THE UNIVERSITY OF AUCKLAND

FIRST SEMESTER, 2008
Campus: City

COMPUTER SCIENCE

Mastering Cyberspace: An Introduction to Practical Computing

(Time Allowed: TWO hours)

NOTE: You must answer **all** questions in this exam.
No calculators are permitted
Answer Section A (Multiple choice questions) on the Teleform answer sheet provided.
Answer Section B in the space provided in this booklet.
There is space at the back for answers that overflow the allotted space.

Surname	**Sample**
Forenames	**Answers**
Student ID	
Login (UPI)	

	Question	Mark	Out Of
1 - 40	Multiple Choice Questions		50
41	Acronyms		10
42	Spreadsheets		10
43	XHTML and CSS		10
44	Programming using Python		10
45	LaTeX		10
TOTAL			**100**

ID..…….

SECTION A

MULTIPLE CHOICE QUESTIONS

Each question in this section is worth 1.25 marks. There is only **one** correct answer for each question. Select your preferred alternative on the Teleform answer sheet provided by shading in the appropriate box.

1. What is the difference between analog and digital signals?

   (a). Analog signals are more limited in nature, but digital signals are more accurate

   (b). Analog signals are continuous, but digital signals are discrete

   (c). Analog signals use dials, but digital signals use switches

   (d). Analog signals are signals generated by people, but digital signals are generated by computers.

   (e). Analog signals are continuously changing, but digital signals do not change

2. What binary number is represented by the decimal number 19?

   (a). 1 0010

   (b). 1 0001

   (c). 1 0100

   (d). 1 0011

   (e). 1 1001

3. Which of following lists show the prefixes in increasing order of magnitude?

   (a). kibi, mebi, kilo, mega

   (b). kilo, kibi, mega, mebi

   (c). kibi, kilo, mebi, mega

   (d). kilo, mega, kibi, mebi

   (e). kibi, kilo, mega, mebi

4. Assume that we can buy a 3 GHz computer for $1000 now. According to Moore's Law, how fast would we expect a computer costing $1000 to be in 3 years time?

(a). 3 GHz

(b). 12 GHz

(c). 4 GHz

(d). 6 GHz

(e). 9 GHz

5. Which of the following statements about memory is **false**?

(a). Primary memory is faster to access than secondary memory

(b). Primary memory is persistent but secondary memory is not persistent

(c). Primary memory is more expensive per MB than secondary memory

(d). Primary memory is volatile but secondary memory is not volatile

(e). Primary memory is used for short-term storage but secondary memory is used for long-term storage

6. Which one of the following devices is categorized as an output device?

(a). Mouse

(b). Motherboard

(c). Microphone

(d). Modem

(e). Monitor

7. Imagine that you write a program and you show it to some other people. Later you find out that one of these people has written a program that does the same thing that your program does. Which of the following statements is **correct**?

(a). Copyright law prevents people copying published works, but the software was not published so it doesn't apply in this case

(b). Copyright does not apply to software, so the person can sell their program legally

(c). They did not copy the actual text, only the idea, so copyright law does not apply

(d). Since you showed the person the software they are legally allowed to copy it, as long as they don't sell it for profit

(e). Copyright law prevents the person from copying your idea, so their program is illegal

8. Which of the following statements about software licences is **false**?

(a). The owner of proprietary software retains all the rights to their software and restricts the use of that software

(b). Open source software is also known as free software

(c). Some software is free, but not open source

(d). Some proprietary software is open source

(e). Proprietary software can be freeware, shareware or commercial software

9. Which of the following is an example of a client-server system?

(a). A word processor accessing a document on the OS

(b). A web browser accessing a web page

(c). A person opening a file using the OS

(d). A person using a word processor

(e). A person using an ISP

10. Which of the following statements about protocols is **false**?

(a). There are many different protocols used on the Internet

(b). TCP is an example of a protocol used on the Internet

(c). A file format is an example of a protocol used on an OS

(d). A protocol includes a set of rules and procedures for initiating, maintaining and terminating communication

