C-Programming Lab Sheet
I Year / I Part
Faculty: Computer/Electrical/Civil

Labsheet#E1.1

Objectives:

- To familiarized with data types.
- To familiarized with various *operators*.
- To familiarized with *arithmetic expressions*.
- To familiarized with *integer conversions*.
- To familiarized with *problem solving using computer program*.

1. **WAP to read value of human height in cm and display the output in feet.**
2. **WAP to convert a temperature reading in degrees Fahrenheit to degrees Celsius.**
   [*Hint:- F=1.8C+32*]
3. **WAP to calculate area and volume of a sphere, if radius read through keyboard is negative number then display appropriate message.** ($A=4\pi r^2$ & $V=4/3\pi r^3$)
4. **WAP to read four nos. and find their sum and percentage of each numbers with respect to their sum.**
5. **WAP to evaluate the expression:**
   (i) $Z=1.5x^2-2xy+2.5y^2$
   (ii) $Z=16x^{1/2}+(5y)^3$
   (iii) result=(8-a*5)/(1/2*b)/(c-a+b)
   [See what happens when you press F7 for whole program]
6. **A cloth shop during festival season offers a discount of 10% on all purchases made in that shop. The bill amount for a customer is given as Rs 1000.5. WAP to calculate and display the discount, amount after discount.**
7. **WAP to convert Cartesian coordinate to polar coordinates**.
   E.g:- x-1,y=1 => r=1.414214 & Θ=44.18
8. **If a=3,b=4 & c=9 then evaluate the following arithmetic expression:**

(i)	a*b+c*(8/b)	(v)	2*((8/5)+(b*(5-3))%(8+5-2)
(ii)	(3/a)*a+b%2		
(iii)	c*a/b%c	(vi)	(a*8-2*5)%(2*6-10)
(iv)	2*b/(a*1)+c-2	(vii)	(8*a*5)%(1/2*b)/(c-a+b)

Determine the values if the associativity of operation is taken into consideration.

9. **Determine the value of following expressions if a=5,b=10 & c=-6:**
   (i) a>b && a<c
   (ii) a<b && a>c
   (iii) a==c || b>a
   (iv) b>15 && c<0 || a>0
   (v) (a/2.0 ==0.0 && b/2.0 !=0.0 || c<0.0
10. **Determine the value of following conditional expressions if a=5, b=10 & c=15:**
    (i) b= (a>b)? a : c
    (ii) c= (b<c)?++:--b
    (iii)c=(b<c)?a++:a--
    (iv)c=(b<c)?++b:b--
    (v) a=(a>b)?a+b:c-b
    (vi)b+=(a>0&&a<=25)?a+b:c-b
    (vii) c*=(b>a&&b<c)?++a:--a

11. **Compute the size of fundamental types**.

```
#include<stdio.h>
void main(){
    printf("The size of some fundamental types is computed.\n\n");
    printf("char:%3u byte \n",sizeof(char));
    printf("short:%3u byte \n",sizeof(short));
    printf("int:%3u byte \n",sizeof(int));
    printf("long:%3u byte \n",sizeof(long));
    printf("unsigned:%3u byte \n",sizeof(unsigned));
    printf("float:%3u byte \n",sizeof(float));
    printf("double:%3u byte \n",sizeof(double));
    printf("long double:%3u byte \n",sizeof(long double));
}
```

Check:

sizeof(char)=1

sizeof(char)<=short<=int<=long

sizeof(float)<=double<=(long double)

signed=unsigned=int

12. **Decimal, Hexadecimal and octal Conversions:**

```
#include<stdio.h>
void main(){
    printf("%d %x %o\n",19,19,19);
    printf("%d %x %o",0x1c, 0x1c, 0x1c);
    printf("%d %x %o",017, 017, 017);
    printf("%d\n",11+,0x11+011);
    printf("%x\n",2097151);
    printf("%d\n",0x1FfFfFf);
}
```

13. Write an output and discuss result:

```
#include<stdio.h>
void main(){
    int m=9,n;
    n=m++ + ++m;
    printf("m=%d\nn=%d", m, n);
}
```

Check: If n=m++ + ++m + ++m, then n=?

14. WAP to convert given no. of days into year, month and days.

400 days => 1yr, 1month, 5 days

15. **WAP to convert seconds into hour, minutes and seconds**.

4000 seconds => 1Hr, 6minutes, 40 seconds

16. WAP to compute equivalent resistance of two resisters R1 and R2 when they are connected in series and parallel connection.

17. WAP to read two end points of a line, compute mid-point and display.