Exam

Name_____

1) X = $AB\overline{C}$ + $BC\overline{D}$ is in the form of a sum–of–products expression. 1) _____

2) NAND gates cannot be used to construct NOR gates. 2) _____

3) $\overline{AB} = \overline{A} + \overline{B}$? 3) _____

4) The expression A ⊕ B represents _____. 4) _____
A) the sum output of a half–adder
B) the carry output of a half–adder
C) the carry output of a full–adder
D) the sum output of a full–adder

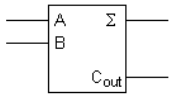


Figure 6–1

5) Referring to the symbol in Figure 6–1, which combination of outputs should never occur? 5) _____
A) Σ = 1, C_{out} = 1 B) Σ = 0, C_{out} = 1 C) Σ = 1, C_{out} = 0 D) Σ = 0, C_{out} = 0

6) The expression (A ⊕ B) ⊕ C_{in} describes _____. 6) _____
A) the sum output of a full–adder
B) the carry output of a full–adder
C) the sum output of a half–adder
D) the carry output of a half–adder

7) The expression AB + (A ⊕ B)C_{in} describes _____. 7) _____
A) the carry output of a full–adder
B) the sum output of a full–adder
C) the sum output of a half–adder
D) the carry output of a half–adder

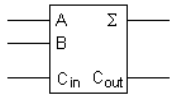


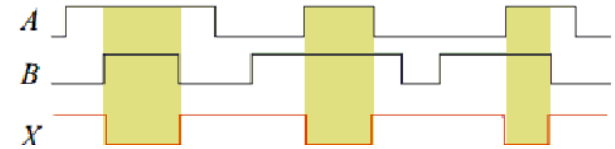
Figure 6–2

8) The symbol in Figure 6–2 represents a(n) _____. 8) _____
A) And function B) full–adder C) PLD D) half–adder

9) Refer to the symbol in Figure 6–2. What are the output when A = 1, B = 1, C_{in} = 1? 9) _____
A) Σ = 0, C_{out} = 1 B) Σ =1, C_{out} = 1 C) Σ = 0, C_{out} = 0 D) Σ = 1, C_{out} = 0

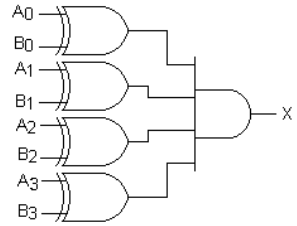
10) A BCD–to–decimal decoder has _____ data input lines and _____ data output lines. 10) _____
A) 10,10 B) 1,10 C) 7,9 D) 4, 10

11) A 2-input gate produces the output shown. (X represents the output.) 11) _____



This is a(n)
A) NOR gate B) NAND gate C) OR gate D) AND gate

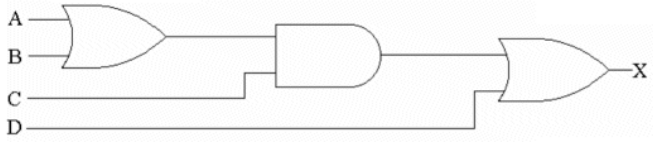
12) The circuit below can be used as a(n) _____. 12) _____



A) dual 4–line multiplexer
B) 4–bit comparator
C) 8–bit comparator
D) 4–bit half–adder

13) A multiplexer with four select, or address, lines can select one of _____ inputs. 13) _____
A) 15 B) 7 C) 16 D) 3

14) For the network shown below, the boolean expression for X is _____. 14) _____



A) D(A + B + C)
B) A + BC + D
C) ((A + B) · C) + D
D) (AC + BC)D

15) The simplest Boolean expression for the Karnaugh map below is _____. 15) _____

		$\overline{C}$	C
$\overline{A}$	$\overline{B}$	0	0
$\overline{A}$	B	1	1
A	B	1	1
A	$\overline{B}$	0	1

A) $AB\overline{C} + ABC + A\overline{B}C$ B) X = AC + B
C) X = $A\overline{B}$ D) AB + $\overline{A}B$

16) Which of the truth tables below describes the Exclusive–NOR gate? 16) _____

A	B	X
0	0	1
0	1	0
1	0	0
1	1	1

(A)

A	B	X
0	0	1
0	1	1
1	0	1
1	1	0

(B)

A	B	X
0	0	0
0	1	1
1	0	1
1	1	0

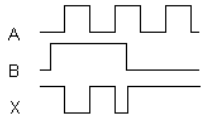
(C)

A	B	X
0	0	1
0	1	0
1	0	0
1	1	0

(D)

A) (A) B) (B) C) (C) D) (D)

17) The timing diagram below is correct for a 2–input _____ gate. 17) _____



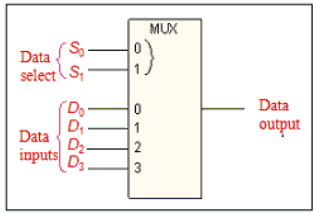
A) AND B) OR C) NAND D) Exclusive–OR

18) A device that is used to switch one of several input lines to a single output line is called a 18) _____
A) decoder B) comparator C) multiplexer D) demultiplexer

19) Which of the following is an invalid BCD code? 19) _____
A) 0101 B) 1001 C) 0011 D) 1101

20) A BCD–to–decimal decoder has _____ data input lines and _____ data output lines. 20) _____
A) 1,10 B) 10 ,10 C) 4, 10 D) 7,9

21) If the data select lines of the MUX are S_1S_0 = 01, the output will be 21) _____



A) equal to D_1 B) HIGH C) equal to D_0 D) LOW

22) What is the BCD form of decimal 834 ? 22) _____
A) 100000110100 B) 010000111000 C) 100001101000 D) 1101000010

Answer Key
Testname: TEST_C6

1) TRUE
2) FALSE
3) TRUE
4) A
5) A
6) A
7) A
8) B
9) B
10) D
11) B
12) B
13) C
14) C
15) B
16) A
17) C
18) C
19) D
20) C
21) A
22) A