Cs502 Quiz No1 Complete Solved File

Pseudo code of algorithms are to be read by _____.

Select correct option

People

RAM

Computer

Compiler

Approach of solving geometric problems by sweeping a line across the plane is called _____sweep.

Select correct option

Line

Plane

Cube

Box

For average-case time analysis of Quick sort algorithm, Pivot selection is on average basis from _____

Select correct option

half of the input values

all possible random values

Pivot is input separately

Maham Shah Zell

values greater than 5

Insertion sort is an in-place sorting algorithm.

Select correct option

True

False

Heap sort is a/an and _ sorting algorithm.

Select correct option

Not in-place, not stable one

In-place, stable one

In-place, not stable one

Not in-place, stable one

Merge sort is based on_____.

Select correct option

Brute-force

Plan-sweep

Axis-sweep

Divide and Conquer

Maham Shah Zell

While solving Selection problem, in Sieve technique we partition input data _____

Select correct option

In increasing order

In decreasing order

According to Pivot

Randomly

Quick sort is a not a partitioning-based algorithm.

Select correct option

True

False

In Heap Sort algorithm, the first step is to _____

Select correct option

Call Build-Heap procedure

Sort the array in descending order

Call Heapify procedure

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Find the number of input elements

In Heap Sort algorithm (using max heap), when every time maximum element is removed from top _____

Select correct option

We call merge Sort algorithm

It becomes Order n2 Algorithm

Divide and Conquer strategy helps us

We are left with a hole

The running time of Quick sort algorithm _____

Select correct option

Is impossible to compute

Has nothing to do with pivot selection

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Is Random upon each execution

Greatly influenced by the selection of pivot

In asymptotical analysis of n*(5 + 2) – 3 , as n becomes large, the dominant (fastest growing) term is some constant times _____

Select correct option

n_1

n

n+1

n*n

The total running time for Selection algorithm is _____

Select correct option

Quadratic

Maham Shah Zeh

Linear

Geometric

Exponential

Quick sort is a not a partitioning-based algorithm.

Select correct option

True

False

The main purpose of mathematical analysis is measuring the _____required by the algorithm.

Select correct option

Space

Execution time

Maham Shahzell

Inputs & outputs

Execution time and memory

Result of asymptotical analysis of n(n - 3) and 4n*n is that _____.

Select correct option

n(n-1) is asymptotically Less

n(n-1) is asymptotically Greater

Both are asymptotically Not equivalent

Both are asymptotically Equivalent

Upper bound requires that there exist positive constants c2 and n0 such that

f(n) ____ c2n for all n <= n0

Select correct option

Waham Shah Zeli

Less than

Equal to or Less than

Equal or Greater than

Greater than

Merge sort have running time.....running time of Heap sort.

Select correct option

Greater than

Less than

Equal to

Different than

Maham Shah Zell

Algorithms having O (order) _____ running time are considered to be slow ones.

Select correct option

n

n2

n3

log (n)

Boolean operation is a _____ operation on an idealized RAM model of computation.

Select correct option

Starting

Basic

Advance

Maham Shah Zell

Normal

The main purpose of mathematical analysis is measuring the _____required by the algorithm.

Select correct option

Space

Execution time

Inputs & outputs

Execution time and memory

In average-case time analysis of Quick sort algorithm, the most balanced case for partition is when we divide the list of elements into _____

Select correct option

Equal no. of pieces as of input elements

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Single piece exactly

Two nearly equal pieces

Three nearly equal pieces

Algorithm is a sequence of computational steps that .....the input into output.

Select correct option

Merge

Assign

Transform

Integrate

The Iteration method is used for _____

Select correct option

Comparing sorting algorithms only

Maham Shah Zeil

Solving Recurrence relations

Merging elements in Merge sort

Dividing elements in Merge sort

In plane sweep approach of solving geometric problems, a _____is swept across the plane.

Select correct option

Line

Plane

Cube

Box

Counting sort is suitable to sort the elements in range 1 to k:

Select correct option

K is large

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K is small

K may be large or small

None

In _____ we have to find rank of an element from given input.