(e). A protocol is a standard method of communicating

11. What does a DNS do?

(a). Tells you whether a web page exists or not

(b). Prevents IP addresses being used to access your network

(c). Converts domain names into IP addresses

(d). Prevents unauthorized access to your network

(e). Converts IP addresses into domain names

12. What is a blog?

(a). A website containing an archive of files that are arranged in chronological order

(b). A series of posts written by many different people and organised into threads

(c). A website that contains opinions written by an individual

(d). A website where a series of posts are listed in chronological order

(e). A website that multiple people contribute to in order to collaborate effectively

13. Who created the WWW?

(a). Vannevar Bush

(b). Doug Engelbart

(c). Tim Berners-Lee

(d). Ted Nelson

(e). J.C.R. Licklider

14. Arrange the following events into chronological order (from earliest to most recent).

(a). The WWW project started
Internet Explorer was released
The first "browser wars" occurred
Firefox was released

(b). The WWW project started
The first "browser wars" occurred
Firefox was released
Internet Explorer was released

(c). Firefox was released
Internet Explorer was released
The first "browser wars" occurred
The WWW project started

(d). The WWW project started
The first "browser wars" occurred
Internet Explorer was released
Firefox was released

(e). The first "browser wars" occurred
The WWW project started
Firefox was released
Internet Explorer was released

15. Which of the following statements about HTTP is **false**?

(a). HTTP is used between clients and servers

(b). Not all computers that use TCP/IP also use HTTP

(c). HTTP is a protocol used to transfer web documents

(d). HTTP often appears as part of a URL

(e). HTTP stands for Hypertext Transmission Transport Protocol

16. Which one of the following statements about the WWW is **false**?

(a). An ISP usually keeps a log of the web pages that are requested by a user

(b). A cache is used to filter out unacceptable web sites

(c). A proxy is a computer that intercepts and processes requests for web pages

(d). A DNS is used to find the IP address for a web site requested by a browser

(e). A web browser keeps a history of all the pages that it has visited

17. What is postscript?

(a). A language used to control laser printers

(b). An extension of ASCII that uses 16 bit codes

(c). A method of attaching files to email

(d). A way of distinguishing between surface and structural markup in a word processor

(e). A scripting language used for email messages

18. How much memory is required to store an image that uses 256 colours and is 10 pixels high and 10 pixels long?

(a). 256 bits

(b). 100 bytes

(c). 800 bytes

(d). 25,600 bits

(e). 3,200 bits

19. Which method of storing an image would be best for a logo created from simple geometric shapes?

(a). Uncompressed bitmap

(b). JPEG

(c). PNG

(d). SVG

(e). GIF

20. Why did IBM think that other companies wouldn't copy their PC?

(a). Other companies would have to buy the parts from IBM

(b). IBM could make the PC cheaper than their competitors

(c). The software would only run on the IBM PC, not a copy

(d). Apple was a small company and IBM was a big company

(e). Intel would only sell the CPU to IBM, not to other companies

21. Arrange the following events into chronological order (from earliest to most recent).

(a). IBM PC released
Windows 3.1 released
Intel formed
Apple formed

(b). Intel formed
Apple formed
IBM PC released
Windows 3.1 released

(c). Apple formed
Intel formed
IBM PC released
Windows 3.1 released

(d). Windows 3.1 released
Intel formed
Apple formed
IBM PC released

(e). Apple formed
IBM PC released
Windows 3.1 released
Intel formed

22. Searle created a thought experiment where he sat in a room and was passed messages written in Chinese. He would look up the symbols in a book and write down the corresponding symbols as a reply. To an outside observer it would appear that he understood Chinese. Searle used this thought experiment to illustrate that computers were not intelligent. What was his main point?

(a). Humans can understand Chinese symbols but computers can't.

(b). Computers just manipulate symbols without understanding them.

(c). The replies were used to determine if Searle was a human or a computer.

