

 <p>Proude To Be Virtualian MOAAZ SIDDIQ</p>	<p align="center">CS502- Fundamentals of Algorithms Solved MCQS From Midterm Papers</p>	<p align="center">May- 24 - 2013</p>
<p>MC100401285</p>	<p><i>Moaaz.pk@gmail.com Mc100401285@vu.edu.pk</i></p>	<p>PSMD01</p>
<p align="center">MIDTERM EXAMINATION Fall 2011 CS502- Fundamentals of Algorithms</p> <p>Question No: 1 (Marks: 1) - Please choose one Due to left complete nature of binary tree, the heap can be stored in</p> <ul style="list-style-type: none"> ▶ Arrays (Page 40) ▶ Structures ▶ Link Lis ▶ Stack <p>Question No: 1 (Marks: 1) - Please choose one What type of instructions Random Access Machine (RAM) can execute?</p> <ul style="list-style-type: none"> ▶ Algebraic and logic ▶ Geometric and arithmetic ▶ Arithmetic and logic (Page 10) ▶ Parallel and recursive <p>Question No: 1 (Marks: 1) - Please choose one For Chain Matrix Multiplication we can not use divide and conquer approach because,</p> <ul style="list-style-type: none"> ▶ We do not know the optimum k (Page 86) ▶ We use divide and conquer for sorting only ▶ We can easily perform it in linear time ▶ Size of data is not given <p>Question No: 1 (Marks: 1) - Please choose one What is the total time to heapify?</p> <ul style="list-style-type: none"> ▶ $O(\log n)$ (Page 43) ▶ $O(n \log n)$ ▶ $O(n^2 \log n)$ ▶ $O(\log^2 n)$ 		

Question No: 1 (Marks: 1) - Please choose one
word Algorithm comes from the name of the muslim author _____

▶ [Abu Ja'far Mohammad ibn Musa al-Khowarizmi.](#)

Question No: 1 (Marks: 1) - Please choose one
al-Khwarizmi's work was written in a book titled _____

▶ [al Kitab al-mukhtasar fi hisab al-jabr wa'l-muqabalah](#)

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Spring 2010
CS502- Fundamentals of Algorithms

Question No: 1 (Marks: 1) - Please choose one
Random access machine or RAM is a/an

- ▶ Machine build by Al-Khwarizmi
- ▶ Mechanical machine
- ▶ Electronics machine
- ▶ **Mathematical model (Page 10)**

Question No: 2 (Marks: 1) - Please choose one
_____ is a graphical representation of an algorithm

- ▶ Σ notation
- ▶ Θ notation
- ▶ **Flowchart** [Click here for detail](#)
- ▶ Asymptotic notation

Question No: 3 (Marks: 1) - Please choose one
A RAM is an idealized machine with _____ random-access memory.

- ▶ 256MB
- ▶ 512MB
- ▶ **an infinitely large (Page 10)**
- ▶ 100GB

Question No: 4 (Marks: 1) - Please choose one

What type of instructions Random Access Machine (RAM) can execute? Choose best answer

- ▶ Algebraic and logic
- ▶ Geometric and arithmetic
- ▶ **Arithmetic and logic (Rep)**
- ▶ Parallel and recursive

Question No: 5 (Marks: 1) - Please choose one

What will be the total number of max comparisons if we run brute-force maxima algorithm with n elements?

- ▶ n^2
- ▶ $\frac{n}{2}$
- ▶ n **(Page 14)**
- ▶ n^8

Question No: 6 (Marks: 1) - Please choose one

What is the solution to the recurrence $T(n) = T(n/2) + n$.

- ▶ $O(\log n)$
- ▶ **$O(n)$ (Page 37)**
- ▶ $O(n \log n)$
- ▶ $O(n^2)$

Question No: 7 (Marks: 1) - Please choose one

Consider the following code:

```
For(j=1; j<n; j++)
    For(k=1; k<15; k++)
        For(l=5; l<n; l++)
            {
                Do_something_constant();
            }
```

What is the order of execution for this code.

