

CS301-Data Structure
QUIZ-2
Solved by JUNAID MALIK



AL-Junaid Institute
Contact no: 03041659294



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Gmail
junaidfazal08@gmail.com

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ALL answers are verified if found any mistake then Correct ACCORDINGLY

1. If unions are done by weight (size), the depth of any element is never greater than
 - a. $\log_2 n$
 - b. $n \log_2 n$
 - c. $\log 3n$
 - d. $\log n * n$
2. Which of the following is NOT true regarding the skip list
 - a. Each list S_i contains the special keys $+\infty$ and $-\infty$
 - b. List S_0 contains the keys of S in non-decreasing order
 - c. List S_h contains only then n special keys
 - d. Each list is a subsequence of the previous one
3. Which of the following is NOT an open addressing technique to resolve collisions
 - a. Quadratic probing
 - b. Double hashing
 - c. Cubic probing
 - d. Linear probing
4. Which of the following possible operations are performed on Table ADT?
 - a. Insert, Remove
 - b. Find, Remove
 - c. Insert, Find
 - d. Insert, Find, Remove
5. Binary search can be categorized into which of the following?
 - a. Greedy algorithm
 - b. Dynamic programming
 - c. Divide and conquer
 - d. Brute force technique
6. Suppose there is an image of $7*7$ now we will have matrix of _____ rows and _____ column
 - a. 7.7
 - b. 49.49
 - c. 100.100
 - d. 8.8

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7. Which of the following is NOT true regarding the maze generation?
- Randomly remove walls until the entrance and exit cells are in the same set
 - Removing a wall is the same as doing a union operation
 - Do not remove a randomly chosen wall if the cell it separates are already in the same set
 - None of the given
8. Consider a hash table of size seven, with starting index zero, and a hash function $(3x + 4) \bmod 7$. Assuming the hash table is initially empty. Which of the following is the contents of the table when the sequence 1, 3, 8, 10 is inserted into the table using closed hashing? Note that '_' denotes an empty location in the table.
- 8, _, _, _, _, _, 10
 - 1, _, _, _, _, _, 3
 - 1, 10, 8, _, _, _, 3
 - 1, 8, 10, _, _, _, 3
9. Suppose a hash function returns 6 for the given value. At which index of array the value will be saved?
- 0
 - 5
 - 6
 - 7
10. If a hash function returns 4 for more than one value, this condition is called ____.
- Merge
 - Collision
 - Mapping
 - Clustering
11. During the union by size method, all the array element initialized to -1 shows;
- Tree is complete
 - Initial condition of tree
 - Every tree has two elements each.
 - None of the given
12. What is a skip list?
- A linked list with size value in nodes
 - A linked list that allows slower search within an ordered sequence
 - A linked list that allows faster search within an ordered sequence

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- d. A tree which is in the form of linked list
12. Which of the following is true regarding the maze generation?
- a. Randomly remove walls until the entrance and exit cells are in the same set
 - b. Removing a wall is the same as doing a union operation
 - c. Do not remove a randomly chosen wall if the cell it separates are already in the same set
 - d. All of the given
13. What is the best definition of a collision in a hash table?
- a. Two entries are identical except for their keys
 - b. Two entries with different data have the exact same key
 - c. Two entries with different keys have the same exact hash value.
 - d. Two entries with the exact same key have different hash values.
14. Suppose there is an image segmented into pixels. Each pixel has _____ neighbor(s).
- a. 0
 - b. 4
 - c. 8
 - d. 16
15. The array in binary search is sub divided _____.
- a. Once
 - b. Twice
 - c. N time
 - d. Until a sublist is no more divisible
16. What is the time complexity of binary search with iteration?
- a. $O(n \log n)$
 - b. $O(n^2)$
 - c. $O(n)$
 - d. $O(\log n)$ <https://www.geeksforgeeks.org/binary-search/>
17. Which of the following is NOT an implementation of Table ADT?
- a. Sorted Sequential Array
 - b. Stack
 - c. Linked List
 - d. Skip List
18. In 1990, Bill Pugh proposed an enhancement on linked lists and the new data structure was termed as
- a. Linked list
 - b. B-

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Tree c.

Skip list

d. Spelling checker

19. During union by size method, which data structure is used to improve the balancing of tree?

a. Array

b. Stack

c. Linked list

d. Tree

20. What is the depth of any tree if the union operation is performed by height?

a. $O(N)$

b. $O(N \log N)$

c. $O(\log N)$

d. $O(M \log N)$

21. Which of the following is NOT true regarding the maze generation?

a. Randomly remove walls until the entrance and exit cells are in the same set

b. Removing a wall is the same as doing a union operation

c. Remove a randomly chosen wall if the cell it separates are already in the same set

d. Do not remove a randomly chosen wall if the cells it separates are already in the same set

22. Which of the following statement is NOT correct regarding Table ADT

a. In the table, the type of information in columns may be different

b. A table consists of several columns known as entities

c. The row of table called a record

d. A major use of table is in databases where we build and use tables for keeping information

23. The union operation is based on size or weight but the reducing the in between links or path comparison from ___ to the ___ is done by find method

a. Root,

node b.

Nodes, root

c. Root, root

d. Node, node

24. Which is the hash function used in linear probing?

a. $h_i(x) = \text{hash}(x) \text{ mode table size}$

b. $h_i(x) = (\text{hash}(x) + f(i^2)) \text{ mode table}$

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size c. $hi(x) = (\text{hash}(x) + f(i)) \text{ mode table}$

size

d. $hi(x) = X \text{ mod } 17$

25. A table consists of several columns, known

as a. Fields

b. Entity

c. Tuple

d. record

26. A hash function returns a

_____ val

ue a. Integer

b. Double

c. Float

d. char

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