THE UNIVERSITY OF AUCKLAND

SUMMER SEMESTER, 2010
COMPUTER SCIENCE
Mastering Cyberspace:
An Introduction to Practical Computing

TEST
(Time allowed: 60 MINUTES)

Surname:	
Forenames:	
Student ID number:	
Login name (UPI):	

INSTRUCTIONS:

- Attempt **ALL** questions - write your answers in the box provided
- Calculators are **NOT** permitted

Question	Mark
Digital, Hardware, Software	(/25)
Internet	(/30)
XHTML and CSS	(/25)
Presentation	(/10)
Applications	(/10)

TOTAL:

(/100)

Digital Information, Hardware and Software (25 marks)

1. Representing information:

(i) How many different numbers can be represented by 4 bits?

$2^4 = 16$

(2 marks)

(ii) What decimal number is equivalent to the binary number 1010?

$1x2^3 + 0x2^2 + 1x2^1 + 0x2^0 = 8 + 2 = 10$

(2 marks)

(iii) What is the binary value of the decimal number 12?

1100

(2 marks)

2. List three differences between primary and secondary storage.

1) Primary storage is faster to access

2) Primary storage is more expensive

3) Primary storage is volatile – its contents are lost when the power is switched off

Also accept: Primary storage stores less information

(3 marks)

3. Give one example of primary storage.

RAM

(1 mark)

4. Give one example of secondary storage.

Hard drive

(1 mark)

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5. Give **two** examples of output devices.

1) Monitor

2) Printer

(2 marks)

6. What is the unit of measurement for clock speed?

Hz

Half marks: operations per second

(2 marks)

7. List **two** differences between open standards and proprietary standards.

1) Proprietary standards require a licence to be used. This may not be free.

2) The business that owns a proprietary standard may change it at any time, so there is a risk of vendor lock-in.

(2 marks)

8. Give **one advantage** and **one disadvantage** of using a command line interface (CLI) rather than using a GUI.

Advantage: Complex commands can be carried out more easily

Disadvantage: Commands are not discoverable – you have to know them in advance.

(4 marks)

9. Give **two** examples of application software, and **two** examples of system software.

Application software

1) Email client, e.g. Outlook
2) Drawing program, e.g. Inkscape

System software

1) Operating system, e.g. Windows 3.1
2) Device driver, e.g. printer driver

(4 marks)

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Internet (30 marks)

10. What is the purpose of a router?

> To connect multiple computers to a network.
>
> Also accept: To forward packets so as to connect two or more networks.

(2 marks)

11. What is the difference between a *domain name* and an *IP address*?

> A domain name is a human readable name for an IP address.

(2 marks)

12. Give one example of a domain name.

> www.cs.auckland.ac.nz

(2 marks)

13. Give one example of an IP address.

> 123.4.56.7

(2 marks)

14. Put the following historical events into chronological order (i.e. arrange the events in order with the earlier events listed before later events).

   (a) WWW created
   (b) First email sent across a network
   (c) Creation of the Advanced Research Agency Network (ARPANET)
   (d) First wiki created

> 1) (*earliest*) ARPANET
>
> 2) First email *over a network*
>
> 3) WWW
>
> 4) (*latest*) Wiki

(4 marks)

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15. What is USENET?

A huge collection of forums

(2 marks)

16. What advantage did ARPANET have over the traditional telephone exchange system?

ARPANET was decentralised so if any node in the network was destroyed, the system could still operate.

(2 marks)

17. Which is larger, the Internet or the World Wide Web?

Internet

(2 marks)

18. State two differences between the POP3 and IMAP protocols.

1) POP3 downloads all new emails, which can then be read offline. IMAP requires an Internet connection as it retreives email headers and content interactively.

2) POP3 typically deletes emails from the server after reading, IMAP retains emails on the server.

(4 marks)

19. Name two search engines.

1) Searchalot

2) Altavista

(2 marks)

20. What is the term used to describe "good manners on the Internet"?

Netiquette

(2 marks)

21. What is *phishing*?

Attempting to extract private information such as credit card details, or bank passwords, by masquerading as a trust-worthy entity. This usually involves emails and fake websites.

(2 marks)

22. Give one example of an *asynchronous* system of communication and one example of a *synchronous* system.
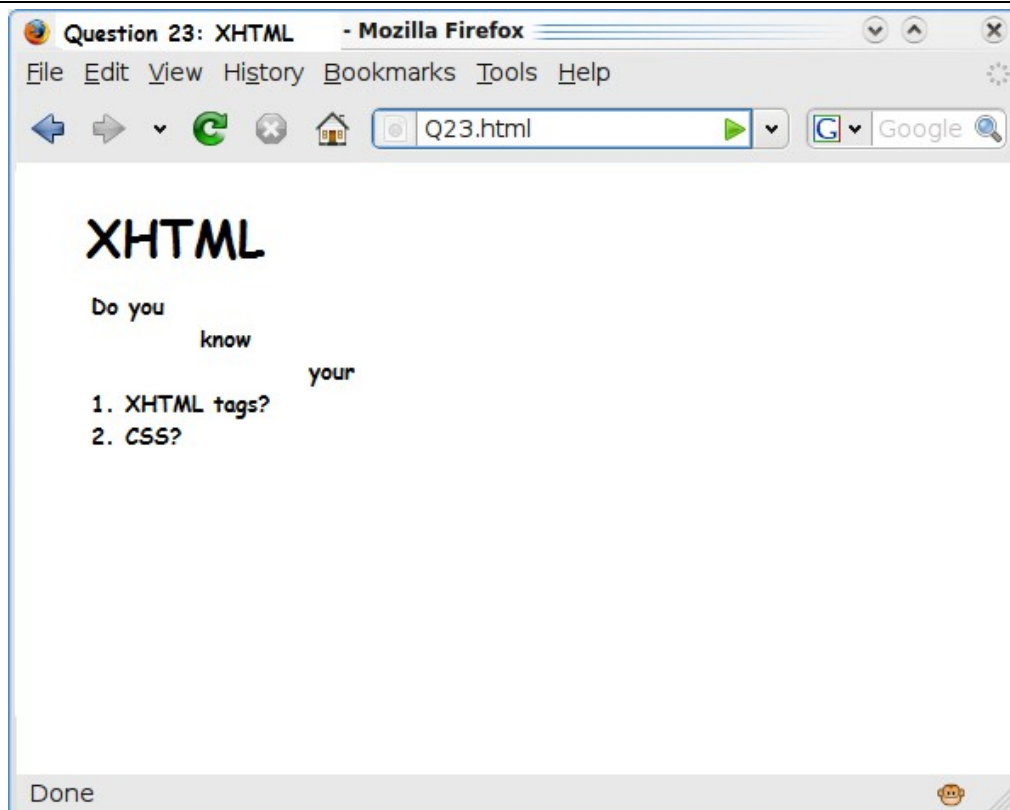
Asynchronous: Email

