CMPSCI 120
Fall 2014
Midterm Exam #1 Solution Key
Friday, October 3, 2014
Professor William T. Verts

<1> 25 Points – Answer the following questions about HTML colors by filling in the open slots of the table (1 point each):

HTML Code	Decimal (Base 10) Values: Red Value	Green Value	Blue Value	Yes or No: Is it Browser Safe?	Is it Gray?	Approximately what visible Color is it? (If named, use the defined name.)
#C0C0C0	192	192	192	NO	YES	Silver
#33FF99	51	255	153	YES	NO	*greenish blue*
#80FD05	128	253	5	NO	NO	*reddish green*
#D3D3D3	211	211	211	NO	YES	LightGray/Grey
#FFEFD5	255	239	213	NO	NO	PapayaWhip

<2> 20 Points – Quick Answers, 1 point each.

Finland	What does it mean when a URL ends in **.fi**?
True	True or False: 802.11b is compatible with 802.11g.
2	How many hexadecimal digits are encoded in a byte?
NO	Yes or no: Is **215.309.151.61** a legal IPv4 address? (309)
IPv6	Is **7.34.4096.113.1280.16.90.255** IPv4 or IPv6?
False	True or False: Indentation is critical to writing correct HTML.
CIDR	What followed classful addressing?
False	True or False: When you download a large file from a server, you have exclusive use of the server until the file is delivered.
E=mc²	Typeset the formula **E=mc**^{2} in HTML.
Class C	Binary IPv4: **11010110.11011011.10011000.00001011** In classful addressing, what class is represented? (1ST 3 bits)
00001011 (eleven)	What is the number of the machine (not the network number) in the previous problem? (last 8 bits)
Star	Which network has every user's machine connecting directly to a centralized computer?
Pareidolia	What is it called when random data (either visual or audible) are perceived to have structure and pattern?
Cache Poisoning	What is it when DNS maps the wrong IP address onto a URL?
3	How many bytes are necessary to describe an HTML RGB color?
Router	What device connects several computers and hides them behind a single IP address?
ñ ñ	How can I encode the symbol **ñ** (n with a tilde) in HTML?
False	True or False: email messages are completely private at all points between sender and recipient.
<DEL>	The **<S>** tag is deprecated. What do you use instead?
Frogs%20Jump.png	In a URL, how do I indicate the file **Frogs Jump.png**?

<3> 10 Points – Short Answer – Describe how a Web crawler or Web spider works. Can spiders find all possible pages on the Web? Why or why not?

(5 points) Starting with a base set of pages, all URLs (addresses) are extracted from those pages and then followed to get a new set of pages. The process repeats indefinitely.

(1 point) No.

(4 points) Some pages are dynamically generated, some are behind passwords, and some have no links to them from the outside.

<4> 10 Points – Find and correct all the syntax errors in the following HTML code (there may be more than 10): (I count 16. +1 point for each extra found; -1 for each thing incorrectly identified as an error.)

```
<HTML>
    <HEAD>
        <TITLE>My Wonderful Web Page</TITLE>
    </HEAD>

    <BODY BACKGROUNDCOLORBGCOLOR="#FF00FF">
        <⁄CENTER>                delete slash on opening tag
            <H1>Welcome!</H2>    tags don't match; make both H1 or both H2.
        </CENTER>

        This is my Web page, and I hope that
        you <B><I>really</B></I></I></B> like it!  Here is
        one of my favorite links:

        <A HERFHREF="http://www.cnn.com/">
            <IMG SCRSRC="News.jpg"
                 WIDTH="320"
                 TITLE="Click me for the News">
        </A>

        <H6>Copyright &copy; 2014 William T. Verts</H8H6>
      </BODY>
    </HTML>
```

<5> 20 Points – Consider the following fragment of a Web page:

```
<BODY BGCOLOR="#F00FF0">
    <CENTER>
        <FONT FACE="Arial" COLOR="Fuchsia">
            <H2>Welcome!</H2>
        </FONT>
    </CENTER>

    <CENTER>
        <FONT FACE="Arial" COLOR="Fuchsia">
            <H2>Introduction</H2>
        </FONT>
    </CENTER>

    …
```

Rewrite the code and fill in the blank to use styles instead of HTML attributes:

```
<HEAD>
    <STYLE TYPE="text/css">

        H2 {text-align:center;        can be in any order
            font-family:'Arial';
            color:fuchsia}

        BODY {background-color:#F00FF0}

    </STYLE>
</HEAD>

<BODY>

    <H2>Welcome!</H2>

    <H2>Introduction</H2>
…
```

<6> 15 Points – Short Answer – A network of computers are hooked together using Ethernet. Two computers need to send a message. Both wait until they hear that the wire is quiet and then both start talking simultaneously. Describe as completely as possible what happens next. Use the back of the page.

Both start talking, both hear something different from what they are saying and conclude a collision has occurred, both stop talking, both wait a random (probably different) amount of time, and then both restart process of waiting until the wire is quiet before attempting to talk again.