DSA(COMPLEXITY ANALYSIS PART-1)

Test paper -1 of Complexity Analysis(DSA)
Note: (More Than one Option can be correct be careful)
Time: 1Hour : 20 min
* Required

1. Email address *

2. Name *

3. How do we hold Data in Computer Programming 2 points

Check all that apply.

- [ ] Memory
- [ ] CPU
- [ ] Data Type
- [ ] Variable

4. A data type in a programming language is 2 points

Check all that apply.

- [ ] A set of memory locations with predefined values
- [ ] A set of data with predefined values
- [ ] A set of ASCII values
- [ ] None of these

5. System Defined data types are alse called : 2 points

Check all that apply.

- [ ] Data types
- [ ] Primitive data types
- [ ] Memory Objects
- [ ] None

6. Which of the following terms are related to data structure types ; 2 points

Check all that apply.

- [ ] Linear data structure
- [ ] Cubic data structure
- [ ] Quadratic data structure
- [ ] Non linear data structure

7. What is the basic difference between system defined data types and user defined data types 2 points

Check all that apply.

- [ ] Both of them are used for computer programming
- [ ] Primitive data type support operations on data by default while we have to splicitly define operation for user defined data types
- [ ] User defined data type support operations on data by default while we have to splicitly define operation for primitive data types
- [ ] None of these

8. Data Structure + Operations over data together is called : 2 points

Check all that apply.

- [ ] Linear Data type
- [ ] Non linear Data type
- [ ] Multi Data type
- [ ] Abstract Data type

9. ADTs(Abstract Data Types) involve which of the following two process: 2 points

Check all that apply.

- [ ] Declaration of data + Definations of Operations
- [ ] Defination of data + Declarations of Operations
- [ ] Declaration of data + Declaration of Operations
- [ ] Definition of data + Definition of Operations

10. What are two main criteria for judging the merits of algorithms: 2 points

Check all that apply.

- [ ] Correctness
- [ ] Concreteness
- [ ] Run Time
- [ ] Efficiency

11. The goal of the analysis of algorithms is to compare algorithms (or solutions) mainly in terms of : 2 points

Check all that apply.

- [ ] Running Time
- [ ] Memory
- [ ] Developer efforts
- [ ] Data Types

12. Which of the following is the best way to compare Algorithms 2 points

Check all that apply.

- [ ] Execution Times
- [ ] Number of Statement Executed
- [ ] Function of Input Size
- [ ] None of these

13. What is the Rate of Growth of Algorithms : 2 points

Check all that apply.

- [ ] The rate at which the running time increases as a function of memory
- [ ] The rate at which the running time increases as a function of time
- [ ] The rate at which the running time increases as a function of input
- [ ] None of these

14. What is the Complexity of adding an element to the front of a doubly linked list 2 points

Check all that apply.

- [ ] O(log(n))
- [ ] O(log(log(n)))
- [ ] O(n)
- [ ] O(1)

15. What is the complexity of finding an element in an unsorted array and a sorted array respectively : 2 points

Check all that apply.

- [ ] log(n) and n^2
- [ ] log(n) and n
- [ ] n and n^2
- [ ] n and log(n)

16. What is the complexity of matrix multipliction : 2 points

Check all that apply.

- [ ] log(n)
- [ ] n^2
- [ ] 2^n
- [ ] n^3

17. What is the complexity of the follong syntax: for(i=n;i>=1;){ i=i*2) ;} 2 points

Check all that apply.

- [ ] log(log(n))
- [ ] log(n)
- [ ] n
- [ ] 2^n

18. What is the complexity of : T(n) = 6T(n/3) + n^2 log(n) 5 points

Check all that apply.

- [ ] Θ(n2)
- [ ] Θ(n^2log(n))
- [ ] Θ(nloglogn)
- [ ] None

19. What is the complexity of: T(n) = 3T(n/4) + nlogn 5 points

Check all that apply.

- [ ] Θ(nlogn)
- [ ] Θ(n^2logn)
- [ ] Θ(nloglogn)
- [ ] Θ(n)

20. What is the Complexity of the following expression T(n) = T(α n) + T((1 – α)n) + βn, where 0 < α < 1 and β > 0 are constants : 3 points

Check all that apply.

- [ ] O(n^α)
- [ ] O(nlogn)
- [ ] O(2^n(logn))
- [ ] None

21. What you mean by Amortized Analysis : 3 points

22. Which of the following three claims are correct? (i) (n + k)m = Θ(nm), where k and m are constants (ii)2n+1 = O(2n) (iii) 22n+1 = O(2n) 4 points

Check all that apply.

- [ ] (i) and (iii)
- [ ] (i), (ii) and (ii)
- [ ] (ii) and (iii)
- [ ] (i) and (ii)

"Life is the most difficult exam. Many people fail because they try to copy others, not realising that everyone has a different question papers"