

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

CLASS: B.TECH/BARCH
BRANCH: BT/CIVIL/CHEMICAL/EEE/ECE/MECH/PIE/BARCH

SEMESTER: IV
(OE1)
SESSION: SP/2023

SUBJECT: CS275/CS261 FUNDAMENTAL OF DATA STRUCTURES

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
-

Q.1(a)	What is the difference between function sub algorithm and procedure sub algorithm?	[2]	CO-3	CO	BL
Q.1(b)	Determine the computational complexity of the selection sort using the step count method?	[3]	CO-2 CO-4		BT-3
Q.2(a)	What is the purpose of asymptotic notations?	[2]	CO-4		BT-2
Q.2(b)	Briefly discuss the sparse matrix?	[3]	CO-3 CO-5		BT-4
Q.3(a)	What is the benefits of Abstract Data Types (ADTs)?	[2]	CO-3		BT-2
Q.3(b)	Given an array $A []$ of size N, write an algorithm to reverse the array using stack?	[3]	CO-2 CO-3		BT-3
Q.4(a)	What is the difference between queue and circular queue?	[2]	CO-1 CO-3		BT-4
Q.4(b)	Briefly discuss the mazing problem?	[3]	CO-5		BT-5
Q.5(a)	What benefits do linked lists have over arrays?	[2]	CO-5 CO-1		BT-5
Q.5(b)	Write an iterative and recursive piece of code for counting the number of nodes in a singly linked list?	[3]	CO-1 CO-2		BT-3

.....27/02/2023.....M