- ▶ **$O(n)$**
- ▶ $O(n^3)$
- ▶ $O(n^2 \log n)$
- ▶ $O(n^2)$

Question No: 8 (Marks: 1) - Please choose one

What is the total time to heapify?

- ▶ **$O(\log n)$ rep**
- ▶ $O(n \log n)$
- ▶ $O(n^2 \log n)$
- ▶ $O(\log^2 n)$

Question No: 9 (Marks: 1) - Please choose one

Consider the following Algorithm:

```
Factorial (n){  
  if (n=1)  
    return 1  
  else  
    return (n * Factorial(n-1))  
}
```

Recurrence for the following algorithm is:

- ▶ $T(n) = T(n-1) + 1$
- ▶ $T(n) = nT(n-1) + 1$
- ▶ $T(n) = T(n-1) + n$
- ▶ $T(n) = T(n(n-1)) + 1$

Question No: 10 (Marks: 1) - Please choose one

When we call heapify then at each level the comparison performed takes time

- ▶ It will take $\Theta(1)$ (Page 43)
- ▶ Time will vary according to the nature of input data
- ▶ It can not be predicted
- ▶ It will take $\Theta(\log n)$

Question No: 11 (Marks: 1) - Please choose one

In Quick sort, we don't have the control over the sizes of recursive calls

- ▶ True (Page 40)
- ▶ False
- ▶ Less information to decide
- ▶ Either true or false

Question No: 12 (Marks: 1) - Please choose one

Is it possible to sort without making comparisons?

- ▶ Yes (Page 57)
- ▶ No

Question No: 13 (Marks: 1) - Please choose one

If there are $\Theta(n^2)$ entries in edit distance matrix then the total running time is

- ▶ $\Theta(1)$
- ▶ $\Theta(n^2)$ [Click here for detail](#)
- ▶ $\Theta(n)$
- ▶ $\Theta(n \log n)$

Question No: 14 (Marks: 1) - Please choose one

For Chain Matrix Multiplication we can not use divide and conquer approach because,

- ▶ **We do not know the optimum k (Page 86)**
- ▶ We use divide and conquer for sorting only
- ▶ We can easily perform it in linear time
- ▶ Size of data is not given

Question No: 15 (Marks: 1) - Please choose one

The Knapsack problem belongs to the domain of _____ problems.

- ▶ **Optimization (Page 91)**
- ▶ NP Complete
- ▶ Linear Solution
- ▶ Sorting

Question No: 16 (Marks: 1) - Please choose one

Suppose we have three items as shown in the following table, and suppose the capacity of the knapsack is 50 i.e. $W = 50$.

Item	Value	Weight
1	60	10
2	100	20
3	120	30

The optimal solution is to pick

- ▶ Items 1 and 2
- ▶ Items 1 and 3
- ▶ **Items 2 and 3 (correct)**
- ▶ None of these

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Spring 2010
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Question No: 1 (Marks: 1) - Please choose one

For the Sieve Technique we take time

- ▶ **T(nk) (Page 34)**
- ▶ $T(n / 3)$
- ▶ n^2
- ▶ $n/3$

Question No: 1 (Marks: 1) - Please choose one

Sieve Technique applies to problems where we are interested in finding a single item from a larger set of _____

Select correct option:

- ▶ **n items (Page 34)**
- ▶ phases
- ▶ pointers
- ▶ constant

Question No: 1 (Marks: 1) - Please choose one

_____ graphical representation of algorithm.

- ▶ asymptotic
- ▶ **Flowchart (rep)**

Question No: 1 (Marks: 1) - Please choose one

who invented the quick sort

- ▶ **C.A.R. Hoare** [Click here for detail](#)

Question No: 1 (Marks: 1) - Please choose one

main elements to a divide-and-conquer

- ▶ **Divide, conquer, combine (Page 27)**

Question No: 1 (Marks: 1) - Please choose one

Mergesort is a stable algorithm but not an in-place algorithm.

