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Subject Name & Code : Digital Logic & Computer Organisation (23ES303D) Exam Name : Q1

1. 1's complement of -0 is [D]

A) 0 B) 1 C) 1000 D) 1111

2. 2's complement of 11001011 is [C]

A) 1010111 B) 11010100 C) 110101 D) 11100010

3. 2's complement of binary number 0101 is [A]

A) 1011 B) 1111 C) 1101 D) 1110

4. A basic multiplexer principle can be demonstrated through the use of a _____ [C]

A) Single-pole relay B) DPDT switch C) Rotary switch D) Linear stepper

5. How many selection lines for 8 x 1 multiplexer? [C]

A) 1 B) 2 C) 3 D) 4

6. A NAND gate has: [D]

A) active-LOW inputs and an active-HIGH output. B) active-LOW inputs and an active-LOW output. C) active-HIGH inputs and an active-HIGH output. D) active-HIGH inputs and an active-LOW output.

7. A variable on its own or in its complemented form is known as a [B]

A) Product Term B) Literal C) Sum Term D) Word

8. According to boolean law: A + 1 = ? [A]

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

9. An analog signal has a range from 0 V to 5 V. What is the total number of analog possibilities within this range? [D]

A) 5 B) 50 C) 250 D) Infinite

10. An overflow occurs in [A]

A) MSD position B) LSD position C) Middle position D) Signed Bit

11. Can an encoder be a transducer? [A]

A) Yes B) No C) May or may not be D) Both are not even related slightly

12. Convert the binary number 1001.00102 to decimal. [C]

A) 90.125 B) 9.125 C) 125 D) 12.5

13. Don’t care conditions can be used for simplifying Boolean expressions in _____ [C]

A) Registers B) Terms C) K-maps D) Latches

14. Hexadecimal letters A through F are used for decimal equivalent values from: [C]

A) 1 through 6 B) 9 through 14 C) 10 through 15 D) 11 through 17

15. How many binary digits are required to count to 10010? [A]

A) 7 B) 2 C) 3 D) 100

16. How many NOT gates are required for the construction of a 4-to-1 multiplexer? [C]

A) 3 B) 4 C) 2 D) 5

17. How many OR gates are required for a Decimal-to-bcd encoder? [D]

A) 2 B) 10 C) 3 D) 4

18. In boolean algebra, the OR operation is performed by which properties? [D]

A) Associative properties B) Commutative properties C) Distributive properties D) All of the Mentioned

19. In which of the following gates the output is 1 if and only if at least one input is 1? [D]

A) AND B) NOR C) NAND D) OR

20. Binary weighted number system are _____ [A]

A) position weighted number system B) alpha numeric number system C) ASCII D) all of the mentioned

21. Product-of-Sums expressions can be implemented using _____ [D]

A) 2-level OR-AND logic circuits B) 2-level NOR logic circuits C) 2-level XOR logic circuits D) Both 2-level OR-AND and NOR logic circuits

22. The enable input is also known as _____ [C]

A) Select input B) Decoded input C) Strobe D) Sink

23. The hexadecimal representation of 14 is _____ [D]

A) A B) F C) D D) E

24. The prime implicant which has at least one element that is not present in any other implicant is known as _____ [A]

A) Essential Prime Implicant B) Implicant C) Complement D) Prime Complement

25. The sum of 11101 + 10111 equals _____. [C]

A) 110011 B) 100001 C) 110100 D) 100100

26. The time required for a gate or inverter to change its state is called _____ [C]

A) Rise time B) Decay time C) Propagation time D) Charging time

27. What is the function of an enable input on a multiplexer chip? [C]

A) To apply Vcc B) To connect ground C) To active the entire chip D) To active one half of the chip

28. Which of the examples below expresses the associative law of addition: [A]

A) A + (B + C) = (A + B) + C B) A + (B + C) = A + (BC) C) A(BC) = (AB) + C D) ABC = A + B + C

29. Which of the following represents a number of output lines for a decoder with 4 input lines? [B]

A) 15 B) 16 C) 17 D) 18

30. Which one of the following can be used as parallel to series converter? [C]

A) Decoder B) Digital counter C) Multiplexer D) Demultiplexer

31. Which type of gate can be used to add two bits? [A]

A) Ex-OR B) Ex-NOR C) Ex-NAND D) NOR

32. Why is an exclusive-NOR gate also called an equality gate? [C]

A) The output is false if the inputs are equal. B) The output is true if the inputs are opposite. C) The output is true if the inputs are equal. D) None of the mentioned

