# Professional Online Academy Vu Topper RM

# CS502-Fundamentals Of Algorithms

## Update MCQ'S Mid Term

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**Question No:1** **(Marks:1)** **Vu-Topper RM**

The following sequence is called _____.

1,1,1,2,3,5,8,13,21,34,55,……

**A. Fibonacci sequence.**

B. Overlapping sequence

C. Optimize sequence

D. Optimal sequence

**Question No:2** **(Marks:1)** **Vu-Topper RM**

A problem exhibits optimal structure if an optimal solution to the problem contains within it optimal solution to_____.

A. last problem

B. first problem

C. half problems

**D. sub-problems**

**Question No:3** **(Marks:1)** **Vu-Topper RM**

In Running Time Analysis, we are also concerned about the _____ required by the algorithm.

A. code

**B. Both space and memory**

C. Space

D. Memory

**Question No:4** **(Marks:1)** **Vu-Topper RM**

Best _____ helps in minimizing algorithm cost.

A. Input

B. Output

C. Analysis

**D. Design**

**Question No:5** **(Marks:1)** **Vu-Topper RM**

For small values of n, _____ algorithm is fast enough.

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A. merge sort
**B. Any**
C. quick sort
D. heap sort

**Question No:6** **(Marks:1)** **Vu-Topper RM**
Mostly, we measure the algorithm in terms of
**A. Running time and Memory**
B. Running time
C. cost
D. Memory

**Question No:7** **(Marks:1)** **Vu-Topper RM**
Dominace relationship has _____ property.
A. Substitution
B. Reflexive
C. Symmetric,
**D. Transitive**

**Question No:8** **(Marks:1)** **Vu-Topper RM**
_____ time is the maximum running time over all legal inputs.
A. Good-case
B. Average-case
**C. Worst-case**
D. Best-case

**Question No:9** **(Marks:1)** **Vu-Topper RM**
Two functions are said to be asymptotically equivalent if they have _____.
**A. same growth rate for large n**
B. same number of polynomials
C. been proved as equivalent

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D. same input

**Question No:10** **(Marks:1)** **Vu-Topper RM**
In the following code the statement "cout<<i;" executes ---------- times.
for (int i = 1; i<=n ;i++)
cout<<i;
**A. n times**
B. Zero times
C. n+5 times
D. Infinite times

**Question No:11** **(Marks:1)** **Vu-Topper RM**
For 2D Maxima problem, Plane Sweep algorithm first of all _____.
A. Pushes all points on stack
B. Output the elements
**C. Sorts all points**
D. Delete some points

**Question No:12** **(Marks:1)** **Vu-Topper RM**
An algorithm is well-defined computational procedure that takes some values as _____ and produces some values as _____.
A. Design , Solution
B. Design , Analysis
C. Key , Analysis
**D. Input , Output**

**Question No:13** **(Marks:1)** **Vu-Topper RM**
PUSH and POP terminologies are used in _____.
A. circular queue
B. double-ended queue
**C. stack**
D. queue

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**Question No:14** **(Marks:1)** **Vu-Topper RM**
The words of algebra and algorithm were derived from?
A. Al-Khwarizmi name
**B. Title of Al-Khwarizmi writings and his name**
C. Book of algebra
D. Al-Khwarizmi writings

**Question No:15** **(Marks:1)** **Vu-Topper RM**
Which type of operations does RAM perform?
A. Assign value to a variable
B. All of above
C. Comparison or Boolean
**D. Access element of array**

**Question No:16** **(Marks:1)** **Vu-Topper RM**
In RAM Model, basic operations in C++ that are assumed to take up same amount of CPU time are
A. z = a * b;
**B. All of above**
C. z = a + b;
D. z = a / b;

**Question No:17** **(Marks:1)** **Vu-Topper RM**
In order to analyze algorithm, a Mathematical Model of computation is used known as
A. Read drive Machine
B. Random Machine
**C. Random Access Machine**
D. Read Only Machin

**Question No:18** **(Marks:1)** **Vu-Topper RM**
In the analysis of plane-sweep algorithm, sorting takes _____.
**A. theta(n log n)**

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B. theta(n)
C. theta(log n)
D. theta(n )

**Question No:19** **(Marks:1)** **Vu-Topper RM**
For _____ values of n, any algorithm is fast enough.
**A. Small**
B. Infinity
C. Medium
D. Large

**Question No:20** **(Marks:1)** **Vu-Topper RM**
The main purpose of mathematical analysis is measuring the _____required by the algorithm.
A. Space
B. Inputs & outputs
**C. Execution time and memory**
D. Execution time

**Question No:21** **(Marks:1)** **Vu-Topper RM**
In the following loop statement:
for i ← 1 to n
For loop executes _____ times.
A. N2
**B. n**
C. log n
D. It is not correct statement

**Question No:22** **(Marks:1)** **Vu-Topper RM**
In average-case time analysis of quick sort algorithm, the most balanced case for partition is when we divide the list of elements into _____.
A. Three nearly equal pieces
B. Equal no. of pieces as of input elements

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C. Single piece exactly
**D.Two nearly equal pieces**

**Question No:23 (Marks:1) Vu-Topper RM**
The Dynamic Programming Edit Distance Algorithm takes a total running time of _____.
A. Θ (nlogn)
B. Θ (n3)
C. Θ (n)
**D.Θ (n2)**

**Question No:24 (Marks:1) Vu-Topper RM**
In Ram, each instruction involves performing some basic operation on how many values in the machines memory?
A. four
**B. one**
C. three
D. two

**Question No:25 (Marks:1) Vu-Topper RM**
Which of the following is calculated with Big Omega notation?
A. Medium bounds
B. Upper bounds
**C. Lower bounds**
D. Both upper and lower bounds

**Question No:26 (Marks:1) Vu-Topper RM**
Asymptotic growth of Plane-sweep algorithm for 2-D maxima problem is _____.
A. Θ(logn)
**B. Θ(nlogn)**
C. Θ(n)
D. Θ(n^2)

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**Question No:27** **(Marks:1)** **Vu-Topper RM**

Two functions 4n2 and (8n2 + 2n − 3) are _____.

A. related to power functions

B. hard to calculate

**C. asymptotically equivalent**

D. not equivalent

**Question No:28** **(Marks:1)** **Vu-Topper RM**

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

**A. Upper**

B. Lower

C. Both lower & upper

D. Two

**Question No:29** **(Marks:1)** **Vu-Topper RM**

Which one of the following is worst case time complexity of merge sort?

A. O((n^2logn)

**B. O(nlogn)**

C. O(nlogn^2)

D. O(n^2)

**Question No:30** **(Marks:1)** **Vu-Topper RM**

The important factors to measure the running time of the brute-force 2-d maxima algorithm are

**A. All of above**

B. The number of comparisons that are performed

C. Count the number of times an element of P is accessed

D. Count the number of steps of the pseudo code that are executed

**Question No:31** **(Marks:1)** **Vu-Topper RM**

To predict the cost of an algorithm in terms of resources is called _____.

A. Output

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**B. Analysis**
C. Design
D. Key

**Question No:32** **(Marks:1)** **Vu-Topper RM**
The total no. of arguments passed to merge sort algorithm is _____.
A. 5
B. 3
**C. 2**
D. 4

**Question No:33** **(Marks:1)** **Vu-Topper RM**
Plane-Sweep uses _____ for storing maximal points.
A. queue
**B. stack**
C. array
D. list

**Question No:34** **(Marks:1)** **Vu-Topper RM**
A Random Access Machine (RAM)is an idealized machine with _____ random access memory.
**A. Infinite large**
B. 2 GBs
C. 256 MB
D. 512 MB

**Question No:35** **(Marks:1)** **Vu-Topper RM**
RAM is idealized machine with _____ large random-access memory.
A. Average
**B. Infinite**
C. Finite
D. Small

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**Question No:36** **(Marks:1)** **Vu-Topper RM**

Θ(1) means _____.