(d). Searle was intelligent because he understood the symbols.

(e). Manipulating symbols requires intelligence.

23. Which of the following statements about blocking software is **false**?

(a). A white list can be used to prevent access to every site that is not on the list.

(b). A black list can be used to prevent access to every site that is on the list.

(c). A white list prevents access to a number of web sites that are harmless.

(d). A black list allows access to a number of web sites that are harmful.

(e). A black list prevents access to a number of web sites that are harmless.

24. Which of the following statements about email is **true**?

(a). The signature of an email message can easily be faked but the return address will always be accurate.

(b). Everyone listed in the CC field will get a copy of the message, but they will not know who the main recipient was.

(c). Everyone listed in the BCC field will get a copy of the message, but they will not know who sent the message.

(d). SMTP is a protocol used to send mail from the client to the mail server.

(e). Email is a real-time, synchronous communication system.

25. Which one of the following statements is **false**?

(a). A field is a single piece of data

(b). A record is a collection of fields

(c). A table is a collection of records

(d). A field is a collection of records

(e). A file is a collection of records

26. Which one of the following statements is **false**?

(a). Two records in a table can have the same foreign key

(b). A primary key cannot be null

(c). Two records in a table cannot have the same primary key

(d). A foreign key can be null

(e). A foreign key is a field in a table that is related to the foreign key in another table

27. What do SQL, QBE and DBMS stand for?

(a). Structured Query Language, Query by Example and Database Management System

(b). System Query Language, Query by Example and Database Management System

(c). System Query Language, Query by Execution and Database Management Structure

(d). Structured Query Language, Query by Example and Database Management Structure

(e). Structured Query Language, Query by Execution and Database Management System

28. Which one of the following **does not** belong to SQL keywords?

(a). SELECT

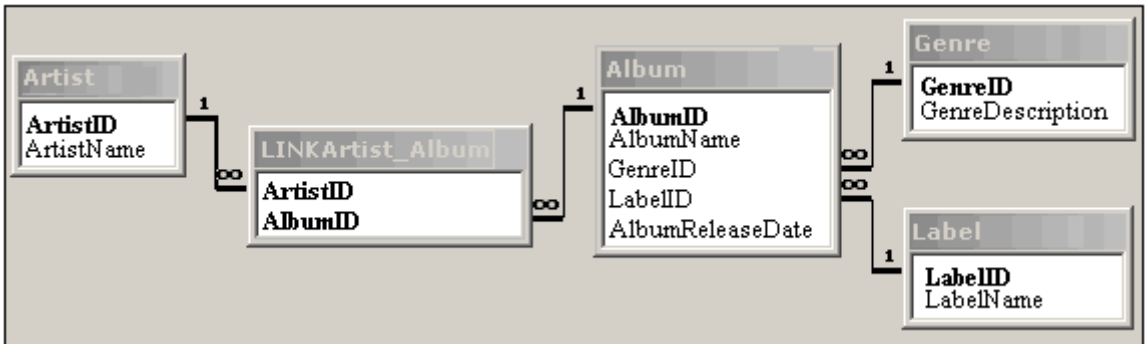
(b). FROM

(c). TO

(d). GROUP BY

(e). WHERE

The following diagram is used by questions 29 and 30:



29. What is the relationship between the ***Artist*** table and the ***LINKArtist_Album*** table; the ***Album*** table and the ***Genre*** table?

(a). One-to-One, One-to-Many

(b). One-to-Many, Many-To-Many

(c). One-to-Many, Many-To-One

(d). Many-to-One, One-To-One

(e). Many-To-Many, Many-To-One

30. Given the relationship diagram shown above, what is the SQL command that will produce a list of Album Name, Album Release Date and LabelID that have a LabelID equal to SONY001?

