Computer PYQ's of NIMCET

2008

1. A CPU has an arithmetic unit that adds bytes and then sets its V, C and Z flag bits as follows: The V-bit is set if arithmetic overflow occurs. The C-bit is a set if a carry-out is generated from the most significant bit during an operation. The Z-bit is set if the result is zero. What are the values of V, C and Z flag bits respectively after the 8-bits bytes 1100 1100 and 1000 1111 are added?
(A) 0, 0, 0 (B) 1, 1, 0
(C) 1, 1, 1 (D) 0, 1, 0

2. Which one of the following statements is always true?
(A) A compiled program uses more memory than an interpreted program.
(B) A compiler converts a program to a lower level language for execution.
(C) A compiler for a high level language takes less memory than its interpreter.
(D) Compiled programs take more time to execute than interpreted programs.

3. Floating point numbers in a computer are represented 1s using a 10-bit mantissa (including a sign bit) and a 7-bit exponent (including a sign bit). What is the approximate value of the maximum number, which can be represented? Assume that the mantissa is stored in the normalized form, that is, without leading zeroes
(A) 2^{128} (B) 2^{127}
(C) 2^{64} (D) 2^{63}

4. The capacity of a memory unit is defined by the number of words multiplied by the number of bits per word. How many separate address and data line are needed for a memory of 4K x 16?
(A) 10 address lines and 16 data lines
(B) 12 address lines and 10 data lines
(C) 12 address lines and 16 data lines
(D) 12 address lines and 8 data lines

5. The main disadvantage of direct mapping of cache organization is that
(A) it doesn't allow simultaneous access to the intended data and its tag
(B) it is more expensive than other type of organizations.
(C) the cache hit ratio is degraded if two or more blocks used alternatively map onto the same block frame in the cache.
(D) the number of blocks required for the cache increases linearly with the size of the main memory.

6. Let A [1.....10] be an array, let A [i] = 2i for $1 \le i \le 10$. After the assignment j = A [A[5]] is executed, the value of A [j] is equal to
(A) Undefined (B) 1
(C) 5 (D) 10

7. The first instruction of bootstrap loader program of an operating system is stored in
(A) RAM (B) BIOS
(C) Hard disk (D) None of these

8. The function ABC+ AB'C + A'BC + A'B'C is equivalent to
(A) AC'+ AB+ A'C (B) AB'+ AC'+ A'C
(C) A'B+ AC'+ AB' (D) A'B+ AC+ AB'

9. The addition of 4 bit, 2's complement binary numbers 1101 and 0100 results in
(A) 0001 and an overflow
(B) 1001 and no overflow
(C) 0001 and no overflow
(D) 1001 and an overflow

10. Given $\sqrt{(224)}_r = (13)_r$ the value of radix r is
(A) 10 (B) 8
(C) 6 (D) 5

11. Let A =11111010 and B = 00001010 be two 8 bit 2's complement numbers. Their product in 2's complement is
(A) 11000100 (B) 10011100
(C) 10100101 (D) 11010101

12. Which of the following is (are) true about virtual memory systems that uses pages
I. The virtual addres8 space can be larger than the amount of physical memory.
IL. Programs must be resident in main memory

throughout their execution.
III. Pages correspond to semantic characteristics of the programs.
(A) I only (B) II only
(C) I and II only (D) I and III only

104. The minimum number of gates needed to implement the Boolean function
f(x, y, z) = z(x + y) + $\overline{(\bar{z} + x + y)(\bar{x} + \bar{y})}$ is
(A) 2 (B) 3
(C) 4 (D) 5

105. How many bits are required to store an ASCII character?
(A) 7 (B) 6
(C) 8 (D) None of these

2009

16. On receiving an interrupt from an I/O device, the CPUs
(A) hand over the control of address and data bus to interrupting device.
(B) branch off to interrupt service subroutine immediately.
(C) branch off to interrupt service subroutine after completion of current instruction.
(D) None of the above

17. Micro-programmed control unit is
(A) faster than hard-wired unit.
(B) slower than hard-wired unit.
(C) to facilitate easy implementation of new instructions
(D) both (B) and (C)

18. Index register in a digital computer is used for
(A) pointing to the stack address.
(B) indirect addressing.
(C) keeping track of the number of times loop is executed.
(D) address modification.

