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

Question Paper Code: 33202

B.E. / B.Tech. DEGREE EXAMINATION, AUGUST 2021

Third Semester

Computer Science and Engineering

01UCS302 - DATA STRUCTURES

(Regulation 2013)

Duration: 1:45 hour Maximum: 50 Marks

PART A - (10 x 2 = 20 Marks)

(Answer any ten of the following questions)

1. Define an ADT.
2. What is the use of threaded binary tree?
3. List out the two properties of heap.
4. List the abstract operations in the set.
5. Define connected components of a graph .write its uses.
6. State the difference between arrays and linked lists.
7. Define a threaded binary tree.
8. Define splay tree.
9. Define an equivalence relation.
10. Define Biconnectivity.
11. Mention the advantages of representing stacks using linked lists than arrays.
12. What is the use of threaded binary tree?
13. What do you mean by balance factor of a node in AVL tree?

14. Define an equivalence relation.

15. What is meant by strongly connected and weakly connected in a graph?

PART – B (3 x 10= 30 Marks)

(Answer any three of the following questions)

16. Implement an algorithm to polynomials represented as single linked list. (10)

17. What is a BST? Explain with suitable algorithms for insertion and deletion of nodes at different instances. Illustrate with suitable examples. (10)

18. Explain the following routines in AVL tree with example: (i) Insertion (ii) Deletion (iii) Single rotation (iv) Double Rotation. (10)

19. Explain in detail the path compression techniques. (10)

20. Explain the Dijkstra's algorithm to shortest path with suitable example. (10)