

1. Which of the following most accurately describes "multiple inheritance" ?
- When two classes inherit from each other.
 - When a child class has two or more parent classes.
 - When a base class has two or more derived classes.
 - When a child class has both an "is a" and a "has a" relationship with its parent class.
2. The logic circuit of binary adder which is used to add two 4-bits binary numbers, requires ____ half adder (s) and _____ full adder(s).
- 1,3
 - 3,1
 - 2,2
 - 4,0
3. ____ refers to the amount of time required to position the read - write head of a hard disk on appropriate sector.
- Seek time
 - Rotational latency
 - Access time
 - Load time
4. Anti-aliasing is important to improve the readability of text. It deals with the :
- Spacing between two individual characters.
 - Spacing of a group of characters.
 - Underlining of letters.
 - Elimination of "jaggies".
5. Assume X and Y are non-zero positive integers. consider the following pseudocode fragment:

```

while X <> Y do
    if X <> y then
        X <- X - Y
    else
        Y <- Y - X

```

```

endif
endwhile
print (X)

```

What is the code doing?

- It computes the LCM of two numbers.
 - It divides the largest numbers by the smaller.
 - It finds the smallest of two numbers.
 - It computes the GCD of two numbers.
6. How many gate (S) would be required to implement the following Boolean expression after simplification ?
- Expression : $AC + ABC$
- 1
 - 3
 - 2
 - 4
7. To declare the version of XML , the correct syntax is:
- `<? xml version ='1.0'/>`
 - `<? xml version ="1.0"/>`
 - `<* xml version ='1.0'/>`
 - `</ xml version ='1.0'/>`
8. A multimedia project is said to be _____ and user-interactive when users are given navigational control.
- Hypertext
 - Non-linear
 - Linear
 - Secure
9. On which of the following storage media, storage of information is organized as a single continuous spiral groove?
- Ram
 - Floppy disk

- C. Hard disk
- D. CD-ROM

10. The addressing mode used in an instruction of the form ADD X,Y is:

- A. Absolute
- B. Indirect
- C. Immediate
- D. Index

11. The problem of indefinite blockage of low-priority jobs in general priority scheduling algorithm can be solved using:

- A. Dirty bit
- B. Compaction
- C. Aging
- D. Swapping

12. What is garbage collection in the context of Java?

- A. The operating system periodically deletes all of the Java files available on the system.
- B. When all references to an object are gone, then the memory used by the object is automatically reclaimed.
- C. Any java package imported in a program and not being used, is automatically deleted.
- D. The java virtual machine (JVM) checks the output of any java program and deleted anything that does not make sense at all.

13. Which of the following represents the life-cycle of software development ?

- A. Analysis -> Design -> Coding -> testing -> operation and maintenance
- B. Analysis -> Design -> Coding -> operation and maintenance -> testing
- C. Design -> Analysis -> Coding -> testing -> operation and maintenance
- D. Design -> Analysis -> Coding -> operation and maintenance -> testing

14. In a relational database model, cardinality of a relation means

- A. The number of tuples
- B. The number of attributes
- C. The number of constraints
- D. The number of attributes

15. The 10 base 5 cabling is also known as _____.

- A. Thick Ethernet
- B. Gigabit Ethernet
- C. Thin Ethernet
- D. Fast Ethernet

16. What is the bit rate for transmitting uncompressed 880 X 600 pixel color frame with 8 bits/pixel at 40 frames / second ?

- A. 2.4 mbps
- B. 153.6 mbps
- C. 15.36 mbps
- D. 1536 mbps

17. What is the length of an IP address in bytes (pre-IPV6)?

- A. 1
- B. 4
- C. 2
- D. 8

18. Program counter contents indicate:

- A. The time elapsed since execution begins.
- B. The count of programs being executed after switching the power ON.
- C. The address where next instruction is stored.
- D. The time needed to execute a program.

19. Which of the following is the most appropriate format for graphics that are to be embedded within an internet document?

- A. BMP
- B. GIF
- C. TIFF

D. HTML

20. The technology that stores only the essential instructions on a microprocessor chip and thus enhances its speed is referred to as:

- A. CISC
- B. SIMD
- C. RISC
- D. MIMD

21. Ten signals, each requiring 3000 Hz, are multiplexed onto a single channel using FDM. How much minimum bandwidth is required for the multiplexed channel?

