GOVERNMENT COLLEGE OF ENGINEERING, JALGAON

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Name of Examination : **Summer 2021** - (Preview)

Course Code & Course Name : **CO254U - Data Structures and Files**

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Maximum Marks : **60**   Duration : **3 Hrs**

[Edit] [Print] [View Answer Key] [Close] **Answer Key Submission Type:** Marking scheme with model answers and solutions of numerical

Instructions:

1. *All questions are compulsory.*
2. *Solve any two sub questions from Que No. 1, 2 and 3*
3. *All the sub questions in Que No. 4 and 5 are compulsory*
4. *Illustrate your answer with suitable figures/sketches wherever necessary.*
5. *Assume suitable additional data; if required.*
6. *Use of logarithmic table, drawing instruments and non programmable calculators is allowed.*
7. *Figures to the right indicate full marks.*

1) a)	**Write a procedure to count a number of nodes in the linked list**	[6]
b)	**Write the PUSH and POP procedures for Linked Stack**	[6]
c)	**Write a procedure for deleting the last node from single linked list**	[6]
2) a)	**Write a procedure for inorder traversal of binary tree**	[6]
b)	**Write a procedure to create a binary search tree**	[6]
c)	**Write the properties of binary search tree also write any two applications of it.**	[6]
3) a)	**What is heap? also discuss max heap and min heap with example**	[6]
b)	**Draw and explain LL, LR and RR rotations in AVL tree**	[6]
c)	**State Huffman algorithm also construct the minimum weighted path length tree for the following data using Huffman's algorithm**	[6]
	Data Item: A B C D E F G H	
	Weight: 22 5 11 19 2 11 25 5	
4) a)	**What is need of hashing? State and explain various hashing functions**	[6]
b)	**What do you mean by collision in hashing? also discuss various collision resolution techniques**	[6]
5) a)	**Draw and explain any two types of file organization**	[6]
b)	**Explain Prim's algorithm for minimum spanning tree with example**	[6]

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