A. time can not be calculated

B. that if used for small n

C. that it is used for large n

**D. constant amount of time**

**Question No:37** **(Marks:1)** **Vu-Topper RM**

if A dominates B, and B dominates C, then it is necessary that

A. C dominates B

**B. A dominates C**

C. B dominates A

D. C dominates A

**Question No:38** **(Marks:1)** **Vu-Topper RM**

An algorithm is a mathematical entity, which is independent of _____.

**A. Programming language**

B. Programming language, Compiler and Machine

C. Machine and Programming language

D. Compiler and Programming language

**Question No:39** **(Marks:1)** **Vu-Topper RM**

The _____ is the weighted sum of running times with weights.

A. best-case time

**B. average-case time**

C. both best-case and average-case.

D. worse-case time

**Question No:40** **(Marks:1)** **Vu-Topper RM**

There are no hard formal rules to the syntax of the _____ code.

A. Assembly

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B. Basic
C. Programming
**D. Pseudo**

**Question No:41 (Marks:1) Vu-Topper RM**
For n > 1, _____ divides into two halves, sorts the two and then combine them together.
A. Heap Sort
B. Insertion Sort
**C. MergeSort**
D. Quick Sort

**Question No:42 (Marks:1) Vu-Topper RM**
Plane-Sweep algorithm can run in _____ time.
A. Θ(n log)
B. Θ(n)
C. Θ(n*n)
**D. Θ(n log n)**

**Question No:43 (Marks:1) Vu-Topper RM**
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.
A. Expensive
**B. Cheap**
C. Slow
D. Fast

**Question No:44 (Marks:1) Vu-Topper RM**
Heap sort is a/an _____ and _____ sorting algorithm.
A. Not in-place, not stable one
**B. In-place, not stable one**
C. Not in-place, stable one

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D. In-place, stable one

**Question No:45** **(Marks:1)** **Vu-Topper RM**
In Bucket sort, if there are duplicates then each bin can be replaced by a _____.
A. Hash table
B. Heap
C. Stack
**D. Linked list**

**Question No:46** **(Marks:1)** **Vu-Topper RM**
If there are duplicates in _____ sort, then each bin can be replaced by a linked list.
A. Heap
B. Merge
**C. Bucket**
D. Quick

**Question No:47** **(Marks:1)** **Vu-Topper RM**
A sorting algorithm is called as _____ if duplicate elements remain in the same relative position after sorting.
A. O(n) algorithm
B. Complex
C. Parallel
**D. Stable**

**Question No:48** **(Marks:1)** **Vu-Topper RM**
The average case running time of quick sort algorithm is theta _____.
A. n x n log(n)
B. Log(n)
**C. nlog(n)**
D. (n)

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**Question No:49** **(Marks:1)** **Vu-Topper RM**

Quick sort algorithm required a lot of comparisons in the _____ condition.

**A. Worst case**
B. Best and Average case
C. Average case
D. Best case

**Question No:50** **(Marks:1)** **Vu-Topper RM**

Memoization is a part of _____ programming strategy.

**A. dynamic**
B. fast
C. memory
D. slow

**Question No:51** **(Marks:1)** **Vu-Topper RM**

_____ programming is essentially recursion without repetition.

**A. Array**
B. Dynamic
C. N log n
D. fast

**Question No:52** **(Marks:1)** **Vu-Topper RM**

In _____, the size of recursive calls is totally depending on how pivot is chosen.

**A. Quick sort**
B. Merge sort
C. Insert sort
D. Bubble sort

**Question No:53** **(Marks:1)** **Vu-Topper RM**

The main shortcoming of counting sort is that it is useful for_____.

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A. large integers
B. large real numbers
C. small real numbers
**D. small integers**

**Question No:54 (Marks:1) Vu-Topper RM**
Comparison-based sorting algorithms always takes _____ time.
**A. Theta nlog(n)**
B. Omega n(n^2)
C. Big Oh nlog(n)
D. Omega nlog(n)

**Question No:55 (Marks:1) Vu-Topper RM**
Quick sort does not require any additional array for storage except for recursive function calls is called _____.
**A. In-Place**
B. Stable
C. Not In-Place
D. Unsorted

**Question No:56 (Marks:1) Vu-Topper RM**
While solving Selection problem, in Sieve technique we choose pivot _____
A. Minimum element
**B. Randomly**
C. Average element
D. Maximum element

**Question No:57 (Marks:1) Vu-Topper RM**
While applying the sieve technique, _____ subarray will contain all elements that are greater than pivot element x.
**A. A[q+1....n]**
B. A[1....n]

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C. A[1....q-1]
D. A[q]

**Question No:58** **(Marks:1)** **Vu-Topper RM**
The total running time for Selection algorithm is _____ in n.
A. Exponential
B. Geometric
**C. Quadratic**
D. Linear

**Question No:59** **(Marks:1)** **Vu-Topper RM**
What is the worst-case time of a quick sort which happens rarely?
A. O(log n)
B. O(n log n)
**C. O(n2)**
D. O(n)

**Question No:60** **(Marks:1)** **Vu-Topper RM**
While applying the sieve technique, _____ subarray will contain all elements that are less than pivot element x.
A. A[q+1....n]
**B. A[1....q-1]**
C. A[1....n]
D. A[q]

**Question No:61** **(Marks:1)** **Vu-Topper RM**
A Principal operation for maintaining the heap property is called heapify, it is also called:
A. Sifting Up
B. Sifting left
C. Sifting right
**D. Sifting down**



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**Question No:62** **(Marks:1)** **Vu-Topper RM**

After partitioning array in Quick sort, pivot is placed in a position such that

A. Values larger than pivot are on left and smaller than pivot are on right

B. Pivot is the first element of array

C. Pivot is the last element of array

**D. Values smaller than pivot are on left and larger than pivot are on right Page 35**

**Question No:63** **(Marks:1)** **Vu-Topper RM**

Sieve technique is a special case of _____ strategy.

A. Greedy approach

B. Graph

**C. Divide-and-Conquer**

D. Dynamic programming

**Question No:64** **(Marks:1)** **Vu-Topper RM**

Selection sort takes theta _____ in the worst case.

A. (n)

**B. (n^2)**

C. nlog(n)

D. n(logn)

**Question No:65** **(Marks:1)** **Vu-Topper RM**

Array divided into _____ subarrays while applying sieve technique to selection problem.

A. 1

**B. 2**

C. 3

D. 4

**Question No:66** **(Marks:1)** **Vu-Topper RM**

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

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A. n/2
B. n+2
C. (n-1)/2
**D. (n+1)/2 Page 34**

**Question No:67 (Marks:1) Vu-Topper RM**
Quick sort is based on _____ strategy.
A. Graph Theory
B. Greedy approach
**C. Divide-and-Conquer**
D. Dynamic programming

**Question No:68 (Marks:1) Vu-Topper RM**
_____ is one of the few problems, where provable lower bounds exist on how fast we can sort.
**A. Sorting Page 39**
B. Graphing
C. Searching
D. Both Searching & Sorting

**Question No:69 (Marks:1) Vu-Topper RM**
In Quick sort algorithm, the subarray _____ has elements which are less than pivot element x.
A. A[q]
B. A[p....r]
C. A[q+1....r]
**D. A[p....q-1]**

**Question No:70 (Marks:1) Vu-Topper RM**
In _____ sorting algorithm, we just need to swap positions of data during the Partitioning function.
A. Merge sort
B. Counting sort

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C. Radix sort
**D. Quick sort**

