

S.Y.B.SC. (COMPUTER SCIENCE) SEM –IV (2014 COURSE) :
WINTER - 2017
SUBJECT : DATA STRUCTURES USING C ++

Day : Tuesday
Date : 24/10/2017

Time : 03.00 PM TO 05.00 PM
Max. Marks : 40

W-2017-0749

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.

Q.1 Attempt **ANY TWO** of the following: **[10]**

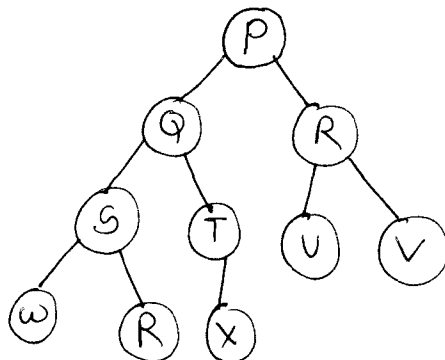
- a) Write C++ program to implement stack using link list.
- b) Define Queue as a data structure. Also write `addq ()` and `deleteq ()` functions to perform insertion and deletion operations.
- c) Elaborate bubble sort algorithm with suitable example

Q.2 Attempt **ANY TWO** of the following: **[10]**

- a) Convert the given infix expression to prefix and postfix notation:
i) $x * y - z / a$ ii) $(a + b) * (c - d)$.
- b) Explain linear search algorithm with the help of example.
- c) Define binary tree. Discuss various types of binary tree.

Q.3 Attempt **ANY TWO** of the following: **[10]**

- a) Consider the following tree and find inorder, pre-order and post-order traversals.



- b) Differentiate between DFS and BFS methods.
- c) Explain dynamic arrays in detail.

Q.4 Attempt **ANY FIVE** of the following: **[10]**

- a) Define indegree and outdegree of a vertex.
- b) What is AVL tree?
- c) Define row major representation of an array.
- d) List the different types of data structure.
- e) Define node of a doubly link list.
- f) What is circular queue?
- g) State applications of link list.

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