

THE UNIVERSITY OF AUCKLAND

SUMMER SEMESTER, 2013

Campus: City

Computer Science

Mastering Cyberspace: An Introduction to Practical Computing

TERMS TEST

(Time Allowed: ONE hour)

- NOTE:
- Calculators are **not** permitted
 - There is space at the back for answers that overflow the allotted space.

Surname	Sample
Forenames	Solutions
Student ID	
Login (UPI)	

	Question	Mark	Out Of
1 - 8	Digital, Hardware, Software		25
9 - 18	Internet		25
19 - 21	XHTML and CSS		25
22 - 27	Applications and Graphics		15
28 - 32	Presentation		10
	TOTAL		100

Digital Information, Hardware and Software (25 marks)

1. Why are numbers on a computer represented in the binary number system?

The binary system's two digits (0 and 1) are simple to create physically: electrical current on (1) or off (0).

(2 marks)

2. Storing information:

(a) How many digits are required to represent the binary number 11101 in the decimal number system?

2
(11101 in binary is equivalent to 29 in the decimal number system)

(2 marks)

(b) What decimal number is equivalent to the binary number 100101?

$32 + 4 + 1$
 $= \underline{37}$

(2 marks)

(c) What binary number is equivalent to the decimal number 66?

1000010

(2 marks)

3. What RAID level is best used to **increase speed**?

RAID 0

(2 marks)

4. Name **three** standard slots which are used for expansion cards to plug into the Motherboard.

**ISA, PCI
AGP, PCI-Express
Half marks were given for using layman's terms eg. "sound card slot"
instead of the correct "PCI"**

(3 marks)

5. What is an expansion card and what is its purpose? Name one example of an expansion card.

**An expansion card provides additional functionality.
Examples are sound card, graphics card, video card, etc.**

(3 marks)

6. Is the statement "Software is loaded from primary memory into secondary storage before it is executed" correct? Briefly explain your answer.

No, it is not correct. Software is loaded from secondary storage into primary memory before it is executed.

(3 marks)

7. What does the file format define and how does the Windows Operating System identify the format of a file?

**The file format defines the way the *data/numbers in a file are interpreted*.
Windows identifies the format of the file by its file extension (the characters after the last dot in the filename).**

(3 marks)

8. What is proprietary software? Can freeware be proprietary software?

**Proprietary software is software that has restrictions on using and copying. All rights are retained by the owner.
Yes, freeware can be proprietary software (e.g. Internet Explorer, Adobe Reader).**

(3 marks)

Internet (25 marks)

9. Name **one** type of data that a centralized network is better at transporting than a modern decentralized network.

Real-time data (e.g. voice).

(2 marks)

10. List **three** sets of rules and/or procedures that internet protocols include.

- 1) **Initiating and maintaining communication**
- 2) **Sending and receiving data**
- 3) **Terminating communication**

(3 marks)

11. Name **two** common internet protocols and state what each of these protocols is used for.

TCP/IP - used for transporting data reliably
HTTP - used for web pages
UDP - used for transporting data (unreliably but faster than TCP/IP)
FTP - used for transferring files
POP3/IMAP/SMTP - used for email

(3 marks)

12. What does TCP stand for and what does it do?

TCP stands for Transmission Control Protocol.
TCP takes care of reliable package transport. It:

- **Divides the message into packets.**
- **Checks that all packets arrive.**
- **Makes sure that the packets are not sent faster than they can be received.**
- **Combines packets to re-form message.**

(4 marks)

13. Approximately how long does it normally take to transport an email from the sender's account to the recipient?

It normally takes just a few seconds.

(2 marks)

14. When addressing an email, what are “Cc” and “Bcc” used for?

Cc (Carbon copy) and Bcc (Blind carbon copy) are both used to send a copy of an email to someone other than the main recipient. The difference between Cc and Bcc is that no one can see the recipient(s) listed in the Bcc field whereas everyone can see the recipient(s) listed in the Cc field.

(2 marks)

15. In a chat system how do the clients know which of your contacts are online?

Client tells the server that you are online. Client gives the server a list of your contacts. The server stores your IP address and contacts list. The server then sends the IP address of all your contacts that are currently online.

(2 marks)

16. What are web agents?

Web agents are computer programs that operate on your behalf. They track all your browsing habits and make suggestions based on what you have read.

(2 marks)

17. What is a Firewall?

A firewall is a program that prevents unauthorized access to or from a private network.

(2 marks)

18. When using Wikimark to design a wiki page, what characters are used to identify a **heading**, to **emphasise** text and to insert a **link to the author**?

Heading: = (equals sign)

Emphasis: " (Quotation mark)


Link to the author: ~ (Tilde sign)

(3 marks)

XHTML and CSS (25 marks)

19. The following screenshot shows a web page created using XHTML 1.0 Strict and CSS. Complete the source code on the following page that would result in the web page shown below. You **must** use the style rules provided in the internal style sheet and **must not** add any new styles.

