

**S.Y. B. SC. (COMPUTER SCIENCE) SEM -IV (CBCS - 2016  
COURSE) : SUMMER - 2018  
SUBJECT: DATA STRUCTURES USING C++**

Day: **Wednesday**  
Date: **11/04/2018**

Time: **11.00 A.M. TO 02.00 PM**  
Max. Marks: 60

**S-2018-0819**

**N.B:**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labeled diagram **WHEREVER** necessary.

**Q.1** Answer **ANY TWO** of the following: [12]

- a) Describe spanning tree and applications of graph.
- b) Write C++ program to implement stack using array.
- c) Illustrate the insertion sort algorithm with an example.

**Q.2** Answer **ANY TWO** of the following: [12]

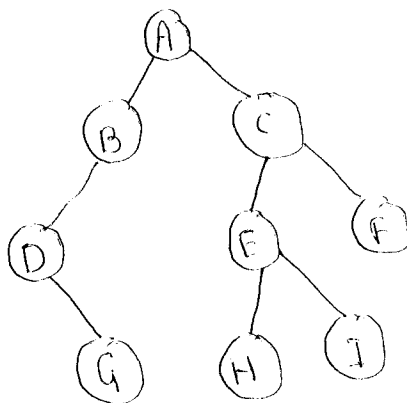
- a) Define traversing. Explain different methods of traversing.
- b) Explain binary tree in detail.
- c) Write C++ program to perform insertion and deletion operations on Queue.

**Q.3** Answer **ANY TWO** of the following: [12]

- a) Explain expression tree with example.
- b) Describe selection sort algorithm.
- c) Elaborate different types of searching methods.

**Q.4** Attempt **ANY THREE** of the following: [12]

- a) Write note on AVL tree.
- b) Describe threaded binary tree with example.
- c) Explain heap sort with example.
- d) Consider the following tree and find in-order, pre-order and post-order traversals.



**Q.5** Answer **ANY FOUR** of the following: [12]

- a) Write note on space and time complexity.
- b) Differentiate between singly linked list and doubly linked list.
- c) Explain types of graph.
- d) Write shortest path problem with example.
- e) Define data object and data structure.
- f) Explain Radix sort with example.

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