UCR Department of Computer Science & Engineering
CS 30 Midterm Test -- May 2010

1. Complete the following table about Matlab variable names by writing ‘Yes’ or ‘No’ to every question applied to every example:

<table>
<thead>
<tr>
<th>Example:</th>
<th>Is a legal variable name?</th>
<th>Is a Pre-defined special variable?</th>
<th>Is a Reserved Word?</th>
</tr>
</thead>
<tbody>
<tr>
<td>water_mellon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pi</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#fishes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>case</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Let M be a two dimensional array of numbers. Write (some) Matlab statement(s) to carry out each of the following tasks. Assume that the size of M is large enough to make each task possible (i.e., M has at least 3 rows and 2 columns):

   a. Swap the values of elements M(1,2) and M(2,1) without changing the rest of M.

   b. Find the number of elements of M with value 0.

   c. Assign the contents of row 3 of M to the variable x.

   d. Double the value of every element in M.

   e. Change the value of the largest element in column 2 to 47.
3. Acme manufacturing uses the following Matlab cell array to store information about the amount of raw materials (in pounds) required to make one unit from its two different products.

   Materials = {'Rubber' 0.25 1.0  
   'Titanium' 0.0 3.0  
   'Wood' 2.0 0.0  
   'Duct Tape' 0.5 5.0}

a. Briefly describe the difference in meaning between Materials(1,1) and Materials{1,1}. Which one allows you to see that the name of the first material is ‘Rubber’?

b. Write a Matlab statement to change the name of the second material from ‘Titanium’ to ‘Cast Iron’.

c. Does the following Matlab statement cause an error? If no, what happens?
   Materials{1,4}=1.25

4. How many copies (and in which order) of ‘Hello’ and ‘World’ are output by the following Matlab code?
   for i = 3:2:7
      'Hello'
      for j = 4:6
         if i < j
            continue
         else
            'Hello World'
            break
         end
      end
   end