1. An English mathematician who invented the slide rule in 1622.
    A. Blaise Pascal
    B. Clifford Berry
    C. Charges Babage
    D. William Oughtred

    ANSWER: D

2. Built a computer in 1946 at the Institute of Advance Study (IAS), Princeton, USA, that uses binary numbers and stores information.
    A. Vannevar Bush
    B. John Van Neumann
    C. John Atannasoff
    D. Clifford Berry

    ANSWER: B

3. An electronic device design to accept data performs prescribed computational and logical operations at high speed and output the results of this operation.
    A. Compiler
    B. Simulator
    C. Computer
    D. Digital machine

    ANSWER: C

4. First commercial computer introduce in 1953 that uses valves.
    A. IBM-1400
    B. UNIVAC
    C. IBM-701
    D. ENIAC

    ANSWER: B

5. The first electronic computer and was completed in 1946.
    A. ENIAC
    B. UNIVAC
    C. EDVAC
    D. Whirlwind I

    ANSWER: A

6. ENIAC was developed at
    A. University of Pennsylvania
    B. Massachusetts Institute of Technology
    C. Cambridge University
    D. Bell Laboratories

    ANSWER: A

7. Who constructed ENIAC and UNIVAC?
    A. William Oughtred
    B. Presper Eckert and John W. Mauchly
    C. John von Neumann
    D. William Oughtred and Jon von Neumann

    ANSWER: B

8. ENIAC consist of how many vacuum tubes?
    A. 1,500 tubes
    B. 3,575 tubes
    C. 13,575 tubes
    D. 18,000 tubes
    ANSWER: D

9. ENIAC could perform _____ additions or up to _____ multiplications per second.
    A. 1,000 / 100
    B. 1,500 / 150
    C. 3,000 / 300
    D. 5,000 / 500
    ANSWER: D

10. Whirlwind I, develop at Massachusetts Institute of Technology is capable of _____ operations per second.
    A. 1,000
    B. 5,000
    C. 10,000
    D. 20,000
    ANSWER: D

11. Refers to the increased use of data conversion circuits as a result of increased application.
    A. Op Amps
    B. Linear circuit
    C. Computers
    D. Digital equipment
    ANSWER: C

12. What is a group of circuits that provides timing and signals to all operations in the computer?
    A. Output unit
    B. Memory unit
    C. Control unit
    D. Input unit
    ANSWER: C

13. Refers to the part of computer that performs mathematical operations.
    A. CPU
    B. Flip-flop
    C. Assembly language
    D. ALU
    ANSWER: D

14. What does ALU which carries arithmetic and logic operations process?
    A. Binary coded decimal
    B. Hexadecimal numbers
    C. Octal numbers
    D. Binary numbers

ANSWER: D

15. What is the smallest part of a computer language?
    A. binary
    B. byte
    C. bit
    D. word
    ANSWER: C

16. A digital word consisting of only four bits is called a
    A. dibit
    B. quad
    C. pixel
    D. nibble
    ANSWER: D

17. Electronics methodology in solving application problems using circuits, in which there are only two possible voltage levels.
    A. digital electronics
    B. switching techniques
    C. state diagramming
    D. bistable electronics
    ANSWER: A

18. In digital electronics, there are mainly two possible voltage levels and these make _____ number system to be useful in its analysis.
    A. binary
    B. octal
    C. hexadecimal
    D. all of the above
    ANSWER: A

19. 1 and 0 in binary number system are used to represent the two different voltage levels or logic levels in digital circuits. However, in most applications, a long string of 1's and 0's occur, and makes the data presentation "nasty". To condense this long string of 1's and 0's, the _____ number system is (are) also used.
    A. octal
    B. decimal
    C. hexadecimal
    D. all of the above
    ANSWER: D

20. How many symbols are used in octal digital number system?
    A. 16
    B. 4
    C. 8
    D. 2
    ANSWER: C

21. How many symbols does hexadecimal digital number system used?
    A. 16

B. 4
C. 8
D. 32
ANSWER: A

22. What is the equivalent of decimal number 11 in binary?
A. 1101
B. 1110
C. 1111
D. 1011
ANSWER: D

23. Which of the following is not used in hexadecimal digital symbols?
A. A
B. C
C. H
D. F
ANSWER: C

24. What is the equivalent of decimal 7 in octal?
A. 21
B. 49
C. 7
D. 14
ANSWER: C

25. The decimal 36020 is equivalent to hexadecimal _____.
A. 8CB4
B. 88BC
C. 8BC8
D. 884C
ANSWER: A

26. What is the equivalent of decimal 14 in binary?
A. 1110
B. 1011
C. 1101
D. 1111
ANSWER: A

27. The code 1011 in BCD is
A. 24
B. Letter A
C. 11
D. Invalid
ANSWER: D

28. Conversion from binary to octal number system needs a grouping of bits by
A. Two
B. Three
C. Four

D. Five
ANSWER: B

29. Convert the given binary number 1010011.01 to octal system.
A. 511.1
B. 511.2
C. 123.1
D. 123.2
ANSWER: D

30. What is the hexadecimal equivalent of the binary number 1010011.01?
A. 53.4
B. 53.1
C. A6.1
D. A6.4
ANSWER: A

31. The most practical way of converting hexadecimal numbers to binary is to give each number its _____ equivalent bits.
A. Two
B. Three
C. Four
D. Five
ANSWER: C

32. The binary equivalent of the hexadecimal number ECE.5
A. 1110 1100 1110.0101
B. 1110 1100 1110.101
C. 1101 1100 1101.101
D. 1101 1100 1101.0101
ANSWER: A

