String Practice Sheet

1. Write a C program to find length of a string with and without function.

```
#include<stdio.h>
#include<string.h>
int main()
{
        char s[100];
        gets(s);
        int l=strlen(s);
        int i;
        for(i=0;s[i]!=0;i++);
        printf("%d %d",l,i);
        return 0;
}
```

2. Write a C program to copy one string to another string with and without function.

```
#include<stdio.h>
#include<string.h>
int main()
{
        char s[100],ss[100],sss[100];
        gets(s);strcpy(sss,s);
        int i;
        for(i=0;s[i]!=0;i++)ss[i]=s[i];
        ss[i]=0;
        printf("%s %s",ss,sss);
        return 0;
}
```

3. Write a C program to concatenate two strings with and without function.

```
#include<stdio.h>
#include<string.h>
int main()
{
        char s[100],s2[100],s3[100],s4[100];
        gets(s);gets(s2);strcpy(s3,s);strcpy(s4,s2);
        strcat(s,s2);
        int i,j;
        for(i=0;s3[i]!=0;i++);
        for(j=0;s4[j]!=0;j++)
        {
                s3[i++]=s4[j];
        }
        s3[i]=0;
        printf("%s %s",s,s3);
        return 0;
}
```

4. Write a C program to compare two strings with and without function.

```
#include<stdio.h>
#include<string.h>
```

```
int main()
{
    char s[100],s2[100];
    gets(s);gets(s2);
    if(strcmp(s,s2)==0)printf("Identical");else printf("not identical");
    int f=0,i;
    for(i=0;s[i]!=0;i++)
    {
        if(s[i]!=s2[i])
        {
            f=1;break;
        }
    }if(f==0)
    printf("identical");
    else printf("not identical");
    return 0;
}
```

5. Write a C program to convert lowercase string to uppercase.

```
#include<stdio.h>
#include<string.h>
int main()
{
    char s[100];
    gets(s);
    strupr(s);
    printf("%s",s);
    return 0;
}
```

6. Write a C program to convert uppercase string to lowercase.

```
#include<stdio.h>
#include<string.h>
int main()
{
    char s[100];
    gets(s);
    strlwr(s);
    printf("%s",s);
    return 0;
}
```

7. Write a C program to toggle case of each character of a string.

```
#include<stdio.h>
#include<string.h>
int main()
{
    char s[100];
    gets(s);int i;
    for(i=0;s[i]!=0;i++)
    {
        if(s[i]>=65&&s[i]<=90)s[i]=s[i]+32;
```

```
                else if(s[i]>=97&&s[i]<='z')s[i]=s[i]-32;
        }
        printf("%s",s);
        return 0;
}
```

8. Write a C program to find total number of alphabets, digits or special character in a string.

```
#include<stdio.h>
#include<string.h>
int main()
{
        char s[100];
        gets(s);int i,a=0,d=0,sp=0;
        for(i=0;s[i]!=0;i++)
        {
                if(s[i]>=65&&s[i]<=90||s[i]>=97&&s[i]<='z')a++;
                else if(s[i]>='0'&&s[i]<='9')d++;
                else sp++;
        }
        printf("%d %d %d",a,d,sp);
        return 0;
}
```

9. WAP to input a string and copy all the vowels , consonants , digits and special characters in 4 different strings then display those 4 strings.

```
#include<stdio.h>
#include<string.h>
int main()
{
        char s[10000],v[10000],c[10000],d[10000],sp[10000];
        gets(s);int i,vv=0,cc=0,dd=0,ss=0;
        for(i=0;s[i]!=0;i++)
        {
                if(s[i]>=65&&s[i]<=90||s[i]>=97&&s[i]<='z')
                {

        if(s[i]=='A'||s[i]=='E'||s[i]=='I'||s[i]=='O'||s[i]=='U'||s[i]=='a'||s[i]=='e'||s[i]=='i'||s[i]=='o'||s[i]=='u')v[vv++]=s[i];
                        else c[cc++]=s[i];
                }
                else if(s[i]>='0'&&s[i]<='9')d[dd++]=s[i];
                else sp[ss++]=s[i];
        }
        v[vv]=sp[ss]=c[cc]=d[dd]=0;
        printf("Vowel=%s\nconsonants=%s\ndigits=%s\nspecial characters=%s",v,c,d,sp);
        return 0;
}
```

