Unlike programs, algorithms to be understood primarily by _____ and_____

Answer (Please select your correct option)

○ Machines, not people

○ Mathematical expressions, not algebraic expressions

○ Programmers, not machines

correct answer solve
by hadi

○ RAM, not programmer

Recurrences are useful for analyzing

Answer (Please select your correct option)

○ Recursive Algorithms

correct answer solve
by hadi

○ Simple Algorithms

○ Parallel Algorithms

○ Parallel Algorithms & Recursive Algorithms

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

Answer (Please select your correct option)

○ **pivot**

○ Sub problems   correct answer solve
                                                  by hadi

○ Selection

○ Sieve

In which order we can sort?

Answer (Please select your correct option)

○   increasing order or decreasing order   correct answer solve
                                                             by hadi

○   both at the same time

○   increasing order only

○   decreasing order only

Comparison based sorting algorithms can not run faster than

Answer (Please select your correct option)

○ Ω (n log n)

                                                    correct answer solve
                                                    by hadi

○   O (n log n)

○ Ω (n²)

○   O (n²)

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

Answer (Please select your correct option)

○ True   correct answer solve
                                                         by hadi

○ False

○ Less information to decide

○ Either true or false

Who invented Quick sort procedure?

Answer (Please select your correct option)

○ Hoare   correct answer solve
                                                               by hadi

○ Sedgewick

○ Mellroy

○ Coreman

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Counting sort assumes that the numbers to be sorted are in the range 1 to k, where k is

Answer (Please select your correct option)

○ Small

correct answer solve
by hadi

○ Large

○ No restriction on k

○ None of these

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

Answer (Please select your correct option)

○　$\Theta(1)$

○　$\Theta(n^2)$　　　　　　　　　　　　　　　　　　　　　　correct answer solve
　　　　　　　　　　　　　　　　　　　　　　　　　　　　by hadi

○　$\Theta(n)$

○　$\Theta(n \log n)$

Marks: 1 (Budgeted Time 1 Min)

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

Answer (Please select your correct option)

○ Overlapping

○ Over costing

○ Optimized

○ None of these

A p × q matrix A can be multiplied with a q × r matrix B. The result will be a p × r matrix C. In particular, for 1 ≤ i ≤ p and 1 ≤ j ≤ r,

Answer (Please select your correct option)

○ $C[i, j] = \sum_{k=1}^{q} A[i,k]B[k,j]$

○ $C[i, j] = \sum_{k=1}^{q} A[k,i]B[k,j]$

○ $C[i, j] = \sum_{k=1}^{q} A[k,i]B[j,k]$

○ None of these

We can find the product A x B of matrices A and B, only if they are compatible which means,

Answer (Please select your correct option)

○ No of Columns of A must be equal to No of Rows of B

○ No of Columns of A must be equal to No of Columns of B

○ No of Rows of A must be equal to No of Rows of B   correct answer solve by hadi

○ Order of A must be equal to order of B

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Time complexity of chain matrix multiplication is $\Theta (n^3)$ and space complexity is

Answer (Please select your correct option)

○ $\Theta (n^2)$

correct answer solve
by hadi

○ $\Theta (n^3)$

○ $\Theta (n \log n)$

○ $\Theta (\log n)$

Computational model of sequential RAM is:

Answer (Please select your correct option)

○ Parallel machines may be expensive to model and have more computational power than sequential RAM.

○ Computational power of sequential RAM is same as that of parallel machines only time efficiency is achieved with parallel machines

○ Both first and second options are true for the statement

○ Less powerful computational wise than parallel machines

correct answer solve
by hadi

The worst case running time of the algorithm given below is,

$\text{MAXIMA}(\text{int } n, \text{Point } P[1 \ldots n])$

1   **for** $i \leftarrow 1$ **to** n *n times*

2   **do** $maximal \leftarrow true$

Answer (Please select your correct option)

