Lahore University Of Management Sciences
Syed Babar Ali School of Science and Engineering

Roll No :		**Total Pages:**	2 (incl this page)
		Semester:	Fall
Course Title:	Introduction to Programming	**Academic Year**:	2016-2017
Course Code:	CS 200	**Date**:	11th Dec, 2016
Instructor:	Naveed Arshad / Syed Irteza	**Time Allowed**:	180 min
Exam:	Final Lab Exam	**Total Marks**:	25

The instructions below must be followed strictly. Failure to do so can result in serious grade loss.

DO NOT START THIS EXAM UNTIL TOLD TO DO SO.

Read the problem carefully before attempting it.

Make sure your code is in running condition before you submit its final version on LMS

Keep a saved copy of your work after each task. We will not be responsible for overwritten/corrupt files

Keep your eyes on your computer.

You may not

talk to anyone once the exam begins.
leave the examination room and then return without permission.

Specific instructions:

Open book/notes, help sheet:	Open Book/Open Notes/Open LMS/Close Internet
Calculator usage:	Not required
Write in pen/pencil:	N/A
Any other instruction(s):	Please make sure you use the sample file provided named main.cpp. Please do not submit any extra file. Rename your file as Roll_Number_main.cpp e.g. 19001234_main.cpp before submission

Marks

Part A	Part B	Part C	Part D	Part E	Total

Programming Problem for Lab Exam

Write a class that implements a 'Set' of integers. A set is a collection of items in which no item occurs more than once. Internally, you may represent the set using an array of size 100 and write any private functions suitable. However, the class should have the given 'public' functions. Signatures/Protocols of these functions are as follows:

```
class MySet {
    private:
//Write whatever data structure or functions you think are appropriate

    public:
    MySet(); //constructor

    void add(int element); // add an element
    void remove(int element); // remove an element
    int count(); // returns present count of the elements
    bool isMember(int element); //returns if an element is present
    void print(); //prints all elements in ascending order

};
```

The grading scheme of these functionalities is following:

a. Function: add a new item to the set. If the item is already in the set then nothing happens. (5)
b. Function: remove an item from the set. (5)
c. Function: return the number of items in the set. (5)
d. Function: determine if an item is a member of the set. (5)
e. Function: print elements in ascending order. (5)

Note: Please use the file "main.cpp" to write all your code. Test it using the 'main' function in this file. Some sample test statements are given in this 'main' function. Your code should at least work for them. However, for grading we will be testing your class with other statements as well.