10. Write a C program to count total number of vowels and consonants in a string.

```
#include<stdio.h>
#include<string.h>
int main()
{
    char s[100];
    gets(s);int i,v=0,c=0;
    for(i=0;s[i]!=0;i++)
    {
        if(s[i]>=65&&s[i]<=90||s[i]>=97&&s[i]<='z')
        {

    if(s[i]=='A'||s[i]=='E'||s[i]=='I'||s[i]=='O'||s[i]=='U'||s[i]=='a'||s[i]=='e'||s[i]=='i'||s[i]=='o'||s[i]=='u')v++;
            else c++;
        }


    }
    printf("%d %d",v,c);
    return 0;
}
```

11. Write a C program to count total number of words in a string.

```
#include<stdio.h>
#include<string.h>
int main()
{
    char s[10000];
    gets(s+1);s[0]=' ';
    int i,w=0;
    for(i=0;s[i]!=0;i++)
    {
        if(s[i]==' '&&s[i+1]!=' ')w++;


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

12. Write a C program to find reverse of a string with and without function.

```
#include<stdio.h>
#include<string.h>
int main()
{
    char s[10000];
    gets(s);strrev(s);
    int i;
    printf("%s\n",s);
    for(i=0;s[i]!=0;i++);
    int j;i--;
    for(j=0;j<i;j++)
    {
        char tmp=s[i];
        s[i]=s[j];
        s[j]=tmp;
```

```
                i--;
        }
        printf("%s",s);
        return 0;
}
```

13. Write a C program to check whether a string is palindrome or not.

```
#include<stdio.h>
#include<string.h>
int main()
{
        char s[10000];
        gets(s);char s2[10000];strcpy(s2,s);
        strrev(s2);
        if(strcmp(s2,s)==0)printf("palindrome");
        else printf("not palindrome");a

        return 0;
}
```

14. Write a C program to reverse order of words in a given string.

```
#include<stdio.h>
#include<string.h>
int main()
{
        char s[10000];
        gets(s+1);s[0]=' ';
        int l,i=strlen(s)-1;int j;l=i;
        char ss[10000],ch;int c=0;
        if(s[i]=='.'||s[i]=='?'||s[i]=='!')
        {
                ch=s[i];s[i]=0;
        }
        for(;i>=0;i--)
        {
                if(s[i]==' '&&s[i+1]!=' ')
                {

                        for(j=i+1;s[j]!=0;j++)
                        {
                                ss[c++]=s[j];
                        }
                        ss[c++]=' ';
                        s[i]=0;
                }
        }c--;ss[c]=0;
        if(strlen(ss)!=l)
        {
                ss[c++]=ch;ss[c]=0;
        }
        printf("%s",ss);
        return 0;
}
```

15. Write a C program to find first occurrence of a character in a given string.

```
#include<stdio.h>
#include<string.h>
int main()
{
        char s[10000];
        gets(s);
        char ch;scanf("%c",&ch);
        int f=-1,i;
        for(i=0;s[i]!=0;i++)
        {
                if(s[i]==ch){
                f=i;break;}
        }
        if(f!=-1)printf("%d",f+1);
        else printf("not present");

        return 0;
}
```

16. Write a C program to find last occurrence of a character in a given string.

```
#include<stdio.h>
#include<string.h>
int main()
{
        char s[10000];
        gets(s);
        char ch;scanf("%c",&ch);
        int f=-1,i;
        for(i=0;s[i]!=0;i++)
        {
                if(s[i]==ch){
                f=i;}
        }
        if(f!=-1)printf("%d",f+1);
        else printf("not present");

        return 0;
}
```

17. Write a C program to search all occurrences of a character in given string.

```
#include<stdio.h>
#include<string.h>
int main()
{
        char s[10000];
        gets(s);
        char ch;scanf("%c",&ch);
```

```
       int i,f=0;
       for(i=0;s[i]!=0;i++)
       {
              if(s[i]==ch){f++;
              printf("%d\n",i+1);}
       }
       if(f==0)
       printf("not present");

       return 0;
}
```

18. Write a C program to count occurrences of a character in given string.

