

POSTAL Book Package

2023

Computer Science & IT Objective Practice Sets

Digital Logic

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Basics of Digital Logic

Multiple Choice Questions & NAT Questions

- Q.1** $(10110011100011110000)_2$ in base 32 is
 (a) 2214716 (b) 1192331
 (c) 11976 (d) 11142316
- Q.2** The hexadecimal representation of $(657)_8$ is
 (a) $(1AF)_H$ (b) $(D78)_H$
 (c) $(D71)_H$ (d) $(32F)_H$
- Q.3** The binary equivalent of the decimal number 0.4375 is
 (a) 0.0111 (b) 0.1011
 (c) 0.1100 (d) 0.1010
- Q.4** Zero has two representations in
 (a) Sign magnitude (b) 1's complement
 (c) 2's complement (d) Both (a) and (b)
- Q.5** Which of the following code is a weighted code?
 (a) Gray (b) Excess-3
 (c) Shift counter (d) 5111
- Q.6** In signal magnitude representation, the binary equivalent of 22.5625 is (the bit before comma represents the sign).
 (a) 0, 10110.1011 (b) 0, 10110.1001
 (c) 1, 10101.1001 (d) 1, 10110.1001
- Q.7** A variable takes thirteen possible values. It can be communicated using
 (a) Thirteen bits (b) Three bits
 (c) \log_2^{13} bits (d) Four bits
- Q.8** Convert $(-54)_{10}$ to hexadecimal.
 (a) $(34)_{16}$ (b) $(CA)_{16}$
 (c) $(54)_{16}$ (d) $(DA)_{16}$
- Q.9** The 2's complement representation of $(539)_{10}$ in hexadecimal is
 (a) ABE (b) DBC
 (c) DE5 (d) 21B
- Q.10** What is 2's complement of $(101)_3$?
 (a) $(010)_3$ (b) $(011)_3$
 (c) $(121)_3$ (d) $(121)_2$
- Q.11** Which of the following decimal numbers can be exactly represented in binary notation with a finite number of bits?
 (a) 0.1 (b) 0.2
 (c) 0.4 (d) 0.5
- Q.12** A particular number system has 18 symbols from 0 to 9, A, B, C, E, S, G, T. If two numbers GATE and CSE are given to an adder, then output of adder is
 (a) TC7A (b) T5EA
 (c) G5SA (d) T5SA
- Q.13** The square of octal number 23 is
 (a) 529 (b) 539
 (c) 551 (d) 650
- Q.14** If $(123)_5 = (X3)_Y$, then the number of possible values of x is
 (a) 4 (b) 3
 (c) 2 (d) 1
- Q.15** If $(2.3)_{\text{base } 4} + (1.2)_{\text{base } 4} = (y)_{\text{base } 4}$, what is the value of y ?
 (a) 10.1 (b) 10.01
 (c) 10.2 (d) 1.02
- Q.16** F's complement of $(2BFD)_{16}$ is
 (a) E304 (b) D403
 (c) D402 (d) C403
- Q.17** Which of the following weighted code will give 9's complement by complementing each individual bit?
 (a) Excess-3 (b) 5421
 (c) 2421 (d) Both (a) and (c)
- Q.18** Consider a system which has two eight bit inputs $D_1 = 01010101$, $D_2 = 00000000$, the system produces eight bit output that is bitwise XOR of the inputs. The eight bit output of system is input to the Gray Code Converter. The decimal equivalent of the output from Gray Code converter is _____.