- ▶ **True (Page 54)**
- ▶ false

Question No: 1 (Marks: 1) - Please choose one

Counting sort the numbers to be sorted are in the range 1 to k where k is small.

► **True (Page 57)**

► False

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Question No: 1 (Marks: 1) - Please choose one

Total time for heapify is:

► $O(\log^2 n)$

► $O(n \log n)$

► $O(n^2 \log n)$

► **$O(\log n)$ Rep**

Question No: 1 (Marks: 1) - Please choose one

If an algorithm has a complexity of $\log_2 n + n \log_2 n + n$, we could say that it has complexity

► $O(n)$

► $O(n \log_2 n)$

► $O(3)$

► $O(\log_2 (\log_2 n))$

► $O(\log_2 n)$

Question No: 1 (Marks: 1) - Please choose one

In RAM model instructions are executed

► **One after another (Page 10)**

► Parallel

► Concurrent

► Random

Question No: 1 (Marks: 1) - Please choose one

In selection algorithm, because we eliminate a constant fraction of the array with each phase, we get the

▶ **Convergent geometric series (Page 37)**

▶ Divergent geometric series

▶ None of these

Question No: 1 (Marks: 1) - Please choose one

Due to left-complete nature of binary tree, heaps can be stored in

▶ Link list

▶ Structure

▶ **Array (Page 40)**

▶ None of above

CS609- System Programming Midterm Quizzes (Quiz No.1 & 2)

Quiz No.1 (04 – MAY - 2013)

Question No: 1 (Marks: 1) - Please choose one

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

Infinite

Continuous

Constant (Page 10)

Variable

Question No: 1 (Marks: 1) - Please choose one

If the indices passed to merge sort algorithm are not equal, the algorithm may return immediately.

True

False (Page 28)

Question No: 1 (Marks: 1) - Please choose one

Brute-force algorithm uses no intelligence in pruning out decisions.

True (Page 18)

False

Question No: 1 (Marks: 1) - Please choose one

In analysis, the Upper Bound means the function grows asymptotically no faster than its largest term.

True (Page 24)

False

Question No: 1 (Marks: 1) - Please choose one

For small values of n, any algorithm is fast enough. Running time does become an issue when n gets large.

True (Page 14)

Fast

Question No: 1 (Marks: 1) - Please choose one

The array to be sorted is not passed as argument to the merge sort algorithm.

True

False

Question No: 1 (Marks: 1) - Please choose one

In simple brute-force algorithm, we give no thought to efficiency.

True (Page 11)

False

Question No: 1 (Marks: 1) - Please choose one

The ancient Roman politicians understood an important principle of good algorithm design that is plan-sweep algorithm.

True

False (Page 27) [Divide and Conquer]

Question No: 1 (Marks: 1) - Please choose one

In 2d-space a point is said to be _____ if it is not dominated by any other point in that space.

Member

Minimal

Maximal (Page 11)

Joint

Question No: 1 (Marks: 1) - Please choose one

An algorithm is a mathematical entity that is dependent on a specific programming language.

True

False (Page 7)

Question No: 1 (Marks: 1) - Please choose one

The running time of an algorithm would not depend upon the optimization by the compiler but that of an implementation of the algorithm would depend on it.

True (Page 13)

False

Question No: 1 (Marks: 1) - Please choose one

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

Results

Variables

Size

Growth rates (Page 23)

Question No: 1 (Marks: 1) - Please choose one

$8n^2 + 2n - 3$ will eventually exceed $c^2 \cdot n$ no matter how large we make c .

True (Page 25)

False

Question No: 1 (Marks: 1) - Please choose one

If we associate (x, y) integers pair to cars where x is the speed of the car and y is the negation of the price. High y value for a car means a _____ car.

Fast

Slow

Expensive

Cheap (Page 11)

Question No: 1 (Marks: 1) - Please choose one

The function $f(n) = n(\log n + 1)/2$ is asymptotically equivalent to $n \log n$. Here Upper Bound means the function $f(n)$ grows asymptotically _____ faster than $n \log n$.

