1. Describe PDLC in C.
2. Write a C program to find odd or even no using bitwise operators.

Solution:

```
#include <stdio.h>
int main()
{
        int n;
        printf("enter no: ");
        scanf("%d",&n);
        //n&1 actually results in 0000000d where d is your LSB
        if(n&1==1)
                printf("it's odd no");//for odd no LSB 1
        else
                printf("it's even no");//for even no LSB 0

        return 0;
}
```

3. List the different types of Errors with Examples.
4. Write a C program to calculate sum of first and last digit of a given number.

Solution:

```
#include<stdio.h>
int main()
{
    int s=0,l;
    long n;
    printf("Enter Number : ");
    scanf("%ld",&n);        //5697
    if(n>10)
    {
```

```
    l=n%10;          //l=7
  }
  while(n>=10)      // 5697>=10 // 569>=10 // 56>=10 //5>=10
  {
    n=n/10;          // n= 569 // 56 //  5
  }
  s=l+n; //12 = 7+5
  printf("\nFirst Digit : %ld \nLast Digit : %d",n,l);
  printf("\n\nSum of First and Last Digit : %d",s);
  return 0;
}
```

5. Write a C program to accept a four-digit number from user. Count zero, odd and even digits in the entered number.

   Sample Output:

   Enter a four-digit number: 1006

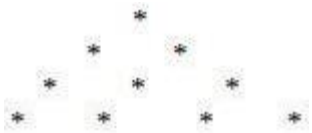
   Odd digit: 1

   Even digit: 1

   Zero's: 2

6. Write a C program to generate following pattern for n lines:

   Here, n=4 i.e 4 lines



Solution:

```
#include<stdio.h>
int main()
{
    int i,a,b;
```

```
    for(a=4, b=1; b<=4;a--,b++) // Here, a>=1 or b<=4 condition is optional. Both the condition execute the loop 4 times i.e n=4
    {
        for(i=1;i<a;i++)
            printf(" ");
        for(i=1;i<=b;i++)
            printf("* ");
        printf("\n");
    }
    return 0;
}
```

7. Problem statement: Write a C program to count number of bits set to 1 in an Integer.

   Solution: We can use bitwise operator here to solve the problem

8. Write a C program to check whether a given number is palindrome or not.
9. C program to print the series from 1 to 10 and skip numbers 6 and 8.

   Solution:

```
#include <stdio.h>
int main()
{
    int i = 1;
    while(i<=10)
    {
        if(i==6||i==8)
        {
            i++;
            continue;     /* This statement continues the loop condition if it is true and skips the next statements.*/
        }
```

```
            printf("%d ", i);
            i++;
        }
        return 0;
    }
```

10. Describe the structure of the C program with a simple example.
11. C program to find number of days in a month using switch case

Solution:

```
#include <stdio.h>

int main()
{
        int month;
        int days;

        printf("Enter month: ");
        scanf("%d",&month);

        switch(month)
        {
                case  4:
                case  6:
                case  9:
                case 11:
                        days=30;
                        break;
                case  1:
                case  3:
                case  5:
                case  7:
```

```
            case  8:
            case 10:
            case 12:
                    days=31;
                    break;

            case 2:
                    days=28;
                    break;

            default:
                    days=0;
                    break;
    }

    if(days)
            printf("Number of days in %d month is: %d\n",month,days);
    else
            printf("You have entered an invalid month!!!\n");

    return 0;

}
```

12. Write a program for the following output.

    Enter the number range: 5

    1*1=1 1*2=2 1*3=3 1*4=4 1*5=5 1*6=6 1*7=7 1*8=8 1*9=9 1*10=10

    2*1=2 2*2=4 2*3=6 2*4=8 2*5=10 2*6=12 2*7=14 2*8=16 2*9=18 2*10=20

    3*1=3 3*2=6 3*3=9 3*4=12 3*5=15 3*6=18 3*7=21 3*8=24 3*9=27 3*10=30

    4*1=4 4*2=8 4*3=12 4*4=16 4*5=20 4*6=24 4*7=28 4*8=32 4*9=36 4*10=40

5*1=5 5*2=10 5*3=15 5*4=20 5*5=25 5*6=30 5*7=35 5*8=40 5*9=45 5*10=50

Answer:

```
#include<stdio.h>
int main(){
  int r,i,j,k;
  printf("Enter the number range: ");
 scanf("%d",&r);
  for(i=1;i<=r;i++){
    for(j=1;j<=10;j++)
        printf("%d*%d=%d ",i,j,i*j);
     printf("\n");
  }
  return 0;
}
```