33. Convert $(1111\ 1111\ 1111\ 1111)_2$ to decimal number.
A. 32 767
B. 32 768
C. 65 535
D. 65 536
ANSWER: C

34. Find the sum of binary number 1010 and 0011.
A. 1021
B. 1101
C. 1011
D. 1111
ANSWER: B

35. Get the sum of $(110.1101)_2$ and $(11.01)_2$.
A. 1010.0101
B. 1010.0001
C. 1101.0101
D. 0111.1010

ANSWER: B

36. What is the difference between the given binary numbers, 110.1101 and 11.01?
    A. 110.0000
    B. 111.1010
    C. 11.1010
    D. 11.1001
    ANSWER: D

37. Find the radix-minus one complement of $(110.1101)_2$.
    A. 111.0010
    B. 010.0011
    C. 1.001
    D. 001.0010
    ANSWER: D

38. Give the true complements of $(1101.1100)_2$.
    A. 0010.0011
    B. 10.0011
    C. 10.01
    D. 0010.0100
    ANSWER: D

39. Mathematics used in expressing, analyzing, and designing of digital electronic circuits.
    A. Boolean algebra
    B. Numerical methods
    C. Statistical approach
    D. Logical mathematics
    ANSWER: A

40. Method(s) used in simplifying Boolean algebra.
    A. Karnaugh map
    B. Map-entered variable technique
    C. Quine-McCluskey tabular method
    D. All of the above
    ANSWER: D

41. Karnaugh map is the most commonly used method in simplifying Boolean expression or logical functions. In this method only 1's and 0's are entered into the table, while _____ includes variables into the table.
    A. Boolean algebra
    B. Map-entered variable technique
    C. Superposition method
    D. Quine-McCluskey tabular method
    ANSWER: B

42. A suitable method in simplifying Boolean expression when the system deals with more than six variables.
    A. Boolean algebra
    B. Karnaugh map
    C. Map-entered variable technique

D. Quine-McCluskey tabular method
ANSWER: D

43. What level is used to represent logic 1 in a negative logic circuit?
A. negative transition level
B. low level
C. positive transition level
D. high level
ANSWER: B

44. What level is used to represent logic “0” in a negative logic circuit?
A. high level
B. low level
C. negative transition level
D. positive transition level
ANSWER: A

45. _____ is a gate which has two or more low inputs signals to get a low output.
A. AND
B. Inverter
C. OR
D. NAND
ANSWER: C

46. What is the logic circuit having two or more inputs but only output, with high output of any or all inputs are high, with low output only if all inputs are low?
A. AND gate
B. OR gate
C. NOR gate
D. NAND gate
ANSWER: B

47. A logic gate whose output is HIGH when a single HIGH at its input is present.
A. OR gate
B. NOR gate
C. AND gate
D. NAND gate
ANSWER: A

48. An output of logic zero can be generated by what logic gate(s) if all inputs are zero?
A. OR gate
B. AND gate
C. NOR gate
D. NAND gate
ANSWER: A

49. Logic gate that generates an output of logic zero if and only if all inputs are zero.
A. OR gate
B. AND gate
C. NOR gate
D. NAND gate

ANSWER: A

50. A solid state device which only gives a “1” output if all inputs are also “1” is called
    A. an AND gate
    B. a NAND gate
    C. a NOR gate
    D. an OR gate
ANSWER: A

51. Only when all inputs are logic one that this gate can delver an output of logic one.
    A. NOR gate
    B. AND gate
    C. NAND gate
    D. XOR gate
ANSWER: B

52. A solid state logical device which only gives a “1” output if all inputs are “0” is called a _____ gate.
    A. NOT
    B. NOR
    C. NAND
    D. OR
ANSWER: B

53. To cause a three-state buffer to output 0-1 levels, the following must be true:
    A. The output enable must be false
    B. The output enable must be true
    C. The information must have been stored in the buffer
    D. The signal OE must be at logic 1
ANSWER: D

54. The rapidly flashing logic probe tip tells you that the logic node being probe
    A. Has rapidly changing logic activity
    B. Is struck
    C. Is at an illegal logic level
    D. Has an unstable logic activity
ANSWER: A

55. _____ is a single bit comparator.
    A. Wired OR
    B. Exclusive OR
    C. NOR gate
    D. Exclusive NOR
ANSWER: D

56. _____ refers to the class of logic circuit containing flip-flops.
    A. Combinational
    B. Sequential
    C. Linear
    D. Feedback
ANSWER: B

57. What is the counter that follows the binary sequence?
    A. Binary counter
    B. Simplex counter
    C. Shift counter
    D. Decimal counter
    ANSWER: A

58. What logic circuit is analogous to a single pole mechanical selector switch?
    A. Decoder
    B. Encoder
    C. Multiplexer
    D. Exclusive OR
    ANSWER: C

59. An encoder is an MSI (medium-scale-integrated) circuit that
    A. Provides an output code that corresponds to which of a set of input line is true
    B. Provides a storage of a certain number of binary bits
    C. Selects a given output based on binary input code
    D. Provides for delivering one of two or more inputs to an output
    ANSWER: A

60. _____ is called the time sharing of one line with multiplex signals.
    A. Simultaneous transmission
    B. Bi-directional
    C. Relay
    D. Multiplexing
    ANSWER: D

61. Data selector is also called
    A. Encoder
    B. Decoder
    C. Multiplexer
    D. Demultiplexer
    ANSWER: C

62. _____ refers to a function of a decade counter digital IC.
    A. Provides one output pulse for every 10 inputs pulses
    B. Adding two decimal numbers
    C. Producing 10 output pulses for every 1 pulse
    D. Decoding a decimal number for display on seven-segment
    ANSWER: A

63. _____ refers to BCD counter:
    A. Decade counter
    B. Shift register
    C. Frequency divider
    D. Binary counter
    ANSWER: A

