

# THE UNIVERSITY OF AUCKLAND

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**FIRST SEMESTER, 2011**

**Campus: CITY**

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

	<b>Question</b>	<b>Mark</b>	<b>Out Of</b>
1 - 30	Multiple Choice		75
31	XHTML and CSS		25
	<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] In order to store information on a computer it has to be turned into which of the following types of data?

- (a) Continuous
- (b) Rational
- (c) Alphabetical
- (d) Digital**
- (e) Floating point

**Question 2**

[2.5 marks] A bit can represent many different things. Which of the following values can be stored with a single bit?

- (a) true or false
- (b) black or white
- (c) 0 or 1
- (d) off or on
- (e) All of the above**

**Question 3**

[2.5 marks] How many different states (or numbers) can be represented with 8 bits? The answers are in decimal.

- (a) 100000000
- (b) 256**
- (c) 10000000
- (d) 128
- (e) 8

**Question 4**

[2.5 marks] What decimal number has the binary representation 1101?

- (a) 13**
- (b) 3
- (c) 11
- (d) 7
- (e) 1101

**Question 5**

[2.5 marks] How many bits are there most commonly in a byte?

- (a) 256
- (b) 2
- (c) 1
- (d) 8**
- (e) 32

**Question 6**

[2.5 marks] One of the following parts is connected directly to all of the others. Which one is it?

- (a) RAID controller
- (b) graphics card
- (c) memory
- (d) motherboard**
- (e) processor

**Question 7**

[2.5 marks] Which of the following statements is closest to Moore's law as described in lectures?

- (a) The number of cores in a processor doubles every 18 months.
- (b) The cost of a computer reduces by 50% every 2 years.
- (c) The speed of computers doubles every year.
- (d) The size of processors doubles every 18 months.
- (e) The number of transistors on a chip doubles every 18 months.**

**Question 8**

[2.5 marks] Which connector can be used with all of the following: external drives, joysticks, printers, mice and keyboards?

- (a) DVI
- (b) USB**
- (c) PCI-Express
- (d) VGA
- (e) PS/2

**Question 9**

[2.5 marks] How do some operating systems know the format of a file?

- (a) By the size of the file.
- (b) By the data stored at location 0xffff of the file.
- (c) By the first 3 letters of the filename.
- (d) By the first binary digit of the file.
- (e) By the file extension at the end of the filename.**

**Question 10**

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

- (a) Postcardware is software to create postcards.
- (b) Proprietary software can be freely copied.
- (c) Copyright protects the creators' rights to restrict (or allow) copies to be made of their software.**
- (d) Freeware is Open Source.
- (e) Software patents are recognised world-wide.

**Question 11**

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

- (a) Users are allowed to share modified versions of the program.
- (b) If you have a copy of the program you can give it to someone else.
- (c) The source code must be made available to users.
- (d) Users are allowed to modify the program.
- (e) The program must never be sold.**

**Question 12**

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

- (a) Mobile phone operating systems are the same as desktop operating systems.
- (b) Linux is the most widely used operating system.
- (c) An operating system manages the CPU, memory, disks and other components.**
- (d) Most popular operating systems predominantly use a command line interface to interact with users.
- (e) Microsoft Windows is commonly regarded as too technical for most users to use easily.

**Question 13**

[2.5 marks] Which of the following statements about GUIs and CLIs is FALSE?

- (a) CLIs provide powerful ways to combine different commands.
- (b) GUIs are only good for experts that use them often.**
- (c) GUIs use windows, icons, menus and pointers.
- (d) CLIs are text-based.
- (e) CLIs are generally regarded as hard to use.

**Question 14**

[2.5 marks] According to the lecture notes which historical/political event provided the investments in technology which eventually gave rise to the Internet?

- (a) World War II
- (b) The Depression
- (c) The Space Race
- (d) The Cold War**
- (e) The Global Financial Crisis

**Question 15**

[2.5 marks] Which of the following is TRUE about packet-switched networks?

- (a) The network is centralized around exchange nodes.
- (b) Messages are broken into small chunks which are sent independently.**
- (c) Telephone networks have traditionally worked this way.
- (d) Best for real-time data (e.g. voice).
- (e) A continuous connection is formed between communicating nodes.

**Question 16**

[2.5 marks] The Internet is designed to solve which of the following problems?

