ICS 215 Midterm
closed book, closed notes, closed computer, closed cell phone

1. Questions from Quiz Shows (4 pts)

a) Why is it easier to glue components together in a typeless language?
   
   No need to convert types.

b) In Perl, what is the simplest way to read all lines from STDIN?
   
   ```perl
   while (<STDIN>)
   ```

c) In Perl, write a search program fragment to find immediately repeated words such as "the"
   the".
   ```perl
   /\b(\w+)\s+1\b/  
   ```

d) In Perl, what is the easiest way to delete all .tmp files in the current directory?
   
   ```perl
   unlink glob "*.tmp";
   ```

e) What is the correct HTML for making a text input field?
   
   ```html
   <input type="text" />
   ```

f) In JavaScript, what is the scope of a variable?
   
   The entire function surrounding the variable or global if outside any function.

g) In JavaScript, how would you run the function checkSSN() which requires the text value of
   the text type input whenever the user changes the value of the input?
   
   ```javascript
   onchange="checkSSN(this.value);"
   ```

h) How would you define a method of ComplexNum called magnitude that returns the square 
   root of the sum of the squares of the real and imaginary parts?
   ```javascript
   function ComplexNum (real, imaginary) {
     this.realPart = real;
     this.imagPart = imaginary;
   }
   ComplexNum.prototype.magnitude = function() {
     return Math.sqrt(this.realPart*this.realPart +
                      this.imagPart*this.imagPart);
   }
   ```
2. **HTML (2 pts)**
   Write an HTML page with title, "Comments", a form, a text type input for login name, two boxes to choose between Male and Female (should not be able to check both), and a text area 4 rows by 50 cols for comments.

   ```html
   <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN"
   "http://www.w3.org/TR/html4/strict.dtd">
   <html>
     <head>
       <title>Comments</title>
     </head>
     <body>
       <form>
         login name: <input type="text" name="login">  
         <input type="radio" name="gender" value="M"> Male  
         <input type="radio" name="gender" value="F"> Female 
         Comments:  
         <textarea rows="4" cols="50" name="comments"></textarea>
       </form>
   </body>
   </html>
   ```

3. **JavaScript (3 pts)**
   Write a JavaScript function that takes the name of a cookie and returns the value of that cookie (you can assume the cookie exists and has a value).

   ```javascript
   function get_cookie_value(cookie_name) {
     var all_cookies = document.cookie;
     var matches = all_cookies.match("(;|^)" + cookie_name + "=([^;]*)(;|$)");
     if (matches) return matches[2];
   }
   ```
4. **Perl scripting (3 pts)**

Write a Perl subroutine called `print_less_than_10x` that takes an arbitrary number of integer arguments that are in increasing numeric order. The subroutine prints each argument followed by a comma and a space (except after the last one printed) if the argument is less than 10 times the first argument.

```perl
sub print_less_than_10x {
    my $max = $_[0] * 10;
    print shift @_; 
    foreach (@_) {
        last if $_ >= $max;
        print ', ', $_;
    }
}
```

5. **Regular Expressions (3 pts)**

a) (2 pts) In Perl, write a single search pattern to find the last paragraph after a heading (level uncertain) called "Summary" (exact capitalization) in an html document stored in $doc. Assume that there is a heading (level uncertain) right after the last paragraph, there is no extra white space in tags, but do match arbitrary letter case in the tags.

```perl
$doc =~ m%<\[hH\]<\/\[hH\]>Summary</\[hH\]<\/[pP]>.*</\[pP]\><\[hH\]<%s
```

b) (1 pt) In Perl, write a single substitution pattern to replace all "Perl" or "JavaScript" with "PHP", but only when followed by " is great".

```perl
s/(Perl|JavaScript) is great/PHP is great/g
```