1. An IPC facility provides atleast two operations :

A) write and delete message
B) delete and receive message only
C) send and write message only
D) send and receive message

Answer: D

Explanation: Two operations provided by the IPC facility are receive and send messages. Exchange of data takes place in cooperating processes.

2. If one thread opens a file with read privileges then

A) other threads in the another process can also read from that file
B) other threads in the same process can also read from that file
C) any other thread can not read from that file
D) all of the mentioned

Answer: B

3. In indirect communication between processes P and Q :

A) there is another process R to handle and pass on the messages between P and Q
B) there is another machine between the two processes to help communication
C) there is a mailbox to help communication between P and Q
D) None of these

Answer: C

Explanation - In indirect communication between processes P and Q there is a mailbox to help communication between P and Q. A mailbox can be viewed abstractly as an object into which messages can be placed by processes and from which messages can be removed.

4. Process synchronization can be done on

A) hardware level
B) software level
C) both (a) and (b)
D) none of the mentioned

Answer: C

Explanation: Process synchronization can be done on both hardware and software level. Critical section problems can be resolved using hardware synchronisation. But this method is not simple for implementation so software synchronization is mostly used.

5. Program always deals with

A) logical address
B) absolute address
C) physical address
D) relative address

Answer: A

6. The two atomic operations permissible on semaphores are :

A) Wait
B) Stop & Signal
C) Both (a) & (b)
D) Wait & Hold

Answer:

7. What is inter process communication?

A) communication within the process
B) communication between two process
C) communication between two threads of same process
D) none of the mentioned

Answer: B

8. What is the ready state of a process?

A) when process is scheduled to run after some execution
B) when process is unable to run until some task has been completed
C) when process is using the CPU
D) none of the mentioned

Answer: B
Reason: When process is started, it directly enters into the ready state, there it waits for the CPU to be assigned. The process which are ready for execution and resides in the main memory are called as ready state processes. A ready state process is run-able but temporarily stopped running to let other processes run.

9.

```
if (fork() == 0)
{ a = a + 5; printf("%d,%d\n", a, &a); }
else { a = a –5; printf("%d, %d\n", a, &a); }
```

Let u, v be the values printed by the parent process, and x, y be the values printed by the child process. Which one of the following is TRUE?

A) u = x + 10 and v = y
B) u = x + 10 and v != y
C) u + 10 = x and v = y
D) u + 10 = x and v != y

Answer: C

10. The purpose of a TLB is

A) To cache page translation information
B) To cache frequently used data
C) To hold register values while a process is waiting to be run
D) To hold the start and length of the page table

Answer:

11. The OS of a computer may periodically collect all the free memory space to form contiguous block of free space. This is called

A) Concatenation
B) Garbage collection
C) Collision
D) Dynamic Memory Allocation

Answer: B

12. Which of the following is not usually stored in a two-level page table?

A) Virtual page number
B) Physical page number
C) Dirty bit
D) Reference bit

Answer:

13. Null character needs a space of _____ .

A) Zero bytes.
B) One byte.
C) Three bytes.
D) Four bytes.

Answer: B

14. The number of structures that can be declared in a single statement is _____ ?

A) One
B) Two
C) Three
D) Unlimited

Answer: D

15. What does C++ append to the end of a string literal constant?

A) A space.
B) A number sign (#).
C) An asterisk (*).
D) A null character.

Answer: D

16. Which other keywords are also used to declare the class other than class?

A) Struct
B) Union
C) Object
D) both (a) and (b)

Answer: D
Explanation: Struct and union take the same definition of class but differs in the access techniques.

17. What is the Output of this Program?

```
#include <iostream>
   using namespace std;
   class sample
   {
      private:
      int a, b;
      public:
      void test()
      {
         a = 100;
         b = 200;
      }
      friend int compute(sample e1);
   };
   int compute(sample e1)
   {
      return int(e1.a + e1.b) - 5;
   }
   int main()
   {
      sample e;
```

```
    e.test();
    cout  << compute(e);
    return 0;
}
```

A) 295
B) 100
C) 300
D) 200

Answer: A

18. Which of the following is false with respect to inheritance?

A) When a base class is privately inherited,public members of the base class become private members of the derived class

B) When a base class is publicly inherited,public members of the base class becomes public members of derived class

C) When a base class is privately inherited,a private member of base class becomes private member of derived class

D) When a base class is publicly inherited protected members of base class becomes protected members of derived class

Answer:

19. Which feature allows you to create a Derived class that inherits properties from more than one Base class?

A) Multilevel Inheritance.
B) Multiple Inheritance.
C) Hybrid Inheritance.
D) Hierarchical Inheritance.

