Data Structure

Multiple Choice Questions and Answers:-

1. Which if the following is/are the levels of implementation of data structure
A) Abstract level
B) Application level
C) Implementation level
D) All of the above

Ans: D

2. A binary search tree whose left subtree and right subtree differ in hight by at most 1 unit is called ……
A) AVL tree
B) Red-black tree
C) Lemma tree
D) None of the above

Ans:D

3. …….. level is where the model becomes compatible executable code
A) Abstract level
B) Application level
C) Implementation level
D) All of the above
Ans:C

4. Stack is also called as
A) Last in first out
B) First in last out
C) Last in last out
D) First in first out

Ans:A

5. Which of the following is true about the characteristics of abstract data types?
i) It exports a type.
ii) It exports a set of operations
A) True, False
B) False, True
C) True, True
D) False, False

Ans:C

6. …… is not the component of data structure.
A) Operations
B) Storage Structures
C) Algorithms
D) None of above

Ans:D

7. Which of the following is not the part of ADT description?
A) Data
B) Operations
C) Both of the above
D) None of the above

Ans:D

8. Inserting an item into the stack when stack is not full is called …… Operation and deletion of item form the stack, when stack is not empty is called ……..operation.
A) push, popB) pop, push
C) insert, delete
D) delete, insert

Ans:A

9. ……. Is a pile in which items are added at one end and removed from the other.
A) Stack
B) Queue
C) List
D) None of the above

Ans:B

10. …… is very useful in situation when data have to stored and then retrieved in reverse order.
A) Stack
B) Queue
C) List
D) Link list

Ans:A

11. Which data structure allows deleting data elements from and inserting at rear?
A) Stacks
B) Queues
C) Dequeues
D) Binary search tree

Ans:B

12. Which of the following data structure can't store the non-homogeneous data elements?
A) Arrays
B) Records
C) Pointers
D) Stacks

Ans:A

13. A ……. is a data structure that organizes data similar to a line in the supermarket, where the first one in line is the first one out.
A) Queue linked list
B) Stacks linked list
C) Both of them
D) Neither of them

Ans:A

14. Which of the following is non-liner data structure?
A) Stacks
B) List
C) Strings
D) Trees

Ans:D

15. Herder node is used as sentinel in …..
A) Graphs
B) Stacks
C) Binary tree
D) Queues

Ans:C

16. Which data structure is used in breadth first search of a graph to hold nodes?
A) Stack
B) queue
C) Tree
D) Array

Ans:B

17. Identify the data structure which allows deletions at both ends of the list but insertion at only one end.
A) Input restricted dequeue

B) Output restricted qequeue
C) Priority queues
D) Stack

Ans:A

18. Which of the following data structure is non linear type?
A) Strings
B) Lists
C) Stacks
D) Graph

Ans:D

19. Which of the following data structure is linear type?
A) Graph
B) Trees
C) Binary tree
D) Stack

Ans:D

20. To represent hierarchical relationship between elements, Which data structure is suitable?
A) Dequeue
B) Priority
C) Tree
D) Graph

Ans:C

21. A directed graph is ……. if there is a path from each vertex to every other vertex in the digraph.
A) Weakly connected
B) Strongly Connected
C) Tightly Connected
D) Linearly Connected

Ans:B

22. In the …….. traversal we process all of a vertex's descendants before we move to an adjacent vertex.
A) Depth First
B) Breadth First
C) With First
D) Depth Limited

Ans:A

23. State True of False.
i) Network is a graph that has weights or costs associated with it.
ii) An undirected graph which contains no cycles is called a forest.
iii) A graph is said to be complete if there is no edge between every pair of vertices.
A) True, False, True
B) True, True, False
C) True, True, True
D) False, True, True

Ans:B

24. Match the following.
a) Completeness i) How long does it take to find a solution
b) Time Complexity ii) How much memory need to perform the search.
c) Space Complexity iii) Is the strategy guaranteed to find the solution when there in one.
A) a-iii, b-ii, c-i
B) a-i, b-ii, c-iii
C) a-iii, b-i, c-ii
D) a-i, b-iii, c-ii

Ans:C

25. The number of comparisons done by sequential search is

……
A) (N/2)+1
B) (N+1)/2
C) (N-1)/2
D) (N+2)/2

Ans:B

26. In ……, search start at the beginning of the list and check every element in the list.
A) Linear search
B) Binary search
C) Hash Search
D) Binary Tree search

Ans:A

27. State True or False.
i) Binary search is used for searching in a sorted array.
ii) The time complexity of binary search is O(logn).
A) True, False
B) False, True
C) False, False
D) True, True

Ans:D

28. Which of the following is not the internal sort?
A) Insertion Sort
B) Bubble Sort
C) Merge Sort
D) Heap Sort

Ans:C

29. State True or False.
i) An undirected graph which contains no cycles is called forest.

ii) A graph is said to be complete if there is an edge between every pair of vertices.
A) True, True
B) False, True
C) False, False
D) True, False

