

1. Anti-aliasing is important to improve readability of text. It deals with the
 - (1) elimination of "jaggies".
 - (2) spacing between two individual characters
 - (3) underlining of letters
 - (4) spacing of a group of characters
2. Consider a set of n tasks with known runtimes r_1, r_2, r_n , to be run uniprocessor machine. Which of the following processor scheduling algorithm will result in the maximum throughput?
 - (1) Priority scheduling
 - (2) Round-robin
 - (3) FCFS
 - (4) Shortest job first
3. Which of the following is the appropriate format for graphics that can be embedded within an Internet document?
 - (1) HTML
 - (2) BMP
 - (3) TIFF
 - (4) GIF
4. Which of the following is true to declare variable of ASP?
 - (1) Var
 - (2) Dim
 - (3) S
 - (4) Set
5. 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
 - (1) control array
 - (2) primary array
 - (3) secondary array
 - (4) an integer array
6. 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 ?
 - (1) 6
 - (2) 2
 - (3) 3
 - (4) 5
7. Which of the following protocol is used for transferring electronic mail messages from one machine to another?
 - (1) HTTP
 - (2) FTP
 - (3) SMTP
 - (4) SNMP
8. OLE, a Microsoft's Component document technology, means
 - (1) Overlay Linking and Exchange
 - (2) Online Linking and Embedding
 - (3) Open Learning Exchange
 - (4) Object Linking and Embedding
9. The problem of indefinite blockage of low priority jobs in general priority scheduling algorithm can be solved using
 - (1) swapping
 - (2) dirty bit
 - (3) aging
 - (4) compaction
10. What result set is returned from the following SQL query?


```
.SELECT customer_name, telephone
FROM customers
WHERE city IN ('Jaipur', 'Delhi', 'Agra');
```

 - (1) The customer_name of all customers who are not living in Jaipur, Delhi or Agra.
 - (2) The customer_name and telephone of all customers
 - (3) The customer_name and telephone of all customers living in either Jaipur, Delhi or Agra
 - (4) The customer_name and telephone of all customers living in Jaipur, Delhi and Agra
11. Which of the following data structures is most suitable for evaluating postfix expressions?
 - (1) Tree
 - (2) Stack
 - (3) Linked list
 - (4) Queue
12. The major goal of object-oriented programming is
 - (1) top-down program development
 - (2) speed
 - (3) user interface
 - (4) reuse
13. Which of the following is the default scripting language in Active Server Pages (ASP)?
 - (1) JavaScript
 - (2) PHP
 - (3) HTML
 - (4) VBScript
14. What is the bit-rate for transmitting uncompressed 800×600 pixel color frame with 8 bits / pixel at 40 frames/second?
 - (1) 1536 Mbps
 - (2) 2.4 Mbps
 - (3) 15.36 Mbps
 - (4) 153.6 Mbps

