Exam

Name_____

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

1) Which of the following is not an analog device? 1) _____
A) an audio microphone
B) a light switch
C) a thermocouple
D) a 10-turn potentiometer

Answer: B
Explanation: A)
B)
C)
D)

2) The name of the computer unit that sends appropriate signals to all the other units to cause a specific instruction to be executed is the: 2) _____
A) memory unit.
B) arithmetic/logic unit.
C) output unit.
D) control unit.

Answer: D
Explanation: A)
B)
C)
D)

3) What is the decimal equivalent of the binary number 110011_2 ? 3) _____
A) 49 B) 29 C) 39 D) 51

Answer: D
Explanation: A)
B)
C)
D)

4) The parallel transmission of digital data: 4) _____
A) requires only one signal line between sender and receiver.
B) requires as many signal lines between sender and receiver as there are data bits.
C) is less expensive than the serial method of data transmission.
D) is much slower than the serial transmission of data.

Answer: B
Explanation: A)
B)
C)
D)

5) What is the symbol for the period of a waveform? 5) _____
A) T B) X C) Y D) P

Answer: A
Explanation: A)
B)
C)
D)

6) What is the name of a two-axis graph, with a horizontal axis representing time, that displays pulse waveforms? 6) _____

A) a frequency graph B) an analog graph
C) a digital graph D) a timing diagram

Answer: C
Explanation: A)
B)
C)
D)

7) What is the primary numbering system in digital applications? 7) _____

A) octal B) decimal C) hexadecimal D) binary

Answer: D
Explanation: A)
B)
C)
D)

8) What is the binary number before 1011010_2 in the counting sequence? 8) _____

A) 1011011_2 B) 1011100_2 C) 1011001_2 D) 1011000_2

Answer: C
Explanation: A)
B)
C)
D)

9) How many different numbers can be obtained using five binary bits? 9) _____

A) 32 B) 64 C) 63 D) 31

Answer: A
Explanation: A)
B)
C)
D)

10) What is the largest decimal value that can be represented using nine binary bits? 10) _____

A) 512 B) 1024 C) 511 D) 1023

Answer: C
Explanation: A)
B)
C)
D)

11) How many bits are required to code each digit using the BCD numbering system? 11) _____

A) 8 B) 6 C) 4 D) 2

Answer: C
Explanation: A)
B)
C)
D)

12) Which of the following is NOT used to enter data into a computer through its input unit? 12) _____

A) printer/plotter B) punched cards C) magnetic disk D) keyboard

Answer: A

Explanation: A)
B)
C)
D)

13) Which of the following decimal numbers is represented by the binary bits 1011_2 ? 13) _____

A) 13 B) 15 C) 9 D) 11

Answer: D

Explanation: A)
B)
C)
D)

14) What is the minimum number of binary bits required to represent a count of 175_{10} ? 14) _____

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

Answer: A

Explanation: A)
B)
C)
D)

15) The purpose of the bus in microprocessor-based systems is to: 15) _____

A) ensure that 12 MHz signals are transmitted.
B) allow the various parts of the system to communicate using well-defined signal paths.
C) allow the industry to build standard products.
D) provide standard mechanical connection.

Answer: B

Explanation: A)
B)
C)
D)

16) Which of the following describes digital memory? 16) _____

A) Inputs remain in their new state after outputs are removed.
B) Inputs return to their original state after outputs are changed.
C) Outputs return to their original state after inputs are removed.
D) Outputs remain in their new state after inputs are removed.

Answer: D

Explanation: A)
B)
C)
D)

17) A set of instructions that tell a computer exactly what to do is called a(n): 17) _____
A) program. B) memory unit.
C) arithmetic/logic unit. D) control unit.

Answer: A
Explanation: A)
B)
C)
D)

18) Digital representations of numerical quantities may BEST be described as having characteristics: 18) _____
A) that vary constantly over a continuous range of values.
B) that vary in discrete steps in proportion to the values they represent.
C) that are difficult to interpret because they are continuously changing.
D) that vary in constant and direct proportion to the values they represent.

Answer: B
Explanation: A)
B)
C)
D)

19) 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? 19) _____
A) Alphanumeric Code
B) Encoding
C) Straight Binary Code
D) American Standard Code for Information Interchange

Answer: A
Explanation: A)
B)
C)
D)

20) What numbering system is used as a "shorthand" way of representing strings of bits? 20) _____
A) BCD B) Decimal C) Hexadecimal D) Binary

Answer: C
Explanation: A)
B)
C)
D)

21) How many binary bits are necessary to represent 748 different numbers? 21) _____
A) 7 B) 10 C) 8 D) 9

Answer: B
Explanation: A)
B)
C)
D)

22) Which of the following statements does NOT describe an advantage of digital technology? 22) _____

A) The time it takes to process information is shorter.
B) The circuits are less affected by noise.
C) The operation can be programmed.
D) Information storage is easy.