Ans:A

30. A graph is said to be …… if the vertices can be split into two sets V1 and V2 such there are no edges between two vertices of V1 or two vertices of V2.
A) Partite
B) Bipartite
C) Rooted
D) Bisects

Ans:B

31. In a queue, the initial values of front pointer f rare pointer r should be …….. and …….. respectively.
A) 0 and 1
B) 0 and -1
C) -1 and 0
D) 1 and 0

Ans:B

32. In a circular queue the value of r will be ..
A) r=r+1
B) r=(r+1)% [QUEUE_SIZE – 1]
C) r=(r+1)% QUEUE_SIZE
D) r=(r-1)% QUEUE_SIZE

Ans:C
33. Which of the following statement is true?
i) Using singly linked lists and circular list, it is not possible to traverse

the list backwards.
ii) To find the predecessor, it is required to traverse the list from the first node in case of singly linked list.
A) i-only
B) ii-only
C) Both i and ii
D) None of both

Ans:C

34. The advantage of …….. is that they solve the problem if sequential storage representation. But disadvantage in that is they are sequential lists.
A) Lists
B) Linked Lists
C) Trees
D) Queues

Ans:B

35. What will be the value of top, if there is a size of stack STACK_SIZE is 5
A) 5
B) 6
C) 4
D) None

Ans:C

36. …… is not the operation that can be performed on queue.
A) Insertion
B) Deletion
C) Retrieval
D) Traversal

Ans:D

37. There is an extra element at the head of the list called a …….
A) Antinel
B) Sentinel
C) List header
D) List head

Ans:B

38. A graph is a collection of nodes, called ……. And line segments called arcs or …….. that connect pair of nodes.
A) vertices, edges
B) edges, vertices
C) vertices, paths
D) graph node, edges

Ans:A

39. A …….. is a graph that has weights of costs associated with its edges.
A) Network
B) Weighted graph
C) Both A and B
D) None A and B

Ans:C

40. In general, the binary search method needs no more than ……. comparisons.
A) [log2n]-1
B) [logn]+1
C) [log2n]
D) [log2n]+1

Ans:D

41. Which of the following is not the type of queue?
A) Ordinary queue

B) Single ended queue
C) Circular queue
D) Priority queue

Ans:B

42. The property of binary tree is

A) The first subset is called left subtree
B) The second subtree is called right subtree
C) The root cannot contain NULL
D) The right subtree can be empty

Ans:D

43. State true or false.
i) The degree of root node is always zero.
ii) Nodes that are not root and not leaf are called as internal nodes.
A) True, True
B) True, False
C) False, True
D) False, False

Ans:C

44. Any node is the path from the root to the node is called
A) Successor node
B) Ancestor node
C) Internal node
D) None of the above

Ans:B

45. State true of false.
i) A node is a parent if it has successor nodes.
ii) A node is child node if out degree is one.

A) True, True
B) True, False
C) False, True
D) False, False

Ans:B

46. ……. is not an operation performed on linear list
a) Insertion b) Deletion c) Retrieval d) Traversal
A) only a,b and c
B) only a and b
C) All of the above
D) None of the above

Ans:D

47. Which is/are the application(s) of stack
A) Function calls
B) Large number Arithmetic
C) Evaluation of arithmetic expressions
D) All of the above

Ans:D

48. A …… is an acyclic digraph, which has only one node with indegree 0, and other nodes have in-degree 1.
A) Directed tree
B) Undirected tree
C) Dis-joint tree
D) Direction oriented tree

Ans:A

49. ……. Is a directed tree in which outdegree of each node is less than or equal to two.
A) Unary tree
B) Binary tree

C) Trinary tree
D) Both B and C

Ans:B

50. State true or false.
i) An empty tree is also a binary tree.
ii) In strictly binary tree, the out-degree of every node is either o or 2.
A) True, False
B) False, True
C) True, True
D) False, False

Ans:C

51. Which of the following data structures are indexed structures?
A. Linear arrays
B. Linked lists
C. Queue
D. Stack

Ans:A

52. Which of the following data structure store the homogeneous data elements?
A. Arrays
B. Records
C. Pointers
D. Lists

Ans:B

53. When new data are to be inserted into a data structure, but there is not available space; this situation is usually called ….
A. Underflow
B. overflow
C. houseful

D. saturated

Ans:B

54. 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

Ans:D

55. Operations on a data structure may be …..
A. creation
B. destruction
C. selection
D. all of the above
Ans:D

56. The way in which the data item or items are logically related defines …..
A. storage structure
B. data structure
C. data relationship
D. data operation

Ans:B

57. Which of the following are the operations applicable an primitive data structures?
A. create
B. destroy
C. update
D. all of the above

Ans:D

58. The use of pointers to refer elements of a data structure in which elements are logically adjacent is ….
A. pointers
B. linked allocation
C. stack
D. queue

Ans:B

59. Arrays are best data structures
A. for relatively permanent collections of data
B. for the size of the structure and the data in the structure are constantly changing
C. for both of above situation
D. for non of above situation

Ans:C

60. Which of the following statement is false?
A. Arrays are dense lists and static data structure.
B. Data elements in linked list need not be stored in adjacent space in memory
C. Pointers store the next data element of a list
D. Linked lists are collection of the nodes that contain information part and next pointer.

