National University of Computer and Emerging Sciences, Lahore Campus

Course Name:	Programming Fundamentals	Course Code:	CS1002
Program:	BS (CS, DS, SE)	Semester	Fall 2023
Duration:	60 Minutes	Total Marks:	5+5+5+5
Paper Date:	28 September 2023	Page(s):	4
Section	All Sections	CLOs	1,3,1,1
Exam Type:	Midterm-1		

Student Name: Section:

Registration #:

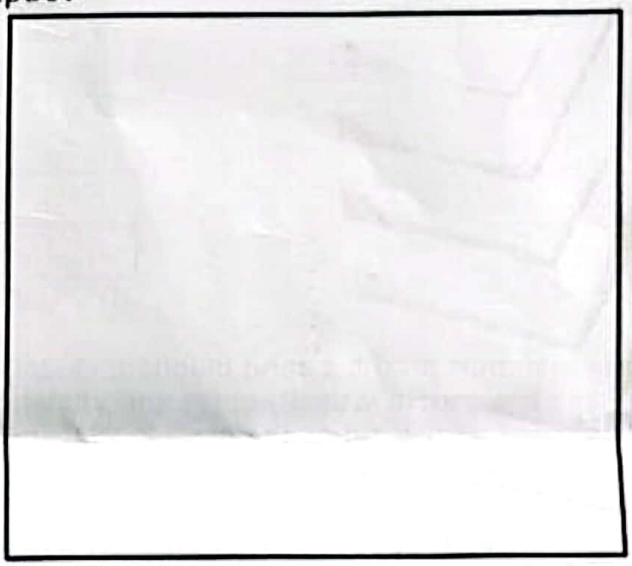
Instruction/Notes: Answer in the space provided. Show all working. **ROUGH SHEETS NOT ALLOWED**. Good luck!

Q1. Dry run the following code and give its output in the space provided.

```
#include<iostream>
using namespace std;
int main()
{
      int result = 0;
      int num1 = 2;
      int num2 = 10;
      int count = 2;
      while( count <= 8)
      {
          if( num2 <= num1)
          result = num1 % num2;
          else
          result = num2 % num1;

          count = count + num1;
          num1 = num1 + 2;
          num2 = num2 - 1;
      }
      cout<< num1 << "," <<num2 << ", " <<result << ", " <<count <<endl;
      return 0;
}
```

Output:



Rough work:

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3. For each output statement given below, specify the exact output. In case of junk/garbage value, use '?'.

```
#include<iostream>
using namespace std;
int main()
{
```

Rough work

int n;	output
cout << (n = 5) << endl;	
cout << (n == 5) << endl;	
cout << (n > 3) << endl;	
cout << (n < 4) << endl;	
cout << (n = 0) << endl;	
cout << (n == 0) << endl;	
cout << (n > 0) << endl;	
cout << (n && 5) << endl;	
cout << (n || 5) << endl;	
cout << (!n) << endl;	
return 0;	

```
}
```

Q4. The following code should take 2 numbers as input. It should print 1 if both numbers are non-zero [positive or negative] and 0 otherwise. Identify any syntax/logical errors and provide minimal corrections in the corresponding line. Unnecessary changes will be penalized.

Code. Ignore include / using namespace statements.	Corrections
int main() {	
int a, b;	
cin>> a >>> b;	
if (a == 1)	
if (b > 0)	
cout<<1;	
cout<<endl;	
else	
cout<<0	
else	
cout<<0;	
return 0;	
}	

Q2. Write a C++ program to take two numbers as input from the user and store them in fnumb snumber. For simplicity you can assume both numbers consist of exactly 2 digits. You have to se the digits in both the numbers. Add the minimum digit of fnumber with the maximum digit of snu to create a new number called **fSum**. Then add the minimum digit of snumber with the maximum d of fnumber to create a new number called **sSum**.

This way you will get 2 sums which you have to print in ascending order. For example, if fnumber is 4 and snumber is 28, then the max digit in fnumber is 9 and min digit in snumber is 2, and adding them will give 11. Similarly, 4 (min in fnumber) and 8 (max in snumber) will be added and the program will print 11, 12. You cannot use loops for this problem. Properly indent your code.