```
#include<stdio.h>
#include<string.h>
int main()
{
       char s[10000];
       gets(s);
       char ch;scanf("%c",&ch);
       int i,f=0;
       for(i=0;s[i]!=0;i++)
       {
              if(s[i]==ch)f++;
       }
       printf("%d",f);
       return 0;
}
```

19. Write a C program to find highest frequency character in a string.

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>
int main() {
         char s[10000];
    scanf("%s",s);
    int f[10000],ff=0;
    for(int i=0;s[i]!=0;i++)
    {int c=1;

        for(int j=i+1;s[j]!=0;j++)
        {
          if(s[i]==s[j])
          {
            c++;for(int k=j;s[k]!=0;k++)s[k]=s[k+1];j--;
          }
        }f[ff++]=c;
    }
    int max=f[0],p=0;
    for(int i=1;i<ff;i++)
    if(f[i]>max)
    {
       max=f[i];p=i;
              }
              printf("Max frequency character is %c and frequency is%d",s[p],max);
              return 0;
       }
```

20. Write a C program to find lowest frequency character in a string.

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>
int main() {
         char s[10000];
    scanf("%s",s);
    int f[10000],ff=0;
    for(int i=0;s[i]!=0;i++)
    {int c=1;

        for(int j=i+1;s[j]!=0;j++)
        {
          if(s[i]==s[j])
          {
            c++;for(int k=j;s[k]!=0;k++)s[k]=s[k+1];j--;
          }
        }f[ff++]=c;
    }
    int min=f[0],p=0;
    for(int i=1;i<ff;i++)
    if(f[i]<min)
    {
       min=f[i];p=i;
              }
              printf("Min. frequency character is %c and frequency is%d",s[p],min);
              return 0;
       }
```

21. Write a C program to count frequency of each character in a string.

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>
int main() {
         char s[10000];
    scanf("%s",s);
    int f[10000],ff=0;
    for(int i=0;s[i]!=0;i++)
    {int c=1;

        for(int j=i+1;s[j]!=0;j++)
        {
          if(s[i]==s[j])
          {
            c++;for(int k=j;s[k]!=0;k++)s[k]=s[k+1];j--;
          }
        }f[ff++]=c;
    }
       for(int i=0;i<ff;i++)
              printf(" frequency of character  %c is %d\n",s[i],f[i]);
              return 0;
       }
```

22. Write a C program to remove first occurrence of a character from string.

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>
int main() {
         char s[10000];
    scanf("%s",s);
    char ch;int f=0;
    scanf("%*c%c",&ch);
    for(int i=0;s[i]!=0;i++)
    {
          if(s[i]==ch)
          {f=1;
          strcpy(s+i,s+i+1);
            break;
          }
        }
        if(f==1)
              printf("%s ",s);
              else printf("not found");
              return 0;
       }
```

23. Write a C program to remove last occurrence of a character from string.

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>
int main() {
         char s[10000];
    scanf("%s",s);
    char ch;int f=0;
    scanf("%*c%c",&ch);
    for(int i=strlen(s)-1;i>=0;i--)
    {
          if(s[i]==ch)
          {f=1;
          strcpy(s+i,s+i+1);
```

```
            break;
          }
        }
        if(f==1)
              printf("%s ",s);
              else printf("not found");
              return 0;
       }
```

24. Write a C program to remove all occurrences of a character from string.

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>
int main() {
         char s[10000];
    scanf("%s",s);
    char ch;int f=0;
    scanf("%*c%c",&ch);
    for(int i=strlen(s)-1;i>=0;i--)
    {
          if(s[i]==ch)
          {f=1;
          strcpy(s+i,s+i+1);
          }
        }
        if(f==1)
              printf("%s ",s);
              else printf("not found");
              return 0;
       }
```

25. Write a C program to remove all repeated characters from a given string.

