Unit III	Arrays and Structure		Marks - 16
S. N.	**Questions**	**Year**	**Marks**
1	Define array .List its types.	W-23, S-23, S-22, W-19	2M
Ans.	An array is a collection of multiple data items, all of the same data type, accessed using a common name. 1) A one-dimensional array consists of similar type of multiple values in it. 2) A two dimensional array consists of row and column.		
2	Explain any two string handling functions with syntax and example.	W-23	4M
Ans	a)**Strlen function:** strlen( ) function in C gives the length of the given string. strlen( ) function counts the number of characters in a given string and returns the integer value. It stops counting the character when null character is found. Because, null character indicates the end of the string in C. *Syntax:* strlen(stringname); *Example: consider str1="abc"* strlen(str1); returns length of str1 as 3.		

	b)strcat() function: **In C programming, strcat() concatenates (joins) two strings. It concatenates source string at the end of destination string.** ***Syntax:*** **strcat(destinationsource, source string);** ***Example: consider str1="abc" and str2="def"*** **strcat(str1,str2); returns abcdef in str1 and str2 remains unchanged.** **c)strcpy() function** **strncpy( ) function copies portion of contents of one string into another string.** ***Syntax:*** **strncpy(destination string, source string, size);** ***Example: consider str1="abc"*** **strcpy(str1,str2); returns abcstr2.** **d)strcmp() function** **The strcmp function compares two strings which are passed as arguments to it. If the strings are equal then function returns value 0 and if they are not equal the function returns some numeric value.** ***Syntax:*** **strcmp(str1, str2);** ***Example: consider str1="abc" and str2="abc"*** **Then strcmp(str1,str2) returns 0 as both the strings are same.**		
3	**Illustrate initialization of one dimensional array with example.**	**W-23**	**4M**
Ans	**One dimensional array:** **An array is a collection of variables of the same type that are referred through a common name. A specific element in an array is accessed by an index. all arrays consist of contiguous memory locations. The lowest address corresponds to the first element and the highest address to the last element.**		

Initialization:

Initialization can be done as compile time or runtime.

1. Compile time: This can be done by providing number of elements of the declared data

type to an array at compile time.

Eg :int arr[5]={1,2,3,4,5};

2. Runtime: For this loop structures like 'for' can be used to iterate through the locations

of the array. Here the index of the array starts with 0 and ends with size minus one (size

– 1) of an array.

Eg :

```
int arr[5];
for(i=0;i<5;i++)
{
scanf("%d",&arr[i]);
}
```

4	**Differentiate between character array and integer array with respect to size and initialization.**	**W-23**	**4M**

Ans :

Parameter	Character Array	Integer Array
Size	Store individual characters, each occupying one byte of memory. The size of a character array is determined by the number of characters it can hold. For example, a character array of size 5 can accommodate five characters.	Store integer values, which typically occupy multiple bytes depending on the programming language and architecture. The size of an integer array is also determined by the number of integer values it can accommodate. For

			example, an integer array of size 5 can hold five integer values	
	Initialization	Initialization can be done like : char str[4]={'x','y','z','\0'}; OR char message[10] = "Hello";	Initialization can be done like : int arr[4]={10,20,30,40};	
5	Write a program using structure to display information of employee which consist of employee id, name, age and salary.		W-23	6M

Ans	**Program:**
	#include<stdio.h>
	#include<conio.h>
	struct employee
	{
	char name[10], city[10];
	int age;
	};
	void main()
	{
	int i;
	struct employee e[3];
	clrscr();
	for(i=0;i<3;i++)
	{
	printf("\n Enter name:");
	scanf("%s",&e[i].name);
	printf("\n Enter age:");
	scanf("%d",&e[i].age);
	printf("\n Enter city:");			

	scanf("%s",&e[i].city);
	}
	for(i=0;i<3;i++)
	{
	printf("\n Name=%s",e[i].name);
	printf("\n Age=%d",e[i].age);
	printf("\n City=%s",e[i].city);
	}
	getch();
	}		

