

Exam. Code : 107204

Subject Code : 1750

Bachelor of Computer Application (BCA) 4<sup>th</sup> Semester

## DATA STRUCTURE AND FILE PROCESSING

## Paper—I

Time Allowed—3 Hours]

[Maximum Marks—75

**Note** :— Attempt any **five** questions. All questions carry equal marks.

1. Name and explain in brief different types of Data Structures. Explain the significance of each.
2. How is the complexity of an algorithm calculated ? Write note on Time Space Trade Off in complexity.
3. Explain the algorithm for any one of the following and then execute the algorithm through an example.
  - (a) Selection Sort
  - (b) Quick Sort.
4. Differentiate between linear and binary search techniques. Explain with examples. Write an algorithm to perform linear search on a list of N numbers.
5. (a) What do you mean by Circular Queue ? How is it implemented in the memory ? Explain the process of insertion of a new element in Circular Queue.
  - (b) Convert the following Infix notation into Postfix notation using stack :

$$((A*B) + D)/((E-F)*G)$$

6. (a) Define the term Hashing. Explain the techniques used to resolve collision.
- (b) Explain Indexed file organization. Write down the advantages and disadvantages of Indexed file organization.
7. (a) Explain the following terms associated with file structure :
- (1) Master File
  - (2) Transaction File
  - (3) Report File
  - (4) Back-up File
  - (5) Work File
- (b) Explain Index Sequential Files. Write down the advantages and disadvantages of this file Organization.
8. What is File Organization ? Explain different concepts of file organization with relevant examples.