Que 1

```
#include <iostream>
int main() {
    int i = 1;
    std::cout << "Even numbers from 1 to 10: " << std::endl;
    while (i <= 10) {
        if (i % 2 == 0) {
            std::cout << i << " ";
        }
        i++;
    }
    return 0;
}
```

Output

```
Even numbers from 1 to 10:
2 4 6 8 10
```

Que 2

```
#include <iostream>
int main() {
    char input;
    std::cout << "Enter the key to instruct the robot (a, b, c, d, e, f): ";
    std::cin >> input;

    switch (input) {
        case 'a':
            std::cout << "Robot moves left." << std::endl;
            break;
        case 'b':
            std::cout << "Robot moves right." << std::endl;
            break;
        case 'c':
            std::cout << "Robot moves forward." << std::endl;
            break;
        case 'd':
            std::cout << "Robot moves backward." << std::endl;
            break;
        case 'e':
            std::cout << "Robot jumps." << std::endl;
            break;
        case 'f':
            std::cout << "Robot stops." << std::endl;
            break;
        default:
            std::cout << "You have selected the wrong key. Please try again using simple instructions." << std::endl;
    }
    return 0;
}
```

output

```
Enter the key to instruct the robot (a, b, c, d, e, f): e
Robot jumps.
```

Que 3

```
#include <iostream>
int main() {
    int num1, num2, num3;
    std::cout << "Enter three numbers: ";
    std::cin >> num1 >> num2 >> num3;

    int minimum = num1;
    int maximum = num1;
    // Finding minimum
    if (num2 < minimum) {
        minimum = num2;
    }
    if (num3 < minimum) {
        minimum = num3;
    }

    // Finding maximum
    if (num2 > maximum) {
        maximum = num2;
    }
    if (num3 > maximum) {
        maximum = num3;
    }

    std::cout << "Minimum number is: " << minimum << std::endl;
    std::cout << "Maximum number is: " << maximum << std::endl;

    return 0;
}
```

Outptut

```
Enter three numbers: 12
15
19
Minimum number is: 12
Maximum number is: 19
```

Que 4

```
#include <iostream>

int main() {

   const int size = 10;

   int numbers[size];

   double sum = 0;


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


   // Input

   for (int i = 0; i < size; ++i) {

       std::cin >> numbers[i];

       sum += numbers[i];

   }


   // Calculating average

   double average = sum / size;


   // Output

   std::cout << "Average of the 10 numbers is: " << average << std::endl;


   return 0;

}
```

Output

```
Enter 10 numbers:

1

4

2

5

3

4
```

```
7

9

10

8

Average of the 10 numbers is: 5.3
```

Que 5

```
#include <iostream>
#include <string>

struct Student {
    int roll_number;
    std::string name;
    std::string address;
};

int main() {
    // Creating an array of structures to hold information of two students
    Student students[2];

    // Input student information
    for (int i = 0; i < 2; ++i) {
        std::cout << "Enter details for student " << i + 1 << ":\n";
        std::cout << "Roll Number: ";
        std::cin >> students[i].roll_number;
        std::cout << "Name: ";
        std::cin.ignore();
        std::getline(std::cin, students[i].name);
        std::cout << "Address: ";
        std::getline(std::cin, students[i].address);
    }
    // Displaying student information
    for (int i = 0; i < 2; ++i) {
        std::cout << "\nDetails of student " << i + 1 << ":\n";
        std::cout << "Roll Number: " << students[i].roll_number << std::endl;
        std::cout << "Name: " << students[i].name << std::endl;
        std::cout << "Address: " << students[i].address << std::endl;
    }

    return 0;
}
```

Output

```
Enter details for student 1:
Roll Number: 1
Name: ABC
Address: XYZ
Enter details for student 2:
Roll Number: 2
Name: MNG
Address: LKJ

Details of student 1:
Roll Number: 1
Name: ABC
Address: XYZ
Details of student 2:
Roll Number: 2
Name: MNG
Address: LKJ
```