64. In a system with MOS devices, the main bus loading factor is likely to be

A. Resistive
B. Current
C. Capacitive
D. Static charge

ANSWER: C

65. When a logic circuit rejects an unwanted signal, this is termed as _____.
A. Logic levels
B. Noise margin
C. Power consumption
D. Propagation delay

ANSWER: B

66. Speed of a logic circuit is normally expressed as _____.
A. Logic levels
B. Speed immunity
C. Propagation delay
D. Power consumption

ANSWER: C

67. What is a multi-wire connection between digital circuits?
A. Bus
B. Wire wrap
C. Multiplexed cable
D. Cable ribbon

ANSWER: A

68. What is the process used to describe analog-to-digital conversion?
A. Binarize
B. Linearize
C. Digitize
D. Analogize

ANSWER: C

69. What is the process of converting multiple analog input signals sequentially to digital output?
A. Time division multiplexing
B. Analog to digital conversion
C. Space division multiplexing
D. Pulse code modulation

ANSWER: A

70. What do you call a circuit that changes pure binary code into ASCII?
A. Decoder
B. Encoder
C. Demultiplexer
D. Code converter

ANSWER: D

71. The output pulses of the logic pulser _____.
A. Can damage logic circuits

B. Are too many for the logic probe to respond to
C. Can only force high nodes to low
D. Can be used to overdrive logic nodes high or low

ANSWER: D

72. Circuits used to implement Boolean expression or equations.
A. Logic gates/circuits
B. Digital circuits
C. Binary circuits
D. All of the above

ANSWER: D

73. Logic gate whose output is HIGH when one or all of its inputs is LOW.
A. OR gate
B. NOR gate
C. AND gate
D. NAND gate

ANSWER: D

74. What logic gate that generates an output of logic zero (LOW) only when all its inputs are logic one (HIGH)?
A. OR gate
B. NOR gate
C. AND gate
D. NAND gate

ANSWER: D

75. Only when all inputs are LOW thus, this logic gate produces an output of HIGH.
A. NOR gate
B. NAND gate
C. AND gate
D. NOR and NAND

ANSWER: A

76. A logic gate whose output is logic zero every time one of its inputs goes to logic one.
A. NOR gate
B. NAND gate
C. XOR gate
D. A and C

ANSWER: A

77. Gate with HIGH output level every time one of its inputs goes LOW.
A. NOR gate
B. NAND gate
C. XNOR gate
D. B and C

ANSWER: B

78. What logic gate that gives an output of logic one if there is an odd number of 1's at the input?
A. NOR gate

B. NAND gate
C. XOR gate
D. XNOR gate

ANSWER: C

79. Logic gate that gives a HIGH output when the input has an even number of 1's.
A. NOR
B. NAND
C. XOR
D. XNOR

ANSWER: D

80. A circuit that converts the input logic level to its complement.
A. Inverter
B. NOR gate with all inputs tied
C. NAND gate with all inputs tied
D. All of the above

ANSWER: D

81. If the fan out of a logic gate is not enough, a/an _____ should be used.
A. Inverter
B. Amplifier
C. Buffer
D. Isolator

ANSWER: C

82. A buffer multiplies the number of gates a certain output can drive, and this can also be used as a/an
A. Voltage follower
B. Current amplifier
C. Isolator
D. All of the above are correct

ANSWER: D

83. Is considered as a controlled inverter.
A. XOR
B. NOR
C. NAND
D. AND

ANSWER: A

84. A logic gate that can be wired to function like any other gate.
A. International gate
B. Flexible gate
C. Variable gate
D. Universal gate

ANSWER: D

85. Known as universal gates.
A. OR and AND
B. AND and NAND

C. OR and NOR
D. NOR and NAND
ANSWER: D

86. How many NAND-gates are needed to have an AND function?
A. 2
B. 3
C. 4
D. 5
ANSWER: A

87. The number of NAND-gates needed to form an OT-gate.
A. 2
B. 3
C. 4
D. 5
ANSWER: B

88. OR function can be achieved by suing how many NOR gates?
A. 2
B. 3
C. 4
D. 5
ANSWER: A

89. Which of the following is the probable output if all inputs of a TTL gate are binary 1?
A. Determinable
B. Binary 0
C. Binary 1
D. Indeterminate
ANSWER: B

90. Logic devices are broadly divided or categorized into two families, bipolar and MOS. What are the examples of bipolar?
A. RTL and DTL
B. IIL and ECL
C. TTL and HLDTL
D. All of the above
ANSWER: D

91. CMOS, NMOS, and PMOS belong to MOS family, what is (are) the significance of these devices?
A. They have lower power dissipation than bipolar devices
B. They are generally slower than bipolar devices
C. They are most sensitive to electrostatic
D. All of the above
ANSWER: D

92. Refers to the ability of logic circuit it withstand noise superimposed on its input signal.
A. LOW noise immunity
B. HIGH noise immunity

C. Noise immunity
D. Noise figure

ANSWER: C

93. The number of logic gates of the same family that can be connected to the input of a particular gate without degrading the circuit performance.
A. Fan-in
B. Fan-out
C. Input-drive
D. Input noise immunity

ANSWER: A

94. Refers to the number of logic gate of the same family that can be driven by a single output of a particular logic gate.
A. Output drive
B. Output noise margin
C. Fan-in
D. Fan-out

ANSWER: D

95. A bipolar logic family that uses resistors as its input circuit.
A. RTL
B. DTL
C. ECL
D. TTL

ANSWER: A

96. Logic family that uses diodes and transistors as its circuit elements. This logic family is more resistant to noise than RTL.
A. DTL
B. TTL
C. ECL
D. I^2L or IIL

ANSWER: A

97. A logic circuit family with a supply voltage of 25 V, and are generally used in industry where machinery causes electrical noise and large power line transients to occur.
A. HLDTL
B. 74HXX
C. NMOS
D. CMOS

