

# THE UNIVERSITY OF AUCKLAND

---

**SECOND SEMESTER, 2009**  
**Campus: CITY**

---

## Computer Science

### Mastering Cyberspace: An Introduction to Practical Computing

**(Time Allowed: ONE hour)**

- NOTE:
- No calculators are permitted
  - Compare the test version number on the Teleform sheet supplied with the version number above. If they do not match, ask the test supervisor for a new sheet.
  - Enter your name and student ID on the Teleform sheet. Your name should be entered left aligned. If your name is longer than the number of boxes provided, truncate it.
  - Answer Section A (Multiple choice questions) on the Teleform answer sheet provided. Answer Section B in the space provided in this booklet.
  - Use a dark pencil to shade in your answers in the multiple choice answer boxes on the Teleform sheet. Check that the question number on the sheet corresponds to the question number in this question book. If you spoil your sheet, ask the supervisor for a replacement.
  - There is space at the back for answers that overflow the allotted space.

<b>Surname</b>	<i>Sample Answers</i>
<b>Forenames</b>	
<b>Student ID</b>	
<b>Login (UPI)</b>	

	Question	Mark	Out Of
1 - 20	Multiple Choice		50
21	Acronyms		10
22	Representing Information		10
23	XHTML and CSS		30
<b>TOTAL</b>			<b>100</b>

## SECTION A

### MULTIPLE CHOICE QUESTIONS

Each question in this section is worth 2.5 marks. For each question, choose the best answer according to the information presented in lectures. Select your preferred alternative on the Teleform answer sheet provided.

#### Question 1

[2.5 marks] Which of the following statements about analogue and digital information is **false**?

- (a) Analogue information is given as a continuous signal
- (b) When we encode analogue information digitally, then we usually lose details
- (c) Analogue information such as sound and images can be stored digitally
- (d) Digital information is represented by discrete numbers
- (e) None of the above

#### Question 2

[2.5 marks] How many bits per pixel are necessary to encode 32 different colours?

- (a) 2
- (b) 8
- (c) 4
- (d) 5
- (e) None of the above

#### Question 3

[2.5 marks] What decimal number has the binary representation 1011?

- (a) 3
- (b) 7
- (c) 13
- (d) 11
- (e) None of the above

#### Question 4

[2.5 marks] Which of the following hardware components can typically **not** be connected to the motherboard?

- (a) RAM
- (b) Expansion cards
- (c) CPU
- (d) Hard drives
- (e) None of the above

**Question 5**

[2.5 marks] What does Moore's law state?

- (a) The speed of CPUs doubles approximately every 18 months, while the number of transistors on a single chip remains the same
- (b) The number of transistors on a single chip doubles approximately every 4 years, while the price remains the same
- (c) The number of transistors on a single chip doubles approximately every 18 months, while the price remains the same
- (d) The speed of CPUs doubles approximately every 4 years, while the number of transistors on a single chip remains the same
- (e) The number of transistors on a single chip doubles approximately every 2 years, while the speed remains the same

**Question 6**

[2.5 marks] Which of the following statements about memory is **false**?

- (a) RAM is cheaper than secondary storage
- (b) RAM is faster than secondary storage
- (c) Secondary storage is generally larger than RAM
- (d) RAM can only store data as long as the computer is switched on
- (e) None of the above

**Question 7**

[2.5 marks] Which of the following statements about software is **false**?

- (a) Software consists of instructions that control the computer and data
- (b) Application software helps the user to complete a task
- (c) Games, word processors and operating systems are all classed as application software
- (d) System software is needed to run the computer
- (e) None of the above

**Question 8**

[2.5 marks] Which of the following statements about software is **false**?

- (a) You can try out shareware before you buy it
- (b) Freeware is software that does not cost anything
- (c) Free software means that you are allowed to change the software
- (d) Open-source software means that you can access the source code
- (e) None of the above

**Question 9**

[2.5 marks] Which of the following statements about the Internet is **false**?

- (a) The Internet was created during the cold war
- (b) The Internet was created during the 80s
- (c) The Internet was originally created by the military under the name ARPANET
- (d) The Internet was designed for robust communication
- (e) None of the above

**Question 10**

[2.5 marks] Which of the following statements about TCP/IP is **false**?

- (a) IP defines addresses for computers on the network
- (b) TCP divides messages into packets
- (c) TCP is a protocol used on the Internet
- (d) IP makes sure that all packets arrive at the recipient
- (e) None of the above

**Question 11**

[2.5 marks] Which of the following statements about email is **false**?