More

Quiet

Not (Page 24)

At least

Question No: 1 (Marks: 1) - Please choose one

After sorting in merge sort algorithm, merging process is invoked.

Select correct option:

True (Page 28)

False

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Question No: 1 (Marks: 1) - Please choose one

Asymptotic growth rate of the function is taken over _____ case running time.

Select correct option:

Best

Average

Worst (Page 14)

Normal

Question No: 1 (Marks: 1) - Please choose one

In analysis of $f(n) = n(n/5) + n - 10 \log n$, $f(n)$ is asymptotically equivalent to _____.

n

$2n$

$n+1$

n^2 (Page 23)

Question No: 1 (Marks: 1) - Please choose one

Algorithm is concerned with.....issues.

Macro

Micro

Both Macro & Micro (Page 8)

Normal

Question No: 1 (Marks: 1) - Please choose one

We cannot make any significant improvement in the running time which is better than that of brute-force algorithm.

True

False (Page 18)

Question No: 1 (Marks: 1) - Please choose one

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

Two (Page 28)

Three

Four

Five

Question No: 1 (Marks: 1) - Please choose one

Consider the following Algorithm: $\text{Fun}(n) \{ \text{if } (n=1) \text{ return } 1 \text{ else return } (n * \text{Fun}(n-1)) \}$ Recurrence for the above algorithm is:

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$nT(n-1)+1$
 $2T(n-1)+1$
 $T(n-1)+cn$
 $T(n-1)+1$

Question No: 1 (Marks: 1) - Please choose one

In analysis, the Lower Bound means the function grows asymptotically at least as fast as its largest term.

True (Page 24)

False

Question No: 1 (Marks: 1) - Please choose one

Efficient algorithm requires less computational.....

Memory

Running Time

Memory and Running Time (Page 9)

Energy

Question No: 1 (Marks: 1) - Please choose one

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

Two

Lower

Upper (Page 25)

Both lower & upper

Question No: 1 (Marks: 1) - Please choose one

For the worst-case running time analysis, the nested loop structure containing one “for” and one “while” loop, might be expressed as a pair of _____ nested summations.

1

2 (Page 16)

3

4

Question No: 1 (Marks: 1) - Please choose one

Before sweeping a vertical line in plane sweep approach, in start sorting of the points is done in increasing order of their _____ coordinates.

X (Page 18)

Y

Z

X & Y

Question No: 1 (Marks: 1) - Please choose one

Brute-force algorithm for 2D-Maxima is operated by comparing _____ pairs of points.

- Two
- Some
- Most

All (Page 18)

Question No: 1 (Marks: 1) - Please choose one

The function $f(n)=n(\log n+1)/2$ is asymptotically equivalent to $n \log n$. Here Lower Bound means function $f(n)$ grows asymptotically at _____ as fast as $n \log n$.

- Normal
- Least (Page 23)
- Most
- All

Question No: 1 (Marks: 1) - Please choose one

The definition of Theta-notation relies on proving _____ asymptotic bound.

- One
- Lower
- Upper

Both lower & upper (Page 25) rep

Question No: 1 (Marks: 1) - Please choose one

In plane sweep approach, a vertical line is swept across the 2d-plane and _____ structure is used for holding the maximal points lying to the left of the sweep line.

- Array
- Queue

Stack (Page 18)

- Tree

Question No: 1 (Marks: 1) - Please choose one

Algorithm analysts know for sure about efficient solutions for NP-complete problems.

