Seat No:_____ **Enrollment No:_____**

PARUL UNIVERSITY

FACULTY OF IT & COMPUTER SCIENCE

BCA/ IMCA, Winter 2017 – 18 Examination

Semester: 2 **Date: 09/01/2018**
Subject Code: 05101152 / 05301152 **Time: 10:30 am to 1:00 pm**
Subject Name: Data Structures **Total Marks: 60**

Instructions:
1. All four questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Answer the followings.

A. Write answers in short (All questions are compulsory) **(05)**

1. What is algorithm?
2. What is space complexity?
3 What is time complexity?
4. What is array?
5. What is divide and conquer method?

B. Give the sentence true or false. (Each of 01 marks) (All questions are compulsory) **(10)**

1. There are two types of data types built in and derived.
2. We cannot do change array element once we saved it.
3. Stack follows FIFO.
4. Queue follows LIFO.
5. Linked List is a sequence of links which contains items. Each link contains a connection to another link.
6. doubly linked list means we can traverse only one side of linked list.
7. LIFO means the element which inserted first will be processed first.
8. Doubly linked list node contain only two part.
9. Removing an item from stack is called as peep().
10. Deletion of an element in queue is done from front.

Q.2 Answer the followings. (3 Mark Questions.) (Any five) **(15)**

1. Explain stack with its basic operation.
2. Explain binary search with algorithm.
3. Explain queue with its basic operations.
4. Explain Linked list in detail.
5. Explain about bubble sort and write a program for the same.
6. Explain about graph data structure.

Q.3 Answer the following. (Any three) **(15)**

1. Write a short note on circular queue.
2. Explain BFS and DFS with its rules.
3. Explain about binary search tree.
4. Explain in-order traversal with algorithm.

Q.4 Answer the following.

A. Write a short note on tree data structure. **(05)**

B. 1. Explain preorder traversal with example. **(10)**
2. Explain about merge sort algorithm in detail.

OR

B. 1. Write a program of stack implementation with its all operation. **(10)**
2. Write a program of singly linked list.