Ans:C

61. Which of the following data structure is non-linear type?
A) Strings
B) Lists
C) Stacks
D) Tree

Ans:D

62. Which of the following data structure is linear type?
A) Array
B) Tree
C) Graphs
D) Hierarchy

Ans:A

63. The logical or mathematical model of a particular organization of data is called a ……
A) Data structure
B) Data arrangement
C) Data configuration
D) Data formation

Ans:A

64. The simplest type of data structure is ……
A) Multidimensional array
B) Linear array
C) Two dimensional array
D) Three dimensional array

Ans:B

65. Linear arrays are also called …….
A) Straight line array
B) One-dimensional array
C) Vertical array
D) Horizontal array

Ans:B

66. Arrays are best data structures ……
A) For relatively permanent collections of data
B) For the size of the structure and the data in the structure are constantly changing

C) For both of above situation
D) For none of the above

Ans:A

67. Which of the following data structures are indexed structures?
A) Linear arrays
B) Linked lists
C) Graphs
D) Trees

Ans:A

68. Each node in a linked list has two pairs of …….. and …….
A) Link field and information field
B) Link field and avail field
C) Avail field and information field
D) Address field and link field

Ans:A

69. A …… does not keep track of address of every element in the list.
A) Stack
B) String
C) Linear array
D) Queue

Ans:C

70. When does top value of the stack changes?
A) Before deletion
B) While checking underflow
C) At the time of deletion
D) After deletion

Ans:D

71. Which of the following data structure is non-linear type?
A) Strings
B) Lists
C) Stacks
D) Tree

Ans:D

72. Which of the following data structure is linear type?
A) Array
B) Tree
C) Graphs
D) Hierarchy

Ans:A

73. The logical or mathematical model of a particular organization of data is called a ……
A) Data structure
B) Data arrangement
C) Data configuration
D) Data formation

Ans:A

74. The simplest type of data structure is ……
A) Multidimensional array
B) Linear array
C) Two dimensional array
D) Three dimensional array

Ans:B

75. Linear arrays are also called …….
A) Straight line array

B) One-dimensional array
C) Vertical array
D) Horizontal array

Ans:B

76. Arrays are best data structures ……
A) For relatively permanent collections of data.
B) For the size of the structure and the data in the structure are constantly changing
C) For both of above situation
D) For none of the above

Ans:A

77. Which of the following data structures are indexed structures?
A) Linear arrays
B) Linked lists
C) Graphs
D) Trees

Ans:A

78. Each node in a linked list has two pairs of …….. and ……
A) Link field and information field
B) Link field and avail field
C) Avail field and information field
D) Address field and link field

Ans:A

79. A …… does not keep track of address of every element in the list.
A) Stack
B) String

C) Linear array
D) Queue

Ans:C

80. When does top value of the stack changes?
A) Before deletion
B) While checking underflow
C) At the time of deletion
D) After deletion

Ans:D

91. Arrays are best data structures
A) for relatively permanent collections of data
B) for the size of the structure and the data in the structure are constantly changing
C) for both of above situation
D) for none of above situation

Ans:A

92. Which of the following data structure is not linear data structure?
A) Arrays
B) Linked lists
C) Both of the above
D) None of the above

Ans:D

93. The disadvantage in using a circular linked list is
…….

A) It is possible to get into infinite loop.
B) Last node points to first node.
C) Time consuming
D) Requires more memory space

Ans:A

94. A linear list in which each node has pointers to point to the predecessor and successors nodes is called as ..
A) Singly Linked List
B) Circular Linked List
C) Doubly Linked List
D) Linear Linked List
Ans:C

95. 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
D) dequeue

Ans: D

96. In a priority queue, insertion and deletion takes place at ……
A) front, rear end
B) only at rear end
C) only at front end
D) any position

Ans: D

97. The time complexity of quick sort is ……..
A) O(n)
B) O(n2)
C) O(n log n)
D) O(log n)

Ans: C.

98. Which of the following is an application of stack?

A) finding factorial
B) tower of Hanoi
C) infix to postfix conversion
D) all of the above

Ans: B.

99. The data structure which is one ended is ……
A) queue
B) stack
C) tree
D) graph

Ans:B.

100. A list which displays the relationship of adjacency between elements is said to be
A) linear
B) non linear
C) linked list
D) trees

Ans: A.