

# THE UNIVERSITY OF AUCKLAND

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SUMMER SEMESTER, 2014  
Campus: City

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## COMPUTER SCIENCE

### 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 mark 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>	
<b>Forenames</b>	<i>Sample</i>
<b>Student ID</b>	<i>Solutions</i>
<b>Login (UPI)</b>	

	<b>Question</b>	<b>Mark</b>	<b>Out Of</b>
1 - 30	Multiple Choice		75
31	XHTML/CSS		10
32	XHTML and Style Sheets		9
33	XHTML		6
	<b>TOTAL</b>		<b>100</b>

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**SECTION A**  
**MULTIPLE CHOICE QUESTIONS**

For each question, choose the **best** answer according to the information presented in lectures. Select your preferred answer on the Teleform answer sheet by shading in the appropriate box.

**Question 1**

[2.5 marks] For the sequence of integers represented in binary as 00111, 01001, 01011, ... the next integer would be represented as

- (a) 01110
- (b) **01101**
- (c) 10110
- (d) 01111

**Question 2**

[2.5 marks] The number of transistors manufactured on a chip has doubled roughly every 18 months since 1964. Approximately how many more transistors are on a chip now compared to 50 years ago?

- (a) **10 billion**
- (b) 10 million
- (c) 10 thousand
- (d) 10 trillion

**Question 3**

[2.5 marks] Which one of the following is used for primary memory?

- (a) Hard disks
- (b) **DRAM**
- (c) DVDs
- (d) Flash drives

**Question 4**

[2.5 marks] Which one of following lists includes *only* input devices?

- (a) **scanner, webcam, microphone**
- (b) mouse, barcode reader, touchscreen
- (c) headset, fax machine, camera
- (d) keyboard, microphone/speaker, mouse

**Question 5**

[2.5 marks] Assuming the usual binary representation of integers, what is the largest number that can be represented in eight bits?

- (a) 8
- (b) 128
- (c) **255**
- (d) 511

**Question 6**

[2.5 marks] What is the binary representation of the decimal number 100?

- (a) **1100100**
- (b) 99
- (c) 4
- (d) 01100110

**Question 7**

[2.5 marks] If one byte is used to specify a colour, how many unique colours can be represented?

- (a) 16,777,216
- (b) 65,536
- (c) **256**
- (d) 8

**Question 8**

[2.5 marks] How many KiB can be stored in 1.5 MiB?

- (a) 150
- (b) 1,500
- (c) 15
- (d) **1,536**

**Question 9**

[2.5 marks] Which one of the following lists goes from largest to smallest?

- (a) 1 GB, 1 GiB, 1 MB, 1 MiB
- (b) 1 GB, 1 KiB, 1 KB, 1 MB
- (c) **2 GB, 1 GiB, 1 GB, 1 MiB**
- (d) 3 GiB, 2 GiB, 1 GB, 1 GiB

**Question 10**

[2.5 marks] By approximately what percentage is 1 GiB larger than 1 GB?

- (a) **7%**
- (b) 0.3%
- (c) 0.01%
- (d) 45%

**Question 11**

[2.5 marks] “Shareware” and “freeware” are similar except that

- (a) it is illegal to use shareware without paying for it.
- (b) shareware is only offered by corporations.
- (c) shareware can be shared with others; freeware cannot.
- (d) **payment is expected for unrestricted use of shareware.**

**Question 12**

[2.5 marks] Which of the following statements is TRUE?

- (a) Only files with the suffix .gif are made up entirely of bits.
- (b) **All files are made up entirely of bits.**
- (c) Only files with the suffix .bin are made up entirely of bits.
- (d) Only files with no suffix are made up entirely of bits.

**Question 13**

[2.5 marks] Which of the following statements is TRUE?

- (a) A file extension indicates to humans the size of the file.
- (b) A file extension indicates to the hardware how the file should be stored.
- (c) A file extension is required for all files.
- (d) **A file extension indicates to the software the format of the information in the file.**

**Question 14**

[2.5 marks] Which one of the following is NOT an operating system?

- (a) Mac OS
- (b) **Opera**
- (c) Microsoft Windows
- (d) Android

**Question 15**

[2.5 marks] In a digital image, what does the image resolution represent?

- (a) The number of dots (pixels) occurring per inch or cm.
- (b) The maximum size an image can be blown up before individual dots (pixels) can be distinguished.
- (c) The number of rows of dots (pixels) multiplied by the number of dots (pixels) in a row.**
- (d) The number of dots (pixels) present in a row or column, whichever is larger.

