QUESTION NO 1:

```c
#include<stdio.h>

int main(){
    char sym;
    printf("Please enter only one character.\n");
    printf("Enter to know your character type : ");
    scanf("%c",&sym);

    if(sym < 0 && sym > 127){
        printf("Error invalid character not registered withing ASCII characters");
    }else{
    if(sym >= 97 && sym <= 122){
        printf("This is lowercase letter");
    }else if(sym >= 65 && sym <= 90){
        printf("This is Uppercase letter");
    }else if(sym >= 48 && sym <= 57){
        printf("This is a number");
    }else{
        printf("Special Character");
    }

    }


    return 0;
}
```

```
C:\Users\Mahad\Documents\Practice C language\lab51.exe
Please enter only one character.
Enter to know your character type : F
This is Uppercase letter
---------------------------------
Process exited after 10.54 seconds with return value 0
Press any key to continue . . .
```

QUESTION NO 2:
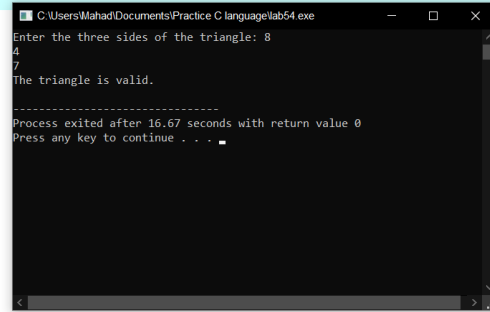
```c
#include<stdio.h>

int main(){
    int num;
    printf("Please enter a number to know, it is positive, negative, or Zero : ");
    scanf("%d",&num);

    if(num <= 0){
        if(num < 0){
            printf("Your number (%d) is negative.",num);
        }else {
            printf("Your number (%d) is Zero.",num);
        }
    }else{
        printf("Your number (%d) is Positive.",num);
    }

    return 0;
}
```

```
C:\Users\Mahad\Documents\Practice C language\lab52.exe
lease enter a number to know, it is positive, negative, or Zero : -5
our number (-5) is negative.
--------------------------------
rocess exited after 5.976 seconds with return value 0
ress any key to continue . . .
```

QUESTION NO 3:

```c
#include<stdio.h>

int main(){
    int a,b,c;
    printf("Enter three numbers to know which is largest: ");
    scanf("%d",&a);
    scanf("%d",&b);
    scanf("%d",&c);


    if(a > b){
        if (a > c){
            printf("%d is the greatest number",a);
        }
    }else if(b > c){
        if(b > a){
            printf("%d is the greatest number",b);
        }
    }else if(c > b){
        if(c > a){
            printf("%d is the greatest number",b);
        }
    }



    return 0;
}
```

```
C:\Users\Mahad\Documents\Practice C language\lab53_2.exe
Enter three numbers to know which is largest: 7
8
4
8 is the greatest number
--------------------------------
Process exited after 3.379 seconds with return value 0
Press any key to continue . . .
```

QUESTION NO 4:
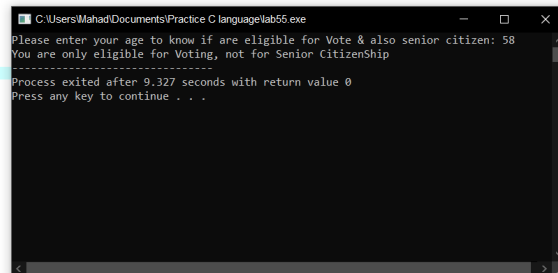
```c
#include<stdio.h>

int main() {
    int a, b, c;

    printf("Enter the three sides of the triangle: ");
    scanf("%d %d %d", &a, &b, &c);

    if (a > 0 && b > 0 && c > 0) {
        if ((a + b > c) && (a + c > b) && (b + c > a)) {
            printf("The triangle is valid.\n");
        } else {
            printf("The triangle is not valid.\n");
        }
    } else {
        printf("All side must be postive and greater then 0, Please try again with valid values.\n");
    }

    return 0;
}
```

```
Enter the three sides of the triangle: 8
4
7
The triangle is valid.

--------------------------------
Process exited after 16.67 seconds with return value 0
Press any key to continue . . .
```

QUESTION NO 5:
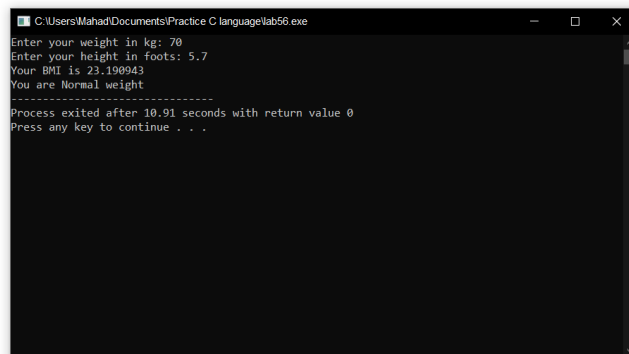
```c
#include<stdio.h>

int main(){
    int age;
    printf("Please enter your age to know if are eligible for Vote & also senior citizen: ");
    scanf("%d",&age);

    if(age < 0){
        printf("Invalid Age");
    }else if (age >= 18){
        if(age >= 60){
            printf("You are eligible for voting but also for senior Citizen");
        }else{
            printf("You are only eligible for Voting, not for Senior CitizenShip");
        }
    }else{
        printf("Not eligible");
    }

    return 0;
}
```

```
Please enter your age to know if are eligible for Vote & also senior citizen: 58
You are only eligible for Voting, not for Senior CitizenShip

--------------------------------
Process exited after 9.327 seconds with return value 0
Press any key to continue . . .
```

