In divide and conquer strategy, the main problem and sub-problems must be of ________ nature.

Same | Different | Opposite | None of the above

2. What can be done using divide and conquer strategy?

Merge sort | Binary search | Quick sort | All of the above

3. How do we find the mid in binary search?

Mid = ceil [(l + h)/ 2] | Mid = floor [(l + h)/ 2] | Mid = square [(l + h)/ 2] | None of the above

4. The worst case time complexity of binary search is

O(1) | O(log n) | O(n) | O(n log n)

5. The best case time complexity of binary search is

O(1) | O(log n) | O(n) | O(n log n)

6. The process of merge sort is based upon

Divide and conquer strategy | Dynamic programming | Greedy approach | None of the above

7. The time complexity of merge sort is _______.

O (n) | O (1) | O (log n) | O (n log n)

8. Traversing of elements in merge sort is done in _______.

Preorder | Postorder | Inorder | None of the above

9. In merge sort, the time function T(n) using recurrence relation when n = 1 is

0 | 1 | -1 | None of the above

10. In merge sort, the list is considered as small, when it is having ____ element.

0 | 1 | 2 | 3

11. The idea behind the quick sort is, the elements on the left side of pivot must be ______ and the elements on the right side of pivot must be _____.

Greater, smaller | Smaller, greater | Smaller, smaller | Greater, greater

12. The time complexity of quick sort is

| | | | |
|---|---|---|---|
| O (n) | O (log n) | O (n log n) | None of the above |

13. Which data structure is used for sorting of elements in quick sort?

| | | | |
|---|---|---|---|
| Stack | Queue | Tree | Graph |

14. In quick sort, if we are sorting a sorted list, then it is ______.

| | | | |
|---|---|---|---|
| Best case | Average case | Worst case | None of the above |

15. In a binary tree, if the node is at index i, then the left child will be at

| | | | |
|---|---|---|---|
| 2*i | 2*i+1 | 3*i | 3*i+1 |

16. In a binary tree, if the node is at index i, then the right child will be at

| | | | |
|---|---|---|---|
| 2*i | 2*i+1 | 3*i | 3*i+1 |

17. In a binary tree, if the node is at index i, then the parent of that node will be at

| | | | |
|---|---|---|---|
| 2*i | 2*i+1 | Flr (i/2) | Ceil (i/2) |

18. In best case, the time taken for insertion of element in heapsort is

| | | | |
|---|---|---|---|
| O(1) | O(log n) | O(n) | O(2) |

19. The number of nodes in a binary tree of height h will be

| | | | |
|---|---|---|---|
| $2^{h+1} - 1$ | $2^h - 1$ | $2^{h-1} - 1$ | None of the above |

20. The time complexity of merge sort is _______.

| | | | |
|---|---|---|---|
| (n) | (1) | (log n) | (n log n) |

21. How many index pointers are required for quick sorting?

| | | | |
|---|---|---|---|
| 0 | 1 | 2 | 3 |

22. The time complexity of quick sort is

| | | | |
|---|---|---|---|
| (n) | (log n) | (n log n) | None of the above |

23. In a binary tree, if the node is at index i, then the left child will be at

| | | | |
|---|---|---|---|
| 2*i | 2*i+1 | 3*i | 3*i+1 |

24. In a binary tree, if the node is at index i, then the right child will be at

- 2*i
- 2*i+1
- 3*i
- 3*i+1

25. In a binary tree, if the node is at index i, then the parent of that node will be at

- 2*i
- 2*i+1
- Flr (i/2)
- Ceil (i/2)