ANSWER: A

98. A variation of transistor-transistor-logic (TTL) wherein transistor's base and collector junctions are clamped with a Schottky diode.
A. ECL
B. STTL
C. I^2L
D. CML

ANSWER: B

99. In a transistor-transistor logic (TTL), if the base collector junction of a transistor is clamped with a Schottky diode it becomes Schottky TTL. What is the significance of having this diode?
    A. It increases the switching speed
    B. It decreases the power dissipation
    C. It increases the noise margin
    D. It increases the fan-out
    ANSWER: A

100. Which of the bipolar logic circuits is the fastest?
    A. TTL
    B. STTL
    C. SCTL
    D. ECL
    ANSWER: D

101. Other name of emitter-coupled logic (ECL).
    A. CML
    B. CSL
    C. NSL
    D. All of the above
    ANSWER: D

102. Of all bipolar logic families, TTL is widely used. What do you think is (are) the reason(s) why?
    A. Its speed is just enough for most applications
    B. Its power consumption/dissipation is manageable
    C. It has a good noise immunity
    D. All of the above
    ANSWER: D

103. Of the MOS logic family, which is the fastest?
    A. PMOS
    B. NMOS
    C. CMOS
    D. VMOS
    ANSWER: C

104. PMOS are generally supplied with a voltage up to
    A. 5.5 V
    B. 12 V
    C. 15 V
    D. 24 V
    ANSWER: D

105. CMOS are normally supplied a voltage up to what value?
    A. 5.5 V
    B. 12 V
    C. 15 V
    D. 24 V
    ANSWER: C

106. PMOS and CMOS have normally different supply requirements. However, both can be operated from the same power supply provided it should be up to the CMOS limitation (15 V). CMOS output can drive directly PMOS inputs, but not PMOS's output to CMOS's input. How do you interface PMOS to CMOS?
    A. By providing a pull-down resistor at the interconnection (PMOS output to CMOS input)
    B. By providing a pull-up resistor at the interface
    C. By inserting a series limiting resistor between PMOS output and CMOS input
    D. By interfacing through an open-collector transistor configuration

    ANSWER: A

107. NMOS can be interfaced to CMOS by providing a
    A. Pull-up resistor
    B. Pull-down resistor
    C. Limiting resistor
    D. Coupling capacitor

    ANSWER: A

108. A digital IC whose output transistor has no internal pull-up resistor.
    A. Open-collector configuration
    B. Open-emitter configuration
    C. Totem-pole output
    D. Tri-sate output

    ANSWER: A

109. In digital ICs, such as buffers and registers, what output configuration is used if they are intended for "busing"?
    A. Totem-pole
    B. Tri-state output
    C. Complementary
    D. Open-collector

    ANSWER: B

110. The output configuration of most CMOS ICs.
    A. Totem-pole
    B. Open-source
    C. Darlington
    D. Complementary

    ANSWER: D

111. In TTL ICs, which input configurations gives a high-input impedance at both logic states (HIGH and LOW state)?
    A. MET
    B. Input with kicker transistor
    C. Diode cluster input
    D. Substrate PNP input

    ANSWER: D

112. What is the purpose of the internal clamping diodes at the input of a logic circuit?
    A. To minimize negative ringing effects

B. To minimize positive ringing effects
C. To regulate the input signal
D. To protect reverse-polarity connection

ANSWER: A

113. In TTL ICs with more than one gate available, sometimes not all gates are used. How ill you handle these unused gates?
A. Force the output to go LOW
B. Force the output to go HIGH
C. Provide pull-down resistors to all inputs
D. Provide all inputs with pull-up resistors

ANSWER: B

114. How ill you handle unused inputs in a logic gate/ logic IC?
A. Leave them floating
B. Pull them down
C. Pull them up
D. Pull them down or up, depending on circuit function

ANSWER: D

115. What is the memory element used in clocked sequential logic circuit?
A. Gates
B. Flip-flop
C. Static-RAM
D. Read-only memory

ANSWER: B

116. A static memory will store information
A. As long as power is applied to the memory
B. Even when power is not applied to the memory
C. As long as power is applied and the memory is refreshed periodically
D. When power is applied at regular intervals

ANSWER: B

117. What is the reason why more cells can be stored in a given area with dynamic cells?
A. They consume less power
B. They are similar
C. They are larger
D. They travel faster

ANSWER: B

118. A _____ is a solid state memory device, which depends on the magnetic polarization of domains, usually in a garnet type material.
A. Magnetic disk
B. Magnetic core
C. Magnetic bubble
D. Magnetic drum

ANSWER: C

119. _____ are non-semiconductor devices still used in digital memories.
A. Gates

B. Flip-flops
C. Relay
D. Magnetic cores

ANSWER: D

120. The density of data recorded on magnetic tape is measured in
A. Bit stuffing rate
B. Bit error rate
C. Bits per inch
D. Bits per second

ANSWER: C

121. A memory circuit that has 9 address inputs has how many storage locations?
A. 1024
B. 256
C. 512
D. Not determined by sets of input

ANSWER: C

122. Clock periods are measured from _____.
A. The high level to the low level
B. The low level to the high level
C. Similar points on the clock waveform
D. The clock pulse at 50% of its low or high levels

ANSWER: C

123. Determine which item is not a storage device.
A. Card readers
B. CD-ROM
C. Diskettes
D. Magnetic tape

ANSWER: A

124. What is the function of flip-flop as logic element?
A. Stores binary data
B. Generates clock signal
C. Relay data
D. Makes decision

ANSWER: A

125. _____ is not a type of flip-flop.
A. RS
B. Latch
C. D
D. Register

ANSWER: D

126. What is the higher voltage level in digital gates and flip-flop circuits?
A. Yes or One
B. One or Zero
C. Zero or No

