1) Which of the following is false about a binary search tree?  
a) The left child is always lesser than its parent  
b) The right child is always greater than its parent  
c) The left and right sub-trees should also be binary search trees  
**d) In order sequence gives decreasing order of elements**

2) What is the speciality about the inorder traversal of a binary search tree?

a) It traverses in a non increasing order

**b) It traverses in an increasing order**

c) It traverses in a random fashion

d) It traverses based on priority of the node

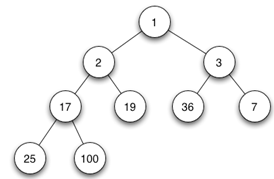
3) What are the worst case and average case complexities of a binary search tree?

a) O(n), O(n)

b) O(logn), O(logn)

c) O(logn), O(n)

**d) O(n), O(logn)**

4) If we implement heap as min-heap, deleting root node (value 1)from the heap. What would be the value of root node after second iteration if leaf node (value 100) is chosen to replace the root at start.  
 [](https://www.sanfoundry.com/wp-content/uploads/2017/08/data-structure-questions-answers-heap-q6.png)  
**a) 2**  
b) 100  
c) 17  
d) 3

5) What is the complexity of adding an element to the heap.

a) O(log n)

b) O(h)

**c) O(log n) & O(h)**

d) O(n)

6) The worst case complexity of deleting any arbitrary node value element from heap is \_\_\_\_\_\_\_\_\_\_

**a) O(logn)**

b) O(n)

c) O(nlogn)

d) O(n2)

7) Heap can be used as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**a) Priority queue**

b) Stack

c) A decreasing order array

d) Normal Array

8) In a max-heap, element with the greatest key is always in the which node?

a) Leaf node

b) First node of left sub tree

**c) root node**

d) First node of right sub tree

9) An array consists of n elements. We want to create a heap using the elements. The time complexity of building a heap will be in order of

a) O(n\*n\*logn)

**b) O(n\*logn)**

c) O(n\*n)

d) O(n \*logn \*logn)

10) What is a hash table?

a) A structure that maps values to keys

**b) A structure that maps keys to values**

c) A structure used for storage

d) A structure used to implement stack and queue

11) If several elements are competing for the same bucket in the hash table, what is it called?

a) Diffusion

b) Replication

**c) Collision**

d) Duplication

12) What is direct addressing?

**a) Distinct array position for every possible key**

b) Fewer array positions than keys

c) Fewer keys than array positions

d) Same array position for all keys

13) What is the search complexity in direct addressing?

a) O(n)

b) O(logn)

c) O(nlogn)

**d) O(1)**

14) What is a hash function?

a) A function has allocated memory to keys

**b) A function that computes the location of the key in the array**

c) A function that creates an array

d) A function that computes the location of the values in the array

15) Which of the following is not a technique to avoid a collision?

a) Make the hash function appear random

b) Use the chaining method

c) Use uniform hashing

**d) Increasing hash table size**

16) What is the load factor?

a) Average array size

b) Average key size

**c) Average chain length**

d) Average hash table length

18) What is simple uniform hashing?

**a) Every element has equal probability of hashing into any of the slots**

b) A weighted probabilistic method is used to hash elements into the slots

c) Elements has Random probability of hashing into array slots

d) Elements are hashed based on priority

19) In simple uniform hashing, what is the search complexity?

a) O(n)

b) O(logn)

c) O(nlogn)

**d) O(1)**

20) In simple chaining, what data structure is appropriate?

a) Singly linked list

**b) Doubly linked list**

c) Circular linked list

d) Binary trees