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**Question Paper Code: 54824**

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)

01UIT424 - DATA STRUCTURES AND ALGORITHMS

(Regulation 2013)

Duration: 1:45 hour

Maximum: 50 Marks

PART A - (10 x 2 = 20 Marks)

**(Answer any ten of the following questions)**

1. What are the features required for object-based programming Language?
2. What is friend function?
3. What are objects and how they are created?
4. Name the various types of multiple inheritance.
5. Define ADT.
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. Explain overloading concept with unary and binary operators with examples. (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. Compare merge sort and insertion sort algorithms with examples. (10)