- 15.** Assume the C++ definition: class circle: public point which of the following is false?
- 'point' is the base class and 'circle' is the derived class.
 - The colon (:) in the header of class definition indicates inheritance
 - The keyword 'public' indicates type of inheritance
 - All the public and protected members of class 'circle' are inherited as public and protected members respectively into class 'point'.
- 16.** Which of the following Java statement declare and allocate a 2-dimensional array integers with four rows and five columns?
- int array [] [] = new int [5] [4];
 - int array [4] [5];
 - int array [5] [4];
 - int array [] [] = new int [4] [5];
- 17.** The technology that stores only the essential instructions on a microprocessor chip and thus enhances its speed is referred to as
- MIMD
 - CISC
 - RISC
 - SIMD
- 18.** 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.
- 33, 700
 - 30, 000
 - 32, 700
 - 33, 000
- 19.** Which of the following methods in JavaScript will display a window having a dialog box with a specified message, alongwith an OK and a CANCEL button as options?
- prompt()
 - alert()
 - confirm()
 - request()
- 20.** 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* / >
- 21.** Which of the following statements best describes the main reasons for normalising relational database?
- To achieve physical data independence.
 - To remove data anomalies (insertion, update, deletion, annomalies).
 - To save space on disk.
- (i), (ii) and (iii)
 - (i) and (ii)
 - (i) and (iii)
 - (ii) and (iii)
- 22.** A thread is also called
- a scheduler
 - a virtual process
 - a heavyweight process
 - a lightweight process
- 23.** Copying a process from memory to disk to allow space for other processes is called ____.
- demand paging
 - deadlock
 - pagefault
 - swapping
- 24.** When a subroutine is called, the add the instruction following the instruction stored in / on the ____.
- program counter
 - stack
 - stack pointer
 - accumulator
- 25.** Consider the following code segment
- ```
if (Y < 0)
{X = - X; Y = - Y}; Z = 0;
while (Y > 0)
{Z = Z + X; Y = Y - 1;}
```
- Assume that X, Y and Z are inter variables, and that X and Y have be initialised. Which of the following best describes what this code segment does?
- Sets Z to be the product X \* Y
  - Sets Z to be the sum X + Y
  - Sets Z to be the absolute value of Y
  - Sets Z to be the value of Y.
- 26.** A combinational logic circuit that is used when it is desired to send data from two more source through a single transmission line is known as \_\_\_\_.
- demultiplexer
  - encoder
  - decoder
  - multiplexer
- 27.** What is garbage collection in the context of Java?
- The Java Virtual Machine (JVM) checks the output of any Java program and deletes anything that does not make sense at all.
  - The operating system periodically deletes all of the Java files available on the system.
  - Any Java package imported in a program and not being used, is automatically deleted.
  - When all references to an object are going, then the memory used by the object is automatically reclaimed.
- 28.** What is the full form of DTD that is used to describe content in an XHTML document?
- Document To Definition
  - Document Type Definition
  - Document Towards Definition
  - Document Text Definition
- 29.** A register in the microprocessor that keeps track of the answer or result of any arithmetic or logic operation is the \_\_\_\_.
- accumulator
  - stack pointer
  - program counter
  - instruction pointer
- 30.** If the time quantum size is 2 units of an there is only one job of 14 time unit in a ready queue, the round-robin scheduling algorithm will cause \_\_\_\_ connected switches.
- 1
  - 5
  - 6
  - 7
- 31.** The memory which does not loose its content on failure of power supply is known as \_\_\_\_ memory.
- main memory
  - volatile
  - non-volatile
  - RAM
- 32.** The easiest method in flash to draw a heptagon, is to use the \_\_\_\_.
- Polystar Tool with the "Polygon" style
  - Polygon Tool
  - Lasso Tool with the "create star" option
  - Polystar Tool with the "star" style

33. If the period of a signal is 1000 ms, then what is its frequency in kilohertz?

- (1)  $10^{-1}$  KHz (2) 1 KHz (3)  $10^{-3}$  KHz (4)  $10^{-2}$  KHz

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

y = "THE QUICK RED FOX JUMPED OVER THE DOG"

- (1) x = middle(y, 5, 5) (2) x = Left(y, 5)  
(3) x = mid(y, 5, 5) (4) x = Instr(5, y, "QUICK")

35. In structured programming, a program is de-composed into modules. Coupling and cohesion describe the characteristics of modules. A good decomposition should attempt to

- (1) Minimize coupling and minimize cohesion  
(2) Maximize coupling and minimize cohesion  
(3) Minimize coupling and maximize cohesion  
(4) Maximize coupling and maximize cohesion

36. Consider the database table "Persons" having Person\_ID as the primary key.

| Person_ID | Name   | Age |
|-----------|--------|-----|
| 1000      | Rajan  | 10  |
| -         | Jatin  | -45 |
| 1001      | Rajesh | 35  |

What are the constraints violated by the above table?

- (1) Relationship integrity  
(2) Referential integrity only  
(3) Entity and domain integrities  
(4) Referential and domain integrities

37. On which of the following storage media, storage of information is organised as a single continuous spiral groove?

- (1) CD-ROM (2) RAM  
(3) Hard disk (4) Floppy disk

38. The kernel keeps track of the state of each executing program by using a data structure called \_\_\_\_.

- (1) process control block (2) user control block  
(3) file control block (4) memory control block

39. Recursive procedure is implemented using

- (1) string (2) queue  
(3) stack (4) linked list

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

A Binary Search Tree is built according to the usual rules with the following six key inserted one at a time as given

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

- (1) 5 (2) 2 (3) 3 (4) 4

41. Which of the following sorting algorithms uses recursion?

- (1) Insertion sort (2) Heap sort  
(3) Merge sort (4) Bubble sort

42. Mechanism that is used to convert domain name into IP address is known \_\_\_\_.

- (1) HTTP (2) URL (3) FTP (4) DNS

43. The unit receiving the data item response with another control signal to acknowledgement receipt of the data. This type of agreement between two independent units is known as.

