CS-502 Fundamentals Of Algorithms Update MCQS For Quiz-2 File Solve By Vu Topper RM

85% To 100% Marks

بری صحبت سے تنہائی بہتر ہے اور تنہائی سے نیک صحبت بہتر ہے

For More Help Contact What's app 03224021365

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
D. In-place, stable one

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

If there are duplicates in __________ sort, then each bin can be replaced by a linked list.

A. Heap
B. Merge
C. Bucket
D. Quick

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

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)

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

Memoization is a part of ________ programming strategy.

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

_____________ programming is essentially recursion without repetition.

A. array
B. Dynamic
C. N log n
D. fast

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

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

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

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)

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

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

A. Minimum element
B. Randomly
C. Average element
D. Maximum element

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

D. A[q]

The total running time for Selection algorithm is ___________ in n.

A. Exponential
B. Geometric
C. Quadratic
D. Linear

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)

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]

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 **Page 43**

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**

Sieve technique is a special case of ___________ strategy.

A. Greedy approach
B. Graph
C. Divide-and-Conquer
D. Dynamic programming

Selection sort takes theta __________ in the worst case.

A. (n)
B. (n^2)

C. nlog(n)
D. n(logn)

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

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

If input "n" is odd, then median will be _________

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

Quick sort is based on ____________ strategy.

A. Graph Theory
B. Greedy approach
C. Divide-and-Conquer
D. Dynamic programming

_________ 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

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]

In ___________ sorting algorithm, we just need to swap positions of data during the Partitioning function.

A. Merge sort
B. Counting sort
C. Radix sort
D. Quick sort

Question No: 01 (Marks:1) Vu-Topper RM

There are __________ entries in the Edit Distance Matrix.

A. ϴ (n)

B. Θ (n2) Page 84 ok
C. Θ (n+2)
D. Θ (n + 100)

Question No: 02 (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 ok
B. Pivot is input separately
C. half of the input values
D. Values greater than 5

Question No: 03 (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 ok
D. Final solution only

Question No: 04 (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

Question No: 05 (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 ok

Question No: 06 (Marks:1) Vu-Topper RM
If there are $\Theta(n^2)$entries in edit distance matrix then the total running time is:
A. θ (n)
B. θ (1)
C. $\theta(n^2)$ Page 84 ok
D. θ (n logn)

Question No: 07 (Marks:1) Vu-Topper RM
In average –case time analysis of quick sort algorithm , the most

balanced case for partion is when we divide the list of elements into _.

A. **Equal no. of pieces as of input elements**
B. Single piece exactly
C. Two nearly equal pieces
D. Three nearly equal pieces

Question No: 08 (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: 09 (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: 10 (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: 11 (Marks:1) Vu-Topper RM

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

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

Question No:12 (Marks:1) Vu-Topper RM

The sequence of merge sort algorithm is:

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

Question No: 13 (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: 14 **(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: 15 **(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: 16 **(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: 17 **(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: 18 **(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**
B. First
C. Any
D. Second last

Question No: 19 **(Marks:1)** **Vu-Topper RM**

Quick sort algorithm was developed by –

A. AlferdAho
B. Sedgewick
C. John Vincent Atanasoff
D. Tony Hoare **Google**

Question No: 20 **(Marks:1)** **Vu-Topper RM**

If Matrix-A has dimensions “3×2” and Matrix-B has dimensions “2×3”, then multiplication of Matrix-A and Matrix-B will result a new Matrix-C having dimensions.

A. 3×2
B. 2×3
C. 2×2
D. 3×3

Question No: 21 **(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: 22 **(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: 23 **(Marks:1)** **Vu-Topper RM**

Floor and ceiling are ______ to calculate while analyzing algorithms

A. Very easy
B. 3rd Option is missing
C. Usually considered difficult
D. 4th Option is missing

Question No: 24 **(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: 25 **(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**
C. Middle Node
D. Left Node

Question No: 26 **(Marks:1)** **Vu-Topper RM**

Which of the following is calculated with Big Omega notation?

