Number System, Boolean algebra, Logic Gates

Question 1: What is the binary equivalent of the decimal number $(368)_{10}$

A. 101110000

B. 110110000

C. 111010000

D. 111100000

Question 2: The decimal equivalent of hex number 1A53 is

A. 6793

B. 6739

C. 6973

D. 6379

Question 3: $(734)_8 = (???)_{16}$

A. C 1 D

B. D C 1

C. 1 C D

D. 1 D C

Question 4: The hexadecimal number 'A0' has the decimal value equivalent to

A. 80

B. 256

C. 100

D. 160

Question 5: The decimal equivalent of Binary number 11010 is

A. 26

B. 36

C. 16

D. 23

Question 6: The number 140 in octal is equivalent to

A. (96)10

B. (86)10

C. (90)10

D. none of these

Question 7: Convert decimal 153 to octal. Equivalent in octal will be

A. $(431)_8$

B. $(331)_8$

C. $(231)_8$

D. none of these

Question 8: The decimal equivalent of (1100)2 is

A. 12

B. 16

C. 18

D. 20

Question 9: The binary equivalent of (FA)16 is

A. 1010 1111

B. 1111 1010

C. 10110011

D. none of these

Question 10: The result of adding hexadecimal number A6 to 3A is

A. DD

B. E0

C. F0

D. EF

Question 11: $7BF_{16}$ = _____ $_2$

A. 0111 1011 1110

B. 0111 1011 1111

C. 0111 1011 0111

D. 0111 1011 0011

Question 12: The hexadecimal number $(3E8)_{16}$ is equal to decimal number ………

A. 1000

B. 982

C. 768

D. 323

Question 13: The output of a logic gate is 1 when all its inputs are at logic 0. the gate is either

A. a NAND or an EX-OR

B. an OR or an EX-NOR

C. an AND or an EX-OR

D. a NOR or an EX-NOR

Question 14: How many AND gates are required to realize Y = CD+EF+G

A. 4

B. 5

C. 3

D. 2

Question 15: The number 1000_2 is equivalent to decimal number

A. one thousand

B. eight

C. four

D. sixteen

Question 16: In binary numbers, shifting the binary point one place to the right.

A. multiplies by 2

B. divides by 2

C. decreases by 10

D. increases by 10

Question 17: The binary addition 1 + 1 + 1 gives

A. 111

B. 10

C. 110

D. 11

Question 18: A binary number with 4 bits is called a_____

A. Bit

B. Bytes

C. Nibble

D. None of these

Question 19: The NAND gate output will be low if the two inputs are

A. 00

B. 01

C. 10

D. 11

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Question 20: The simplification of the Boolean expression is

$$\left(\overline{\overline{ABC}}\right)+\left(\overline{A\,\overline{B}C}\right)$$

A. 0

B. 1

C. A

D. BC

Question 21: Karnaugh map is used for the purpose of

A. Reducing the electronic circuits used.

B. To map the given Boolean logic function.

C. To minimize the terms in a Boolean expression.

D. To maximize the terms of a given a Boolean expression.

Question 22: Convert the following SOP expression to an equivalent POS expression.

$$A\,B\,C + A\,\overline{B}\,\overline{C} + A\,\overline{B}\,C + A\,B\,\overline{C} + \overline{A}\,\overline{B}\,C$$

A. $(\overline{A} + \overline{B} + \overline{C})(\underline{A} + B + \overline{C})(\overline{A} + B + C)$

B. $(A + B + C)(A + \overline{B} + C)(A + \overline{B} + \overline{C})$

C. $(\overline{A} + \overline{B} + \overline{C})(A + \overline{B} + C)(A + \overline{B} + C)$

D. $(A + B + C)(\overline{A} + B + \overline{C})(A + \overline{B} + C)$

Question 23: If a 3-input NOR gate has eight input possibilities, how many of those possibilities will result in a HIGH output?

A. 1

B. 2

C. 7

D. 8

Question 24: The simplification of the Boolean expression $\left(ABC\right)+\left(ABC\right)$ is

A. 0

B. 1

C. A

D. ABC

Question 25: The Boolean expression $\overline{A}.B + A.\overline{B} + A.B$ is equivalent to

A. $A + B$

B. $\overline{A.B}$

C. $\overline{A+B}$

D. $A.B$

Question 26: When simplified with Boolean Algebra (x + y)(x + z) simplifies to

A. x

B. x + x(y + z)

C. x(1 + yz)

D. x + yz

Question 27: -8 is equal to signed binary number

A. 10001000

B. 00001000

C. 10000000

D. 11000000

Question 28: When an input signal A=11001 is applied to a NOT gate serially, its output signal is

A. 00111

B. 00110

C. 10101

D. 11001

Question 29: What is the minimum number of two-input NAND gates used to perform the function of two input OR gate

A. 1

B. 2

C. 3

D. 4

Question 30: The simplest equation which implements the K-map shown below is:

	C'	C
A'B'	0	0
A'B	1	1
AB	1	1
AB'	0	1

A. X = AC +B

B. X = AC'

C. X = ABC + ABC' + AB'C

D. X = AB +AB'

Question 31: Which gate is best used as a basic comparator?

A. NOR

B. OR

C. Exclusive-OR

D. AND

Question 32: Looping on a K-map always results in the elimination of:

A. variables within the loop that appear only in their complemented form

B. variables that remain unchanged within the loop

C. Variables within the loop that appear in both complemented and uncomplemented form.

D. Variables within the loop that appear only in their uncomplemented form.