Answer: A
Explanation: A)
B)
C)
D)

23) A given digital circuit is referred to as a *logic circuit*. This label means that the circuit operates: 23) _____

A) by an unknown characteristic of a specific set of rules.
B) by a certain set of logic rules.
C) as an analog representation of a given quantity.
D) as a fully hybrid circuit.

Answer: B
Explanation: A)
B)
C)
D)

24) The decimal number system is not used in digital systems because: 24) _____

A) the decimal digits to the left of the decimal point are normally raised to negative exponent values.
B) it would take a greater number of decimal digits than binary digits to express a given quantity.
C) the binary system is NOT a weighted positional value system like the decimal system.
D) it is difficult to design electronic equipment that will recognize ten different voltage levels.

Answer: D
Explanation: A)
B)
C)
D)

25) Which of the following voltage ranges would most likely be used to represent a binary one? 25) _____

A) 0.8 V - 2 V B) 0 V - 4 V C) 0 V - 0.8 V D) 2 V - 5 V

Answer: D
Explanation: A)
B)
C)
D)

26) Having counted up to 1001101_2, what value comes next? 26) _____

A) 1100010_2 B) 1001110_2 C) 1110010_2 D) 1010010_2

Answer: B
Explanation: A)
B)
C)
D)

27) Which of the following represents the largest number that can be obtained in the decimal system when the MSD positional value is 10^4 ? 27) _____

A) 9,999 B) 100,000 C) 99,999 D) 10,000

Answer: C

Explanation: A)
B)
C)
D)

28) Where is a parity bit usually placed in a string of bits? 28) _____

A) to the left of the LSB B) to the right of the MSB
C) in the middle of the group D) to the left of the MSB

Answer: D

Explanation: A)
B)
C)
D)

29) Which of the following voltage ranges would most likely be used to represent a binary zero in a typical digital circuit? 29) _____

A) 2 V - 5 V B) 0.8 V - 4 V C) 0 V - 0.8 V D) 0 V - 2 V

Answer: C

Explanation: A)
B)
C)
D)

30) What is the largest decimal number that can be represented using five binary bits? 30) _____

A) 32 B) 64 C) 63 D) 31

Answer: D

Explanation: A)
B)
C)
D)

31) What is another name for a number detector? 31) _____

A) decoder B) demultiplexer C) multiplexer D) counter

Answer: A

Explanation: A)
B)
C)
D)

32) 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: 32) _____

A) frequency counter. B) logic analyzer.
C) DMM. D) low capacitance probe.

Answer: B
Explanation: A)
B)
C)
D)

33) _____ occurs when the receiver examines the data that it has received from the transmitter. 33) _____

A) Parity bit B) Parity checking C) Electrical noise D) Parity method

Answer: B
Explanation: A)
B)
C)
D)

34) The electronic device that converts digital data to an analog quantity is the: 34) _____

A) CMOS. B) DAC. C) TTL. D) ADC.

Answer: B
Explanation: A)
B)
C)
D)

35) The microprocessor's logic, memory, and input/output circuits are collectively referred to as: 35) _____

A) microprocessor architecture. B) semiconductor modules.
C) microprocessor packaging. D) microprocessor power supply.

Answer: A
Explanation: A)
B)
C)
D)

36) Using a special group of symbols to represent numbers, letters, or words is called: 36) _____

A) Straight Binary Code.
B) Alphanumeric Code.
C) American Standard Code for Information Interchange.
D) Encoding.

Answer: D
Explanation: A)
B)
C)
D)

37) In addition to its microprocessor, a microcontroller must also have _____ circuits. 37) _____

A) output ports B) input ports
C) internal memory D) all of the above

Answer: D
Explanation: A)
B)
C)
D)

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

38) A _____ diagram shows how logic signal level varies with respect to time. 38) _____

Answer: timing
Explanation:

39) A set of instructions for a computer is called a _____. 39) _____

Answer: program
Explanation:

40) In _____ data transmission, multiple conductors are used. 40) _____

Answer: parallel
Explanation:

41) A(n) _____ quantity varies in proportion to a voltage or current. 41) _____

Answer: analog
Explanation:

42) The acronym ASCII stands for American Standard Code for Information _____. 42) _____