A. Medium bounds
B. Upper bounds
C. Lower bounds **Page 25**
D. Both upper and lower bounds

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

Edit distance algorithm based on____________strategy.

A. Greedy
B. Dynamic Programming **Page 81** **ok**
C. Divide and Conquer
D. Searching

Question No: 28 **(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: 29 **(Marks:1)** **Vu-Topper RM**

Al-Khwarizmi was a/an _______
Artist

A. Astronomer
B. Mathematication **Page 7**
C. Khalifah

Question No: 30 **(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: 31 **(Marks:1)** **Vu-Topper RM**

Pseudo code of algorithms are to be read by _______.

A. **People** **Page 12**
B. RAM
C. Computer
D. Compiler

Question No: 32 **(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: 33 **(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** **ok**
B. Over costing
C. Optimized
D. Three

Question No: 34 **(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: 35 **(Marks:1)** **Vu-Topper RM**

Merge sort is based on _______.

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

Question No: 36 **(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: 37 **(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: 38 **(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: 39 **(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: 40 **(Marks:1)** **Vu-Topper RM**
We can make __________ recursive calls in Fibonacci Sequence.

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

Question No: 41 **(Marks:1)** **Vu-Topper RM**
Following is NOT the application of Edit Distance problem.

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

Question No: 42 **(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**

بری صحبت سے تنہائی بہتر ہے اور تنہائی سے نیک صحبت بہتر ہے

Question No: 43 (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: 44 (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: 45 (Marks:1) Vu-Topper RM

Selection algorithm takes theta ______

A. (n2)
B. **(n)**
C. log(n)
D. n log(n)

Question No: 46 (Marks:1) Vu-Topper RM

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

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

Question No: 47 (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: 48 (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)**

بری صحبت سے تنہائی بہتر ہے اور تنہائی سے نیک صحبت بہتر ہے

Question No: 49 **(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: 50 **(Marks:1)** **Vu-Topper RM**

Merge sort have running time….running time of Heap sort. Not found exactly

A. Greater than
B. **Less than** **Google**
C. Equal to
D. Different than

Question No: 51 **(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: 52 **(Marks:1)** **Vu-Topper RM**

Both lower &upperSorting can be in ________

A. Random order
B. Increasing order only
C. Decreasing order only
D. **Both Increasing and Decreasing order**

Question No: 53 **(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** **ok**
C. In place , stable one
D. Not in place , stable one

Question No: 54 **(Marks:1)** **Vu-Topper RM**

Consider three matrices X,Y,Z of dimensions 1×2, 2×3,3×4 respectively. The number of multiplications of (XY) Z is:

A. **18**
B. 32
C. 24
D. 30

Question No: 55 **(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** **ok**

C. Develop the solution in a top-down fashion

D. Input several sub-problems simultaneously

Question No: 56 **(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: 57 **(Marks:1)** **Vu-Topper RM**

Matrix multiplication is a(n) _______ operation.

A. Commutative

B. Associative **Page 85**

C. Neither commutative nor associative

D. Commutative but not associative

Question No: 58 **(Marks:1)** **Vu-Topper RM**

In Dynamic Programming approach, solution is modified/changed _________.

A. Always once

B. At each stage **Google** **ok**

C. Only for specific problems

D. At 4th stage only

Question No: 59 **(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: 60 **(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** **ok**

D. Sometime

Question No: 61 **(Marks:1)** **Vu-Topper RM**

Dynamic Programming is a problem-solving approach in which___

A. Problem is solved in Zero time
B. Solution is developed only at final stage
C. Both are correct
D. Both are incorrect **Google**

Question No: 62 **(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** **ok**
D. Multiplying, Two

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

Dynamic programming formulation of the matrix chain multiplication problem will store the solutions of each sub problem in a(n):

A. Class
B. Array
C. Table
D. Variable

Question No: 64 **(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: 65 **(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: 66 **(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: 67 **(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: 68 **(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.

