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

Question Paper Code: 31438

B.E. / B.Tech. DEGREE EXAMINATION, NOVEMBER 2015

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. Define Token. What are the tokens used in C++?
2. Difference between constructors and destructors.
3. Give the syntax for inheritance.
4. List the different types of polymorphism.
5. Write a routine to return the top element of stack.
6. What are the advantages of doubly linked list over singly linked list?
7. Compare General tree with binary tree.
8. Show the maximum number of nodes in a binary tree of height H is 2^{H+1}-1.
9. Define bubble sort.
10. State spanning tree.

PART - B (5 x 16 = 80 Marks)

11. (a) Explain the basic concepts of object oriented programming. (16)

Or

(b) (i) How to achieve operator overloading through friend function? (8)

(ii) Write a program using friend functions for overloading <<and>> operators? (8)

12. (a) What is exception handling? Write a program for multiple catch and catch all exceptions. (16)

Or

(b) What is Inheritance? Explain any 3 types of inheritance with suitable example. (16)

13. (a) (i) Discuss the operation performed in ADT. Explain them in detail. (8)

(ii) Explain the array and linked list implementation of stack. (8)

Or

(b) (i) Explain the array and linked list implementation of queue. (8)

(ii) Explain about hashing in detail with example. (8)

14. (a) Write an algorithm to insert, delete, find minimum and maximum element from a binary search tree. (16)

Or

(b) What is Topological sort? Write down the pseudo code to perform topological sort and explain it with an example graph. (16)

15. (a) Explain any 4 sorting techniques in detail. (16)

Or

(b) Explain in detail about divide and conquer algorithm with an example. (16)

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