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**Question Paper Code: 34080**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 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. List the characteristics of Constructor.
2. Define template.
3. What is inheritance? State the different types.
4. What do you mean by pure virtual function?
5. Define ADT.
6. Define algorithm.
7. Define connected components of a graph. Write its uses.
8. What is complete binary tree?
9. How to perform union operation?
10. What do you mean by greedy algorithms?

PART - B (5 x 16 = 80 Marks)

11. (a) Explain overloading concept with unary and binary operators with examples. (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) Explain the different methods of Exception handling in C++. (16)

Or

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

13. (a) Write the insertion and deletion operation in doubly linked list. (16)

Or

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

14. (a) Construct the minimum spanning tree using Prim's algorithm for the above graph. (16)

Or

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

15. (a) Compare merge sort and insertion sort algorithms with examples. (16)

Or

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

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