- (a) Email is a system for sending and receiving messages over the Internet
- (b) Email is a synchronous communication system
- (c) Unencrypted emails can often be read by other people, not only the recipient
- (d) The email system uses DNS servers to find mail server addresses
- (e) None of the above

**Question 12**

[2.5 marks] Which statement about email attachments is **false**?

- (a) Attachments can contain malware
- (b) If possible, it is better to send an attachment rather than a link to a file
- (c) Attachments can contain programs
- (d) Attachments are files that are attached to messages
- (e) None of the above

**Question 13**

[2.5 marks] Which statement about wikis is **false**?

- (a) The Wikipedia is the largest wiki on the WWW
- (b) A wiki is organized in reverse chronological order
- (c) The information on the wiki can be edited by everyone with access
- (d) A wiki is an online information database
- (e) None of the above

**Question 14**

[2.5 marks] Which statement about the MediaWiki system is **false**?

- (a) Information is organized in pages
- (b) Each user has a “user page”
- (c) Different versions of a page can be compared automatically
- (d) You can see which pages refer to a particular page
- (e) None of the above

**Question 15**

[2.5 marks] Which statement about the WWW is **false**?

- (a) The WWW utilises the HTTP protocol
- (b) The WWW is part of the Internet
- (c) The WWW contains hypermedia
- (d) The WWW utilises the SMTP protocol
- (e) None of the above

**Question 16**

[2.5 marks] Which statement about the Page rank is **false**?

- (a) The Page rank calculates how likely it is that a random web surfer comes to a page
- (b) The Page rank is used to estimate the importance of a web page
- (c) The Page rank is used to estimate the number of web pages indexed by a search engine
- (d) Pages with many links

**Question 17**

[2.5 marks] Which statement about Unicode is **false**?

- (a) Unicode is a unification of all character sets
- (b) Unicode is a standard for encoding the letters of nearly all writing systems
- (c) Unicode can encode Chinese characters
- (d) Unicode can store English alphanumeric characters using their ASCII code values
- (e) None of the above

**Question 18**

[2.5 marks] Which statement about styles in a word processor is **false**?

- (a) With styles two or more letters can be joined for a better appearance
- (b) Styles can save time during formatting
- (c) Styles help to achieve a consistent appearance
- (d) Changing a style definition changes the appearance of all text that uses the style
- (e) None of the above

**Question 19**

[2.5 marks] What is the spatial resolution?

- (a) The number of dots or pixels that can be represented on a device such as a printer
- (b) The number of dots or pixels per inch that can be represented on a device
- (c) The width times the height of an image
- (d) The space between the pixels of an image on a particular device
- (e) None of the above

**Question 20**

[2.5 marks] Which statement about vector graphics is **false**?

- (a) Vector images are defined by mathematical formulae
- (b) The amount of memory a vector image requires is independent of the displayed image size
- (c) Vector images generally take up more memory than bitmap images
- (d) Vector images can be enlarged without loss of quality
- (e) None of the above

## SECTION B

Answer all questions in this section in the space provided. If you run out of space then please use the Overflow Sheet and indicate in the allotted space that you have used the Overflow Sheet.

### Question 21

State what each of the following acronyms stand for.

(a) What does ASCII stand for?

**American Standard Code for Information Interchange**

(2 marks)

(b) What does CSS stand for?

**Cascading Style Sheets**

(2 marks)

(c) What does XHTML stand for?

**Extensible HyperText Markup Language**

(2 marks)

(d) What does WYSIWYG stand for?

**What You See Is What You Get**

(2 marks)

(e) What does DNS stand for?

**Domain Name Server or Domain Name System (either is fine)**

(2 marks)

**Question 22**

Answer each of the following short answer questions in the space provided.

(a) Given that the letter “A” is represented by the number 65 in ASCII and the letter “a” is represented by the number 97 in ASCII, write the ASCII codes corresponding to the word “Deaf”. Show your working.

A	B	C	D		a	b	c	d	e	f
65	66	67	68		97	98	99	100	101	102

ASCII Codes for Deaf are: 68 101 97 102

(5 marks)

(b) How much memory is required to represent a bitmap image that is 20 pixels wide and 2 pixels high, and has 16 colours? Give your answer in **bytes**. Show your working.