D. Yes or No
ANSWER: A

127. _____ is a byte data stored in a memory location.
A. 8 bits
B. Character
C. 4 bits
D. Memory word
ANSWER: D

128. _____ is called retrieving data from memory.
A. Accessing
B. Getting
C. Encoding
D. Reading
ANSWER: A

129. _____ can erase EPROMS.
A. Applying a 21-volt pulse
B. Applying ultraviolet rays
C. Turning off the power
D. Blowing fuse
ANSWER: B

130. _____ is a segment register which normalcy access variables in the program.
A. Extra
B. Stack
C. Data
D. Code
ANSWER: B

131. _____ is a storage device used to accommodate a difference in rate of flow of data or time of occurrence of events when transmitting from one device to another.
A. Accumulator
B. Buffer
C. Modem
D. Register
ANSWER: B

132. _____ is a device that stay on once triggered and store one or two conditions as a digital circuit.
A. Gate
B. Latch
C. Integrator
D. Oscillator
ANSWER: B

133. The typical number of bits per dynamic memory location is
A. 1
B. 8
C. 2

D. 16
ANSWER: A

134. _____ is an output applied to Read Only Memory (ROM).
A. Multiplexer
B. Address
C. Input code
D. Data
ANSWER: B

135. _____ is a kind of memory where only manufacture can store program and has s group of memory locations each permanently storing a word.
A. ROM
B. SOS memory
C. RAM
D. Hard memory
ANSWER: A

136. In shift registers made up of several flip-flops, the clock signal indicates _____.
A. A bit of information stored in flip-flop
B. Information of time
C. What time is it
D. When to shift a bit of data from input of the flip-flop to the output
ANSWER: D

137. What do you call the duration within it takes to read the content of a memory location after it has been addressed?
A. Execution time
B. Data rate
C. Cycle time
D. Access time
ANSWER: D

138. A static memory generally contains
A. Row and column decoders
B. No decoders
C. Row decoders
D. Column decoders
ANSWER: A

139. _____ is called a memory device which holds fixed set of data in a circuit.
A. RAM
B. Register
C. Logic
D. ROM
ANSWER: D

140. An interval required to address and read out memory word.
A. Propagation delay
B. Pulse duration
C. Setting time

D. Access time
ANSWER: D

141. _____ refers to a circuit that stores pulses and produces an output pulse when specified numbers of pulses are stored.
A. Counter
B. Register
C. Flip-flop
D. Buffer
ANSWER: A

142. A dynamic memory will store information
A. As long as power is applied to the memory
B. As long as power is applied and the memory is refreshed periodically
C. Even when power is not applied to the memory
D. When power is applied at regular interval
ANSWER: B

143. Several gates combined to form the basic memory element.
A. Multivibrator
B. Register
C. ROM
D. Flip-flop
ANSWER: D

144. An RS flip-flop constructed from NOR-gates would have an undefined output when the inputs R/S combinations are
A. LOW / LOW
B. LOW / HIGH
C. HIGH / LOW
D. HIGH / HIGH
ANSWER: D

145. When a flip-flop is constructed from two NAND-gates, its output will be undefined if the R/S inputs are
A. LOW / LOW
B. LOW / HIGH
C. HIGH / LOW
D. HIGH / HIGH
ANSWER: A

146. A flip-flop whose output is always the same as its input. This is sometimes used as delay element.
A. RS flip-flop
B. D flip-flop
C. T flip-flop
D. JK flip-flop
ANSWER: B

147. Flip-flop that changes state every time the input is triggered.
A. RS flip-flop

B. Master slave flip-flop
C. T flip-flop
D. JK flip-flop
ANSWER: C

148. Flip-flop arrangement, such that the first receives its input on the positive edge of a clock pulse, and the other receives its input from the output of the first during the negative edge of the same pulse.
A. Clocked RS flip-flop
B. Clocked JK flip-flop
C. Cascaded flip-flop
D. Master/slave flip-flop
ANSWER: D

149. Combination of flip-flop, arranged so that they can be triggered at the same time.
A. Clocked flip-flop
B. Delayed flip-flop
C. Sequential flip-flop
D. Asynchronous flip-flop
ANSWER: A

150. A flip-flop without an undefined output state condition whatever the input combination is
A. JK flip-flop
B. T flip-flop
C. D flip-flop
D. All of the above
ANSWER: D

151. Group of flip-flops used to store more bits.
A. Register
B. ROM
C. PROM
D. All of the above
ANSWER: A

152. Sequential access digital memory uses what storage circuit?
A. Parallel register
B. Shift register
C. Dynamic RAM
D. EEPROM
ANSWER: B

153. Memory whose contents are lost when, electrical power is removed.
A. Nonvolatile
B. Temporary
C. Dynamic
D. Volatile
ANSWER: D

154. One of the following can program PROMs.
A. Biasing bipolar transistor

B. Blowing fuse
C. Effusing input
D. Charging a gate

ANSWER: B

155. Type of memory wherein the data are permanently stored. Usually the storing of data is done during manufacturing of the component.
A. ROM
B. PROM
C. EPROM
D. EEPROM

ANSWER: A

156. A semiconductor memory device in which data can be stored after fabrications.
A. PROM
B. EPROM
C. EEPROM
D. All of the above

ANSWER: D

157. A type of ROM that allows data to be written into the device by a programmer. After it has been programmed it cannot be reprogrammed again.
A. PROM
B. EPROM
C. EEPROM
D. A and B above

ANSWER: A

158. What memory device that can be programmed, and reprogrammed after the old programs are erased usually by an ultraviolet light?
A. EEPROM
B. EPROM
C. RPROM
D. B and C