19. In the virtual memory system, the address space specified by address lines of the CPU must be …. than the physical memory size and … than the secondary storage size.
(A) smaller, smaller (B) smaller, larger
(C) larger, smaller (D) larger, larger

20. The switching expression corresponding to $f(A, B, C, D) = \sum(1, 4, 5, 9, 11, 12)$ is
(A) $B\bar{C}\bar{D} + \bar{A}\bar{C}D + A\bar{B}D$
(B) $AB\bar{C} + ACD + \bar{B}\bar{C}D$
(C) $AC\bar{D} + \bar{A}B\bar{C} - A\bar{C}\bar{D}$
(D) $\bar{A}BD + AC\bar{D} + BC\bar{D}$

21. Assuming all numbers are in 2's complement representation, which of the following numbers is divisible by 11111011?
(A) 11100100 (B) 11010111
(C) 11011011 (D) 00000110

22. A switching circuit that produces one in a set of input bits as an output based on the control value of control bits is termed as
(A) full adder (B) inverter
(C) multiplexer (D) converter

23. A computer with a 32-bit word size uses 2's complement to represent numbers. The range of integers that can be represented by this computer is
(A) -2^{32} to 2^{32} (B) -2^{31} to 2^{32}
(C) -2^{31} to $2^{32} - 1$ (D) -2^{32} to 2^{31}

24. To change upper case to the lower case letter in ASCII, correct mask and operation should be
(A) 0100000 and NOR (B) 0100000 and NAND
(C) 0100000 and OR (D) None of the above

25. Why is the width of a data bus so important to the processing speed of a computer?
(A) The narrower it is, the greater the computer's processing speed.
(B) The wider it is, the more data can fit into the main memory
(C) The wider it is, the greater the computer's processing speed.
(D) The wider it is, the slower the computer's processing speed.

2010

26. Which of the following is NOT one of the major data processing function of a computer?
(A) gathering Data
(B) Processing data into information
(C) analyzing the data or information
(D) storing data or information

27. Simplified form of a Boolean function
F (X,Y,Z) = $\sum(0,2,6,5,6)$
(A) $\bar{Z}X - X\bar{Y}$ (B) $\bar{Z} = X\bar{Y}$
(C) $\overline{YZ} = X\bar{Z}$ (D) None of these

28. Which gate is equivalent to (NOR) OR (XOR) ?
(A) NAND gate (B) OR gate
(C) AND gate (D) XOR gate

29. Which of the following places the common data elements in order from smallest to largest ?
(A) Field, record, character, database
(B) Character, record, field, database
(C) Character, field, record, database
(D) Bit, byte, character, record, field, database

30. Which one of the following is a stored program machine
(A) Micro-processor (B) Calculator
(C) Analog-Computer (D) Micro-Computer

31. A main memory has an access time of 45 ns. A 5 ns time gap is necessary for the completion of one access to beginning access. The bandwidth of the memory:
(A) 25 MHz (B) 40 MHz
(C) 40 MHz (D) 50 MHz

32. A CPU has 12 bit address for memory addressing. If the memory has a total capacity of 16 KB, What is the length of the memory?
(A) 2 bytes (B) 4 bytes
(C) 8 bytes (D) 16 bytes

33. For a microprocessor using I/O mapped I/O
(A) Memory and I/O addresses are distinct
(B) Not all data transfer instructions are available for I/O
(C) Both (A) and (B)
(D) None of above

34. Execution of an operating system is initiated by program called the
(A) Windows Manager (B) Scheduler
(C) Bootstrap (D) None of the above

35. If $(12x)_3 = (123)_x$ then the value of x
(A) 1 (B) 2
(C) Both (A) and (B) (D) None of these

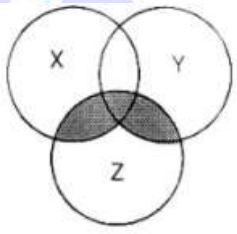
2011

36. The ASCII code of 'A' is
(A) 66D (B) 41H
(C) 01000010 (D) 01100011

37. An Eight bit Byte is capable of representing how many different characters ?
(A) 64 (B) 128
(C) 256 (D) 512

38. The least significant bit of the binary number, which is equivalent to any odd decimal number is
(A) 0 (B) 1
(C) 1 or 0 (D) All of the above

39. Which of the Following Boolean expression represents the shaded portion of venn diagram ?
Note: Here "." Represents an AND operation and "+" denotes OR operation.



