四川大学平时测验试题

学号： 姓名：

🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚🙚

1. Covert the following numbers to the indicated radix numbers.

(a) ( )2= ( )8= ( 123.25 )10 = ( )BCD (b) (100101.0101001001)BCD= ( )10= ( )2= ( )16

2. The Boolean expression A +0 is equal to ( ) (a) A (b) A’ (c) 0 (d) 1

3. The output of an OR gate with inputs A, B, and C is a 1 (HIGH) when ( )

(a) A = 1, B = 1, C = 1 (b) A = 0, B = 0, C = 1

(c) A = 0, B = 0, C = 0 (d) only answers (a) and (b)

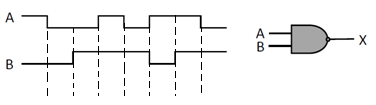
4. Calculate the following

(1) (00111000) BCD + (10000011) BCD (2) (00111000) 2 + (10000011) 2

5. Complete the following table of equivalent values. Use binary numbers with a sign bit and 7 bits for the value

|  |  |  |  |
| --- | --- | --- | --- |
| Decimal | Sign-magnitude | 1’s complement | 2’s complement |
| 102 |  |  |  |
| -68 |  |  |  |

6. Write the logic expression of a 1-bit comparator, draw the circuit, and complete the time diagram.

. 

7. Using Boolean algebra, simplify the following expression:

8. Implement the function f(A,B)=AB’+CD by using NAND gate only.

9. Simplify the following boolean functions 

(1) Convert the following expression to standard SOP forms

(2) Use a Karnaugh map to reduce the SOP expression

(3) Draw out the logic diagram

10. Use a Karnaugh map to reduce the expression: F(A,B,C,D) = ∑m(0,4,5,7,10,13) + ∑d(2,8,9,11,14,15)

11. Optimize the functions ƒ(a,b,c,d ) = Σm(1,3,7,11,15) + Σd(0,2,5,8) in a minimum sum-of-products expression using a Karnaugh map.