Answer: Interchange
Explanation:

43) When digital and analog systems are combined the result is called a _____ system. 43) _____

Answer: hybrid
Explanation:

44) The _____ system is also called the base-10 system. 44) _____

Answer: decimal
Explanation:

45) The binary equivalent of 37 is _____. 45) _____

Answer: 100101
Explanation:

46) The decimal equivalent of $A3B_{16}$ is _____. 46) _____

Answer: 2619
Explanation:

47) The digit that changes most often when counting is called the _____. 47) _____

Answer: LSB
Explanation:

48) The most widely used scheme for data transmission error detection is called the _____ method. 48) _____

Answer: parity
Explanation:

49) BCD stands for _____. 49) _____

Answer: binary-coded-decimal
Explanation:

50) In _____ data transmission, a single conductor is used. 50) _____

Answer: serial
Explanation:

51) The three most commonly-used numbering systems in the digital system are _____, _____, and _____. 51) _____

Answer: decimal, binary, hexadecimal
Explanation:

52) A computer's _____ unit takes instructions from the memory unit and interprets them. 52) _____

Answer: control
Explanation:

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

53) The primary disadvantage to digital techniques is that the "real world" is primarily analog. 53) _____

Answer: ● True False
Explanation:

54) Serial data transmission costs more to implement than parallel data transmission. 54) _____

Answer: True ● False
Explanation:

55) Minicomputers can handle more data than mainframes. 55) _____

Answer: True ● False
Explanation:

56) Greater accuracy and precision are possible with digital techniques. 56) _____

Answer: ● True False
Explanation:

57) If the LSB of a binary number is a one (1), it is an even number. 57) _____

Answer: True ● False
Explanation:

58) In a typical digital system, 4.5 V and 3.1 V represent different binary levels. 58) _____

Answer: True ● False
Explanation:

59) A parity bit is an extra bit that is attached to a code group that is being transferred from one location to another. 59) _____

Answer: True False
Explanation:

60) The logic analysis of a digital circuit is used to determine how the circuit responds to a binary (0 or 1) input rather than an actual input voltage. 60) _____

Answer: True False
Explanation:

61) Parallel data transmission is faster than serial data transmission. 61) _____

Answer: True False
Explanation:

62) A bit consists of 8 bytes. 62) _____

Answer: True False
Explanation:

63) A CD stores information in analog form. 63) _____

Answer: True False
Explanation:

64) Integrated circuits (ICs) are also referred to as discrete component circuits. 64) _____

Answer: True False
Explanation:

65) Hybrid systems contain both digital and analog circuits. 65) _____

Answer: True False
Explanation:

66) In a digital system, three or four numbering systems may be in use at the same time. 66) _____

Answer: True False
Explanation:

67) Transistor-transistor logic (TTL) uses the bipolar transistor as its main circuit element. 67) _____

Answer: True False
Explanation:

68) Numbers that are greater than 9 are represented by the letters G, H, I, J, K, and L in the hex system. 68) _____

Answer: True False
Explanation:

69) Circuits that exhibit the property of memory normally revert to their original state when the input is removed. 69) _____

Answer: True False
Explanation:

70) It is difficult to store digital data. 70) _____

Answer: True False
Explanation:

71) The binary equivalent of 3710 is 111001111110. 71) _____

Answer: True False
Explanation:

72) Two signal voltages having slightly different voltage levels cannot be at the same binary levels. 72) _____

Answer: True False
Explanation:

73) Digital circuits are more affected by noise than analog circuits. 73) _____

Answer: True False
Explanation:

1) B
2) D
3) D
4) B
5) A
6) C
7) D
8) C
9) A
10) C
11) C
12) A
13) D
14) A
15) B
16) D
17) A
18) B
19) A
20) C
21) B
22) A
23) B
24) D
25) D
26) B
27) C
28) D
29) C
30) D
31) A
32) B
33) B
34) B
35) A
36) D
37) D
38) timing
39) program
40) parallel
41) analog
42) Interchange
43) hybrid
44) decimal
45) 100101
46) 2619
47) LSB
48) parity
49) binary-coded-decimal
50) serial

51) decimal, binary, hexadecimal
52) control
53) TRUE
54) FALSE
55) FALSE
56) TRUE
57) FALSE
58) FALSE
59) TRUE
60) TRUE
61) TRUE
62) FALSE
63) FALSE
64) FALSE
65) TRUE
66) TRUE
67) TRUE
68) FALSE
69) FALSE
70) FALSE
71) TRUE
72) FALSE
73) FALSE