Assume that the guard bands are 300 Hz wide.

- A. 30,000
- B. 33,000
- C. 32,700
- D. 33,700

22. In which addressing mode, the operand is given explicitly in the instruction (Example instruction : ADD R4, #3)

- A. Absolute mode
- B. Register indirect mode.
- C. Immediate mode
- D. Based Indexed mode.

23. In relational databases, the natural join of two tables is :

- A. Combination of Union and filtered Cartesian product.
- B. Combination of projection and filtered Cartesian product.
- C. Combination of selection and filtered Cartesian product
- D. Cartesian product always.

24. Which of the following memory improves the speed of execution of a program?

- A. Primary memory
- B. Cache memory

- C. Secondary memory
- D. Virtual memory

25. Which of the following devices understands the format and contents of the data and translate message from one format to another?

- A. Hub
- B. Router
- C. Switch
- D. Gateway

26. Buying and selling goods over the internet is called:

- A. Hyper-marketing
- B. E-Commerce
- C. Cyber-selling
- D. Euro-Conversion

27. Mechanism that is used to convert domain name into I address is known as _____.

- A. URL
- B. DNS
- C. FTP
- D. HTTP

28. An analog signal carries 4 bits in each signal unit. If 1000 signal units are sent per second, then baud rate and bit rate of the signal are _____ and _____.

- A. 1000 bauds / sec, 500 bps
- B. 2000 bauds / sec, 1000 bps
- C. 4000 bauds / sec, 1000 bps
- D. 1000 bauds / sec, 4000 bps

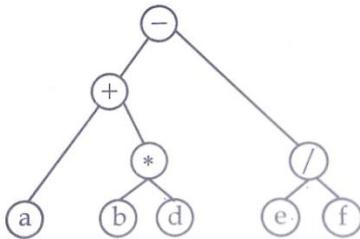
29. Which of the following data structures is most suitable for evaluating postfix expressions?

- A. Stacks
- B. Queue
- C. Linked list
- D. Tree

30. The complexity of linear search algorithm is:

- A. $O(n)$
- B. $O(n*n)$
- C. $O(\log n)$
- D. $O(n \log n)$

31. For the following binary tree, inorder traversal yields the expression :



- A. $a + bd* - ef /$
- B. $a + b*d - ef /f$
- C. $abdef* / + -$
- D. $- + * / abdef$

32. Given that a 22-inch monitor with an aspect ratio of 16 : 9 has a monitor resolution of 1920 X 1080, what is the of the monitor?

- A. 8.53 inches
- B. 19.17 inches
- C. 10.79 inches
- D. 22 inches

33. The number of bits require to represent decimal number 4096 in binary form is _____.

- A. 10
- B. 13
- C. 12
- D. 16

34. In the context of Visual basic, multiple controls of the same type can be grouped into an array, in the same manner as a collection of data items. Such a grouping is known as :

- A. Primary array
- B. An integer array
- C. Secondary array
- D. Control array

35. What is the octal equivalent of the hexadecimal number 132A?

- A. 11450
- B. 46250
- C. 11452
- D. 46252

36. Consider the following code segment:

if ($Y < 0$)

{ $X = -X; Y = -Y;$ }

$Z = 0;$

while ($Y > 0$)

{ $Z = Z + X; Y = -1;$ }

Assume that X, Y and Z are integer variables, and that X and Y have been initialized. which of the following best describes what this code segment does ?

- A. Sets Z to be the sum $X + Y$
- B. Sets Z to be the value of Y
- C. Sets Z to be the absolute value of Y
- D. Sets Z to be the product $X * Y$

37. The five items P, Q, R, S and T are pushed in a stack, one after the other starting from P. The stack is popped four times and each element is inserted in a queue. Then two elements are deleted from the queue and pushed back on the stack. now one item is popped from the stack. The popped item is:

- A. P
- B. R
- C. Q
- D. S

38. Conceptual level, internal level and External level are three components of the three-level RDBMS architecture. which of the following is not of the conceptual level?

- A. Entities, attributes, relationships
- B. Semantic information
- C. Constraints
- D. Storage dependent details

39. Consider two database relations R and S having 3 tuples in R and 2 tuples in S. what is the maximum number of tuples that could appear in the natural join of R and S?

