**Question 4:** Define a class **string** that could work as a user defined string type. Include constructor that will enable us to create an uninitialized string

string s1; // string with length 0

and also to initialize an object with a string constant at the time of creation like

string s2 (“welcome!”);

Include a function that adds two strings to make a third string. Note that the statement

s2 = s1;

will be perfectly reasonable expression to copy one string to another.

Write a complete program to test your class to see that it does the following tasks:

a) Creates uninitialized string objects.

b) Creates objects with string constants.

c) Concatenates two strings properly.

d) Display a desired string object.

note here that, you are not allowed to use the built in String class type of C++ library in your program.

**Question 2:** A book shop maintains the inventory of books that are being sold at the shop. The list includes details such as author, title, price, publisher and stock position. Whenever a customer wants a book, the sales person inputs the title and the author and the system searches the list and displays whether it is available or not. If it is not, an appropriate message is displayed. If it is, then the system displays the book details and requests for the number of copies required. If the requested copies are available, the total cost of the requested copies is displayed; otherwise the message “Required copies not in stock” is displayed. The stock value of each book should be automatically updated as soon as a transaction is completed.

**Question 3:** Suppose there is a class named **number** and an integer value n. Now write a C++ program to accomplish the following tasks:

result1 = n+n1;

result2 = n1+n;

result3 = n-n1;

result4 = n1-n;

result5 = n2-n1;

result6 = n\*n1;

result7 = n2\*n;

result8 = n1\*n2;

result9 = n1/n2;

n1 = n2;