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**Question Paper Code : 31507**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Third Semester

Information Technology

IT 2201/IT 33/10144 IT 304/080250005 – DATA STRUCTURES AND ALGORITHMS

(Regulation 2008/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is meant by abstract data types?
2. What are the advantages of using cursor based linked list over single linked list?
3. What are the conditions satisfied in Binary search tree?
4. Obtain expression tree for given expression :  $(a+b)*(c-d)-(e/f)$ .
5. What is meant by collision in hashing?
6. What is the use of extendible hashing?
7. What is meant by Topological sort?
8. What is meant by Euler's circuits?
9. Define NP-complete problems.
10. Define Theta Notation.

PART B — (5 × 16 = 80 marks)

11. (a) Implement circular linked list for the operations of insert, delete and display. (16)

Or

- (b) Implement stack operations to check whether the given string is palindrome or Not. (16)



12. (a) Explain briefly about the rotations of AVL Tree. (16)

Or

(b) Explain briefly about the insert operations in binary search tree. (16)

13. (a) Explain briefly about open hashing techniques with neat example. (16)

Or

(b) Explain about dynamic equivalence problem with an example. (16)

14. (a) Explain about minimum spanning tree with algorithm techniques. (16)

Or

(b) Explain briefly about single shortest path algorithm with an example. (16)

15. (a) Analyze merge sort for the following numbers using divide and conquer strategy 25, 3, 45, 789, 87, 56, 47, 65, 30, 59, 56, 24. (16)

Or

(b) Explain eighth queens problem in backtracking algorithm with neat example. (16)