- (1) strobe control (2) multitasking  
(3) handshaking (4) piggybacking

44. 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;
```

- (1) X [P] = 5 should be X (P) = 5  
(2) P <= X.length () should be P < X.length()  
(3) X.length () should be X.length  
(4) P++ should be P+1

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

- (1) Rollback (2) Commit (3) Select (4) Savepoint

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

- (1) To ensure data integrity when reads occur to the database in a multi-user environment  
(2) To ensure data integrity when updates occur to the database in a single user environment  
(3) To ensure data integrity when updates occur to the database in a multi-user environment  
(4) To ensure data integrity when reads occur to the database in a single user environment

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

- (1) 5 (2) 2 (3) 3 (4) 4

48. The number of bits required to represent decimal number 4096 in binary form is \_\_\_\_.

- (1) 16 (2) 10 (3) 12 (4) 13

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

- (1) Virtual memory (2) Primary memory  
(3) Secondary memory (4) Cache memory

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

- (1) A disadvantage of highly normalised tables is that queries may require too many time consuming joins  
(2) Foreign key constraints are referential integrity constraints  
(3) A primary key uniquely identifies a row in a table  
(4) Nulls reduce space requirements in tables

51. How many gate(s) would be required to implement the following boolean expression after simplification?

Expression : AC + ABC

- (1) 4 (2) 1 (3) 2 (4) 3

52. What do data warehouse support?

- (1) Operational databases (2) OLAP  
(3) OLTP (4) OLAP and OLTP

53. The term sum-of-product in Boolean algebra means

- (1) the AND function of several AND functions  
(2) the AND function of several OR functions  
(3) the OR function of several AND functions  
(4) the OR function of several OR functions

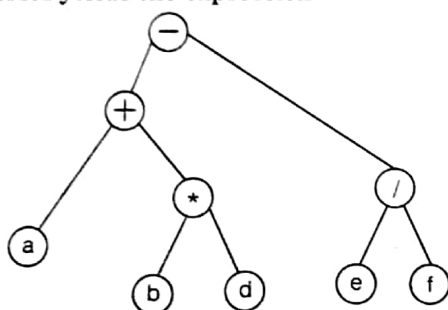
54. What is the correct HTML tag for the largest heading?

- (1) <H1> (2) <HEAD> = large  
(3) <HEADING> = large (4) <H6>

55. Which of the following techniques allows execution of programs larger than the size of physical memory?

- (1) Thrashing (2) DMA  
(3) Buffering (4) Demand paging

56. For the following binary tree, inoperate the traversal yields the expression



- (1) - + \* / abdef (2) a + bd \* - ef /  
(3) abdef \* / + - (4) a + b \* d - e / f

57. \_\_\_\_\_ is a special effect in motion pictures and animations that changes one image or shape into another through a seamless transition.

- (1) Tweening (2) Inverse kinematics  
(3) Morphing (4) Tweaking

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

- (1) Based Indexed mode (2) Absolute mode  
(3) Immediate mode (4) Register indirect mode

59. Which of the following is not a program instruction?

- (1) CMP (2) MOV (3) JMP (4) CALL

60. Based on the current technology, \_\_\_\_\_ is the fastest logic family.

- (1) CMOS (2) TTL (3) MOS (4) ECL

61. Which of the following represents the life cycle of software development?

- (1) Design → Analysis → Coding → Operation and maintenance → Testing  
(2) Analysis → Design → Coding → Testing → Operation and maintenance  
(3) Design → Analysis → Coding → Testing → Operation and maintenance  
(4) Analysis → Design → Coding → Operation and maintenance → Testing.

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

- (1) 22 inches (2) 8.53 inches  
(3) 10.79 inches (4) 19.17 inches

63. 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

- (1) S (2) P  
(3) Q (4) R

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

- (1) 32 bits (2) 8 bits  
(3) 16 bits (4) 24 bits

65. Buying and selling goods over the Internet is called:

- (1) Euro-conversion (2) Hyper-marketing  
(3) Cyber-selling (4) E-commerce.

66. Which one of the following most accurately describes "multiple inheritance"?

- (1) When a child class has both an "is a" and "has a" relationship with its parent class.  
(2) When two classes inherit from each other  
(3) When a base class has two or more derived classes  
(4) When a child class has two or more parent class

67. When an ASP.NET file is placed on an IIS server and viewed through a browser, the resulting HTML page contains?

- (1) a mix of ASP.NET and HTML code  
(2) all ASP.NET code  
(3) all HTML code  
(4) as much ASP.NET code as is in the ASP.NET file.

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

- (1) delete pp; (2) delete pp[];  
(3) delete [ ] pp; (4) delete \* pp;

69. The logic circuit binary adder which is used to add two 4-bits binary numbers, requires \_\_\_\_\_ half adder (s) and \_\_\_\_\_ full adder (s).

- (1) 4, 0 (2) 1, 3 (3) 2, 2 (4) 3, 1

70. The 10 Base 5 cabling is also known as \_\_\_\_\_.

- (1) fast ethernet (2) thick ethernet  
(3) thin ethernet (4) gigabit ethernet

71. In a positive edge triggered JK flip-flop, a low J and a low K produces

- (1) no change (2) low state  
(3) high state (4) toggle state

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

- (1) primary entity set (2) strong entity set  
(3) weak entity set (4) simple entity set

**73.** Which of the following devices understands the format and contents of the data and translate messages from one format to another?  
 (1) Gateway (2) Hub (3) Switch (4) Router

**74.** In which of the following state, the process is waiting for processor?  
 (1) Running (2) New (3) Ready (4) Waiting

**75.** The complexity of linear search algorithm is  
 (1)  $O(n \log n)$  (2)  $O(n)$  (3)  $O(\log n)$  (4)  $O(n^2)$

**76.** In relational databases, the natural join of two tables is  
 (1) cartesian product always  
 (2) combination of union and filtered cartesian product  
 (3) combination of selection and filtered cartesian product  
 (4) combination of projection and filtered cartesian product

**77.** Java is a \_\_\_\_\_ language. This means that you must be explicit about what type of data you are working with.  
 (1) weakly typed (2) strongly typed  
 (3) dynamically typed (4) loosely typed

**78.** With SQL, how can you return the number of records in the "Persons" table?  
 (1) `SELECT COUNT (*) FROM Persons`  
 (2) `SELECT COUNT () FROM Persons`  
 (3) `SELECT COLUMN () FROM Persons`  
 (4) `SELECT COLUMN (*) FROM Persons`

**79.** Assume X and Y are non-zero positive integers. Consider the following pseudo-code fragment:

