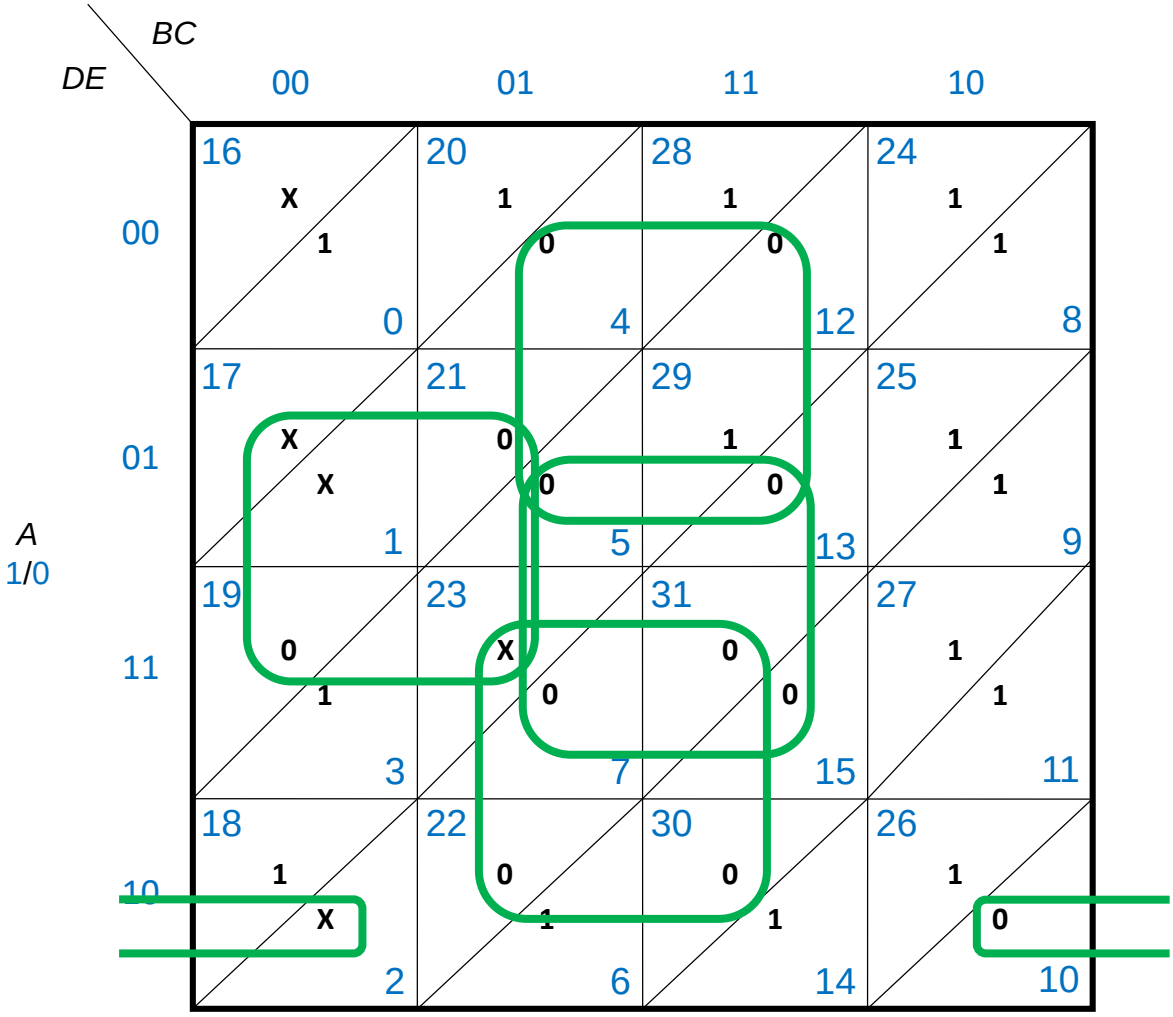
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