



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 " << "\t" << val << endl;
        // cout << "_____ " << endl;

        cout << val << " x " << j << " = " << val * j << "\t" << " | \t";

    }
    cout << endl << endl;
}
```

int val = 1;

do {

} 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)

$$n = n / 2 = 0$$

$$2 \times r^2 + 2 \times r$$

$$\text{int } i;$$

$$\begin{aligned} & \text{while } (n \neq 0) \\ & n = n / 2 \\ & \text{int } i = 0 \\ & \text{int } val = 0 \\ & \text{int } place = 1 \\ & \text{int } sum = 0 \\ & \text{int } count = 0 \end{aligned}$$

$$n = n / 2 = 0$$