QUESTION NO 6

```c
#include<stdio.h>

int main() {
    float weight, height, bmi,convert;

    printf("Enter your weight in kg: ");
    scanf("%f", &weight);

    printf("Enter your height in foots: ");
    scanf("%f", &height);
    height = height*0.3048;
    bmi = weight/(height*height);

    printf("Your BMI is %f\n",bmi);

    if (bmi < 29.9){

        if(bmi < 24.9){

            if(bmi < 18.5){
            printf("You are Underweight");
            }else{
            printf("You are Normal weight");
            }

        }else{
            printf("You are Overweight");
        }
    }else if(bmi >= 30){
            printf("You are Obesive");

    }
    return 0;
}
```

```
Enter your weight in kg: 70
Enter your height in foots: 5.7
Your BMI is 23.190943
You are Normal weight

--------------------------------
Process exited after 10.91 seconds with return value 0
Press any key to continue . . .
```

QUESTION NO 7:

```c
#include <stdio.h>

int main() {
    int attendance, assignScore;
    char examResult;

    printf("Please enter your attendance in percentage (1-100): ");
    scanf("%d", &attendance);
    printf("Please enter your Assignment Score (1-10): ");
    scanf("%d", &assignScore);
    printf("Please enter your Exam Result (A to C): ");
    scanf(" %c", &examResult);

    // if A and attend >= 70 and assign >= 8   then  your are in First division Ranking list
    // if A and attend >= 50 and assign >= 5   then  your are in Second division Ranking list
    // if B and attend >= 70 and assign >= 8   then  your are in Second division Ranking list
    // if B and attend >= 50 and assign >= 4   then  your are in Third Division Ranking list
    // if C and attend >= 40 and assign >= 5   then  your are in Third Division Ranking list
    // else last division

    if ((attendance > 100 || attendance < 0) || (assignScore < 0 || assignScore > 10) || (examResult != 'a' && examResult != 'b' && examResult != 'c')) {
        printf("Invalid data, please enter data within limits\n");
    } else {

        if (examResult == 'a') {
            if (attendance >= 70 && assignScore >= 8) {
                printf("You are in First Division Ranking list\n");
            } else if (attendance >= 50 && assignScore >= 5) {
                printf("You are in Second Division Ranking list\n");
            } else {
                printf("You are in Last Division Ranking list\n");
            }
        } else if (examResult == 'b') {
            if (attendance >= 70 && assignScore >= 8) {
                printf("You are in Second Division Ranking list\n");
            } else if (attendance >= 50 && assignScore >= 4) {
                printf("You are in Third Division Ranking list\n");
            } else {
                printf("You are in Last Division Ranking list\n");
            }
        } else if (examResult == 'c') {
            if (attendance >= 40 && assignScore >= 5) {
                printf("You are in Third Division Ranking list\n");
            } else {
                printf("You are in Last Division Ranking list\n");
            }
        } else {
            printf("You are in Last Division Ranking list\n");
        }
    }

    return 0;
}
```

```
C:\Users\Mahad\Documents\Practice C language\lab572.exe

Please enter your attendance in percentage (1-100): 75
Please enter your Assignment Score (1-10): 7
Please enter your Exam Result (A to C): b
You are in Third Division Ranking list

--------------------------------
Process exited after 4.965 seconds with return value 0
Press any key to continue . . .
```

QUESTION NO 8:

```c
#include <stdio.h>

int main() {
    int age;
    float income;
    int creditScore;

    printf("Enter your age: ");
    scanf("%d", &age);
    printf("Enter your annual income: ");
    scanf("%f", &income);
    printf("Enter your credit score (300 to 900): ");
    scanf("%d", &creditScore);

    if (age >= 20 && income > 25000 && creditScore > 450) {
        printf("You are eligible for the loan.\n");
    } else {
        printf("You are not eligible for the loan.\n");

        if (age < 20) {
            printf("You must be at least 18 years old.\n");
        }

        if (income <= 25000) {
            printf("Your income must be above 25000.\n");
        }

        if (creditScore <= 400) {
            printf("Your credit score must be above 450.\n");
        }
    }

    return 0;
}
```

```
C:\Users\Mahad\Documents\Practice C language\lab58.exe

Enter your age: 21
Enter your annual income: 90000
Enter your credit score (300 to 900): 800
You are eligible for the loan.

--------------------------------
Process exited after 15.88 seconds with return value 0
Press any key to continue . . .
```