(a). SELECT AlbumName, AlbumReleaseDate, LabelName from Album
WHERE LabelID = "SONY001"

(b). SELECT AlbumName, AlbumReleaseDate, LabelID from Label
WHERE LabelID = "SONY001"

(c). SELECT AlbumName, AlbumReleaseDate, LabelID from Album
WHERE LabelID = "SONY001"

(d). SELECT AlbumName, AlbumReleaseDate, LabelID from Album
WHERE LabelID = SONY001

(e). SELECT AlbumName, AlbumReleaseDate, LabelID from Label
WHERE LabelID = SONY001

31. Which of the following statements about queries is **false**?

(a). Select query does not change the data. It is a view of data already contained in the database

(b). SQL is case insensitive. It only matters when comparing values in a textual field of the database

(c). Append query adds records to an already created table. It adds data permanently to the database.

(d). In a SQL command, a field name with spaces must be inside curly braces.

(e). Different DBMS use different methods to query

32. We **can** use Access to:

(a). Check E-mail

(b). Run Python Code

(c). Build LaTeX Source Files

(d). Generate SQL

(e). Sync with Google Calendar

33. When was PowerPoint first released?

(a). 2003

(b). 2000

(c). 1996

(d). 1990

(e). 1987

34. What is PowerPoint's interface analogous or similar to?

(a). A movie

(b). A flip chart

(c). An overhead transparency slide

(d). A page

(e). A book

35. In which of PowerPoint's View options do you normally create and edit slide content?

(a). Slide Show View

(b). Normal View

(c). Chart View

(d). Print Preview

(e). Slide Sorter View

36. As a general guide, how many slides should your PowerPoint presentation have per minute of the presentation?

(a). Half a slide per minute

(b). 1 - 2 slides per minute

(c). 2 - 5 slides per minute

(d). 5 - 10 slides per minute

(e). 10 - 20 slides per minute

37. Why should you not use red and green as the main colours in a PowerPoint presentation?

(a). Because they are used in traffic lights

(b). Because they are not friendly colours

(c). Because they are hard to understand

(d). Because some people are red/green colour blind

(e). Because the University colour is blue

38. How do you ensure that your fonts will show correctly on somebody else's computer?

(a). Send them your font files

(b). Compress your PowerPoint file

(c). Copy your PowerPoint file to a CD

(d). Email your PowerPoint file

(e). Embed the TrueType Fonts

39. As a general guide, how many bullet points should you use per slide?

(a). 1 – 2 per slide

(b). 4 – 5 per slide

(c). 5 – 8 per slide

(d). 8 – 10 per slide

(e). 10 – 15 per slide

40. What is the minimum font size you should normally use on a PowerPoint slide?

(a). 10 point size

(b). 14 point size

(c). 18 point size

(d). 22 point size

(e). 26 point size

SECTION B

Answer all questions in this section in the space provided. If you run out of space, then please use the overflow sheet at the back of this booklet, and indicate in the allotted space that you have used the overflow sheet.

41. Acronyms (10 marks)

(a). What does RAM stand for?

Random Access Memory

(1 mark)

(b). What does HTTP stand for?

Hypertext Transfer Protocol

(1 mark)

(c). What does WYSIWYG stand for?

What You See Is What You Get

(1 mark)

(d). What does OS stand for?

Operating System

(1 mark)

(e). What does HTML stand for?

Hypertext Markup Language

(1 mark)

(f). What does ASCII stand for?

American Standard Code for Information Interchange

(1 mark)

(g). What does URL stand for?

Uniform Resource Locator

(1 mark)

(h). What does JPEG stand for?

Joint Photographic Experts Group

(1 mark)

(i). What does WWW stand for?

World Wide Web

(1 mark)

(j). What does DNS stand for?

Domain Name Server

(1 mark)

42. Spreadsheets (10 marks)

The following spreadsheet was created to help a small business calculate its part-time employees' pay.