```
#include <stdio.h>
#include <string.h>
int main() {
    char s[1000000];
    scanf("%s",s);
    for(int i=0;s[i]!=0;i++)
    {int c=1;
        for(int j=i+1;s[j]!=0;j++)
        {
          if(s[i]==s[j])
          {
            for(int k=j;s[k]!=0;k++)s[k]=s[k+1];j--;
          }
        }
    }
    printf("%s",s);
    return 0;
  }
```

26. Write a C program to replace first occurrence of a character with another in a string.

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>
int main() {
           char s[10000];
    scanf("%s",s);
    char ch,ch2;int f=0;
    scanf("%*c%c%*c%c",&ch,&ch2);
    for(int i=0;s[i]!=0;i++)
    {
           if(s[i]==ch)
           {f=1;
            s[i]=ch2;
              break;
           }
         }
         if(f==1)
                printf("%s ",s);
                else printf("not found");
                return 0;
        }
```

27. Write a C program to replace last occurrence of a character with another in a string.

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>
int main() {
           char s[10000];
    scanf("%s",s);
    char ch,ch2;int f=0;
    scanf("%*c%c%*c%c",&ch,&ch2);
    for(int i=strlen(s)-1;i>=0;i--)
    {
           if(s[i]==ch)
           {f=1;
            s[i]=ch2;
              break;
           }
         }
         if(f==1)
                printf("%s ",s);
                else printf("not found");
                return 0;
        }
```

28. Write a C program to replace all occurrences of a character with another in a string.

```
#include <stdio.h>
```

```
#include <string.h>
#include <math.h>
#include <stdlib.h>
int main() {
             char s[10000];
      scanf("%s",s);
      char ch,ch2;int f=0;
      scanf("%*c%c%*c%c",&ch,&ch2);
      for(int i=strlen(s)-1;i>=0;i--)
      {
              if(s[i]==ch)
              {f=1;
               s[i]=ch2;
              }
           }
           if(f==1)
                     printf("%s ",s);
                     else printf("not found");
                     return 0;
          }
```

29. Write a C program to find first occurrence of a word in a given string.

```
#include <stdio.h>
#include <string.h>
int main() {
   char s[10001],s2[10000],ss[10000];
   s[0]=' ';
          gets(s+1);gets(s2);int i=strlen(s)-1,c=0,f=0;
   if(s[i]=='.'||s[i]=='?'||s[i]=='!')s[i--]=0;
   for(;i>=0;i--)
   {
          if(s[i]==' ')
          {
                     c++;
                     strcpy(ss,s+i+1);
                     if(strcmp(s2,ss)==0)
                     {
                               f=c;
                               }s[i]=0;
                     }
          }
          if(f!=0)printf("word %d",c-f+1);
          else printf("not found");
   return 0;
}
```

30. Write a C program to find last occurrence of a word in a given string.

```
#include <stdio.h>
#include <string.h>
int main() {
   char s[10001],s2[10000],ss[10000];
   s[0]=' ';
          gets(s+1);gets(s2);int i=strlen(s)-1,c=0,f=0;
   if(s[i]=='.'||s[i]=='?'||s[i]=='!')s[i--]=0;
   for(;i>=0;i--)
   {
          if(s[i]==' ')
          {
                    c++;
                    strcpy(ss,s+i+1);
                    if(strcmp(s2,ss)==0&&f==0)
                    {
                              f=c;
                              }s[i]=0;
                    }
          }
          if(f!=0)printf("word %d",c-f+1);
          else printf("not found");
   return 0;
}
```

31. Write a C program to search all occurrences of a word in given string.

```
#include <stdio.h>
#include <string.h>
int main() {
   char s[10001],s2[10000],ss[10000];
   s[0]=' ';
          gets(s+1);gets(s2);int i=strlen(s)-1,c=0,f=0;
   if(s[i]=='.'||s[i]=='?'||s[i]=='!')s[i--]=0;
   int p[1000],pp=0;
   for(;i>=0;i--)
   {
          if(s[i]==' ')
          {
                    c++;
                    strcpy(ss,s+i+1);
                    if(strcmp(s2,ss)==0)
                    {
                              f=1;p[pp++]=c;
                              }s[i]=0;
                    }
          }
          if(f!=0)
          for(i=pp-1;i>=0;i--)printf("word %d\n",c-p[i]+1);
          else printf("not found");
   return 0;
}
```

32. Write a C program to count occurrences of a word in a given string.