6	Write a program to add two 3×3 matrices. Display the addition.	W-23,W-22,S-22,W-19,18	6M

Ans	#include<stdio.h>
	#include<conio.h>
	void main()
	{
	int a[3][3],b[3][3],c[3][3],i,j;
	clrscr();
	printf("Enter first matrix elements:\n");
	for(i=0;i<3;i++)
	{
	for(j=0;j<3;j++)
	{
	scanf("%d",&a[i][j]);
	}
	}
	printf("\nEnter second matrix elements:\n");
	for(i=0;i<3;i++)
	{
	for(j=0;j<3;j++)
	{		

```
scanf("%d",&b[i][j]);
}
}
for(i=0;i<3;i++)
{
for(j=0;j<3;j++)
{
c[i][j]=a[i][j]+b[i][j];
}
}
printf("\n\nAddition of two matrices is:\n");
for(i=0;i<3;i++)
{
for(j=0;j<3;j++)
{
printf("%d ",c[i][j]);
}
printf("\n");
}
getch();
}
```

7	Write a C Program to add two distance in given kilometers using structure	S-23	4M

Ans

Program:

```
#include <stdio.h>
struct Distance
{
int feet;
float inch;
} firstDistance, secondDistance, sum;

 int main()
printf("Enter feet and inches for the first distance: \n");
scanf("%d %f", &firstDistance.feet, &firstDistance.inch);
printf("Enter feet and inches for the second distance: \n");
scanf("%d %f", &secondDistance.feet, &secondDistance.inch);
sum.feet = firstDistance.feet + secondDistance.feet;
sum.inch = firstDistance.inch + secondDistance.inch;
while (sum.inch >= 12)
{
sum.inch = sum.inch - 12;
sum.feet++;
}
printf("The Sum is %d feet, %.1f inches\n", sum.feet, sum.inch);
return 0;
}
```

Output:

```
Enter feet and inches for the first distance: 12.4
Enter feet and inches for the second distance: 4.1
The Sum is 16 feet, 0.5f inches
```

8	Write a c program for multiplication to two 3* 3 matrix	S-23	4M
Ans	

```
#include<stdio.h>
int main()
{
int i,j,k;
float a[3][3], b[3][3], mul[3][3];
printf("Enter elements of first matrix:\n");
for(i=0;i< 3;i++)
{
for(j=0;j< 3;j++)
{
printf("a[%d][%d]=",i,j);
scanf("%f", &a[i][j]);
} }
printf("Enter elements of second matrix:\n");
for(i=0;i< 3;i++) {
for(j=0;j< 3;j++) {
printf("b[%d][%d]=",i,j);
scanf("%f", &b[i][j]);
} }
for(i=0;i< 3;i++) {
for(j=0;j< 3;j++) {
mul[i][j] = 0;
for(k=0;k< 3;k++) {
mul[i][j] = mul[i][j] + a[i][k]*b[k][j];
} } }
printf("Multiplied matrix is:\n");
for(i=0;i< 3;i++) {
for(j=0;j< 3;j++) {
printf("%f\t", mul[i][j]); }
printf("\n"); }
return 0;
}
```

9	**Define:** **(i) Two dimensional array** **(ii) Multi-dimensional array**	**S-18**	**2M**
Ans	**(i)Two dimensional array** **Two dimensional array is a collection of similar type of data elements arranged in the form of rows & columns.** ***E.g.* Array can be declared as int arr[3][3];** **In this therecanbe9 elements in an array with 3 row sand 3columns.** **(ii) Multi-dimensional array:** **An array with more than one dimensionis called as multi- dimensional array.** ***For example*** **Float x[3][4];** **Similarly , you can declare a three-dimensional (3d) array.** **For example,** **Float y[2][4][3];** **Here, The array y can hold 24 elements (2*4*3).**		
10	**Develop a program using structure to print data of three students having data members name, class, percentage.** ***(Note : Any other relevant logic shall be considered)***	**S-18**	**4M**
Ans.	**#include<stdio.h>** **#include<conio.h>** **void main()** **{** **struct student** **{** **char name[20], char c[20];** **int per;** **}s[3];** **int i; clrscr();**		

	for(i=0;i<3;i++)
	{
	printf("Enter name, class, percentage");
	scanf("%s%s%d",&s[i].name,&s[i].c,&s[i].per);
	}
	for(i=0;i<3;i++)
	{
	printf("%s%s%d\n",s[i].name,s[i].c,s[i].per);
	}
	getch();
	}		

11	**Give a method to create, declare and initialize structure also develop a program to demonstrate nested structure.**	**S-18**	**6M**
Ans	**Declaration of structure:-** **Struct structure_name** **{** **data_typemember1;** **data_typemember2;** **.** **.** **.** **data_typemembern;** **}structurevariable1, structurevariable2,..., structurevariablen;** ***Example:-*** **struct student** **{** **int rollno;** **char name[10];** **}s1;** **Initialization:-** **struct students={1,"abc"};** **structure variable contains two members as roll no and name. the above example**		

initializes roll no to1and name to"abc".

