Batch: D2 Roll No.: 25

Experiment / assignment / tutorial No. 1

Grade: AA / AB / BB / BC / CC / CD /DD

Signature of the Staff In-charge with date

TITLE: a. C Program to find area and circumference of various geometric shapes.
b. C program to calculate EMI (Equated Monthly Instalment) of loan amount if principal, rate of interest and time in years is given by the user.
$(E = (P.r.(1+r)^n) / ((1+r)^n - 1)$

AIM: Program to convert given temperature from Fahrenheit to Celsius using the conversion formula and vice versa.

Expected OUTCOME of Experiment:

Books/ Journals/ Websites referred:

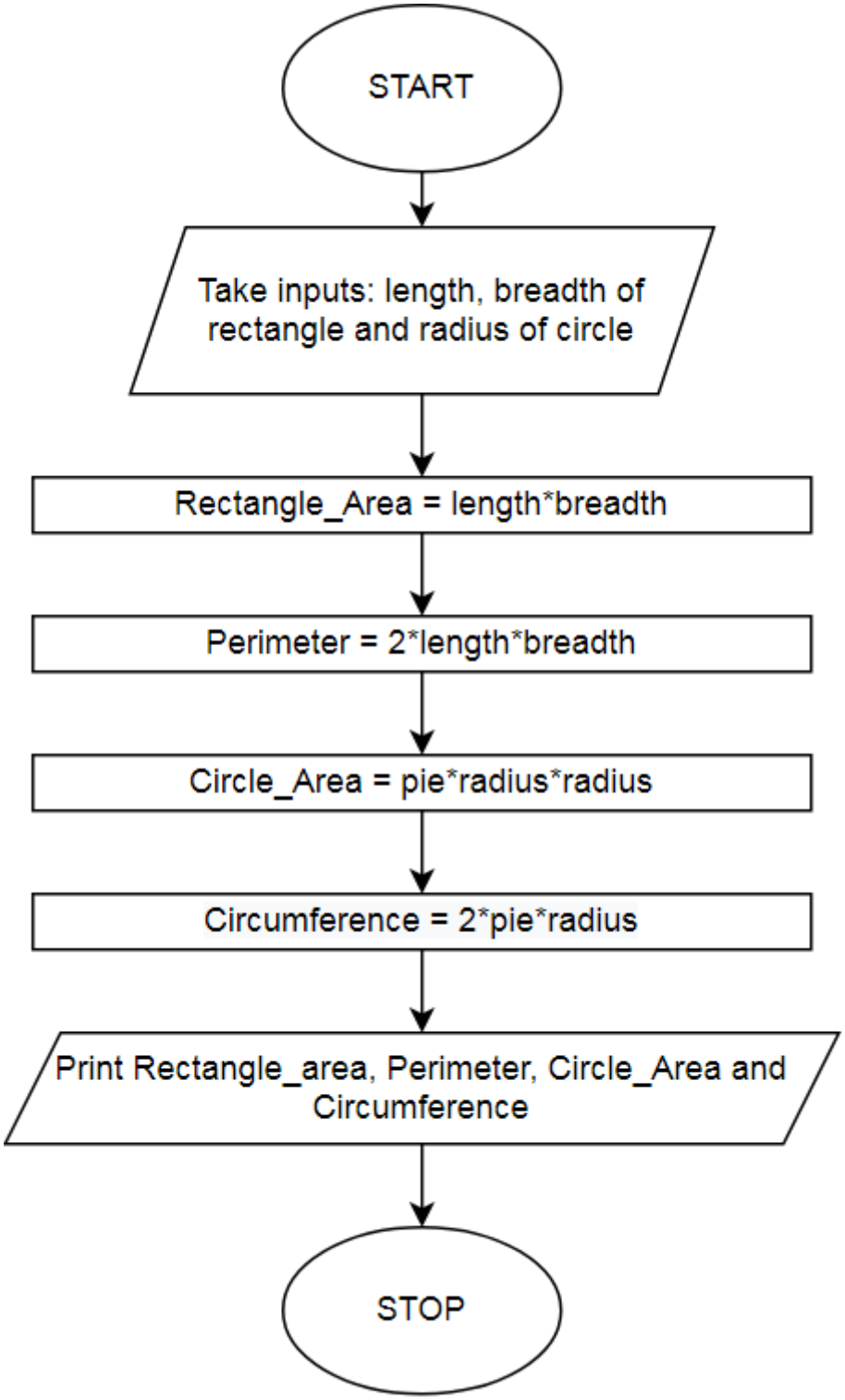
1. Programming in C, second edition, Pradeep Dey and Manas Ghosh, Oxford University Press.
2. Programming in ANSI C, fifth edition, E Balagurusamy, Tata McGraw Hill.
3. Introduction to programming and problem solving , G. Michael Schneider ,Wiley India edition.
4. **http://cse.iitkgp.ac.in/~rkumar/pds-vlab/**