Select correct option

Merge sort algorithm

Selection problem

Brute force technique

Plane Sweep algorithm

Rank of an element can be defined as _____

Select correct option

Maham Shah Zeil

One minus the number of elements that are smaller

Two plus the number of elements that are greater

One plus the number of elements that are smaller

Two minus the number of elements that are smaller

The total no of arguments passed to merge sort algorithm is _____

Select correct option

2

3

4

5

Maham Shah Zell

In Heap Sort algorithm, the total running time for Heapify procedure is _____

Select correct option

Theta (log n)

Order (log n)

Omega (log n)

O (1) i.e. Constant time

A sorting algorithm is called as _____ if duplicate elements remain in the same relative position after sorting.

Select correct option

Parallel

O(n) algorithm

Stable

Maham Shah Zell

Complex

Al-Khwarizmi was a/an.....

Select correct option

Artist

Mathematician

Astronomer

Khalifah

_____ is one of the few problems, where provable lower bounds exist on how fast we can sort.

Select correct option

Searching

Sorting

Maham Shah Zell

Both Searching & Sorting

Graphing

The worst case running time of Quick sort algorithm _____

Select correct option

Cannot be quadratic

Is quadratic

Is always Exponential

Is linear

In Heap Sort algorithm, Heapify procedure is _____ in nature.

Select correct option

Recursive

Maham Shah Zell

Non-Recursive

While solving Selection problem, in Sieve technique we choose pivot _____

Select correct option

Minimum element

Maximum element

Randomly

Average element

Which one is not passed as parameter in Quick sort algorithm?

Select correct option

End of the array

Middle of the array

Maham Shah Zell

Array (containing input elements)

Start of the array

In plane sweep approach, a vertical line is swept across the 2d-plane from_____.

Select correct option

Right to Left

Left to Right

Top to Bottom

Bottom to Top

If input “n” is odd, the median will be _____

Select correct option

(n+1)/2

Maham Shah Zeli

n/2

.....of reference is an important fact of current processor technology.

Select correct option

Defining

Assigning

Formality

Locality

While Sorting, the ordered domain means for any two input elements x and y _____ satisfies only.

Select correct option

x < y

x > y

Maham Shah Zell

x = y

All of the above

Counting sort is suitable for sorting the elements within range 1 to P, where _____

Select correct option

P is large

P is small

P is very large

P is undetermined

The sieve technique works where we have to find _____ item(s) from a large input.

Select correct option

Maham Shah Zeil

Single

Two

Three

Similar

While analyzing Selection algorithm, we make a number of passes, in fact it could be as many as _____

Select correct option

n(n+1)

log(n)

n/3

n/4

The sequence of merge sort algorithm is:

Select correct option

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Divide-Combine-Conquer

Conquer-Divide-Combine

Divide-Conquer-Combine

Combine-Divide-Conquer

Quick sort is _____ based on Divide and Conquer strategy.

Select correct option

not

always

sometimes

occasionally

In Heap Sort algorithm, we call Build-heap procedure _____

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Select correct option

Only once

Twice

Thrice

As many times as we need

Counting sort is suitable for sorting the elements within range 1 to P, where _____

Select correct option

P is large

P is small

P is very large

P is undetermined

Maham Shah Zell

f(n) and g(n) are asymptotically equivalent. This means that they have essentially the same _____ for large n.

Select correct option

Results

Variables

Size

Growth rates

Floor and ceiling are _____ to calculate while analyzing algorithms.

Select correct option

Very easy

Usually considered difficult

Maham Shah Zell

Sorting is one of the _____ problems in Computer Sciences.

Select correct option

Easiest

Solution-less

Least popular

Most popular

The worst case running time of Quick sort algorithm _____

Select correct option

Cannot be quadratic

Is quadratic

Is always Exponential

Maham Shah Zell

Is linear

The definition of Theta-notation relies on proving _____asymptotic bound.