13. Write a C program to generate following pattern for n lines.

```
A
B B
C C C
D D D D
E E E E E
```

Solution:

```
#include<stdio.h>
int main()
{
    int i,j,n;
    char c='A';
    printf("How Many Lines \nYou Want to Print: ");
```

```
    scanf("%d",&n);
    for(i=0;i<n;i++)
    {
        for(j=0;j<=i;j++)
        {
            printf("%c ",c);
        }
        c++;
        printf("\n");
    }
    return 0;
}
```

14. Write a C program to accept 'n' different numbers and display sum of all positive & negative numbers.

Solution:

```
#include<stdio.h>
int main()
{
    int n, ps = 0, ns = 0, num,i;
    printf("How Many Numbers you Want to Enter: ");
    scanf("%d",&n);
    printf("\nEnter %d Numbers:\n\n",n);
    //for(;n>0; n--)
    for(i=1;i<=n;i++)
    {
        scanf("%d",&num);
```

```
        if(num > 0)
            ps=ps+num;
        else
            ns=ns+num;
    }
    printf("Sum of Positive Numbers = %d\nSum of Negative Numbers = %d",ps,ns);
    return 0;
}
```

15. Write a program, which accepts a number and displays each digit in words.
    Example: 6702, Output = Six-Seven-Zero-Two.

Solution:

```
#include<stdio.h>
int main()
{
    int digit, num,n,l,r=0;
    printf("Enter positive integer number: ");
    scanf("%d", &n);
    while(n>0)
    {
        l=n%10;
        r=r*10+l;
        n=n/10;
```

```
}
num = r;
printf("\nYou have entered: ");
while (num > 0)
{
    digit = num % 10;
    switch(digit)
    {
        case 0:
            printf("Zero ");
            break;
        case 1:
            printf("One ");
            break;
        case 2:
            printf("Two ");
            break;
        case 3:
            printf("Three ");
            break;
        case 4:
            printf("Four ");
            break;
        case 5:
            printf("Five ");
            break;
        case 6:
```

```
            printf("Six ");
            break;
        case 7:
            printf("Seven ");
            break;
        case 8:
            printf("Eight ");
            break;
        case 9:
            printf("Nine ");
        break;
    }

    num = num / 10;
  }
  return 0;
}
```

16. Mention the output for the following statements.

printf(“%c”,101); **e**

printf(“%d”, 7++); **Error; cannot increment a constant.**

A variable name can start with a digit. (TRUE/FALSE). **FALSE**

printf("%d",sizeof(short int)); **2 / Depends on the implementation.**

int z; printf(“%d”, z=6 | 4); **6**

printf is a keyword; TRUE or FALSE. **FALSE**

17. Mention the outputs of below code snippets separately.

i) printf("%d",++3);

Solution: Error

ii) printf("%d", -1?0:1);

Solution: 0

iii) int a; printf("%d",a=0 && 2==2);

Solution: 0

iv) int a; printf("%d",a=10 | 2==2);

Solution: 11

18. Write a C program to accept 'n' different numbers and display sum of all positive & negative numbers.

Solution:

```
#include<stdio.h>
int main()
{
    int n, ps = 0, ns = 0, num,i;
    printf("How Many Numbers you Want to Enter: ");
    scanf("%d",&n);
    printf("\nEnter %d Numbers:\n\n",n);
    //for(;n>0; n--)
    for(i=1;i<=n;i++)
    {
        scanf("%d",&num);
        if(num > 0)
            ps=ps+num;
        else
            ns=ns+num;
    }
    printf("Sum of Positive Numbers = %d\nSum of Negative Numbers = %d",ps,ns);
    return 0;
}
```

19. Write a C Program to find and display the number of characters and words in a user input. Program must take one line of input from the user.