ANSWER: D

159. A variation of PROM, wherein its stored data can be erased by electrical signal instead of ultraviolet light.
A. EEPROM
B. Dynamic ROM
C. RAM
D. EEPROM and dynamic RAM

ANSWER: A

160. A nonvolatile memory
A. ROM
B. PROM and RPROM
C. EPROM and EEPROM
D. All are correct

ANSWER: D

161. What is the time interval to undertake a refresh operation in a typical dynamic RAM?
    A. 2 ms
    B. 200 ms
    C. 50 microsec.
    D. 22 microsec.
    ANSWER: A

162. Semiconductor-based, volatile data storage device that can be written and read randomly.
    A. RAM
    B. PROM
    C. EPROM
    D. EEPROM
    ANSWER: A

163. Random access memory that needs recharging of capacitors.
    A. SRAM
    B. DRAM
    C. Dynamic storage
    D. A and B
    ANSWER: B

164. Dynamic RAM (DRAM) uses capacitor as its data storage element, while static RAM (SRAM) uses what?
    A. Inductor
    B. Magnet
    C. Register
    D. Flip-flop
    ANSWER: D

165. Type of memory that is formed by a series of magnetic bubbles at the substrate.
    A. Magnetic disk
    B. Bubble sort
    C. Bubble chart
    D. Bubble memory
    ANSWER: D

166. Non-semiconductor digital memory device.
    A. Magnetic core
    B. Magnetic domain
    C. Saturable core
    D. Ferromagnetic domain
    ANSWER: A

167. A hardware used to program a PROM.
    A. Microcomputer
    B. Data loader
    C. Encoder
    D. PROM programmer
    ANSWER: D

168. Computer hardware device constructed to perform shifting of its contained data.
    A. Parallel register
    B. Serial to parallel register
    C. Shift register
    D. ALU
    ANSWER: C

169. Register wherein data can be serially inputted, while the output can be retrieved in parallel manner.
    A. Serial to parallel register
    B. Parallel storage
    C. Parallel to serial register
    D. Serial register
    ANSWER: A

170. Digital device similar to that of a ROM and whose internal connections of logic arrays can be programmed by passing high current through fusible links.
    A. PLA
    B. PAL
    C. APL
    D. A and B
    ANSWER: D

171. What is the difference between a read only memory (ROM) and a programmable logic array (PLA)?
    A. All input combinations of a ROM produce an output, while in a PLA, some input combinations do not affect the output.
    B. Only the OR-functions in a ROM are programmable, whereas in a PLA, both OR and AND-functions are programmable.
    C. In ROM, all the possible states must be programmed, while not all for a PLA.
    D. All of the above
    ANSWER: D

172. The difference between a programmable logic array (PLA) and a programmable array logic (PAL) is that,
    A. With PLA, only OR-gates are programmable, whereas both OR and AND gates are programmable in PAL
    B. With PLA, both OR and AND-gates are programmable, while in PAL only OR-gate is programmable
    C. With PLA, both OR and AND-gates are programmable, while in PAL, only AND-gate is programmable
    D. Only AND-gate is programmable with PLA, whereas both OR and AND-gates are programmable for PAL
    ANSWER: C

173. A circuit used for selecting a single output from multiple inputs.
    A. Universal logic module (ULM)
    B. Demultiplexer
    C. Tri-state
    D. Logic array
    ANSWER: A

174. Another name for universal logic module (ULM)
    A. Multiplexer
    B. Decoder
    C. Coder
    D. Shift register
    ANSWER: A

175. A device/circuit used to separate two or more signals from one line.
    A. Decoder
    B. Demodulation
    C. Demodifier
    D. Demultiplexer
    ANSWER: D

176. An electronic counter in which bistable units are cascaded to form a loop.
    A. Ring counter
    B. Twisted ring counter
    C. UP/DOWN counter
    D. Bistable counter
    ANSWER: A

177. What is formed when the complemented output of the last stage of a shift register is fed back to the input of the first stage?
    A. Ring counter
    B. Twisted ring counter
    C. Decade counter
    D. UP/DOWN counter
    ANSWER: B

178. A digital circuit that produces logic 1 output pulse for every 10 input pulses.
    A. Decade scaler
    B. Divider
    C. Chopper
    D. Multiplexer
    ANSWER: A

179. Binary codes are converted into ASCII by what circuit?
    A. Decoder
    B. Demultiplexer
    C. Degenerator
    D. Code converter
    ANSWER: D

180. The technical term used when signals are converted from analog-to-digital.
    A. Digitize
    B. Quantize
    C. Coded
    D. All of the above
    ANSWER: A

181. _____ is a sequence of instructions that tells the computer machine on how available data shall be processed.
    A. Program
    B. RAM
    C. Command
    D. Flowchart
ANSWER: A

182. Diagram showing procedures that are followed, and actions taken is called
    A. Functional block diagram
    B. Circuit diagram
    C. Flow chart
    D. Schematic diagram
ANSWER: C

183. What is the medium of communication with a computer where programs are written in mnemonics?
    A. Assembly language
    B. High level language
    C. Machine language
    D. Low-level language
ANSWER: C

184. A _____ a program which converts instruction written in a source language into machine code, which can be read and acted upon by the computer.
    A. Source code
    B. Assembler
    C. Application software
    D. Compiler
ANSWER: B

185. A detailed step by step set of direction telling a computer exactly how to proceed to solve a specific problem or process as specific task.
    A. Sequence
    B. Flow chart
    C. Computer program
    D. Process
ANSWER: C

186. What is a program that translated English-like word of high-level language into the machine language of a computer?
    A. Compiler
    B. Assembler
    C. Monitor program
    D. Interpreter
ANSWER: A

