

1.A linear list in which elements can be added/removed at either end but not in the middle is called

- 1.**Deque** 2.Stack 3.List 4.Queue

2.Which of the following is the best sorting algorithm when the list is already sorted?

- 1.Bubble Sort 2.**Insertion Sort**
3.Quick Sort 4.Heap Sort

3.The representation of data structure in memory is called

- 1.memory structure 2.**abstract data type**
3.recursive 4.file structure

4.The complexity of Heap sort algorithm is

- 1.O(n²) 2.**O(n log n)** 3.O(1)
4.None of these

5.In Queue, the items deleted at....end

- 1.**front** 2.rear 3.top 4.base

6.Which data structure is needed to convert infix notation to post fix notation?

- 1.Branch 2.Queue 3.Tree 4.**Stack**

7.In a circular linked list, insertion of a record involves modification of

- 1.Multiple pointer 2.One pointer
3.**Two pointer** 4.None of these

8.Which data structure is used for implementing recursion?

- 1.Queue 2.**Stack** 3.Arrays 4.List

9.The drawback of the binary tree sort is remedied by

- 1.Bubble Sort 2.Insertion Sort
3.Quick Sort 4.**Heap Sort**

10.Which of the following is the method of graph traversal?

- 1.Breadth first search 2.Depth first Search
3.**Both 1 & 2** 4.None of these

11. contains the information about an array used in a program.

- 1.**Dope vector** 2.Record 3.Table
4.None of the above

12.The term DEQUEUE refers.....

- 1.single ended queue 2.**double ended queue**

3.Both 1 & 2 4.None of the above

13.A sort that compares each element with its adjacent element in a list is called.....

- 1.**Bubble Sort** 2.Insertion Sort
3.Quick Sort 4.Heap Sort

14.Which of the following data structure is required to evaluate a post fix expression?

- 1.**Stack** 2.linked list 3.Array
4.None of the above

15.A linked list that has no beginning and no end is called.....

- 1.Doubly linked list 2.Singly linked list
3.**Circular linked list** 4.None of the above

16.In order traversal is also known as.....

- 1.Pre order 2.**Symmetric order**
3.End order 4.None of the above

17.A matrix in which number of zero elements are much higher than the number of non zero elements is called

- 1.Scalar Matrix 2.Identity Matrix
3.**Sparse Matrix** 4.None of the above

18.Which of the following is the slowest sorting algorithm?

- 1.Heap Sort 2.Insertion Sort 3.Quick Sort
4.**Bubble Sort**

19.The smallest element of an Array's index is known as.....

- 1.Range 2.Upper bound 3.**Lower bound**
4.None of the above

20.Which data structure is required to check balanced parenthesis in an expression?

- 1.Linked List 2.Queue 3.Tree 4.**Stack**

21.In Queue, the elements added at....end

- 1.front 2.**rear** 3.top 4.base

22.The terms "POP" and "PUSH" are related to.....

- 1.queue 2.**stack** 3.linked list
4.None of the above

23.Stack is also called a

- 1.**Last In First Out** 2.First In First Out
3.LIFO & FIFO 4.None of the above

24. The largest element of an Array Index is called.....

1. Range **2. Upper bound** 3. lower bound
4. None of the above

25. The memory address of the first element of an array is called...

1. first address 2. floor address
3. base address 4. None of the above

26. The complexity of shell sort is

1. $O(\log)$ 2. $O(n^2)$ **3. $O(n(\log n)^2)$**
4. None of the above

27. Which of the following is a linear data structure?

- 1. Array** 2. Graph 3. Tree
4. None of the above

28. is a technique to convert a range of key values into a range of Indices of an Array?

1. Thrashing **2. Hashing** 3. Interpolation
4. None of the above

29. is a queue with limited number of elements.