(A) $Z' + (X.Y)$ (B) $Z.(X + Y)$
(C) $(Z.X') + Y$ (D) $Z'.(X + Y)$

40. Consider x and y be some Boolean variables, + denotes the OR operation and "." Denotes the AND operation. What will be the Simplified form of the Boolean expression : $x.(x + y)$?
(A) y (B) 1
(C) 0 (D) x

41. Which one of the Following is not a valid rule of Boolean algebra?

(A) $A + 1 = 1$ (B) $A = A'$
(C) $AA = A$ (D) $A + 0 = A$

42. When two binary numbers are added, then an overflow will never occur if
(A) Both numbers of same sign
(B) The carry into the sign bit position and out of sign bit position are not equal
(C) The carry into the sign bit position and out of sign bit position are equal
(D) The Carry into the sign bit position is 1

43. The sum of 11010 + 01111 equals to
(A) 101001 (B) 101010
(C) 110101 (D) 101000

44. Which Protocol needs to be installed for Internet access on a network ?
(A) TCP/IP (B) TELNET
(C) IPX/SPX (D) Net BEUI

45. A petabyte represents approximately
(A) 1000 Gigabytes (B) 1000 Kilobytes
(C) 1000 Terabytes (D) 1000 Yottabytes

2012

46. AN I/O processor controls the flow of information between
(A) cache memory and I/O devices
(B) main memory and I/O devices
(C) two I/O devices
(D) cache and main memories

47. Which of following devices will take highest time in taking the backup of the data from a computer
(A) Magnetic Disk (B) Pen Drive
(C) CD (D) Magnetic Tape

48. ROM Is a kind of
(A) Primary Memory (B) cache Memory
(C) Removable memory (D) Secondary Memory

49. The errors that can be pointed out by compilers are
(A) Syntax errors (B) Semantic errors
(C) Logical errors (D) Internal errors

50. Let x = 11111010 and y = 00001010 be two 8-bit 2's complement numbers. Their Product in 2's Complement notation is
(A) 11000100 (B) 10011100
(C) 10100101 (D) 11010101

51. The range of numbers that can be stored in 8 bits, if negative numbers are stored in 2's complement form is
(A) -128 to +128 (B) -128 to +127
(C) -127 to +128 (D) -127 to +127

52. Primary Storage is _____ as compared to secondary memory.
(A) Slow and expensive (B) fast and inexpensive
(C) fast and expensive (D) slow and inexpensive

53. Which of the Following unit is used to supervise each Instruction in the CPU ?
(A) Control Unit (B) Accumulator
(C) ALU (D) Control Register

54. $(2FA0C)_{16}$ is equivalent to
(A) $(195084)_{10}$
(B) $(00101111101000001100)_2$
(C) Both (A) and (B)
(D) None of these

55. The decimal equivalent of octal number 111010 is
(A) 81 (B) 72
(C) 71 (D) 61

2013

56. All digital circuits can be realized by using only
(A) Exclusive OR gates (B) Half adders
(C) Multiplexers (D) OR gate

57. The Boolean function $a + (a.b)$ is equivalent to
(A) $a.b$ (B) $a + b$
(C) $a.\bar{b}$ (D) $\bar{a} + b$

58. Which of the following circuit is used as a memory device in computers?
(A) Flip-Flop (B) Rectifier
(C) Comparator (D) All of these

59. Convert the Hexadecimal number 4DF to its Octal
(A) 2333 (B) 2337
(C) 2773 (D) 2373

60. A tautology is a Boolean formula that is always true. Which of the Following is a tautology?

(A) x (B) $(x + \bar{x})y$
(C) $x + \bar{y} + \bar{x}$ (D) $(xy) + \bar{x}$

61. Acronym of EEPROM is
(A) Extended Erasable Programmable Memory
(B) Electrically Erasable Read Only Memory
(C) Electrically Erasable Programmable Read Only Memory
(D) Extended Erasable Page-Oriented Memory

62. For reproducing sound, a CD audio player uses a
(A) Quartz crystal (B) Titanium needle
(C) Barium ceramic (D) Laser beam

63. When we open an Internet site, we see www. What does www stand for?
(A) World Wide Word
(B) World Wide Web
(C) World Wide Webinar
(D) Word Widing Works

64. The answer of the operation $(10111)_2 \times (1110)_2$ in hex equivalent is
(A) 150 (B) 14C
(C) 142 (D) 13E

65. The minimum number of bits to represent a character from ASCII code set is
(A) 2 (B) 8
(C) 5 (D) 7

2014

66. The decimal equivalent of the hexadecimal operation A10 + B21 is
(A) 5425 (B) 5246
(C) 2849 (D) 5344

67. What is the 2's complement of $0011\ 0101\ 1001\ 1100$?
(A) $1100\ 1010\ 1100\ 1011$
(B) $1100\ 1010\ 0110\ 0011$
(C) $1100\ 1010\ 0110\ 0100$
(D) $1100\ 1010\ 1111\ 1111$

