National University of Computer and Emerging Sciences, Lahore Campus

Course:	Programming Fundamentals	Course Code:	CS 1002
Program:	BS(DS)	Semester:	Fall 2021
Date	15/10/2021	Due Date	16/10/2021
Section:	BDS-1A, BDS-1C	Weight	3%

Assignment No 3

In this assignment we are going to solve a past mid-term exam. I hope this will get you ready for the upcoming midterm.

Please remember that it is a 60 minutes exam but you have about 28 hours to solve it.

Registration No_____

National University of Computer and Emerging Sciences, Lahore Campus

Course Name:	Programming Fundamentals	Course Code:	CS 118
Program:	BS(CS)	Semester:	Fall 2020
Duration:	60 Minutes	Total Points:	30
Paper Date:		Weight	12%
Section:	ALL	Page(s):	5
Exam Type:	Midterm		

Registration No._____

Instructions: You might use extra sheets if needed

SHORT QUESTIONS

Question No 1: **[1 Points]**

The following C++ code is not properly indented.

```
#include<iostream>

using namespace std;int main(){int a=1,b=2;if(a<b)
{cout<<"first";}else{cout<<"second";}}
```

Properly indent the code given above and rewrite it in the space provided below.

Registration No_____

Question No 2: [2 Points]

~~Consider the~~ following program has been written to compute the circumference of a circle given the radius entered by the user. Given a circle's radius, r, the circle's circumference, C is given by the formula: $C = 2 \pi r$.

This program is not producing correct results as it has some logical error(s)

```
#include<iostream>

using namespace std;

int main(){

     double C, r;
     double PI = 3.14159;
     cout << "Please enter the circle's radius: ";
     C = 2*PI*r;
     cin >> r;
     cout << "Circumference is " << C << endl;

     return 0;

}
```

Identify the logical error(s) and rewrite it in the space below by making minimum changes to it so that it works correctly.

Question No 3: [2 Points]

What will be the output of the following program if the user entered 13 as the input?

```
#include<iostream>

Using namespace std;

int main()
{
     int T;
     cout << ”Enter temperature in Centigrade”;
     cin  >> T; // The user entered 13
     cout << 9/5*T+32 <<” Fahrenheit”<<endl;

return 0;
}
```

WRITING C++ PROGRAMS

Question No 4 [15 Points]

Write a program that will ask the user to enter an amount in Pakistani Rupees. The program must convert the given amount into US Dollars (Assume that $1 = Rs. 165) and then print the converted amount on the standard output stream. Here are some rules that must be followed while printing the converted amount.

- If the amount in dollars is less than $1, then the amount will be printed in cents (1 dollar =100 cents). For example, if the amount in dollars is $0.39, then your program should print “39 cents”.
- If there are extra cents apart from dollars, then also print the number of cents. For example if the amount in dollars is $3.54, then your program should print “3 dollars and 54 cents”.
- For complete dollars, your program will not print any cents. For example, if the amount in dollars is 4.00, then your program will simply print “4 dollars”.
- After converting the given amount into dollars, it is possible to get fractions that have more than 2 digits, such as 5.437. In this case you should print “5 dollars and 43 cents”, that is to say, ignore the remaining digits after the first two 2 digits in the fractional part.

Marks will be awarded for

Correct Conversion: Using correct type of variables, taking the input correctly input and using the correct formula for conversion. **7 Points**

Correct Display: The program must handle each case correctly **(2 x 4) Point**

Hints:

- Dividing an **int** type variable with an **int** type variable should be done carefully.
- If you multiply a double precision number/variable that has the value 5.437 by 100 you get 543.7
- If you assign a value of 543.7 to an integer variable the value 543 will be stored in the integer variable.

Registration No_____

Question No 5 [10 Points]

A palindromic number remains the same, if it is read from left to right or right to left, for example the numbers 22, 323, 6666, 95959, 103301, 7890987 are palindromic.

Write a C++ program that prompts the user to input a 4-digit number and store it in an integer type variable. The program must check whether the number is palindromic or not and if it is palindromic then the program should display the message **"Input number is Palindromic"** otherwise program must display **"Input number is not Palindromic"**

You can assume that the user will always enter a four digit number correctly

Marks will be awarded for

Correct logic	[4 points]
Correct syntax	[6 points]