Answer: B

20. A CONSTRUCTOR IS CALLED WHENEVER

A) OBJECT IS DECLARED
B) OBJECT IS USED
C) CLASS IS DECLARED
D) CLASS IS USED

Answer: A

21. Assuming that Rectangle is a class name, the statement Rectangle *BoxPtr;

A) Declares an object of class Rectangle
B) Assigns the value of *BoxPtr to the object Rectangle
C) Declares a Rectangle pointer object called BoxPtr
D) Is illegal in C++

Answer: C

22. CONSTRUCTORS ARE NORMALLY USED TO _____ AND TO ALLOCATE MEMORY.

A) DEFINE VARIABLES
B) ALLOCATE VARIABLES
C) INITIALIZE VARIABLES
D) INITIALIZE OBJECT

Answer: C

23. COPY CONSTRUCTOR MUST RECEIVE ITS ARGUMENTS BY _____

A) EITHER PASS-BY-VALUE OR PASS-BY-REFERENCE
B) ONLY PASS-BY-VALUE
C) ONLY PASS-BY-REFERENCE
D) ONLY PASS BY ADDRESS

Answer: C

24. The process of object-oriented analysis can be viewed as the following steps

A) Define data members and member functions, then assign a class name
B) Declare private and public.variables, prototype functions, then write code
C) Write the main() function, then determine which classes are needed
D) Identify objects, then define objects' attributes, behaviors, and relationships

Answer:

25. WHAT VALUE SHOULD RETURN A DESTRUCTOR

A) A POINTER TO THE CLASS
B) AN OBJECT OF THE CLASS
C) A STATUS CODE INDICATING WHETHER THE CLASS IS DESTROYED PROPERLY
D) DESTRUCOTRS DO NOT RETURN VALUE

Answer: D

26. WHENEVER CONST OBJECTS TRY TO INVOKE NON-CONST MEMBER FUNCTIONS, THE COMPILER .....…

A) RETURN ZERO VALUE
B) RETURN NULL
C) GENERATE ERROR
D) RETURN NO VALUE

Answer: C

27. Which of the following is true?

A) All objects of a class share all data members of class
B) Objects of a class do not share non-static members. Every object has its own copy.
C) Objects of a class do not share codes of non-static methods, they have their own copy
D) None of the above

Answer: B

Explanation: Every object maintains a copy of non-static data members. For example, let Student be a class with data members as name, year, batch. Every object of student will have its own name, year and batch. On a side note, static data members are shared among objects. All objects share codes of all methods. For example, every student object uses same logic to find out grades or any other method.

28. Which of the following permits function overloading on c++?

A) Type
B) No. of Arguments
C) Type & No.of arguments
D) All the above

Answer: C

Explanation: Both type and number of arguments permits function overloading in C++, like int func(int);
float func(float, float)
Here both type and number of arguments are different.

29. Let A and B be two events with P(A) = 0.25 and P(B) = 0.5. The probability of both occurring together is 0.14. Then the probability of both A and B not happening is

A) 0.39
B) 0.25
C) 0.11
D) 0.61

Answer: A

Explanation: $P(A \cap B)=0.14$

$\because (A^c \cap B^c)=1-(A \cup B)$

Then

$P(A^c \cap B^c)=1-P(A \cup B)$

$=1-\{P(A)+P(B)-P(A \cap B)\}$

Putting the given values

$P(A^c \cap B^c)=1-\{0.25+0.5-0.14\}$

$=0.39$

30. Mean and variance of a binomial distribution are 8 and 4, respectively. Then, P(X = 1) is equal to

A) $1/2^{12}$
B) $1/2^{8}$
C) $1/2^{6}$
D) $1/2^{4}$

Answer: A

Explanation: We know that mean and variance of Binomial distribution are np and npq respectively therefore np = 8 and npq = 4

On dividing we get

$q = npq/np = 4/8 = 1/2$ and $p+q = 1 \Rightarrow p = 1-1/2 = 1/2$

$\Rightarrow n(1/2) = 8 \Rightarrow n=16$

we know that $P(X = r) = {}^nC_r p^r q^{n-r}$ therefore

$P(X = 1) = {}^{16}C1(1/2)^{16-1}(1/2)^1$

$=16/2^{15}.2 = 1/2^{12}.$

31. The average time required to reach a storage location in memory and obtain its contents is called the

A) seek time
B) turnaround time
C) access time
D) transfer time

Answer: C

32. Dynamic loading is :

A) loading multiple routines dynamically
B) loading a routine only when it is called
C) loading multiple routines randomly
D) None of these

Answer: B

33. ___ is not Types of update anomalies

A) Insertion
B) Deletion
C) Modification
D) Alteration

Answer: C

34. ____ means that the data used during the execution of a transaction cannot be used by a second transaction until the first one is completed.