Problem Definition:

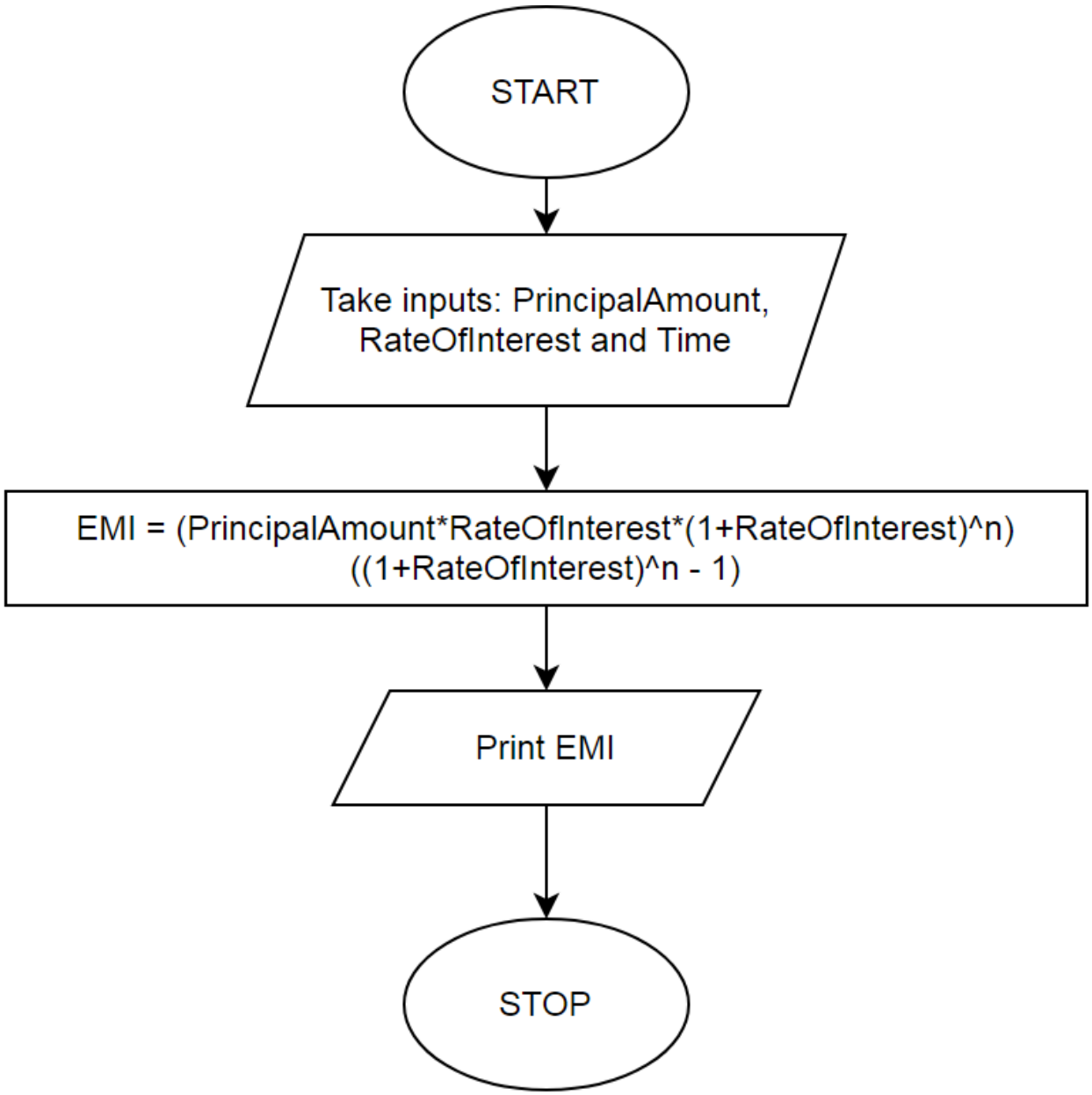
a. Ask user to enter the input values to compute area and circumference of the given shapes. Put the values in the given formula and print the outcome given by formula on the screen