33. A computer language that is written in binary codes only is _____ [A]

A) machine language B) c C) c# D) Pascal

34. A logic circuit that provides a HIGH output for both inputs HIGH or both inputs LOW is a(n): [A]

A) Ex-NOR gate B) OR gate C) Ex-OR gate D) NAND gate

35. A NOR gate with one HIGH input and one LOW input: [D]

A) will output a HIGH B) functions as an AND C) will not function D) will output a LOW

36. It is possible for an enable or strobe input to undergo an expansion of two or more MUX ICs to the digital multiplexer with the proficiency of large number of _____ [A]

A) Inputs B) Outputs C) Selection lines D) Enable lines

37. If m is the 2's complement and n is the binary number, then [B]

A) m=n' B) m=n'+1 C) m=n'-1 D) m=n

38. In the decimal numbering system, what is the MSD [A]

A) The middle digit of a stream of numbers B) The digit to the right of the decimal point C) The last digit on the right D) The digit with the most weight

39. Which of the following is not a positional number system? [A]

A) Roman Number System B) Octal Number Syste C) Binary Number System D) Hexadecimal Number System

40. Which IC is used for the implementation of 1-to-16 DEMUX? [A]

A) C 74154 B) IC 74155 C) IC 74139 D) IC 74138

41. 1's complement can be easily obtained by using [B]

A) Comparator B) Inverter C) Adder D) Subtractor

42. 4 to 1 MUX would have _____ [A]

A) Multiplexer B) Demultiplexer C) Decoder D) Digital counter

43. A basic multiplexer principle can be demonstrated through the use of a [C]

A) Single-pole relay B) DPDT switch C) Rotary switch D) Linear stepper

44. A bit in a computer terminology means either 0 or 1. [A]

A) TRUE B) FALSE C) May be D) Can't say

45. A combinational circuit that selects one from many inputs are [D]

A) Encoder B) Decoder C) Demultiplexer D) Multiplexer

46. A digital system consists of _____ types of circuits. [A]

A) 2 B) 3 C) 4 D) 5

47. A Karnaugh map (K-map) is an abstract form of _____ diagram organized as a matrix of squares. [A]

A) Venn Diagram B) Cycle Diagram C) Block diagram D) Triangular Diagram

48. A Karnaugh map is a systematic way of reducing which type of expression? [C]

A) product-of-sums B) exclusive NOR C) sum-of-products D) those with overbars

49. A logic circuit that provides a HIGH output for both inputs HIGH or both inputs LOW is an [A]

A) Ex-NOR gate B) OR gate C) Ex-OR gate D) NOR gate

50. A product term containing all K variables of the function in either complemented or uncomplemented form is called a [A]

A) Minterm B) Maxterm C) Midterm D) ? term

51. A universal logic gate is one which can be used to generate any logic function. Which of the following is a universal logic gate? [D]

A) OR B) AND C) XOR D) NAND

52. According to boolean law: A + AB = ? [C]

A) 0 B) 1 C) A D) B

53. According to the property of minterm, how many combinations will have value equal to 1 for K input variables? [B]

A) 0 B) 1 C) 2 D) 3

54. All logic operations can be obtained by means of _____ [D]

A) AND and NAND operations B) OR and NOR operations C) OR and NOT operations D) NAND and NOR operations

55. An OR gate with schematic "bubbles" on its inputs performs the same functions as a(n) gate [D]

A) NOR B) OR C) NOT D) NAND

56. Convert binary 01001110 to decimal. [B]

A) 4E B) 78 C) 76 D) 116

57. Convert decimal 213 to binary. [B]

A) 11001101 B) 11010101 C) 1111001 D) 11100011

58. Convert hexadecimal value 16 to decimal. [A]

A) (22)10 B) (16)10 C) (10)10 D) (20)10

59. Decimal number 10 is equal to binary number [B]

A) 1110 B) 1010 C) 1001 D) 1000

60. Decoder is constructed from _____ [C]

A) Inverters B) AND gates C) Inverters and AND gates D) None of the mentioned

61. If enable input is high then the multiplexer is _____ [B]

A) Enable B) Disable C) Saturation D) High Impedance

62. If the decimal number is a fraction then its binary equivalent is obtained by the number continuously by 2. [B]

A) Dividing B) Multiplying C) Adding D) Subtracting

63. If two inputs are active on a priority encoder, which will be coded on the output? [A]

A) The higher value B) The lower value C) Neither of the inputs D) Both of the inputs

