**SVKM’s NMIMS**

**Mukesh Patel School of Technology Management and Engineering, Mumbai**

**Department of Electronics & Telecommunication**



**Programming for Problem Solving (Exp 2-2)**

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| **Date of Experiment: 03/10/2022** | **Date of Submission: 03/10/2022** |

**Task 1:**

|  |  |
| --- | --- |
| int i =9, j=6;  float x =0.5, y =0.1;  char a ='a', b ='b'; | |
| **Expression** | **Output (With Justification)** |
| 1. (3 \* i – 2 \* j) % (2 \* a - b) | 15 (Char converted to ASCII) |
| 1. (x>y) && (i>0) && (j>5) | true |
| 1. a==99 | false (ASCII of a = 97) |
| 1. for a = 5 and b = 10   z = (a < b)? a+b : a - b | 15 |
| 1. i = 10;   i++;  a = i + 10; | 21 |
| 1. for i = 10, j = 5   z = (i + 10 < j)? 100:10 | 10 |
| 1. with a=1, b=2, c=12, d=2, e=5, f=2   a = b += c++ − d + −−e/−f; | 10 |
| 1. with x=12, y=7, z   z= x!=4 || y==2; |  |
| 1. with int i=-3, j=2, k=0, m   m = ++i || ++j && ++k; |  |

**Task 2:**

#include <iostream>

#include <cmath>

using namespace std;

int main() {

double ax, ay, bx, by, distance, midpointX, midpointY;

cout << "Input the coordinates of A: ";

cin >> ax >> ay;

cout << "Input the coordinates of B: ";

cin >> bx >> by;

distance = ceil((sqrt(pow((bx - ax), 2.0) + pow((by - ay), 2.0))) \* 100) / 100;

midpointX = ceil((ax + bx / 2) \* 100.0) / 100.0;

midpointY = ceil((ay + by / 2) \* 100.0) / 100.0;

cout << "\nDistance: " << distance << endl;

cout << "\nMidpoint: (" << midpointX << ", " << midpointY << ")\n";

return 0;

}

**Task 3:**

#include <iostream>

using namespace std;

int main() {

int num1, num2, num3;

cout << "Enter 1st Number: ";

cin >> num1;

cout << "Enter 2nd Number: ";

cin >> num2;

cout << "Enter 3rd Number: ";

cin >> num3;

if (num1 > num2 && num1 > num3) {

cout << "\nThe largest number is " << num1 << endl;

} else if (num2 > num1 && num2 > num3) {

cout << "\nThe largest number is " << num2 << endl;

} else if (num3 > num1 && num3 > num2) {

cout << "\nThe largest number is " << num3 << endl;

} else {

cout << "\nAll the numbers are equal" << endl;

}

return 0;

}

**Task 4:**

#include <iostream>

using namespace std;

int main() {

cout << sizeof(float) << endl;

cout << sizeof(int) << endl;

cout << sizeof(char) << endl;

cout << sizeof(double) << endl;

return 0;

}

**Task 5:**

**a:**

4

**b:**

if A < B < C

**c:**

1

**d:**

False

**e:**

1110101111111010

**f:**

10

**Homework Questions:**

**1.**

#include <iostream>

using namespace std;

int main() {

int num1, num2;

cout << "Enter any two numbers: ";

cin >> num1 >> num2;

cout << "\nSum: " << num1 + num2;

cout << "\nDifference: " << num1 - num2;

cout << "\nProduct: " << num1 \* num2;

cout << "\nQuotient: " << num1 / num2;

cout << "\nModulus: " << num1 % num2;

return 0;

}

**2.**

#include <iostream>

using namespace std;

int main() {

int n, reverse = 0, rem;

cout << "Enter a number: ";

cin >> n;

while (n != 0) {

rem = n % 10;

reverse = reverse \* 10 + rem;

n /= 10;

}

cout << "Reversed Number: " << reverse << endl;

return 0;

}

**3.**

#include <iostream>

using namespace std;

int main() {

int n, sum = 0;

cout << "Enter a number: ";

cin >> n;

for (int x = 1; x <= n; x++) {

sum += x \* x \* x;

}

cout << sum;

return 0;

}