Program:-

```
#include<stdio.h>
#include<conio.h>
struct college
{
int collegeid;
char collegename[20];
};
struct student
{
int rollno;
char studentname[10];
struct collegec;
};
void main()
{
struct students={1,"ABC",123,"Polytechnic"};
clrscr();
printf("\nRoll number=%d",s.rollno);
printf("\nStudent Name=%s",s.studentname);
printf("\nCollege id=%d",s.c.collegeid);
printf("\nCollege name=%s",s.c.collegename);
getch():
}
```

12	**Design a programme in C to read the numbers of values in an array and display it in reverse order.** ***(Note: Any other relevant logic shall be considered)***	**S-19**	**4M**
Ans	**#include<stdio.h>** **#include<conio.h>** **#define max 50** **Void main()** **{** **int a[max],i,n;** **clrscr();** **printf("\n Enter number of elements:");** **scanf("%d",&n);** **printf("\n Enter array element:"); for(i=0;i<n;i++)** **scanf("%d",&a[i]);** **printf("\n Array elements in reverse order:");** **for(i=n-1;i>=0;i--)** **printf("\t%d",a[i]);** **getch();** **}**		
13	**Explain declaration and initialization of one dimensional array using example.**	**S-18**	**4M**
Ans	**i) One dimensional array:** **An array is a collection of variables of the same type that are referred through a common name. A specific element in an array is accessed by an index. In C, all arrays consist of contiguous memory locations. The lowest address corresponds to the first element and the highest address to the last element.** **Syntax: data_type array_name[array_size];** **Example:** **int marks[10];** **ii) Two dimensional array:** **Two dimensional array is a collection of similar type of data elements arranged in the form of rows &columns.** **Example:** **Array can be declared as int arr[3][3];** **In this there can be 9 elements in an array with 3 rows and 3 columns.**		

14	**Write a program to declare structure employee having data member name, age, street and city. Accept data for two employees and display it.** ***Note: Two structure variables or array of structure variables shall be considered.***	**W-22**	**6M**
Ans			

```
#include<stdio.h>
#include<conio.h>
struct employee
{
char name[10],street[10],city[10];
int age;
};
void main()
{
int i;
struct employeee[2];
clrscr();
for(i=0;i<2;i++)
{
printf("\nEnter name:");
scanf("%s",&e[i].name);
printf("\nEnter age:");
scanf("%d",&e[i].age);
printf("\nEnter street:");
scanf("%s",&e[i].street);
printf("\nEnter city:");
scanf("%s",&e[i].city);
}
for(i=0;i<2;i++)
{
printf("\nName=%s",e[i].name);
printf("\nAge=%d",e[i].age);
```

```
printf("\nStreet=%s",e[i].street);
printf("\nCity=%s",e[i].city);
}
getch();
}
```

15	Write a program to accept a string as input from user and determine its length. [Don't use built in library function strlen()]	W-18	4M

Ans

```
#include<stdio.h>
#include<conio.h>
void main()
{
char str[50];
int i,len=0;
clrscr();
printf("Enter a string");
scanf("%s",&str);
for(i=0; str[i]!='\0'; i++)
{
len++;
}
printf("The length of string is %d" ,len);
getch();
}
```

16	State difference between array and string. *(Note : Any two valid points shall be considered).*	S-19	4M

Ans

Sr. No	Array	String
1	Array can be of any type like int, float, char.	String can contain only characters.
2	Element Elements in an array can be accessed using its	Characters in string are accessed sequentially from first to last.

			position like a[2]. s in an array can be accessed using its Position like a[2].		
		3	Array does not end with a null Character	String\ character.	
		4	Array size once declared can not Be changed	String size can be modified Using pointer.	
17.	Declare a structure student with element roll-no and name.			S-19	2M

