TITLE: Basic of computer programming

Objectives:

- To be familiar with syntax and structure of c-programming
- To learn problem solving techniques using c.

Theory:

C is a general-purpose high level language that was originally developed by Dennis Ritchie for the Unix operating system.

Header files:

Header files is a file with extension (.h) which contains c functions declaration and macro definitions to be shared between several source files. There are two types of header files, the files that the programmer writes and the files that comes with your computer. In c, header files contain the set of predefined standard library functions.

- #include <stdio.h> // input/output functions
- #include <conio.h> // console input/output functions
- #include <math.h> // mathematics functions

Library functions:

They are the functions which are declared in the header files such as printf(), scanf(), getch() etc.

- scanf() // used to take input from user
- printf() // used to display output on screen
- pow() // used to calculate power of certain value
- getch() // used to return characters on screen.

Symbolic constant:

Different symbolic in C represent their different function such as:- { represent the beginning of the function and } represent the end of the function.

Semicolon (;) are used in the end statement in C. Semicolon tell that the current statement has been terminated and other statements following are new statements.

1) Write a algorithm to display "Hello World"

Step 1: Start

Step 2: Display Hello World

Step 3: End

2) Write a algorithm to add two numbers (5 and 7) and display its sum

Step 1: Start

Step 2: Declare variables num1, num2, Sum

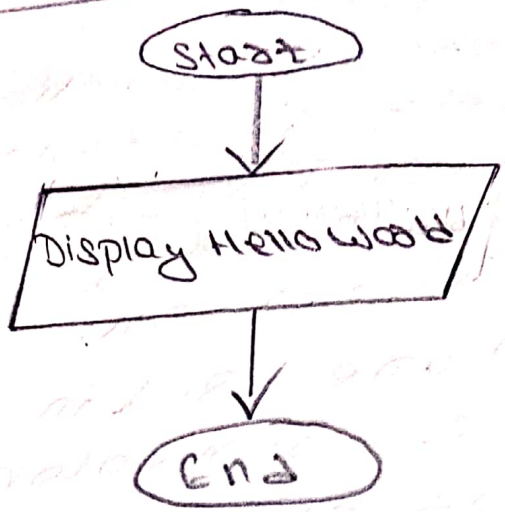
Step 3: Initialize num1 = 5, num2 = 7

Step 4: Calculate Sum as Sum = num1 + num2

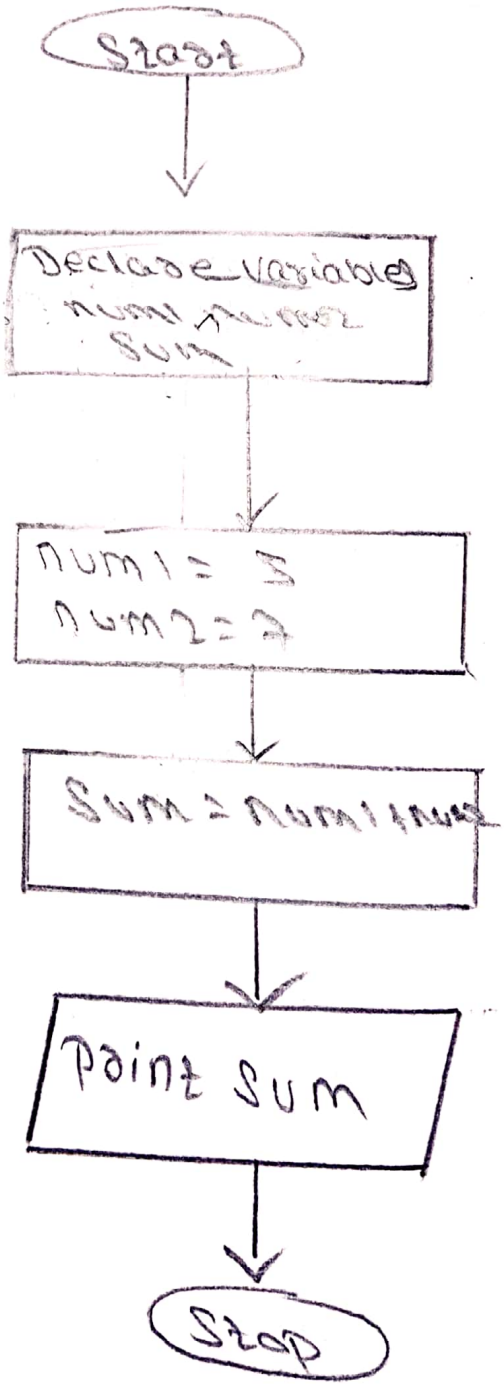
Step 5: Print Sum

Step 6: End

1)



