

**Practical Sheet -3**

**Draw a flow chart & then write program for each of the following exercises.**

**1. To print table of ASCII Characters for code 32 to 255.**

```
#include<stdio.h>
#include<conio.h>
int main(){
    inti;
    for(i=32;i<=255;i++){
        printf(" %c\t-%d\t",i,i);}
    getch();
    return 0;
}
```

**2. To read any integer number and to print its multiplication table.**

```
#include <stdio.h>
int main()
{   int n, i;
    printf("Enter an integer to find multiplication table: ");
    scanf("%d",&n);
    for(i=1;i<=10;++i)
    {
        printf("%d * %d = %d\n", n, i, n*i);
    }
    return 0;
}
```

**Or, till the range**

```
#include <stdio.h>
int main()
{
    int n, range, i;
    printf("Enter an integer to find multiplication table: ");
    scanf("%d",&n);
    printf("Enter range of multiplication table: ");
    scanf("%d",&range);
    for(i=1;i<=range;++i) {
        printf("%d * %d = %d\n", n, i, n*i);
    }
    return 0;
}
```

```
}
```

### 3. To print all three digit Armstrong numbers

```
#include<stdio.h>
#include<conio.h>
int main(){
clrscr();
int i,num,a,b,c,sum=0;
for(i=100;i<=999;i++){
num=i;
a=num%10;
num=num/10;
b=num%10;
num=num/10;
c=num%10;
num=num/10;
sum=a*a*a+b*b*b+c*c*c;
if(sum==i)
printf("%d\n",sum);
}
getch();
return 0;
}
```

**OR**

```
#include<stdio.h>
#include<conio.h>
void main()
{
int number,sum,temp,num=1;
while(num<=500)
{
number=num;
sum=0;
while(number!=0)
{
temp=number%10;
number=number/10;
sum=sum+(temp*temp*temp);
}
if(sum==num)
printf("%d",sum);
}
```

```
++num;
}
getch();
return 0;
}
```

**4.To read 5 person age and print maximum, minimum & average age.**

```
#include<stdio.h>
#include<conio.h>
int main(){
    int max=0,min=100,i=1,age,sum=0;
    while(i<=5){
        printf("enter the age of %d person",i);
        scanf("%d",&age);
        sum=sum+age;
        if(max<age)
            max=age;
        if(min>age)
            min=age;
        i++;
    }
    int average=sum/5;
    printf("%d is minimum",min);
    printf("%d is the maximum",max);
    printf("%d is the average",average);
    getch();
    return 0;
}
```

**5. To read 15 person age & find out how many persons fall under the following categories:**

- a) Still a baby-age 0 to 5
- b) Attending School –age 6 to 17
- c) Adult life – age 18 & over

```
#include<stdio.h>
#include<conio.h>
int main(){
    int age,i=1,bc=0,as=0,al=0;
    while(i<=15){
        printf("Enter the age of %d person\t",i);
        scanf("%d",&age);
```

```

        if(age>=0&&age<=5){
            bc++;
        }
        else if(age>=6 &&age<=17){

            as++;

        }
        else{

            al++;

        }
        i++;
    }
    printf("Still a baby %d\n",bc);
    printf("Attending School %d\n",as);
    printf("Adult Life %d\n",al);

    getch();
    return 0;
}

```

#### 6.To print multiplication table in the following format:

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>
<b>2</b>	<b>4</b>	<b>6</b>	<b>8</b>	<b>10</b>	<b>12</b>	<b>14</b>	<b>16</b>	<b>18</b>	<b>20</b>	<b>22</b>	<b>24</b>
<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b>
<b>12</b>	<b>24</b>	<b>36</b>	<b>48</b>	<b>60</b>	<b>72</b>	<b>84</b>	<b>96</b>	<b>108</b>	<b>120</b>	<b>132</b>	<b>144</b>

```

#include<stdio.h>
#include<conio.h>
intmain()
{
    inti,j;
    for(i=1; i<=10;i++)
    {
        for(j=1; j<=10;j++)
        {
            printf("%d\t",i*j);
        }
        printf("\n");
    }
}

```

```
getch();
}
```

**7. To find out sum of digits of a given integer of arbitrary length.**

```
#include<stdio.h>
#include<conio.h>
int main(){
int n,n1,i,sum=0,rem;
clrscr();
printf("Enter the number to find sum of digits...\n");
scanf("%d",&n);
n1=n;
while(n1!=0){
rem=n1%10;
n1=n1/10;
sum=sum+rem;
}
printf("sum of digits=%d",sum);
getch();
return 0;
}
```

**8. To find out decimal equivalent of a given octal number of arbitrary length.**

```
#include<stdio.h>
int main(){
int decimalNumber=20;
printf("Equivalent octal number is: %o",decimalNumber);
getch();
return 0;
}
```

**OR,**

```
#include<stdio.h>
#include<conio.h>
#include<math.h>
int main(){
clrscr();
int n,sum=0,rem,i=0;
printf("Enter any octal number...\n");
scanf("%d",&n);
while(n!=0){
```

```
rem=n%10;
sum=sum+rem*pow(8,i);
i++;
n=n/10;
}
printf("%d is decimal equivalent",sum);
getch();
return 0;
}
```

**9. To find octal equivalent when decimal integer number is given.**

```
#include<stdio.h>
#include<conio.h>
#include<math.h>
int main(){
clrscr();
int n,sum=0,rem,i=0;
printf("Enter any octal number...\n");
scanf("%d",&n);
while(n!=0){
rem=n%8;
sum=sum+rem*pow(10,i);
i++;
n=n/8;
}
printf("%d is octal equivalent",sum);
getch();
return 0;
}
```