- 1. Bounded queue** 2. Unbounded queue
3. Both 1 & 2 4. None of the above

30. An odd-even sort is also called.....

1. Bubble Sort 2. Heap Sort 3. Quick Sort
4. Brick Sort

31. The term "PUSH" is used to an element into a stack

1. Update 2. Edit **3. Insert**
4. None of the above

32. The condition "FRONT = NULL" represents that the queue is.....

1. Overflow **2. Empty** 3. Full
4. None of the above

33. A linked list is also called

- 1. One way list** 2. Multi way list
3. Single way list 4. None of the above

34. Which data structure represents hierarchical relationship between various elements?

1. Linked List **2. Tree** 3. Array
4. None of the above

35. The process of accessing data stored in a tape is similar to handle data on.....

1. Linked List 2. Tree 3. Array
4. Queue

36. Which of the following search start at the beginning of the list and each element in the list?

- 1. Linear Search** 2. Binary Tree Search
3. Hash Search 4. None of the above

37. In Binary Tree Traversal, the node is visited between the sub trees is called.....

1. Pre-order traversal **2. In-order traversal**
3. Post-order traversal 4. None of the above

38. Which of the following data structure is indexed data structure?

1. Linked List 2. Stack 3. Queue
4. Linear Array

39. is a data structure in which each node has at most two children.

1. Red-Black Tree **2. Binary Tree**
3. AVL Tree 4. None of the above

40. Which of the following sorting algorithm is not an internal sort?

1. Bubble Sort 2. Insertion Sort
3. Merge Sort 4. Heap Sort

41. Print Server uses which is a buffer that holds data before it is send to the printer

1. Queue 2. Stack **3. Spool**
4. None of the above

42. is a balanced binary search tree in which the difference between the height of any node's left and right sub tree is at most one.

- 1. AVL Tree** 2. Red-Black Tree
3. 2-3-4 Tree 4. None of the above

43. Enqueue means to insert an item into the of the Queue

1. front **2. rear** 3. middle
4. None of the above

44. The process of deleting an element from the top of stack is called operation

- 1. POP** 2. PUSH 3. Both 1 & 2
4. None of the above

45. Merge Sort is based on

1. Greedy approach 2. Backtracking algorithm
3. Divide and Conquer method
4. None of the above

46. Post order traversal is also known as.....

1. depth-first order **2. end order**
3. symmetric order 4. None of the above

47. A queue is a data structure
 1. Last In First Out (LIFO) 2. Linear Array
3. First In First Out (FIFO) 4. None of the above
48. Which of the following data structure stores homogeneous data elements?
 1. Record 2. Pointer **3. Linear Array**
 4. None of the above
49. An algorithm that calls itself directly or indirectly is called
 1. Iteration **2. Recursion** 3. Traversal
 4. None of the above
50. Which of the following is used to find the location of an element with a given value?
1. Search 2. Iteration 3. Traversal
 4. None of the above
51. The complexity of Bubble sort algorithm is
 1. $O(\log n)$ 2. $O(n \log n)$ **3. $O(n^2)$**
 4. None of the above
52. Which of the following data structure stores heterogeneous data elements?
1. Record 2. Pointer 3. Linear Array
 4. None of the above
53. is required for languages that support dynamic data structure.
 1. Stack allocation 2. Static allocation
3. Heap allocation 4. None of the above
54. In Binary Tree Traversal, the node is visited before its left and right sub trees is called.....
1. pre order 2. In order 3. post order
 4. None of the above
55. Which of the following is non linear data structure?
 1. Stack **2. Tree** 3. Queue
 4. None of the above
56. Which algorithm solves the all pairs shortest path problem ?
1. Floyd's algorithm 2. Prim's algorithm
 3. Both 1 & 2 4. None of the above
57. Pre order traversal is also known as
1. depth-first order 2. end order
 3. symmetric order 4. None of the above
58. Queues can be used to implement
 1. recursion 2. quick sort **3. radix sort**
 4. None of the above
59. is a header list in which the last node contains the null pointer.
 1. Circular Header list **2. Grounded Header list**
 3. Both 1 & 2 4. None of the above
60. Quick sort is also called
1. Partition exchange sort
 2. Diminishing increment sort
 3. Both 1 & 2 4. None of the above
61. Linear search is also called
 1. Interpolation Search
 2. Transpose Sequential Search
3. Sequential Search 4. None of the above
62. The Array as an Abstract Data Type (ADT) supports operations.
 1. Store 2. Retrieve **3. Both 1 & 2**
 4. None of the above
63. Each position of the hash table is called
 1. Bucket 2. Entry 3. Cell **4. Slot**
64. The common way of keeping subsequent items within the table and computing possible positions is termed as
 1. Direct Chaining **2. Open Addressing**
 3. Both 1 & 2 4. None of the above
65. An extra key inserted at the end of an Array is known as.....
1. Sentinel 2. Stop key 3. Both 1 & 2
 4. None of the above
66. In Binary Tree Traversal, the node is visited after both trees is called.....
 1. pre order 2. In order **3. post order**
 4. None of the above
67. Shell Sort is also called
 1. Partition exchange sort
2. Diminishing increment sort
 3. Both 1 & 2 4. None of the above
68. The complexity of Merge sort algorithm is.....
 1. $O(\log n)$ **2. $O(n \log n)$** 3. $O(n^2)$
 4. None of the above
69. is a header list in which the last node points back to the header node.
1. Circular Header linked list
 2. Grounded Header linked list
 3. Both 1 & 2 4. None of the above

