1) Difference between getc() , getch() , getche(),getchar() ?

getc():

It reads a single character from a given input stream and returns the corresponding integer value (typically ASCII value of read character) on success. It returns EOF on failure.

Syntax:

```
int getc(FILE *stream);
```

Example:

```
// Example for getc() in C
#include <stdio.h>
int main()
{
  printf("%c", getc(stdin));
  return(0);
}
```

Input: g (press enter key)

Output: g

getchar():

The difference between getc() and getchar() is getc() can read from any input stream, but getchar() reads from standard input. So getchar() is equivalent to getc(stdin).

Syntax:

```
int getchar(void);
```

Example:

```
// Example for getchar() in C
#include <stdio.h>
int main()
{
  printf("%c", getchar());
  return 0;
}
```

Input: g(press enter key)

Output: g

getch():

getch() is a nonstandard function and is present in conio.h header file which is mostly used by MS-DOS compilers like Turbo C.

Like above functions, it reads also a single character from keyboard. But it does not use any buffer, so the entered character is immediately returned without waiting for the enter key.

Syntax:

```
int getch();
```

Example:

```
// Example for getch() in C
#include <stdio.h>
#include <conio.h>
int main()
{
  printf("%c", getch());
  return 0;
}
```

Input: g (Without enter key)
Output: Program terminates immediately.
    But when you use DOS shell in Turbo C,
    it shows a single g, i.e., 'g'

getche()

Like getch(), this is also a non-standard function present in conio.h. It reads a single character from the keyboard and displays immediately on output screen without waiting for enter key.

Syntax:

```
int getche(void);
```

Example:

```
#include <stdio.h>
#include <conio.h>
// Example for getche() in C
int main()
{
  printf("%c", getche());
  return 0;
}
```

Input: g(without enter key as it is not buffered)
Output: Program terminates immediately.
    But when you use DOS shell in Turbo C,
    double g, i.e., 'gg

2) Program to generate prime number between 1 to N

```
#include<stdio.h>
void main()
{
int num,i=1,j,count;
clrscr();
printf("Enter  value To Print Prime Numbers between 1 and N: ");
scanf("%d",&num);
printf("Prime Numbers upto %d :\n \n",num);

while(i<=num)
{
count=0;
for(j=1;j<=i;j++)
{
if(i%j==0)
count++;
}
if(count==2)
printf("%d ",i);
i++;
}
printf("\n\n");
getch();
}
```

3) Program to Check whether the number is perfect number or not

```
#include<stdio.h>
int main(){
  int n,i=1,sum=0;

  printf("Enter a number: ");
  scanf("%d",&n);

  while(i<n){
      if(n%i==0)
           sum=sum+i;
          i++;
  }
  if(sum==n)
      printf("%d is a perfect number",i);
  else
      printf("%d is not a perfect number",i);

  return 0;
}
```

4) Program to calculate LCM & HCF of Two Numbers?

```
#include<stdio.h>
int main(){
  int n1,n2,x,y;
  printf("\nEnter two numbers:");
  scanf("%d %d",&n1,&n2);
  x=n1,y=n2;
  while(n1!=n2){
      if(n1>n2)
           n1=n1-n2;
      else
      n2=n2-n1;
  }
  printf("L.C.M=%d",x*y/n1);
  printf("\nHCF=%d",n1);
  return 0;
}
```

5) Program to check number is Armstrong Number or Not ?

```
#include<stdio.h>
int main(){
    int num,r,sum=0,temp;

    printf("Enter a number: ");
    scanf("%d",&num);

    temp=num;
    while(num!=0){
         r=num%10;
         num=num/10;
         sum=sum+(r*r*r);
    }
    if(sum==temp)
```

```
        printf("%d is an Armstrong number",temp);
    else
        printf("%d is not an Armstrong number",temp);

    return 0;
}
```

6) *Program to check number is Palindrome Number or Not ?*

```
#include<stdio.h>
int main(){
    int num,r,sum=0,temp;

    printf("Enter a number: ");
    scanf("%d",&num);

    temp=num;
    while(num){
        r=num%10;
        num=num/10;
        sum=sum*10+r;
    }
    if(temp==sum)
        printf("%d is a palindrome",temp);
    else
        printf("%d is not a palindrome",temp);

    return 0;
}
```

7) *Program to Count no of vowels & Consonants from a text file using File Handling ?*

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

              FILE *p;
              int vowel=0,consonant=0;
              char ch;
              clrscr();
              p=fopen("vowels.txt","r");
              if(p==NULL)
                {
                            printf("file doesnot exist");
                            exit(0);
                }
              ch=fgetc(p);
              while(ch!=EOF)
                        {
                               if((ch=='a')||(ch=='A')||(ch=='e')||(ch=='E')||(ch=='i')||(ch=='I')||(ch=='o')
||(ch=='O')||(ch=='u')||(ch=='U'))
                                     {
                                           vowel++;
                                      }
                              else
                              {
                                 consonant++;
                              }
                                 ch=fgetc(p);
                    }
                                 printf("\n Number of vowels are = %d",vowel);
                                 printf("\n Number of consonants are=%d",consonant);
                                 getch();
}
```

8) *Program to Count no of lines,blankspaces and characters from a text file using File Handling ?*

```
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
#include<string.h>
void main()
{
int i;
FILE *fp1;
char ch,c=0,nl=1,name[20],bs=0;
clrscr();
printf("Enter the name of file=%s\n",name);
gets(name);
fp1=fopen(name,"r");
if(fp1==NULL)
   {
   printf("file doesn't exist");
   getch();
   fclose(fp1);
   exit(0);
   }
printf("file data are as follows:\n\n");
while(1)
   {
   ch=fgetc(fp1);
   if(ch==EOF)
     break;
   else
     c++;          // c is no. of characters.
     if(ch=='\n')
          {
          nl++;       // nl is no. of lines.
          }
     if(ch==' ')
          {
          bs++;       // bs is no. of blank spaces.
          }
   }
printf("No of characters in file=%d\n\n",c);
printf("No of blank spaces in file=%d\n\n",bs);
printf("No of lines in file=%d\n",nl);
```

```
        fclose(fp1);
        getch();
        }
```

9) *Program to Copy content of one text file into another text file using File Handling ?*

```
#include<stdio.h>

void main() {

  FILE *fp1, *fp2;

  char a;

  clrscr();

  fp1 = fopen("vowels.txt", "r");

  if (fp1 == NULL) {

    puts("cannot open this file");

    exit(1);

  }

  fp2 = fopen("test1.txt", "w");

  if (fp2 == NULL) {

    puts("Not able to open this file");

    fclose(fp1);

    exit(1);

  }


  do {

    a = fgetc(fp1);

    fputc(a, fp2);

  } while (a != EOF);


  fcloseall();

  getch();

}
```