2)



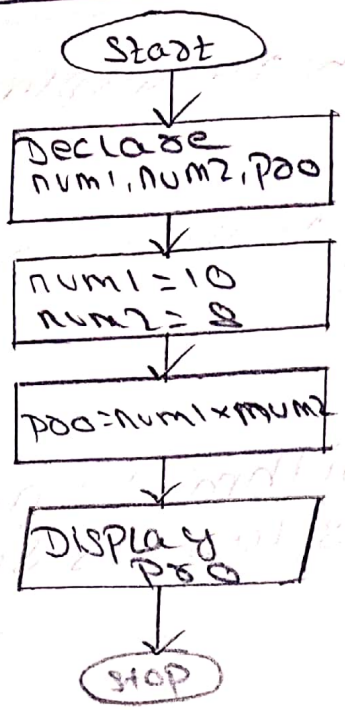
3 Write a algorithm to multiply two numbers (10 and 8) and display its product

Step1: Start
Step2: Declare variables num1, num2, pro
Step3: Initialize num1=10, num2=8
Step4: calculate pro as pro=num1×num2
Step5: Display pro
Step6: End

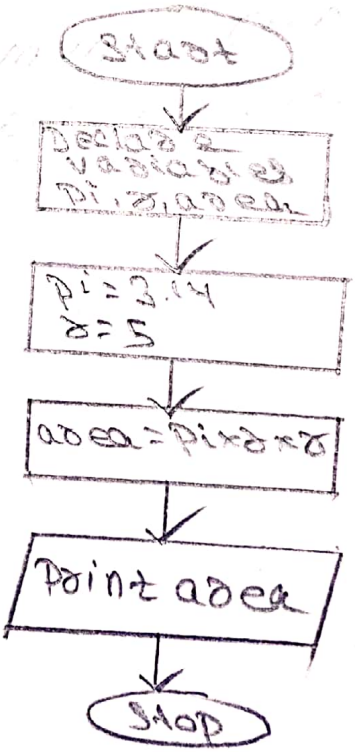
4) Write a algorithm to calculate area of circle having radius (r=5)

Step1: Start
Step2: Declare variables pi, r, area
Step3: Initialize pi=3.14, r=5
Step4: calculate area as area=pi×r×r
Step5: Display area
Step6: End

3



4)



5 write a algorithm to calculate area of an ellipse having its axes(minor = 4cm, major = 6cm)

Step 1: Start

Step 2: Declare variables minor, major, area, Pi

Step 3: Initialize Pi = 3.14, minor = 4, major = 6

Step 4: calculate area as area = Pi x minor x major

Step 5: Display area

Step 6: End

6 write a algorithm to calculate simple interest of a given P = 400, T = 2, R = 5.5

Step 1: Start

Step 2: Declare variables ~~Pin~~ P, T, R, I

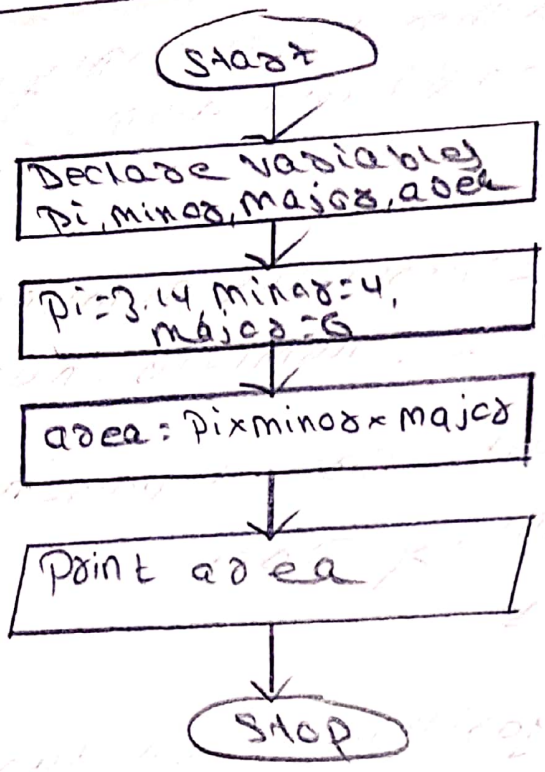
Step 3: Initialize ~~P T T R~~ P = 400, T = 2, R = 5.5