Select correct option

One

Lower

Upper

Both lower & upper

For comparison-based sorting algorithms, it is _____ possible to sort more efficiently than Omega nlog(n) time.

Select correct option

Always

Not

Maham Shah Zell

Sometimes

Sometimes not

The running time of Quick sort algorithm _____

Select correct option

Is impossible to compute

Has nothing to do with pivot selection

Is Random upon each execution

Greatly influenced by the selection of pivot

Efficient algorithm requires less computational .....

Select correct option

Memory

Running Time

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Memory and Running Time

Energy

We can improve the performance of Quick sort if we can be able to _____

Select correct option

Skip input elements somehow

Select two or more pivots

Skip any sub-array completely

Eliminate recursive calls

Floor and ceiling are _____ to calculate while analyzing algorithms.

Select correct option

Very easy

Usually considered difficult

Maham Shah Zell

We do not need to mathematically prove that for comparison-based sorting algorithms always takes Omega nlog(n) time.

Select correct option

True

False

In _____ we have to find rank of an element from given input.

Select correct option

Merge sort algorithm

Selection problem

Brute force technique

Plane Sweep algorithm

Maham Shah Zell

In Quick sort algorithm, we choose pivot _____

Select correct option

Always smallest element

Greater than 5

Randomly

Less than 5

The brute-force algorithm for 2D-Maxima runs in order O(___) time.

Select correct option

n

n(log n)

n*n

n3

Maham Shah Zell

In Heap Sort algorithm, we build _____ for ascending sort.

Select correct option

Max heap

Min heap

_____ provides us more accurate result when input values are not closer with each other.

Select correct option

Average

Median

In addition to passing in the array itself to Merge Sort algorithm, we will pass in _____other arguments which are indices.

Select correct option

Two

Three

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Four

Five

In Heap Sort algorithm, the first step is to _____

Select correct option

Call Build-Heap procedure

Sort the array in descending order

Call Heapify procedure

Find the number of input elements

Algorithms having O (order) _____ running time are considered to be slow ones.

Select correct option

n

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n2

n3

log (n)

In the statement “output P[i].x, P[i].y”, the number of times elements of P are accessed is _____

Select correct option

1

2

3

4

Merge sort is based on_____.

Select correct option

Maham Shah Zeil

Brute-force

Plan-sweep

Axis-sweep

Divide and Conquer

The total no of arguments passed to merge sort algorithm is _____

Select correct option

2

3

4

5

In selection problem, the rank of an element will be its _____ position if we sort the input data.

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Select correct option

first

final

Second last

Last

The sieve technique is a special case, where the number of sub-problems is just _____

Select correct option

1

2

3

4

Maham Shah Zell

The O-notation is used to state only the asymptotic _____bounds.

Select correct option

Two

Lower

Upper

Both lower & upper

In Selection problem, the Sieve technique works in _____

Select correct option

Non-recursive manner

Constant time

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Phases

One complete go

We can improve the performance of Quick sort if we can be able to _____

Select correct option

Skip input elements somehow

Select two or more pivots

Skip any sub-array completely

Eliminate recursive calls

Number of _____of the pseudo code are counted to measure the running time.

Select correct option

Inputs

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Outputs

Steps

Pages

Quick sort algorithm was developed by _____

Select correct option

Alfred Aho

Sedgewick

John Vincent Atanasoff

Tony Hoare

In asymptotical analysis of n*(5 + 2) – 3 , as n becomes large, the dominant (fastest growing) term is some constant times _____

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Select correct option

n_1

n

n+1

n*n

Recurrence can be described in terms of a tree.

Select correct option

Yes

No

We can improve the performance of Quick sort if we can be able to _____

Select correct option

Skip input elements somehow

Select two or more pivots

Skip any sub-array completely

Maham Shah Zell

Eliminate recursive calls

Result of asymptotical analysis of n(n - 3) and 4n*n is that _____.

