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

Question Paper Code: 94826

B.E./B.Tech. DEGREE EXAMINATION, NOV 2023

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

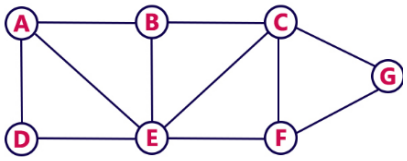
(b) Describe the applications of Stacks CO1-U (16)

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

Or

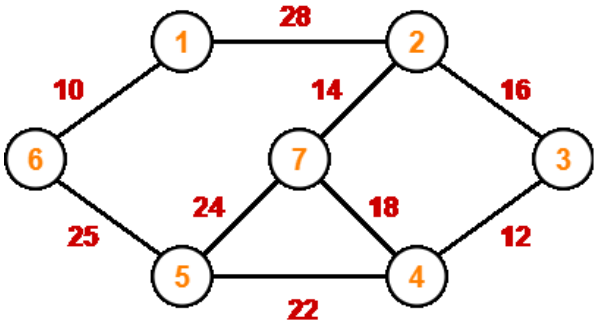
(b) Construct AVL Tree for the following sequence of numbers-
50 , 20 , 60 , 10 , 8 , 15 , 32 , 46 , 11 , 48 CO2-App (16)

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)