**10. To generate following and print sum.**

```
#include<stdio.h>
#include<conio.h>
int main(){
int i=1,j=4,n,sum=0;
clrscr();
printf("enter the number of terms...\n");
scanf("%d",&n);
while(n>=0){
printf("%dX%d, ",i,j);
sum=sum+i*j;
```

```
i=i+1;j=j+3;
n--;
}
printf("Sum=%d\n",sum);
getch();
return 0;
}
```

**11. To generate the following Fibonacci Series**

```
#include<stdio.h>
#include<conio.h>
int main(){
int a=1,b=1,sum,n;
clrscr();
printf("enter the number of terms....\n");
scanf("%d",&n);
printf("%d, %d, ",a,b);
while(n>=0){
sum=a+b;
a=b;
b=sum;
printf(",%d ",sum);
n--;
}
getch();
return 0;
}
```

**12. To find the series for given X (integer)**

**$1+X+X^2+X^3+\underline{X^4+X^6}+X^7+\dots\dots\dots$  +up to term value <999999**

```
#include<stdio.h>
#include<conio.h>
#include<math.h>
int main(){
long int x=2,y=1,i;
```

```

for(i=1;y<=9999999;i++){
if(i==5)
continue;
printf("%ld+",y);
y=pow(x,i);

}
getch();
return 0;
}

```

**13. Write a program to read x and n, and generate the following series & print the sum.**

**$x + 2/x^2 - 3/x^3 + 4/x^4 - 5/x^5 \dots \dots \dots n$  terms**

```

#include<stdio.h>
#include<conio.h>
#include<math.h>
int main(){

int x,n,i;
float term,sum;
sum=x;
printf("Enter the value of x and n.....\n");
scanf("%d%d",&x,&n);
printf("%d",x);
for(i=2;i<=n;i++){
term=(i*pow(-1,i)/pow(x,i));
printf("%+f\n",term);
sum=sum+term;
}
printf("%+f",sum);
getch();
return 0;
}

```

**14. To find factorial for n.**

**$(n!=nx(n-1)x(n-2)x\dots\dots\dots x3x2x1$**

```

#include<stdio.h>
#include<conio.h>
int main(){

```



```
clrscr();
int fact=1,n;
printf("Enter the number you want to find factorial for....\n");
scanf("%d",&n);
for(int i=1;i<=n;i++){
fact=fact*i;
}
printf("(%d!=%dx(%d-1)x(%d-2)x.....3x2x1)",n,n,n,n);
printf("\n Fact=%d",fact);
getch();
return 0;
}
```

**15. To print first 50 prime numbers.**

```
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
int main(){
int i,num,n,count,j;
clrscr();
printf("Enter the Maximum Range:");
scanf("%d",&n);
for(j=1;j<=n;j++){
count=0;
for(i=2;i<=j/2;i++) {
if(j%i==0) {
count++;
break;
}
}
if(count==0)
printf("%d\t", j);
}
getch();
return 0;
}
```

**16.To type a phrase (sentence) and to find out consonants vowel and space counts**

```
#include<stdio.h>
#include<conio.h>
int main(){
```

```
char ch;
int v=0,c=0,s=0;
clrscr();
printf("Enter the sentence you want to count consonant vowel and space count....\n");
do{
    scanf("%c",&ch);
    if(ch=='A' || ch=='E' || ch=='I' || ch=='O' || ch=='U' || ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u')
        v++;
    else if(ch==' ')
        s++;
    else
        c++;
} while(ch!='\n');
printf("Vowel=%d",v);
printf("Space=%d",s);
printf("Consonent=%d",c-1);

getch();
return 0;
}
```

**17. Write a program that repeatedly calculates how many characters separate two letters typed in by the user. [Clue: for instance there are two characters ('b' and 'c') between 'a' and 'd'. Take advantage of the fact that arithmetic operators work on character variables just as well as they do on numbers].**

```
#include<stdio.h>
#include<conio.h>
#include<math.h>
int main(){
    clrscr();
    char ch='f',ch1='h';
    printf("%d",(ch1-ch)-1);
    getch();
    return 0;
}
```

**Or**

```
#include<stdio.h>
#include<conio.h>
int main(){
    char ch1,ch2,c;
```

```
int count=0;
clrscr();
printf("Enter your first character...\n");
scanf("%c",&ch1);
fflush(stdin);
printf("Enter your second character...\n");
scanf("%c",&ch2);
fflush(stdin);
for(c=ch1;c<=ch2;c++) {
count++; }
printf("No of characters seperated %d",count-2);
getch();
return 0;}
```

**18. Program to read repeatedly marks of students in 3 subjects and display total & percentage and display a prompt “do you want to continue? .....”, till the user presses “Y” in response.**

```
#include<stdio.h>
#include<conio.h>
int main(){
int m1,m2,m3;
char ch;
float per=0,tot=0;
clrscr();
do{
printf(" Enter the marks in three subjects...\n");
scanf("%d%d%d",&m1,&m2,&m3);
tot=m1+m2+m3;
printf("Total=%f\n",tot);
per=(tot/300)*100;
printf("Per=%f",per);
printf("\n Do you want to continue...\n");
scanf(" %c",&ch);
fflush(stdin);
} while(ch=='y');
getch();
return 0;
}
```