

**Note:** Your answer should be **STRICTLY your own work. Suspicious similarities will be thoroughly checked and penalized.** By answering you will be accepting this statement:

*"I pledge my honor, I did not receive or give any unauthorized assistance on this exam."*

### FinalQ3 (25 pts)

(Single submission file name: FinalQ3.c .This file should include solutions for both parts a and b which will be graded seperately.)

a) Write a function that computes the Frobenius norm of a matrix (i.e. sum of squared elements). The function should be defined as:

$$\|A\|_F = \sqrt{\sum_{i=1}^m \sum_{j=1}^n |a_{ij}|^2}$$

```
float fnorm (float *a, int Nrows, int Ncols)
// "a" is a 1D array that holds elements of a (Nrows x Ncols) matrix in row major order
{
}
}
```

b) Write a C program that asks for elements of a matrix, and calculates the Frobenius norm using the function defined above.

The program should first ask for the dimensions (Nrows,Ncols) of the matrix. Then, it should **dynamically** allocate memory for a 1D array of size (Nrows x Ncols). This array should be used to hold the elements of the matrix entered on screen in a row major order (i.e. elements of the first row followed by elements of the second, third...). The value computed using the `fnorm` function should be printed on screen.