70. A pointer that contains the address of a heap-dynamic variable is called

1. **Dangling pointer** 2. Null pointer
3. Void pointer 4. None of the above

71. The performance of an algorithm is measured on the basis of _____

1. Time Complexity 2. Space Complexity
3. Both 1 & 2 4. None of the above

72. A set of functions that grow slower than or at the same rate as expression is represented by _____

1. Big Omega notation 2. Theta notation
3. Big O notation 4. None of the above

73. The average time complexity of Insertion sort algorithm is _____

1. **$O(n^2)$** 2. $O(n \log n)$ 3. $O(n)$
4. None of the above

74. Which of the following is not a stable sort?

1. Insertion Sort **2. Heap Sort**
3. Merge Sort 4. None of the above

75. The space required to store the values of all the constants and variables is called _____

1. Instruction space **2. Data Space**
3. Environment Space 4. None of the above

76. In Heap data structure, If the parent nodes are greater than their children nodes then it is called _____

1. **Max-Heap** 2. Min-Heap 3. Both 1 & 2
4. None of the above

77. The Quick sort algorithm divides the list into _____ main parts

1. Four 2. Six 3. Five **4. Three**

78. Circular linked list can also be used to create _____

1. Priority Queue 2. Double ended Queue
3. Circular queue 4. None of the above

79. Which of the following is/are real-time application(s) of Queue?

1. Printer 2. CPU task scheduling
3. Interrupts handling in real-time systems
4. All of the above

80. Linked Lists are used to implement _____

1. Stacks 2. Graphs 3. Queues
4. All of the above

81. In linked list, an element can be inserted at _____

1. beginning of the list 2. end of the list
3. middle of the list **4. Both 1 & 2**

82. Which of the following is/are real time application(s) of Circular linked list?

1. Printer **2. Multi player games**
3. Interrupts handling in real-time systems
4. All of the above

83. Stack is also called _____

1. Pop up array 2. Pop down list
3. Push down list 4. None of the above

84. Prim's algorithm is a _____

- 1. Greedy algorithm** 2. Backtracking algorithm
3. Divide and Conquer method
4. None of the above

85. A heap allows a very efficient implementation of a _____

1. Stack 2. Tree **3. priority queue**
4. None of the above

86. _____ is an algorithm that builds a solution by repeated selecting the cheapest among all options at each stage.

- 1. Greedy algorithm** 2. Backtracking algorithm
3. Divide and Conquer method
4. None of the above

87. The Complexity of Quick Sort algorithm is _____

1. $O(n^2)$ **2. $O(n \log n)$** 3. $O(n)$
4. None of the above

88. The best average behaviour is shown by _____

1. Heap Sort 2. Insertion Sort **3. Quick Sort**
4. Bubble Sort

89. A mathematical-model of user defined type along with the collection of all operations defined on that model is known as _____

1. Data Structure 2. Primitive Data Type
3. Algorithm **4. Abstract Data Type**

90. In _____ traversal we can convert a binary tree into its mirror image.

1. In order 2. Pre order **3. Post order**
4. None of the above

91. A postfix expression is merely the _____ of the prefix expression.

1. Forward **2. Reverse** 3. Inverse
4. None of the above

92. Which of the following begins the search with the element that is located in the middle of the Array?

- 1.Random Search 2.Parallel Search
3.Binary Search **4.Serial Search**

93.In a Circular linked list, insertion of a record involves the modification of _____

- 1.1 Pointer **2.2 Pointer** 3.3 Pointer
4.None of the above

94.Which of the following is useful in traversing a given graph by breadth first search?

