



**CSC103 Introduction to Computers  
& Programming**  
**Terminal Examination**  
**Department of Physics**  
**CUI, Islamabad**

Time allowed: 3 HRS  
Total Marks 100  
Instructor  
Muhammad Zeeshan Saeed

Note: Do not cheat, identical papers will get special attention during evaluation.

- Q1.** Write a program in C++ to take two user entered (Array order and elements) 2 dimensional arrays, and store them together in a third array with corresponding elements separated by "," and enclosed in brackets. Display the third array in form of 2D matrix on screen. (20)

Sample input:

a = 1 9                      b = 5 7  
          2 3                      9 1

Sample output:

c = (1, 5)                    (9, 7)  
          (2, 9)                    (3, 1)

- Q2.** a) Modify the following code to replace the for loop by its equivalent while and do while loops, separately, to achieve same results. (5 + 5 = 10) (Use same code to answer both parts)  
b) Identify and state the mistakes in the given code by writing down the correct lines. (10)

```
int j;
int Val = 1;
int user_input;
cout << 'Display tables till the value: ';
cin >> user_input
cout << "\n";
while (j = 1; j <= 10; j++)
{
    for(val = 1; val <= user_input; val++)
        // cout << "Table of " << val << endl;
        // cout << " _____ " << endl;
        cout << val << " x " << j << " = " << val * j << "\t" << endl;
    cout << endl << endl;
}
```

*int val = 1;*  
*do {*  
*val++;*  
*} while (val <= 1);*

- Q3.** a) Write a C++ code to take appropriate inputs from the user to calculate surface area of a cylinder and display it on screen along with units. "cm" should be used as unit of a single dimension. (10)  
b) Write a program in C++ to convert a decimal number to binary number, by taking input from a user.(10)

- Q4.** Write a Function in C++ to display the multiplication table vertically of any input number i.  
Sample function name: table\_mult. In the main function, take an integer input 'n' from user, call the function table\_mult to compute table of n. (20)

- Q5.** a) Write a C++ program to sort any user entered array in descending order. Display both the user entered array and the sorted form of that array on screen. (10)  
b) Write a program in C++ to identify number of even and odd elements of a user entered array and print those elements along with their quantity and index. (10)

*2πr^2 = πr^2*  
*2πr^2 x 2πr^2 = 2πr^2*  
*2πr^2 = 2πr^2*  
*int r = 0;*  
*int n = 0;*  
*int i = 0;*  
*int sum = 0;*  
*int even = 0;*  
*int odd = 0;*  
*int place = 1;*  
*int value = 0;*  
*while (r != 0)*  
*{*  
*int n = r / 2;*  
*if (n == 0)*  
*even++;*  
*else*  
*odd++;*  
*r = r % 2;*  
*place = place \* 10;*  
*}*  
*cout << "Even = " << even << endl;*  
*cout << "Odd = " << odd << endl;*

*r = r / 2*

*n = n / 2*