M.M.E.C	M.M. Engineering College, Mullana	Assignment No.1 of Unit-1
Year : 2019	Semester : 3rd	
Subject Code : BCSE-503	Subject Name : Data Structures	
Name Of Teacher : Surinder Pal Singh		

One Mark Each

Q.1. What is the difference between a normal(naive) array and a sparse array?

Q.2. What do you mean by complexity of an algorithm? Explain.

Q.3. How will you calculate the size of 1-D array and address of any element in 1-D array?

Q.4. What is multidimensional array?

Q.5.Give the declaration and initialization of two-dimensional array?

Q.6. Predict output of following program

```
int main()
{
int i;
int arr[5] = {1};
for (i = 0; i < 5; i++)
printf("%d ", arr[i]);
return 0;
}
```

Q.7. Consider the following declaration of a 'two-dimensional array in C:

```
char a[100][100];
```

Assuming that the main memory is byte-addressable and that the array is stored starting from memory address 0, calculate the address of a[40][50].

Q.8. Can we change the size of an array at run time? Justify.

Q.9. Predict output of the following program:

```
int main()
{
int a[][] = {{1,2},{3,4}};
int i, j;
for (i = 0; i < 2; i++)
for (j = 0; j < 2; j++)
printf("%d ", a[i][j]);
return 0;
}
```

Q.10. Can you declare an array without assigning the size of an array? Explain.

Two Mark Each

Q.1. On what basis will you select a particular data structure for arranging a given set of elements?

Q.2. What are the different operations that can be performed upon any data structure?

Q.3. Write a procedure for mapping of two dimensional Array Using Column Major method.

Q.4. State and explain advantages and disadvantages of arrays.

Q.5. What are the advantages of sparse matrices over normal matrices?

Q.6. Consider the linear array, A(5:50), whose base address is 300 and the number of words per memory cell is 4. Find the address of A[15].

Four Mark Each

Q.1. Consider the linear arrays AAA(5 : 50) , BBB (-5 : 10) and CCC(18).
a) Find the number of elements in each array.
b) Suppose Base(AAA) = 300 and w=4 words per memory cell for AAA. Find the address of AAA[15], AAA[35] and AAA[55].

Q.2. Write an algorithm to find the smallest two elements from an array without sorting array.

Q.3. Write a program for deleting the Kth element from a linear array.

Q.4. Consider a 3-D array MAZE(2:8, -4:1, 6:10) stored in memory in row-major order. Suppose Base address is 200 and there are w=4 words per memory cell. Calculate the address of MAZE[5, -1, 8].

Six Mark Each

Q.1. Write a program to copy the contents of array A in array B in reverse order. Also find sum of array A and array B and store the sum in array C.

Q.2. Write a program to find transpose of sparse matrix .

Q.3. Write a program to find whether a given sub string is present in given string or print its multiple occurrence and replace it with another string of same length.