Complexity Analysis MCQ

Q-1 Time Complexity Of Kruskals Algorithm(Here E is the number of edges and V are the number of vertices) are (more than one correct)
a) O(ElogV)
b) O(Elog√E)
c) O((V^2)log(E^2) + Elog(V^2)) d)
O(ElogE + Elog(V^2))

Q-2 In which of the following time complexities you can find the minimum element in a stack after each pop() operation (Don't Consider Space Complexity)
(Here n is the size of stack)
A) O(n)
B) O(√n)
C) O(1)
D) O(logn)

Q-3 What is the time complexity of a non dynamic programming and recursive implementation of fibonacci number
A) 2^n
B) n
C) Logn
D) None of above

Q-4 In what best time complexity we can find the nth fibonacci number?
A) 2^n
B) N

C) Logn
D) None

Q-5 What is the space complexity of mergesort of array?
A) O(nlogn)
B) O(logn)
C) O(n)
D) O(2^n)

Q-6 You have to implement a new kind of array which is similar to traditional array i.e. you can access elements by specifying their index, traverse it and all the other features of array. The extra feature that you have to add is that this new array must increase its size and never gives overflow error. You have to implement this array using the traditional inbuilt array and you cannot preassume a very big size array as to conserve the space. In what best complexity you can perform the insert operation.

A) O(1)
B) O(logn)
C) O(n)
D) O(n^2)

Q-7 The usual selection sort has a running time of O(n^2). It uses linear search to identify the position where an element is to be inserted. What will be the average time complexity of we use binary search in place of it?

A) n
B) nlogn
C)n
D) n^2

Q-8 You have to find square root of a number(Only the integral part). In what best time complexity we can achieve this?

A) n
B) √n
C) logn
D)1

Q-9 In what best time complexity one can find 2 to the power n?
A) n
B) 1
C) logn
D) √n

Q-10 Which of the following asymptotic notation is the worst among all?
A) 2^O(n)
B) O(n+2378)
C) n^O(1)
D) O(n^3)
Q-11 When would you use a bubble sort as opposed to an insertion sort?
A) Only if the amount of data was very small, so that speed was less important than the simplicity of the algorithm.(correct)
B) Bubble sort always beat insertion sort
C) Both have same time complexity
D) All of above
Q-12 How many elements do we eliminate each time for the Analysis of Selection Algorithm?
A) (n / 2)+n Elements
B) n / 2 Elements
C) n / 4 Elements
D) 2n Elements

Q-13 Suppose T(n) = 2T(n/2) + n, T[0]=T[1]=1. Which of the following is true

A) $T(n)=O(n^2)$
B) $T(n)=ø(n\log n)$
C) $T(n)=\Omega(n^2)$
D) $T(n)=O(n\log n)$