Ans	struct student
	{
	int roll_no;
	char name[20];
	};				

18	Differentiate between character array and integer array with respect to size and initialization.			S-19	2M
Ans.					

Parameter	Character Array	Integer Array
Size	Last location in character array is filled with '\0' so the array size should be so declared that it should have one last Location for'\0'character.	No extra location than the number of elements is required.
Initialization	Initialization can be done like: char str[4]={'a','b','c','\0'}; char str[4]="abc";	Initialization can be done like: int arr[4]={1,2,3,4};

19	With suitable example, explain how two dimensional arrays can be created.	S-19	4M
	The array which is used to represent and store data in a tabular form is called as two dimensional array. Such type of array is specially used to represent data in a matrix form. Declaration of two dimensional arrays: *Syntax:-* Datatype arrayname [rowsize][columnsize];		

Eg:

int arr[3][4];

This will declare array "arr" with 3 rows **and 4 columns.**

A two-dimensional array can be considered as a table which will have x number of rows and y number of columns. A two-dimensional array a, which contains three rows and four columns can be shown as follows

	Column 0	Column 1	Column 2	Column 3
Row 0	a[0][0]	a[0][1]	a[0][2]	a[0][3]
Row 1	a[1][0]	a[1][1]	a[1][2]	a[1][3]
Row 2	a[2][0]	a[2][1]	a[2][2]	a[2][3]

Thus, every element in the array a is identified by an element name of the form a[i][j], where 'a' is the name of the array, and 'i' and 'j' are the subscripts that uniquely identify each element in'a'.

Example:

```
main()
{
int a[2][2] = { {1,2} , {4,5});

int i, j;
for(i=0;i<2;i++)
{
for(j=0;j<2;j++)
{
printf( "%d",a[i][j]);
}
}
}
}
```

20	**Explain any two string functions with example.** **Strlen function:**	**S-19** **S-18**	**4M**

ANs

strlen() function in C gives the length of the given string. strlen() function counts the number of characters in a given string and returns the integer value. It stops counting the character when null character is found. Because, null character indicates the end of the string in C.*Syntax:*

strlen(stringname);

Example:

Consider str1="abc"

strlen(str1);

returns length of str1 as 3

strcat()function:

In C programming, strcat() concatenates (joins) two strings. It concatenate source string at the end of destination string.

Syntax:

strcat(destination , source string);

Example:

Consider str1="abc" and str2="def"

strcat(str1,str2);

returns abc defin str1 and str2 remains unchanged.

strcpy()function

strncpy() function copies portion of content of one string in to another string.

Syntax:

strncpy(destination string , source string, size);

Example:

Consider str1="abc"

strcpy(str1,str2);

returns abcstr2

strcmp()function

The strcmp function compares two strings which are passed as arguments to it. If the

	stringsareequalthenfunctionreturnsvalue0andiftheyarenotequalthefunction returnssomenumeric value. ***Syntax:*** **strcmp(str1,str2);** ***Example:*** Consider str1=”abc” and str2=”abc” **Then strcmp(str1,str2) returns 0 as both the strings are same.**		
21	**Write a program to accept 10 numbers in array and arrange them in ascending order.** ***(Note: Any other correct logic shall be considered).***	**S-19**	**4M**

Ans	**#include<stdio.h>
	#include<conio.h>
	void main()
	{
	int arr[10],i,j,temp;
	clrscr();
	printf("Enter array elements:");
	for(i=0;i<10;i++)
	{
	scanf("%d",&arr[i]);
	}
	printf("\n\n Array elements are:");
	for(i=0;i<10;i++)
	{
	printf("%d",arr[i]);
	}
	for(j=0;j<10;j++)
	{
	for(i=0;i<10;i++)
	{
	if(arr[i+1]<arr[i])
	{
	temp=arr[i];
	arr[i]=arr[i+1];**		

```
                arr[i+1]=temp;
            }
        }
    }
    printf("\n\nArray elements in ascending order are:");
    for(i=0;i<10;i++)
    {
        printf("%d",arr[i]);
    }
    getch();
}
```

22	Define Array. Write a program to accept ten numbers in array. Sort array element and display.	S-22	6M

ANs

Array: An array is a collection of data elements , all of the same type, accessed using a common name.