**Question No:71** **(Marks:1)** **Vu-Topper RM**
There are _____ entries in the Edit Distance Matrix.
A. Θ (n)
**B. Θ (n2)** **Page 84**
C. Θ (n+2)
D. Θ (n + 100)

**Question No:72** **(Marks:1)** **Vu-Topper RM**
For average-case time analysis of quick sort algorithm, pivot selection is on average basis from _____.
**A. All possible random values** **Page 50**
B. Pivot is input separately
C. half of the input values
D. Values greater than 5

**Question No:73** **(Marks:1)** **Vu-Topper RM**
As per algorithm of dynamic programing, we need to store the result(s) of _____.
A. First sub-problem only
B. Best solution only
**C. Intermediate sub-problems** **Page 75**
D. Final solution only

**Question No:74** **(Marks:1)** **Vu-Topper RM**
The only way to convert a string of i characters into the empty string is with i deletions, represented as _____.
A. E(0.j) =j
B. E(i.j) = 1
C. E(0.i) = j
**D. E (i.0)=i** **Page 78**

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**Question No:75** **(Marks:1)** **Vu-Topper RM**

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

A. θ (n)
B. θ (1)
**C. θ ($n^2$)** **Page 84**
D. θ (n logn)

**Question No:76** **(Marks:1)** **Vu-Topper RM**

Fibonacci Sequence was named on _____, a famous mathematician in 12th Century.

A. Fred Brooks
B. Grady Booch
**C. Leonardo Pisano** **Page 73**
D. Edgar F. Codd

**Question No:77** **(Marks:1)** **Vu-Topper RM**

In quick sort algorithm, we choose pivot _____.

A. Always the smallest element
B. Greater than 5
**C. Randomly** **Page 35**
D. Less than 5

**Question No:78** **(Marks:1)** **Vu-Topper RM**

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

A. Always
B. Sometimes not
**C. NOT** **Page 54**
D. Sometimes

**Question No:79** **(Marks:1)** **Vu-Topper RM**

The sequence of merge sort algorithm is:

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A. Divide Combine-Conquer
B. Conquer-Divide-Combine
**C. Divide-Conquer-Combine** **Page 27**
D. Combine-Divide-Conquer

**Question No:80** **(Marks:1)** **Vu-Topper RM**
In Heap Sort algorithm (using max heap), when every time maximum element is removed from top _____.
A. We call merge Sort Algorithm
B. it becomes Order n2 Algorithm
C. Divide and Conquer strategy helps us
**D. We are left with a hole** **Page 41**

**Question No:81** **(Marks:1)** **Vu-Topper RM**
_____ is a method of solving a problem in which we check all possible solutions to the problem to find the solution we need.
A. Plane-Sweep Algorithm
B. Sorting Algorithm
**C. Brute-Force Algorithm** **Google**
D. Greedy approach

**Question No:82** **(Marks:1)** **Vu-Topper RM**
The worst case running time of quick sort algorithm _____.
**A. Is quadratic**
B. Is linear
C. Cannot be quadratic
D. ls always Exponential

**Question No:83** **(Marks:1)** **Vu-Topper RM**
In max heap (for Heap Sort algorithm), when every time maximum element is removed from top we replace it with _____ leaf in the tree.
**A. Last** **Page 41**

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B. First
C. Any
D. Second last

**Question No:84** **(Marks:1)** **Vu-Topper RM**
In Sorting the key value or attribute _____ from an ordered domain.
**A. Must be** **Page 39**
B. Not always
C. May be
D. Occasionally

**Question No:85** **(Marks:1)** **Vu-Topper RM**
Result of asymptotical analysis of n(n - 3) and 4n*n is that _____.
A. n(n-1) is asymptotically Less
B. n(n-1) is asymptotically Greater
C. Both are asymptotically Not equivalent
**D. Both are asymptotically Equivalent** **Page 23**

**Question No:86** **(Marks:1)** **Vu-Topper RM**
_____ of reference is an important fact of current processor technology.
A. Defining
B. Assigning
**C. Locality** **Page 8**
D. Formality

**Question No:87** **(Marks:1)** **Vu-Topper RM**
In max-heap, largest element is stored at root node. Where is the smallest element stored?
A. Right Node
**B. Leaf Node** **Google**

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C. Middle Node
D. Left Node

**Question No:88** **(Marks:1)** **Vu-Topper RM**
Which of the following is calculated with Big O notation?
A. Medium bounds
B. Upper bounds
**C. Lower bounds** **Page 25**
D. Both upper and lower bounds

**Question No:89** **(Marks:1)** **Vu-Topper RM**
Edit distance algorithm based on_____strategy.
A. Greedy
**B. Dynamic Programming** **Page 81**
C. Divide and Conquer
D. Searching

**Question No:90** **(Marks:1)** **Vu-Topper RM**
In Heapsort Algorithm, total time taken by heapify procedure is ____
**A. O (log n)** **Page 43**
B. (log2 n)
C. (n log n)
D. (n2 log n)

**Question No:91** **(Marks:1)** **Vu-Topper RM**
Pseudo code of algorithms are to be read by _____.
**A. People** **Page 12**
B. RAM
C. Computer
D. Compiler

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**Question No:92** **(Marks:1)** **Vu-Topper RM**

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

**A. 1** **Page 34**

B. 2

C. 3

D. 4

**Question No:93** **(Marks:1)** **Vu-Topper RM**

When a recursive algorithm revisits the same problem over and over again, we say that the optimization problem has _____ sub-problems.

**A. Overlapping** **Google**

B. Over costing

C. Optimized

D. Three

**Question No:94** **(Marks:1)** **Vu-Topper RM**

In order to say anything meaningful about our algorithms, it will be important for us to settle on a _____.

A. Java Program

B. C++ Program

C. Pseudo program

**D. Mathematically model of computation**

**Question No:95** **(Marks:1)** **Vu-Topper RM**

Merge sort is based on_____.

A. Brute-force

B. Plan-sweep

C. Axis-sweep

**D. Divide and Conquer**

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**Question No:96** **(Marks:1)** **Vu-Topper RM**

What time does Merge Sort algorithm take in order to sort an array of 'n' numbers?

A. Θ (n)
B. Θ (log n)
C. Θ (n^2)
**D. Θ(n log n)** **Page 30**

**Question No:97** **(Marks:1)** **Vu-Topper RM**

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

A. One
B. Lower
C. Upper
**D. Both lower & upper** **Page 25**

**Question No:98** **(Marks:1)** **Vu-Topper RM**

In merge sort algorithm, to merge two lists of size n/2 to a list of size n, takes _____ time.

**A. Theta (n)** **Page 32**
B. Theta log(n)
C. Theta log2(n)
D. Theta n log(n)

**Question No:99** **(Marks:1)** **Vu-Topper RM**

We can make _____ recursive calls in Fibonacci Sequence.

A. Infinite
**B. Finite** **Google**
C. Only one
D. Zero

**Question No:100** **(Marks:1)** **Vu-Topper RM**

Following is NOT the application of Edit Distance problem.

