

THE UNIVERSITY OF AUCKLAND

SUMMER SEMESTER, 2012

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	
Forenames	
Student ID	
Login (UPI)	

	Question	Mark	Out Of
1 - 7	Digital, Hardware, Software		25
8 - 15	Internet		25
16 - 20	XHTML and CSS		20
21 - 24	Presentation		10
25 - 28	Applications and Graphics		10
29 - 31	Spreadsheets		10
	TOTAL		100

Digital Information, Hardware and Software (25 marks)

1. Storing information:

(i) How many bits would be required to represent 8 different numbers?

(2 marks)

(ii) Convert the binary number 1101 to decimal.

(2 marks)

(iii) Convert the the decimal number 21 to binary.

(2 marks)

(iv) How many different numbers can be represented using 4 bits?

(2 marks)

2. Give **two** examples of input devices and **two** examples of output devices.

Input Devices:

Output Devices:

(2 marks)

3. Explain the difference between analogue information and digital information and give an example of each type.

(4 marks)

4. List each of Richard Stallman's 4 freedoms regarding open source software.

(4 marks)

5. How does **flash** memory differ from primary memory (RAM)?

(2 marks)

6. What is **proprietary** software?

(3 marks)

7. Name **one** file extension (*for example, .exe*) for **each** of the following file formats:

graphics file extension:

sound file extension:

(2 marks)

Internet (25 marks)

8. Explain the differences between **circuit-switching** and **packet-switching**.

(5 marks)

9. Explain the differences between **POP3** and **IMAP** protocols.

(4 marks)

10. What does **SMTP** stand for?

(2 marks)

11. What is an **asynchronous** communication system? Give an example of an **asynchronous** communication system.

(4 marks)

12. What does a **DNS server** do?

(4 marks)

13. What is a **blog**?

(2 marks)

14. What is the name of the early network which began with 4 nodes in 1969 and was the forerunner to the Internet?

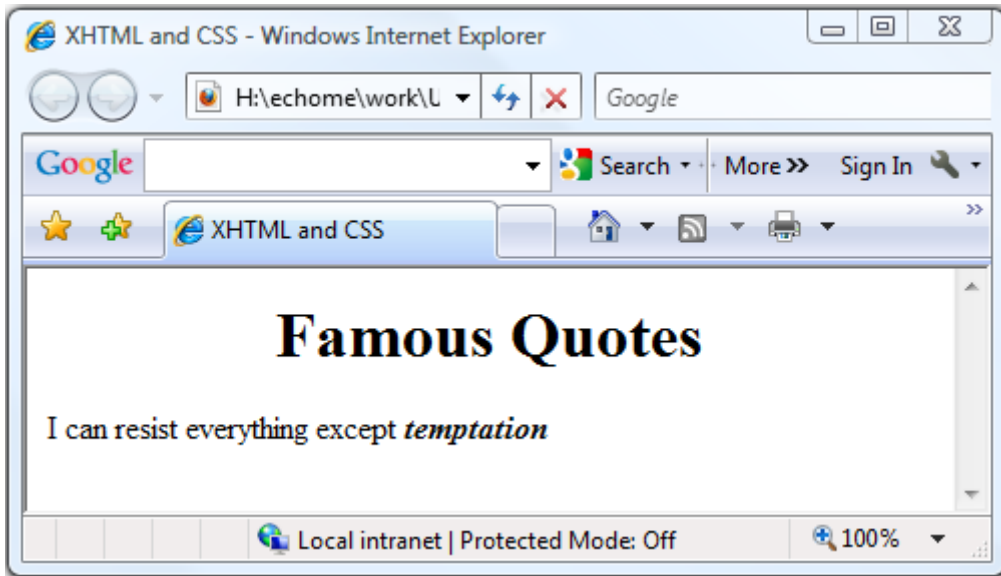
(2 marks)

15. A Local Area Network operates within a radius of how many kilometres?

(2 marks)

XHTML and CSS (20 marks)