Program:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[10],i,j,temp;
clrscr();
printf("Enter numbers:");
for(i=0;i<10;i++)
{
scanf("%d",&a[i]);
for(i=0;i<10;i++)
{
for(j=i+1;j<10;j++)
{
if(a[i]>a[j])
{
temp=a[i];
```

	a[i]=a[j];
	a[j]=temp;
	}
	}
	}
	printf("\nSorted array elements:");
	
	for(i=0;i<10;i++)
	printf("\n%d",a[i]);
	getch();
	}		

23	Define array. List its type.	S-19	2M
Ans	Array is a fixed-size sequential collection of elements of the same type. Types: 1. One dimensional Multi dimensional		
24	State the syntax & use of strlen () & strcat( ) function.	S-19	2M
Ans	strlen(): calculates the length of the string *Syntax:* strlen(s1); strcat(): concatenates two strings *Syntax:* strcat(s1,s2);		
25	Write a program to declare structure student having rollno, name & marks. *(Note: Any other correct logic shall be considered).* Accept and display data for three students	W-19	4M
Ans	#include<stdio.h> #include<conio.h> void main() {		

```
int i;
struct student{ int rollno;
charn ame[20]; int marks;
} s[3];

clrscr();
for(i=0;i<3;i++){
printf("Enter rollno, name and marks\n");
scanf("%d%s%d",&s[i].rollno,&s[i].name,&s[i].marks);
}
for(i=0; i<3;i++){
printf("\nThedetailsofstudent%d\n",i+1);
printf("Roll no %d\n",s[i].rollno);
printf("Name is %s\n",s[i].name);
 printf("Marks %d\n",s[i].marks);
}
getch();
}
```

26	Illustrate initialization of two dimensional array with example.	W-19	4M

Ans

Two dimensional array:

The array which is used to represent and store data in a tabular form

Is called as two dimensional array. Such type of array is specially

Used to represent data in a matrix form.

Initialization can be done as design time or runtime.

1.Design time:

This can be done by providing row X column‟

number of elements to the array.

Eg : for a 3 rows and 4 columns array ,3X4=12elementscan be provided as :

arr[3][4]={{2,3,4,6}, {1,4,6,3}, {6,6,4,3}, {6,7,8,9} };

2.Runtime:

For this loop structures like for can be used in a nested form, where outer loop will

	increment row and inner loop will increment column.
	Eg :
	for(i=0;i<3;i++)
	{
	for(j=0;j<4;j++)
	{
	scanf("%d",&arr[i][j]);
	}
	}
	Example:
	main()
	{
	int arr[2][2]={{1,2},{4,5}};
	int i,j;
	for(i=0;i<2;i++)
	{
	for(j=0;j<2;j++)
	{
	printf("%d", arr[i][j]);
	}
	printf("\n");
	}
	}		

27	Write a program to read two strings and find whether they are equal or not. *(Note: Any other correct logic shall be considered).*	W-19	4M

Ans	#include<stdio.h>
	#include<conio.h>
	#include<string.h>
	void main()
	{
	char st1[20],st2[20];
	printf("enterstring1");
	scanf("%s",st1);		

```
printf("entersecondstring");
scanf("%s",st2);
if(strcmp(st1,st2)==0)
printf("\nbothstringsareequal"); else
printf("\nstrings arenotequal");
}
```

28	Write a program to sort elements of an array in ascending order. *(Note:Any other correct logic shall be considered).*	W-19	4M

Ans

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a[5],i,j,temp;
clrscr();
printf("\nEnter array elements:");
for(i=0;i<5;i++)
scanf("%d",&a[i]);
for(i=0;i<5;i++)
{
for(j=0;j<4-i;j++)
{
if(a[j]>a[j+1])
{
temp=a[j];
a[j]=a[j+1];
a[j+1]=temp;
}
}
}
for(i=0;i<5;i++)
printf("\n%d",a[i]);
getch();
}
```