64. In a combinational circuit, the output at any time depends only on the _____ at that time. [C]

A) Voltage B) Intermediate values C) Input values D) Clock pulses

65. In a multiplexer the output depends on its _____ [B]

A) Data inputs B) Select inputs C) Select outputs D) Enable pin

66. In Boolean algebra the AND function is represented by tthe_____sign [C]

A) plus B) Minus C) Multiplication D) Division

67. In case of XOR/XNOR simplification we have to look for the following _____ [D]

A) Diagonal Adjacencies B) Offset Adjacencies C) Straight Adjacencies D) Both diagonal and offset adjacencies

68. Logic circuitry is used to detect [C]

A) Underflow B) MSD C) Overflow D) LSD

69. The 1’s complements requires [A]

A) One operation B) Two operations C) Three operations D) Combined Operations

70. The 2’s complement of 5 is _____ [A]

A) 1011 B) 101 C) 11 D) 1010

71. The addition of +19 and +43 results as in 2’s complement system. [D]

A) 11001010 B) 101011010 C) 101010 D) 111110

72. The basic building blocks of the arithmetic unit in a digital computers are _____ [B]

A) Subtractors B) Adders C) Multiplexer D) Comparator

73. The basic logic gate whose output is the complement of the input is the: [C]

A) OR gate B) AND gate C) inverter D) comparator

74. The binary number 1110 is equal to the decimal number _____ [D]

A) 3 B) 1 C) 7 D) 14

75. The Boolean expression A ? B is equivalent to [B]

A) AB + AB B) A'B + AB' C) B D) A

76. The boolean function A + BC is a reduced form of [B]

A) AB + BC B) (A + B)(A + C) C) A'B + AB'C D) A + C)B

77. The computer language that is written in binary codes only is _____ [A]

A) machine language B) C C) C++ D) Pascal

78. The decimal number 188 is equal to the binary number _____. [A]

A) 10111100 B) 111000 C) 1100011 D) 1111000

79. The design of an ALU is based on _____ [B]

A) Sequential logic B) Combinational logic C) Multiplexing D) De-Multiplexing

80. The enable input is also known as [C]

A) Select input B) Decoded input C) Strobe D) Sink

81. The expression Y=AB+BC+AC shows the operation [B]

A) EX-OR B) SOP C) POS D) NOR

82. The inputs/outputs of an analog multiplexer/demultiplexer are _____ [A]

A) Bidirectional B) Unidirectional C) Even parity D) Binary-coded decimal

83. The involution of A is equal to [C]

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

84. The logical sum of two or more logical product terms is called [A]

A) SOP B) POS C) OR operation D) NAND operation

85. The octal equivalent of 1100101.001010 is _____ [B]

A) 624.12 B) 145.12 C) 154.12 D) 145.21

86. The octal numbering system: [D]

A) simplifies tasks B) groups binary numbers in groups of 4 C) saves time D) simplifies tasks and saves time

87. The output of an EX-NOR gate is 1. Which input combination is correct? [C]

A) A = 1, B = 0 B) A = 0, B = 1 C) A = 0, B = 0 D) A = 0, B’ = 1

88. The parameter through which 16 distinct values can be represented is known as [C]

A) Bit B) Byte C) Word D) Nibble

89. The possible number of bit patterns with 8 bits [D]

A) 128 B) 8 C) 16 D) 256

90. The prime implicant which has at least one element that is not present in any other implicant is known as [A]

A) Essential Prime Implicant B) Implicant C) Complement D) Prime Complement

91. The sign magnitude representation of binary number + 1101.011 is [A]

A) 1101.011 B) 11101.011 C) 110.1 D) 10010.1

92. The time required for a gate or inverter to change its state is called [C]

A) Rise time B) Decay time C) Propagation time D) Charging time

93. The two input MUX would have [A]

A) 1 select line B) 2 select line C) 3 select line D) 4 select line

94. The value of radix in binary number system is _____ [A]

A) 2 B) 8 C) 16 D) 1

95. The word demultiplex means _____ [D]

A) One into many B) Many into one C) Distributor D) One into many as well as Distributor

