

Reg. No. :

--	--	--	--	--	--	--	--	--	--

**Question Paper Code: 94826**

B.E./B.Tech. DEGREE EXAMINATION, MAY 2022

Fourth Semester

Electrical and Electronics Engineering

19UIT426- Data Structure Using C

(Regulations 2019)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (10x 2 = 20 Marks)

1. What are benefits of ADT? CO1- U
2. When doubly linked list can be represented as circular linked list? CO1- U
3. Write an algorithm to implement the pop operation under array representation of stacks. CO2- App
4. If the elements "A", "B", "C" and "D" are placed in a queue and are deleted one at a time, in what order will they be removed? CO2- App
5. Define depth and height of a node. CO1- U
6. Define internal nodes. CO1- U
7. What are the applications of graph data structure? CO1- U
8. What is topological sorting in a graph? CO1- U
9. Define bubble sort CO1- U
10. How the insertion sort is done with the array? CO1- U

PART – B (5 x 16= 80Marks)

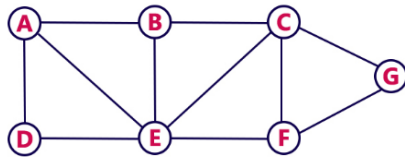
11. (a) Describe the various operations of the list ADT with examples. CO1-U (16)  
Or  
(b) Describe the steps involved in search operation into a doubly and circular linked list with visualization. CO1-U (16)

12. (a) Explain how to evaluate arithmetic expressions using stacks CO1-U (16)  
 Or  
 (b) Describe the applications of Stacks CO1-U (16)

13. (a) Construct a Binary Search Tree (BST) for the following sequence of numbers- CO2-App (16)  
 50, 70, 60, 20, 90, 10, 40, 100  
 Or

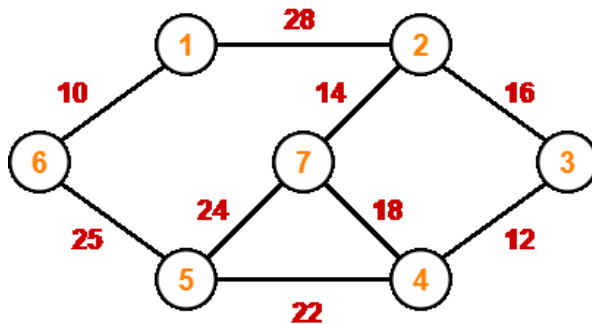
- (b) Construct AVL Tree for the following sequence of numbers- CO2-App (16)  
 50 , 20 , 60 , 10 , 8 , 15 , 32 , 46 , 11 , 48

14. (a) Consider the following example graph to perform BFS traversal. CO2-App (16)



Or

- (b) Construct the minimum spanning tree (MST) for the given graph using Kruskal's Algorithm. CO2-App (16)



15. (a) Write an algorithm to implement Bubble sort with suitable example. CO1- U (16)  
 Or  
 (b) Write an algorithm to implement insertion sort with suitable example. CO1- U (16)