29	Write a program to demonstrate use of strcmp( ), strcpy(), strlen(), strcat()	S-22	6M
Ans	:		

```
#include<stdio.h>
#include<conio.h>
Void main(){
Char string1[25],string2[25];
int l;
Clrscr();
Printf("***** performing string length ******\n");
Printf("enter only one string \n");
Scanf("%s",string1);
l = strlen(string1);
printf("the string length is %d\n\n",l);
printf("**** performing string concatenation ****\n");
printf("enter two strings\n");
scanf("%s%s",string1,string2);
printf("the concatenated string is %s\n\n",strcat(string1,string2));
printf("***** performing string compare *****\n");
printf("enter two strings \n");
scanf("%s%s",string1,string2);
if(strcmp(string1,string2) = = 0)
printf("strings are equal\n");
else
printf("strings are not equal\n");
printf("*** performing string copy ****\n");
printf("enter the two strings\n");
scanf("%d%d",string1,string2);
printf("the first string is %s and second string is %s\n",string1,string2);
```

	strcpy(string1,string2);
	printf("the first string is %s and second string is %s\n",string1,string2);
	getch();
	}		

30	Define structure. Give one example of structure declaration	W-22	2M

Ans	Definition of Structure:
	Structure is a collection of variables of similar or different data types which is represented by a single name.
	Example:
	struct bill
	{
	int consumer_id;
	char address[50];
	float amount;
	};		

31	Write a program to declare an array of 5 elements and display sum of all array elements.	W-22	4M

Ans	#include<stdio.h>
	#include<conio.h>
	void main()
	{
	int a[5],i,sum=0;
	clrscr();
	printf("Enter array elements:");
	for(i=0;i<5;i++)
	{
	scanf("%d",&a[i]);for(i=0;i<5;i++)
	sum=sum+a[i];
	}
	printf("\n Sum= %d",sum);getch();
	}
	
	OR		

```
#include<stdio.h>
include<conio.h>
voidmain()
{
int a[5]={1,2,3,4,5},i,sum=0;// Array initialization at the time ofdeclaration
clrscr();
for(i=0;i<5;i++)
        sum=sum+a[i];
printf("\n Sum= %d",sum);
getch();
}
```

32	Write a C program to declare structure employee having data member name, age, designation and salary. Accept and display information of 1 employee.	W-22	6M

Ans

```
#include<stdio.h>
#include<conio.h>
struct employee
{
char name[20], designation[10];
int age;
long salary;
};
void main()
{
int i;
struct employeee;
clrscr();
printf("\nEnter name:");
scanf("%s",&e.name);
printf("\n Enter age:");
scanf("%d",&e.age);
printf("\n Enter designation:");
scanf("%s",&e.designation);
```

```
    printf("\n Enter salary:");
    scanf("%ld",&e.salary);
    printf("\n\nEmployee'sdatais:");
    printf("\n Name=%s",e.name);
    printf("\nAge=%d",e.age);
    printf("\nDesignation=%s",e.designation);
    printf("\nSalary=%ld",e.salary);
    getch();
}
```

33	Write 'C' program to add two distances given in km using structure.	S-23	4M

Ans

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

34	Write a C program to find the largest and smallest number in a given array.	S-23	6M

Ans

```
#include <stdio.h>
void getSmallLarge(int arr[], int n)
{
   int smallest, largest;
    smallest = largest = arr[0];

 for(int i = 1; i < n ;i++){

    // finding smallest here
    if(arr[i] < smallest)
        smallest = arr[i]; // finding largest here
 if(arr[i] > largest)
        largest = arr[i];
```

```
    }
    printf("Smallest: %d\n",smallest);
    printf("Largest: %d", largest);

}
int main()
{
    int arr[] = {25, 40, 35, 20, 10, 80};
int len = sizeof(arr) / sizeof(arr[0]);
getSmallLarge(arr, len);

}
```

Output

Smallest: 10

Largest: 80

35	Explain how to initialize and define structure in C programming.	S-23	4M

Ans

ANS:

C Structure Declaration

We have to declare structure in C before using it in our program. In structure declaration, we specify its member variables along with their datatype. We can use the struct keyword to declare the structure in C using the following syntax:

Syntax :

```
struct structure_name { data_type member_name1; data_type
member_name1;
....
....
};
```

The above syntax is also called a structure template or structure prototype and no memory is allocated to the structure in the declaration.

