

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION MO/2023)

CLASS: IMSC
BRANCH: Math&Comp

SEMESTER : III
SESSION : MO/2023

SUBJECT: CS201:DATA STRUCTURE

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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Q.1(a)	Discuss the features and applications of ADT?	[2]	CO1	BT2
Q.1(b)	Explain the performance analysis and performance measure of an algorithm?	[3]	CO4	BT2
Q.2(a)	Define the sparse matrix and mention its application?	[2]	CO5	BT3
Q.2(b)	Discuss the best case, worst case and average case time complexity of an algorithm with the help of a suitable example?	[3]	CO2	BT2
Q.3(a)	Explain how circular queue is different from simple queue?	[2]	CO3	BT2
Q.3(b)	Determine the computational complexity of the selection sort using the step count method?	[3]	CO2	BT4
Q.4(a)	Write an algorithm for the conversion of infix expression to postfix expression.	[2]	CO2	BT1
Q.4(b)	Express the following expression in polish and reverse polish expression using stack. (A + B / C * (D + E) – F)	[3]	CO3	BT2
Q.5(a)	Differentiate between stack and queue?	[2]	CO2	BT4
Q.5(b)	Write a program/algorithm/procedure/pseudocode for the insertion (push) and deletion (pop) of an element from a stack.	[3]	CO2	BT3

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