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

Question Paper Code: 33202

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2018

Third Semester

Computer Science and Engineering

01UCS302 - DATA STRUCTURES

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. What is abstract data type? Give any two examples.
2. Mention the applications of stack.
3. What are the various tasks performed while traversing a binary tree?
4. What is the purpose of splay tree?
5. Define: AVL Tree.
6. Mention the applications of B-tree.
7. What is meant by primary clustering?
8. What is the need for path compression?
9. Define the term: biconnectivity.
10. What is topological sort? Give algorithm

PART - B (5 x 16 = 80 Marks)

11. (a) Write an algorithm to merge two sorted linked lists into a single sorted list. (16)

Or

(b) Define Queue ADT. How is circular queue implemented? Give example. (16)

12. (a) (i) Describe the tree traversals routine. (8)

(ii) Write the procedure for deletion routing in binary search tree. (8)

Or

(b) Write an algorithm to insert an item into a binary search tree and trace the algorithm with the items : 6, 2, 8, 1, 4, 3, 5. (16)

13. (a) Write a procedure to implement single and double rotations while inserting nodes in an AVL tree with example. (16)

Or

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

14. (a) Explain in detail the path compression techniques. (16)

Or

(b) Explain the smart union algorithm with example. (16)

15. (a) Explain with an example for breadth first and depth first search traversal of a graph. (16)

Or

(b) Describe in detail about Bi-Connectivity with a neat examples. (16)

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