Branch: Electronics
II year

GPC Bhilwara

II^nd Mid Term Exam.

Paper Code: EL 210

Ques 1 Explain the Arrays. (5)

Ques 2 Write a program to add the matrices using array. (6)

Ques 3 Write the syntax of (4)

(1) for loop statement
(2) while loop statement
(3) do- while loop statement
(4) if else statement

Solution of Paper
Code EL 210

Ans 1 An array is a collection of similar type of data items and each data item is called an element of the array.

Arrays can be single dimensional or multidimensional.

One Dimensional (1-D) array

इसमे एक subscript होता है

Syntax of 1-D array

```
data_type array_name [size];
```

data-type → Array element का data type

array-name → Array का नाम

size → number of element stored in array.

Example :- `int arr[5];`

Processing 1-D array:

⇒ Reading values in arr[5]

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

⇒ Displaying values of arr[5]

```
for (i=0; i<5; i++)
    printf ("%d", arr[i]);
```

Two Dimensional (2-D) array

इसमे दो subscript होते है

Syntax for 2-D array declaration

```
data_type array_name [size1][size2]
```

Example :- `int arr[3][3]`

Processing 2-D arrays

इसमें दो nested for loop का उपयोग होता है।

Ex:- int arr[2][3];

→ Reading values in arr

```
for (i=0; i<2; i++)
    for (j=0; j<3; j++)
        scanf ("%d", &arr[i][j]);
```

→ Displaying values of arr

```
for (i=0; i<2; i++)
    for (j=0; j<3; j++)
        printf ("%d", arr[i][j]);
```

* Program for addition of two matrices;

```
#include <stdio.h>
#define ROW 3
#define COL 3
#include <stdio.h>
main()
{
  int mat1[i][j], mat2[i][j], mat3[i][j], i, j;

  printf("Enter matrix mat1(%d x %d) row-wise : \n", ROW, COL);
     for(i=0; i<ROW; i++)
       for(j=0; j<COL; j++)
         scanf ("%d", &mat1[i][j]);

  printf("Enter matrix mat2(%d x %d) row-wise : \n", ROW, COL);
         for(i=0; i<ROW; i++)
           for(j=0; j<COL; j++)
             scanf("%d", &mat2[i][j]);
```

```
/* Addition */
    for(i=0 ; i<ROW ; i++)
        for(j=0 ; j<COL ; j++)
            mat3[i][j] = mat1[i][j] + mat2[i][j];
    printf("The resultant matrix mat3 is : \n");
        for(i=0 ; i<ROW ; i++)
            for(j=0 ; j<COL ; j++)
                printf("%5d", mat3[i][j]);
                printf("\n");
        }
    }
```

Output:

Enter matrix mat1(3x3) row-wise:

1 2 4
5 8 1
3 2 2

Enter matrix mat2(3x3) row-wise:

3 2 1
1 4 5
2 3 4

The resultant matrix mat3 is :

4 4 5
6 12 6
5 5 6

Ans 3. (1) for loop syntax

```
for (initial expression; condition ; Increment/Decrement)
  {
    Statements;
  }
```

(2) while loop syntax

```
while (condition)
  {
    Statements;
    Increment/Decrement;
  }
```

(3) do while syntax

```
do
  {
    statements;
    Increment/Decrement;
  }
while (condition)
```

(4) if else statement syntax

```
if (condition)
  {
    statement1;
  }
else
  {
    statement2;
  }
```