Select correct option

n(n-1) is asymptotically Less

n(n-1) is asymptotically Greater

Both are asymptotically Not equivalent

Both are asymptotically Equivalent

Median is not useful measure of central tendency of given input set especially when the distribution of values is highly skewed.

Select correct option

True

False

In max heap (for Heap Sort algorithm), when every time maximum element is removed from top we replace it with _____ leaf in the tree.

Select correct option

Second last

Last

First

Any

Maham Shah Zell

In Heap Sort algorithm, every time the maximum element is removed _____

Select correct option

We call Build-Heap procedure

Heap Sort algorithm terminates without result

We call heapify procedure

Nothing happens

In Selection problem, the Sieve technique _____

Select correct option

Adds some more input items each time

Do not work recursively

Do not uses Divide and Conquer approach

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Eliminates undesired data items each time

Bubble sort is not an in-place sorting algorithm.

Select correct option

True

False

In merge sort algorithm, we split the array around the _____ index q.

Select correct option

Entring

Mid

Exiting

Summing

Selection algorithm takes theta _____

Select correct option

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(n2)

(n)

log(n)

nlog(n)

In Sieve Technique, we know the item of interest.

Select correct option

True

False

Selection sort is not an in-place sorting algorithm.

Select correct option

True

False

Upper bound requires that there exist positive constants c2 and n0 such that

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f(n) _____ c2n for all n <= n0

Select correct option

Less than

Equal to or Less than

Equal or Greater than

Greater than

If pj dominates pi and pi dominates ph then pj also dominates ph. It means dominance relation is _____

Select correct option

Transitive

Non Transitive

Equation

Maham Shah Zell

Symbolic

For average-case time analysis of Quick sort algorithm, Pivot selection is on average basis from _____

Select correct option

half of the input values

all possible random values

Pivot is input separately

values greater than 5

In Quick sort algorithm, _____ decides nature of Binary Search Tree formed by Pivots.

Select correct option

No one

Smallest element from input

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Rank of the pivot

Largest element from input

The sieve technique works where we have to find _____ item(s) from a large input.

Select correct option

Single

Two

Three

Similar

For average-case time analysis of Quick sort algorithm, Pivot selection is on average basis from _____

Select correct option

half of the input values

all possible random values

Maham Shah Zell

Pivot is input separately

values greater than 5

To find maximal points in brute-force algorithm, each point of the space is compared against _____of that space.

Select correct option

One other point

All other points

Few other points

Most of the other points

Sorting can be in _____

Select correct option

Increasing order only

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Decreasing order only

Both Increasing and Decreasing order

Random order

The worst case running time of Quick sort algorithm

_____

Select correct option

Cannot be quadratic

Is quadratic

Is always Exponential

Is linear

Quick sort is a recursive algorithm.

Select correct option

Maham Shahzell

True

False

The time assumed for each basic operation to execute on RAM model of computation is_____

Select correct option

Infinite

Continuous

Constant

Variable

In Heap Sort algorithm (using max heap), when every time maximum element is removed from top _____

Select correct option

We call merge Sort algorithm

Maham Shah Zeli

It becomes Order n2 Algorithm

Divide and Conquer strategy helps us

We are left with a hole

In Quick sort algorithm, Pivots form _____

Select correct option

Stack

Queue

Binary Search Tree

Graph

If pj dominates pi and pi dominates ph then pj also dominates ph.
It means dominance relation is _____

Select correct option

Transitive

Maham Shah Zell

Non Transitive

Equation

Symbolic

The running time of Quick sort algorithm _____

Select correct option

Is impossible to compute

Has nothing to do with pivot selection

Is Random upon each execution

Greatly influenced by the selection of pivot

For solving Selection problem, we introduced Sieve technique due to _____

Select correct option

Using Decrease and Conquer strategy

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Avoiding to sort all input data

Eliminating Rank of an element

Using Brute-force approach

In Quick sort algorithm, _____ decides nature of Binary Search Tree formed by Pivots.

Select correct option

No one

Smallest element from input

Rank of the pivot

Largest element from input

Maham Shahzell

Maham Shahzell