A) Consistency
B) Atomicity
C) Durability
D) Isolation

Answer: D

35. _____ is the concept in which a process is copied into main memory from the secondary memory according to the requirement.

A) Paging
B) Demand Paging
C) Segmentation
D) Swapping

Answer: B

36. _____ controller sends the command placed into it, via messages to the _____ controller.

A) Host, host
B) Disk, disk
C) Host, disk
D) Disk, host

Answer: C

37. _____ attributes can have more than one value.

A) Composite
B) Simple
C) Multi-valued
D) Single valued

Answer: C

38. _____ specifies the maximum number of relationship instances that an entity can participate.

A) Range
B) Domain
C) Cardinality
D) Ceiling

Answer: C

39. _____ specifies the set of values that can be assigned to the attribute.

A) Block
B) Relation
C) Structure
D) Domain

Answer:

40. _____ attribute values are used to identify each entity uniquely.

A) Complex
B) Unique
C) Characters
D) Key

Answer:

41. _____ is the basic object of ER model which is a thing in real world.

A) Relation
B) Domain
C) Attribute
D) Entity

Answer:

42. _____ is generally faster than _____ and _____.

A) First fit, Best fit, Worst fit
B) Best fit, First fit, Worst fit
C) Worst fit, Best fit, First fit
D) None of these

Answer: A

43. _____ states that only valid data will be written to the database.

A) Consistency
B) Atomicity
C) Durability
D) Isolation

Answer: A

44. _____ USED TO MAKE A COPY OF ONE CLASS OBJECT FROM ANOTHER CLASS OBJECT OF THE SAME CLASS TYPE.

A) Constructor
B) Copy Constructor
C) Destructor
D) Default Destructor

Answer: B

45. _____ may take place only when there is some minimum amount(or) no space left in free storage list.

A) Memory Management
B) Garbage Collection
C) Recycle bin
D) Storage Management

Answer: B

46. _____ refers to a linear collection of data items.

A) List
B) Tree
C) Graph
D) Edge

Answer: A

47. _____is a set of permitted value for each attribute of a relation

A) Domain
B) Relation
C) Set
D) Schema

Answer: A

48. _____is very useful in situation when data need to stored and then retrieved in reverse order.

A) Stack
B) Queue
C) List
D) Linked List

Answer: A

49. _____will retrieve the top of the element from the stack.

A) Stack[top]
B) Stack[0]
C) List[top]
D) Linked List

Answer:

50. A 32X1 Multiplexer has

A) 2 select lines
B) 3 select lines
C) 4 select lines
D) 5 select lines

Answer: D

51. A _____ indicates the end of the list.

A) Guard
B) Sentinel
C) End pointer
D) Last pointer

Answer:

52. A _____ is a linear list in which insertions and deletions are made to from either end of the structure

A) Circular Queue
B) Random of Queue
C) Priority Queue
D) Double Ended Queue

Answer: D

53. A base class will offer

A) offer more specific objects than its derived classes
B) correspond to something in the rest world
C) behave badly when the chops are down
D) be a generalized version of its derived classes

Answer: D

54. A binary parallel adder produces arithmetic sum in

A) Serial
B) Parallel
C) Sequence
D) Both a & b

Answer: B

55. A binary search tree whose left subtree and right subtree differ in height by atmost 1 is called __

A) Lemma Tree
B) Redblack Tree
C) AVL Tree
D) Balanced Binary Tree

Answer: C

56. A binary tree can be converted into its mirror image by traversing in ___

A) Inorder
B) Preorder
C) Postorder
D) Laplace taransform

Answer: C

57. A certain 5-bit self-complementary code is used to represent the 10 decimal digits 0 through 9. Given that (246)10 is represented as 00010 00100 00110 in this code, what is the representation for (375)10?