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A. Speech recognition
B. Spelling Correction
**C. Ascending Sort** **Page 76**
D. Computational Molecular Biology

**Question No:101** **(Marks:1)** **Vu-Topper RM**
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.
A. Tree
B. Array
C. Queue
**D. Stack**

**Question No:102** **(Marks:1)** **Vu-Topper RM**
In 3-Dimensional space, a point P has _____ coordinate(s).
A. (X, Y)
B. (X, 0)
C. (0, Y)
**D. (X,Y, Z)**

**Question No:103** **(Marks:1)** **Vu-Topper RM**
The Omega-notation allows us to state only the asymptotic _____bounds.
A. Middle
**B. Lower** **Page 25**
C. Upper
D. Both lower & upper

**Question No:104** **(Marks:1)** **Vu-Topper RM**
Quicksort is a/an _____ and _____ sorting algorithm.
A. Not in place, not stable one
**B. In place , not stable one** **Page 54**

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C. In place , stable one
D. Not in place , stable one

**Question No:105 (Marks:1) Vu-Topper RM**
In Dynamic Programming, our approach is to _____.
A. Express the problem non-recursively
**B. Build the solution in a bottom-up fashion Page 75**
C. Develop the solution in a top-down fashion
D. Input several sub-problems simultaneously

**Question No:106 (Marks:1) Vu-Topper RM**
In Dynamic Programming approach, solution is modified/changed _____.
A. Always once
**B. At each stage Google**
C. Only for specific problems
D. At 4th stage only

**Question No:107 (Marks:1) Vu-Topper RM**
An in-place sorting algorithm is one that _____ use(s) additional array for storage.
A. Always
B. Permanently
**C. Does not Page 54**
D. Sometime

**Question No:108 (Marks:1) Vu-Topper RM**
In Fibonacci Sequence, each term is calculated by_____ previous _____ terms.
A. Subtracting, Two
B. Adding, Three
**C. Adding, Two Page 73**
D. Multiplying, Two

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**Question No:109** **(Marks:1)** **Vu-Topper RM**

Sorting is performed on the basis of _____.

A. Computational resources
B. Asymptotic notation
C. Summation
**D. Some key value of attribute** **Page 39**

**Question No:110** **(Marks:1)** **Vu-Topper RM**

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

A. Twice
B. Thrice
**C. Only once** **Page 46**
D. As many times as we need

**Question No:111** **(Marks:1)** **Vu-Topper RM**

In the statement "output P[1].x, P[1].y", the number of times elements of P are accessed is _____.

A. 1
**B. 2** **Page 14**
C. 3
D. 4

**Question No:112** **(Marks:1)** **Vu-Topper RM**

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

A. Mode
B. Mean
C. Average
**D. Median** **Page 34**

**Question No:113** **(Marks:1)** **Vu-Topper RM**

The process of _____ ends when you are left with such tiny pieces remaining that it is trivial to solve them.

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A. Brute-force
B. Plan-sweep
C. Axis-sweep
**D. Divide and Conquer**

**Question No:114 (Marks:1) Vu-Topper RM**
The asymptotic growth of n(n+1)/2 is:
A. O(n)
**B. $O(n^2)$**
C. O(n+2)
D. O(n log n)

**Question No:115 (Marks:1) Vu-Topper RM**
Approach of solving geometric problems by sweeping a line across the plane is called _____sweep.
A. Line
**B. Plane Page 18**
C. Cube
D. Box

**Question No:116 (Marks:1) Vu-Topper RM**
Which one is not passed as parameter in Quick sort algorithm?
A. End of the array
B. Start of the array
C. Middle of the array
**D. Array (containing input elements) Google**

**Question No:117 (Marks:1) Vu-Topper RM**
In the analysis of Selection algorithm, we get the convergent _____ series.
A. Harmonic
B. Linear
C. Arithmetic

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**D. Geometric** **Page 37**

**Question No:118** **(Marks:1)** **Vu-Topper RM**

A Random Access Machine (RAM)is an idealized machine withrandom access memory.

**A. Infinite large** **Page 10**

B. 512 MB

C. 256 MB

D. 2 GBs

**Question No:119** **(Marks:1)** **Vu-Topper RM**

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

A. n(n+1)

**B. log(n)** **Page 37**

C. n/3

D. n/4

**Question No:120** **(Marks:1)** **Vu-Topper RM**

In Random Access Machine, Instructions are executed

A. Parallel

B. Batch

**C. One by One** **Page 10**

D. Multiple times

**Question No:121** **(Marks:1)** **Vu-Topper RM**

In selection problem, the rank of an element will be its _____ position

A. First

**B. final** **Page 34**

C. Second last

D. Last

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**Question No:122** **(Marks:1)** **Vu-Topper RM**

The worst-case running time of merge sort is _____ in order to sort an array of n elements.

A. O(log n)
B. O(n)
**C. O(n log n)** **Page 40**
D. O(n)

**Question No:123** **(Marks:1)** **Vu-Topper RM**

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

A. Size
B. Results
C. Variables
**D. Growth Rates**

**Question No:124** **(Marks:1)** **Vu-Topper RM**

In quick sort algorithm, pivots form a _____.

A. Stack
B. Queue
C. Graph
**D. Binary Search Tree** **Page 49**

**Question No:125** **(Marks:1)** **Vu-Topper RM**

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

A. P is large
**B. P is Small**
C. P is very large
D. P is undetermined

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**Question No:126** **(Marks:1)** **Vu-Topper RM**

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

A. n_1
B. n
C. n+1
**D. n*n** **Page 23**

**Question No:127** **(Marks:1)** **Vu-Topper RM**

In partition algorithm, the subarray _____ has elements which are greater than pivot element x.

A. A[q]
B. A[p…r]
C. A[p…q-1]
**D. A[q+1…r]** **Page 46**

**Question No:128** **(Marks:1)** **Vu-Topper RM**

In Heap Sort algorithm, if heap property is violated:

A. We ignore.
**B. We call Heapify procedure** **Page 43**
C. We call Build Heap procedure.
D. Heap property can never be violated.

**Question No:129** **(Marks:1)** **Vu-Topper RM**

_____ is not a characteristic of Random Access Machine.

A. Assigning a value to a variable
B. Locality of reference
**C. Single-Processor** **Page 10**
D. Executing an arithmetic instruction

**Question No:130** **(Marks:1)** **Vu-Topper RM**

The only way to convert an empty string into a string of j characters is by doing j insertions, represented as _____.

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A. E(i,j) = 1
B. E(I,0) = I
**C. E(0,j) = j** **Page 78**
D. E(1,j)= j

**Question No:131** **(Marks:1)** **Vu-Topper RM**
In Selection problem, the Sieve technique works in _____
A. Non-recursive manner
B. Constant time
**C. Phases** **Page 34**
D. One complete go

**Question No:132** **(Marks:1)** **Vu-Topper RM**
Algorithm is a sequence of computational steps that _____ the input into output.
A. Merge
B. Assign
**C. Transform** **Page 7**
D. Integrate

**Question No:133** **(Marks:1)** **Vu-Topper RM**
If pj dominates pi and pi dominates ph then pj also dominates ph. It means dominance relation is _____.
**A. Transitive** **Page 18**
B. Non-Transitive
C. Equation
D. Symbolic

**Question No:134** **(Marks:1)** **Vu-Topper RM**
To find maximal points in brute-force algorithm each point of the space is compared against _____ of that space.
A. One other point
**B. All other points** **Page 11**

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C. Few other points
D. Most of the other points

**Question No:135** **(Marks:1)** **Vu-Topper RM**
In the following code the statement "cout<<j;" executes ---------- times.for (j=1; j<=5; j = j+2)
cout<<j;
A. 5 times
B. 2 times
**C. 3 times**
D. 0 times

**Question No:136** **(Marks:1)** **Vu-Topper RM**
In merge sort algorithm, we split the array _____ to find index q.
**A. Midway** **Page 17**
B. Exiting
C. Entring
D. Summing

**Question No:137** **(Marks:1)** **Vu-Topper RM**
In Selection problem, the Sieve technique _____
A. Add some more input items each time
B. Do not work recursively
C. Do not uses Divide and Conquer approach
**D. Eliminates undesired data items each time** **Page 35**

**Question No:138** **(Marks:1)** **Vu-Topper RM**
Consider three matrices X, Y, Z of dimensions 1 x 2 , 2 x 3 , 3 x 4 respectively. The number of multiplications of (XY)Z is:
A. 16
**B. 32** **Page 84**
C. 30
D. 26

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**Question No:139** **(Marks:1)** **Vu-Topper RM**

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

**A. Theta (log n)** **Page 43**

B. Order (log n)

C. Omega (log n)

D. O(1) i.e. Constant time

**Question No:140** **(Marks:1)** **Vu-Topper RM**

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

**A. Single** **Page 34**

B. Two

C. Three

D. Similar

**Question No:141** **(Marks:1)** **Vu-Topper RM**

In Dynamic Programming based solution of Knapsack Problem, if we decide to take an object i , then we gain_____

A. W(Total Weight of Knapsack)

B. V (Total Value of all items)

**C. vi (Value of object i)** **Page 93**

D. None of the given option

**Question No:142** **(Marks:1)** **Vu-Topper RM**

While Sorting, the order domain means for any two input elements x and y__ satisfies only.

