


# National University of Computer and Emerging Sciences, Lahore Campus

	Course Name:	Programming Fundamentals	Course Code:	CS
	Program:	CS	Semester:	Fall 2018
	Duration:	60 Minutes	Total Marks:	10+5+5+15
	Paper Date:		Weight	
	Section:	ALL	Page(s):	2
	Exam Type:	Sessional - I		

**Student : Name:** \_\_\_\_\_ **Roll No.** \_\_\_\_\_ **Section:** \_\_\_\_\_

**Instruction/Notes:** Solve the exam on this question paper . You may use rough sheets, but they must not be attached.

Problem 1. The following program *should* print a fraction in its simplest form. The fraction is composed of two positive integers "num" and "denom". For example, if the fraction is 25/15, i.e. num is 25 and denom is 15, then its simplest form should be **5/3**. If num or denom is 0, then the program must print **Not possible**. Identify the logical errors in the code below **by circling them**, and provide corrections based on the above description.

#include<iostream>	Specify corrections for respective lines here!
using namespace std;	
int main() {	
int num = 0, denom = 0, common=0,i=1;	
cout<<"Enter numenator and denomenator";	
cin>> num >> denom;	
if (num <= 0 && denom <= 0)	
cout << "Not possible ";	
else	
{	
while (i>=num && i>=denom);	
{	
if (num % i==0 && denom % i==0)	
common = i;	
i = i+1;	
}	
num /= common;	
denom /= common;	
cout << num << "/" << denom;	
}	
return 0; }	

Problem 2: Give the output of the following code for different inputs in the box provided. (Ignore main etc.)

```
int temp = 0;
cin >> temp;

if (temp > 80)
    cout << "warm";
    if (temp > 90)
        cout << "and hot";
else
    cout << "Normal";
```

Temp	Output
60	
85	
100	

Problem 3: Give the output of the following code for num1 = 6, and num1 = 9. (Ignore main etc.)

```
int num1, i=1;
cin >> num1;
while (i<=num1)
{
    if (i % 2 == 0)
        cout<< "-"<< num1 << "/" << ((i * 2) - 1)<<" ";
    else
        cout << "+" << num1 << "/" << ((i * 2) - 1)<<" ";
    i = i + 1;
}
```

Num1 = 6	
Num1 = 9	


Problem 4: Write a program that takes three inputs from the user: a number x, a number y, and a number k (assume that these numbers are never negative). The program then finds out whether the k<sup>th</sup> digits of both x and y are the same. We count the digits from **right to left**. The right most digit is at k=0; the second digit from the right is at k=1; the next digit is at k=2, and so on. The program should print "kth digit is the same" if the k<sup>th</sup> digits of x and y are the same and "kth digit is not the same" otherwise. Some example inputs and outputs:

Input	Output (on screen)	Note
x = 578, y = 72, k=1	"kth digit is the same"	both are 7
x= 0, y = 1280, k=0	"kth digit is the same"	both are 0
x= 8, y = 1808, k=2	"kth digit is not the same"	2 <sup>nd</sup> digit of y is 8, but x does not have a 2 <sup>nd</sup> digit
X=1156, y =1808, k=3	"kth digit is the same"	both are 1

```
int main(){
```

```
}
```

# National University of Computer and Emerging Sciences, Lahore Campus

	Course Name:	Introduction to Computing	Course Code:	CS101
	Program:	BS(CS)	Semester:	Fall 2017
	Duration:	1 hr	Total Marks:	30
	Paper Date:	Monday, 18 Sep 2017	Weight	10
	Section:	ALL	Page(s):	3
	Exam Type:	Sessional 1		

Student : Name: \_\_\_\_\_ Roll No. \_\_\_\_\_ Section: \_\_\_\_\_

Instruction/Notes: 1. Solve the exam on this question paper. No rough sheets allowed!  
2. Use of calculator is **not allowed**.

Q2. Write a pseudo-code or C++ code that takes as an input two numbers that defines the **start** and **end** of a range. It then prints all the integers in this range whose square also falls in the same range.

( 10 marks )

Sample example:

**Input:** 2 and 12

**Output:** 2 3

Explanation: since  $2*2=4$  and  $3*3=9$  falls within the range 2-12.

**Input:** 10 and 150

**Output:** 10 11 12

Q3. Dry run the following pseudo code and write the output corresponding to different inputs in the box provided. Mod is the modulus operator, and it calculates the remainder of an integer division. For example **11 mod 4** is **3**. (8 marks)

```
START
{
    roll_no = last 4 digits of your roll number
    n = (2 * roll_no + 12) / 2 - roll_no
    i=1

    while ( i less than or equal to n)
    {
        print "1/" , i

        if (i%2 is 1)
            print " + "
        else
            print " - "

        i = i+1
    }

    print roll_no
}
```

Output: