

SY-Minor



Semester: January 2022 – May 2022		
Maximum Marks: 30	Examination: In-Semester Examination	Duration: 1hr 15 min
Programme code: 54	Class: SY	Semester: III (SVU 2020)
Programme: B. Tech Computer Engineering		
Name of the Constituent College: K. J. Somaiya College of Engineering		Name of the department: COMP
Course Code: 116m54C301	Name of the Course: Data Structures and Algorithms	

Question No.		Max. Marks	CO Mapped	BT Level
Q1	Write a Pseudo code/algorithm for implementation of the following operations on singly linked list. A. Insertion at the end of the Linked List B. Searching a Data item in a Linked List	10	CO2	UN
Q2	Consider infix expression $A + (B * C - (D / E ^ F) * G) * H$. Make use of infix to postfix expression conversion algorithm (using single stack) and convert the expression from infix to postfix notation. What is the maximum number of symbols that will appear on the stack at one time during the conversion of this expression? (Don't write Algorithm) OR Evaluate the given postfix expression using stack. Show the stack contents clearly after every step and state the final result. $6\ 2\ 3\ +\ -\ 3\ 8\ 2\ /\ +\ * \ 2\ ^\ 3\ +$	10	CO2	AP
Q3 a)	Illustrate the working of an Input Restricted Double Ended Queue, with Insertion allowed at the right end with suitable example. Show all the cases.	5	CO2	AP
Q3 b)	Define an Abstract Data Type for Complex Numbers. Write the Value Definition for the same. Further Write the Operator Definition for the following operations:- 1) Addition of Two Complex Numbers 2) Multiplication of Two Complex Numbers OR Discuss the different applications of Stack Data structures with suitable examples.	5	CO1	UN, AP