```
while X < > Y do
```

```
if X > Y then
```

```
 X ← X - Y
```

```
else
```

```
 Y ← Y - X
```

```
end if
```

```
end while
```

```
print (X)
```

What is the code doing?

- (1) It computes the GCD of two numbers
- (2) It computes the LCM of two numbers
- (3) It finds the smallest of two numbers
- (4) It divides the largest number by the smaller

**80.** The boolean expression

$$(A + C)(A\bar{B} + AC)(A\bar{C} + \bar{B})$$

can be simplified as

- (1)  $\bar{A}B + BC$  (2)  $A\bar{B}$  (3)  $AB + BC$  (4)  $AB + \bar{A}C$

**81.** In a relational database model, cardinality of a relation means

- (1) the number of constraints (2) the number of tuples
- (3) the number of attributes (4) the number of tables

**82.** Conceptual level, Internal level and External level are three components of the three-level RDBMS architecture.

Which of the following is not a part of the conceptual level?

- (1) Storage dependent details
- (2) Entities, attributes, relationships
- (3) Constraints
- (4) Semantic information

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

- (1) Optical fiber cable
- (2) Shielded twisted pair cable
- (3) Unshielded twisted pair cable
- (4) Coaxial cable

**84.** The mechanism that brings a page memory only when it is needed in \_\_\_\_\_.

- (1) page replacement (2) segmentation
- (3) fragmentation (4) demand paging

**85.** Which of the following topologies highest reliability?

- (1) Mesh topology (2) Bus topology
- (3) Star topology (4) Ring topology

**86.** What is the length of an IP address in (Pre-1PU6)?

- (1) 8 (2) 1 (3) 2 (4) 4

**87.** Consider the following statements respect to JavaScript

(i) A variable is created using the keyword

(ii) JavaScript is untyped language

Which of the above are true?

- (1) Neither (i) nor (ii) (2) Only (i)
- (3) Only (ii) (4) Both (i) and (ii)

**88.** A condition that is caused by run-time error in a computer program is known as

- (1) exception (2) syntax error
- (3) semantic error (4) fault

**89.** Program counter contents indicate

- (1) the time needed to execute a program
- (2) the time elapsed since execution begins
- (3) the address where next instruction is stored
- (4) the count of programs being executed after switching the power ON.

**90.** Semaphores are used to solve the problem of \_\_\_\_\_.

- (1) mutual exclusion (2) race condition
- (3) process synchronisation (4) the belady problem

**91.** A multimedia project is said to be \_\_\_\_\_ and user-interactive when users are given navigational control.

- (1) secure (2) hypertext
- (3) linear (4) non-linear

**92.** 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 \_\_\_\_\_.

- (1) 1000 bauds / sec, 1000 bps
- (2) 1000 bauds / sec, 500 bps
- (3) 4000 bauds / sec, 1000 bps
- (4) 2000 bauds / sec, 1000 bps

