Assignment 14:
Due at beginning of class Friday, Dec 2

Prof. Hopcroft

*****Note: this homework is subject to the style guide on the website. Points will be deducted for homeworks not following the guidelines. Please print out and staple the grade sheet to the back of your homework.*****

1. Let $M_1$ and $M_2$ be deterministic finite automata (DFA). Write out the formal definition of a DFA accepting $L(M_1) \cap L(M_2)$.

2. Write a regular expression for a URL link that contains only alphanumeric characters, between dots and slashes. Give brief English statement as to what a link looks like and then your regular expression. Make sure your English and regular expression statements represent the same set of strings. Your expression should accept:
   - http://www.yelp.com
   - http://bbc.co.uk
   But your expression should not accept:
   - www.edu

   Note: you do not need to formulate all possible .edu, .net, etc, just have some reasonable rules, like at most 4 alphabetical letters and 1 (.).

3. Write a regular expression for the set of all strings of 0’s and 1’s that contain at least one 0 and at least 1 one.

4. Write a regular expression for the set of all strings of 0’s and 1’s where the number of 0’s is divisible by three.

5. Write a regular expression for the set of all strings of 0’s and 1’s not containing the substring 010.