	A	B	C	D	E	F	G	H	I
1			Hours Worked per Day						
2	Name	Mon	Tue	Wed	Thu	Fri	Total	Average	Pay
3	John	2	3	2	2	1	10	2.00	$185.00
4	Sarah	2	3	3	3	2	13	2.60	$240.50
5	Tim	2	2	2	2	2	10	2.00	$185.00
6	Xu	3	3	4	3	3	16	3.20	$296.00
7	Total	9	11	11	10	8	49	9.80	
8									
9		Hourly Pay =		$18.50					
10									

(a) What is the best formula to use in cell B7?

```
= SUM(B3:B6)
```

(3 marks)

(b) What is the best formula to use in cell H3?

```
= AVERAGE(B3:F3)
```

(3 marks)

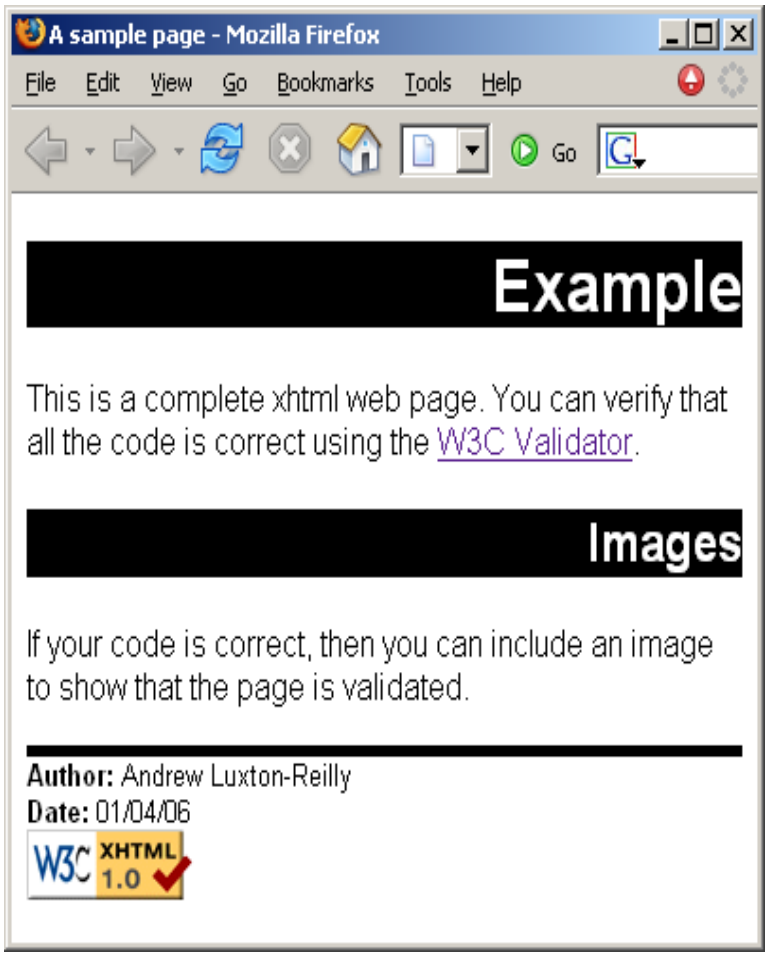
(c) What is the best formula to use in cell I3? (Note: assume you want this formula to *fill down* correctly.)

```
= G3 * $D$9
```

(4 marks)

43. XHTML and CSS (10 marks)

(a) The following screenshot shows a web page created using XHTML 1.0 strict and Cascading Style Sheets:



The following XHTML code and style sheet is supposed to create the page shown above but there are five errors in the XHTML and/or the style sheet. Draw a circle around each of the errors that you can find (2 marks per 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>
<head>
<title>A sample page</title>
<link rel="stylesheet" href="theme.css" type="text/css"></link>
</head>
```

CONTINUED

```
<body>
<h1>Example</h1>
<p>This is a complete xhtml web page.  You can verify that all the code is correct
 using the <a href="http://validator.w3.org">W3C Validator</a>.</p>
<h2>Images</h2>
<p>If your code is correct, then you can include an image to show that the page is
 validated.</p>