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

Question No: 69 **(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: 70 **(Marks:1)** **Vu-Topper RM**

If the time complexity of an algorithm is given by O (1), then its time complexity would be

A. Polynomial
B. Exponential
C. Constant **Google**
D. Average

Question No: 71 **(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: 72 **(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: 73 **(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: 74 **(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

Question No: 75 **(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: 76 **(Marks:1)** **Vu-Topper RM**

In the analysis of Selection algorithm, we get the convergent _______________ series.

A. Harmonic
B. Linear
C. Arithmetic
D. Geometric **Page 37**

Question No: 77 **(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: 78 **(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: 79 **(Marks:1)** **Vu-Topper RM**

In Random Access Machine (RAM), instructions are executed in

A. Parallel
B. Batch
C. One by One **Page 10**
D. Multiple times

Question No: 80 **(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

Question No: 81 **(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: 82 **(Marks:1)** **Vu-Topper RM**

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

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

Question No: 83 **(Marks:1)** **Vu-Topper RM**

An algorithm is a mathematical entity. Which is independent of ____.

A. Programming language
B. Machine and Programming language
C. Compiler and Programming language
D. Programing Language Compiler and Machine

Question No: 84 **(Marks:1)** **Vu-Topper RM**

In Quick sort algorithm, Pivots form ___

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

Question No: 85 **(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 ok
C. P is very large
D. P is undetermined

Question No: 86 (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 p-23

Question No: 87 (Marks:1) Vu-Topper RM

___ Items are not allowed in the 0/1 knapsack.

A. Lighter
B. Whole
C. Weighty
D. Fractional

Question No: 88 (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: 89 (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: 90 (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: 91 (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 _____________.

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

Question No: 92 **(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: 93 **(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: 94 **(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: 95 **(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**
C. Few other points
D. Most of the other points

Question No: 96 **(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: 97 **(Marks:1)** **Vu-Topper RM**

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

A. **Mid** **Page 17**
B. Exiting
C. Entring
D. Summing

Question No: 98 **(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: 99 **(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

Question No:100 **(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:101 **(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:102 **(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:103 **(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

Question No:104 **(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:105 **(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:106 **(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:107 **(Marks:1)** **Vu-Topper RM**

For _________ values of n, any algorithm is fast enough.

A. Medium
B. Large
C. Small **Page 14**
D. Infinity

Question No:108 **(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**

بری صحبت سے تنہائی بہتر ہے اور تنہائی سے نیک صحبت بہتر ہے

Question No:109 **(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:110 **(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:111 **(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:112 **(Marks:1)** **Vu-Topper RM**

Single item from a larger set of ________.

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

Question No:113 **(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:114 **(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:115 **(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:116 **(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:117 **(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**

Question No:118 **(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:119 **(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:120 **(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:121 (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:122 (Marks:1) Vu-Topper RM

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

A. Worst Page 14
B. Average
C. Best
D. Normal

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

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

A. Y
B. Z
C. X
D. X , Y

Question No:124 (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:125 (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:126 (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:127 **(Marks:1)** **Vu-Topper RM**

Which one of the following sorting algorithms is the fastest?

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

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

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

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

Question No:129 **(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:130 **(Marks:1)** **Vu-Topper RM**

algorithm first of all _______.

A. Sorts all points
B. Delete some points
C. Output the elements
D. Pushes all points on stack

Question No:131 **(Marks:1)** **Vu-Topper RM**

Which symbol is used for Omega notation?

A. (O)
B. (Θ)
C. (Ω)
D. (@)

Question No:132 **(Marks:1)** **Vu-Topper RM**

Selection sort is a ____________sorting algorithm.

A. In-place **Page 54** **ok**
B. Not In-Place
C. Stable
D. in-partition

Question No:133 **(Marks:1)** **Vu-Topper RM**

We do not need to prove comparison-based sorting algorithms by mathematically. It always takes _________ time.