**Question 16**

[2.5 marks] What does CLI stand for?

- (a) Current Line Indent
- (b) Computed Logic Image
- (c) Complexity Limit Index
- (d) Command Line Interface**

**Question 17**

[2.5 marks] Which of the following is NOT an important internet technology or protocol?

- (a) ISP**
- (b) SMTP
- (c) HTTP
- (d) TCP/IP

**Question 18**

[2.5 marks] When connecting to a web site from home, which of the following best describes the path the request makes from your computer to the web server if you have a home network?

- (a) From your computer to your modem to your ISP then through the router to the web server.
- (b) From your computer through the router to your modem to your ISP then to the web server.**
- (c) From your computer to your ISP then through your modem to the web server.
- (d) From your computer to your modem then through the router to your ISP to the web server.

**Question 19**

[2.5 marks] Which one of the following statements about email is FALSE?

- (a) To send email you connect to an SMTP (Simple Mail Transfer Protocol) server.
- (b) A difference between POP3 and IMAP is that email is usually kept on the server when using IMAP.
- (c) Emails often travel thousands of kilometres to be delivered to another computer in the same building.
- (d) Emails cannot be accessed by administrators of the system.**

**Question 20**

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

- (a) TCP stands for Transmission Control Protocol.
- (b) TCP converts packets from analog to digital, and from digital to analog.**
- (c) TCP/IP is a pair of protocols that are used to transfer packets from one machine to another machine using the Internet.
- (d) IP defines network addresses and is used for routing packets.

**Question 21**

[2.5 marks] Which of the following lines would be used in the Stage One Wiki to add a link to an external web site but show the link as “Mac Mini”?

- (a) [Mac Mini] `http://en.wikipedia.org/wiki/Mac_Mini`
- (b) `=http://en.wikipedia.org/wiki/Mac_Mini=` Mac Mini
- (c) [`http://en.wikipedia.org/wiki/Mac_Mini` Mac Mini]**
- (d) [`http://en.wikipedia.org/wiki/Mac_Mini`] Mac Mini

**Question 22**

[2.5 marks] Which of the following is the correct form of a URL?

- (a) Protocol, domain, path, filename**
- (b) Standard, domain, path, filename
- (c) Protocol, path, domain, filename
- (d) Standard, path, domain, filename

**Question 23**

[2.5 marks] Which one of the following does NOT keep a log of webpage accesses?

- (a) Internet Service Provider
- (b) Operating System
- (c) Web Server
- (d) Domain Name Server**

**Question 24**

[2.5 marks] Which one of the following statements is FALSE?

- (a) A web server makes local files available through the web.
- (b) A firewall is a computer that sits between the client and server and intercepts and processes requests.**
- (c) A cache may be used by an ISP to avoid re-fetching a page in rapid succession.
- (d) A web browser is used to access information on the World Wide Web.

**Question 25**

[2.5 marks] Given that the ASCII code for a capital A is 65, what is the English translation for the ASCII word “73, 78, 84, 69, 82, 86, 65, 76”?

- (a) INTERNAL
- (b) INTERNET
- (c) INTERVAL**
- (d) INTERLAY

**Question 26**

[2.5 marks] Given that the ASCII code for a capital A is 65, what is the ASCII translation for the English word “HELP”?

- (a) 71 68 75 79
- (b) 73 70 77 81
- (c) 72 68 76 80
- (d) 72 69 76 80**

**Question 27**

[2.5 marks] If you have a 4 megapixel square image and you are displaying it in its original resolution on a screen that has 1000 pixels across and 1000 pixels down, how much of the image would you see?

- (a) 1/4**
- (b) All of it
- (c) 1/8
- (d) 1/2

**Question 28**

[2.5 marks] If you had a 256 colour image, 200 pixels wide by 100 pixels long, how much memory would be required to store it?

- (a) 20 KiB
- (b) 512 KiB
- (c) 20 KB**
- (d) 512 KB



**Question 29**

[2.5 marks] Which one of the following is a primary criticism of Edward Tufte regarding PowerPoint?

- (a) **PowerPoint creates too much focus on appearance.**
- (b) PowerPoint does not have enough theme choices.
- (c) PowerPoint does not permit dynamic re-ordering of slides.
- (d) PowerPoint provides too many choices for the presenter.