- 93.** \_\_\_\_\_ is an intermediate storage area used for data processing during the extract transformation and load process of data warehousing.  
 (1) Inter storage area  
 (2) Buffer  
 (3) Staging area  
 (4) Virtual memory
- 94.** \_\_\_\_\_ refers to the amount of time required to position the read-write head of a hard disk on appropriate sector.  
 (1) Load time  
 (2) Seek time  
 (3) Access time  
 (4) Rotational latency
- 95.** The maximum number of comparisons for a particular record among 32 sorted records through binary search method will be  
 (1) 2 (2) 10 (3) 8 (4) 5
- 96.** What is the octal equivalent of the hexadecimal number 132A?  
 (1) 46252 (2) 11450  
 (3) 11452 (4) 45250
- 97.** What is EOQ in inventory control?  
 (1) Economics Of Quantity  
 (2) Economic Occuring Quantity  
 (3) Economy Over Quantity  
 (4) Economic Order Quantity
- 98.** The comment in XML document is given by  
 (1) < / ---- > (2) < ? ---- >  
 (3) < ! ---- > (4) < ! ----! >
- 99.** Consider the following statements  
 S1: a small page size causes large page tables.  
 S2: internal fragmentation is increase with small pages.  
 S3: I / O transfers are more efficient with large pages.  
 Which of the following is true?  
 (1) S1 is true and S3 is false (2) S1 and S2 are true  
 (3) S2 and S3 are true (4) S1 is true and S2 is false
- 100.** The addressing mode used in an instruction of the form ADD X, Y is:  
 (1) index (2) absolute  
 (3) immediate (4) indirect

## ANSWER KEY

|    |     |    |     |    |     |    |     |    |     |    |     |    |     |    |     |    |     |     |     |
|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|----|-----|-----|-----|
| 1  | (2) | 2  | (4) | 3  | (4) | 4  | (2) | 5  | (1) | 6  | (4) | 7  | (3) | 8  | (4) | 9  | (3) | 10  | (3) |
| 11 | (2) | 12 | (4) | 13 | (3) | 14 | (4) | 15 | (4) | 16 | (4) | 17 | (3) | 18 | (3) | 19 | (3) | 20  | (4) |
| 21 | (4) | 22 | (4) | 23 | (4) | 24 | (2) | 25 | (3) | 26 | (4) | 27 | (4) | 28 | (2) | 29 | (1) | 30  | (3) |
| 31 | (3) | 32 | (2) | 33 | (3) | 34 | (3) | 35 | (3) | 36 | (3) | 37 | (1) | 38 | (1) | 39 | (3) | 40  | (2) |
| 41 | (3) | 42 | (4) | 43 | (3) | 44 | (4) | 45 | (3) | 46 | (3) | 47 | (4) | 48 | (3) | 49 | (4) | 50  | (4) |
| 51 | (4) | 52 | (2) | 53 | (3) | 54 | (1) | 55 | (4) | 56 | (4) | 57 | (3) | 58 | (3) | 59 | (1) | 60  | (4) |
| 61 | (2) | 62 | (4) | 63 | (1) | 64 | (1) | 65 | (4) | 66 | (4) | 67 | (3) | 68 | (1) | 69 | (1) | 70  | (2) |
| 71 | (1) | 72 | (3) | 73 | (1) | 74 | (3) | 75 | (2) | 76 | (4) | 77 | (2) | 78 | (1) | 79 | (3) | 80  | (2) |
| 81 | (2) | 82 | (1) | 83 | (1) | 84 | (4) | 85 | (1) | 86 | (4) | 87 | (4) | 88 | (1) | 89 | (3) | 90  | (3) |
| 91 | (3) | 92 | (1) | 93 | (3) | 94 | (2) | 95 | (4) | 96 | (3) | 97 | (4) | 98 | (3) | 99 | (4) | 100 | (1) |