Air University
Mid Semester Examination Fall-2022
Student Id: _____

Subject:- Programming Fundamentals Lab
Course Code:- CS – ???L
Class:- BS(IT) – I
Semester :- Fall 2022
Section(s):- B

Total Marks:- 100
Date:- 31/10/2022
Time:- 11:40am – 02:30pm
Max Time Allowed:- 2 Hrs
FM(s) Name:- Mr. Sagheer Ahmed
Signature:-

- **Attempt all questions.**
- **Question 1, 2 & 3 perform on computer, add screenshots of outputs, and upload PDF file on GCR.**
- **Copied paper will be getting zero marks and further action will be taken as per university policy.**

Question 1	CLO 3	PLO 3	C3 (Apply)	Marks: 50

During the coding competition, you got the following task to solve as soon as possible. Use C++ for the following task.

Task Description:

A certain grade of steel is graded according to the following conditions:

(i) Hardness must be greater than 50

(ii) Carbon content must be less than 0.7

(iii) Tensile strength must be greater than 5600

The grades are as follows:

- ✓ *Grade is 10 if all three conditions are met*
- ✓ *Grade is 9 if conditions (i) and (ii) are met*
- ✓ *Grade is 8 if conditions (ii) and (iii) are met*
- ✓ *Grade is 7 if conditions (i) and (iii) are met*
- ✓ *Grade is 6 if only one condition is met*
- ✓ *Grade is 5 if none of the conditions are met*

Write a program, which will require the user to give values of hardness, carbon content and tensile strength of the steel under consideration and output the grade of the steel.

Output:

```
A certain grade of steel is graded according to the following conditions:
          (i) Hardness must be greater than 50
         (ii) Carbon content must be less than 0.7
        (iii) Tensile strength must be greater than 5600

=> Enter the value of Hardness: 57

=> Enter the value of Carbon Content: 0.9

=> Enter the value of Tensile Strength: 4500

=== The grade of steel is 6 ===

Do you want to enter values again. (press Y/y for Yes and N/n for No): W

******* Invalid option entered. Try again. *******

Do you want to enter values again. (press Y/y for Yes and N/n for No): 8

******* Invalid option entered. Try again. *******

Do you want to enter values again. (press Y/y for Yes and N/n for No): n
```

Question 2	CLO 3	PLO 3	C3 (Apply)	Marks: 25

You got a call from an organization to appear in their test to get a job of C++ developer. In the test, they gave you the following task which you had to build in C++ and 60 minutes were given for writing its solution.

Task Description:

A library charges a fine for every book returned late. For first 5 days the fine is 50 rupees, for 6-10 days fine is 100 rupees and above 10 days fine is 150 rupees. If you return the book after 30 days your membership will be cancelled. Write a program to accept the number of days the member is late to return the book and display the fine or the appropriate message.

Output – 1:

```
Enter the number of days: 45

****** Your membership has been canceled.******
```

Output – 2:

```
Enter the number of days: 23

You have to pay Rs 3450 fine.
```

Question 3	CLO 3	PLO 3	C3 (Apply)	Marks: 25

In a specific bank, the ATM machine has currency notes of denominations 10, 50, 100, 500 and 1000. If the amount to be withdrawn is input through the keyboard, find the total number of currency notes of each denomination the ATM will give to the withdrawer. If the input amount is not the multiples of 10, 50, 100, 500 and 1000 then the ATM will display the message.

Output – 1:

```
Enter the amount to be withdrawn : 6789

Required notes of Rs. 1000 : 6
Required notes of Rs. 500  : 1
Required notes of Rs. 100  : 2
Required notes of Rs. 50   : 1
Required notes of Rs. 10   : 3
Amount still remaining Rs. : 9

        *** You can not withdraw the cash ***
Because entered amount is not multiples of 10, 50, 100, 500 and 1000.
```

Output – 2:

```
Enter the amount to be withdrawn : 8990

Required notes of Rs. 1000 : 8
Required notes of Rs. 500  : 1
Required notes of Rs. 100  : 4
Required notes of Rs. 50   : 1
Required notes of Rs. 10   : 4
```

---------- **Best of Luck** ----------