

UNIVERSITY OF GUJRAT(UOG)

ASSIGNMENT # 02

SUBMITTED BY:

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DEPARMENT:

COMPUTER SCIENCE (5TH A)

SUBMITTED TO :

PROF TASSADAQ



QUESTION # 01:

Find the errors (or write output if no error)

(a)

```
int I, J;  
  
for(I=1; I>7; I++)  
  
    cout << I;  
  
cout << "End of Program";  
  
return 7;
```

Errors / problems

- The **for** condition **I > 7** is wrong: starting at **I = 1** it's false, so loop never runs. It should be **I < 7 (or I <= 7)** depending on intended range.
- Returning **7** from **main** is legal but uncommon; normally **return 0;**. (Not a compile error.)

ANSWER:

End of program

(b)

```
int num1 = 5, num2 = 10;  
  
if (num1 < num2)  
  
    cout << "num1 is smallest";  
  
    num1 = num2;  
  
else  
  
    cout << "num2 is smallest";
```

Errors / problems

- Missing braces { ... } around the **if** body. As written, only the **cout** is conditional; **num1 = num2;** is a separate statement, making the **else** mismatch and causing a compile error (**else** without matching **if** body) or logic error.
- Likely the assignment **num1 = num2;** was accidentally placed outside of the **if** or was not intended.

ANSWER:

Num1 is smallest

(c)

```
int a=0, b=1;
```

```
a = b++;
```

```
cout << a << b;
```

```
b = ++a;
```

```
cout << a << b;
```

```
return e;
```

Errors / problems

- **return e;** is invalid — **e** is undefined. Should be **return 0;**.
- otherwise fine (but pay attention to pre/post increments and no spaces in output).

ANSWER:

1 2

2 2

(d)

```
int a, b, res;  
cin >> a; cin >> b;  
a = 20; b = 10;  
a + b = res;  
cout << "res = " << res;
```

Errors / problems

- `a + b = res;` is wrong order — you cannot assign into an expression. Should be `res = a + b;`.
- Also code overwrites user input by `a = 20; b = 10;` — odd but not a compile error (probably a logic mistake).

ANSWER:

30

Question 02 — Define any two from the following (short answers)

a. Header files

Header files (in C/C++) are files included at the top of source files (using `#include`) that declare functions, classes and constants.

Examples: `<iostream>`, `<vector>`, `<cmath>`. They provide declarations so the compiler knows how to use library components.

b. Source code

Source code is the human-readable program text you write in files

(e.g., .cpp, .c, .py). It contains definitions of functions, logic, and implementations that the compiler or interpreter turns into an executable or by the code.

c. Comments

Comments are non-executing text in source code used to explain or document the code. In C++: // **single-line comment** or /* **multi-line comment** */. They help humans understand the code and are ignored by the compiler.

QUESTION # 03:

Program that reads height in inches and displays height in feet and inches

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

int main() {
    int feet, height;
    int total_inches;
    cout << "Enter height in inches: ";
    cin >> total_inches;

    feet = total_inches / 12;
    inches = total_inches % 12;

    cout << total_inches << " inches = " << feet << " feet and " << inches << "
inches\n";
    return 0;
}
```

OUTPUT:

```
Enter height in inches: 74
```

74 inches = 6 feet and 2 inches

Question 04 — Program that takes two numbers and checks multiplicity

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

int main() {
    int a, b;
    cout << "Enter two integers: ";
    cin >> a >> b;

    if (a % b == 0) {
        cout << a << " is a multiple of " << b << endl;
    }
    else
    {
        cout << "Neither is a multiple of the other.;";
    }
    return 0;
}
```

OUTPUT:

Enter two integers: 49, 7

49 is multiple of 7

Question 05 — Read 10 numbers and display sum, maximum and minimum

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

int main() {
    int num, sum = 0;
```

```
int maxNum, minNum;

cout << "Enter 10 numbers:<<endl;

cin >> num;

sum = num;

maxNum = num;

minNum = num;

for (int i = 1; i < 10; i++) {

    cin >> num;

    sum += num;

    if (num > maxNum)

        maxNum = num;

    if (num < minNum)

        minNum = num;

}

cout << "Sum = " << sum << endl;

cout << "Maximum = " << maxNum << endl;

cout << "Minimum = " << minNum << endl;

return 0;

}
```

Output:

5 7 2 9 11 3 -1 6 8 10

Sum = 60

Maximum = 11

Minimum = -1

ARRAY SORTING IN C++

Question

Write a program that takes 10 numbers from the user and sorts them in **ascending order**.

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

int main() {
    int a[10];

    cout << "Enter 10 numbers:\n";
    for (int i = 0; i < 10; i++)
        cin >> a[i];

    for (int i = 0; i < 10; i++) {
        for (int j = 0; j < 9 - i; j++) {
            if (a[j] > a[j + 1]) {
                int temp = a[j];
                a[j] = a[j + 1];
                a[j + 1] = temp;
            }
        }
    }
}
```

```
cout << "Sorted (Ascending): ";
for (int i = 0; i < 10; i++)
    cout << a[i] << " ";
}

Enter 10 numbers:
1 2 3 4 5 6 7 8 9 10
Sorted (Ascending): 1 2 3 4 5 6 7 8 9 10
-----
Process exited after 11.72 seconds with return value 0
Press any key to continue . . .
```

Question

Write a program that sorts the given array in **descending order**.

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

int main() {
    int a[10];

    cout << "Enter 10 numbers:\n";
    for (int i = 0; i < 10; i++)
        cin >> a[i];

    for (int i = 0; i < 10; i++) {
        for (int j = 0; j < 9 - i; j++) {
            if (a[j] < a[j + 1]) { // only change "<"
                int temp = a[j];
                a[j] = a[j + 1];
                a[j + 1] = temp;
            }
        }
    }

    cout << "Sorted (Descending): ";
    for (int i = 0; i < 10; i++)
```

```
    cout << a[i] << " ";
}
```

OUTPUT:

```
Enter 10 numbers:
1 23 4 5 6 7 8 9 10 11
Sorted (Descending): 23 11 10 9 8 7 6 5 4 1
-----
Process exited after 10.84 seconds with return value 0
Press any key to continue . . .
```

Question- Sort Only Even or Odd Numbers Separately

Write a program that sorts **only even numbers**, but odd numbers stay at their positions.

```
#include <iostream>

using namespace std;

int main() {
    int a[10];

    cout << "Enter 10 numbers:\n";
    for (int i = 0; i < 10; i++)
        cin >> a[i];

    for (int i = 0; i < 10; i++) {
        for (int j = 0; j < 9; j++) {
            if (a[j] % 2 == 0 && a[j + 1] % 2 == 0 && a[j] > a[j + 1]) {
                int temp = a[j];
                a[j] = a[j + 1];
                a[j + 1] = temp;
            }
        }
    }

    cout << "Even numbers sorted (others unchanged): ";
```

```
for (int i = 0; i < 10; i++)  
    cout << a[i] << " ";  
}
```