- A. 2
- B. 5
- C. 3
- D. 6

40. When an ASP.NET file is placed on an IIS sever and viewed through a browser, the resulting HTML Page contains?

- A. All ASP.NET code
- B. As much ASP.NET code as is in the ASP.NET file
- C. all HTML code
- D. A mix of ASP.NET and HTML code

41. What result set is returned from the following SQL query?

A. Select customer_name, telephone
From customers
Where city in ('Jaipur', Delhi', Agra)

- A. The customer_name and telephone of all customers.
- B. The customer_name and telephone of all customers Living in Jaipur, Delhi and Agra.
- C. The customer_name and telephone of all customers Living in either Jaipur Delhi or Agra.
- D. The customer_name and telephone of all customers who are not living in Jaipur, Delhi or Agra.

42. Which of the following transmission media works on the principle of total internal reflection ?

- A. Shielded twisted pair cable
- B. Coaxial cable
- C. Unshielded twisted pair cable
- D. Optical fiber cable.

43. Semaphores are used to solve the problem of _____.

- A. Race Condition
- B. The belady problem

- C. Process synchronization
- D. mutual exclusion

44. An entity set that does not have sufficient attributes to form a key is termed as :

- A. Strong entity set
- B. Simple entity set
- C. Weak entity set
- D. Primary entity set

45. A combinational logic circuit that is used when it is desired to send data from two or more source through a single transmission line is known as _____.

- A. Encoder
- B. Multiplexer
- C. Decoder
- D. Demultiplexer

46. a condition that is caused by run-time error in a computer program is known as:

- A. Syntax error
- B. Fault
- C. Semantic error
- D. Exception

47. A register in the microprocessor that keeps track of the answer or result of any arithmetic or logic operation is the _____.

- A. Stack pointer
- B. Instruction pointer
- C. Program counter
- D. Accumulator

48. Which of the following is true to define a variable for ASP?

- A. Dim
- B. Sets
- C. \$
- D. Var

49. _____ is an intermediate storage area used for data processing during the extract, transform and load process of data warehousing .

- A. Buffer
- B. Virtual memory
- C. Staging area
- D. inter-storage area

50. Which of the following Java statements declare and allocate a 2-dimensional array of integers with four rows and five columns?

- A. int array [4][5];
- B. int array [][] = new int [4][5];
- C. int array [5][4];
- D. int array [][]= new int [5][4]

51. Copying a process from memory to disk to allow space for other processes is called _____.

- A. Deadlock
- B. Swapping
- C. Page fault
- D. Demand paging

52. Which of the following methods in java script will display a window having a dialog box with a specified message, along with an OK and a CANCEL button as options?

- A. Alert
- B. Request
- C. Confirm
- D. Prompt

53. Which of the following statements best describes the main reasons for normalizing relational database?

- I. To achieve physical data independence.
- II. To remove data anomalies (insertion, update, deletion, anomalies).
- III. To save space on Disk.

- A. (I) and (II) only
- B. (II) and (III) only
- C. (1) and (III) only
- D. (1) (II) and (III)

54. Consider the database table "Persons" having person_ID as the primary key.

Person_ID	Name	Age
1000	Rajan	40
-	Jatin	-45
1001	Rajesh	35

What are the constraints violated by the above table?

- A. Referential integrity only
- B. Referential and domain integrity
- C. Entity and domain integrities
- D. Relationship integrity

55. The Boolean expression

$$(A + C) (AB' + AC) ((AC)' B')$$

Can be simplified as:

- A. AB'
- B. AB + A'C
- C. AB + BC
- D. A'B + BC

56. Consider the following statements:

S1: A small page size causes large page tables.

S2: internal fragmentation is increased with small pages.

S3: I/O transfers are more efficient with large pages.

Which of the following is true?

- A. S1 and S2 are true
- B. S1 is true and S2 is false
- C. S2 and S3 are true
- D. S1 is true S3 is false

57. The easiest method in Flash to draw a heptagon is to use the _____.

- A. Polygon Tool.
- B. Polystar Tool with the "Star" style.
- C. Lasso Tool with the "Create star" option.
- D. Polystar tool with the "Polygon" style.