96. There are _____ cells in a 4-variable K-map [B]

A) 12 B) 16 C) 18 D) 8

97. There are _____ Minterms for 3 variables (a, b, c). [C]

A) 6 B) 7 C) 8 D) 5

98. There are many situations in logic design in which simplification of logic expression is possible in terms of XOR and _____ operations. [A]

A) X-NOR B) XOR C) NOR D) NAND

99. These logic gates are widely used in _____ design and therefore are available in IC form. [B]

A) Sampling B) Digital C) Analog D) Systems

100. Using the transformation method you can realize any POS realization of OR-AND with _____only. [D]

A) XOR B) NAND C) AND D) NOR

101. What is the addition of the binary numbers 11011011010 and 010100101? [C]

A) 111001000 B) 1100110110 C) 11101111111 D) 10011010011

102. What is the minimum number of two input NAND gates used to perform the function of two input OR gates? [C]

A) One B) Two C) Three D) Four

103. What is the primary motivation for using Boolean algebra to simplify logic expressions? [D]

A) it may make it easier to understand the overall function of the circuit B) It may reduce the number of gates C) It may reduce the number of inputs required D) all of these

104. A source program is usually in _____ [C]

A) Assembly language B) Machine level language C) High-level language D) Natural language

105. Which of the following memory of the computer is used to speed up the computer processing? [A]

A) Cache B) RAM C) Accumulators D) Stacks

106. The ALU makes use of _____ to store the intermediate results. [A]

A) Accumulators B) Registers C) Heap D) Stack

107. The control unit controls other units by generating [B]

A) Control signals B) Timing signals C) Transfer signals D) Command Signals

108. _____ are numbers and encoded characters, generally used as operands. [B]

A) Input B) Data C) Information D) Stored Values

109. _____ bus structure is usually used to connect I/O devices. [A]

A) Single bus B) Multiple bus C) Star bus D) Rambus

110. Which of the following computer memory is fastest? [A]

A) Register B) Hard disk C) RAM D) ROM

111. Which of the following circuit is used to store one bit of data? [A]

A) Flip Flop B) Decoder C) Encoder D) Register

112. Which of the following is a way in which the components of a computer are connected to each other? [B]

A) Computer parts B) Computer architecture C) Computer hardware D) Computer Organization

113. Which of the following circuit convert the binary data into a decimal? [C]

A) Decoder B) Encoder C) Code converter D) Multiplexer

114. A three state gate defined as: [C]

A) Analog circuit B) Analog fundamentals C) Digital circuit D) Auxiliary Bus

115. Which of the following memory unit communicates directly with the CPU? [B]

A) Auxiliary memory B) Main memory C) Secondary memory D) Heap Memory

116. The collection of 8-bits is called as - [A]

A) Byte B) Nibble C) Word D) Record

117. Which of the following computer bus connects the CPU to a memory on the system board? [C]

A) Expansion bus B) Width bus C) System bus D) Auxiliary Bus

118. In 3 state gate third position termed as high impedance state which acts as: [A]

A) Open circuit B) Close circuit C) Logic 1 D) Logic 0

119. In which of the following form the computer stores its data in memory? [C]

A) Hexadecimal form B) Octal form C) Binary form D) Decimal form

120. Which of the following is a group of bits that tells the computer to perform a particular operation? [C]

A) Accumulator B) Register C) Instruction code D) Accumulator & Register

121. Where is the document temporarily stored during working on a document on PC? [C]

A) ROM B) CPU C) RAM D) Flash memory

122. The status bit is also called as - [C]

A) Unsigned bit B) Signed bit C) Flag bit D) Unsigned & Signed bit

123. Which of the following register keeps track of the instructions stored in the program stored in memory? [C]

A) Accumulator B) Address Register C) Program Counter D) Index Register

124. The Program Counter is also called as - [A]

A) Instruction Pointer B) Data Counter C) Memory pointer D) Data & Memory Pointer

125. Which of the following is equal to 4 bits? [B]

A) Byte B) Nibble C) Record D) Bit

126. Which of the following is a combinational logic circuit which converts binary information from n coded inputs to a maximum of 2n unique outputs? [D]

A) Multiplexer B) Demultiplexer C) Encoder D) Decoder

127. Which of the following is the circuit board on which chips and processor are placed? [B]

A) Master circuit B) Motherboard C) Big board D) Memory Board

128. Which of the following computer register collects the result of computation? [A]

A) Accumulator B) Instruction Pointer C) Storage register D) Pipe Line

129. CISC stands for - [A]

A) Complex Instruction Set Computer B) Complete Instruction Sequential Compilation C) Complex Instruction Sequential Compiler D) Complex Instruction Set Compilation