Number of pixels =  $20 \times 2$   
= 40 pixels

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

So number of bits =  $40 \times 4$   
= 160 bits

Number of bytes =  $160 / 8$  (8 bits in a byte)  
= **20 bytes**

(5 marks)

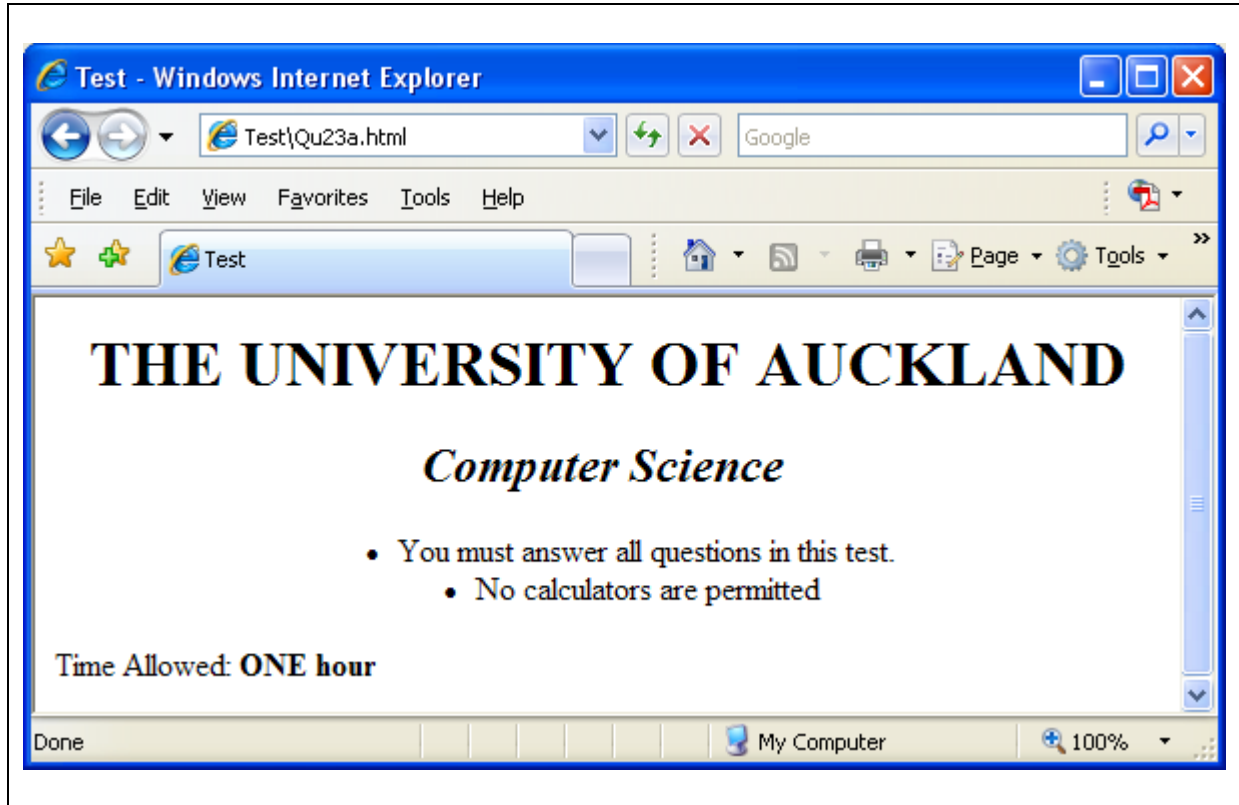
**Question 23**

The following questions relate to XHTML and CSS.

(a) The following web page has been successfully validated as XHTML 1.0 Strict. On the following page, draw what the page will look like when it is displayed by a web browser.

```
<?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>Test</title>
<style type="text/css">
.quote {text-transform:uppercase; }
#quote {font-style:italic; }
div { text-align: center; }
span { font-weight: bold;}
</style>
</head>
<body>
<div>
<h1 class="quote">The University of Auckland</h1>
<h2 id="quote">Computer Science</h2>
<ul>
<li>You must answer all questions in this test.</li>
<li>No calculators are permitted</li>
</ul>
</div>
<p>Time Allowed:           <span>ONE hour</span> </p>
</body>
</html>
```





(10 marks)

(b) Write the valid section of XHTML 1.0 strict source code that will create the following table.