A) 00110 00100 00010
B) 00011 00111 00101
C) 11101 11011 11001
D) 11001 11101 11011

Answer:

58. A circuit that converts n inputs to 2^n outputs is call

A) Encoder
B) Decoder
C) Comparator
D) Carry look ahead

Answer: B

59. A CLASS CAN HAVE _____

A) ALL CONSTRUCTORS THAT ARE NEEDED
B) ONLY THE DEFAULT CONSTRUCTOR
C) A DESTRUCTOR FOR EACH CONSTRUCTOR
D) ALL THE PREVIOUS ANSWERS ARE INCORRECT

Answer:

60. A class can inherit properties from more than one class which is known as .....inheritance.

A) Single
B) Multiple
C) Multilevel
D) Hierarchical

Answer: B

61. A correct output is achieved from a master-slave J-K flip-flop only if its inputs are stable while the:

A) clock is LOW
B) slave is transferring
C) flip-flop is reset
D) clock is HIGH

Answer: D

62. A CPU generates 32-bit virtual addresses. The page size is 4 KB. The processor has a translation look-aside buffer (TLB) which can hold a total of 128 page table entries and is 4-way set associative. The minimum size of the TLB tag is:

A) 11 bits
B) 13 bits
C) 15 bits
D) 20 bits

Answer: C

63. A data dictionary is a special file that contains

A) names of all fields in all files
B) data types of all fields in all files
C) width of all fields in all files
D) all of the above

Answer: D

64. A data structure where elements can be added or removed at either end but not in the middle is called

A) Linked Lists
B) Stacks
C) Queues
D) Dequeue

Answer: D

65. A Database Management System (DBMS) is

A) Collection of interrelated data
B) Collection of programs to access data
C) Collection of data describing one particular enterprise
D) All of the above

Answer: B

66. A DBMS uses a transaction ____ to keep track of all transactions that update the database.

A) log
B) table
C) Block
D) Statement

Answer: A

67. A decimal 11 in BCD is _____.

A) 00001011
B) 00001100
C) 00010001
D) 00010010

Answer: C

68. A derived class with only one base class is called ..... inheritance.

A) Single
B) Multiple
C) Multilevel
D) Hierarchical

Answer: A

69. A device which converts decimal number into BCD form is called
A) Encoder
B) Decoder
C) code converter
D) Multiplexer
Answer: A

70. A floppy disk is designed to rotate _____ as compared to a hard disk drive.
A) Faster
B) Slower
C) At the same speed
D) None of these
Answer: D

71. A friend function to a class, C cannot access
A) private data members and member functions.
B) Public data members and member functions.
C) protected data members and member functions.
D) the data members of the derived class of C.
Answer: D

72. A function can be declared as friend maximum only in _____classes.
A) n number of classes
B) 2
C) 3
D) None
Answer:

73. A J-K flip-flop is in a "no change" condition when _____.
A) J = 1, K = 1
B) J = 1, K = 0
C) J = 0, K = 1
D) J = 0, K = 0
Answer: D

74. A linear list in which the last node points to the first node is _____
A) singly linked list
B) doubly linked list
C) Arrays
D) none of the above
Answer:

75. A linear list in which the pointer points only to the successive node is _____
A) singly linked list
B) circular linked list
C) doubly linked list
D) none of the above
Answer: A

76. A logical schema is----------

A) is the entire database
B) is a standard way of organizing information into accessible parts.
C) Describes how data is actually stored on disk.
D) All of the above

Answer: B

77. A measure of linear association of a variable say, with number of other variables is known as

A) Partial correlation
B) Multiple correlation
C) Simple Correlation
D) Auto correlation

Answer:

78. A memory buffer used to accommodate a speed differential is called

A) Stack pointer
B) Cache
C) Accumulator
D) Disk buffer

Answer: B

Explanation: The memory buffer used to accommodate a speed differential is called cache. It is a hardware or software component that stores data so future requests for that data can be served faster. Cache serves to add fast memory between the CPU and main memory.

79. A monitor is a module that encapsulates

A) shared data structures
B) procedures that operate on shared data structure
C) synchronization between concurrent procedure invocation
D) all of the mentioned

Answer: D

Explanation - A monitor is a module that encapsulates shared data structures, procedures that operate on shared data structure, synchronization between concurrent procedure invocation.