58. Consider the following statements with respect to JavaScript:

(I) A variable is created using the var keyword

(II) JavaScript is untyped language.

Which of the above are true?

- A. (I) only
- B. Both (I) and (II)
- C. (II) only
- D. neither (I) nor (II)

59. With SQL, how can you return the number of records in the "persons" table?

- A. SELECT COUNT () FROM persons
- B. SELECT COLUMN (*) FROM persons
- C. SELECT COLUMN () FROM persons
- D. SELECT COUNT (*) FROM persons

60. What is the correct HTML tag for the largest heading?

- A. <head> = large
- B. <h6>
- C. <heading> = large
- D. <h1>

61. An operating system contains 3 user processes each requiring 2 units of resource R. The minimum number of units of such that no deadlock will ever occur is:

- A. 2
- B. 4
- C. 3
- D. 5

62. Java is a _____ language. This means that you must be explicit about what type of data you are working with.

- A. Strongly typed
- B. Loosely typed
- C. Dynamically typed
- D. Weakly typed

63. What correction is required for following Java code snippet to compile?

```
int [] X = new int [10];  
for (int P = 0; P < = X length (); P++)  
    X [P] = 5;
```

- A. P < = X.length() should be P < X.length()
- B. P++ should be P + 1
- C. X.length() should be X.length
- D. X [P] = 5 should be X (P) = 5

64. The minimum number of comparisons for a particular record among 32 sorted records through binary search method will be:

- A. 16
- B. 5
- C. 8
- D. 2

65. The kernel keeps track of the state of each executing program by using a data structure called _____.

- A. User control block
- B. Memory control block
- C. File control block
- D. Process control block

66. What is the form of DTD that is used to describe content in an XHTML document?

- A. Document Type Definition
- B. Document Text Definition
- C. Document towards Definition
- D. Document To Definition

67. The term sum-of-product in Boolean algebra means:

- A. The AND function of several OR functions
- B. The OR function of several OR functions
- C. The OR function of several AND functions
- D. The AND function of several AND functions

68. The units receiving the data item responds with another control signal to acknowledge receipt of the data. This type of agreement between two independent units is known as _____.

- A. Multitasking
- B. Piggybacking
- C. handshaking
- D. Strobe control

69. When a subroutine is called, the address of the instruction following the CALL instructions stored in /on the _____.

- A. Stack
- B. Accumulator
- C. Stack pointer
- D. Program counter

70. Which of the following is not a program control instruction?

- A. MOV
- B. CALL
- C. JMP
- D. CMP

71. If the time quantum size is 2 units of time and there is only one job of 14 time units in a ready queue, the round-robin scheduling algorithm will cause _____ context switches.

- A. 5
- B. 7
- C. 6
- D. 8

72. Which of the following is the default scripting language in Active server Pages (ASP)?

- A. PHP
- B. VBScript
- C. HTML
- D. JavaScript

73. The memory which does not lose its content on failure of power supply is known as _____ memory.

- A. Volatile
- B. RAM
- C. Non-volatile
- D. Main memory

74. Which of the following techniques allows execution of programs large than the size of physical memory?

- A. DMA
- B. Demand paging
- C. Buffering
- D. Thrashing

75. Which of the following topologies gives highest reliability ?

- A. Bus topology
- B. Ring topology
- C. Star topology
- D. Mesh topology

76. Which of the following protocol is used for transferring electronic mail message from one machine to another?

- A. FTP
- B. SNMP
- C. SMTP
- D. HTTP

77. in C++, which of the following statements correctly returns the memory from the dynamic array pointer pp to the free store?

- A. delete pp [];
- B. delete *pp;
- C. delete []pp ;
- D. delete pp;

78. In which of the following state, the process is waiting for processor ?

- A. New
- B. Waiting
- C. Ready
- D. Running

79. Consider a set of n tasks with known runtimes r_1, r_2, \dots, r_n to be run on a uniprocessor machine. which of the following processor scheduling algorithms will result in the maximum throughput?