```
#include <stdio.h>
#include <string.h>
int main() {
  char s[10001],s2[10000],ss[10000];
  s[0]=' ';
       gets(s+1);gets(s2);int i=strlen(s)-1,f=0;
  if(s[i]=='.'||s[i]=='?'||s[i]=='!')s[i--]=0;
  for(;i>=0;i--)
  {
       if(s[i]==' ')
       {

              strcpy(ss,s+i+1);
              if(strcmp(s2,ss)==0)
              {
                     f++;
                     }s[i]=0;
              }
       }
       printf("%d",f);
  return 0;
}
```

33. Write a C program to remove first occurrence of a word from string.

```
#include <stdio.h>
#include <string.h>
int main()
{
  char s[10000];
  char ss[10000];
  gets(s);int d=0;
  scanf("%s",ss);int f=0;
  for(int i=0;s[i]!=0;i++)
  {
    if(s[i]==ss[d])
    {f=1;
      for(int j=1;ss[j]!=0;j++)
      {
        if(s[i+j]!=ss[j])f=0;break;
      }if(f==1)
      {
       strcpy(s+i,s+i+strlen(ss)+1);
       break;
      }
    }
  }
  printf("%s",s);
  return 0;
}
```

34. Write a C program to remove last occurrence of a word in given string.

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

```
{
  char s[10000];s[0]=' ';
  char ss[10000];
  gets(s+1);
       int l=strlen(s);
       s[l++]=' ';s[l]=0;
  scanf("%s",ss);int f=0;
  char s2[10000];int d=0;
  for(int i=l-1;i>=0;i--)
  {int j;
    if(s[i]==' ')
    {d=0;
       for( j=i-1;s[j]!=' ';j--)
       {if(s[j]=='.'||s[j]=='?'||s[j]=='!'){i--;
                     continue;}
                     s2[d++]=s[j];
                     }s2[d]=0;strrev(s2);
       if(strcmp(s2,ss)==0)
       {
              strcpy(s+j,s+i);i++;break;
                     }
    }
  }
  printf("%s",s+1);
  return 0;
}
```

35. Write a C program to remove all occurrence of a word in given string.

```
#include <stdio.h>
#include <string.h>
int main()
{
  char s[10000];s[0]=' ';
  char ss[10000];
  gets(s+1);
       int l=strlen(s);
       s[l++]=' ';s[l]=0;
  scanf("%s",ss);int f=0;
  char s2[10000];int d=0;
  for(int i=0;s[i]!=0;i++)
  {int j;
    if(s[i]==' ')
    {d=0;
       for( j=i+1;s[j]!=' ';j++)
       {if(s[j]=='.'||s[j]=='?'||s[j]=='!')break;
                     s2[d++]=s[j];
                     }s2[d]=0;
       if(strcmp(s2,ss)==0)
       {
              strcpy(s+i,s+j);i--;
```

```
                                          }
        }
    }
    printf("%s",s+1);
    return 0;
}
```

36. Write a C program to trim leading white space characters from given string.

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>

int main() {
    char s[10001];
    gets(s);
    while(s[0]==' ')
    {
        strcpy(s,s+1);

    }puts(s);
    return 0;
}
```

37. Write a C program to trim trailing white space characters from given string.

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>

int main() {
    char s[10001];
    gets(s);int i=strlen(s)-1;
    while(s[i]==' ')
    {
        strcpy(s+i,s+i+1);i--;

    }printf("%s",s);
    return 0;
}
```

38. Write a C program to trim both leading and trailing white space characters from given string.

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>

int main() {
    char s[10001];
    gets(s);int i=strlen(s)-1;
    while(s[i]==' ')
    {
        strcpy(s+i,s+i+1);i--;
    }
        while(s[0]==' ')
    {
        strcpy(s,s+1);

    }

            printf("%s",s);
    return 0;
}
```

39. Write a C program to remove all extra blank spaces from given string.

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>

int main() {
    char s[10001];
    gets(s);
    for(int i=0;s[i]!=0;i++)
    {
        if(s[i]==' '&&s[i+1]==' ')
        {
            strcpy(s+i,s+i+1);i--;
        }
    }puts(s);
    return 0;
}
```

40. Write a C Program to input a string and check whether the string is pangram or not. A string is said to be pangram if it contains all the alphabets of English (Could be upper or lower).