80. A multilevel page table is preferred in comparison to a single level page table for translating virtual address to physical address because:

A) it reduces the memory access time to read or write a memory location
B) it helps to reduce the size of page table needed to implement the virtual address space of a process
C) it is required by the translation look aside buffer
D) it helps to reduce the number of page faults in page replacement algorithms

Answer: B

81. A multiplexer is also called as a

A) Coder
B) parallel adder
C) Data selector
D) NOR gate

Answer: C

82. A pointer in which a pointer variable contains the address of a variable that has already been allocated

A) Null pointer
B) Generic pointer
C) Dangling pointer
D) wild pointer

Answer: C

83. A positive edge-triggered D flip-flop will store a 1 when _____.

A) the D input is HIGH and the clock transitions from HIGH to LOW
B) the D input is HIGH and the clock transitions from LOW to HIGH
C) the D input is HIGH and the clock is LOW
D) the D input is HIGH and the clock is HIGH

Answer: B
Explanation: A positive edge-triggered D flip-flop will store a 1 when the D input is HIGH and the clock transitions from LOW to HIGH. While a negative edge-triggered D flip-flop will store a 0 when the D input is HIGH and the clock transitions from HIGH to LOW.

84. A positive edge-triggered J-K flip-flop is used to produce a two-phase clock. However, when the circuit is operated it produces erratic results. Close examination with a scope reveals the presence of glitches. What causes the glitches, and how might the problem be corrected?

A) The PRESET and CLEAR terminals may have been left floating; they should be properly terminated if not being used.
B) The problem is caused by a race condition between the J and K inputs; an inverter should be inserted in one of the terminals to correct the problem.
C) A race condition exists between the Q and Q outputs to the AND gate; the AND gate should be replaced with a NAND gate.
D) A race condition exists between the clock and the outputs of the flip-flop feeding the AND gate; replace the flip-flop with a negative edge-triggered J-K Flip-Flop.

Answer: D

85. A process is thrashing if

A) it is spending more time paging than executing
B) it is spending less time paging than executing
C) page fault occurs
D) swapping cannot take place

Answer: A

86. A queue is a,

A) FIFO (First In First Out) list.
B) LIFO (Last In First Out) list.
C) Ordered array.
D) Linear tree.

Answer: A
Explanation: Element first added in queue will be deleted first which is FIFO principle.

87. A relation is in this form if it is in BCNF and has no multivalued dependencies:

A) second normal form.
B) third normal form
C) fourth normal form.
D) domain/key normal form.

Answer: C

88. A relational database consists of a collection of

A) Tables
B) Fields
C) Records
D) Keys

Answer: A
Explanation: Fields are the column of the relation or tables. Records are each row in a relation. Keys are the constraints in a relation.

89. A report generator is used to

A) update files.
B) print files on paper.
C) data entry
D) delete files

Answer: B

90. A sample of 12 specimen taken from a normal population is expected to have a mean 50 mg/cc. The sample has a mean of 64 mg/cc with a variance of 25. Which of the following test statistic can be used to test $H_0: \mu = 50 \; vs \; H_0: \mu \neq 50$

A) Z - test
B) X^2 - test
C) t - test
D) F - test

Answer:

91. A scheduling algorithm can use either _____ priority or _____ priority.

A) Static, still
B) Static, dynamic
C) Live, dead
D) None of these

Answer: B

92. A semaphore is a shared integer variable

A) that can not drop below zero
B) that can not be more than zero
C) that can not drop below one
D) that can not be more than one

Answer: A
Explanation: A semaphore is a shared integer variable that can not drop below zero. In binary semaphore, if the value of the semaphore variable is zero that means there is a process that uses a critical resource and no other process can access the same critical resource until it is released. In Counting semaphore, if the value of the semaphore variable is zero that means there is no resource available.

93. A Standard logic gate is a typical example of

A) MSI Circuits
B) SSI Circuits
C) LSI Circuits
D) VLSI Circuits

Answer:

94. A system program that combines the separately compiled modules of a program into a form suitable for execution

A) Assembler
B) linking loader
C) cross compiler
D) load and go

Answer: B

95. A system uses FIFO policy for page replacement. It has 4 page frames with no pages loaded to begin with. The system first accesses 100 distinct pages in some order and then accesses the same 100 pages but now in the reverse order. How many page faults will occur?

A) 196
B) 192
C) 197
D) 195

Answer: A

96. A table can have only one

A) Secondary key
B) Alternate key
C) Unique key
D) Primary key

Answer: B