MODULE: SE – Fundamentals of Programming

- **Basic Syntax**
- **Data Structures**
- **Variables**
- **Operators**

Que.1   **Display This Information using printf**
a. Your Name
b. Your Birth date
c. Your Age
d. Your Address

```c
#include <stdio.h>
int main() {
   char name[50],add[100];
   int date,month,year,age;

   printf("Enter your Name = ");
   scanf("%s", &name);
   printf("Enter your Birthdate in DD-MM-YYYY = ");
   scanf("%d %d %d", &date,&month,&year);
   printf("Enter your age  = ");
   scanf("%d", &age);
   printf("Enter your Address = ");
   scanf("%s", &add);

printf("=============================================\n");
   printf("\nName = %s ", name);
   printf("\nBirthdate in %d-%d-%d = ", date, month, year);
   printf("\nAge  = %d", age);
   printf("\nAddress =%s ", add);

   return 0;
}
```

Que.2   Write a program to make Simple calculator (to make addition, subtraction, multiplication, division and modulo)

```c
#include <stdio.h>

int main() {
    int num1,num2,op,total;
    printf("Enter the first operand\n");
    scanf("%d",&num1);

    printf("Enter the secon operand\n");
    scanf("%d",&num2);

    printf("select the operation\nPress 1 => Addition\nPress 2 => Subtraction\nPress 3 => Multiplication\nPress 4 => Division\nPress 5 => Modulo");
    scanf("%d",&op);

    if(op==1){
        total=num1+num2;
        printf("Your Answer is = %d", total);
    }
    if(op==2){
        total=num1-num2;
        printf("Your Answer is = %d", total);
    }
    if(op==3){
        total=num1*num2;
        printf("Your Answer is = %d", total);
    }
    if(op==4){
        total=num1/num2;
        printf("Your Answer is = %d", total);
    }
    if(op==5){
        total=num1%num2;
        printf("Your Answer is = %d", total);
    }

    return 0;
}
```

Que.3   WAP to Find Area And Circumference of Circle

```c
#include<stdio.h>
int main()
{
  float radius, area, cf;
    printf("Enter Radius of Circle\n");
    scanf("%f",&radius);
    area=3.14*radius*radius;
    printf("The area of Circle is %f",area);
    cf=2*3.14*radius;
    printf("\nThe Circumference of Circle is %f",cf);
}
```

Que.4   Find Area of Square formula : a = a2

```c
#include<stdio.h>
int main()
{
   float side,area;
   printf("\n Enter the Length of Side : ");
   scanf("%f",&side);
   area = side * side ;
   printf("\n Area of Square : %f",area);
}
```

Que.5 **Find Area of Cube formula : a = 6a2**

```c
#include <stdio.h>

int main() {
   float sideLen, surface;

   printf("Enter the side length of the cube: ");
   scanf("%f", &sideLen);

   surface = 6 * sideLen * sideLen;

   printf("The surface area of the cube is: %.2f\n", surface);

   return 0;
}
```

Que.6 **Find area of Triangle Formula : A = 1/2 × b × h**

```c
#include <stdio.h>
int main() {
   float base, height, area;
   printf("Enter the base of the triangle: ");
   scanf("%f", &base);
   printf("Enter the height of the triangle: ");
   scanf("%f", &height);
   area = (base * height)/2;
   // area = 1/2 * base * height;
   printf("The area of the triangle is: %.2f\n", area);
   return 0;
}
```

Que.7 **Find area of Rectangle Formula : A=wl**

```c
#include <stdio.h>
int main() {
   float length, width, area;
   printf("Enter the length of the rectangle: ");
   scanf("%f", &length);
   printf("Enter the width of the rectangle: ");
   scanf("%f", &width);
   area = length * width;
   printf("The area of the rectangle is: %f\n", area);
   return 0;
}
```

Que.8   **Find circumference of Rectangle formula : C = 4 * a**

```c
#include <stdio.h>
int main() {
    int a;
    float c;
    printf("Enter value of a");
    scanf("%d",&a);
    c=4*a;
    printf("Circumference of Rectangle %f",c);
    return 0;
}
```

Que.9   **Find circumference of Triangle formula : triangle = a + b + c**

```c
#include <stdio.h>
int main() {
    int a,b,c;
    float tri;
    printf("Enter value of Perpendicular");
    scanf("%d",&a);
     printf("Enter value of Base");
    scanf("%d",&b);
    printf("Enter value of Hypotenuse of the right triangle");
    scanf("%d",&c);
    tri=a+b+c;
    printf("Circumference of Tringle %f",tri);
    return 0;
}
```

