Exam. Code : 103204

Subject Code : 1104

B.A/B.Sc. Semester—IV

COMPUTER SCIENCE

(Data Structures and Programing Language Using C++)

Time Allowed—3 Hours]   [Maximum Marks—75

Note :— (1) Attempt **FIVE** questions in all by selecting at least **ONE** from each Unit.

(2) All questions carry equal marks.

(3) Use of non-programmable calculator is allowed.

UNIT—I

1. (a) Define Big O Notation. Also explain the concept of Time-Space Trade-off between algorithms.

8

(b) Explain any two operations of linked lists with examples.

7

2. (a) Explain arrays with example along with their major operations.

8

(b) Draw difference between linked lists and arrays.

7

UNIT—II

3. (a) How Quicksort is performed ? Explain. 8

   (b) Implement Queues using linked lists. 7

4. (a) How Heapsort works to sort a list ? Explain.

   8

   (b) Compare linear and Binary search Techniques.

   7

5. (a) Define stacks. Discuss various operations on stacks along with any application of stacks. 8

   (b) Explain the procedure of performing Binary Search on a list of items. 7

UNIT—III

6. (a) Define the terms objects and classes with their usage in programs. 8

   (b) What is inheritance ? Explain the difference between Private and Public inheritance. 7

7. (a) What is Operator overloading ? Explain various pitfalls of Operator overloading. 8

   (b) Define classes. How various classes are derived from base class ? Explain. 7

8. (a) Write a program to demonstrate object, classes, constructors and destructors. 8

   (b) Explain Polymorphism along with its applications.

   7