- A. Round - robin
- B. Shortest job first
- C. FCFS
- D. Priority scheduling

80. If the period of a signal is 100 ms, then what is its frequency in kilohertz?

- A. 1 kHz
- B. 10^{-2} kHz
- C. 10^{-3} kHz
- D. 10^{-1} kHz

81. Recursive procedures is implemented using:

- A. Queue
- B. linked List
- C. Stack
- D. String

82. What do data warehouses support ?

- A. OLAP
- B. OLAP AND OLTP
- C. OLTP
- D. Operational database

83. How many bits are used in the exponent part of IEEE single precision format for the representation of floating - point numbers ?

- A. 8 bits
- B. 24 bits
- C. 16 bits
- D. 32 bits

84. The comment in XML document is given by :

- A. `<? - - - >`
- B. `<! - - - ! >`
- C. `<! - - - >`
- D. `</ - - - >`

85. What is 'EOQ' in Inventory control ?

- A. Economic Occurring Quantity
- B. Economic Order Quantity
- C. Economic Over Quantity
- D. Economic Of Quantity

86. A thread is also called:

- A. A virtual process
- B. A lightweight process
- C. A heavyweight process
- D. A scheduler`

87. Which of the following Visual Basic statements will assign the value "QUICK" from the variable y to the string variable x ?

$y = \text{"THE QUICK RED FOX JUMPED OVER THE DOG"}$

- A. $x = \text{left}(y, 5)$
- B. $x = \text{Instr}(5, y \text{"QUICK"})$
- C. $x = \text{mid}(y, 5, 5)$
- D. $x = \text{middle}(y, 5, 5)$

88. The major goal of object - oriented programming is :

- A. Speed
- B. Reuse
- C. User - interface
- D. Top - down program development

89. based on the current technology, _____ is the fastest logic family.

- A. TTL
- B. ECL
- C. MOS
- D. CMOS

90. Concurrency control in RDBMS is important for which of the following reasons ?

- A. To ensure data integrity when updates occur to the database in a single -user environment.
- B. To ensure data integrity when reads occur to the database in a single-user environment.
- C. To ensure data integrity when updates occur to the database in a multi-user environment.
- D. To ensure data integrity when reads occur to the database in a multi-user environment.

91. The mechanism that brings a page into memory only when it is needed is called _____.

- A. segmentation
- B. Demand paging
- C. Fragmentation
- D. Page replacement

92. In a positive edge triggered JK flip-flop, a low j and a low K produces :

- A. Low state
- B. Toggle state
- C. high state
- D. No change

93. For a tree with just one node, the root node, the height of a binary tree is defined to be zero; if there are 2 levels of nodes, the height is 1 and so on.

Binary search tree is built according to the usual rules with the following six keys, inserted one to a time given :

B,I,N,A,R,Y,. what is the height of the tree ?

- A. 2
- B. 4
- C. 3
- D. 5

94. Which of the following statements is false with respect to relational DBMS ?

- A. Foreign key constraints are referential integrity constraints.
- B. Nulls reduce space requirements in tables.
- C. A primary key uniquely identifies a row in a table.
- D. A disadvantage of highly normalized tables is that queries may require too many time consuming joins.

95. Assume the C++ definition : class circle : public point

Which of the following is false.?

- A. The colon (:) in the header of class definition indicates inheritance.
- B. All the public and protected members of class 'circle' are inherited as public and protected members , respectively, into class 'point'.
- C. the keyword 'public' indicates type of inheritance.
- D. 'Point' is the base class and 'circle' is the derived class.

96. Which of the following sorting algorithms users recursion ?

- A. Heap sort
- B. Bubble sort
- c. Merge sort
- D. Insertion sort

97. _____ is a special effect in motion pictures and animations that changes one image or shape in to another through a seamless transition.

- A. inverse kinematics
- B. tweaking
- C. Morphing
- D. Tweening

98. Which of the following is not a transaction management SQL command ?

- A. Commit
- B. Savepoint
- C. SELECT
- D. Rollback

99. In structured programming, a program is decomposed into modules. Coupling and cohesion describe the decomposition should attempt to :

- A. Maximize coupling and minimize cohesion.
- B. Maximize coupling and maximize cohesion.
- C. Minimize coupling and maximize cohesion.
- D. Minimize coupling and minimize cohesion.

100. OLE, a Microsoft's component document technology, means :

- A. Online Linking and Embedding
- B. Object Linking and Embedding
- C. Open learning Exchange
- D. Overly linking and Exchange

