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

Supplementary Exam Feb-March 2024
(B.Tech) Program: AIDS Scheme II B
Examination: SY Semester: III
Course Code: AIC303 and Course Name: Data Structure

Date of Exam: 28/2/24 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.

		Max. Marks	CO	BT level
Q 1	Solve any six questions out of eight:	12		
i)	List out operations on array	2	1	U
ii)	List out application of stack	2	6	U
iii)	How the collision resolution work solve the difficulty in hash function	2	5	U
iv)	Explain insertion of an element in array.	2	4	U
v)	List out the type of queue	2	1	U
vi)	Explain pointers in singly and doubly link list	2	2	U
vii)	What is AVL tree with diagram	2	1	U
viii)	Explain representation of in graph with adjacency matrix	2	1	U
Q.2	Solve any four questions out of six.	16		
i)	Describe enqueue, dequeue, functions using overflow and isempty conditions	4	2	U
ii)	Design the Huffman tree for a given string BCAADDDCCACACAC	4	6	Ap
iii)	Delete middle element from link list , explain in detail with diagram	4	4	U
iv)	Compare between Array and link list.	4	1	U
v)	Convert Infix expression to Postfix expression ((A + B) – C * (D / E)) + F	4	6	Ap
vi)	Explain one of the graph traversal methods.	4	3	U

01 + 05 = 06

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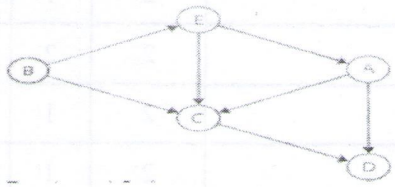
Q.3	Solve any two questions out of three.	16		
i)	Write a code for to implement queue using link list	8	6	Ap
ii)	Explain Operations on AVL tree with neat diagram	8		U
iii)	Construct binary search tree from given traversal sequences. In order - 8, 4, 10, 9, 11, 2, 5, 1, 6, 3, 7 Preorder- 1, 2, 4, 8, 9, 10, 11, 5, 3, 6, 7	8	4	Ap
Q.4	Solve any two questions out of three.	16		
i)	Explain types of link list with its advantages and disadvantages	8	1	U
ii)	Differentiate between stack and queue List out applications of each	8	6	U
iii)	Apply topological sorting to the given graph 	8	5	Ap

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