

OLLSCOIL NA hÉIREANN
THE NATIONAL UNIVERSITY OF IRELAND
COLÁISTE NA HOLLSCOILE, CORCAIGH
UNIVERSITY COLLEGE CORK

AUTUMN EXAMINATIONS 2001

Higher Diploma in Applied Science (Software Engineering)

Computer Science
CS607 - Internet & WWW Programming

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Answer any 3 Questions

One and a Half Hours

- 1 (a) What is meant by *one-factor*, *two-factor* and *three-factor* security systems? Give an example of each.
- (b) Describe the following hazards to password protected systems.
- (i) Password Grabbers
 - (ii) Brute Force Attack
 - (iii) Dictionary Attack

In the case of (ii) and (iii) above, explain how a password can be selected to minimise the risk.

- (c) Describe 3 of the methods used to detect virus infections.
- (d) Describe the function of a virus with respect to cloning, triggers and payloads. Give an example of a trigger and a payload.
- (e) For each of the methods in (d), describe the ways in which viruses have counteracted those measures.

2. (a) Describe the following with regard to security in electronic commerce:
- (i) Digital Signatures
 - (ii) Secure Envelopes
 - (iii) Certification Authorities
- (b) The Secure Sockets Layer (SSL) Protocol is an integral part of electronic commerce transactions. Describe the steps involved in the SSL handshaking protocol.
- (c) Describe the following network topologies with the aid of diagrams
- (i) Bus
 - (ii) Ring
 - (iii) Star

Discuss each in terms of *Reliability*

- 3 (a) Which, if any, of the following URLs are valid? In the case of those that are not, explain why.
- (i) ftp://123.238.66.1/file.zip
 - (ii) file://123.234.23.45
 - (iii) http://one.two.three.four.five.six.com/products/page1.html
 - (iv) http://122.653.11.67/page.html
 - (v) html://www.supersite.com

- (b) Describe the *Domain Name System (DNS)*. In your discussion describe the three constituent parts of the DNS. Discuss the difference between *iterative* and *recursive* lookups and suggest an advantage of recursive lookups.

What is the difference between an *IP address* and a *Domain Name*? What are the advantages that a Domain Name has over an IP address.

- 4 (a) Give the HTML required to render this table on a web page. All text is centred vertically and horizontally. Assume a *cellpadding* of 25 pixels.

| | | |
|---|---|---|
| 1 | | |
| 5 | 2 | |
| | 3 | 4 |
| | 6 | 7 |

- (b) Consider the following HTML 4.0 code which uses Cascading Style Sheet (CSS).

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

<!--

P      {color: red;
        font-size: 80%;
        margin-left: 20 }

.larger {font-size: 150%}

.indented {margin-left: 40}

.green {color:green}

H1,H2 {color: blue}

BODY {background: white}

-->

</STYLE>

</HEAD>

<BODY>

</STYLE>

</HEAD>
```

```

<BODY>

<H1>CS607 Autumn Exam 2001(This heading is in Blue)</H1>

<P class = green>This is the first paragraph. It is in a small
font, green and indented by 20 pixels.</P>

<H2>A smaller heading, also Blue</H2>

<P class = larger>This paragraph is different from the others in
that the text is larger than normal. It is also in Red and
indented.</P>

<P>This is a standard paragraph (in a small font, in Red, and
indented by 20 pixels) </P>

<P class = indented> And this is another red paragraph, indented
by a further 20 pixels (40 in total).</P>

</body>

```

Re-write the above in HTML 4.0 without using cascading style sheets (CSS).
Tables may be used for formatting purposes.

- (c) Explain in detail the function of the following HTML.

```

<form method=post action="http://atlantis.ucc.ie/cgi-bin/access.pl>

<input type = text name = string value = "type here" length = 20>

<input type = password name = pass size = 5 maxlength = 4>

<input type = submit value = "press me">

<input type = reset value = "clear form">

</form>

```