**A. x < y** **Page 39**

B. x > y

C. x = y

D. All of the above

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**Question No:143** **(Marks:1)** **Vu-Topper RM**

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

**A. Using Decrease and Conquer strategy** **Page 34**

B. Avoiding to sort all input data

C. Eliminating Rank of an element

D. Using Brute-force approach

**Question No:144** **(Marks:1)** **Vu-Topper RM**

In quick sort algorithm, _____ decides nature of Binary Search Tree formed by pivots.

**A. Rank of the pivot** **Page 49**

B. Middle element from input

C. Smallest element from input

D. Largest element from input

**Question No:145** **(Marks:1)** **Vu-Topper RM**

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

A. Right to Left

**B. Left to Right** **Page 18**

C. Top to Bottom

D. Bottom to top

**Question No:146** **(Marks:1)** **Vu-Topper RM**

For small values of n, _____ algorithm is fast enough.

A. Medium

B. Large

**C. Small** **Page 14**

D. Infinity

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**Question No:147** **(Marks:1)** **Vu-Topper RM**

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

A. Two
B. Some
C. Most
**D. All** **Page 18**

**Question No:148** **(Marks:1)** **Vu-Topper RM**

Which one of the following sorting algorithms is the fastest?

A. Merge sort
**B. Quick sort**
C. Insertion sort
D. Heap sort

**Question No:149** **(Marks:1)** **Vu-Topper RM**

Quick sort algorithm divide the entire array into _____ sub arrays.

**A. 2**
B. 3
C. 4
D. 5

**Question No:150** **(Marks:1)** **Vu-Topper RM**

In brute force algorithm, we measure running time T(n) based on_____.

A. Worst-case time and best-case time
**B. Worst-case time and average-case time** **Page 46**
C. Average-case time and best-case time
D. Best-case time and staring-case time

**Question No:151** **(Marks:1)** **Vu-Topper RM**

Which symbol is used for Omega notation?

A. (O)

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B. (Θ)
**C. (Ω)**
D. (@)

**Question No:152** **(Marks:1)** **Vu-Topper RM**
Selection sort is a _____sorting algorithm.
**A. In-place** **Page 54**
B. Not In-Place
C. Stable
D. in-partition

**Question No:153** **(Marks:1)** **Vu-Topper RM**
Merge sort is a/an _____ and _____ sorting algorithm.
A. Not in-place, not stable one
B. In-place, not stable one
C. In-place, stable one
**D. Not in-place, stable one** **Page 54**

**Question No:154** **(Marks:1)** **Vu-Topper RM**
Cubic function will _____ a quadratic function.
A. Prove
B. Be equal to
**C. Overtake** **Page 25**
D. Find

**Question No:155** **(Marks:1)** **Vu-Topper RM**
Insertion sort is a _____sorting algorithm.
A. Unstable
**B. In-place** **Page 54**
C. Not In-Place
D. in-partition

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**Question No:156** **(Marks:1)** **Vu-Topper RM**

To check whether a function grows faster or slower than the other function, we use some asymptotic notations, which is _____.

A. Big-oh notation
**B. Theta notation**
C. Omega notation
D. All of the given

**Question No:157** **(Marks:1)** **Vu-Topper RM**

Asymptotic growth of 8n^2 + 2n – 3 is :

A. Θ(n^2 + n)
**B. Θ (n^2)** **Page 14**
C. Θ(8n^2)
D. Θ(8n^2 + 2n)

**Question No:158** **(Marks:1)** **Vu-Topper RM**

In the analysis of algorithms,_____ plays an important role.

**A. Time**
B. Money
C. Growth rate
D. Text analysis

**Question No:159** **(Marks:1)** **Vu-Topper RM**

In inductive approach of knapsack problem, we consider 2 cases, ____ Or _____.

A. Median, Mode
B. Recursive, Iterative
**C. Leave object, Take object** **Page 93**
D. Sequentially. Parallel

**Question No:160** **(Marks:1)** **Vu-Topper RM**

Random Access Machine (RAM) can execute _____ instructions.

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A. Parallel
B. Only logical
C. Only arithmetic
**D. Logical and arithmetic**

**Question No:161 (Marks:1) Vu-Topper RM**
Using _____ algorithm, efficiency is not given much importance.
A. Greedy
B. Merge sort
**C. Processing**
D. Brute Force

**Question No:162 (Marks:1) Vu-Topper RM**
Dynamic Programming algorithms often use some kind of _____ to store the results of intermediate sub-problems.
A. Stack
B. Loop
**C. Table**
D. Variable

**Question No:163 (Marks:1) Vu-Topper RM**
_____is in-place sorting algorithm.
**A. Bubble sort Page 54**
B. Merge sort
C. Linear search
D. Binary Search

**Question No:164 (Marks:1) Vu-Topper RM**
What is the average running time of a quick sort algorithm?
A. O(n^2)
B. O(n)
**C. O(n log n) Page 49**

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D. O(log n)

**Question No:165** **(Marks:1)** **Vu-Topper RM**

Sorting Algorithms having O _____ running time are considered to be slow ones.

A. (n)
**B. (n^2)** **Page 39**
C. (nlog(n))
D. (log(n))

**Question No:166** **(Marks:1)** **Vu-Topper RM**

_____ is the process of avoiding unnecessary repetitions by writing down the results of recursive calls and looking them up again if we need them later.

A. Loop
B. Function
C. Recursion
**D. Memoization** **Page 74**

**Question No:167** **(Marks:1)** **Vu-Topper RM**

The running time of quick sort algorithm _____.

A. Is impossible to compute
B. Has nothing to do with pivot selection
C. Is Random upon each execution
**D. Is Greatly influenced by the selection of pivot** **Page 49**

**Question No:168** **(Marks:1)** **Vu-Topper RM**

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

A. Inputs
B. Outputs
**C. Steps** **Page 13**
D. Pages

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**Question No:169** **(Marks:1)** **Vu-Topper RM**

Developing a dynamic programming algorithm generally involves _____ separate steps.

A. One
**B. Two** **Page 75**
C. Three
D. Four

**Question No:170** **(Marks:1)** **Vu-Topper RM**

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

A. Merge sort algorithm
**B. Selection problem** **Page 34**
C. Brute force technique
D. Plane Sweep algorithm

**Question No:171** **(Marks:1)** **Vu-Topper RM**

In bin sort, each bin can be replaced by a _____ in case of duplication.

A. Heap
B. Stack
C. Hash table
**D. Linked list** **Page 69**

**Question No:172** **(Marks:1)** **Vu-Topper RM**

If there are $\Theta(n^2)$ entries in edit distance matrix then each entry E (i, j) takes _____ time to compute.

A. $\Theta(n)$
**B. $\Theta(1)$**
C. $\Theta(n^2)$
D. $\Theta(n \log n)$

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**Question No:173** **(Marks:1)** **Vu-Topper RM**

In 2-D maxima problem, A point p is said to be dominated by point q if _____.

