Name: **Roll No.:**

1. Create a folder (directory) **MVEC** and do the following in the folde **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

   0 2.0 4.0 -2.0 2.0 0 -2.0

   -4.0 1.0 2.0 0 2.0 0 -2.0

   1.0 2.0 0.0 4.0 2.0 0 -2.0

   1.0 2.0 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