68. Mulitplication of $111_2\ by\ 101_2$ is
(A) 110011_2 (B) 100011_2
(C) 111100_2 (D) 000101_2

69. What is the 8 bit 2's complement representation of the negative integer -93 ?
(A) 1010011 (B) 10100010
(C) $0XA2$ (D) None of these

70. Consider the values A = 2.0×10^{30}, B = -2.0×10^{30}, C = 1.0. Assume that the floating point numbers are represented with 32 bits. What are the values of X and Y. When the Following sequence of operation are executed on a computer?
$X = A + B$ $Y = A + C$
$X = X + C$ $Y = Y + B$
(A) $X = 1.0, Y = 1.0$ (B) $X = 1.0, Y = 0.0$
(C) $X = 0.0, Y = 1.0$ (D) $X = 0.0, Y = 0.0$

71. The Boolean expression $X.(X + Y)$ is same as
(A) $X.(1 + Y)$ (B) X
(C) $X.1$ (D) All of these

72. How many bytes are there in a nibble ?
(A) one-fourth (B) half
(C) 2 (D) 4

73. The number of bit strings of length 8, that start with the bit 0 or end with the bits 11 is
(A) 132 (B) 180
(C) 256 (D) 160

74. The result of multiplication of the numbers $(10101)_2$ and $(11101)_2$ in hexadecimal form is
(A) 609 (B) 216
(C) 261 (D) 906

75. The binary equivalent of $(531.53125)_{10}$ is
(A) $(1001010011.100001)_2$
(B) $(1000010011.10011)_2$
(C) $(1010010011.11001)_2$
(D) $(1000010011.10001)_2$

2015

76. When the Value of 37H is divided by 17H, the remainder
(A) COH (B) 03H
(C) 07H (D) 09H

77. The number of Boolean function possible with n binary variables is equal to
(A) 2^{2^n} (B) 2^n
(C) $2^{2^{n+1}}$ (D) 2^{n+1}

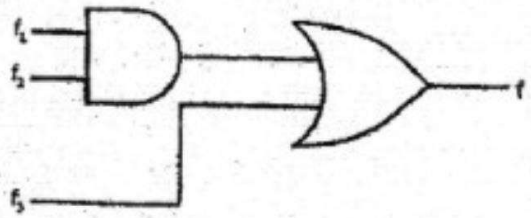
78. Consider 4-bit gray code representation of numbers. Let $h_3h_2h_1h_0$ be the gray code representation of a number n and $g_3g_2g_1g_0$ be the gray code representation of the number (n+1) modulo 15. Which one of the following functions is correct ?
(A) $g_0(h_3h_2h_1h_0) = \sum(1,2,3,6,10,13,14,15)$
(B) $g_1(h_3h_2h_1h_0) = \sum(4,9,10,11,12,13,14,15)$
(C) $g_2(h_3h_2h_1h_0) = \sum(2,4,5,6,7,12,13,15)$
(D) $g_1(h_3h_2h_1h_0) = \sum(0,1,6,7,10,11,12,13)$

79. The minimum number NAND gates required to realize $AB + AB'C + AB'C'$ is
(A) 3 (B) 2
(C) 1 (D) 0

80. Which optical phenomenon is utilized in the operation of the latest write-once optical storage medium called digital paper?
(A) Polarisation (B) Interference
(C) Internal reflection (D) Diffraction

81. P is a 16-bit signed integer. The 2's Complement representation of P is $(F87B)_{18}$. The 2's complement representation of 8P is
(A) $(C3D8)_{36}$ (B) $(187B)_{16}$
(C) $(187B)_{16}$ (D) $(987B)_{16}$

82. Given, f_1, f_3 and f is canonical sum of products form (in decimal) from the circuit.



$f_1 = \sum m(4,5,6,7,8)$, $f_3 = \sum m(1,6,15)$ and $f = \sum m(1,6,8,15)$, then f_2 is
(A) $\sum(4,6)$ (B) $\sum(4,8)$
(C) $\sum(6,8)$ (D) $\sum(4,6,8)$

83. Which of the following is equivalent to the expression $\overline{(X + Y + Z)}$?
(A) $(\bar{X} + \bar{Y})Z$ (B) $(X + Y)\bar{Z}$
(C) $(\bar{X} + \bar{Y})\bar{Z}$ (D) $(X + Y)Z$