A. p.x<= q.x

**B. p.x<= q.x and p.y<= q.y** **Page 17**

C. p.y<= q.y

D. p.x>= q.x and p.y>=q.y

**Question No:174** **(Marks:1)** **Vu-Topper RM**

Sorting can be in _____.

A. Increasing order only

B. Decreasing order only

**C. Both increasing and decreasing order** **Page 39**

D. Random order

**Question No:175** **(Marks:1)** **Vu-Topper RM**

Recurrence can be described in terms of_____.

A. Array

B. Linear

**C. Tree** **Page 31**

D. Graph

**Question No:176** **(Marks:1)** **Vu-Topper RM**

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

A. n

B. n(log n)

**C. n*n** **Page 18**

D. n3

**Question No:177** **(Marks:1)** **Vu-Topper RM**

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

**A. Line** **Page 18**

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B. Plane
C. Cube
D. Box

**Question No:178** **(Marks:1)** **Vu-Topper RM**
Asymptotic notations are used to describe _____ of an algorithm.
A. Size
B. Length
**C. Running time** **Google**
D. Compile time

**Question No:179** **(Marks:1)** **Vu-Topper RM**
Applying the sieve technique to selection problem, _____element is picked from array.
**A. Pivot** **Page 35**
B. Total
C. Input
D. Output

**Question No:180** **(Marks:1)** **Vu-Topper RM**
_____ is a linear time sorting algorithm.
A. Merge sort
**B. Radix sort** **Page 71**
C. Quick sort
D. Bubble sort

**Question No:181** **(Marks:1)** **Vu-Topper RM**
Quick sort is one of the _____sorting algorithm.
**A. Fastest** **Page 19**
B. Slowest
C. Major
D. Average

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**Question No:182** **(Marks:1)** **Vu-Topper RM**

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

A. Infinite
B. Continuous
**C. Constant** **Page 10**
D. Variable

**Question No:183** **(Marks:1)** **Vu-Topper RM**

While analysis of the brute-force maxima algorithm, an array sorted in the reverse order is the type of _____ case input.

A. Best
**B. Worst** **Page 14**
C. Somewhat bad
D. Average

**Question No:184** **(Marks:1)** **Vu-Topper RM**

In asymptotical analysis of n(n - 3) and 4n*n, as n becomes large, the dominant (fastest growing) term is some constant times_____.

A. n+1
B. n-1
C. n
**D. n*n** **Page 23**

**Question No:185** **(Marks:1)** **Vu-Topper RM**

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

A. Three
**B. Two**
C. Four
D. Five

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**Question No:186** **(Marks:1)** **Vu-Topper RM**

In 2d-maxima problem, a point is said to be _____if it is not dominated by any other point in that space.

A. Member
B. Minimal
**C. Maximal**
D. Joint

**Question No:187** **(Marks:1)** **Vu-Topper RM**

Counting sort assumes that the numbers to be sorted are in the range _____.

A. K to n where n is large
B. K to n where k is small
**C. 1 to k where k is small**
D. k to n where n is small

**Question No:188** **(Marks:1)** **Vu-Topper RM**

If the time complexity of an algorithm is O(n), then it is called _____ time complexity.

**A. Linear**
B. Constant
C. Average
D. Exponential

**Question No:189** **(Marks:1)** **Vu-Topper RM**

In the case of _____, analysis does not depend upon on the distribution of input.

A. Merge sort
B. Insertion sort
**C. Quick Sort**
D. Heap sort

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**Question No:190** **(Marks:1)** **Vu-Topper RM**

We can use the _____ property to devise a recursive formulation of the edit distance problem.

A. Small substructure
B. Algorithmic
C. Real
**D. Optimal substructure** **Page 78**

**Question No:191** **(Marks:1)** **Vu-Topper RM**

The following sequence is called _____.1,2,3,5,8,13,21,34,55,…..

**A. Fibonacci sequence** **Page 73**
B. Optimal sequence
C. Optimize Sequence
D. Overlapping sequence

**Question No:192** **(Marks:1)** **Vu-Topper RM**

Which one sorting algorithm is best suited to sort an array of 2 million elements?

A. Insert sort
**B. Bubble Sort** **Page 71**
C. Merge sort
D. Quick sort

**Question No:193** **(Marks:1)** **Vu-Topper RM**

We can improve the performance of quick sort if we could be able to _____.

**A. Select two or more pivots** **Page 34**
B. Skip any sub-array completely
C. Skit Input elements somehow
D. Eliminate recursive calls

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**Question No:194** **(Marks:1)** **Vu-Topper RM**

The problem with the brute-force algorithm is that it uses _____ in pruning out decisions.

A. Worst-case time

**B. No intelligence** **Page 18**

C. Outside looping

D. Artificial intelligence

**Question No:195** **(Marks:1)** **Vu-Topper RM**

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

**A. Recursive** **Page 43**

B. Non-Recursive

C. Fast

D. Slow

**Question No:196** **(Marks:1)** **Vu-Topper RM**

If we have an equation 8n2+7f*n+ 5f+6 then n is large, _____term will be much larger than the n term and will dominate the running time.

**A. n^2** **Page 23**

B. f(g(n)

C. f(n)

D. g(n)^2

**Question No:197** **(Marks:1)** **Vu-Topper RM**

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

**A. Theta (log n)** **Page 43**

B. Big-ch (log n)

C. Omega (log n)

D. 0 (1) i.e. Constant time

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**Question No:198** **(Marks:1)** **Vu-Topper RM**

Which process is used for avoiding unnecessary repetitions and looking them up again if we need them later.

A. Greedy Approach
**B. Memoization** **Page 74**
C. Divide and conquer
D. Recursion

**Question No:199** **(Marks:1)** **Vu-Topper RM**

In Heap Sort algorithm, to remove the maximum element every time,_____.

A. Nothing happens
**B. We call heapify procedure** **Google**
C. We call Build-Heap procedure
D. Heap Sort algorithm terminates without result

**Question No:200** **(Marks:1)** **Vu-Topper RM**

When a heapify procedure is applied to the root node to restore the heap, then at each level, the comparison performed takes time:

**A. It will take O(1).** **Page 43**
B. It will take Θ(log n).
C. It can not be predicted.
D. Time will vary according to the nature of input data.

**Question No:201** **(Marks:1)** **Vu-Topper RM**

What is the best case time complexity of merge sort?

A. O((n^2)
**B. O((nlogn)** **Google**
C. O((nlogn^2)
D. O((n^2logn)

**Question No:202** **(Marks:1)** **Vu-Topper RM**

Merge sort algorithm discussed in handouts contains _____.

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A. 1 loop
B. 3 loops
**C. 2 loops** **Google**
D. 4 loops

**Question No:203** **(Marks:1)** **Vu-Topper RM**
In generating Fibonacci Sequence, we can avoid unnecessary repetitions by _____ process.
A. Loop
B. Function
C. Recursion
**D. Memoization** **Page 43**

**Question No:204** **(Marks:1)** **Vu-Topper RM**
Algorithms similar to those for the _____ problem are used in some speech recognition systems.
A. Counting
B. heap sort
C. Fibonacci
**D. edit-distance** **Page 77**

**Question No:205** **(Marks:1)** **Vu-Topper RM**
Radix sort performs sorting the numbers _____ digit(s) at a time.
**A. One** **Page 71**
B. Two
C. All
D. Four

**Question No:206** **(Marks:1)** **Vu-Topper RM**
Radix sort is a _____ integer sorting algorithm.
A. In-Place
B. Unstable
C. Comparative

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**D. Non-comparative** **Google**

**Question No:207** **(Marks:1)** **Vu-Topper RM**

We can use the optimal substructure property to devise a _____ formulation of the edit distance problem.

