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

June-2025

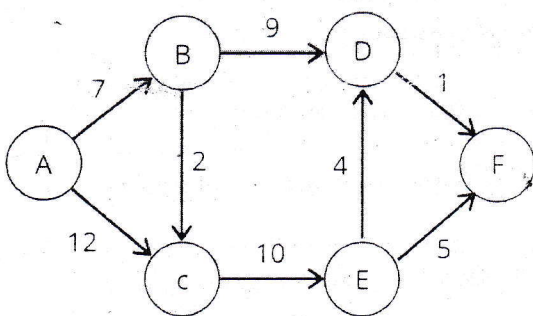|	
B. Tech. Program: Electronics and Telecommunication Engineering	Scheme II-B
Regular Examination: TY Carry-on	Semester: V
Course Code: EXDLC5054 and	Course Name: Data Structures and Algorithms
Date of Exam: 02/07/25 Duration: 02.5 Hours	Max. Marks: 60

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 two questions out of three: (05 marks each)	10		
a)	What are different types of data structures? Explain with examples?	5	1	U
b)	Explain operations on linked list in brief? Discuss advantages of linked list over array	5	3	Ap
c)	Create Minimum Spanning Tree using Prim Algorithm. Explain Spanning Tree concept	5	4	U
Q 2	Solve any two questions out of three: (05 marks each)	10		
a)	What are the different operations that can be performed on a queue and its application.	5	2	U
b)	Explain Stack as an ADT, and Stack operation	5	2	U
c)	Discuss the Algorithm for conversion of Infix to Prefix and Convert infix string (F-E*D)*(C/B-A) into a prefix string using stack.	5	2	Ap
Q.3	Solve any two questions out of three. (10 marks each)	20		
a)	Explain in doubly and circular link list insertion and delete operation with suitable example and Algorithm of same	10	3	U
b)	What is an AVL tree. Construct an AVL tree for following data: 40, 23, 32, 84, 55, 88, 46, 71, 57	10	4	Ap
c)	Write short Note on Huffman Encoding. Construct the Huffman Tree and determine the code for each symbol the word "ENGINEERING"	10	4	Ap

June 2025
~~Nov – Dec 2024~~

B. Tech. Program: Electronics and Telecommunication Engineering			Scheme II-B
Regular Examination: TY	Carry-on		Semester: V
Course Code: EXDLC5054	and	Course Name: Data Structures and Algorithms	
Date of Exam: 02/07/25	Duration: 02.5 Hours		Max. Marks: 60

Q.4	Solve any two questions out of three. (10 marks each)	20		
a)	Explain Hashing-Concept, Collision resolution Techniques	10	5	Ap
b)	Explain single source shortest path (Dijikstra Algo) , apply the same on given network	10	6	Ap
c)	What is Dynamic Programming, explain 0/1 Knapsack Algorithm and implement 0/1 Knapsack Algorithm on the data mentioned below: Given: Weights = { 1, 3, 4, 5 } Profit = { 1, 4, 5, 7 } W=6 N=4 N: No. of items W: Final weight of the bag	10	6	Ap

****