- 1.Stack 2.List **3.Queue**
4.None of the above

95.A characteristic of the data that binary search uses but linear search ignores is _____

- 1.Order of the list** 2.length of the list
3.Both 1 & 2 4.None of the above

96.A sort which iteratively passes through a list to exchange the first element with any element less than it and then repeats with a new first element is called _____

- 1.Heap Sort 2.Quick Sort **3.Selection Sort**
4.None of the above

97.To insert a node in a circular list at rear position, it should be inserted at _____ of the Queue.

- 1.Front – 1 position 2.Rear position
3.Front position 4.None of the above

98.In an extended-binary tree, the nodes with two children are called

- 1.Interior node 2.Domestic node
3.Internal node 4.Inner node

99.A terminal node in a binary tree is called _____

- 1.Child **2.Leaf** 3.Branch
4.None of the above

100.Sequential representation of binary tree uses

- 1.Three dimensional arrays
2.Array with pointers
3.Two dimensional arrays
4.None of the above

101.Which of the following is a mathematical-model with a collection of operations?

- 1.Algorithm 2.Linear Search 3.Hashing
4.Abstract Data Type

5.None of these

Abstract Data Type is a mathematical-model with a collection of operations. It describes a container which holds a finite number of objects where the objects may be related through a given binary relationship.

102.The Standard Template Library (STL) uses which of the following binary relationships?

- 1.Linear ordering 2.Partial ordering
3.Hierarchical ordering 4.All of these

5.strict weak ordering

The Standard Template Library (STL) uses the concept of a strict weak ordering. A Strict Weak Ordering is a Binary Predicate that compares two objects, returning true if the first precedes the second.

103.Which is the form of automatic memory management?

- 1.Concatenation
2.Dynamic Memory Allocation
3.Garbage Allocation 4.Throughput
5.None of these

Garbage collection is an automatic memory management feature in many programming languages, such as Java and languages in the .NET framework.

104.Which is an effective technique to calculate the direct location of a data record?

- 1.Binary Search 2.Linear Search
3.Tree Search **4.Hashing**
5.None of these

Hashing is an effective technique to calculate the direct location of a data record.

105.In a binary tree, if a node having two children is deleted, it is replaced by its ?

- 1.Preorder predecessor **2.Inorder successor**
3.Preorder successor 4.Inorder predecessor
5.None of these

In Binary Tree, Inorder successor of a node is the next node in Inorder traversal of the Binary Tree

106.It is a binary tree in which every level, except possibly the last, is completely filled, and all nodes are as far left as possible is known as?

- 1.Binary Search Tree 2.Full Binary Tree
3.Complete Binary Tree
4.Incomplete Binary Tree 5.None of these

Complete Binary Tree: It is a binary tree in which every level, except possibly the last, is completely filled, and all nodes are as far left as possible.

107.It is a binary tree in which every node other than the leaves has two children is known as?

- 1.Binary Search Tree **2.Full Binary Tree**
3.Complete Binary Tree
4.Incomplete Binary Tree 5.None of these

Full Binary Tree: It is a binary tree in which every node other than the leaves has two children.

108. A full binary tree with n leaves contains how many nodes?

- 1. n leaf nodes
- 2. $n-1$ non leaf nodes
- 3. n non leaf nodes**
- 4. $n-1$ leaf nodes
- 5. None of these

A full binary tree with n leaves contains n non leaf nodes.

109. Which of the following takes $O(1)$ time to find a data?

- 1. Binary Search
- 2. Linear Search
- 3. Tree Search
- 4. Hashing**
- 5. None of these

Hashing takes $O(1)$ time to find a data.

110. One can convert a binary tree into its mirror image by traversing it in _____

- 1. In order
- 2. Pre order
- 3. Post order**
- 4. Any order
- 5. None of these

One can convert a binary tree into its mirror image by traversing it in Post order.

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