A. Iterative
B. Optimum
C. Selective
**D. Recursive** **Page 78**

**Question No:208** **(Marks:1)** **Vu-Topper RM**

_____ belongs to Dynamic programming.

A. Heap sort
B. Merge sort
**C. Edit distance** **Page 77**
D. Divide and conquer

**Question No:209** **(Marks:1)** **Vu-Topper RM**

In his book _____, Leonardo Pisano addressed the Fibonacci sequence as well as a variety of other problems.

A. Liber fib
B. Fib abaci
C. Fibonacci
**D. Liber abaci** **Google**

**Question No:210** **(Marks:1)** **Vu-Topper RM**

Dynamic Programming approach is usually useful in solving _____ problems.

A. Loop
B. Array
C. Normal
**D. Optimization** **Page 97**

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**Question No:211** **(Marks:1)** **Vu-Topper RM**

_____ algorithm based on Dynamic Programming strategy.

A. Quick Sort
**B. Heap Sort** **Google**
C. Binary Tree
D. Edit distance

**Question No:212** **(Marks:1)** **Vu-Topper RM**

_____ overcomes the limitations of _____ by working as per positional notations of numbers.

A. Bubble sort, Radix sort
B. Radix sort, Bubble sort,
C. Counting sort, Radix sort
**D. Radix sort, Counting sort** **Page 71**

**Question No:213** **(Marks:1)** **Vu-Topper RM**

In _____, Leonardo of Pisa, also called Fibonacci, published a book.

A. 1102
**B. 1202** **Google**
C. 1400
D. 1304

**Question No:1** **(Marks:1)** **Vu-Topper RM**

In chain matrix multiplication, table is filled _____ to find the multiplication of matrix.

A. row wise
B. column wise
C. diagonally
**D. bottom-to-up** **Page 86**

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**Question No:214** **(Marks:1)** **Vu-Topper RM**

If matrix A of dimension p x q is multiplied with matrix B of dimension q x r, then each entry in resultant matrix takes _____ time.

**A. O (q)** **Page 84**

B. (1)

C. (p x q)

D. (q x r)

**Question No:215** **(Marks:1)** **Vu-Topper RM**

In _____ Knapsack Problem, limitation is that an item can either be put in the bag or not. Fractional items are not allowed.

A. 0

B. 1

**C. 0/1** **Page 91**

D. Fractional

**Question No:216** **(Marks:1)** **Vu-Topper RM**

In Selection algorithm, we assume pivot selection takes theta _____ running time.

**A. n** **Page 36**

B. n2

C. n3

D. log (n)

**Question No:217** **(Marks:1)** **Vu-Topper RM**

Al-Khwarizmi was a/an _____

A. Astronomer

**B. Mathematication** **Page 7**

C. Khalifah

D. Artist

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**Question No:218** **(Marks:1)** **Vu-Topper RM**

When matrix A of 5 x 3 is multiplied with matrix B of 3 x 4 then the number of multiplications required will be _____.

A. 15
B. 12
C. 36
**D. 60** **Page 84**

**Question No:219** **(Marks:1)** **Vu-Topper RM**

algorithm, the first step is to _____.

**A. Call Build-Heap procedure** **Page 46**
B. Sort the array in descending order
C. Call Heapify procedure
D. Find the number of input elements

**Question No:220** **(Marks:1)** **Vu-Topper RM**

Time will vary according to the nature of input data.
_____ time is the maximum running time over all legal inputs.

**A. Worst-case** **Page 13**
B. Average-case
C. Best-case
D. Good-case

**Question No:221** **(Marks:1)** **Vu-Topper RM**

Efficient algorithm requires less computational…

A. Memory
B. Running Time
**C. Memory and Running Time** **Page 9**
D. Energy

**Question No:222** **(Marks:1)** **Vu-Topper RM**

Time complexity of Dynamic Programming based algorithm for computing the minimum cost of Chain Matrix Multiplication is _____

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A. Log n
B. n
C. n^2 (n square)
**D. n^3 (n cube)** **Page 90**

**Question No:223** **(Marks:1)** **Vu-Topper RM**
The Iteration method is used for _____
**A. Solving Recurrence relations** **Page 31**
B. Merging elements in Merge sort
C. Comparing sorting algorithms only
D. Dividing elements in Merge sort

**Question No:224** **(Marks:1)** **Vu-Topper RM**
Chain matrix multiplication problem can be solved through _____ strategy.
**A. Dynamic programming** **Page 85**
B. Greedy
C. Divide and conquer
D. Sorting

**Question No:225** **(Marks:1)** **Vu-Topper RM**
The knapsack problem is optimally solved by using brute force algorithm.Counting sort is suitable to sort the elements in range 1 to K;
A. K is large
**B. K is small** **Page 57**
C. K may be large or small
D. None

**Question No:226** **(Marks:1)** **Vu-Topper RM**
Matrix multiplication is a(n) _____ operation.
A. Commutative
**B. Associative** **Page 85**
C. Neither commutative nor associative

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D. Commutative but not associative

**Question No:227 (Marks:1) Vu-Topper RM**

In Knapsack problem, the goal is to put items in the Knapsack such that the value of the items is _____ subject to weight limit of knapsack.

A. Minimized
B. Decreased
**C. Maximized Page 91**
D. None of the given options

**Question No:228 (Marks:1) Vu-Topper RM**

Rank of an element can be defined as _____

A. One minus the number of elements that are smaller
B. Two plus the number of elements that are greater
**C. One plus the number of elements that are smaller Page 34**
D. Two minus the number of elements that are smaller

**Question No:229 (Marks:1) Vu-Topper RM**

In Sieve technique, we solve the problem _____

**A. In recursive manner Page 34**
B. Non recursively
C. Using Merge Sort algorithm
D. Using Brute force technique

**Question No:230 (Marks:1) Vu-Topper RM**

One of the limitation in 0/1 knapsack is that an item can either be ____ in the bag or not.

A. Use
**B. Put Page 91**
C. Move
D. Store

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**Question No:231** **(Marks:1)** **Vu-Topper RM**

Dynamic programming comprises of _____.

A. Recursion only
B. Repetition only
C. Recursion with Repetition
**D. No Repetition but Recursion** **Page 75**

**Question No:232** **(Marks:1)** **Vu-Topper RM**

The function f(n)=n(logn+1)/2 is asymptotically equalient t nlogn :
Here Lower Bound means function f(n) grows asymptotically at __ as fast as nlog n.

**A. Least** **Page 23**
B. Normal
C. Most
D. AT

**Question No:233** **(Marks:1)** **Vu-Topper RM**

Counting sort has time complexity.

A. O(n+k)
**B. O(n)** **Page 58**
C. O(k)
D. O(nlogn)

**Question No:234** **(Marks:1)** **Vu-Topper RM**

Due to left complete nature of binary tree, the heap can be stored in

**A. Array** **Page 40**
B. Structures
C. Link List
D. Stack

**Question No:235** **(Marks:1)** **Vu-Topper RM**

Single item from a larger set of _____.

A. Constant

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B. Pointers
C. Phases
**D. n items** **Page 34**

**Question No:236** **(Marks:1)** **Vu-Topper RM**
In the clique cover problem, for two vertices to be in the same group, they must be _____ each other.
A. Apart from
B. Far from
C. Near to
**D. Adjacent to** **Page 76**

**Question No:237** **(Marks:1)** **Vu-Topper RM**
How much time merge sort takes for an array of numbers?
A. T(n^2)
B. T(n)
C. T(log n)
**D. T(n log n)** **Page 40**

**Question No:238** **(Marks:1)** **Vu-Topper RM**
In in-place sorting algorithm is one that uses arrays for storage.
**A. No additional array** **Page 54**
B. An additional array
C. Both of above may be true according to algorithm
D. More than 3 arrays of one dimension

**Question No:239** **(Marks:1)** **Vu-Topper RM**
While Sorting, the ordered domain means for any two input elements x and y _____ satisfies only.
A. x > y
B. x < y
C. x = y
**D. All of the above** **Page 38**

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**Question No:240** **(Marks:1)** **Vu-Topper RM**

Quick sort is.