84. $\{p \rightarrow q \vee r,\ q \rightarrow s, r \rightarrow s\}$ is locally equivalent to
(A) $q \rightarrow r$ (B) $r \rightarrow q$
(C) $p \rightarrow s$ (D) $s \rightarrow p$

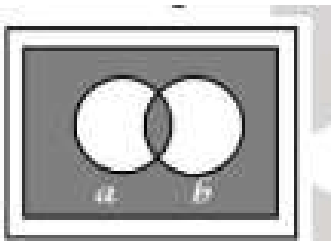
85. The minimum number of MOS transistors required to make a dynamic RAM cell is
(A) 1 (B) 2
(C) 3 (D) 4

2016

86. Consider a hard disk with 16 recording surfaces (0-15) having 16384 cylinder (0-16383) and each cylinder contains 64 sectors (0-63). Data storage capacity in each sector in 512 bytes. Data are organised cylinder-wise and the addressing format is < cylinder no., surface no., sector no. >. A file of size 42797 KB is stored in the disk and the starting disk location of the file is < 1200, 9, 40>. What is the cylinder number of the last sector of the file, if it is stored in a continuous manner ?
(A) 1284 (B) 1282
(C) 1286 (D) 1288

87. Consider the following minterm expression for F.
$F(P,Q,R,S) = \sum 0,2,5,7,8,10,13,15$
The minterms 2, 7, 8 and 13 are 'do not care' terms. The minimal sum-of-product form for F is
(A) $Q\bar{S} + \bar{Q}S$
(B) $QS + \bar{Q}\bar{S}$
(C) $\bar{Q}\bar{R}\bar{S} + \bar{Q}R\bar{S} + Q\bar{R}S + QRS$
(D) $\bar{P}\bar{Q}\bar{S} + \bar{P}QS + PQS + P\bar{Q}\bar{S}$

88. The Boolean expression represented by the following Venn diagram is



(A) a XOR b (B) $a'b + ab'$
(C) $ab + a'b'$ (D) $(a + b')(a' + b)$

89. The range of n-bit signed magnitude representation is
(A) $0\ to\ 2^n - 1$
(B) $-(2^{n-1} - 1)\ to\ (2^{n-1} - 1)$
(C) $-(2^n - 1)\ to\ (2^{n-1} - 1)$
(D) $0\ to\ (2^{n-1} - 1)$

90. A hard disk has a rotational speed of 6000 rpm. Its average latency time is
(A) $5 \times 10^{-3}\ sec$ (B) 0.05 sec
(C) 1 sec (D) 0.5 sec

91. The 2's complement representation of the number $(-100)_{10}$ in a 8-bit computer is
(A) 10011011 (B) 01100100
(C) 11100100 (D) 10011100

92. The number of terms in the product of sum canonical form of | (x_1 to x_2) (x_3 x_4) | is
(A) 7 (B) 8
(C) 9 (D) 10

93. Find the odd one out:
(A) HTTP (B) FCFS
(C) HTML (D) TCP/IP

94. Consider the equation $(43)_x = (y3)_8$ where x and y are unknown. The number of possible solutions are
(A) 4 (B) 6
(C) 5 (D) 7

95. Subtract $(1010)_2\ from\ (1101)_2$ using first complement
(A) $(1100)_2$ (B) $(0101)_2$
(C) $(1001)_2$ (D) $(0011)_2$

2017

96. Which one of the following Boolean algebraic rule is correct ?
(A) $A.A' = 1$
(B) $A + AB = A + B$
(C) $A + A'B = A + B$
(D) $A(A + B) = B$

97. The representation of a floating point binary number +1001.11 in 8-bit fraction and 6-bit exponent format is
(A) Fraction: 01001110 exponent: 000100
(B) Fraction: 00001001 exponent: 000011
(C) Fraction: 10010000 exponent: 110000
(D) Fraction: 00100100 exponent: 011000

98. Which Term is redundant in the expansion

AB + A'C + BC ?
(A) BC (B) $A'C$
(C) AB (D) None of these

99. Let the memory access time is 10 milliseconds and cache access time is 10 microseconds. Assume the cache hit ratio 15%. The effective memory access time is
(A) 2 milliseconds (B) 1.5 milliseconds
(C) 1.85 microseconds (D) 1.85 milliseconds

100. Which of the following is the representation of decimal number (-147) in 2's complement notation on 12-bit machine ?
(A) 111101101100 (B) 110001001101
(C) 111101101101 (D) 000001101101

101. The First instruction of bootstrap loader program of an operating system is stored in
(A) RAM (B) Hard Disk
(C) BIOS (D) None of these

