St. Francis Institute of Technology
Department of Information Technology

Academic Year: 2023-24 **Semester: ODD/III**
Subject: Data Structure and Analysis **Class/Branch/Division : S.E / I.T /A & B**

Assignment Test I (AT-1) Portion

Sr. no	Topic no.
1	Introduction to Stacks, Queues and Linked Lists
	● Introduction to Data Structures: Linear and Non Linear Data ● Structures, Static and Dynamic Data Structures. ● Concept of Stack and Queue. Array Implementation of Stack ● and Queue, Circular Queue, Double Ended Queue, Priority Queue. ● Concept of Linked Lists. Singly linked lists, doubly linked lists and circular linked lists. ● Insertion, deletion, update and copying operations with Singly linked lists, doubly linked lists and circular linked lists. ● Reversing a singly linked list.

Signature:

Mrs. Sonali Suryawanshi/Ms. Pratibha Rane — Subject in-charge

Dr. Prachi Raut — HoD

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Assignment Test I (AT-1) Question Bank

Q.1) Explain the working of the stack with its operations: push, pop, peek(top()) , display, empty , full. Proper diagrammatic representations of operations as mentioned above, are also expected. Write Algorithm for each operations

Q.2) With an example, explain circular Queue data structures? Also write Algorithm to perform ADT on queue. Also write computer world application of Circular queue.(hint: your can write Queues as buffers in MP3 players)

Q.3) With an example, explain working of Singly linked list and Pseudocodes of operations on linked list- insertion, deletion, displaying. Proper diagrammatic representation is expected for each operation

Q.4) With an example explain the double ended queue with its operations with proper diagrammatic representation. Also describe the algorithms for all operations

Q.5) With an example explain Priority queue with its operations with proper diagrammatic representation and describe the algorithm to be implemented for the operations on the queue

Q.6) Differentiate between i) linear and non-linear data structure ii) static and dynamic data structure

Q.7) Explain Doubly linked list and Write Pseudo Codes for all of its operations

Q.8) Explain Circular linked list and Write Pseudo Codes for all of its operations

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