

Name:

Roll No.:

1. Create a folder (directory) **MVEC** and do the following in the folder **MVEC**.
2. Create a data file **vec.dat** that contains the dimension in the first line and vector components in the second line. Use the following for **vec.dat**

```
7
2.0 -5.0 7.0 10.5 0 3.0 4.0
```

3. Create a data file **mat.dat** that contains the row and column dimensions in the first line and the matrix components row wise in the following lines. Use the following for **mat.dat**

```
4 7
1.0 2.0 0 4.0 2.0 0 -2.0
-4.0 1.0 2.0 0 2.0 0 -2.0
0 2.0 4.0 -2.0 2.0 0 -2.0
1.0 2.0 0.0 4.0 2.0 0 -2.0
```

4. Create a C program file **mvp.c** and run it. Skeleton of **mvp.c** is shown below. Complete the program. You may add extra variables as needed.

```
#include <stdio.h>

#define M 100
#define N 100

int main()
{
    int m,n;
    double A[M][N],X[N],B[M];
    FILE *fvec,*fmat,*fout;

    /*Open vec.dat for reading and assign to fvec. Check that file opening successful.*/
    /*Open mat.dat for reading and assign to fmat. Check that file opening successful.*/
    /*Open out.dat for writing and assign to fout. Check that file opening successful.*/
    /*Read the vector dimension in n and vector components in X*/
    /*Read the matrix dimensions in m & n and matrix components in A*/
    /*Perform the multiplication AX and store the result in B*/
    /*Write the dimension of B and components of B in the output file out.dat (similar
    to vec.dat). Print each component of B using %5.2lf*/
    return 0;
}
```

5. Execute the command **cat vec.dat mat.dat out.dat > result.dat** and open **result.dat** using **gedit**