

THE UNIVERSITY OF AUCKLAND

SECOND SEMESTER, 2010
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.

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

	Question	Mark	Out Of
1 - 20	Multiple Choice		50
21	Acronyms		10
22	XHTML and CSS		30
23	Short Answer		10
	TOTAL		100

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] How many different numbers can we represent using 5 bits?

- (a) 5
- (b) 10000
- (c) 10
- (d) 32**
- (e) 16

Question 2

[2.5 marks] Which of the following would be the biggest value?

- (a) 1 GB
- (b) 1 TB
- (c) 1 GiB
- (d) 1 TiB**
- (e) 1000 GB

Question 3

[2.5 marks] Which of the following components are NOT likely to be found in a system unit?

- (a) Monitor**
- (b) Motherboard
- (c) CPU
- (d) HDD
- (e) RAM

Question 4

[2.5 marks] Approximately how long would you have to wait before you could buy a CPU with four times as much computing power for the same price? Use the definition of Moore's Law given in lectures.

- (a) 3 years**
- (b) 18 months
- (c) 16 years
- (d) 4 years
- (e) 2 years

Question 5

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

- (a) All software is automatically protected by software patent law**
- (b) Free software, as defined by Richard Stallman, can be freely copied
- (c) Some proprietary software is free to download and use
- (d) Shareware is not free software as defined by Richard Stallman
- (e) All software is automatically protected by copyright law

Question 6

[2.5 marks] What does TCP do?

- (a) Divides a message into packets, checks that they have arrived safely and recombines the original message.**
- (b) Sends information unreliably, but faster than other protocols
- (c) Forms a continuous connection from a source machine to a destination machine.
- (d) Creates a secure connection over which your credit card can be safely sent.
- (e) Converts an IP address into a human-readable domain name.

Question 7

[2.5 marks] What was the main assumption behind the design of the Internet?

- (a) The Internet would be used for business.
- (b) Digital information can be copied, so nodes could easily be reproduced.
- (c) Nodes would be unreliable.**
- (d) The Internet would help win the space race against the Soviet Union.
- (e) The growth rate of the Internet would be exponential

Question 8

[2.5 marks] Which of the following protocols is used to receive email?

- (a) IMAP**
- (b) SSH
- (c) VOIP
- (d) SMTP
- (e) UDP

Question 9

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

- (a) Email is securely encrypted when it is sent from one mail server to another**
- (b) Different protocols are used to send and receive email messages
- (c) It is legal for companies to read their employees' email
- (d) Any type of file can be sent as an email attachment
- (e) Even when email is deleted, a copy of the email may be archived by a system administrator

Question 10

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

- (a) Blogs are objective
- (b) Blogs can only contain plain text, but can link to images hosted elsewhere
- (c) Blogs are double-blind peer reviewed to ensure high quality content
- (d) Blog entries are indexed automatically, so you always know the topic of the blog
- (e) Blog posts are normally viewed in reverse chronological order**

Question 11

[2.5 marks] Which statement about wikis is TRUE?

- (a) If a wiki page is vandalized, the information on the page cannot be retrieved, which is why vandalism is such a problem for wikis.
- (b) All wikis have unrestricted access, so anyone can edit them
- (c) Most wikis can be edited easily**
- (d) Information in a wiki can't be trusted since it has been written by an individual
- (e) Research that references Wikipedia pages is poor research that will not be published

Question 12

[2.5 marks] Who created the World Wide Web?

- (a) Vannevar Bush
- (b) Tim Berners-Lee**
- (c) Ted Nelson
- (d) Bill Gates
- (e) ARPA

Question 13

[2.5 marks] What is the purpose of a web cache?

- (a) Store a copy of web pages so they can be accessed faster**
- (b) Prevent access to inappropriate material
- (c) Keep a log of all the visited pages
- (d) Prevent an unauthorized user from accessing a private network
- (e) Visualize the web to help with navigation

Question 14

[2.5 marks] What is ASCII?

- (a) A 16 bit code used to represent different characters
- (b) A picture constructed using only letters and numbers
- (c) A standard mapping of characters to numbers**
- (d) A protocol used to transmit plain text
- (e) American standard characters for information input

Question 15

[2.5 marks] Why are standard file formats important for a word processor?