Synchronous: Telephone

(2 marks)

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XHTML and CSS (25 marks)

23. Given the following XHTML source, complete the expected output of a web browser in the screen-shot shown below.

```
<?xml version="1.0" encoding="utf-8">
<!DOCTYPE html PUBLIC
"-//W3C//DTD XHTML 1.0 Strict//EN"
http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd>

<html>
<head>
    <title>Question 23: XHTML</title>
</head>
<body>
    <h1>XHTML</h1>
    <p>
        Do
            you
    </p>
    <pre>
        know
            your
    </pre>
    <ol>
        <li>XHTML tags?</li>
        <li>CSS?</li>
    </ol>
</body>
</html>
```

Question 23: XHTML   - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Q23.html   G ▾ Google

XHTML

Do you
            know
                your
1. XHTML tags?
2. CSS?

Done

(6 marks)

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24. In the following piece of XHTML 1.0 strict code, circle each error and write the correction in the line immediately underneath the error.

```
<body>

<h1>Test Question 24</h2>
                        </h1>
<p>

This <b> very <i> important text </b></i> is part of a paragraph.
                                </i></b>
</p>

<br />
<p>       (there has to be a start paragraph somewhere)
But this unimportant text is not.

</br>
<br /></p>        (the br tag is wrong, and there has to be an end paragraph somewhere)
<body>
```

(5 marks)

25. Suppose the file at URL `http://www.example.com/index.html` needs to contain a hyperlink to a file `http://www.example.com/test/link.html`.

Complete the XHTML code for this link as a **fully specified URL**, and as a **relative URL**.

```
Fully Specified URL:
<a href=" http://www.example.com/test/link.html              "> </a>

Relative URL:
<a href=" test/link.html                                      "> </a>
```

(4 marks)

26. Associate each of the following three descriptors with the correct segment of the given style rule.

Descriptors: Selector, Property, Value
Style Rule: h1 { color:blue; }

```
Selector:h1

Property:color

Value:blue
```

(3 marks)

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27. Define an XHTML CSS style rule that makes **all** paragraphs red and aligned to the right.

```
p {
     color:red;
     text-align:right;
}
```

(3 marks)

28. Suppose we have the style rules:

```
.bright {color:red;}
#heavy {font-weight:bold;}
```

Use these rules to complete the XHTML code making the first line red, and the second line bold.

```
<p  class="bright"                    >First line</p>


<p  id="heavy"                        >Second line</p>
```

(4 marks)

Presentation (10 marks)

29. List **four** mistakes that can be made in the design of a PowerPoint slide.

1) A dark font on a background with dark areas

2) Too much animation

3) Over-use of clipart for images

4) Too many bullet points on a slide

(4 marks)

30. What is a *master slide*?

A template for a presentation's layout/design that can be applied to every slide.

(2 marks)

31. Why should text in a web page not be underlined?

Because underlining is used to indicate hyperlinks between web pages.

(2 marks)

32. What is the three-click rule?

On a web site, any page should be reachable from any other page using three clicks or fewer of the mouse.

(2 marks)

Applications (10 marks)

33. For each of the following, state which compression algorithm (JPEG, SVG, PNG, GIF) would be the most appropriate:

```
1) Photos: JPEG

2) Graphics with more than 256 colours: png

3) Simple geometric shapes: svg
```

(3 marks)

34. How many **bytes** are required for a 4 colour image 40 pixels wide and 10 pixels high? Show **all** your working.

4 colours = 2 bits per pixel
40 x 10 = 400 pixels
Total bits = 400 x 2 = 800
Total bytes = bits/8
           = 800/8
           = 100 bytes

(3 marks)

35. What is the difference between a *text editor* and a *word processor*?

A text editor only edits plain text (ASCII, Unicode). A word processor can also edit style and layout, such as bold and italic text, page margins etc.

(2 marks)

36. Give **two** advantages of using user defined styles in a word processing application like Microsoft Word.

1) Ensures consistency throughout a document

2) A user can easily modify the style of many elements at once

ID Number ....

(2 marks)

OVERFLOW PAGE
(If you have used this page, please indicate clearly under the
relevant question that you have overflowed to this page)

ID Number ....

OVERFLOW PAGE
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relevant question that you have overflowed to this page)

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OVERFLOW PAGE
(If you have used this page, please indicate clearly under the
relevant question that you have overflowed to this page)

ID Number ....

ROUGH WORKING
(You may detach this sheet from the test script and use it for working.
This sheet will not be marked)

ID Number ....

ROUGH WORKING

(You may detach this sheet from the test script and use it for working.
This sheet will not be marked)