

Exam

Name _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) Convert 11001101_2 to its decimal equivalent using the sum-of-weights position method. 1) _____
A) 409 B) 205 C) 410 D) 207
- 2) The binary equivalent for DFA_{16} is: 2) _____
A) 0110110110112 B) 1111011001012 C) 1101111110102 D) 1110101110102
- 3) Convert the decimal value 1079 to binary. 3) _____
A) 100001101112 B) 110000101112 C) 100101001112 D) 100000101112
- 4) Select the correct transmission code group for a hexadecimal value of 52 if the even parity method of error detection is used. The parity bit is to the left of the code MSB. 4) _____
A) 1101000 B) 01010001 C) 01010010 D) 11010010
- 5) Convert 11111111_2 to its decimal equivalent. 5) _____
A) 1,023 B) 255 C) 511 D) 2,047
- 6) Because all the bit positions in the preceeding problem contain 1s, the simplest approach to completing the conversion for the above problem would be to: 6) _____
A) determine the number of bits, raise 2 to that value and then subtract 1.
B) determine the weight of the MSB and add 1 to that value.
C) determine the weight of each of the bit positions and sum the results.
D) simply determine the weight of the MSB.
- 7) What is the decimal equivalent of $74A_{16}$? 7) _____
A) 1,579 B) 29,856 C) 1,866 D) 3,512
- 8) The decimal equivalent of E_{16} is: 8) _____
A) 13 B) 12 C) 14 D) 15
- 9) The ASCII code is an alphanumeric code that has $2^7 = 128$ possible code groups. How many bits are required to accommodate 128 different code groups? 9) _____
A) 8 B) 9 C) 7 D) 6
- 10) Which of the following represents the correct counting sequence from $9FE_{16}$? 10) _____
A) 9FF, 1A00, 1A01, 1A02, 1A03, 1A04 B) 9FF, 1AF0, 1AF1, 1AF2, 1AF3, 1AF4
C) AFF, 1AF0, 1AF1, 1AF2, 1AF3, 1AF4 D) 9FF, A00, A01, A02, A03, A04
- 11) What is the primary advantage of using the BCD code in place of straight binary coding? 11) _____
A) BCD codes are easily converted to hexadecimal codes.
B) The relative ease of converting to and from decimals.
C) Fewer bits are required to represent a decimal number with the BCD code.
D) BCD codes are easily converted to straight binary codes.

- 12) What is the decimal weight of the MSB in a 12-bit number? 12) _____
A) 2,048 B) 8,192 C) 4,096 D) 1,024
- 13) The hexadecimal equivalent of $15,907_{10}$ is: 13) _____
A) 3B23 B) 3C23 C) 3D23 D) 3E23
- 14) How many BCD bits and how many straight-binary bits would be required to represent the decimal number 643? 14) _____
A) 12 BCD, 12 binary B) 12 BCD, 9 binary
C) 12 BCD, 10 binary D) 16 BCD, 9 binary
- 15) When using the division-by-2 method of converting from decimal to binary, the first remainder represents the: 15) _____
A) MSB of the equivalent binary value, providing the following sequence of remainders are written in descending order until the final remainder is achieved. The final remainder is used to replace the original MSB which is discarded.
B) MSB of the equivalent binary value.
C) LSB of the equivalent binary value, providing the final remainder is used to replace the original LSB, which is then moved to the MSB position.
D) LSB of the equivalent binary value.
- 16) Which of the following represents the correct counting sequence from FEE_{16} ? 16) _____
A) FED, FEC, FEB, FEA, FEA, FFB B) FEF, FF0, FF1, FF2, FF3, FF4
C) FF0, FF1, FF2, FF3, FF4, FF5 D) FEF, FFF, 1FF0, 1FF1, 1FF2, 1FF3
- 17) Select the correct ASCII code representation of the hexadecimal number 5A. 17) _____
A) 011 0000 B) 101 1000 C) 101 1010 D) 101 1001
- 18) The binary equivalent for 169_{10} is: 18) _____
A) 11010111 B) 11101101 C) 10101001 D) 011111011
- 19) The hexadecimal equivalent for $1100\ 1010\ 0111\ 1001_2$ is: 19) _____
A) CA79 B) DA87 C) DA79 D) CA87
- 20) Which of the following statements BEST describes parity checking? 20) _____
A) Parity checking is not suitable for detecting single-bit errors in transmitted codes.
B) Parity checking is capable of detecting and correcting errors in transmitted codes.
C) Parity checking is best suited for detecting single-bit errors in transmitted codes.
D) Parity checking is best suited for detecting double-bit errors that occur during the transmission of codes from one location to another.
- 21) What is the binary equivalent of the decimal value 437? 21) _____
A) 11111100 B) 10111111 C) 110110101 D) 101101011
- 22) How many binary digits make up a byte? 22) _____
A) 4 B) 32 C) 8 D) 16

