SOMAIYA VIDYAVIHAR UNIVERSITY

Semester: January 2022 – May 2022		
Maximum Marks: 30	**Examination: In-Semester Examination**	**Duration 1:15 hrs**
Programme code: 01 **Programme: BTech**	**Class: SY**	**Semester: III (SVU 2020)**
Name of the Constituent College: **K. J. Somaiya College of Engineering**	**Name of the department: COMP/IT**	
Course Code: 116U01C302	**Name of the Course: Data Structures**	

Question No.		Max. Marks	CO Mapped	BT Level
Q1	Solve **Any TWO** a. Differentiate between linear data structure and Non linear Data structure. b. Comment on significance of ADT. c. Discuss ADT as a concept.	10	CO1	Understanding
Q2	Write a Pseudocode/algorithm for implementation of the following operations on singly linked list. (Consider all possible cases) i. Insertion in Between ii. Searching a Data item in a Linked List OR <u>Suggest and justify</u> a suitable data structure for the following problem definitions. . Illustrate with a suitable example. i. Consider a music application which keeps track of songs played maximum number of times. Based on this frequency and recency, the application creates a suitable playlist for the user. The data structure should maintain the suggested playlist. ii. Consider a multiplayer game: "passing the pillow". When the music stops, the participant with the pillow has to perform an activity, gets eliminated and the game continues with the rest of them. The data structure should maintain the list of the participants, keep track of who's eliminated, remaining list and can announce the final winner.	10	CO2	Understanding OR Evaluate
Q3	Convert the given infix expression into postfix using stack. Show the contents of stack and output string with every input element. a+b-c/d^f*m*n+k+p	10	CO2	Apply