A. Big Oh nlog(n)
B. Omega nlog(n)
C. Omega n(n^2)
D. Theta nlog(n)

Question No:134 **(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** **ok**

Question No:135 **(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:136 **(Marks:1)** **Vu-Topper RM**
Insertion sort is a ____________sorting algorithm.
A. Unstable
B. In-place **Page 54** **ok**
C. Not In-Place
D. in-partition

Question No:137 **(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:138 **(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:139 **(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:140 (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:141 (Marks:1) Vu-Topper RM

Random Access Machine (RAM) can execute _________ instructions

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

Question No:142 (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:143 (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:144 (Marks:1) Vu-Topper RM

Using base condition we set all m[i,i] = ___________ ?

A. 1
B. 0 Page 86
C. ∞
D. -1

Question No:145 (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 ok
D. variable

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

____________________is in-place sorting algorithm.

A. **Bubble sort** **Page 54** **ok**
B. Merge sort
C. Linear search
D. Binary Search

Question No:147 **(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:148 **(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:149 **(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** **ok**
D. O(log n)

Question No:150 **(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:151 **(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:152 **(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** **ok**

Question No:153 **(Marks:1)** **Vu-Topper RM**

In average-case time the probability of seeing input is denoted by ____.

A. p{I}
B. p[I]
C. p<i>
D. p(i) **Page 13**

Question No:154 **(Marks:1)** **Vu-Topper RM**

While applying the Sieve technique to selection sort, how to choose a pivot element.

A. Through mean
B. Linear
C. Randomly **Page 35**
D. Sequentially

Question No:155 **(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

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

Developing a dynamic programming algorithm generally involves __________ separate steps.

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

Question No:157 **(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:158 **(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:159 **(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:160 **(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:161 **(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:162 **(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** **ok**

Question No:163 **(Marks:1)** **Vu-Topper RM**

In merge sort algorithm, we split the array ______ to find index q.

A. from end
B. from start
C. midway **Page 28**
D. both from start or end

Question No:164 **(Marks:1)** **Vu-Topper RM**

Find the maximum value of the items which can carry using knapsack
Knapsack weight capacity = 50.
Item Weight Value
11070
22020
33080
470 200

A. 90
B. 280
C. 200
D. 100

Question No:165 **(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. bp.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:166 **(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:167 **(Marks:1)** **Vu-Topper RM**

Recurrence can be described in terms of______________.

A. Array
B. Linear
C. Tree **Page 31**
D. Graph

Question No:168 **(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:169 **(Marks:1)** **Vu-Topper RM**

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

A. Line **Page 18**

B. Plane
C. Cube
D. Box

Question No:170 **(Marks:1)** **Vu-Topper RM**
Which of the following is calculated with Big Omega notation?
A. Upper bounds
B. Lower bounds **Page 25**
C. Medium bounds

Question No:171 **(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**

Question No:172 **(Marks:1)** **Vu-Topper RM**
If a matrix has three rows and two columns, then dimensions of matrix will be:
A. 3×2
B. 2×3
C. 3×3
D. 2×2

Question No:173 **(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:174 **(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:175 **(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:176 **(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:177 **(Marks:1)** **Vu-Topper RM**

_________ is a linear time sorting algorithm.

A. Merge sort
B. Radix sort **Page 71** **ok**
C. Quick sort
D. Bubble sort

Question No:178 **(Marks:1)** **Vu-Topper RM**

Quick sort is one of the ________________sorting algorithm.

A. Fastest **Page 19**
B. Slowest
C. Major
D. Average

Question No:179 **(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:180 **(Marks:1)** **Vu-Topper RM**

While analyzing algorithms, ___________and ____________ are usually considered difficult to calculate.

