

Quiz#1  
 Quiz#2 →



key

Faculty of Engineering & Technology – Electrical & Computer Engineering Department  
 Digital Systems ENCS234 – Quiz#1

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Name \_\_\_\_\_ # \_\_\_\_\_

Question#1- 7 points : Given the following Boolean function

$F(A,B,C,D) = \sum m(0,1,2,3,5,8,9,4,6,7) + \sum d(13,14,15)$ . Implement the function using NOR gates only.

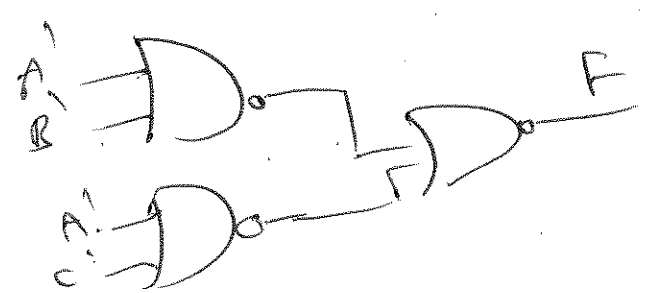
|         |    |    |    |    |
|---------|----|----|----|----|
| CD \ AB | 00 | 01 | 11 | 10 |
| 00      | 1  | 1  | 1  | 1  |
| 01      | 1  | 1  | 1  | 1  |
| 11      | 0  | X  | X  | X  |
| 10      | 1  | 1  | 0  | 0  |

$$F = (A' + B') \cdot (A' + C')$$

$$F' = [(A' + B') \cdot (A' + C')]'$$

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

$$F'' = F = [(A' + B')' + (A' + C')']'$$



Question#2: 3 points

Given  $F(A, B, C, D)$  shown in the k-map. List all essential prime implicants

- A.  $AC, A'BC'$
- ~~B.  $AC, A'BC', AB'D$~~  ✓
- C.  $AC, A'BC', AB'D, BC'D'$
- D.  $AC, A'BC', AB'D, ABD'$
- E. None