C Structure Definition

	To use structure in our program, we have to define its instance. We can do that by creating variables of the structure type. We can define structure variables using two methods: Structure Variable Declaration with Structure Template struct structure_name { data_type member_name1; data_type member_name1; .... }variable1, varaible2, ...;		
36	Write a program to accept ten numbers in an array. Sort array elements and display it.	S-22	4M

Ans	#include <stdio.h>
	void main()
	{
	int i, j, a, n, number[30];
	printf("Enter the value of N \n");
	scanf("%d", &n);
	
	printf("Enter the numbers \n");
	for (i = 0; i < n; ++i)
	scanf("%d", &number[i]);
	for (i = 0; i < n; ++i)
	{
	for (j = i + 1; j < n; ++j)
	{
	if (number[i] > number[j])
	{
	
	a = number[i];
	number[i] = number[j];
	number[j] = a;		

```
        }
      }
    }
    printf("The numbers arranged in ascending order are given below \n");
     for (i = 0; i < n; ++i)
                printf("%d\n", number[i]);
        }
```

37	Explain any two string handling functions with syntax and example. (Any other relevant example should be considered.)	S-18	4M

Ans

1.strlen():

strlen() function gives the length of the given string. strlen( ) function counts the numberofcharactersinagivenstringandreturnstheintegervalue.Itstopscountingthech aracterwhennullcharacteris found.

Syntax:

strlen(stringname);

Example:

```
#include<stdio.h>
#include<string.h>
int main()
{
charstr[]="Hello";
int length = strlen(str); // length will be
5printf("Length of the string: %d ", length);
return0;
}
```

Output: Length of the string : 5

2.strcat():

strcat() function concatenates (joins) twos trings.

Syntax:

strcat(destination_string , source_string);

It concatenates source string at the end of destination string.

Example:

#include<stdio.h>#include<string.h>intmain()

{

char dest[] = "Hello";charsrc[]="World";

strcat(dest,src);//destwillbecome"HelloWorld"prin

tf("Concatenated string:%s", dest);

return0;

}

Output:Concatenatedstring:HelloWorld

3. strcpy()

strcpy()functioncopiescontentsof onestringintoanotherstring.

Syntax:

strcpy(destinationstring,sourcestring);

Example:

#include<stdio.h>#include<string.h>intmain()

{

chardest[20];

charsrc[]="Welcome";

strcpy(dest,src);//destwillbecome"Welcome"pri

ntf("Copiedstring:%s", dest);

return0;

}

Output:CopiedString:Welcome

4.strcmp()

Thisfunction comparesthestringsandreturnsanintegervalue.

Syntax: strcmp(str1,

str2);Itreturns,

0 ifthestrings are equal

-1 ifstr1is lessthan str2

1 ifstr1isgreater thanstr2

Example

#include <stdio.h>

#include<string.h>

```
int main()
{
   char str1[] =
   "apple";charstr2[]="banan
   a";
  intresult= strcmp(str1, str2);

   if(result== 0) {
      printf("The strings are equal.\n");
   }else if (result< 0) {
      printf("String1 is less than string2.\n");
   }else{
      printf("String1 is greater than string 2.\n");
   }
   return0; }
```

Output: String1isless thanstring2.

5. strupr() :

The strupr() function is used to converts a given string to uppercase.

Syntax:

```
char*strupr(char*str);
```

Example:

```
intmain()
{
   charstr[] ="hello";
   //converting the given string into uppercase.
   printf("%s\n",strupr (str));
   return0;
}
```

Output:HELLO

6.strlwr():

The strlwr() function is used to convert a given string into lower case.

Syntax:

char* strlwr(char*str);

Example:

```
Int main()
{
   Char str[]="HELLO";
   //converting the given string into lower case.
   printf("%s\n",strlwr (str));
   return0;
}
```

Output:hello

7. strrev():

The strrev() function is used to reverse the given string.

Syntax:

char* strrev(char*str);

Example:

```
#include<string.h>
int main()
{
 charstr[50]="Hello";
printf("The given string is =%s\n", str);
printf("After reversing string is  = %s ", strrev(str)) ;
return0;
}
```

Output:

The given string is = Hello After reversing string is = olleH

38	Write a program to accept a string as input from user and determine its length	W-18	4M

Ans.

```
#include<stdio.h>
#include<string.h>
int main() {
  char str[100];
  int len;
    printf("\nEnter the String : ");
  scanf("%s",str);
    /*
    strlen() is the pre-defined function
    to find the length of a string
  */
  len = strlen(str);

 printf("\nLength of the given string is %d", len);
  return(0);
}
```

Thank You

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