Monday	Wednesday	Friday
1-2pm at OGGB3	1-2pm at HSB1	1-2pm at HSB1

```
<table border = "1px">  
  <tr>  
    <td>Monday</td>  
    <td>Wednesday</td>  
    <td>Friday</td>  
  </tr>  
  <tr>  
    <td>1-2pm at OGGB3</td>  
    <td>1-2pm at HSB1</td>  
    <td>1-2pm at HSB1</td>  
  </tr>  
</table>
```

(10 marks)

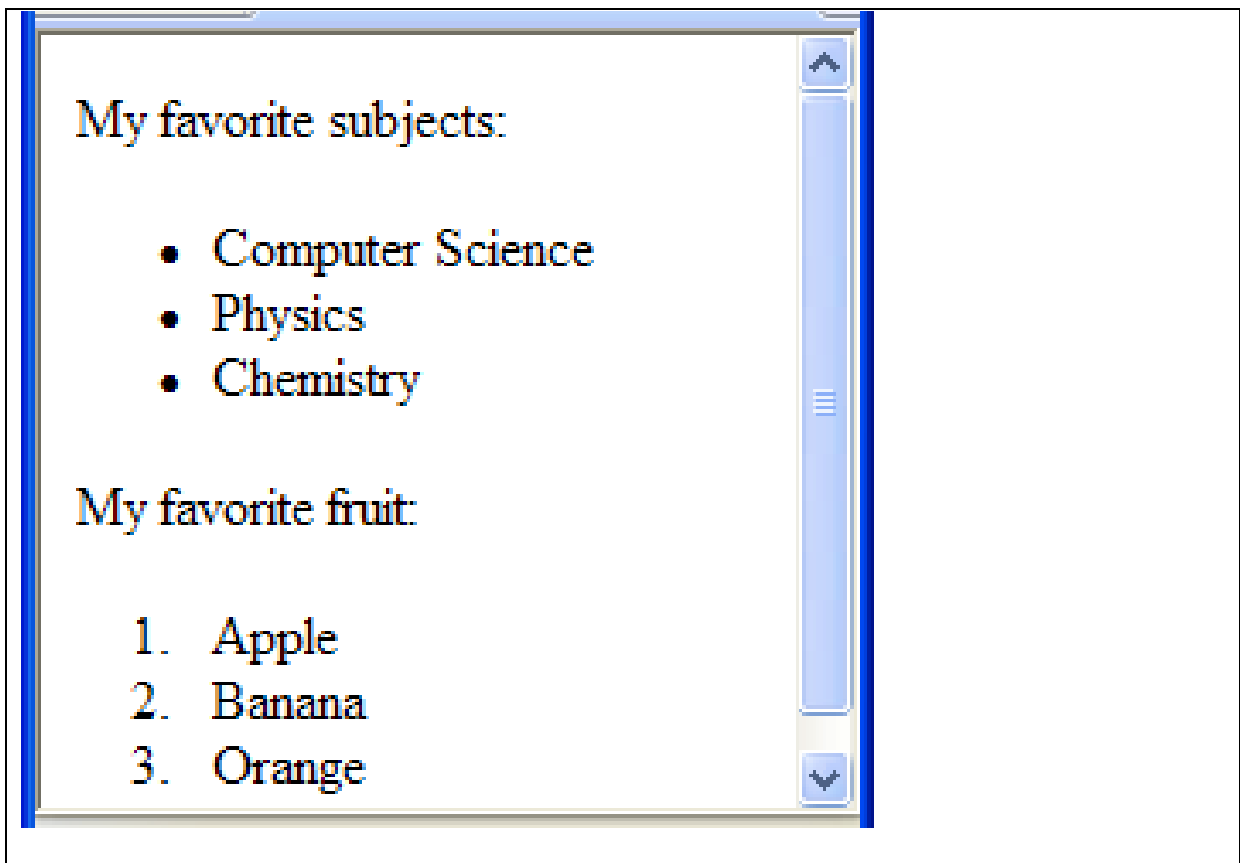
(c) Draw the following fragment of XHTML code as it would appear when it is displayed in a web browser.

```
<p>My favorite subjects:</p>
```

```
<ul>  
  <li> Computer Science</li>  
  <li> Physics</li>  
  <li> Chemistry</li>  
</ul>
```

```
<p>My favorite fruit:</p>
```

```
<ol>  
  <li> Apple</li>  
  <li> Banana</li>  
  <li> Orange</li>  
</ol>
```



(10 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.**

**Rough Working – This page will not be marked**

**Rough Working – This page will not be marked**

---