CS 210 Multiple Choice Quiz 3

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Consider the following Karnaugh Map of some Boolean expression, e, with don't-care conditions:

ab \ cd	00	01	11	10
00	X	0	X	1
01	X	0	X	X
11	X	X	0	0
10	1	X	0	X

1. Do the indicated implicants form a minimal set of prime implicants which covers e?
   A Yes, the implicants are of maximum size and satisfy e
   B No, the don't care conditions cause some problems
   C No, there is a smaller set of prime implicants which covers e
   D None of the above
2. Which of the following is **not** a suitable Boolean expression for e?
   A $ab'c'd' + a'b'cd'$
   B $c'd' + a'c$
   C $(ab + d)'$
   D None of the above
3. Which of the following expressions is an acceptable minimum-literal product of sums form for e?
   A $((a' + b')(d))$
   B $(b + d)'$
   C $((a + d')(a' + c'))$
   D None of the above
4. Which of the following is the most accurate statement about a Boolean expression written in both *sum of products* and *inverted sum of products* form?
   A The inverted sum of products form and the sum of products form are equivalent
   B The inverted sum of products form is equivalent to the sum of products form modulo DeMorgan's Law
   C The inverted sum of products form is the dual of the sum of products form
   D The inverted sum of products form is the complement of the sum of products form
5. Which of the following two-level circuits could be used to implement the Boolean expression $ab'cd'$?
   A `AND-OR` **B** `OR-AND` **C** `AND-AND` **D** `NAND-NAND`
6. Suppose you receive the data `1011101010`, which you assume has a parity bit placed somewhere in the sequence. Do you accept this message as error-free or reject it as corrupted?
   A Accept it; the bits `XOR` together to `0`
   B Accept it; the parity bit is right
   C Reject it; the parity bit is wrong
   D Can't say; we don't know where the parity bit is