Reg. No.																

Question Paper Code	14483

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2026

Sixth Semester

Electrical and Electronics Engineering

(Common to Computer Science and Engineering)

20ITPC301 - DATA STRUCTURES

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART – A (i) (MCQ)
(16 × 1 = 16 Marks)
Answer ALL Questions

		Marks	*K – Level*	*CO*
1.	_____ is the Linear Data Structure a) Graph b) Array c) Tree d) none of these	*1*	*K1*	*CO1*
2.	abc+*d/ is in the form of_____ a) infix b) Application of Stack c) prefix d) none of these	*1*	*K2*	*CO1*
3.	Insertion and Deletion at both end is called as a) Queue b) Dequeue c) Stack d) None of these	*1*	*K1*	*CO1*
4.	Choose the best linear data structure for checking string palindrome. a) Stack b) Single Linked List c) Dequeue d) Queue	*1*	*K2*	*CO2*
5.	Pop is used to a) Insert an element b) Delete an element c) Search an element d) None of these	*1*	*K1*	*CO2*
6.	Last node pointer is pointing First node is a) Doubly Linked list b) Single Linked List c) Circular Linked List d) None of these	*1*	*K1*	*CO2*
7.	Which of the following tree data structures is not a balanced binary tree? a) B Tree b) B+ Tree c) B+ Tree d) AVL Tree	*1*	*K1*	*CO3*
8.	AB+ is the _____ form a) Prefix b) Infix c) Postfix d) None of these	*1*	*K1*	*CO3*
9.	Left-Root-Right is the_____ a) Preorder b) Inorder c) Postorder d) None of these	*1*	*K2*	*CO3*
10.	All vertices are having equal degree in a graph is called as a) Simple Graph b) Complete Graph c) Regular Graph d) None of these	*1*	*K1*	*CO4*

11.	Queue is used to implement the _____		1	K2	CO4
	a) DFS	b) Prim's Algorithm			
	c) BFS	d) None of these			
12.	Choose the correct algorithm for finding shortest path between all pairs of vertices		1	K1	CO4
	a) Floyd-Warshall Algorithm	b) Dijkstra's Algorithm			
	c) Kruskal's Algorithm	d) None of these			
13.	Which sorting algorithm is best for small array?		1	K1	CO5
	a) Radix Sort	b) Bubble Sort			
	c) Insertion Sort	d) All of these			
14.	Finding location of the key is called as		1	K1	CO5
	a) Hash	b) Search			
	c) Sort	d) All of these			
15.	Fast searching method is		1	K1	CO6
	a) Binary search	b) Linear search			
	c) Jump search	d) All of these			
16.	Worst case of shell sort is		1	K2	CO6
	a) O (N)	b) O (log N)			
	c) O (N log N)	d) O (N2)			

PART – A (ii) (Short Answer Questions)
(6 × 3 = 18 Marks)

17.	Compare Stack and Queue.	3	K3	CO1
18.	Identify the advantages of Doubly Linked List.	3	K2	CO2
19.	Summarize about Tree Traversal.	3	K2	CO3
20.	Model a Graph for each type.	3	K3	CO4
21.	Write Floyd's algorithm.	3	K2	CO5
22.	Solve and sort the following numbers in ascending order. 56,6,36,16,46,26	3	K3	CO6

PART - B (Descriptive Answer Questions)
(6 × 11 = 66 Marks)
Answer ALL Questions

23.	a)	Apply the stack concept on the following expression and convert into prefix. (A+B)-E*C/D.	11	K3	CO1
		OR			
	b)	Organize the concept of queue and circular queue.	11	K3	CO1
24.	a)	Apply the linked list concepts and write addition and deletion code snippet.	11	K3	CO2
		OR			
	b)	Develop the code snippet for the implementation of insert an element in the doubly linked list.	11	K3	CO2
25.	a)	Write code snippet for Binary Tree operations and explain in detail.	11	K3	CO3
		OR			
	b)	Apply AVL tree concept and delete an element with suitable example.	11	K3	CO3

26.	a)	Construct the concept of BFS and DFS with suitable example.	*11*	*K3*	*CO4*
		OR			
	b)	Model the Dijkstra's algorithm on the suitable example.	*11*	*K3*	*CO4*
27.	a)	Make use of the procedure of Topological Sort with suitable example.	*11*	*K3*	*CO5*
		OR			
	b)	Select Kruskal's algorithm and apply on with the suitable example.	*11*	*K3*	*CO5*
28.	a)	Solve the Binary Search concept on the following number and find 33. Illustrate each step in detail. 73,93,13,83,33,63,23,53,43	*11*	*K3*	*CO6*
		OR			
	b)	Organize the hash function and apply it on with suitable example.	*11*	*K3*	*CO6*