- (a) So that PostScript can be used to print
- (b) So that the time taken to learn an interface is not wasted
- (c) So that documents created by the word processor take up a small amount of disk space
- (d) So that a document appears the same on the screen as it does when printed
- (e) So that documents can be shared between different applications**

Question 16

[2.5 marks] How many **bytes** are required to store an image that is 20 pixels wide, 10 pixels high, and uses 16 colours?

- (a) 3200 bytes
- (b) 100 bytes**
- (c) 800 bytes
- (d) 1600 bytes
- (e) 200 bytes

Question 17

[2.5 marks] Which of the following was NOT a criticism of PowerPoint by Tufte?

- (a) PowerPoint forces all presentations to fit the same mould
- (b) PowerPoint reduces the information available to an audience
- (c) PowerPoint is particularly poor at representing tables of data
- (d) PowerPoint encourages people to focus on style over content
- (e) PowerPoint has a limited range of templates**

Question 18

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

- (a) Between 3 and 6 different font typefaces should be used in a single presentation.
- (b) Presentations should not display more than 1 slide every 30 seconds on average**
- (c) Text in upper case should be used for headings since it is easier to read
- (d) Using at least one piece of clip art per page gives a consistent, professional appearance
- (e) Presentations should use animation to make the slides more interesting

Question 19

[2.5 marks] Which of the following statements about computer graphics is FALSE?

- (a) Texture mapping is used to project a flat image onto a 3D model
- (b) Ray tracing is a fast rendering technique used for computer games**
- (c) Images generated for computer games have a low polygon count to speed up rendering
- (d) Many computer generated images appear too perfect because irregularity is difficult to model
- (e) Phong shading can be used to create the appearance of a smooth shiny surface

Question 20

[2.5 marks] Which of the following is most difficult to render accurately?

- (a) Plain colour
- (b) Reflection
- (c) Translucency**
- (d) Refraction
- (e) Transparency

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 TCP stand for?

Transmission Control Protocol

(2 marks)

(b) What does CPU stand for?

Central Processing Unit

(2 marks)

(c) What does ISP stand for?

Internet Service Provider

(2 marks)

(d) What does CSS stand for?

Cascading Style Sheets

(2 marks)

(e) What does RAM stand for?

Random Access Memory

(2 marks)

Question 22

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. Include the title in the browser title area.

```
<?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>HTML Question</title>
  <link rel="stylesheet" href="test.css" type="text/css" />
  <style type="text/css">
    h1 {text-align: right;}
    #test {text-align: center;}
  </style>
</head>

<body>
  <!-- Check Upper & Lower Case -->
  <h1>Computer Science</h1>
  <h2 class="test">Mid-Semester Test</h2>

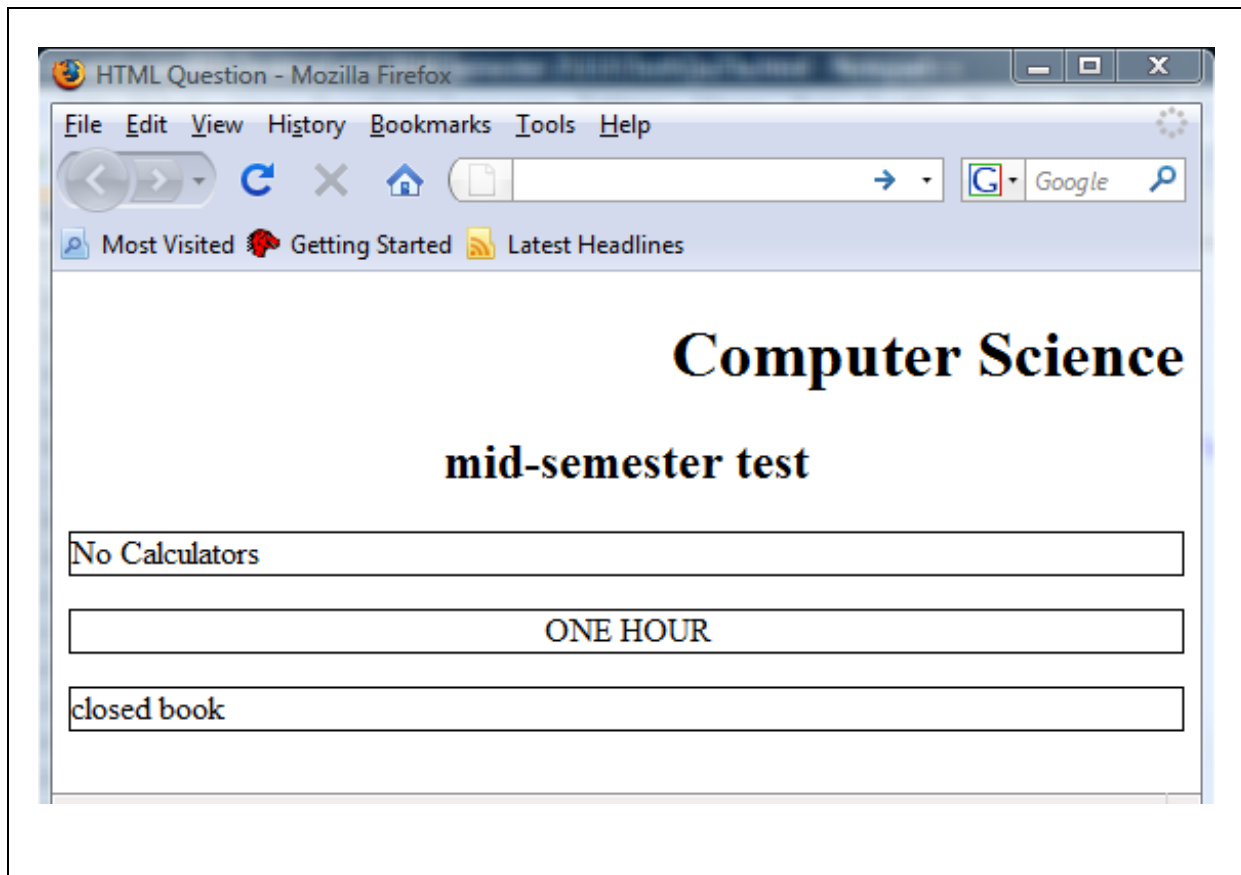
  <p>No Calculators</p>
  <p id="test">
    One

    Hour
  </p>
  <p class="test">Closed Book</p>
</body>
</html>
```

