Reg. No. : | | | | | | | | | | |

Question Paper Code: 44824

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

Fourth Semester

Electrical and Electronics Engineering

(Common to Electronics and Instrumentation Engineering and

Instrumentation and Control Engineering)

14UIT424 - DATA STRUCTURES AND ALGORITHMS

(Regulation 2014)

Duration: 1:45 hour   Maximum: 50 Marks

PART A - (10 x 2 = 20 Marks)

(Answer any ten of the following questions)

1. State the use of Constructor in C++.

2. Write a sample to code to show the usage of pointers in C++.

3. Define circular linked list and state its significance.

4. Sketch Binary expression Tree for the given postfix notation 1 2 + 3 * 6 + 2 3 + /

5. Insertion sort is best suitable if the list is already sorted-Justify 6. Define algorithm.

7. Define connected components of a graph. Write its uses.

8. What is complete binary tree?

9. What do you mean by greedy algorithms?

10. Define divide and conquer algorithm?

11. Difference between Class and structure.

12. Write a C++ program to check the given integer is Prime or composite number.

13. Illustrate the exception handling mechanism.

14. What do you mean by pure virtual function?

15. What are the features of an efficient algorithm?

PART – B (3 x 10= 30 Marks)

(Answer any three of the following questions)

16.   Write a C++ program to illustrate the static member function.   .   (10)

17.   Explain the following terms with respect to OOPS and give suitable examples.
        (i) Polymorphism   (10)

18.   Write the algorithms for the operations of linked queues.   (10)

19.   Define NP complete problem. Where it is applied? Discuss one application with
         example.   (10)

20.   Write a C program to sort the input elements 3,1,4,1,5,9,2,6,5,3,5 using quick

        sort with their step-wise iterations.   .   (10)

44824