The image is stored in a file called “**skytower.jpg**” in the same folder as your web page. You must also provide an alternative description for the image in case it cannot be displayed. The destination for the link is “**[http://en.wikipedia.org/wiki/Sky_Tower_\(Auckland\)](http://en.wikipedia.org/wiki/Sky_Tower_(Auckland))**”.



The screenshot shows a web browser window with a single tab titled "Sky Tower". The browser's address bar is empty, and the page content is centered. The main heading is "Sky Tower" in a large, bold, black serif font. Below the heading is a vertical image of the Sky Tower at night, illuminated with blue lights. Underneath the image, the text "A few facts about the Sky Tower:" is followed by a bulleted list with two items: "Location: Auckland, New Zealand" and "Height: 328 metres". At the bottom of the page, the text "For more information click [here.](#)" is displayed, with "here." being a blue, underlined link.

```

<?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 xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">
  <head>
    <title>Sky Tower</title>
    <style type="text/css">
      .text {text-align:center;}
      #italic {font-style:italic;}
      .blue{color:blue;}
      .boldtext{font-weight:bold;}
    </style>
  </head>
  <body>

    <h1 class = "text">Sky Tower</h1>
    <p>
      </img>
    </p>
    <p>
      A few facts about the Sky Tower:
    </p>
    <ul>
      <li><span class="boldtext">Location:</span>
        Auckland, New Zealand
      </li>
      <li><span class="boldtext">Height:</span>
        328 metres
      </li>
    </ul>
    <p id="italic">
      For more information click
      <a href="http://en.wikipedia.org/wiki/Sky_Tower_(Auckland)">here
      </a>.
    </p>

  </body>
</html>

```

(12 marks)

20. In the following piece of XHTML 1.0 Strict code, circle each error and write a correction in the line immediately beneath the error.

```
<?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 xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">
<heading>
<head>

<title>What is incorrect?</title>

<style type="text/cts">
    .writing {text-align:center;}
</style>
</heading>
</head>

<body>
<h0>Find the errors</h0>
<h1>
<b id="writing">How many errors can you find?</b>
<p class
</body>
<html>
</html>
```

(7 marks)

21. Using XHTML 1.0 Strict code, insert the correct code into the space below so that the following table is displayed:

Sat	Sun	Mon
Fine	Cloudy	Wet

```
<?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 xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">
  <head>
    <title>Table</title>
  </head>
  <body>
    <table border="2px">
      <tr>
        <td>Sat</td>
        <td>Sun</td>
        <td>Mon</td>
      </tr>
      <tr>
        <td>Fine</td>
        <td>Cloudy</td>
        <td>Wet</td>
      </tr>
    </table>
  </body>
</html>
```

(6 marks)

Applications and Graphics (15 marks)

22. What does ASCII stand for? What is ASCII?

ASCII stands for American Standard Code for Information Interchange.

ASCII is a code used to represent English characters as numbers.

(4 marks)

23. How many **bytes** are required for a 16 colour image 15 pixels wide and 30 pixels high?
Show **all** your working.

**Number of pixels = 15×30
= 450 pixels**

16 colours needs 4 bits per pixel ($2^4 = 16$)

**Therefore total number of bits required = 450×4
= 1800 bits**

**There are 8 bits in a byte, so number of bytes = $1800 / 8$
= 225 bytes**

(3 marks)

24. In a digital image what does the image resolution represent?

The number of dots.

(2 marks)

25. When an image is displayed on an output device, which device has a higher resolution: printer or screen?

Printer

(2 marks)

26. How many bits are required for each pixel in a black and white bitmap image?

One

(2 marks)

27. What is the name of the application that was taught in the lectures and labs, that is used to maintain a database of references and can be used to add citations to documents?

EndNote

(2 marks)

Presentation (PowerPoint and Web) (10 marks)

28. State a potential benefit and a potential problem of showing one point at a time in a presentation.

Benefit:

Helps audience concentrate on what you are saying
Prevents audience from reading ahead
Helps you keep your presentation focused

Problem:

Limits the audience
Can be annoying
You can't see what's next

(2 marks)

29. You would like to inform your audience about the rainfall in Auckland in each month of the year. Should you use a graph, table, or text? Briefly explain why.

A graph.
Data in graphs is easier to comprehend and retain than raw data. Trends are easier to visualize in graph form.

(2 marks)

30. List two elements of a PowerPoint presentation affected by the design theme.

Background
Colour scheme
Font style
Size and location of content boxes

(2 marks)

31. What is the difference between a web page and a web site?

A web page is a single page viewable using a web browser.
A web site is a set of web pages which are:
related, sharing a theme or topic, all linked together into a structure
Preferably: by one creator (person / organisation) / sharing a domain name

(2 marks)

32. Give advice on two things to **avoid** when designing a **website**. Choose things which **would not** apply to designing a PowerPoint presentation.

Avoid making the page cluttered. Keep the design simple.
Avoid using Frames. They make navigation more difficult.
Avoid using Flash animations. Not all browsers support Flash. Takes too long to download and cannot be indexed/searched.

(2 marks)