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Question Paper Code : 10259

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2012.

Third Semester

Computer Science and Engineering

CS 2201/141301/CS 33/10144 CS 302/080230007 — DATA STRUCTURES

(Regulation 2008)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. What are the operations can be done with set ADT?

2. Give any three applications of linked list.

3. Draw the expression tree for ((b + c) * a) + ((d + e * f) + g).

4. What are the advantages of threaded binary tree?

5. What are the differences between binary search tree and AVL tree?

6. What is the purpose of splay tree?

7. What is meant by open addressing?

8. What is the purpose of dynamic hashing?

9. Define critical path.

10. What is weakly connected graph?

PART B — ($5 \times 16 = 80$ marks)

11. (a) (i) Explain the operations of queue with C function. (8)

(ii) Explain the array implementation of stacks. (8)

Or

(b) Explain the cursor implementations of linked list. (16)

12. (a) Explain the traversals of binary tree with examples. (16)

Or

(b) Describe the operations of binary search tree with functions. (16)

13. (a) Briefly explain the single rotation and double rotation of AVL tree with suitable examples. (16)

Or

(b) Explain the binary heap operations with examples. (16)

14. (a) For the given input (4371,1323,6173,4199,4344,9679,1989) and a hash function h(X) = X mod 10. Show the resulting: (16)

(i) Separate chaining hash table

(ii) Open addressing hash table using linear probing

(iii) Open addressing hash table using quadratic probing

(iv) Open addressing hash table with second hash function

$h_2(X) = 7 - (X \bmod 7)$.

Or

(b) Explain the smart union algorithms with examples. (16)

15. (a) (i) Explain the prim's algorithm with example. (8)

(ii) Explain topological sort with an example. (8)

Or

(b) (i) Explain the Kruskal's algorithm with example. (8)

(ii) Explain the Dijkstra's algorithm with an example. (8)