Seraching And Sorting Algorithms

1.
Linear search is used

A. When the list has only a few elements
B. When performing a single search in an unordered list
C. none of above
D. both A and B

Answer: D

2.
The Best case complexity of linear search algorithm is

A. O(1)
B. O(log 1)
C. O(n^2)
D. O(n log 1)

Answer: A

3.
The Worst case occur in linear search algorithm when

A. Item is somewhere in the middle of the array
B. Item is the last element in the array or is not there at all
C. Item is the last element in the array
D. Item is the first element in the array

Answer: B

4.
Binary search algorithm uses

A. Linear way to search values
B. Divide and conquer method
C. Bubble sorting techSnique
D. None of them

Answer: B

5.
Given an array arr = {5,6,77,88,99} and key = 88;
How many iterations are done until the element is found using Binary search?

A. 1
B. 3
C. 4
D. 2

Answer: D

6.
What is the advantage of selection sort over other sorting techniques?

A. It requires no additional storage space
B. It is scalable
C. It works best for inputs which are already sorted

D. It is faster than any other sorting technique

Answer: A

7.
How many comparisons are needed to sort an array of length 5 if a straight selection sort is used and array is already in the opposite order?

A. 1
B. 5
C. 10
D. 20
Answer: C

8.
In a heap with n elements with the smallest element at the root, the seventh smallest element can be found in time

A. θ(nlogn)
B. θ(n)
C. θ(logn)
D. θ(1)

Answer: A

9.
What is the max. number of comparisons that can take place when a bubble sort is implemented? Assume there are n elements in the array?

A. (1/2)(n-1)
B. (1/2)n(n-1)
C. (1/4)n(n-1)
D. none of above

Answer: B

10.
Which design algorithm is used for quick sort

A. Divide and conqueror
B. greedy
C. backtrack
D. noneof above

Answer: A

11.
Consider an array of elements arr[5]= {5,4,3,2,1} , what are the steps of insertions done while doing insertion sort in the array.

A. 4 5 3 2 1 , 3 4 5 2 1 , 2 3 4 5 1 , 1 2 3 4 5
B. 5 4 3 1 2 , 5 4 1 2 3 , 5 1 2 3 4 , 1 2 3 4 5
C. 4 3 2 1 5 , 3 2 1 5 4 , 2 1 5 4 3 , 1 5 4 3 2
D. 4 5 3 2 1 , 2 3 4 5 1 , 3 4 5 2 1 , 1 2 3 4 5

Answer: A

12.
Which of the following statements explains insertion sort?

A. The list is broken apart into smaller lists that are sorted and merged back together.
B. The list is iterated through multiple times until it finds the desired first number, then repeats the process for all numbers.
C. It removes one element from the list, finds where it should be located, and inserts it in that position until no more elements remain.
D. All numbers less than the average are inserted on the left, and the rest is inserted at the right. The process is then repeated for the left and right side until all numbers are sorted.

Answer: C

13.
Which of the following is true about merge sort?

A. Merge Sort works better than quick sort if data is accessed from slow sequential memory.
B. Merge Sort is stable sort by nature
C. Merge sort outperforms heap sort in most of the practical situations.
D. All of the above.

Answer: D

14.
Given the following list of numbers [21, 1, 26, 45, 29, 28, 2, 9, 16, 49, 39, 27, 43, 34, 46, 40] which answer illustrates the list to be sorted after 3 recursive calls to mergesort?

A. [16, 49, 39, 27, 43, 34, 46, 40]
B. [21,1]
C. [21, 1, 26, 45]
D. [21]

Answer: B

15.
In quick sort which of the below is true?

A. We should compulsary choose first element as pivot.
B. We should compulsary choose last element as pivot.
C. We should compulsary choose random element as pivot.
D. None of above

Answer: D