

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)**

**CLASS: BTECH
BRANCH: CSE (MINOR)**

**SEMESTER :VTH
SESSION : MO/2024**

SUBJECT: CS263 DATA STRUCTURES AND ALGORITHM

TIME: 3 Hours

FULL MARKS: 50

INSTRUCTIONS:

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
 2. Attempt all questions.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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Q.1(a)	Define Sparse Matrix with example.	[5]	CO	BL
Q.1(b)	Describe Selection sort using step count.	[5]	CO1	Remember
			CO2	Understand
Q.2(a)	Convert the following Infix expression into its corresponding Prefix expression. $A+B-(C/D \cdot E)/F+G$	[5]	CO2	Apply
Q.2(b)	Write an algorithm to insert an element into Circular Queue.	[5]	CO2	Apply
Q.3(a)	Write the push and pop function to implement Stack using Linked List.	[5]	CO3	Apply
Q.3(b)	Construct an algorithm to delete an element from a doubly linked list.	[5]	CO3	Create
Q.4(a)	Construct a BST with the following values- 67,34,56,23,87,65,12,38 Also do Inorder, Preorder and Postorder traversals.	[5]	CO3	Create
Q.4(b)	Differentiate between DFS and BFS.	[5]	CO4	Analyse
Q.5(a)	Differentiate between Linear Search and Binary Search.	[5]	CO4	Analyze
Q.5(b)	Create a heap with the following values- 45, 34, 87, 23, 39, 56, 82, 71	[5]	CO3	Create

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