

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(MID SEMESTER EXAMINATION MO/2024)**

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

**SEMESTER : 5th  
SESSION : MO/2024**

**SUBJECT: CS263 DATA STRUCTURES AND ALGORITHM**

**TIME: 02 HOURS**

**FULL MARKS: 25**

**INSTRUCTIONS:**

1. The question paper contains 5 questions each of 5 marks and total 25 marks.
  2. Attempt all questions.
  3. The missing data, if any, may be assumed suitably.
  4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates
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		CO	BL
Q.1(a)	Write the characteristics of an algorithm.	[2]	1 Remember
Q.1(b)	Explain all the asymptotic notations with example.	[3]	1 Understand
Q.2(a)	Explain Sparse matrix with example.	[2]	2 Understand
Q.2(b)	Analyze the complexity of Selection sort.	[3]	3 Analyze
Q.3(a)	Define and explain Abstract Data Type.	[2]	1 Remember
Q.3(b)	Convert the following Infix expression into its corresponding Postfix expression. $A+B-(C/D \text{ } \$/E)/M+G$	[3]	1 Apply
Q.4(a)	State the limitations of linear Queue.	[2]	2 Understand
Q.4(b)	Write algorithms for push and pop function of a stack.	[3]	4 Apply
Q.5(a)	Differentiate between Array and Linked List.	[2]	2 Analyze
Q.5(b)	Write an algorithm to insert a new value in a singly linked list.	[3]	4 Apply

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