102. Consider the equation $(123)_5 = (x8)_y$ with x and y as unknown. The number of possible solutions is
(A) 1 (B) 2
(C) 3 (D) 4

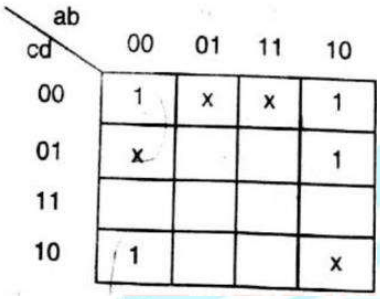
103. The Smallest integer that can be represented by an 8-bit number in 2's complement form is
(A) -256 (B) -128
(C) -127 (D) -255

104. Which of the following in a functionally complete set of gates ?
I. NAND
II NOR
(A) I but not II (B) II but not I
(C) Neither I nor II (D) Both I and II

105. The Total number of binary function that can be defined using n Boolean variables is
(A) 2^{n-1} (B) 2^n
(C) 2^{n+1} (D) None of these

2018

106.What is the minimal form of Karnaugh map shown below? (Assume that x denotes a don't care term)



(A) $\bar{b}\bar{d}$ (B) $\bar{b}\bar{d} + b\bar{c}$
(C) $\bar{b}\bar{d} + \bar{a}\bar{d}\bar{c}\bar{d}$ (D) $\bar{b}\bar{d} + b\bar{c} + \bar{c}\bar{d}$

107. In order to store floating numbers in computers using the normalized representation and 32-bit single precision, the number of bits used for exponent and fraction are ____, ____ respectively.
(A) 11, 21 (B) 16, 15
(C) 16,16 (D) 8, 23

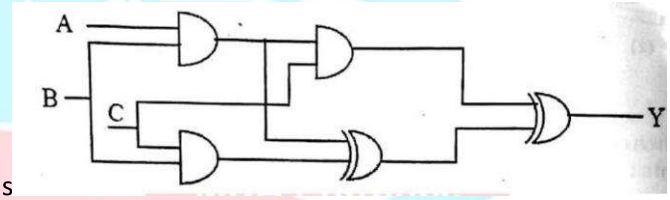
108. Let the memory access time is 10 milliseconds and cache access time is 10 microseconds. Assume the cache hit ratio 15%. The effective memory access time is
(A) 2 milliseconds (B) 1.5 milliseconds
(C) 1.85 microseconds (D) 1.85 milliseconds

109. What are the values 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) 8, 12 (D) 16,12

110. If a signal passing through a gate is inhibited by sending a low into one of the inputs and the output is high, the gate is
(A) NOR (B) NAND
(C) AND (D) OR

111. Given, $\sqrt{(224)_r} = (13)_r$, the value of the radix is
(A) 10 (B) 8
(C) 5 (D) 6

112. The output of the combination circuit given below



is
(A) A + B + C (B) A (B + C)
(C) B (C + A) (D) C (A + B)

113. Which one of the following expressions does NOT represent exclusive NOR of x and y ?
(A) $xy + \bar{x}\bar{y}$ (B) $x \oplus \bar{y}$
(C) $\bar{x} \oplus y$ (D) $\bar{x} \oplus \bar{y}$

114. What type of errors are not detected by assemblers?
(A) Syntax error (B) Run time error
(C) Logical error (D) All of these

115. Consider the equation $(43)_x = (y3)_8$, where x and y are unknown. The number of possible solutions is
(A) 4 (B) 5
(C) 6 (D) 7

2019

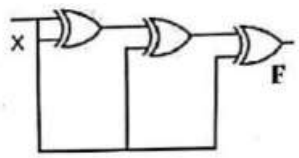
116. In IEEE single precision floating point representation, exponent is represented in.....
(A) 8 bit sign-magnitude representation
(B) 8 bit 2' s complement representation
(C) Biases exponent representation with a bias value 127
(D) Biases exponent representation with a bias value 128

117.With 4-bit 2's complement arithmetic, which of the following addition will result in overflow?
(A) $1111 + 1101$ (B) $0110 + 0110$
(C) $1101 + 0101$ (D) $0101 + 1011$

118. If we can generate a maximum of 4 Boolean function using n Boolean variables, what will be minimum value of n?
(A) 65536 (B) 16
(C) 1 (D) 4

119. If the 2's complement representation of a number is $(011010)_2$, What is its equivalent hexadecimal representation?
(A) $(110)_{16}$ (B) $(1A)_{16}$
(C) $(16)_{16}$ (D) $(26)_{16}$