16. The following screenshot shows a web page created using XHTML 1.0 and CSS. Complete the source code below that would result in the web page shown below. You **must** use the style rules provided in the internal style sheet.



```
<?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">
<head>
<title>XHTML and CSS</title>
<style type="text/css">
#middle{text-align: center;}
.tempt{font-weight: bold; font-style: italic;}
</style>
</head>
<body>

</body>
</html>
```

(6 marks)

17. Define **one** XHTML CSS style rule that makes **all** headings (h1 – h6) the colour green.

(3 marks)

18. Define an XHTML CSS **class selector** named '**code**' that makes all text that **code** is applied to sans-serif font and uppercase.

(3 marks)

19. Define an XHTML CSS style rule that makes the background colour of the whole body of the page silver.

(3 marks)

Question/Answer Sheet

20. Suppose that in an **external style sheet** we have the style rule:

```
p
{
    font-family: "Verdana", sans-serif;
    color: red;
    font-size: small;
    font-style: italic;
}
```

while in the head of our XHTML document we have the following **internal style sheet**:

```
<style type="text/css">
  p{color: green;}
  #bigger{font-size: x-large;}
</style>
```

then the following XHTML code in the body of the document will produce a paragraph with what type of text?

```
<p id="bigger">I am the walrus</p>
```

- color:**
- font-size:**
- font-family:**
- font-style:**
- text-align:**

(5 marks)

Presentation (10 marks)

21. If you were asked to prepare a 15 minute PowerPoint presentation, as an approximate guide, what is the maximum number of slides your presentation should contain?

(2 marks)

22. What were Edward Tufte's criticisms of PowerPoint?

(4 marks)

23. What is the **smallest** size font you should typically use within a PowerPoint presentation?

(2 marks)

24. State **one** guideline regarding the use of **text colour** within a PowerPoint presentation?

(2 marks)

Applications and Graphics (10 marks)

25. How much memory would be required to store a black and white bitmap image that is 4 pixels high and 6 pixels wide? Show **all** your working.

(2 marks)

26. How many **bytes** would be required to store an image that has 16 colours and is 4 pixels high and 5 pixels wide? Show **all** your working.

(3 marks)

27. For the image compression algorithms listed below, state whether they are good for photos or not. Answer **yes** or **no**.

gif:

png:

jpeg:

(3 marks)

28. Given the image compression types listed in the above question (i.e. gif, png and jpeg) which one(s) use a **lossy** compression method? State *none* if none of them do.

(2 marks)

Spreadsheets (10 marks)

John, Paul, George, Ringo, Pete and Brian have just finished watching a movie called *The Magical Mystery Tour*. They have been asked to rate how much they enjoyed it. In the following Microsoft Excel spreadsheet, a **Ratings Scale** table is given on the left hand side that associates ratings with descriptions (larger values indicate better ratings). On the right hand side of the spreadsheet are the ratings each person has given the movie. Row **I** records whether the person has given the movie the best rating available in the table (“Y”), or not (“N”).

	A	B	C	D	E	F	G	H	I
1									
2						Name	Rating		Top Rating?
3		Ratings Scale				John	2	Poor	N
4		1 Very Poor				Paul	4	Good	N
5		2 Poor				George	3	Fair	N
6		3 Fair				Ringo	5	Great	Y
7		4 Good				Pete	1	Very Poor	N
8		5 Great				Brian	3	Fair	N
9									
10						Average	3		
11									

29. What is the **best** formula to use in Cell **H3**? **Note:** You must ensure that your formula can be filled down.

The syntax of the **vlookup** function to search the first column of a table, and then return a value from any cell on the same row of the table is given below:

```
vlookup(lookup_value, table_array, col_index_num,[range_lookup])
```

(4 marks)

30. What is the **best** formula to use in Cell **I3**? **Note:** You must ensure that your formula can be filled down.

(4 marks)

31. What is the **best** formula to use in Cell **G10**?

(2 marks)

- 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.

- 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.

- 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

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