```
#include<stdio.h>
#include<string.h>
int main()
{
        char s[10000];
        gets(s);strupr(s);
        int f,i,j,ff=0;
        for(i=65;i<=90;i++)
        {
                f=0;
                for(j=0;s[j]!=0;j++)
                {
                        if(s[j]==i){
                                f=1;break;
                        }
                }
                if(f==0){
                ff=1;break;}
```

```
    }if(ff==0)printf("Pangram");
    else printf("Not Pangram");
    return 0;
}
```

41. Write a C Program to input 2 strings and check whether the strings are anagram or not. 2 strings are said to be anagram if they contains same set of letters.

```
#include<stdio.h>
#include<string.h>
int main()
{
    char s[10000],ss[10000];
    gets(s);gets(ss);strupr(ss);strupr(s);
    int f,i,j,ff=0;
    if(strlen(s)==strlen(ss))
    {
    for(i=0;ss[i]!=0;i++)
    {
        f=0;
        for(j=0;s[j]!=0;j++)
        {
            if(s[j]==ss[i]){s[j]='$';
                f=1;break;
            }
        }
        if(f==0){
        ff=1;break;}
    }
    }
    else ff=1;
    if(ff==0)printf("anagram");
    else printf("Not anagram");
    return 0;
}
```

42. Write a program to input a word from the user and print it in the following way. For example, if the word is PROGRAM, the program will print it as-

```
P
P  R
P  R  O
P  R  O  G
P  R  O  G  R
P  R  O  G  R  A
P  R  O  G  R  A  M
```

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>

int main() {
  char s[10001];
  gets(s);int l=strlen(s);
```

```
   for(int i=0;i<l;i++)
   {
            for(int j=0;j<=i;j++)
       printf("%c ",s[j]);
       printf("\n");
   }

   return 0;
}
```

43. Write a program to search a middle name in the name consisting of first name, middle name and last name.

```
#include <stdio.h>
#include <string.h>
int main() {
    char s[10001];
    gets(s);
    char *p=strchr(s,' ');
    while(*++p!=' ')
       printf("%c",*p);
    return 0;
}
```

44. Write a menu driven program to perform the following task-

- Find length of a string
- Copy of one string into another
- Capitalize all letters of a string
- Reverse of string
- Comparison of two strings

```
#include<stdio.h>
#include<string.h>
int main()
{
             printf("Enter a string\n");
             char s[10000];gets(s);
             do
             {
             printf("Menu=\n1.Find length of a string\n2.Copy of one string into another\n3.Capitalize all letters of a 
string\n4.Reverse of string\n5.Comparison of two strings\n6.To exit\n");
             char ss[10000];
             printf("Enter your choice ");
             int c;scanf("%d%*c",&c);
             switch(c)
             {
                          case 1:printf("%d\n",strlen(s));break;
                          case 2:strcpy(ss,s);
                                                   printf("%s\n",ss);break;
                          case 3:printf("%s",strupr(s));break;
                          case 4:printf("%s",strrev(s));break;
                          case 5:printf("Enter string to compare with\n");
                                                   gets(ss);if(strcmp(ss,s)==0)printf("Equal\n");else printf("not equal\n");break;
                          case 6:return 0;
                          default:printf("Wrong choice\n");
             }
}while(1);
             return 0;
}
```

45. Define string. Differentiate between ‘a’ and “a”.

Ans. String is collection of characters terminated by null character(‘\0’).

‘a’ is character whereas “a” is string or character array terminated by null.

46. Differentiate between character array and string. Give one example of each.

Ans. Character Array is simply array of character it does not have null character at end whereas string is a character array ending with null character.

Example: char ch[]={‘a’,’b’,’c’}; is character array

char s[]=“abcd”; is string having null character at end.

47. What are the functions used for reading a string? If you want to read your full name, which function you will prefer ? Why?

Ans. Functions used for reading string are:-

scanf(“%[^\n]”,s); or gets(s);

scanf(“%s”,s);

To read full name we will prefer gets() functions because %s will read only 1st name as it terminates at blank space while gets terminates on encountering \n.

48. What are the ways to initialize 1D and 2D string?

Ans.

