

Logic design (2017 fall)

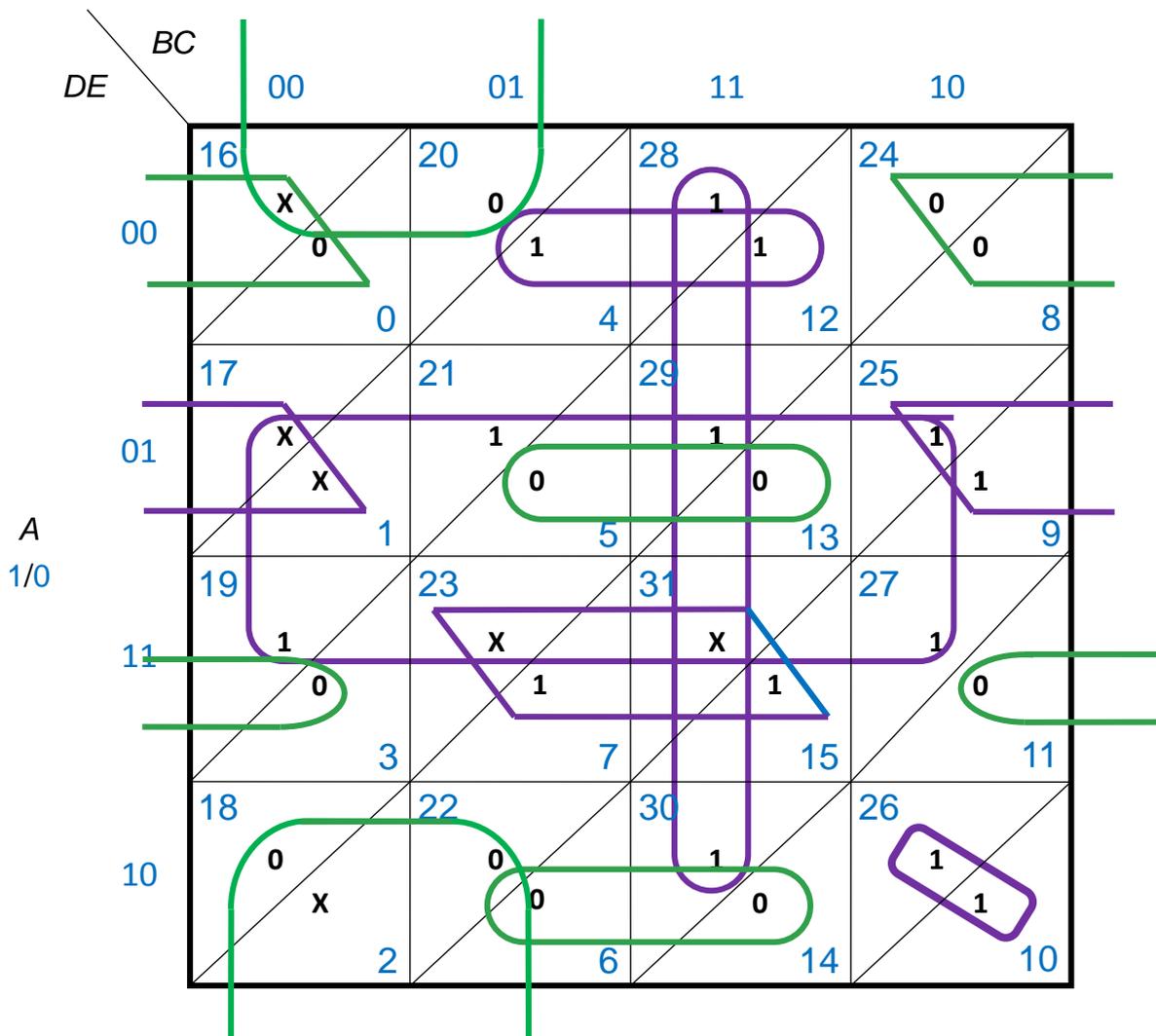
Quiz # 5

Name: _____ ID: _____

1. Given $F(A,B,C,D,E) = \sum m(4, 7, 9, 10, 12, 15, 19, 21, 25, 26, 27, 28, 29, 30) + \sum d(1, 2, 16, 17, 23, 31)$.
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) $F = \underline{AE} + ABC + \underline{CDE} + \underline{C'D'E} + \underline{A'CD'E'} + BC'DE'$

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