120. For the circuit shown below, the complement of the output



(A) 0 (B) X
(C) X' (D) 1

121. If N is a 16-bit signed integer, then 2's complement representation of N is $(F87B)_{16}$. Then, 2's complement representation of 8*N is
(A) $(C3D8)_{16}$ (B) $(187B)_{16}$
(C) $(F878)_{16}$ (D) $(987B)_{16}$

122. The base (or radix) of the number system such that the following equation holds 312/20 = 13.1 is
(A) 3 (B) 4
(C) 5 (D) 6

123. Which of the following represents $(D4)_{16}$?
(A) $(4E)_{16} - (5B)_{16}$ (B) $(14E)_{16} - (7A)_{16}$
(C) $(15C)_{16} - (6D)_{16}$ (D) $(1E4)_{16} - (A7)_{16}$

124. How many Boolean expression can be formed with 3 Boolean variables?
(A) 16 (B) 1024
(C) 32 (D) 256

125 In a 8 bit representation of computer system the decimal number 47 has to be subtracted from 38 and the result in binary 2's complement is .....
(A) 11110111 (B) 10001001
(C) 11111001 (D) 11110001

2020

126. Assume x' represent negation of x the Boolean function $x'y' + xy + x'y$ is equivalent to?
(A) $x' + y$ (B) $x + y$
(C) $x + y'$ (D) $x' + y'$

127. The memory unit which directly communicates with the CPU is known as
(A) Primary Memory (B) Secondary Memory
(C) Shared Memory (D) Auxiliary Memory

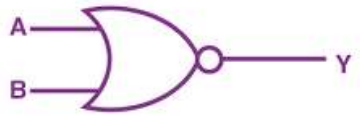
128. Dynamic RAM consumes ..... power and ..... Than Static RAM
(A) More, Faster (B) More, Slower
(C) Less, Slower (D) Less, Faster

129. The binary equivalent of $(234.125)_{10}$
(A) $(11101010.101)_{16}$ (B) $(10101010.011)_{16}$
(C) $(11101010.001)_{16}$ (D) $(10101110.011)_{16}$

130. Determine the octal equivalent of $(432267)_{10}$?
(A) $(432267)_8$ (B) $(346731)_8$
(C) $(2164432)_8$ (D) None of these

131. One Exabyte is equal to
(A) 1018 Bytes
(B) 1 Zetta Bytes divided (/) by one thousand
(C) 1 Peta Bytes multiplied (x) by one thousand
(D) All of the above

132. Consider the following circuit.



How many minimum numbers of two input NAND gates are required to design the above circuit?

(A) 6 (B) 4
(C) 5 (D) 3

133. The time required for fetching and execution of one simple machine instruction is known as
(A) Delay time (B) CPU cycle
(C) Real Time (D) Seek Time

134. The equivalence of given expression $x + x'y$ with Boolean theorem is.....
(A) x (B) $x + y$
(C) x' (D) 0

135. The Logic XOR operation of $(4ACO)_{16}$ and $(B53F)_{16}$ results
(A) AACB (B) 0000
(C) FFFF (D) ABCD

2021

136. The process when processor fetch or decode another instruction during the execution of current instruction is called
(A) Supercomputing (B) Pipelining
(C) Cloud Computing (D) Grid Computing

137. Which of the following is used by ALU to store the intermediate results?
(A) Stack (B) Heap
(C) Registers (D) Accumulator

138. One TeraByte (TB) = ...GB and
One ExaByte (EB) = ...GB
(A) $2^{10}GB, 2^{16}GB$ (B) $2^{10}GB, 2^{20}GB$
(C) $2^{10}GB, 2^{24}GB$ (D) $2^{10}GB, 2^{30}GB$

139. The cache memory is more effective because of
(A) Memory localisation
(B) Locality of reference
(C) Memory Size
(D) None of the mentioned

140. Which of the following is the fastest means of memory access for CPU?
(A) Registers (B) Cache
(C) Main Memory (D) Stack

141. The number $(2217)_8$ is equivalent to
(A) $(608)_{16}$ (B) $(028F)_{16}$
(C) $(048F)_{16}$ (D) $(2297)_{16}$

142. To fetch data from the secondary memory which one of the following registers is used?
(A) MAR (B) PC
(C) IR (D) MBR

143. The binary multiplication 00 * 11 will give
(A) 11 (B) 00
(C) 01 (D) 10

144. Consider a computer system with speed of 10^6 instruction per second. A program P, having $2n^2$ steps is run on this system, where n is the input size. If n = 10000, what is the execution time for P?
(A) 1.2 s (B) 20 s
(C) 100 s (D) 200 s

