

**PRSU BCA PART 2 QUESTION PAPER**  
**PAPER 3 : DATA STRUCTURES - 2017**

**Time : Three Hours]**

**[Maximum Marks : 50**

Note : Attempt any two parts from each question. All questions carry equal marks.

UNIT - 1

1. (a) What do you mean by data structure ? List out the areas in which data structures are applied.
- (b) Differentiate between primitive and non-primitive data structure.
- (c) Discuss the various data structure operations with example.

UNIT - 2

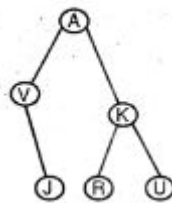
2. (a) How is a two-dimensional array represented in memory ?
- (b) What are pointer. ? How are they used in data structure ?
- (c) Differentiate between linear search and binary search with their complexity.

UNIT - 3

3. (a) What is the need for linked representations of lists?
- (b) Convert the following expression into postfix form  $(A + B) * C/D$
- (c) What are the differences between stack and queries ? Explain with example.

UNIT - 4

4. (a) Explain the representation of binary tree using array.
- (b) For the binary tree given below :



- (i) Find one-way in-order traversing
  - (ii) One-way pre-order traversing.
- (c) How to insert an element in binary tree ? Explain with procedure.

UNIT - 5

5. (a) What is Insertion Sort ? How does it differ from the bubble sort ?
- (b) Sort the following list in ascending order using selection sort : 56, 57, 92, 38, 44, 90, 61, 73
- (c) Explain the time complexity of merge sort with suitable example.