Select correct option:

- True

False (Page 9)

Quiz No.1 (2012)

Question No: 1 of 10 (Marks: 1) - Please choose one

The number of nodes in a complete binary tree of height h is

$2^{(h+1)} - 1$ (Page 40)

$2 * (h+1) - 1$

$2 * (h+1)$

$((h+1) ^ 2) - 1$

Question No: 1 of 10 (Marks: 1) - Please choose one

The analysis of Selection algorithm shows the total running time is indeed _____ in n,

arithmetic

geometric

linear (Page 37)

orthogonal

Question No: 1 of 10 (Marks: 1) - Please choose one

A (an) _____ is a left-complete binary tree that conforms to the heap order

heap (Page 40)

binary tree

binary search tree

array

Question No: 1 of 10 (Marks: 1) - Please choose one

Analysis of Selection algorithm ends up with,

$T(n)$ (Page 37)

$T(1 / 1 + n)$

$T(n / 2)$

$T((n / 2) + n)$

Question No: 1 of 10 (Marks: 1) - Please choose one

For the sieve technique we solve the problem,

recursively (Page 34)

mathematically

precisely

accurately

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Question No: 1 of 10 (Marks: 1) - Please choose one

A heap is a left-complete binary tree that conforms to the _____

increasing order only

decreasing order only

heap order (Page 40)

(log n) order

Question No: 1 of 10 (Marks: 1) - Please choose one

In which order we can sort?

increasing order only

decreasing order only

increasing order or decreasing order (Page 39)

both at the same time

Question No: 1 of 10 (Marks: 1) - Please choose one

Divide-and-conquer as breaking the problem into a small number of

pivot

Sieve

smaller sub problems (Page 34)

Selection

Question No: 1 of 10 (Marks: 1) - Please choose one

For the heap sort we store the tree nodes in

level-order traversal (Page 40)

in-order traversal

pre-order traversal

post-order traversal

Question No: 1 of 10 (Marks: 1) - Please choose one

The sieve technique works in _____ as follows

Phases (Page 34)

numbers

integers

routines

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CS502 - Fundamentals of Algorithms

Quiz No.1 12-11-2012

Question No: 1 of 10 (Marks: 1) - Please choose one

We do sorting to,

keep elements in random positions

keep the algorithm run in linear order

keep the algorithm run in $(\log n)$ order

keep elements in increasing or decreasing order

Question No: 1 of 10 (Marks: 1) - Please choose one

Heaps can be stored in arrays without using any pointers; this is due to the _____ nature of the binary tree,

left-complete (Page 40)

right-complete

tree nodes

tree leaves

Question No: 1 of 10 (Marks: 1) - Please choose one

Sieve Technique can be applied to selection problem?

True (Page 35)

False

Question No: 1 of 10 (Marks: 1) - Please choose one

In Sieve Technique we do not know which item is of interest

True (Page 34)

False

Question No: 1 of 10 (Marks: 1) - Please choose one

In the analysis of Selection algorithm, we eliminate a constant fraction of the array with each phase; we get the convergent _____ series in the analysis,

linear

arithmetic

geometric (Page 37)

exponent

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Question No: 1 of 10 (Marks: 1) - Please choose one

For the heap sort, access to nodes involves simple _____ operations.

arithmetic (Page 41)

binary

algebraic

logarithmic

Question No: 1 of 10 (Marks: 1) - Please choose one

Slow sorting algorithms run in,

$T(n^2)$ (Page 39)

$T(n)$

$T(\log n)$

Question No: 1 of 10 (Marks: 1) - Please choose one

In the analysis of Selection algorithm, we make a number of passes, in fact it could be as many as,

$T(n)$

$T(n/2)$

$\log n$ (Page 37)

$n/2 + n/4$

Question No: 1 of 10 (Marks: 1) - Please choose one

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

5

many

1 (Page 34)

few

Question No: 1 of 10 (Marks: 1) - Please choose one

How many elements do we eliminate in each time for the Analysis of Selection algorithm?

$(n/2) + n$ elements

$(n/2)$ elements (Page 37)

$n/4$ elements

$2n$ elements

Question No: 1 of 10 (Marks: 1) - Please choose one

One of the clever aspects of heaps is that they can be stored in arrays without using any _____.

pointers (Page 40)

constants

variables

functions

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Question No: 1 of 10 (Marks: 1) - Please choose one

How much time merge sort takes for an array of numbers?