b. Ask user to enter the input values such as principle amount, rate of interest, number of years to compute EMI. Put the values in the given formula and print the outcome given by formula on the screen

Flowchart: (for both the sections a and b separately)



Course Outcome 1 –a flowchart



Course Outcome 1 –b flowchart

Implementation details:

Output(s):

area_circumference.c | EMI.c

```c
#include <stdio.h>
#include <conio.h>
void main()
{
    int length, breadth, radius;
    float area;
    float circumferene;
    float pi = 3.14;
    printf("Enter the value of length of the rectangle: ");
    scanf("%d", &length);
    printf("Enter the value of breadth of the rectangle: ");
    scanf("%d", &breadth);
    printf("Enter the value of length of the rectangle: ");
    scanf("%d", &radius);

    /*Area of rectangle*/
    area = length * breadth;
    printf("Area of a rectangle with length %d and breadth %d is:  %f \n", length, breadth, area);

    /*Circumference(Perimeter) of rectangle*/
    circumferene = 2 * (length + breadth);
    printf("Perimeter of rectangle with length %d and breadth %d is:  %f \n", length, breadth, circumferene);

    /*Area of a circle*/
    area = pi * radius * radius;
    printf("Area of a circle with radius %d is:  %f \n", radius, area);

    /*Circumference of circle*/
    circumferene = 2 * pi * radius;
    printf("Circumference of circle with radius %d is:  %f \n", radius, circumferene);
}
```

```
C:\Users\Hardik\Desktop\Somaiya\PIC\CO2_a\area_circumference.exe
Enter the value of length of the rectangle: 20
Enter the value of breadth of the rectangle: 10
Enter the value of length of the rectangle: 100
Area of a rectangle with length 20 and breadth 10 is:  200.000000
Perimeter of rectangle with length 20 and breadth 10 is:  60.000000
Area of a circle with radius 100 is:  31400.000000
Circumference of circle with radius 100 is:  628.000000

Process returned 57 (0x39)   execution time : 16.329 s
Press any key to continue.
```

Output of Area Circumference program

here | EMI.c

```c
#include <stdio.h>
#include <conio.h>
#include <math.h>
void main()
{
    float EMI, principal, rate, time;
    printf("Enter the principal amount: \n");
    scanf("%f", &principal);
    printf("\nEnter the rate of interest: \n");
    scanf("%f", &rate);
    printf("\nEnter time: \n");
    scanf("%f", &time);
//  (P.r.(1+r)n ) / ((1+r)n - 1)
    EMI = (principal*rate*(pow((1+rate),time)))/(pow((1+rate),time) -1);
    printf("EMI is: %f", EMI);
}
```

```
C:\Users\Hardik\Desktop\Somaiya\PIC\CO2_b\EMI.exe
Enter the principal amount:
10000

Enter the rate of interest:
1

Enter time:
10
EMI is: 10009.775391
Process returned 20 (0x14)   execution time : 6.290 s
Press any key to continue.
```

Output of EMI program

Conclusion:

Post Lab Descriptive Questions

1. **What is problem definition?**
2. **What is a flowchart? What are the standard symbols used to draw a flow chart? Explain in brief.**

Date: _____ **Signature of faculty in-charge**