Reg. No. : ☐☐☐☐☐☐☐☐☐☐

Question Paper Code: 31804

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

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: Three hours   Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. Difference between Class and structure.

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

3. Illustrate the exception handling mechanism.

4. What do you mean by pure virtual function?

5. What are the features of an efficient algorithm?

6. Define algorithm.

7. What are the two traversal strategies used in traversing a graph.?

8. What is complete binary tree?

9. How to perform union operation?

10. What is the time complexity of quick sort and binary search?

11. (a) Write a member function and friend function to subtract two complex numbers in C++. (16)

Or

(b) What is the purpose of constructor and destructor? Explain with suitable example the different types of constructors in C++. (16)

12. (a) What is inheritance? Discuss in detail about the various types of inheritances in C++ with suitable examples. (16)

Or

(b) What is virtual function? Explain with an example how late binding is achieved using virtual function. (16)

13. (a) Write some set of routines for implementing two stacks within a single array. (16)

Or

(b) Write a C++ code to perform addition of two polynomials using link list form of queue. (16)

14. (a) Illustrate the depth first search algorithm with a graph and explain. (16)

Or

(b) Write C++ code for the implementation of different types of tree traversals. State few tree applications. (16)

15. (a) Discuss the quick sort algorithm and apply the same for the following numbers 90, 77, 60, 99, 55, 88, 66. (16)

Or

(b) Explain in detail about linear search algorithm with an example. (16)

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