Sardar Patel Institute of Technology
Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058, India
(Autonomous College Affiliated to University of Mumbai)

Mid Semester Examination

March 2020

Max. Marks: 20 | Duration: 1 Hr
Class: F.Y.M.C.A | Semester:I
Course Code: MCA23 | Branch:M.C.A.
Date: 4/3/20
Time: 12 to 1
Name of the Course: Data Structures

Instruction:
(1) All questions are compulsory
(2) Draw neat diagrams
(3) Assume suitable data if necessary

Q No.	Questions	Max. Mark	CO-BL-PI
Q.1	Compare worst case complexity of Insertion sort and Selection sort by considering following data and identify which one is best. Arr[6] = {10, 9, 8, 5, 4, -2}	5	1-5-2.2.4
Q.2	Apply Fold Boundary technique with key offset method for mapping following data in memory size 23. 12345, 81, 435563, 5435, 56761	5	2-3-1.2.1
Q.3	Apply push and pop operations to evaluate following Postfix expression using Stack of size 5. Construct an algorithm for the same. 12 34 + 30 - 20 25 + * **OR** Apply Enqueue (E) and Dequeue (D) operations to store following data in circular queue of size 4 and show final content of the circular queue. Also construct algortihm for Enqueue operation for circular queue. E1, E2, E3, D, D, E4, E5, D, D, E6	5	3-3-1.2.1
Q.4	Select appropriate linked list to add following polynomial equations and Construct an algorithm and conclude your answer. $2x^3 + 3x^2 + 12$ $4x^2 + 3x + 15$	5	3-3-2.4.4