

B.Tech - sem - IV, (2014 course), E & TC  
winter - 2018

**B.Tech. SEM -IV Electronics / E & TC) 2014 Course (CBCS) :**  
**WINTER - 2018**

**SUBJECT: DATA STRUCTURE AND FILES**

Day: Saturday  
Date: 17/11/2018

**W-2018-2351**

Time: 02.30 PM TO 05.30 PM  
Max. Marks: 60

**N.B:**

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

**Q.1** Differentiate between call by value and call by reference with examples of each. (10)

**OR**

**Q.1** Differentiate between the following: (10)  
i) Structure and array ii) Structure and union

**Q.2** Define the following with examples: (10)  
i) Abstract Data types  
ii) Primitive data types  
iii) Data structure  
iv) Different approaches to designing an

**OR**

**Q.2** Write down the algorithm for the following: (10)  
i) Bubble sort ii) Selection sort  
ii) Quick sort iv) Linear search

**Q.3** Write down algorithms for the following:

- a) Inserting a node at specified position of a single linked list (05)
- b) Deleting a node at specified position of a single linked list. (05)

**OR**

**Q.3** Write down algorithms for the following:

- a) Deleting a node at specified position of a double linked list. (05)
- b) Inserting a node at specified position of a circular linked list. (05)

**Q.4** List down the types of Queue with examples. (10)

**OR**

**Q.4** Evaluate:  $ABC + CBA - +^*$  where  $A = 1, B = 2, C = 3$  using stacks. (10)

**P.T.O.**

- Q.5 Define the following with respect to a tree: (10)
- |             |               |
|-------------|---------------|
| i) Siblings | iv) Root node |
| ii) Depth   | v) Degree     |
| iii) Level  |               |

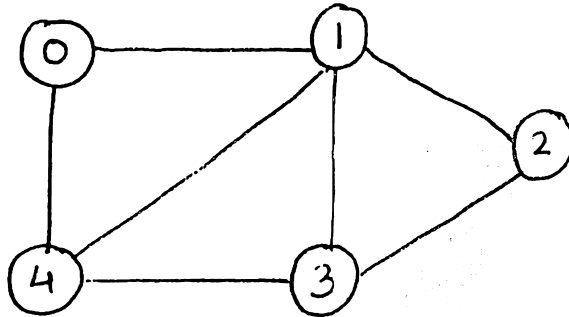
OR

- Q.5 What is Pre order traversal, in order traversal and post order traversal. (10)  
Explain with an example.

- Q.6 Explain the following with respect to Graphs: (10)
- |                     |            |
|---------------------|------------|
| i) Undirected graph | iv) Degree |
| ii) Complete Graph  | v) Cycle   |
| iii) Directed Graph |            |

OR

- Q.6 For the following graph Create adjacency matrix and adjacency list. (10)



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