Bahria University, Islamabad Campus

Department of Computer Science

Final Term Examination

Class/Section: 1C

(Fall 2022 Semester)

Paper Type: Descriptive

Course:	Computer Programming Lab	Date: 16-November-2022
Course Code:	CSC-113	Time: 120 minutes
Faculty's Name:	Rabail Zahid	Max Marks: 40
Time Allowed:	120 minutes	Total Pages: 6

DO NOT OPEN THE QUESTION BOOK OR START UNTIL INSTRUCTED.

INSTRUCTIONS:

1. The final exam will be attempted offline.
2. Attempt on question paper. Attempt all of them. Read the question carefully. Understand the question, and then attempt it (Understanding the question paper is also part of the exam, so do not ask any clarification.)
3. No additional sheet will be provided for rough work. Use the back of the last page for rough work.
4. If you need more space write on the back side of the paper and clearly mark question & part number etc.
5. After asked to commence the exam, please verify that you have 6 different printed pages including this title page. There are a total of 5 questions.
6. Calculator sharing is strictly prohibited.
7. Use permanent ink pens only. Any part done using soft pencil will not be marked and cannot be claimed for rechecking.
8. Failure to observe above mentioned instructions will lead to disqualification in Exam

Signature of Invigilator

Student Name Roll No Section Signature

CLO Mapping	2	1	1	3	3	
Total Question	Q-1	Q-2	Q-3	Q-4	Q-5	Total
Marks Obtained						
Total Marks	10	5	10	5	10	50

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Question 01 **[10 marks]**

Write the algorithm (pseudocode) for given problem.
Take input from user (number) in N and display its length of N.
Hint: use mode and divide operators (% , /).
Example: 1.

N = 9
Length of N is 1
N = 27
Length of N is 2
N = 65789
Length of number is 5

Question 02 **[3 marks]**

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.

```
1.  #include<iostream>
2.  using namespace std;
3.  int main() {
4.          int num = 0, denom = 0, common=0,i=1;
5.          cout<<"Enter numenator and denomenator";
6.          cin>> num >> denom;
7.          if (num <= 0 && denom <= 0)
8.                  cout << "Not possible ";
9.          else
10.         {
11.                 while (i>=num && i>=denom);
12.                 {
13.                   if (num % i==0 && denom % i==0)
14.                           common = i;
15.           i = i+1;
16.                 }
17.                 num /= common;
18.                 denom /= common;
19.                 cout << num << "/" << denom;
20.         }
21.         return 0;  }
```

Correct all errors logical, or syntax in following code. **[2 Points]**

```
int main(){
        int value = 1;
        int number = 9;
        do {
                cout << number << " " << value << " " << endl;
                value++;

        } while ((value < 11) || (number > value % number));
}
```

```
#include <iostream>
int main()
{
  integer TC,FH;
  cout<<'Temperature IN';
  cin<< T;
  F<< 9\5.0* T+32
  COUT >> "Temperature OUT"<<F<Endl
Return 0; }
```

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Question 03

What is the output of following codes? **[3+2+3+2 Points]**

int n = 10;
for (int i = 0; i < n / 2; ++i)
cout << i - 2 * n;	

int x = 12, y = 10, z = 5; cout << (--x > y) || x/--z + 4 <= 8 && z < ++y - x;	

int n = 10;
for (int i = 0, j= n-1; i < n; i++, j-=2)
{
cout << ":";
if (j>i++)
cout << ")";
else if (j >=n - i)
cout << "|";
else
cout << "(";
 	
cout << "endl \n";
}	

int n = 7;
int A[7] = { 2, 5, 6, 7, 11, 1, 3 };
int temp, j;
for (int i = 1; i<n; i++){
temp = A[i];
for (j = i - 1; j >= 0 && A[j] >temp; j--){
A[j + 1] = A[j];
cout << A[j]<<" ";
}
A[j + 1] = temp;
cout << "|| ";
}
cout << endl;
for (int i = 1; i<n; i++)
cout<<A[i] << " ";	

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Question 04 **[5 Points]**

Dry run the following pseudo code and write

```
1.  Set size to 2
2.  Set z to 1
3.  Set i to 0
4.  While i<=size
5.  Begin
6.      Set k to 1
7.      While k<=z
8.      Begin
9.          Output  k
10.         Set k to k+1
11.     End
12.     Set z to z+1
13.     Output "*"
14.     Set j=size
15.     While j>i
16.     Begin
17.         Output j
18.         Set j to j-1
19.     End
20.     Output "*"
21.     Move to next line
22.     Set i to i+1
23. End
```

Question 05 **[10 Points]**

Part-a) Declare three integer arrays of size 20 i.e. A[], evenarray[] and oddarray[]. Take values in A from the user. Your task is to Identify the even values in A and store them in evenarray[] and odd numbers in oddarray[] . Display evenarray and oddarray. After that find prime numbers in odd array and display them on console.

Sample Output:
A: 24,26,3,7,21……,19
Even array: 24,26….
Odd array: 3,7,21,19,…….
Prime Numbers in odd array: 3,7, 19…..

Part –b) Draw the flow chart of the above C++ code that you generated in Part-a.

End of Question Paper