$T(n^2)$

$T(n)$

$T(\log n)$

$T(n \log n)$ (Page 40)

Question No: 1 of 10 (Marks: 1) - Please choose one

The reason for introducing Sieve Technique algorithm is that it illustrates a very important special case of, **divide-and-conquer (Page 34)**

decrease and conquer

greedy nature

2-dimension Maxima

Question No: 1 of 10 (Marks: 1) - Please choose one

In Sieve Technique we do not know which item is of interest

True (Page 34) rep

False

Question No: 1 of 10 (Marks: 1) - Please choose one

Theta asymptotic notation for $T(n)$:

Set of functions described by: $c_1 g(n)$ Set of functions described by $c_1 g(n) \geq f(n)$ for c_1 s

Theta for $T(n)$ is actually upper and worst case comp (Not sure)

Set of functions described by:

$c_1 g(n)$

Question No: 1 of 10 (Marks: 1) - Please choose one

Memoization is?

To store previous results for future use

To avoid this unnecessary repetitions by writing down the results of recursive calls and looking them up again if we need them later (page 74)

To make the process accurate

None of the above

Question No: 1 of 10 (Marks: 1) - Please choose one

Which sorting algorithm is faster

$O(n \log n)$ Page 26

$O(n^2)$

$O(n+k)$

$O(n^3)$

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Question No: 1 of 10 (Marks: 1) - Please choose one

Quick sort is

Stable & in place

Not stable but in place (Page 54)

Stable but not in place

Some time stable & some times in place

Question No: 1 of 10 (Marks: 1) - Please choose one

One example of in place but not stable algorithm is

Merger Sort

Quick Sort (Page 54)

Continuation Sort

Bubble Sort

Question No: 1 of 10 (Marks: 1) - Please choose one

Cont sort is suitable to sort the elements in range 1 to k

K is Large

K is not known

K may be small or large

K is small (Page 57)

Question No: 1 of 10 (Marks: 1) - Please choose one

In place stable sorting algorithm.

If duplicate elements remain in the same relative position after sorting (Page 54)

One array is used

More than one arrays are required

Duplicating elements not handled

Question No: 1 of 10 (Marks: 1) - Please choose one

Which may be a stable sort?

Merger

Insertion (Page 54)

Both above

None of the above

Question No: 1 of 10 (Marks: 1) - Please choose one

An in place sorting algorithm is one that uses ____ arrays for storage

Two dimensional arrays

More than one array

No Additional Array (Page 54)

None of the above

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Question No: 1 of 10 (Marks: 1) - Please choose one

Sieve Technique applies to problems where we are interested in finding a single item from a larger set of

n items (Page 34)

phases
pointers
constant

Question No: 1 of 10 (Marks: 1) - Please choose one

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

upper

lower (Page 39)

average
log n

Question No: 1 of 10 (Marks: 1) - Please choose one

Counting sort has time complexity:

$O(n)$ (Page 58)

$O(n+k)$
 $O(k)$
 $O(n \log n)$

Question No: 1 of 10 (Marks: 1) - Please choose one

The running time of quick sort depends heavily on the selection of

No of inputs

Arrangement of elements in array

Size of elements

Pivot elements (Page 49)

Question No: 1 of 10 (Marks: 1) - Please choose one

Which may be stable sort:

Bubble sort

Insertion sort

Both of above (Page 54)

Question No: 1 of 10 (Marks: 1) - Please choose one

One Example of in place but not stable sort is

Quick (Page 54)

Heap

Merge

Bubble

Question No: 1 of 10 (Marks: 1) - Please choose one

In Quick Sort Constants hidden in $T(n \log n)$ are

Large

Medium

Small [Click here for detail](#)

Not Known

Question No: 1 of 10 (Marks: 1) - Please choose one

Quick sort is based on divide and conquer paradigm; we divide the problem on base of pivot element and:

There is explicit combine process as well to conquer the solution.

No work is needed to combine the sub-arrays, the array is already sorted

Merging the sub arrays

None of above. (Page 51)

Ref: - random choices for the pivot element and each choice have an equal probability of $1/n$ of occurring. So we can modify the above recurrence to compute an average rather than a max

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CS501 - Quiz No.2 (Spring 2013)

Question No: 1 of 10 (Marks: 1) - Please choose one

A point p in 2-dimensional space is usually given by its integer coordinate(s)_____

p.x only

p.y only

p.x & p.z

p.x & p.y (Page 10)

Question No: 1 of 10 (Marks: 1) - Please choose one

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

Merge sort algorithm

Selection problem (Page 34)

Brute force technique

Plane Sweep algorithm

Question No: 1 of 10 (Marks: 1) - Please choose one

In Heap Sort algorithm, if heap property is violated _____

We call Build heap procedure

We call Heapify procedure

We ignore

Heap property can never be violated

Question No: 1 of 10 (Marks: 1) - Please choose one

Upper bound requires that there exist positive constants c_2 and n_0 such that $f(n) \leq c_2 n$ for all $n \leq n_0$ (ye question ghalat lag raha hai mujhae)

Less than

Equal to or Less than (Page 25)

Equal or Greater than

Greater than

Question No: 1 of 10 (Marks: 1) - Please choose one

A RAM is an idealized algorithm with takes an infinitely large random-access memory.

True

False (Page 10)

Question No: 1 of 10 (Marks: 1) - Please choose one

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

Searching

Sorting (Page)

Both Searching & Sorting

Graphing

Question No: 1 of 10 (Marks: 1) - Please choose one

Floor and ceiling are _____ to calculate while analyzing algorithms.

Very easy

Usually considered difficult (Page 31)

Question No: 1 of 10 (Marks: 1) - Please choose one

In Heap Sort algorithm, the maximum levels an element can move upward is _____

Theta (log n) (Page 43)

Order (log n)

Omega (log n)

O (1) i.e. Constant time

Question No: 1 of 10 (Marks: 1) - Please choose one

A point p in 2-dimensional space is usually given by its integer coordinate(s)_____

p.x only p.y

only p.x & p.z

p.x & p.y (Page 17)

Question No: 1 of 10 (Marks: 1) - Please choose one

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

Theta (log n) (Page 43)

Order (log n)

Omega (log n)

O (1) i.e. Constant time

Question No: 1 of 10 (Marks: 1) - Please choose one

Algorithm is a mathematical entity, which is independent of a specific machine and operating system.

True

False (Page 7)

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Question No: 1 of 10 (Marks: 1) - Please choose one

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

$x < y$

$x > y$

$x = y$

All of the above (Page 39)

Question No: 1 of 10 (Marks: 1) - Please choose one

Quick sort is best from the perspective of Locality of reference.

True (Page 9)

False

Question No: 1 of 10 (Marks: 1) - Please choose one

Sorting can be in _____

Increasing order only

Decreasing order only

Both Increasing and Decreasing order (Page 39)

Random order

Question No: 1 of 10 (Marks: 1) - Please choose one

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

Max heap (Page 41)

Min heap

Question No: 1 of 10 (Marks: 1) - Please choose one

In Sieve Technique, we know the item of interest.

True

False (Page 34)

Question No: 1 of 10 (Marks: 1) - Please choose one

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

In increasing order

In decreasing order

According to Pivot (Page 35)

Randomly

Question No: 1 of 10 (Marks: 1) - Please choose one

In pseudo code, the level of details depends on intended audience of the algorithm.

True (Page 12)

False

Question No: 1 of 10 (Marks: 1) - Please choose one

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

Single (Page 34)

Two

Three

Similar

Question No: 1 of 10 (Marks: 1) - Please choose one

If the indices passed to merge sort algorithm are _____, then this means that there is only one element to sort.

Small

Large

Equal (Page 28)

Not Equal