Step 4: calculate I as I = (P x T x R)/100

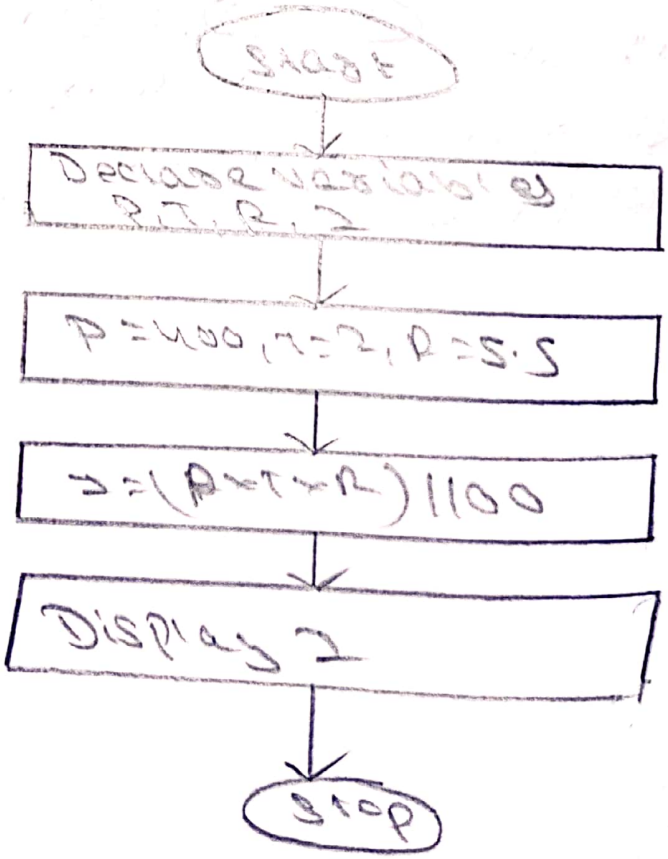
Step 5: Display I

Step 6: End

5



6



1) Write a program to display "Helloworld" in C

```
#include <stdio.h>
#include <conio.h>
void main()
  {
     clrscr();
     printf("Hello World");
     getch();
  }
```

2) Write a program to add two numbers (5 and 7) and display its sum

```
#include <stdio.h>
#include <conio.h>
void main()
   {
      int num1=5, num2=7;
      int sum;
       sum = ~~sum~~ num1+num2;
       clrscr();
       printf("sum is %d",sum);
        getch();
      }
```

3) Write a program to multiply two numbers (10 and 8) and display its product.

```
#include <stdio.h>
#include <conio.h>
void main()
   {
      int pro, num1=10, num2=8;
      pro = num1 x num2;
       clrscr();
       printf("product is %d", pro);
        getch();
   }
```

1) o/p ↓

HelloWorld

2) o/p ↓

Sum is 12

3) o/p ↓

product is 80

4) write a program to calculate area of a circle radius=5

```
#include <stdio.h>
#include <conio.h>
#include <math.h>
void main()
  {
     float pi = 3.14, r;
     float area;
     r = 5;
     area = pi * pow(r,2);
     clrscr();
     printf("Area of circle is %f", area);
     getch();
  }
```

5) W.A.P to calculate area of ellipse having its axies (minor=4 (major=6)

```
#include <stdio.h>
#include <conio.h>
#define pi 3.14
void main()
  {
     int area, minor=4, major=6;
     area = pi * minor * major;
     printf("Area is %d", area);
     getch();
  }
```

6) W.A.P to calculate S.I for given P=400, T=2, R=5.5

```
#include <stdio.h>
#include<conio.h>
void main()
 {
    int p=400, t=2;
    float R=5.5, I;
    I = (p*t*R)/100;
   printf("S.I is %f", I);
   getch();
```

4 O/P ↓

Area of circle is 785

5) O/P ↓

Area of ellipse is 75.36

6) O/P ↓

S.I is 44

Discussion and conclusion:-

In the lab we use our theoretical knowledge of syntax to code new program. example we have header file, main function, different library function while doing a program. we also learned instruction step by step in order to solve a problem.

The activities we performed helped to gain knowledge and also made us familiar with the syntax and we learned to give a proper structure to a program as well as uses theoretical knowledge to solve a problem.