5. What is Bubble Sort? Consider the following numbers are stored in an array A : 37, 52, 28, 75, 61, 24, 9, 59. Apply Bubble sort algorithm to the array A and show each pass separately.

6. Write the algorithm to sort a list using Quick Sort and discuss the complexity.

7. A) What is an Object? How Objects can be defined and accessed in C++?

   B) What is difference between public and private member functions?

   C) Explain the need of inheritance with help of an example.

8. What is operator overloading? What is the need of overloading an operator? List the operators that can be overloaded and one that cannot be overloaded. Give reasons why some operators cannot be overloaded.

B.A./B.Sc. 4th Semester

COMPUTER SCIENCE

(Data Structures & Programming Language Using C++)

Time Allowed—2 Hours]   [Maximum Marks—75

Note :— There are **Eight** questions of equal marks. Candidates are required to attempt any **Four** questions.

1. What is an array and its types? How multidimensional arrays are stored in memory? Explain row major representation of an array. Write a program to add and remove an element from an array.

2. A) What is time complexity of an algorithm ? Explain with example.

   B) What are the different types of data structure available and what are the points to be considered before choosing a data structure?

3. Explain Stack. What is meant by postfix expressions? How postfix expressions are evaluated by using stacks?

4. Define queue. Explain the linked representation of queue and operations to be performed on it with the help of suitable example.