Que.10 **find the area of a rectangular prism formula : A=2(wl+hl+hw)**

```c
#include <stdio.h>
int main() {
   int l,w,h;
   int a;
   printf("Enter length ");
   scanf("%d",&l);
    printf("Enter value of width ");
   scanf("%d",&w);
   printf("Enter value of hight ");
   scanf("%d",&h);

   a = 2 * ((w*l)+(h*l)+(h*w));
   printf("area of a rectangular prism  %d",a);
   return 0;
}
```

Que.11 **Find circumference of square formula : C = 4 * a**

```c
#include <stdio.h>

int main() {
   float sideLen, perimeter;

   printf("Enter the side length of the square: ");
   scanf("%f", &sideLen);

   perimeter = 4 * sideLen;

   printf("The perimeter of the square is: %.2f\n", perimeter);

   return 0;
}
```

Que.12 **Accept number of students from user. I need to give 5 apples to each student. How many apples are required?**

```c
#include <stdio.h>
int main() {
   int stu,total;
   int a=5;
   printf("Enter the total no of Students ");
   scanf("%d",&stu);
    total=stu*a;
   printf("Total no of Apple required =  %d",total);
   return 0;
}
```

Que.13 **Find character value from ascii**

```c
#include <stdio.h>
int main() {
   char c;
   printf("Enter the character ");
   scanf("%c",&c);
   printf("ASCII value of %c is %d", c, c);
   return 0;
}
```

Que.14 **Find ascii value of given number**

```c
#include <stdio.h>
int main() {
   int n=1;
   printf("Enter the number ");
   scanf("%d",&n);
   printf("ASCII value of %d is %d", n,n+48);
   return 0;
}
```

Que.15 **Convert school's name in abbreviated form**

```c
#include <stdio.h>
int main()
{
    char fname[20] ;

    char mname[20] ;

    char lname[20] ;

    printf("Enter full School name (first middle last):");
    scanf("%s %s %s", fname, mname, lname);
    printf("Abbreviated name: %c. %c. %s\n", fname[0] , mname[0]
        , lname);
    return 0;

}
```

Que.16 **Convert country's name in abbreviate form**

```c
#include <stdio.h>
int main()
{
    char fname[20];
    char lname[20];
    printf("Enter Country Name (first  last):");
    scanf("%s %s", fname, lname);
    printf("Abbreviated name: %c. %c\n", fname[0],  lname[0]);
    return 0;
}
```

Que.17 **Calculate person's insurance premium based on salary Topics Covered Control statements Conditional Statements**

```c
#include <stdio.h>

int main() {
   float salary, premium;

   printf("Enter the salary : ");
   scanf("%f", &salary);

   if (salary <= 20000) {
      premium = 0.05 * salary;
   } else if (salary <= 40000) {
      premium = 0.07 * salary;
   } else if (salary <= 60000) {
      premium = 0.10 * salary;
   } else {
      premium = 0.12 * salary;
   }
   printf("The insurance premium for a salary of Rs.%.2f is
            Rs.%.2f\n", salary, premium);
   return 0;
}
```

Que.18 **Calculate person's Annual salary**
```c
#include <stdio.h>
int main()
{
   float msal,aSal;
   printf("Enter your monthly Salary:");
   scanf("%f", & msal);
   aSal= msal*12;
   printf("Annual Salary: %f is = ", aSal);
   return 0;
}
```

Que.19   **Calculate compound interest**

```c
#include <stdio.h>
#include <math.h>
int main()
{
  float principal = 10000;
  float rate = 5;
  float time = 2;
  float Amount = principal *  ((pow((1 + rate / 100),  time)));
  float CI = Amount - principal;
   printf("Compound Interest is : %lf",CI);
  return 0;
}
```

Que.20   **Accept monthly salary from the user and deduct 10% insurance premium, 10% loan installment find out of remaining salary.**

```c
#include <stdio.h>
int main()
{
  float salary,instl,emi,netSal;
  printf("Enter your Monthly Salary");
  scanf("%f",&salary);
  instl=(10*salary)/100;
  emi=(10*salary)/100;
  netSal=salary-(instl+emi);
  printf("Net Salary is : %f",netSal);
  return 0;
}
```

Que.21   **Accept 2 numbers from user and swap 2 numbers with using 3rd variable and without using 3rd variable**

```c
#include<stdio.h>
 int main()
{
int a=10, b=20;
printf("Before swap a=%d b=%d",a,b);
a=a+b;
b=a-b;
a=a-b;
printf("\nAfter swap a=%d b=%d",a,b);
return 0;
}
```

Que.22   **Calculate compound interest (Compound Interest formula: a. Formula to calculate compound interest annually is given by: Amount= P(1 + R/100)t b. Compound Interest = Amount – P**

```c
#include <stdio.h>
#include <math.h>
int main()
{
  float principal = 10000;
  float rate = 5;
  float time = 2;
  float Amount = principal *  ((pow((1 + rate / 100),  time)));
  float CI = Amount - principal;
   printf("Compound Interest is : %lf",CI);
  return 0;
}
```