Que 6

```
#include <iostream>

// Function to swap two numbers

void swapNumbers(int &num1, int &num2) {

    int temp = num1;

    num1 = num2;

    num2 = temp;

}


int main() {

    int num1, num2;


    std::cout << "Enter two numbers: " << std::endl;

    std::cin >> num1 >> num2;


    std::cout << "Before swapping: num1 = " << num1 << ", num2 = " << num2 << std::endl;


    // Calling the function to swap numbers

    swapNumbers(num1, num2);


    std::cout << "After swapping: num1 = " << num1 << ", num2 = " << num2 << std::endl;


    return 0;

}
```

Output

```
Enter two numbers:

15

24

Before swapping: num1 = 15, num2 = 24

After swapping: num1 = 24, num2 = 15
```

Que 7

```
#include <iostream>
// Function to add two integers
int add(int a, int b) {
    return a + b;
}

// Function to add three integers
int add(int a, int b, int c) {
    return a + b + c;
}

// Function to add two double numbers
double add(double a, double b) {
    return a + b;
}

int main() {
    int num1 = 5, num2 = 10, num3 = 15;
    double double1 = 2.5, double2 = 3.5;

    // Calling the first overloaded function
    std::cout << "Sum of " << num1 << " and " << num2 << " is " << add(num1, num2) << std::endl;

    // Calling the second overloaded function
    std::cout << "Sum of " << num1 << ", " << num2 << " and " << num3 << " is " << add(num1, num2, num3) << std::endl;

    // Calling the third overloaded function
    std::cout << "Sum of " << double1 << " and " << double2 << " is " << add(double1, double2) << std::endl;
    return 0;
}
```

Output

```
Sum of 5 and 10 is 15
Sum of 5, 10 and 15 is 30
Sum of 2.5 and 3.5 is 6
```

Que 8

```
#include <iostream>
// Base class
class Shape {
    public:
        void setWidth(int w) {
            width = w;
        }
        void setHeight(int h) {
            height = h;
        }

    protected:
        int width;
        int height;
};

// Derived class
class Rectangle: public Shape {
    public:
        int getArea() {
            return (width * height);
        }
};

int main() {
    Rectangle rect;

    rect.setWidth(5);
    rect.setHeight(7);

    // Print the area of the object
    std::cout << "Total area: " << rect.getArea() << std::endl;

    return 0;
}
```

Output

```
Total area: 35
```

Que 9

```
#include <iostream>
// First base class
class Shape {
    protected:
        int width;
        int height;
    public:
        void setWidth(int w) {
            width = w;
        }
        void setHeight(int h) {
            height = h;
        }
```

```
};

// Second base class
class Paint {
    public:
        void setColor(std::string c) {
            color = c;
        }
        std::string getColor() {
            return color;
        }
    protected:
        std::string color;
};

// Derived class inheriting from two base classes
class Rectangle: public Shape, public Paint {
    public:
        int getArea() {
            return (width * height);
        }
};

int main() {
    Rectangle rect;
    rect.setWidth(5);
    rect.setHeight(7);
    rect.setColor("Red");

    std::cout << "Total area: " << rect.getArea() << std::endl;
    std::cout << "Color: " << rect.getColor() << std::endl;
    return 0;
}
```

Output

```
Total area: 35
Color: Red
```

Que 10

```
#include <iostream>
#include <string>
class Student {
private:
    std::string name;
    int rollNumber;
    std::string address;

public:
    // Function to set student details
    void setDetails(std::string studentName, int studentRollNumber, std::string studentAddress) {
        name = studentName;
        rollNumber = studentRollNumber;
        address = studentAddress;
    }

    // Function to print student details
    void printDetails() {
        std::cout << "Student Details:" << std::endl;
        std::cout << "Name: " << name << std::endl;
        std::cout << "Roll Number: " << rollNumber << std::endl;
        std::cout << "Address: " << address << std::endl;
    }
};

int main() {
    // Creating an object of the Student class
    Student student;

    // Setting details for the student
    student.setDetails("John Doe", 12345, "123, Main Street, City");

    // Printing student details
    student.printDetails();

    return 0;
}
```

Output

```
Student Details:
Name: John Doe
Roll Number: 12345
Address: 123, Main Street, City
```