Quick sort algorithm divide the entire array into \( \ldots \) sub arrays.

Select the correct option

One
Two
Three
Four
In max-heap, largest element is stored at root node. Where is the smallest element stored?

Select the correct option:

- Right Node
- Leaf Node
- Middle Node
- Left Node
In average-case time analysis of Quick sort algorithm, the most balanced case for partition is when we divide the list of elements into ________

Select the correct option

- Equal no. of pieces as of input elements
- Single piece exactly
- Two nearly equal pieces
- Three nearly equal pieces
Which of the following is calculated with Big O notation?

Select the correct option

- Medium bounds
- Upper bounds
- Lower bounds
- Both upper and lower bounds
Edit distance algorithm based on ----------- strategy.

Select the correct option:

- Greedy
- Dynamic Programming
- Divide and Conquer
- Searching
In Heapsort Algorithm, total time taken by heapify procedure is:

Select the correct option

- \( O(\log n) \)
- \( O(\log 2 n) \)
- \( O(n \log n) \)
- \( O(n^2 \log n) \)
Al-Khwārizmī was a/an......

Select the correct option

- Artist
- Mathematician
- Astronomer
- Khalīfah
When matrix A of 5 x 3 is multiplied with matrix B of 3 x 4 then the number of multiplications required is:

Select the correct option:

- 15
- 12
- 36
- 60
If Matrix-A has dimensions "3x2" and Matrix-B has dimensions "2x3", then multiplication of Matrix-A and Matrix-B will result a new Matrix-C having dimensions

Select the correct option

- 3x2
- 2x3
- 2x2
- 3x3
Pseudo code of algorithms are to be read by _________.

Select the correct option

- People
- RAM
- Computer
- Compiler
The sieve technique is a special case, where the number of sub-problems is just _______.

Select the correct option

1

2

3

4
When a recursive algorithm revisits the same problem over and over again, we say that the optimization problem has ____________ sub-problems.

Select the correct option:
- non overlapping
- Overlapping
- Over costing
- Optimized
Sieve technique is very important special case of Divide-and-Conquer strategy.

Select the correct option

True
False
In order to say anything meaningful about our algorithms, it will be important for us to settle on a ________

Select the correct option

- Java Program
- C++ Program
- Pseudo program
- Mathematical model of computation
Merge sort is based on__________

Select the correct option

Brute-force

Plan-sweep

Axis-sweep

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

Select the correct option

- $\Theta(n)$
- $\Theta(\log n)$
- $\Theta(n^{\log n})$
- $\Theta(n^2)$
- $\Theta(n \log n)$
Median is not useful as a measure of central tendency of a given input set especially when the distribution of values is highly skewed.

Select the correct option

- True
- False
In Heap Sort algorithm, the first step is to ________

Select the correct option

- Call Build-Heap procedure
- Sort the array in descending order
- Call Heapify procedure
- Find the number of input elements
The definition of Theta-notation relies on proving \( \theta \) asymptotic bound.

Select the correct option

- One
- Lower
- Upper
- Both lower & upper
In merge sort algorithm, to merge two lists of size \( n/2 \) to a list of size \( n \), takes \( \Theta(n) \) time.

Select the correct option:

- \( \Theta(n) \)
- \( \Theta(\log(n)) \)
- \( \Theta(\log^2(n)) \)
- \( \Theta(n\log(n)) \)
Quick sort algorithm was developed by ________

Select the correct option

- Alfred Aho
- Sedgewick
- John Vincent Atanasoff
- Tony Hoare
We can make ________ recursive calls in Fibonacci Sequence.

Select the correct option

- Infinite
- Finite
The sequence of merge sort algorithm is:

Select the correct option

- Divide-Combine-Conquer
- Conquer-Divide-Combine
- Divide-Conquer-Combine
- Combine-Divide-Conquer
In **0/1** Knapsack Problem, limitation is that an item can either be put in the bag or not. Fractional items are not allowed.

Select the correct option:

- 0
- 1
- 0/1
- Fractional
In Selection algorithm, we assume pivot selection takes theta ______ running time.

Select the correct option

- $n$
- $n^2$
- $n^3$
- $\log(n)$
In Heap Sort algorithm (using max heap), when every time maximum element is removed from top ________

Select the correct option

- We call merge Sort algorithm
- It becomes Order n^2 Algorithm
- Divide and Conquer strategy helps us
- We are left with a hole
If matrix $A$ of dimension $p \times q$ is multiplied with matrix $B$ of dimension $q \times r$, then each entry in the resultant matrix takes $\text{time}$.

Select the correct option:

- $O(q)$
- $O(1)$
- $O(p \times q)$
- $O(q \times r)$
Time complexity of Dynamic Programming based algorithm for computing the minimum cost of Chain Matrix Multiplication is ________.

Select the correct option:

- log n
- n
- \(n^2\) (n square)
- \(n^3\) (n cube)
is a method of solving a problem in which we check all possible solutions to the problem to find the solution we need.

Select the correct option

- Plane-Sweep Algorithm
- Sorting Algorithm
- Brute-Force Algorithm
- Greedy approach
The worst case running time of Quick sort algorithm ________

Select the correct option

- Cannot be quadratic
- Is quadratic
- Is always Exponential
- Is linear