Que.23 **WAP to calculate swap 2 numbers with using of multiplication and division.**

```
#include <stdio.h>
 int main()
{
   int a, b;
   printf("Enter 1st integer numbers\n");
   scanf("%d", &a);
   printf("Enter 2nd integer numbers\n");
   scanf("%d", &b);
   a = a * b;
   b = a / b;
   a = a / b;
   printf("After swapping a = %d and b = %d\n", a ,b);
   return 0;
}
```

Que.24 **Accept 5 employees name and salary and count average and total salary**

```
#include <stdio.h>
int main()
{
   int a, b, c, d, e;
   int total;
   float avg;
   printf("Enter the Salary of 5 Employee\n");
   scanf("%d %d %d %d %d", &a, &b, &c, &d, &e);

   total = a+b+c+d+e;
   avg= total/5;
   printf("Total salary %d\n", total);
   printf("Average Salary %f =", avg);
   return 0;
}
```

Que.25   **Accept 5 expense from user and find average of expense**

```c
#include <stdio.h>
int main()
{
   float a, b, c, d, e;
   float avg,total;
   printf("Enter the 5 transaction of Expenses\n");
   scanf("%f %f %f %f %f", &a, &b, &c, &d, &e);
   total = a+b+c+d+e;
   avg= total/5;
   printf("Average Expense %f =", avg);
   return 0;
}
```

Que.26   **Convert temperature Fahrenheit to Celsius**

```c
#include <stdio.h>
 int main()
{
   float celsius, fahrenheit;
   printf("Enter temperature in Celsius: ");
   scanf("%f", &celsius);
   fahrenheit = (celsius * 9 / 5) + 32;
   printf("Temperature in Fahrenheit: %.2f\n", fahrenheit);
   return 0;
}
```

Que27   **Convert days into months**

```c
#include <stdio.h>
void main()
{
   int ndays, year, week, days;
   int d = 7;
   printf("Enter the number of days\n");
   scanf("%d", &ndays);
   year = ndays / 365;
   week =(ndays % 365) / d;
   days =(ndays % 365) % d;
   printf ("%d is equal to %d years, %d weeks and %d days", ndays,
            year, week, days);
}
```

Que.28   **Convert years into days and months**

```c
#include <stdio.h>
void main()
{
   int days, year,month;
   printf("Enter the number of days\n");
   scanf("%d", &year);
   days= year*365;
   month= year*12;
   printf ("%d year is equal to %d month and  %d  days", year,
            month,  days);
}
```

Que.29   **Convert minutes into seconds and hours**

```c
#include <stdio.h>
void main()
{
   float min, hrs, sec;
   printf("Enter the number of minutes\n");
   scanf("%f", &min);
   hrs=min/60;
   sec=min*60;
   printf ("%.2f Minutes equal to %.2f second and  %.2f  hours",
            min, sec, hrs);
}
```

Que.30 **WAP to convert years into days and days into years**

```c
#include <stdio.h>
void main()
{
    int days, year,month,choice,week,d;
    printf("Enter the which you want to convert\n1.year into days\n2.
            days into year");
    scanf("%d", &choice);
    if(choice == 1)
    {
      printf("Enter the year");
      scanf("%d", &year);
      days= year*365;
     printf ("%d year is equal to %d month ", year, days);
    }
    else{
        printf("Enter the days");
        scanf("%d", &days);
        year = days/365;
        week = (days % 365)/7;
        d = days - ((year*365) + (week*7));
        printf ("%d days is equal to %d year and %d day ", days, year,
            d);
    }
}
```

Que.31 **Convert kilometers into meters**

```c
#include<stdio.h>
int main()
{
float km, m;
printf("Enter distance in kilometer: ");
scanf("%f", &km);
m = km * 1000;
printf("%0.2f Kilometer = %0.2f Meter", km, m);
return 0;
}
```

Que.32 **Accept 2 numbers and find out its sum check it size**

```c
#include <stdio.h>
int main()
{
    int sum, n1, n2;
    printf("Enter the No.1:");
    scanf("%d", &n1);
    printf("Enter the No.2:");
    scanf("%d", &n2);
    sum= n1+n2;
    printf("Sum of 2 Numbers is %d\n", sum);
    printf("Size of Sum is = %d bytes", sizeof(sum));
    return 0;

}
```

Que.33 **C Program to Read Integer and Print First Three Powers (N^1, N^2, N^3)**

```c
#include <stdio.h>
#include <math.h>
int main()
{
                int num, a, b, c;
                printf("\nEnter The Number .\n");
                scanf("%d", &num);
                a = pow(num, 1);
                b = pow(num, 2);
                c = pow(num, 3);
                printf("\nOutput Is\n\n");
                printf("%d, %d, %d \n\n", a, b, c);
                return 0;}
```