187. _____ is a software that converts a high level language program into machine or assembly language program.
    A. ALU
    B. Cross-assembler

C. Compiler
D. CPU
ANSWER: C

188. The purpose of the fetch cycle in a computer is to _____.
A. Obtain instruction
B. Obtain input data
C. Obtain memory data
D. Implement a specific operation
ANSWER: A

189. _____ refers to a program that translates and then immediately executes statements in a high level language.
A. Interpreter
B. Synchronous
C. Interface
D. Operating system
ANSWER: A

190. A _____ is an instruction in a source language that is to be replaced by a defined sequence of instructions in the same source language.
A. Statement
B. Source code
C. Mnemonic
D. Macro-instruction
ANSWER: D

191. A very high-dense and probably the most versatile integrated circuit used in digital electronics. It is known to function as the central processing unit of most computer applications.
A. Microcomputer
B. Micro-integrated
C. Macro-integrated
D. Microprocessor
ANSWER: D

192. The smallest computer in terms of physical size
A. Microcomputer
B. Minicomputer
C. Mainframe
D. Host computer
ANSWER: A

193. A logic/digital circuit that generates an output code for every input signal.
A. Enhancer
B. Compressor
C. Encoder
D. Decoder
ANSWER: C

194. What code that gives each digit of a decimal number with a corresponding binary equivalent?
    A. Binary code
    B. Gray code
    C. ASCII
    D. Binary coded decimal
    ANSWER: D

195. Which of the code below is considered as minimum-change code?
    A. Gray code
    B. ASCII
    C. BCD
    D. ARINC
    ANSWER: A

196. A 7-bit alphanumeric code that is widely used
    A. Gray code
    B. ASCII
    C. BCD
    D. ARINC
    ANSWER: B

197. The op-code of a computer instruction
    A. Mnemonic
    B. Bionic
    C. Operand
    D. Program
    ANSWER: A

198. An instruction that causes the program to go another task.
    A. FLIP
    B. SUB
    C. JUMP
    D. MOVE
    ANSWER: C

199. An instruction that can move data from memory to the accumulator.
    A. FETCH
    B. MOVE
    C. ACC
    D. LOAD
    ANSWER: D

200. An instruction tat moves data from accumulator to the memory
    A. FETCH
    B. MOVE
    C. STORE
    D. LOAD
    ANSWER: C

201. Part of the instruction cycle where the instruction is moved from memory to the instruction register.
    A. ACC
    B. FETCH
    C. MOVE
    D. CLI
    ANSWER: B

202. An instruction, which means “clear the interrupt mask”.
    A. ACC
    B. DEL
    C. CANCEL
    D. CLI
    ANSWER: D

203. Refers to a condition wherein the result of an arithmetic operation is more negative than the capacity of the output register.
    A. Error
    B. Negative infinite
    C. Overflow
    D. Underflow
    ANSWER: D

204. Refers to a condition wherein the result of an arithmetic operation is more than the capacity of the output register.
    A. Error
    B. Infinite
    C. Overflow
    D. Underflow
    ANSWER: C

205. Machine instructions represented by mnemonics is considered as
    A. Machine language
    B. Personal language
    C. Assembly language
    D. Coded language
    ANSWER: C

206. The first generation language of instruction, and is considered as the most primitive instruction that can be given to a computer.
    A. Machine language
    B. Assembly language
    C. COBOL
    D. 4GL
    ANSWER: A

207. COBOL, FORTRAN, and ALGOL are examples of
    A. Machine language
    B. Assembly language
    C. High-level language
    D. 4GL

ANSWER: C

208. An advanced programming language, more advanced than high-level language.
   A. Machine language
   B. Assembly language
   C. High-level language
   D. 4GL or 4th generation language
ANSWER: D

209. Translator from high-level program to machine instructions
   A. Assembler
   B. Converter
   C. Encoder
   D. Compiler
ANSWER: D

210. Translates source program to object program
   A. Assembler
   B. Converter
   C. Encoder
   D. Compiler
ANSWER: D

211. Assemble language to machine language translator
   A. Assembler
   B. Converter
   C. Compiler
   D. Transponder
ANSWER: A

212. A program in a programming language, as written by the programmer.
   A. Source program
   B. Object program
   C. Machine program
   D. Original program
ANSWER: A

213. A source program can run in computer only after translation into a machine code by a compiler. This machine code is referred as the
   A. Source program
   B. Object program
   C. Interpreter
   D. Mnemonic
ANSWER: B

214. A program that can read a source program in high-level language, translates, and executes the statement in one operation.
   A. Mnemonic
   B. Object program
   C. Interpreter
   D. Assembler

ANSWER: C

215. A sequence of instructions or statements designed to tell the computer how to carry out a particular processing task.
   A. Software
   B. Hardware
   C. Assembler
   D. Program
   ANSWER: D

216. The instructions and data in a computer system is referred to as
   A. Software
   B. Hardware
   C. Program
   D. CPU
   ANSWER: A

217. Refers to digital interface in which data characteristics are individually synchronized and may be sent at a time.
   A. Half-duplex
   B. Asynchronous
   C. Synchronous
   D. Simplex
   ANSWER: B

218. A network facility used to connect individual similar network segments forming a larger extended network is called _____.
   A. Routers
   B. Relays
   C. Repeaters
   D. Bridges
   ANSWER: C

219. What is the circuit that detects bit error in binary characters?
   A. Decoder
   B. Parity detector
   C. Server
   D. Comparator
   ANSWER: B

220. A device that enables users to transmit computer data and fax messages along telephone lines
   A. Converter
   B. Facsimile
   C. Demodulator
   D. Modem
   ANSWER: D

221. What do you call the devices that allow computers to communicate with other computers through telephone lines or radio frequency?
   A. Modems