- Q.19** Which of the following statement is Incorrect for the range of n bit binary numbers?
 (a) Range of unsigned numbers is 0 to $2^n - 1$.
 (b) Range of signed number is $-2^{n-1} + 1$ to $2^{n-1} - 1$.
 (c) Range of signed 1's complement numbers is $-2^{n-1} + 1$ to 2^{n-1} .
 (d) Range of signed 2's complement numbers is -2^{n-1} to $2^{n-1} - 1$.
- Q.20** The greatest negative number which can be stored in computer that has 8-bit word length and uses 2's complement arithmetic is
 (a) -256 (b) -255
 (c) -128 (d) -127
- Q.21** Correct $(1101)_2$ is corresponding excess-3.
 (a) 00010000 (b) 01000110
 (c) 00100110 (d) 00010110
- Q.22** Find the value of x in the given equation
 $(2)_3 + (3)_4 = (x)_5$
- Q.23** What are the value of R_1 and R_2 respectively in the expression $(235)_{R_1} = (565)_{10} = (1065)_{R_2}$
 (a) 8, 16 (b) 16, 8
 (c) 6, 16 (d) 12, 8
- Q.24** Convert $(3121.121)_4$ to base 3?
 (a) 10022.100 (b) 22001.100
 (c) 22001.101 (d) 10022.110
- Q.25** The number of 1's in the binary representation of $(3 * 4096 + 15 * 256 + 5 * 16 + 3)$ are
 (a) 8 (b) 9
 (c) 10 (d) 12
- Q.26** Two numbers -48 and -23 are added using 2's complement. The 2's complement of the result using 8 bit representation is _____.
 (a) 10111001 (b) 01000111
 (c) 01101010 (d) 11100111
- Q.27** A number in 4-bit two's complement representation is $X_3 X_2 X_1 X_0$. This number when stored using 8 bits will be
 (a) 0 0 0 0 $X_3 X_2 X_1 X_0$
 (b) 1 1 1 1 $X_3 X_2 X_1 X_0$
 (c) $X_3 X_3 X_3 X_3 X_3 X_2 X_1 X_0$
 (d) $\bar{X}_3 \bar{X}_3 \bar{X}_3 \bar{X}_3 \bar{X}_3 X_2 X_1 X_0$
- Q.28** Result of the subtraction with the following unsigned decimal numbers by taking the 10's complement of the subtrahend. $1753 - 8640$
 (a) 3113 (b) 10393
 (c) -6887 (d) -3113
- Q.29** Given that $(EOB)_H - (ABF)_H = Y$. The radix 8's complement of Y is
 (a) 844 (b) 1514
 (c) 6264 (d) 3251
- Q.30** Let $A = 1111 1010$ and $B = 0000 1010$ be two 8 bit 2's complement numbers. Their product in 2's complement is
 (a) 1100 0100 (b) 1001 1100
 (c) 1010 0101 (d) 1101 0101
- Q.31** If $(11x1y)_8 = (12C9)_{16}$ then the values of x and y are
 (a) 3 and 1 (b) 5 and 7
 (c) 7 and 5 (d) 1 and 5
- Q.32** $(FE35)_{16}$ XOR $(CB15)_6$ is equal to
 (a) $(3320)_{16}$
 (b) $(FF35)_{16}$
 (c) $(FF50)_{16}$
 (d) $(3520)_{16}$
- Q.33** Which of the following represents $(E3)_{16}$?
 (a) $(1CE)_{16} + (A2)_{16}$
 (b) $(1BC)_{16} - (DE)_{16}$
 (c) $(2BC)_{16} - (1DE)_{16}$
 (d) $(200)_{16} - (11D)_{16}$
- Q.34** $(X)_8$ is expressed in Gray code as $(11110)_2$. The value of X is _____.
- Q.35** Given $(135)_{\text{base } x} + (144)_{\text{base } x} = (323)_{\text{base } x}$. The value of base x is _____.
- Q.36** The minimum decimal equivalent of the number 11C.0 is _____.
- Q.37** The number of 1's in 8-bits representation of -127 in 2's complement form is m and that in 1's complement form is n . What is the value of m/n ?
- Q.38** If $(28)_x$ in base x number system is equal to $(37)_y$ in base y number system, the possible values of x and y are:
 (a) 5, 3 (b) 8, 7
 (c) 3, 4 (d) 13, 9