- 23) How many different numbers can be represented using eight bits? 23) _____
A) 256
B) 128
C) 64
D) 512
E) none of the above
- 24) How many bytes are in the hexadecimal number 7CBD03? 24) _____
A) 3
B) 5
C) 4
D) 6
E) none of the above
- 25) A computer with a 32-bit address bus is capable of generating _____ addresses. 25) _____
A) 256,000,000 B) 4,294,967,296 C) 128,000,000 D) 1,048,576
- 26) The major cause of transmission errors between the transmitter and receiver is: 26) _____
A) electrical noise.
B) even parity errors.
C) transmitter encoding procedure malfunctions.
D) odd parity errors.
- 27) Which of the following groups of codes represent all the invalid BCD codes? 27) _____
A) 1000, 1001, 1010, 1011, 1100, 1101 B) 1010, 1011, 1100, 1101, 1110, 1111
C) 1000, 1001, 1010, 1011, 1100, 1110 D) 1001, 1010, 1011, 1100, 1101, 1110
- 28) The hexadecimal equivalent of 011110111012 is: 28) _____
A) 7B5 B) 3DD C) DD3 D) 5B7
- 29) Which of the following is a weighted value positional numbering system? 29) _____
A) binary coded decimal B) binary
C) ASCII D) Gray code
- 30) Alphanumeric codes should include at least: 30) _____
A) the alphabet upper and lowercase letters, the decimal digits, the 7 punctuation marks, and other characters or symbols.
B) the capacity to code all possible decimal numbers in a direct octal representation of BCD codes.
C) the ability to represent decimal numbers greater than 128₁₀ in a straight binary format.
D) the capacity to represent the alphabet upper and lowercase characters and the decimal numbers in a straight binary format.
- 31) What is the decimal equivalent of AF16₁₆? 31) _____
A) 44,821 B) 44,822 C) 127,425 D) 127,426
- 32) Convert the BCD number 0011 0111 0101 1001 to its decimal equivalent. 32) _____
A) 14,169 B) 3,759 C) 14,168 D) 3,758

- 33) The decimal number 208,973 has a hexadecimal equivalent of: 33) _____
A) 33,3D1 B) 33,04D C) 630,115 D) 631,721
- 34) The uppercase letter Q has an ASCII code of 101 0001. What is the hexadecimal representation of this value? 34) _____
A) 4E B) 4F C) 51 D) 50
- 35) How many bytes are required to represent the decimal number 107 in binary? 35) _____
A) 3 B) 2 C) 4 D) 1
- 36) How many different numbers can be obtained using five binary bits? 36) _____
A) 31 B) 32 C) 63 D) 64
- 37) What is the largest decimal number that can be represented using five binary bits? 37) _____
A) 31 B) 63 C) 64 D) 32
- 38) What is the decimal equivalent of the binary number 1100112? 38) _____
A) 39 B) 49 C) 51 D) 29
- 39) Which of the following decimal numbers is represented by the binary bits 10112? 39) _____
A) 11 B) 13 C) 15 D) 9
- 40) What is the minimum number of binary bits required to represent a count of 17510? 40) _____
A) 5 B) 7 C) 8 D) 6
- 41) What is the largest decimal value that can be represented using nine binary bits? 41) _____
A) 1023 B) 512 C) 511 D) 1024
- 42) Having counted up to 10011012, what value comes next? 42) _____
A) 11000102 B) 10011102 C) 10100102 D) 11100102
- 43) What is another name for a number detector? 43) _____
A) counter B) demultiplexer C) decoder D) multiplexer
- 44) The purpose of the bus in microprocessor -based systems is to: 44) _____
A) ensure that 12 MHz signals are transmitted.
B) provide standard mechanical connection.
C) allow the industry to build standard products.
D) allow the various parts of the system to communicate using well -defined signal paths.
- 45) A device used to display one or more digital signals so that they can be compared to expected timing diagrams for the signals is a: 45) _____
A) low capacitance probe. B) frequency counter.
C) logic analyzer. D) DMM.

