

Cs301P Solved Quizzes

By Pin2

1. Which of the following methods takes one element at a time to make a heap?

Options:

- a) `percolatedown()`
- b) `percolatedown()`
- c) `Buildheap()`
- d) `traverse()`

Correct option: c) `Buildheap()`

2. What would be the "mid" index if the value 10 is found using the binary search algorithm in the given array?

Array: 1 5 7 9 10 13 17 19 27

Options:

- a) 3
- b) 4
- c) 5
- d) 6

Correct option: a) 3

3. While implementing a min heap, the for loop in the `insert()` method is initialized with:

Options:

- a) `int hole = 2 * currentSize;`
- b) `int hole = currentSize;`
- c) `int hole = -currentSize;`
- d) `int hole = ++currentSize;`

Correct option: d) `int hole = ++currentSize;`

4. Which of the following methods takes an array to make a heap out of it?

Options:

- a) `percolatedown()`
- b) `traverse()`
- c) `traverse()`
- d) `buildheap()`

Correct option: d) `buildheap()`

5. In a min heap, `deletemin()` will put the _____ element at the first position of the array.

Options:

- a) Last
- b) None of the given options
- c) Third
- d) First

Correct option: d) First

6. In the binary search algorithm, if the value being searched is smaller than "mid", then the updated "high" for the left half of the array will be computed as:

Options:

- a) $High = mid + low$
- b) $High = mid + 1$
- c) $High = mid * 2$
- d) $High = mid - 1$

Correct option: d) $High = mid - 1$

7. In the given array representation of a tree constructed with the Union by size method, which node is the parent of 7?

Array: -1 -1 -1 3 3 5 5 7

Options:

- a) -1
- b) 3
- c) 5
- d) 7

Correct option: c) 5

8. Which of the following nodes has the maximum value in a max heap?

Options:

- a) None of the given options
- b) Rightmost child
- c) Leftmost child
- d) Root node

Correct option: d) Root node

9. Binary Search Algorithm cannot be applied to:

Options:

- a) Array sorted in ascending order

- b) Array sorted in descending order
- c) Array sorted in any order
- d) Linked List

Correct option: d) Linked List

10. Binary Search Algorithm cannot be applied to:

- a) Array sorted in ascending order
- b) Array sorted in descending order
- c) Array sorted in any order
- d) Linked List

Correct option: d) Linked List

11. Which of the following formula gives the index position of the right child of "i"?

- a) $2*i + 1$
- b) $2*i$
- c) $i/2$
- d) $2*i + 2$

Correct option: a) $2*i + 1$

12. In Binary Search Algorithm, if the value being searched is greater than "mid", then the updated "low"

for the right half of the array will be computed as:

- a) $Low = mid - 1$
- b) $Low = mid + high$
- c) $Low = mid * 2$
- d) $Low = mid + 1$

Correct option: d) $Low = mid + 1$

13. If we call the union function as $union(5, 7)$, then the name of the new set will be:

- a) 5
- b) 7
- c) $5 + 7$
- d) $5 \& 7$

Correct option: c) $5 + 7$

14. Which of the following methods takes an array to make a heap out of it?

- a) `traverse()`
- b) `percolatedown()`
- c) `Buildheap()`
- d) `Insert()`

Correct option: c) Buildheap()

15. Which of the following methods takes one element at a time to make a heap? Insert

- a) Insert()
- b) Buildheap()
- c) percolatedown()
- d) traverse()

Correct option: a) ()

16. Which of the following formulas gives the index position of the left child of "i"?

- a) $2 + i$
- b) $i/2$
- c) $2*i + 1$
- d) $2*i$

Correct option: d) $2*i$

17. Which node will become unbalanced if a node is inserted as a child of the node R in the given tree?

Options:

- A. L
- B. P
- C. R
- D. M

Correct Option: C. R

18. The ASCII value for character 'A' is:

Options:

- A. 87
- B. 68
- C. 65
- D. 66

Correct Option: C. 65

19. A hole is created which needs to be filled if the element is _____ from the heap.

Options: Correct

- A. Updated
- B. There is no concept of a hole in the heap
- C. Deleted
- D. Inserted

Option: C. Deleted

20. If the tree becomes unbalanced after deleting a node, then we use _____ to rebalance it.

Options:

- A. Rotations
- B. Insertions
- C. Stack
- D. Heap

Correct Option: A. Rotations

21. A complete binary tree with a property that the value at each node is at least as small as the values in its children is called:

Options:

- A. Max Heap
- B. Min Heap
- C. Binary Search Tree
- D. Binary Tree

Correct Option: B. Min Heap

22. Consider a max heap, represented by the following array: 49, 39, 36, 31, 27, 21, 35, 12. After the deletion of the node with value 49, which of the following is the updated max heap?

Options:

- A. 39, 31, 36, 12, 27, 21, 35
- B. 39, 36, 31, 12, 27, 21, 35
- C. 39, 36, 31, 27, 21, 35, 12
- D. 39, 36, 35, 21, 27, 31, 12

Correct Option: B. 39, 36, 31, 12, 27, 21

23. A binary tree will not be considered an AVL tree if the difference between the left and right subtree of each node is not more than:

Options:

- a) 0
- b) 1
- c) 2
- d) 3

Correct option: c) 2

24. Consider the max heap represented by the following array. Which of the following is the parent of node 14?

Array: 20, 30, 40, 50

Options:

- a) 20
- b) 30
- c) 40
- d) 50

Correct option: b) 30

25. If the tree becomes unbalanced after deleting a node, then we use _____ to rebalance it.

Options:

- a) Rotations
- b) Stack
- c) Heap
- d) Insertions

Correct option: a) Rotations

26. What is the encoding of the character 'C' in the given Huffman encoding tree?

Huffman encoding tree: A4, B5, C3, D2, Ebd

Options:

- a) 00
- b) 10
- c) 01
- d) 11

Correct option: c) 01

26. How many rotations will be made if a node is inserted as the left child of the node R in the given tree?

Tree: R, P, L(Mid), M, I (right)

Options:

- a) 1
- b) 2
- c) 3
- d) 4

Correct option: c) 3

27. A complete binary tree with a property that the value at each node is at least as small as the values in

its children is called as _____.

Options:

- a) Binary search tree
- b) Binary tree
- c) Min Heap
- d) Max Heap

Correct option: c) Min Heap

28. A hole is created which needs to be filled if the element is _____ from the heap.

Options:

- a) Updated
- b) There is no concept of hole in heap
- c) Deleted
- d) Inserted

Correct option: c) Deleted

29. Which of the following bit streams represents the string 'cab' in the given Huffman tree?

Bit streams: a0, d0, f0, c1, r0, b1

Options:

- a) 1011
- b) 0101
- c) 1100
- d) 0011

Correct option: a) 1011

30. Consider a max heap represented by the following array: 49, 39, 36, 31, 27, 21, 35, 12. After the deletion of the node with value 49, which of the following is the updated max heap?

Options:

- a) 39, 36, 31, 12, 27, 21, 35
- b) 39, 36, 31, 27, 21, 35, 12
- c) 39, 31, 36, 12, 27, 21, 35
- d) 39, 36, 35, 21, 27, 31, 12

Correct option: a) 39, 36, 31, 12, 27, 21, 35