The external style sheet is defined in a file called “test.css”, with the contents:

```
h1,h2 {text-align: center;}
p {
  border-width: thin;
  border-style: solid;
  border-color: black;
}
#test {text-transform: uppercase;}
.test {text-transform: lowercase;}
```

Note that the web page uses both internal and external style sheets.



(10 marks)

(b) Draw the appearance of the table produced by the following code fragment:

```
<table border="1px">  
<tr><td>A</td><td>B</td></tr><tr><td>C</td></tr><tr><td>D</td>  
<td>E</td></tr>  
</table>
```

A	B
C	
D	E

(10 marks)

(c) Write the XHTML 1.0 Strict code fragment that would produce the following:

Numbers

- One
- Two

Letters

1. A
2. B

```
<p>Numbers</p>
<ul>
  <li>One</li>
  <li>Two</li>
</ul>
<p>Letters</p>
<ol>
  <li>A</li>
  <li>B</li>
</ol>
```

(10 marks)

Question 23

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

(a) Do you trust the information on Wikipedia? Write a paragraph that explains your answer.

Partially. A study in Nature reported that the scientific information in Wikipedia was about as accurate as Encyclopedia Britannica. The content is maintained by a large community, so hopefully errors are detected and corrected quickly. Tools such as history tracking make it easy for the community to maintain and repair. Pages often provide references that can be checked to verify the facts.

However, there is no real accountability for people and no real consequences for incorrect information. In traditional publications, fact-checkers and editors are paid to maintain quality, and the publishers themselves have a reputation to uphold, so there is a degree of accountability that Wikipedia doesn't have.

In summary, it is a good resource with mostly correct information, but without the accountability of most other publications. I would therefore use it as a resource to get an overview and a list of references to find "trusted" information.

(5 marks)

(b) What are the major advantages of separating structure and appearance in a web page or word processing document? Write a paragraph explaining your answer.

In a web page, XHTML describes the structure while CSS describes the appearance. In a word processing document, a style sheet is used to describe the appearance of the styles that are applied throughout the document. The major advantages are:

You can change the appearance of a structural element independently of the content, ensuring consistency in appearance throughout the document.

If a structural element appears in multiple places throughout the document (such as a section heading), then it is quicker to change the appearance of the document by modifying the style compared with changing the appearance manually in multiple places throughout a document.

You can have different versions of the document with different appearances by providing different style sheets, without having to change the content or structure of the document.

(5 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.