**A. Not stable but in place** **Page 54**

B. Stable but not in place

C. Stable & in Place

D. Some time stable & some times in place

**Question No:241** **(Marks:1)** **Vu-Topper RM**

Which may be a stable sort?

A. Merger

B. Insertion

**C. Both above** **Page 54**

D. None of the above

**Question No:242** **(Marks:1)** **Vu-Topper RM**

For the Sieve Technique we take time.

**A. T(nk)** **Page 34**

B. IT(n / 3)

C. n^2

D. n/

**Question No:243** **(Marks:1)** **Vu-Topper RM**

Continuation sort is suitable to sort the elements in range 1 to k.

A. K is Large

B. K is not known

C. K may be small or large

**D. K is small** **Page 54**

**Question No:244** **(Marks:1)** **Vu-Topper RM**

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

**A. Worst** **Page 14**

B. Average

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C. Best
D. Normal

**Question No:245** **(Marks:1)** **Vu-Topper RM**
In Quick sort, we don't have the control over the sizes of recursive calls.
**A. True** **Page 49**
B. False
C. Less information to decide
D. Ether true or false

**Question No:246** **(Marks:1)** **Vu-Topper RM**
Random access machine or RAM is a/an.
A. Machine build by Al-Khwarizmi
B. Mechanical machine
**C. Mathematical model** **Page 10**
D. Electronics machine

**Question No:247** **(Marks:1)** **Vu-Topper RM**
A heap is a left-complete binary tree that confirms to the _____.
A. increasing order only
B. decreasing order only
**C. heap order** **Page 40**
D. log n order

**Question No:248** **(Marks:1)** **Vu-Topper RM**
Bubble sort takes theta _____ in the worst case
**A. (n2)** **Page 39**
B. (n)
C. log(n)
D. nlog(n)

**Question No:249** **(Marks:1)** **Vu-Topper RM**
Using base condition we set all m[i,i] = _____ ?

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A. 1
**B. 0** **Page 86**
C. ∞
D. -1

**Question No:250** **(Marks:1)** **Vu-Topper RM**
Which one of the following problems can be solved using dynamic problem?
A. Bubble sort problem
B. Greedy search problem
C. Fractional knapsack problem
**D. Matrix chain multiplication problem** **Page 85**

**Question No:251** **(Marks:1)** **Vu-Topper RM**
In chain matrix multiplication, solutions of the sub-problems are stored in a_____.
A. Array
**B. Table** **Page 86**
C. Tree
D. Link list

**Question No:252** **(Marks:1)** **Vu-Topper RM**
While solving Selection problem, in Sieve technique we partition input data _____
A. Randomly
**B. According to Pivot** **Page 35**
C. In increasing order
D. In decreasing order

**Question No:253** **(Marks:1)** **Vu-Topper RM**
In average-case time the probability of seeing input is denoted by ____.
A. p{I}
B. p[I]

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C. p<i>
**D. p(i)** **Page 13**

**Question No:254** **(Marks:1)** **Vu-Topper RM**
8n^2+2n+3 will exceed c28(n), no matter how large we make _____.
A. n
B. 2n
**C. c2** **Page 25**
D. this quadratic equation

**Question No:255** **(Marks:1)** **Vu-Topper RM**
_____ involves breaking up the problem into sub problems whose solutions can be combined to solve the global problem.
A. Complexity Theory
B. Greedy Algorithms
**C. Divide and Conquer Strategy** **Page 34**
D. Dynamic programming solution

**Question No:256** **(Marks:1)** **Vu-Topper RM**
How many steps are involved to design the dynamic programming strategy?
A. 2
**B. 4** **Page 92**
C. 3
D. 1

**Question No:257** **(Marks:1)** **Vu-Topper RM**
_____ is always based on divide and conquer strategy.
A. Bubble sort
B. Selection sort
C. Pigeon sort
**D. Quick sort** **Page 46**

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**Question No:258** **(Marks:1)** **Vu-Topper RM**

Catalan numbers are related the number of different _____ on 'n' nodes.

A. Arrays
B. linked lists
**C. binary trees** **Page 85**
D. functions

**Question No:259** **(Marks:1)** **Vu-Topper RM**

In recursive formulation of knapsack Problem: V [0, j] = ____ for j>=0

A. 2
**B. -1** **Page 93**
C. 1
D. 2

**Question No:260** **(Marks:1)** **Vu-Topper RM**

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

A. Mean
B. Mode
C. Average
**D. Median** **Page 34**

**Question No:261** **(Marks:1)** **Vu-Topper RM**

Insertion sort is an efficient algorithm for sorting a _____ number of elements.

A. Small
**B. Large** **Page 39**
C. Extra large
D. Medium

**Question No:262** **(Marks:1)** **Vu-Topper RM**

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

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**A. Small** **Page 28**
B. Large
C. Equal
D. Not Equal

**Question No:263** **(Marks:1)** **Vu-Topper RM**
An algorithm is said to be correct if for every _____ instance, it halts with the correct _____.

**A. Input, Output** **Page 13**
B. Design, Analysis
C. Value, Key
D. Key, Analysis

**Question No:264** **(Marks:1)** **Vu-Topper RM**
The worst-case running time of Quick sort is _____ in order to sort an array of n element.

**A. O(n log n)** **Page 49**
B. O(n)
C. $O(n^2)$
D. O(log n)

**Question No:265** **(Marks:1)** **Vu-Topper RM**
In chain matrix multiplication, if there are n items, there are _____ ways in which outer most pair of parentheses can placed.

A. n^2
B. 2n
C. n+1
**D. n-1** **Page 85**

**Question No:266** **(Marks:1)** **Vu-Topper RM**
The number of nodes in a complete binary tree of height h is:

A. (h+1) – 1
B. (h+1)

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**C. 2^(h+1) – 1** **Page 40**
D. ((h+1)^2) – 1

**Question No:267** **(Marks:1)** **Vu-Topper RM**
The Huffman codes provide a method of encoding data inefficiently when coded using ASCII standard.
A. True
**B. False** **Page 99**

**Question No:268** **(Marks:1)** **Vu-Topper RM**
In Heap Sort algorithm, we build _____ for ascending sort.
A. Min heap
**B. Max Heap** **Page 41**
C. Both
D. None of these

**Question No:269** **(Marks:1)** **Vu-Topper RM**
In Heap Sort algorithm, the first step is to _____.
A. Call Heapify procedure
**B. Call Build-Heap procedure** **Page 46**
C. Sort the array in descending order
D. Find the number of input elements

**Question No:270** **(Marks:1)** **Vu-Topper RM**
4 x 3, then the dimension of resultant matrix will be _____.
**A. 2x3** **Page 84**
B. 4x3
C. 3x4
D. 2x4

**Question No:271** **(Marks:1)** **Vu-Topper RM**
The formula for calculating the Catalan number is _____.

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| | |
|---|---|
| ○ | $C(n) = \frac{1}{n+1}\binom{n}{2n}$ |
| ○ | $C(n) = \frac{1}{n-1}\binom{n}{2n}$ |
| ◉ | $C(n) = \frac{1}{n+1}\binom{2n}{n}$ Page 85 |
| ○ | $C(n) = \frac{1}{n-1}\binom{2n}{n}$ |

**Question No:272** **(Marks:1)** **Vu-Topper RM**

We can multiply two matrices A and B only when they are compatible which means:

A. Number of rows and columns do not matter

B. Number of rows in A must be equal to number of rows in B

**C. Number of columns in A must be equal to number of rows in B**
**Page 84**

D. Number of columns in A must be equal to number of columns in B


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