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Question Paper Code: 43223

B.E. / B.Tech. DEGREE EXAMINATION, AUGUST 2021

Third Semester

Electronics and Communication Engineering

14UCS323 - DATA STRUCTURES AND ALGORITHM ANALYSIS

(Regulation 2014)

Duration: 1:45 hour

Maximum: 50 Marks

PART A - (10 x 2 = 20 Marks)

(Answer any ten of the following questions)

1. How is member function of a class defined?
2. Define operator overloading.
3. State the use of pointer.
4. Write syntax for class template.
5. Define Linked List. List the types of Linked List.
6. Write brief note on properties of binary heap.
7. Prove that the maximum number of nodes in a binary tree of height h is $2^h - 1$.
8. Define Topological sort.
9. Write the steps involved in bucket sorting.
10. Define Divide and Conquer technique. Give an example.
11. What are the ways in which a constructor can be called?
12. List the IOs format function.

13. What are the properties of the binary heaps?
14. Define minimum spanning tree.
15. Explain the performance analysis of the algorithm.

PART – B (3 x 10= 30 Marks)

(Answer any three of the following questions)

16. Explain the features of object oriented programming. Describe how each of these is implemented in C++. (10)
17. Explain protected data with private and public inheritance. (10)
18. Write a program to perform the operations of stack using array. (10)
19. Write a program in C to create an empty binary search tree and search for an element X in it. (10)
20. Write a program to arrange the set elements using merge sort. Apply the merge sorting algorithm for 8 2 9 4 5 3 1 6. (10)