**Question 30**

[2.5 marks] Which of the following is NOT considered to be good advice when creating PowerPoint presentations?

- (a) Use “white space” to set off blocks of text.
- (b) **Add extra bullet points in case you have extra time.**
- (c) Use a font size of at least 18 point.
- (d) Limit the use of “cute” animations.

## 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 31 XHTML/CSS (10 marks)

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. Show any links with underlines and any **bold text** by writing it **darker**.

```
<?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>Q31</title>

  <style type="text/css">
    body { text-align: center; }

    h2 { border-style: solid;
        border-width: 2px;
        }

    p { text-align: right; }

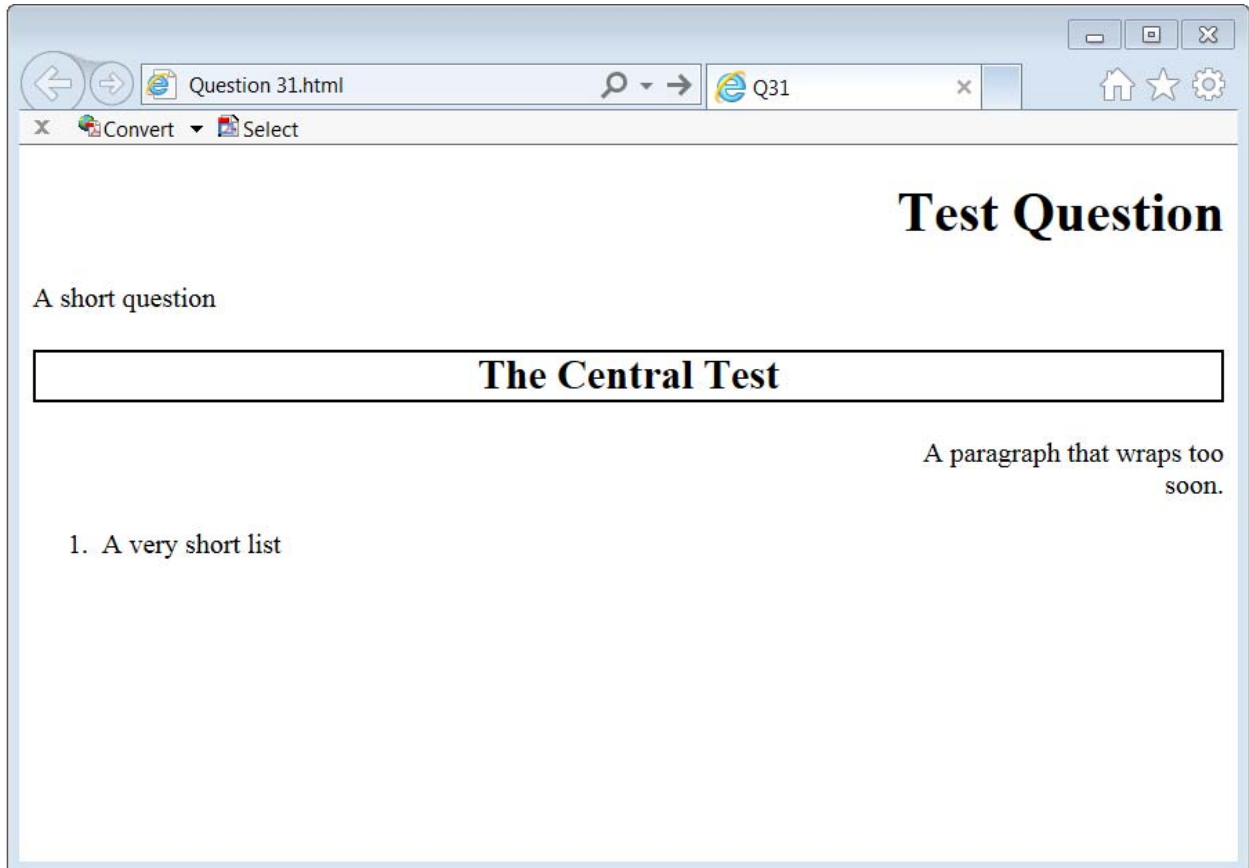
    .position { text-align: right; }

    #position { text-align: left; }

  </style>
</head>

<body>
  <h1 class="position">Test Question</h1>
  <p style="text-align:left;">A short question</p>
  <h2>The Central Test</h2>
  <p>A paragraph that wraps too<br />soon.</p>
  <ol id = "position">
    <li>A very short list</li>
  </ol>
</body>
</html>
```