A. Floor, ceiling **Google**
B. Row, Column
C. Finite, Infinite
D. Graph, Tree

Question No:181 **(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

بری صحبت سے تنہائی بہتر ہے اور تنہائی سے نیک صحبت بہتر ہے

Question No:182 **(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:183 **(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:184 **(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

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

In 2d-maximal 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:186 **(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 **ok**
D. k to n where n is small

Question No:187 **(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:188 (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.
A. Small **Page 28**
B. Large
C. Equal
D. Not Equal

Question No:189 (Marks:1) Vu-Topper RM
In Knapsack Problem, each item must be entirely accepted or rejected, is called ______ problem.
A. Linear
B. Fractional
C. 0-1
D. Optimal

Question No:190 (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:191 (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 **ok**
D. Heap sort

Question No:192 (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** **ok**

Question No:193 (Marks:1) Vu-Topper RM
The following sequence is called ______________.1,2,3,5,8,13,21,34,55,…..

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

Question No:194 **(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** **ok**
C. Merge sort
D. Quick sort

Question No:195 **(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** **ok**
B. Skip any sub-array completely
C. Skit Input elements somehow
D. Eliminate recursive calls

Question No:196 **(Marks:1)** **Vu-Topper RM**
The problem with the brute-force algorithm is that is uses ________ in pruning out de
A. Worst-case time
B. **No intelligence** **Page 18**
C. Outside looping
D. Artificial intelligence

Question No:197 **(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:198 **(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:199 **(Marks:1)** **Vu-Topper RM**
If we have an equation 8n2+7f*n + 5f + 6 then is large, ________ term

will be muchxxxxxxxthe n term and will dominate the running time.

A. f g (n)
B. g (n) * 2
C. n * 2 Page 23
D. f (n)

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

For quick sort algorithm, partitioning takes theta ______.

A. (n)
B. log(n)
C. n log (n)
D. n2log (n) Google

Question No:201 (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

Question No:202 (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 ok
C. Divide and conquer
D. Recursion

Question No:203 (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:204 (Marks:1) Vu-Topper RM

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

A. Advance
B. String
C. Basic
D. Normal

Question No:205 (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:206 **(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)
C. 2^(h+1) – 1 **Page 40**
D. ((h+1)^2) – 1

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

In Sieve Technique, we know the item of interest.

A. True
B. False

Question No:208 **(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:209 **(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:210 **(Marks:1)** **Vu-Topper RM**

Quick sort is a recursive algorithm.

A. True
B. False

Question No:211 **(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:212 **(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:213 **(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:214 **(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:215 **(Marks:1)** **Vu-Topper RM**

Merge sort algorithm discussed in handouts contains ________.

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

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

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

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

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

If matrix A of dimension 2 x 4 is multiplied with matrix B of dimension 4 x 3, then the dimension of resultant matrix will be _________.

A. **2x3** **Page 84**
B. 4x3
C. 3x4
D. 2x4

Question No:218 **(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   ok

Question No:219   (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   ok

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

Radix sort performs sorting the numbers ______ digit(s) at a time.

A. One   Page 71   ok
B. Two
C. All
D. Four

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

Radix sort is a ____________________ integer sorting algorithm.

A. In-Place
B. Unstable
C. Comparative
D. Non-comparative   Google   ok

Question No:222   (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   ok

Question No:223   (Marks:1)   Vu-Topper RM

The formula for calculating the Catalan number is _____________.

- ( ) $C(n) = \frac{1}{n+1}\binom{n}{2n}$
- ( ) $C(n) = \frac{1}{n-1}\binom{n}{2n}$
- (•) $C(n) = \frac{1}{n+1}\binom{2n}{n}$
- ( ) $C(n) = \frac{1}{n-1}\binom{2n}{n}$

Question No:224 (Marks:1) Vu-Topper RM

_______________ belongs to Dynamic programming.

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

Question No:225 (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 ok

Question No:226 (Marks:1) Vu-Topper RM

Dynamic Programming approach is usually useful in solving __________ problems.

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

Question No:227 (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

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

If we have 6 metrices in chain matrix multiplication problem then the number of table entries must be?

A. 12
B. 25
C. 30
D. 36 Google

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

_____________ algorithm based on Dynamic Programming strategy.

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

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

Which method is preferable for dealing with chain matrix multiplication?

A. Graph Theory
B. Greedy Approach
C. Divide and Conquer Strategy
D. Dynamic Programming Formulation Google

Question No:231 (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 ok