B. Disk
C. Mouse
D. Super computers
ANSWER: A

222. What network facility used to interconnect distinct networks physically?
A. Relays
B. Routers
C. Repeaters
D. Bridges
ANSWER: D

223. Files in E-mail communication are send thru _____.
A. Disk
B. Mailbox
C. Wires
D. Attachment
ANSWER: D

224. The first recipient in E-mail communication.
A. Host
B. Mail box
C. Computer
D. Disk
ANSWER: A

225. The interconnections of computers, terminals, and other equipment.
A. Cluster
B. Network
C. Cascading
D. Bonding
ANSWER: B

226. A network classification that is usually built and owned by a single company or governmental organization.
A. Private data network
B. Public data network
C. Switched network
D. Node
ANSWER: A

227. A network that is built and owned by a common carrier.
A. Public data network
B. Private data network
C. Leased line network
D. Node
ANSWER: A

228. Network configuration that let computers share their resources.
A. Peer-to-peer network
B. Hierarchical network

C. Permanent virtual circuit
D. Local Area Network
ANSWER: A

229. A computer network configuration that makes the host computer manages a network of dependent terminals.
A. Hierarchical network
B. Peer-to-peer network
C. Local Area Network
D. Wide Area Network
ANSWER: A

230. A network switching that creates a dedicated temporary connection between computers in a network.
A. Circuit switching
B. Message switching
C. Packet switching
D. Virtual switching
ANSWER: A

231. The component that provides control or supporting services for other computers, terminals, or devices in a network.
A. Host
B. Communications controller
C. Cluster controller
D. Interface equipment
ANSWER: A

232. It is a type of computer networking technology that is used to connect computers that are located within the same room, building, or complex.
A. Internet
B. Intranet
C. Local area network
D. Wide area network
ANSWER: C

233. It is a fast computer with a large amount of secondary storage, to which all of the other computers in a network have access for data storage and retrieval.
A. Mainframe
B. Maincomputer
C. File server
D. Workstation
ANSWER: C

234. It is also known as cooperative processing that involve using two or more networked computers to perform an application task.
A. Client computing
B. Server computing
C. Distributed processing
D. Client/server computing
ANSWER: D

235. A type of server that allows multiple users to take advantage of a single printing device.
    A. Printer server
    B. Client server
    C. Network server
    D. File server
ANSWER: A

236. This topology is the most efficient centralized network for a small company
    A. Bus
    B. Ring
    C. Tree
    D. Star
ANSWER: D

237. It is the other term that is used to refer to a central device into which each node of a star network is directly connected.
    A. Hub
    B. Central pointer
    C. Router
    D. Repeater
ANSWER: A

238. It is simply the term that is used to refer to an I/O device that relies entirely on the host computer for processing.
    A. Keyboard
    B. Terminal
    C. Monitor
    D. Mouse
ANSWER: B

239. Workstations in a star network that can operate without storage devices.
    A. Diskless
    B. Wireless
    C. Disked
    D. Wired
ANSWER: A

240. A _____ network requires that message travel around the ring to nthe desired destination.
    A. Star
    B. Bus
    C. Tree
    D. Ring
ANSWER: D

241. Networks that transmit data across town using electromagnetic signals are called _____.
    A. LANs
    B. WANs
    C. MANs
    D. All of the above

ANSWER: C

242. The process of choosing a terminal on a network to receive data is called _____.
   A. Polling
   B. Selection
   C. Contention
   D. Option
   ANSWER: B

243. A microcomputer attached to a network requires a _____.
   A. Dongle
   B. Network interface card
   C. RS-232
   D. Software
   ANSWER: B

244. To _____ is to send a file to a remote computer
   A. Upload
   B. Download
   C. Call
   D. Transmit
   ANSWER: A

245. To _____ is to receive a file from a remote computer.
   A. Upload
   B. Download
   C. Call
   D. Transmit
   ANSWER: B

246. It is term that is used to describe the conventions of how network components communicate with each other.
   A. Network model
   B. Network layer
   C. Network topology
   D. Network protocol
   ANSWER: D

247. It is term that is used to describe the form or the shape of a network.
   A. Network model
   B. Network layer
   C. Network topology
   D. Network protocol
   ANSWER: C

248. _____ is the process of asking each remote terminal, one at a time, if it has data to send.
   A. Polling
   B. Selection
   C. Contention
   D. Option

ANSWER: A

249. _____ network topology has more than one level of host computer.
   A. Star
   B. Bus
   C. Hierarchical
   D. Ring
ANSWER: C

250. It describes its System Services Control Point (SSCP), Logical Units (LU), and Physical Units (PU) as network addressable units.
   A. Internetworking
   B. Digital network architecture
   C. Open system interconnection
   D. Systems network architecture
ANSWER: D

251. Networks that include telecommunications are called _____.
   A. LANs
   B. WANs
   C. MANs
   D. All of the above
ANSWER: B

252. A multi-network IBM token ring network is also a _____ network.
   A. Star
   B. Bus
   C. Tree
   D. Mesh
ANSWER: A

253. Network topology, where stations are connected to a concentric ring through a ring interface unit (RIU).
   A. Bus
   B. Mesh
   C. Token Ring
   D. Tree
ANSWER: C

254. A _____ will decide which route the message or messages should follow through the network.
   A. Router
   B. Bridge
   C. Repeater
   D. Gateway
ANSWER: A

255. Used in connecting networks at different sites.
   A. Router
   B. bridge
   C. repeater

D. gateway
ANSWER: B

256. Similar to a bridge, which connects networks at different sites, it connects networks with different protocols.
A. Router
B. Bridge
C. Gateway
D. Repeater
ANSWER: C

257. Used to extend the length of a network or to expand the network.
A. Router
B. Bridge
C. Gateway
D. Repeater
ANSWER: D