145. To access the I/O devices, the status flag is continuously checking in
(A) Program Controlled I/O
(B) Memory mapped I/O
(C) I/O mapped
(D) None of these

2022

146. Suppose the largest n bit number requires 'd' digits in decimal representation. Which of the following relations between 'n' and 'd' is approximately correct
(A) $d = 2^n$ (B) $n = 2^d$
(C) $d < nlog_{10}2$ (D) $d > nlog_{10}2$

147. 'Floating point representation' is used to represent
(A) Boolean Values (B) Integers
(C) Whole Numbers (D) Real Numbers

148. Which of the following is equivalent to the Boolean expression: $(X + Y).(X + \bar{Y}).(\bar{X} + Y)$
(A) XY (B) $X\bar{Y}$
(C) $\bar{X}Y$ (D) $\bar{X}\bar{Y}$

149. The Boolean expression $AB + AB' + A'C + AC$ is unaffected by the value of the Boolean variable
(A) B (B) None of these
(C) A (D) C

150. Write the simplified form of the Boolean expression $(A + C)(AD + AD') + AC + C$:
(A) $A + C$ (B) $A' + C$
(C) $A + C'$ (D) $A + D$

151. If a processor clock is rated as 2500 million cycles per second, then its clock period is:
(A) 2.50×10^{-10} sec (B) 4.00×10^{-10} sec
(C) 1.00×10^{-10} sec (D) None of the above

152. The minimum number of NAND gates required for implementing the Boolean expression, $AB + A\bar{B}C + A\bar{B}\bar{C}$ is:
(A) 1 (B) 0
(C) 2 (D) 3

153. FFFF will be the last memory location in a memory of size
(A) 1k (B) 16k
(C) 32k (D) 64k

154. The maximum and minimum value represented in signed 16 bit 2's complement representations are
(A) 0 and 65535 (B) −32768 and 32767
(C) −16384 and 16383 (D) 0 and 32767

155. If a signal passing through a gate is inhibited by sending a low into one of the inputs, and the output is HIGH, the gate is a(n) :
(A) NOR (B) AND
(C) NAND (D) OR

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Answer Key

2008

1. B	**2.** B	**3.** B	**4.** C	**5.** D	**6.** A	**7.** B	**8.** B	**9.** C	**10.** D
11. A	**12.** B	**13.** C	**14.** A	**15.** A					

2009

16. C	**17.** A	**18.** B	**19.** C	**20.** A	**21.** A	**22.** C	**23.** C	**24.** C	**25.** B

2010

26. A	**27.** B	**28.** A	**29.** C	**30.** D	**31.** B	**32.** B	**33.** C	**34.** C	**35.** D

2011

36. B	**37.** C	**38.** B	**39.** B	**40.** D	**41.** B	**42.** D	**43.** A	**44.** A	**45.** C

2012

46. B	**47.** D	**48.** D	**49.** A	**50.** A	**51.** B	**52.** C	**53.** A	**54.** C	**55.** B

2013

56. B	**57.** B	**58.** A	**59.** B	**60.** C	**61.** C	**62.** D	**63.** B	**64.** C	**65.** D

2014

66. A	**67.** C	**68.** B	**69.** D	**70.** A	**71.** B	**72.** B	**73.** A	**74.** C	**75.** B

2015

76. D	**77.** B	**78.** B	**79.** B	**80.** D	**81.** A	**82.** C	**83.** D	**84.** C	**85.** A

2016

86. A	**87.** B	**88.** C	**89.** B	**90.** A	**91.** D	**92.** *	**93.** B	**94.** C	**95.** D

2017

96. C	**97.** A	**98.** D	**99.** *	**100.** C	**101.** A	**102.** C	**103.** B	**104.** D	**105.** D

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2018

106. D **107.** D **108.** * **109.** B **110.** B **111.** C **112.** C **113.** D **114.** C **115.** B

2019

116. C **117.** B **118.** C **119.** B **120.** D **121.** A **122.** C **123.** B **124.** D **125.** A

2020

126. A **127.** A **128.** C **129.** C **130.** D **131.** D **132.** B **133.** B **134.** B **135.** C

2021

136. B **137.** D **138.** B **139.** A **140.** C **141.** A **142.** B **143.** D **144.** A **145.** A

2022

146. C **147.** D **148.** A **149.** A **150.** A **151.** B **152.** B **153.** D **154.** B **155.** C

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