Name: _____ SECTION: _____

Exam3 – Wednesday

YOU HAVE 50MINUTES + 5 EXTRA TO COMPLETE BOTH THE MULTIPLE CHOICE AND THE 1 FUNCTION. ORGANIZE YOUR TIME HOWEVER YOU WANT, JUST MAKE SURE TO DO BOTH.

_____ (I will fill these in)/ 30%   MULTIPLE CHOICE IS ON CANVAS. *DO NOT RUSH*. 30%/100%

_____ /60pts CODING *35 = _____ % (part1)

An excel sheet is provided online. Download it within your folder EXAM3. At the end of the hour, you only submit the function file – no matter how you make it work. DO NOT ZIP. (-1 pt if you ask me "should I zip").

The file provided today has weather data for November 11th 2015, in various part of the United Stated. This data was reported by different stations. The original file is 286,000 rows (and takes 26seconds to load!). Therefore it was split into states A-G, H-M, N-R, and S-Z. Today, you have the A-G file. Tonight, you will get the other three. ALL files will have the SAME setup. Your task today is to upload all the data from a file but only keep the rows pertaining to the one day selected by the user. This is perfect for a function, since function are memory efficient! Open the file in excel and look at it first, so that the requirements below make sense.

The requirements for the function (~24lines total) are:

3pts   1 parameter: a filename

3pts   2 return-values:

- o   a numerical array that contains only the rows pertaining to the day selected and 5 columns (Precipitation, SnowDepth, SnowFall, Maximum Temperature, Minimum Temperature)
- o   a cell-array that countains all the stations (column *STATION_NAME*) for the day selected only

4pts   The function is set up properly

3pts   The function has a clear/brief/complete documentation.

2pts   An author/section is indicated, as in all files

5pts   Comments, indent, skipping lines are a must, variable names are descriptive, semi-colons are as needed.

**NO LOOPS. NO IF.**

The function:

5pts   Loads the file's data

2pts   To make referencing easier later, MATLAB should delete the entire 1st row of the text data.

18pts   Lets the user pick the day they want through the use of a `menu()` function. NOT all days are always reporting data. Don't hardcode 1 to 31! *CAUTION*: `menu()` requires a cell-array of strings, yet all the days are numerical. Follow the directions below and you should be fine!

I recommend the order below, and 1 line per command but it's your choice. You are required to use the functions indicated though, even if you chose another order.

- Slice the days (3pts),
- <u>then</u> use `num2str()` to convert those to strings (3pts),
- <u>then</u> use `cellstr()` to convert those to cells (3pts),
- Make those days `unique()` so the user doesn't see duplicate days (3pts),
- <u>Finally</u> use the `menu()` to let the user click on a day (3pts),
- Extract the actual day selected – could be a `char` or a `double` depending on your variables (3pts).
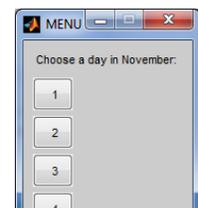
5pts   Determine and slice the columns with the *Precipitation*, *SnowDepth*, *SnowFall*, *Maximum Temperature*, *Minimum Temperature* but only for the rows pertaining to the day selected.

5pts   Determine and slice the *stations* for that day as well. (Leave them as they are. Do NOT make them unique.)

5pts   As a comment, at the BOTTOM of your function, write the line of code that would CALL your function using the actual real file of the A-G states and collect the 2 return values. 5pts HARDCODE the argument. I will copy/paste this to run your function.