

K. J. Somaiya Institute of Technology, Sion, Mumbai-22
(Autonomous College Affiliated to University of Mumbai)

Subject Code: EXDLC5054 Subject Name: Data Structures and Algorithms Date: 05/08/24

Supplementary Exam Feb/March 2024

B.Tech :Program: Electronics and Telecommunication Engineering

Examination: TY

Course Code: EXDLC5054

and

Course Name: Data Structures and Algorithms

Semester: V

Duration: 2.5 Hours

Max. Marks: 60

Instructions:

- (1) All questions are compulsory.
- (2) Draw neat diagrams wherever applicable.
- (3) Assume suitable data, if necessary.

Q. No	Question	Max. Marks	CO	BT Level
Q 1	Solve any six questions out of eight:	12		
i)	What are Linear and Non Linear data structures ?		1	U
ii)	List Application of Stack.		2	U
iii)	What are different types of Queues?		2	U
iv)	Explain operations on linked list in brief?		3	U
v)	Explain what are the operations that we can perform on trees ?		4	U
vi)	What are requirement of Hash function?		5	U
vii)	Write common Hashing functions		5	U
viii)	Explain concept of all pair shortest path algorithm		6	U
Q.2	Solve any four questions out of six.	16		
i)	Explain terminologies used in Hashing		5	Ap
ii)	Convert infix string $((A + B) * (C - D)) / (E + F)$ into prefix string with stack. Show the content of stack in each step.		2	Ap
iii)	Discuss advantages of linked list over array		3	U
iv)	Explain the types of Binary Tree		4	U
v)	What are different types of data structures? Explain with examples?		1	U
vi)	Write the difference between Stack and Queue		6	U

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Q.3 Solve any two questions out of three.

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- i) Explain Operations on Doubly Linked List with example 3 U
- ii) Consider the following list of elements and sort it in ascending order using bubble sort 5 Ap
- 75,16,80, 10,18,6

iii) Explain all pair shortest path (Flyod Warshall Algo) with example?

6 Ap

Q.4 Solve any two questions out of three.

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- i) Explain priority queue? List the advantage and applications of Priority Queue 2 Ap
- ii) What are performances Characteristics of algorithms? Explain Complexity of algorithm with example? 1 Ap
- iii) Explain Breadth First Search algorithm and Depth First Search with example. 4 U