130. Which of the following is the function of the control unit in the CPU? [B]

A) It stores program instruction B) It decodes program instruction C) It performs logic operations D) It encodes Logic operations

131. RISC stands for - [A]

A) Reduce Instruction Set Computer B) Risk Instruction Sequential Compilation C) Risk Instruction Source Compiler D) Reduce Instruction Set Compiler

132. Which of the following is an essential data transfer technique? [B]

A) MMA B) DMA C) CAD D) CAM

133. The registers, ALU and the interconnection between them are collectively called as _____ [D]

A) process route B) information trail C) information path D) data path

134. The smallest unit of information a computer can understand and process is known as a..... [C]

A) Digit B) Kilobyte C) Bit D) Byte

135. A computer works on a.....number system [A]

A) Binary B) Octal C) Decimal D) Hexadecimal

136. Which of the following is the largest unit of storage ? [D]

A) GB B) KB C) MB D) TB

137. Information on a computer is stored as [B]

A) Analog data B) Digital data C) Modern data D) Watts data

138. Decimal number system is the group of ..... number [B]

A) 0 to 1 B) 0 to 9 C) 0 to 7 D) 0 to 9 and A to F

139. Hexadecimal number system has .... base. [D]

A) 2 B) 8 C) 10 D) 16

140. A word whose individual bits represent a control signal is _____ [B]

A) Command word B) Control word C) Co-ordination word D) Generation word

141. Arithmetic operation are carried by such micro operation on stored numeric data available in : [B]

A) register B) data C) hardwired D) normalized

142. RTL stands for [A]

A) Register transfer language B) Random transfer language C) Arithematic transfer language D) rambus transfer language

143. In memory transfer location address is supplied by that puts this on address bus: [B]

A) ALU B) CPU C) MAR D) MDR

144. In memory read the operation puts memory address on to a register known as : [C]

A) PC B) ALU C) MAR D) MDR

145. Arithmetic operation are carried by such micro operation on stored numeric data available in [A]

A) Register B) Data C) CPU D) PC

146. Which operation are implemented using a binary counter or combinational circuit: [B]

A) Register transfer B) Arithmetic C) Logical D) Numerical

147. CSA stands for? [A]

A) Computer Speed Addition B) Carry Save Addition C) Computer Service Architecture D) Carry Service Addition

148. The numbers written to the power of 10 in the representation of decimal numbers are called as _____ [C]

A) Height factors B) Size factors C) Scale factors D) Width factors

149. If the decimal point is placed to the right of the first significant digit, then the number is called _____ [B]

A) Orthogonal B) Normalized C) Determinate D) Orthogonal & Determinte

150. An instruction is guided by to perform work according: [D]

A) PC B) ALU C) PC & ALU D) CPU

151. Which can detect single bit error? [A]

A) Parity Bit B) Cyclic redundancy check C) MDR D) CheckSum

152. Parity check bit coding is used for [B]

A) Error correction B) Error detection C) Error correction and detection D) CheckSum

153. Error detecting code is [C]

A) an error-detecting code based on a summation operation performed on the bits to be checked

B) a check bit appended to an array of binary digits to make the sum of all the binary digits.

C) a code in which each xpression conforms to specify rules of construction, so that if certain errors occur in an expression, the resulting expression will not conform to the rules of construction

D) the ratio of the data units in error to the total number of data units

154. Micro operation is shown as: [A]

A) R1 ->R2 B) R1==R2 C) R1.R2 D) R1--R2

155. Which registers can interact with the secondary storage? [A]

A) MAR B) PC C) IR D) R0

156. During the execution of a program which gets initialized first? [C]

A) MDR B) IR C) PC D) MAR

157. Which of the register/s of the processor is/are connected to Memory Bus? [B]

A) PC B) MAR C) IR D) Both PC and MAR

158. A string of eight 0s and 1s is called a..... [D]

A) Megabyte B) Kilobyte C) Gigabyte D) Byte

159. Where is the decoded instruction stored? [D]

A) Registers B) MDR C) PC D) IR

160. What does MIMD stand for? [B]

A) Multiple Instruction Memory Data B) Multiple Instruction Multiple Data C) Memory Instruction Multiple Data D) Memory Information Memory Data