- 46) Using a special group of symbols to represent numbers, letters, or words is called: 46) _____
 A) American Standard Code for Information Interchange.
 B) Encoding.
 C) Alphanumeric Code.
 D) Straight Binary Code.
- 47) How many bits are required to code each digit using the BCD numbering system? 47) _____
 A) 8 B) 6 C) 4 D) 2
- 48) What numbering system is used as a "shorthand" way of representing strings of bits? 48) _____
 A) Decimal B) Hexadecimal C) Binary D) BCD
- 49) A computer must recognize codes that represent letters of the alphabet, punctuation marks, and other special characters as well as numbers. What is this code called? 49) _____
 A) Encoding
 B) Alphanumeric Code
 C) Straight Binary Code
 D) American Standard Code for Information Interchange
- 50) Where is a parity bit usually placed in a string of bits? 50) _____
 A) to the left of the MSB B) in the middle of the group
 C) to the left of the LSB D) to the right of the MSB
- 51) _____ occurs when the receiver examines the data that it has received from the transmitter. 51) _____
 A) Parity checking B) Electrical noise C) Parity bit D) Parity method

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

- 52) When dealing with a large binary number, it is usually easier to write the number as a string of bits rather than go through the complicated process of converting the binary number to hexadecimal. 52) _____
- 53) The hexadecimal equivalent of a decimal number contains more digits than the original decimal number. 53) _____
- 54) Zeros must be added to the left of the MSB to produce even groups of 4 bits when converting from binary to hexadecimal. 54) _____
- 55) The decimal number 271 can be converted to an 8-bit equivalent. 55) _____
- 56) Many digital electronic systems work in hexadecimal rather than binary. 56) _____
- 57) There are only two steps in analog-to-digital conversion. 57) _____
- 58) The output unit of a PC performs calculation and logical decisions. 58) _____
- 59) $1100_2 = 12_{10}$ 59) _____
- 60) $1111_2 = 10_{10}$ 60) _____

- 61) A CD stores information in analog form. 61) _____
- 62) In a digital system, three or four numbering systems may be in use at the same time. 62) _____
- 63) A bit consists of 8 bytes. 63) _____
- 64) A parity bit is an extra bit that is attached to a code group that is being transferred from one location to another. 64) _____
- 65) The binary equivalent of 3710 is 11100111110. 65) _____
- 66) Numbers that are greater than 9 are represented by the letters G, H, I, J, K, and L in the hex system. 66) _____
- 67) Integrated circuits (ICs) are also referred to as discrete component circuits. 67) _____
- 68) Binary digits are called bits. 68) _____
- 69) Transistor - transistor logic (TTL) uses the bipolar transistor as its main circuit element. 69) _____

SHORT ANSWER: Write the word or phrase that best completes each statement or answers the question.

- 70) The weight of the MSB in a 5-bit number is _____. 70) _____
- 71) Each hexadecimal digit converts to _____ binary digits. 71) _____
- 72) In BCD, the decimal number 93 converts to _____ digits. 72) _____
- 73) In binary, the decimal number 93 converts to _____ digits. 73) _____
- 74) The _____ code represents alphanumeric characters as seven bit binary numbers. 74) _____
- 75) In an even parity scheme, each byte should contains a(n) _____ number of ones. 75) _____
- 76) Adding a zero to the leftmost bit of an ASCII code is called zero _____. 76) _____
- 77) The digit that changes most often when counting is called the _____. 77) _____
- 78) The acronym ASCII stands for American Standard Code for Information _____. 78) _____
- 79) The binary equivalent of 37 is _____. 79) _____
- 80) BCD stands for _____. 80) _____
- 81) The most widely used scheme for data transmission error detection is called the _____ method. 81) _____

82) The decimal equivalent of $A3B_{16}$ is _____.

82) _____

Answer Key

Testname: UNTITLED2

- 1) B
- 2) C
- 3) A
- 4) D
- 5) C
- 6) A
- 7) C
- 8) C
- 9) C
- 10) D
- 11) B
- 12) A
- 13) D
- 14) C
- 15) D
- 16) B
- 17) C
- 18) C
- 19) A
- 20) C
- 21) C
- 22) C
- 23) A
- 24) A
- 25) B
- 26) A
- 27) B
- 28) B
- 29) B
- 30) A
- 31) B
- 32) B
- 33) B
- 34) C
- 35) D
- 36) B
- 37) A
- 38) C
- 39) A
- 40) C
- 41) C
- 42) B
- 43) C
- 44) D
- 45) C
- 46) B
- 47) C
- 48) B
- 49) B
- 50) A

Answer Key

Testname: UNTITLED2

- 51) A
- 52) FALSE
- 53) FALSE
- 54) TRUE
- 55) FALSE
- 56) FALSE
- 57) FALSE
- 58) FALSE
- 59) TRUE
- 60) FALSE
- 61) FALSE
- 62) TRUE
- 63) FALSE
- 64) TRUE
- 65) TRUE
- 66) FALSE
- 67) FALSE
- 68) TRUE
- 69) TRUE
- 70) 16
- 71) four
- 72) eight
- 73) seven
- 74) ASCII
- 75) even
- 76) padding
- 77) LSB
- 78) Interchange
- 79) 100101
- 80) Binary-coded decimal
- 81) Parity
- 82) 2619