<p class=“quote”>
<span class=“catName”>Author:</span> Andrew Luxton-Reilly<br></br>
<span class=“catName”>Date:</span> 01/04/06<br></br>
<img src="valid-xhtml10.png" alt="Validated xhtml logo"></img>
</p>
</body>
</page>
```

Style Sheet `theme.css`

```
body
{
font-family: sans-serif;
}

h1, h2
{
text-align: right;
background-color: white;
color: white;
}

#footer
{
border-top-width: thick;
border-top-style: solid;
font-size: small;
}

.catName
{
font-weight: italic;
}
```

(10 marks)

44. Programming using Python (10 marks)

(a) Write a program that asks the user to enter a number of *miles* and prints out the corresponding number of *kilometres* as in the example below. The formula to convert miles to kilometres is as follows:

1 mile = 1.6093 kilometres

If the number of kilometres is greater than 100, the program should print out "Long Distance"; otherwise the program should print out "Short Distance".

For example, if the user enters **10** at the prompt, the output that is expected from your program is shown below:

```
Enter the number of miles: 10
10 miles is 16.093 kilometres
Short Distance
```

```
miles = int(input("Enter the number of miles: "))

kms = miles * 1.6093

print(miles, "miles is", kms, "kilometres")

if kms > 100:
    print("Long Distance")
else:
     print("Short Distance")
```

(6 marks)

(b) What is the output produced by the following program when the user enters **4** at the prompt?

```
number = int(input("Please enter a positive number: "))

counter = number

while (counter > 0) :
    print(number)
    number = number // 2
    counter = counter - 1
```

```
Please enter a positive number: 4
4
2
1
0
```

(4 marks)

45. LaTeX (10 marks)

Write the LaTeX code that will produce the following output:

Exam document

Richard Li

2008

1 Conversion

Please print out the following:

- 1 New Zealand Dollar = 0.5001 Euro Dollars
- $SquareMetre = Metre^2$

1.1 Formula

Please display the formula:

$$\sum_{k=1}^{n+1} \pi = kx(r^{n+1} - 5) + \frac{x+y}{\sqrt{x-5}}$$

The following commands have been included as a reference. You will not need to use all of these commands. Note that the basic document structure has been completed for you.

Normal commands	***Environments***	***Math mode commands***
`\emph{}`	`itemize`	`\sum_{}^{}`
`\section{}`	`enumerate`	`\frac{}{}`
`\subsection{}`	`verbatim`	`\sqrt{}{}`
`\large`	`flushright`	`\pi`
`\textbf{}`	`center`	
`\title{}`	`quote`	`^`
`\author{}`	`displaymath`	`_`
`\date{}`	`equation`	
`\maketitle`		

CONTINUED

```
\documentclass[a4paper]{article}
\begin{document}

\title{Exam document}
\author{Richard Li}
\date{2008}
\maketitle
\section{Conversion}
\begin{center}
Please print out the following
\end{center}
\begin{itemize}
\item 1 New Zealand Dollar = 0.5001 Euro
Dollars
\item \emph{SquareMetre = Metre$^2$}
\end{itemize}
\subsection{Formula}
Please display the formula:
\begin{displaymath}
\sum_{k=1}^{n+1}\pi = kx(r^{n+1} - 5) +
   \frac{x + y}{\sqrt{x - 5}}
\end{displaymath}









\end{document}
```

(10 marks)

ID..…….

- Overflow Sheet 1 -
Write the question number and letter next to your answer. You must ALSO indicate in the allotted space that you have used the overflow sheet.

ID..…….

- Overflow Sheet 2 -

Write the question number and letter next to your answer. You must ALSO indicate in the allotted space that you have used the overflow sheet.

ID..…….

- Overflow Sheet 3 -

Write the question number and letter next to your answer. You must ALSO indicate in the allotted space that you have used the overflow sheet.

Rough Working – This page will not be marked

ID..…….

Rough Working – This page will not be marked