○ $\Theta\left(n^{6}\right)$

○ $\Theta\left(n^{\frac{2n}{6}}\right)$

○ $\Theta\left(n^{2}\right)$ correct answer solve
by hadi

○ $\Theta\left(2n \lg 6\right)$

```
1    for i ← 1 to n        n times
2    do maximal ← true
3        for j ← 1 to n    n times
4        do
5            if (i ≠ i)&(P[i].x < P[i].x)&(P[i].u < P[i].u)   4 accesses
```

Answer (Please select your correct option)

○ $\Theta\left(n^6\right)$

○ $\Theta\left(n^{\frac{2n}{6}}\right)$

○ $\Theta\left(n^2\right)$ correct answer solve
                                                            by hadi

○ $\Theta\left(2n\lg 6\right)$

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```
3        for j ← 1 to n      n times
4        do
5           if (i ≠ j)&(P[i].x ≤ P[j].x)&(P[i].y ≤ P[j].y)   4 accesses
6              then maximal ← false break
7        if maximal
```

Answer (Please select your correct option)

○ $\Theta\left(n^6\right)$

○ $\Theta\left(n^{\frac{2n}{6}}\right)$

○ $\Theta\left(n^2\right)$ correct answer solve
by hadi

○ $\Theta\left(2n\lg 6\right)$

```
5        if (i ≠ j)&(P[i].x ≤ P[j].x)&(P[i].y ≤ P[j].y)   4 accesses
6           then maximal ← false break
7        if maximal
8           then output P[i].x, P[i].y   2 accesses
```

Answer (Please select your correct option)

○ $\Theta\left(n^{6}\right)$

○ $\Theta\left(n^{\frac{2n}{6}}\right)$

○ $\Theta\left(n^{2}\right)$

correct answer solve
by hadi

○ $\Theta\left(2n \lg 6\right)$

In Sieve Technique, we know _____

Answer (Please select your correct option)

○ Item of ineterst

○ Order of items

○ complexity of items

○ All items are of ineterst

correct answer solve
by hadi

In Random access machine, instructions are executed _____.

Answer (Please select your correct option)

○ five at a time

○ infinite instructions at a time

○ one-by-one

correct answer solve
by hadi

○ parallel

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

Answer (Please select your correct option)

○ Algebraic and logic

○ Geometric and arithmetic

○ Arithmetic and logic   correct answer solve
                                                            by hadi

○ Parallel and recursive

Which of the following is calculated with **Big O notation**?

Answer (Please select your correct option)

○ Medium bounds

○ Lower bounds

○ Upper bounds

correct answer solve
by hadi

○ Both upper and lower bound

Which of the following functions grows fastest as n gets larger?

Answer (Please select your correct option)

○ $n^{10}2^n$

○ $n^8 3^n$

○ $n^5 5^n$

○ $n^3 2^n$

What is the essential constraint for the Counting Sort?

Answer (Please click here to Add Answer)

How we proceed with m entries in cost table for chain matrix multiplication problem?

Answer (Please click here to Add Answer)

Solve it,

$$T(n) = \frac{1}{2} \sum_{q=1}^{2} (T(q-1) + T(2-q) + 2)$$

Answer (Please click here to Add Answer)

True or False: A sequence of values in a row of the dynamic programming table for an instance of the knapsack problem is always non-decreasing. Give a brief description.

Answer (Please click here to Add Answer)

Whether each of the following sorting algorithms is stable and in-place or not?

Sorting Algorithm	Stable	In-Place
Merge Sort	Yes/No	Yes/No
Heapsort	Yes/No	Yes/No
Quicksort	Yes/No	Yes/No
Counting Sort	Yes/No	Yes/No

Answer (Please click here to Add Answer)

Merge Sort	Yes/No	Yes/No
Heapsort	Yes/No	Yes/No
Quicksort	Yes/No	Yes/No
Counting Sort	Yes/No	Yes/No
Bubble Sort	Yes/No	Yes/No

Answer (Please click here to Add Answer)

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Write down the steps of dynamic programming strategy.

Answer (Please click here to Add Answer)

| Normal ▾ | Arial ▾ | 12 ▾ | **B** *I* <u>U</u> | | |