Enrollment Number: _____

P P SAVANI UNIVERSITY
P P SAVANI SCHOOL OF ENGINEERING
3rd Semester of B Tech Examination (1st Internal Exam)

Subject: Data Structures (SECE2031)
Branches: CE/IT

[Date: 31/08/2018, Friday] [Time: 11.00 A.M. to 12.00 P.M.] [Total Marks: 30]

Instructions:

- Figures to the right indicate full marks.
- Q 1 & 2 are compulsory.
- Use of scientific calculator is allowed.
- Draw neat and clean drawings & Assume suitable data if necessary.

Q.1 Answer in one Sentence. (05)

1. Define Data Structures
2. Define Stack.
3. Define Queue.
4. Define Doubly Linked List.
5. Explain categorization of Data Structures.

Q.2.A Write an algorithm for primitive operations on stack. (Explain with diagram) (05)

Q.2.B Convert following infix expressions to postfix. (05)

1. ((A+B) *C-(D-E)) $(F+G)
2. A*(B+D)/E-F*(G+H/K)

Q.3.A Write an algorithm for insert and delete algorithm. (Explain with diagram) (05)

Q.3.B Convert following infix expressions to prefix. (05)

1. A+ (B*C- (D/E $ F) *G)
2. A$B*C-D+E/F/(G+H)

OR

Q.3.A Explain towers of Hanoi in detail. (05)

Q.3.B Explain real time applications of stack and queue. (03)

Q.3. C Explain recursion in detail. (02)

Q.4.A Define Singly Linked List. Write an algorithm for inserting a new node at (05)

1. Beginning 2. Last 3. In between

OR

Q.4.A Define Doubly Linked List. Write an algorithm for inserting a new node at (05)

1. Beginning 2. Last 3. In between