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The screenshot shows a web browser window with the following content:

- Address bar: Question 31.html
- Search bar: Q31
- Navigation icons: Home, Star, Settings
- Page title: **Test Question**
- Text: A short question
- Section header: **The Central Test** (enclosed in a rectangular box)
- Text: A paragraph that wraps too soon.
- List item: 1. A very short list

(10 marks)

### Question 32 XHTML and Style Sheets (9 marks)

On the following page, draw the appearance of the web page produced by the following XHTML 1.0 Strict code. Show any links with underlines and any **bold text** by writing it **darker**. Note that it uses inline, internal and external style sheets.

```
<?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>Q32</title>
  <link rel="stylesheet" href="mystyles.css"
    type="text/css"></link>
  <style type="text/css">
    h2 {text-align: right;}
    .box{border-style : dashed;}
  </style>
</head>

<body>
<h1>My Home Page</h1>
<hr></hr>
<p>My name is <br />Ann.</p>
<div id = "box">
<h2 style="text-align: left;">Interests</h2>
<ul>
  <li>Music</li>
  <li>Movies</li>
</ul>

<h2>My Favourite Singer</h2>
<p>
  Check out <a href="http://www.justintownesearle.com/">
    Justin Townes Earle</a>.
</p>
</div>
</body>
</html>
```

The external style sheet is defined in a file called "mystyles.css", with the contents:

```
h1, h2 {
  text-align: center;
  font-variant: small-caps; }
#box { border-style : solid }
```

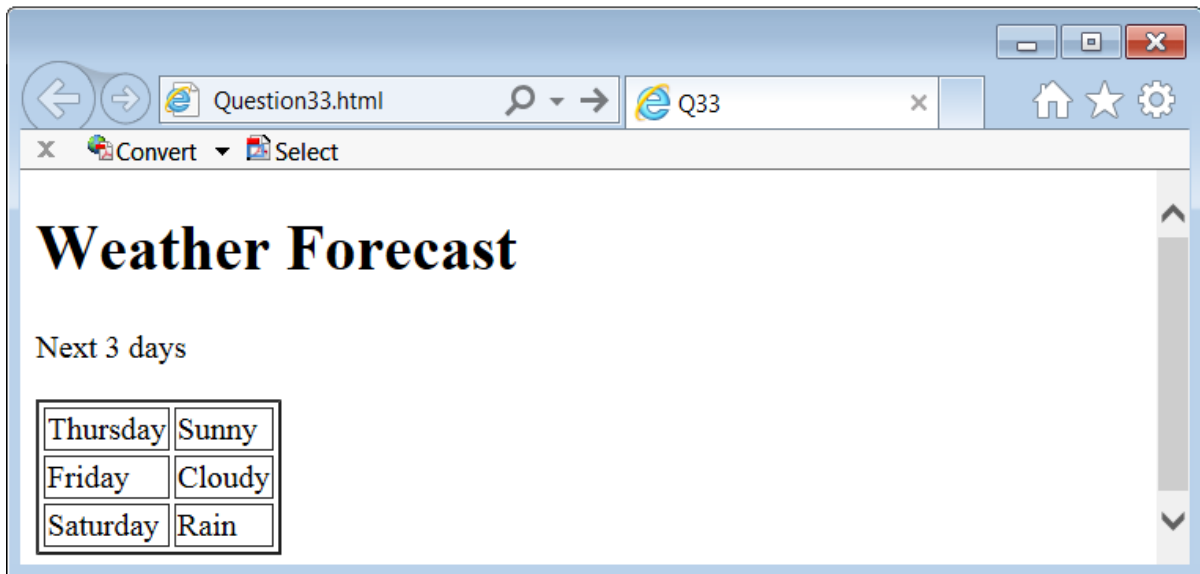
**Note** that the web page uses inline, internal and external style sheets.



(9 marks)

### Question 33 XHTML (6 marks)

Complete the XHTML 1.0 Strict code that would produce the following web page.



```
<?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>Q33</title>
</head>
<body>

  <h1>Weather Forecast</h1>

  <p>Next 3 days</p>

  <table border="2px">
    <tr>
      <td>Thursday</td> <td>Sunny</td>
    </tr>
    <tr>
      <td>Friday</td> <td>Cloudy</td>
    </tr>
    <tr>
      <td>Saturday</td> <td>Rain</td>
    </tr>
  </table>

</body>
</html>
```

(6 marks)