**SRM Institute of Science and Technology Set A**

**College of Engineering and Technology**

**School of Computing**

SRM Nagar, Kattankulathur – 603203, Chengalpattu District, Tamilnadu

**Academic Year: 2021-22 (Even)**

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| **Part – A**  **(10 x 1 = 10 Marks)**  **Instructions: Answer all** | | | | | | |
| **Q. No** | **Question** | **Marks** | **BL** | **CO** | **PO** | **PI Code** |
| **1** | Identify the true statement of convex hull   1. Smallest convex polygon that does not contains all the points of S 2. **Smallest convex polygon that contains all the points of S** 3. Largest convex polygon that contains all the points of S 4. Largest convex polygon that contains all the points of S | **1** | 3 | 2 | 1 | 2.1.1 |
| **2** | Select the number of comparisons required to find Min and Max using brute force and divide and conquer method.   1. **2n-2 and 3(n/2)-2 comparisons** 2. 2n and n comparisons 3. 2n and n-2 comparisons 4. n(n-1) and 3n comparisons | **1** | 4 | 2 | 2 | 2.2.2 |
| **3** | Partition Exchange sorting is also called as   1. Merge sort 2. Insertion sort 3. **Quick sort** 4. Bubble sort | **1** | 2 | 2 | 1 | 2.1.1 |
| **4** | Pick the maximum subarray sum for {-1,3,4, -5,9}   1. 13 2. 17 3. 10 4. **11** | **1** | 3 | 2 | 2 | 2.1.1 |
| **5** | What is the best-case time complexity of merge sort?   1. **O(n log n)** 2. O(n) 3. O(n2 log n) 4. O(n log n2) | **1** | 4 | 2 | 2 | 2.1.1 |
| **6** | Given an input array = {12,25,87,100,109} and key = 109. What is the level of recursion when binary search is used?  a) 4  b) 2  **c) 3**  d) 5 | **1** | 3 | 3 | 2 | 2.1.2 |
| **7** | Find out the preorder traversal for the given binary tree.  111A)Using of median in quick sort avoids worst case time complexity  332A)Using of median in quick sort avoids worst case time complexity  5A)Using of median in quick sort avoids worst case time complexity  77A)Using of median in quick sort avoids worst case time complexity  9A)Using of median in quick sort avoids worst case time complexity  8A)Using of median in quick sort avoids worst case time complexity  4A)Using of median in quick sort avoids worst case time complexity  11A)Using of median in quick sort avoids worst case time complexity  6  12A)Using of median in quick sort avoids worst case time complexity  10A)Using of median in quick sort avoids worst case time complexity   1. **1 3 5 4 6 7 8 9 10 11 12** 2. 4 5 6 3 1 8 7 9 11 10 12 3. 4 6 5 3 8 11 12 10 9 7 1 4. 6 5 4 12 11 10 9 7 1 8 3 | **1** | 3 | 3 | 2 | 1.3.1 |
| **8** | State the two properties of greedy approach.   1. Commutative and Associative 2. Associative and Identity 3. **Greedy choice and Optimal Substructure** 4. Greedy choice and associative | **1** | 3 | 3 | 1 | 1.3.1 |
| **9** | Which of the following statement is not true about minimum spanning tree.  a) Minimum spanning tree spans the graph G  b) Minimum spanning tree is the subgraph of G  c) **Minimum spanning tree is either cyclic or acyclic**  d) Minimum spanning tree includes every vertex of G | **1** | 2 | 3 | 1 | 2.2.2 |
| **10** | Recognize the best approach to perform matrix chain multiplication   1. **Dynamic Programming** 2. Branch and Bound 3. Backtracking 4. Divide and Conquer | **1** | 3 | 3 | 1 | 3.1.1 |