

# C++ Programming Assignment – Complete Solution

## Task 1: Decision Making and Input / Output

```
#include <iostream>
using namespace std;

int main() {
    int num;
    cout << "Enter an integer number: ";
    cin >> num;

    if (num > 0)
        cout << "The number is Positive." << endl;
    else if (num < 0)
        cout << "The number is Negative." << endl;
    else
        cout << "The number is Zero." << endl;

    if (num % 2 == 0)
        cout << "The number is Even." << endl;
    else
        cout << "The number is Odd." << endl;

    return 0;
}
```

## Task 2: Functions and Parameter Passing

```
#include <iostream>
using namespace std;

void passByValue(int x) {
    x = x + 10;
}

void passByReference(int &y) {
    y = y + 10;
}

int main() {
    int a = 5, b = 5;

    passByValue(a);
    passByReference(b);

    cout << "Value of a: " << a << endl;
    cout << "Value of b: " << b << endl;

    return 0;
}
```

## Task 3: Array Processing

```
#include <iostream>
using namespace std;

int main() {
    int size;
    cout << "Enter number of elements: ";
    cin >> size;

    int arr[size];
    float sum = 0;
    for (int i = 0; i < size; i++) {
```

```

        cin >> arr[i];
        sum += arr[i];
    }

    int max = arr[0], min = arr[0];

    for (int i = 1; i < size; i++) {
        if (arr[i] > max) max = arr[i];
        if (arr[i] < min) min = arr[i];
    }

    cout << "Max: " << max << endl;
    cout << "Min: " << min << endl;
    cout << "Average: " << sum / size << endl;

    return 0;
}

```

## Task 5: Object-Oriented Programming

```

#include <iostream>
using namespace std;

class Student {
private:
    string name;
    int rollNo;
    float m1, m2, m3;

public:
    Student(string n, int r, float a, float b, float c) {
        name = n;
        rollNo = r;
        m1 = a; m2 = b; m3 = c;
    }

    float total() const {
        return m1 + m2 + m3;
    }

    float average() const {
        return total() / 3;
    }

    void display() const {
        cout << "Name: " << name << endl;
        cout << "Roll No: " << rollNo << endl;
        cout << "Total: " << total() << endl;
        cout << "Average: " << average() << endl;
    }
};

int main() {
    Student s("Ali Ahmad", 101, 85, 78, 90);
    s.display();
    return 0;
}

```