Started on	Monday, 1 December 2025, 11:50 AM
State	Finished
Completed on	Monday, 1 December 2025, 12:00 PM
Time taken	10 mins 25 secs
Marks	27.00/30.00
Grade	**90.00** out of 100.00

Question 1

Complete

Mark 1.00 out of 1.00

A circular queue helps prevent:

- a. Underflow
- b. Double deletion
- c. Memory wastage
- d. Overflow

Question 2

Complete

Mark 1.00 out of 1.00

A perfect binary tree of height h has how many nodes?

- a. 2^h
- b. h
- c. 2^(h+1) - 1
- d. h^2

Question 3

Complete

Mark 1.00 out of 1.00

A queue works on which principle?

- a. LIFO
- b. Random
- c. FIFO
- d. FILO

Question 4

Complete

Mark 1.00 out of 1.00

In a graph, BFS is preferred over DFS when we need:

- a. Shortest path in unweighted graph
- b. To use less memory
- c. To detect cycles faster
- d. Deepest node first

Question 5

Complete

Mark 1.00 out of 1.00

In a hash table, collisions are handled using:

- a. Chaining
- b. Sorting
- c. Binary Search
- d. DFS

Question 6

Complete

Mark 1.00 out of 1.00

In a max heap, the largest element is stored at:

- a. Leftmost node
- b. Root
- c. Middle node
- d. Leaf node

Question 7

Complete

Mark 1.00 out of 1.00

In a singly linked list, which operation is the fastest?

- a. Delete last node
- b. Search a node
- c. Insert at beginning
- d. Insert at end

Question 8

Complete

Mark 0.00 out of 1.00

The maximum number of nodes at level k in a binary tree is:

- a. 2^k
- b. 2^(k-1)
- c. k^2
- d. k

Question 9

Complete

Mark 1.00 out of 1.00

The minimum number of edges in a connected graph with n nodes is:

- a. 2n
- b. n – 1
- c. n + 1
- d. n

Question 10

Complete

Mark 1.00 out of 1.00

What is the auxiliary space of Merge Sort?

- a. O(log n)
- b. O(n)
- c. O(1)
- d. $O(n^2)$

Question 11

Complete

Mark 1.00 out of 1.00

What is the time complexity of enqueue in a queue?

- a. O(log n)
- b. O(1)
- c. $O(n^2)$
- d. O(n)

Question 12

Complete

Mark 1.00 out of 1.00

What is the time complexity of inserting a node in a BST (average case)?

- a. O(n log n)
- b. O(log n)
- c. O(1)
- d. O(n)

Question 13

Complete

Mark 1.00 out of 1.00

What is the time complexity of linear search in the worst case?

- a. O(n)
- b. O(log n)
- c. O(1)
- d. $O(n^2)$

Question 14

Complete

Mark 1.00 out of 1.00

What is the worst-case height of a Red-Black Tree?

- a. O(1)
- b. O(log n)
- c. $O(n^2)$
- d. O(n)

Question 15

Complete

Mark 1.00 out of 1.00

What is the worst-case time complexity of Bubble Sort?

- a. O(n)
- b. O(n log n)
- c. O(log n)
- d. $O(n^2)$

Question 16

Complete

Mark 1.00 out of 1.00

What structure is best for implementing undo operation?

- a. HashMap
- b. Array
- c. Queue
- d. Stack

Question 17

Complete

Mark 1.00 out of 1.00

Which algorithm detects negative weight cycles?

- a. Bellman–Ford
- b. BFS
- c. Dijkstra
- d. Floyd–Warshall

Question 18

Complete

Mark 0.00 out of 1.00

Which algorithm is used to detect cycles in an undirected graph?

- a. Kruskal
- b. DFS
- c. Bellman-Ford
- d. BFS

Question 19

Complete

Mark 1.00 out of 1.00

Which algorithm uses a pivot?

- a. Bubble Sort
- b. Quick Sort
- c. Heap Sort
- d. Merge Sort

Question 20

Complete

Mark 1.00 out of 1.00

Which data structure is used for implementing recursion?

- a. Array
- b. Queue
- c. Stack
- d. Linked List

Question 21

Complete

Mark 1.00 out of 1.00

Which data structure is used in BFS?

- a. Stack
- b. Queue
- c. Priority Queue
- d. Deque

Question 22

Complete

Mark 1.00 out of 1.00

Which of the following applications uses a priority queue?

- a. BFS
- b. Dijkstra's Algorithm
- c. DFS
- d. Binary Search

Question 23

Complete

Mark 0.00 out of 1.00

Which of the following is NOT a self-balancing BST?

- a. Red-Black Tree
- b. Binary Heap
- c. AVL Tree
- d. Splay Tree

Question 24

Complete

Mark 1.00 out of 1.00

Which operation is costly in a stack?

- a. Pop
- b. Top
- c. Access middle element
- d. Push

Question 25

Complete

Mark 1.00 out of 1.00

Which operation is costly in an array?

- a. Update element
- b. Access element
- c. Insert at beginning
- d. Access last element

Question 26

Complete

Mark 1.00 out of 1.00

Which searching algorithm requires a sorted array?

- a. Linear Search
- b. Hash Search
- c. DFS
- d. Binary Search

Question 27

Complete

Mark 1.00 out of 1.00

Which sorting algorithm has the best average-case complexity?

- a. Quick Sort
- b. Insertion Sort
- c. Bubble Sort
- d. Selection Sort

Question 28

Complete

Mark 1.00 out of 1.00

Which sorting algorithm is stable?

- a. Heap Sort
- b. Selection Sort
- c. Quick Sort
- d. Merge Sort

Question 29

Complete

Mark 1.00 out of 1.00

Which traversal prints the left subtree, root, then right subtree?

- a. Inorder
- b. Postorder
- c. Level order
- d. Preorder

Question 30

Complete

Mark 1.00 out of 1.00

Which tree traversal uses a queue?

- a. Inorder
- b. Level order
- c. Preorder
- d. Postorder