1D string

Compile time initialization

char s[ ]=”abcd”;

run time initialization

char s[1000];

gets(s);

2D string

Compile time initialization

Char s[ ][100]={“abcd”,”efgh”,”sas”};

Run time initialization

Char s[100][10000];

for(int i=0;i<n;i++)

gets(s[i]);

49. What will be the output of following program?

```
void main()

    {

     char str1[] = "abcd";
```

```
                char str2[] = "abcd";

                        if(str1==str2)

                                printf("Equal");

                        else

                                printf("Unequal");

              }
```

OUTPUT=> Unequal

50. What will be the output of the following program?

```
            void main()

               { char s[]= “Hello, World”;

                        printf(“>>%s<<\n”,s);

                        printf(“>>%20s<<\n”,s);

                        printf(“>>%-20s<<\n”,s);

                        printf(“>>%.4s<<\n”,s);

                        printf(“>>%-20.4s<<\n”,s);

                        printf(“>>%20.4s<<\n”,s);

          }
```

OUTPUT

```
>>Hello, World<<

>>        Hello, World<<

>>Hello, World        <<

>>Hell<<

>>Hell                <<

>>                Hell<<
```

51. What are wrong initializations of the following string arrays?

(i) char str[]={‘h’, ‘e’, ‘l’, ‘l’, ‘o’}; (ii) char str[5]={‘h’, ‘e’, ‘l’, ‘l’, ‘o’, ‘\0’};

(iii) char str[]={‘h’, ‘e’, ‘l’, ‘l’, ‘o’, ‘\0’}; (iv) char str[6]={‘h’, ‘e’, ‘l’, ‘l’, ‘o’, ‘\0’};

(v) char str[]= “hello”;

(vi) char str[][]={“hi”, “hello”, “good”, “bad”, “better”};

(vii) char str[5][]= {“hi”, “hello”, “good”, “bad”, “better”};

(viii) char str[5][10]= {“hi”, “hello”, “good”, “bad”, “better”};

Wrong= i , ii , vi, vii

52. Write a C program that reads the name of a person as input and print the name in an abbreviated fashion, e.g., Dennis Ritchie as D.R.

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>

int main() {
   char s[10001];
   gets(s+1);s[0]=' ';
   for(int i=0;s[i]!=0;i++)
   {
      if(s[i]==' '&&s[i+1]!=' ')
      {
         printf("%c. ",s[i+1]);
      }
   }
   return 0;
}
```

53. Write a program to store name of ten cities and rewrite it in alphabetical order.

```
#include<stdio.h>
#include<string.h>
int main()
{
      char s[10][10000];
      int i,j;
      for(i=0;i<10;i++)
      {
                  printf("Enter city %d name ",i+1);
                  gets(s[i]);
```

```
    }
    for(i=0;i<10-1;i++)
    {
            for(j=0;j<10-i-1;j++)
            {
                    if(strcmp(s[j],s[j+1])==1)
                    {
                            char ss[10000];strcpy(ss,s[j]);
                            strcpy(s[j],s[j+1]);
                            strcpy(s[j+1],ss);
                    }
            }
    }
    for(i=0;i<10;i++)
    {
            puts(s[i]);
    }
    return 0;
}
```

54. Write a C program to remove the white spaces from a string

```
 #include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>

int main() {
  char s[10001];
  gets(s);
  for(int i=0;s[i]!=0;i++)
  {
    if(s[i]==' ')
    {
      strcpy(s+i,s+i+1);i--;
    }
  }puts(s);
  return 0;
}
```

55. What will be the output of following programs?

a. #include<stdio.h>

#include<string.h>

```
int main()
{
 char str1[20] = "Hello", str2[20] = " World";
 printf("%s\n", strcpy(str2, strcat(str1, str2)));
 return 0;
}
```

```
Hello World
```

b. #include<stdio.h>

```
int main()
{
   char p[] = "%d\n";
   p[1] = 'c';
   printf(p, 65);
   return 0;
}
```

```
A
```

c. #include<stdio.h>

```
#include<string.h>
int main()
{
   printf("%d\n", strlen("123456"));
   return 0;
}
```

```
6
```

d. #include<stdio.h>

```
int main()
{
    static char s[25] = "The cocaine man";
    int i=0;
    char ch;
    ch = s[++i];
    printf("%c", ch);
    ch = s[i++];
    printf("%c", ch);
    ch = i++[s];
    printf("%c", ch);
    ch = ++i[s];
    printf("%c", ch);
    return 0;
}
```

```
hhe!
```