- (a) The difficulty of routing information from one node to another.
- (b) The control of robots and webcams from remote locations.
- (c) The difficulty of maintaining voice communication worldwide.
- (d) The speed of light limiting the speed of conventional circuit-switched networks.
- (e) The failure of a central node bringing down large parts of the network.**

**Question 17**

[2.5 marks] Which protocol is used for reliably transporting data on the Internet?

- (a) SMTP
- (b) HTTP
- (c) UDP
- (d) TCP/IP**
- (e) FTP

**Question 18**

[2.5 marks] Which of the following numbers could be an IP address?

- (a) 130.216.34102
- (b) 13021634102
- (c) 130.216.34.102.96
- (d) 130.216.34.102**
- (e) 130216.34102

**Question 19**

[2.5 marks] Which of the following is NOT a characteristic of TCP?

- (a) Divides the message into packets.
- (b) Defines routing information.**
- (c) Combines packets to reform the message.
- (d) Makes sure that packets are not sent faster than they can be received.
- (e) Checks that all packets arrive.

**Question 20**

[2.5 marks] According to the lecture notes the Domain Name System:

- (a) gives a browser the geographical location of an IP address.
- (b) connects multiple computers to a network.
- (c) allows communication via phone line.
- (d) finds the names of all parks and domains around the world.
- (e) allows us to associate a human-readable name with an IP address.**

**Question 21**

[2.5 marks] What does SMTP stand for?

- (a) Simple Message Transfer Protocol
- (b) Sophisticated Mail Transfer Protocol
- (c) Sophisticated Message Transfer Protocol
- (d) Simple Mail Transfer Protocol**
- (e) Simple Mail Translation Protocol

**Question 22**

[2.5 marks] What are POP3 and IMAP?

- (a) Two different protocols to send email.
- (b) Two different protocols to connect to the Internet.
- (c) Two different word processing file formats.
- (d) Two different protocols to publish web pages.
- (e) Two different protocols to retrieve email.**

**Question 23**

[2.5 marks] According to the lecture notes, which of the following statements concerning email privacy is FALSE?

- (a) All major companies in the USA check employees' email.**
- (b) Misdirected email is automatically sent to the system administrator.
- (c) Messages can be read by others while in transit.
- (d) Messages are stored on the destination mail server and may be backed up.
- (e) Mail messages typically pass through many machines.

**Question 24**

[2.5 marks] In the Computer Science Wiki what is the effect of placing the "=" character (without the quotes) before and after some text?

- (a) It enters the user's name into the text.
- (b) It makes the text into a main heading.**
- (c) It turns the text into a link to another wiki page.
- (d) It emphasises the text.
- (e) It enters the time and date into the text.

**Question 25**

[2.5 marks] According to the lecture slide on browser usage, which browser is still the most widely used browser?

- (a) **Internet Explorer**
- (b) Firefox
- (c) Other
- (d) Safari
- (e) Chrome

**Question 26**

[2.5 marks] Which of the following is TRUE?

- (a) The Internet can provide all information using HTTP.
- (b) The WWW uses the peer-to-peer model.
- (c) The Internet is the same as the WWW.
- (d) The WWW is bigger than the Internet.
- (e) **The Internet is bigger than the WWW.**

**Question 27**

[2.5 marks] Which of the following is NOT taken into account when a search engine such as Google returns a web page as the answer to a query?

- (a) The number of web pages pointing to this web page.
- (b) **The number of advertisements on the web page.**
- (c) Whether the web site is trying to trick the search engine, e.g. by creating lots of links to its own pages.
- (d) Keywords in this web page.
- (e) The importance of web pages pointing to this web page.

**Question 28**

[2.5 marks] What is Unicode?

- (a) A character set encoding for less than 100,000 characters.
- (b) The universal character octal decimal encoding.
- (c) A fixed 32-bit encoding of characters.
- (d) **A standard encoding for most of the world's writing systems.**
- (e) The official character set of the United Nations.

**Question 29**

[2.5 marks] Why are open standard file formats important for word processors?

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

**Question 30**

[2.5 marks] What was the name of the referencing application used in conjunction with Word which we covered in lectures and labs?

- (a) LaTeX
- (b) RefNote
- (c) EndNote**
- (d) EndCitation
- (e) BibTex



**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.

The rest of this page intentionally left blank.

**Question 31**

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.

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

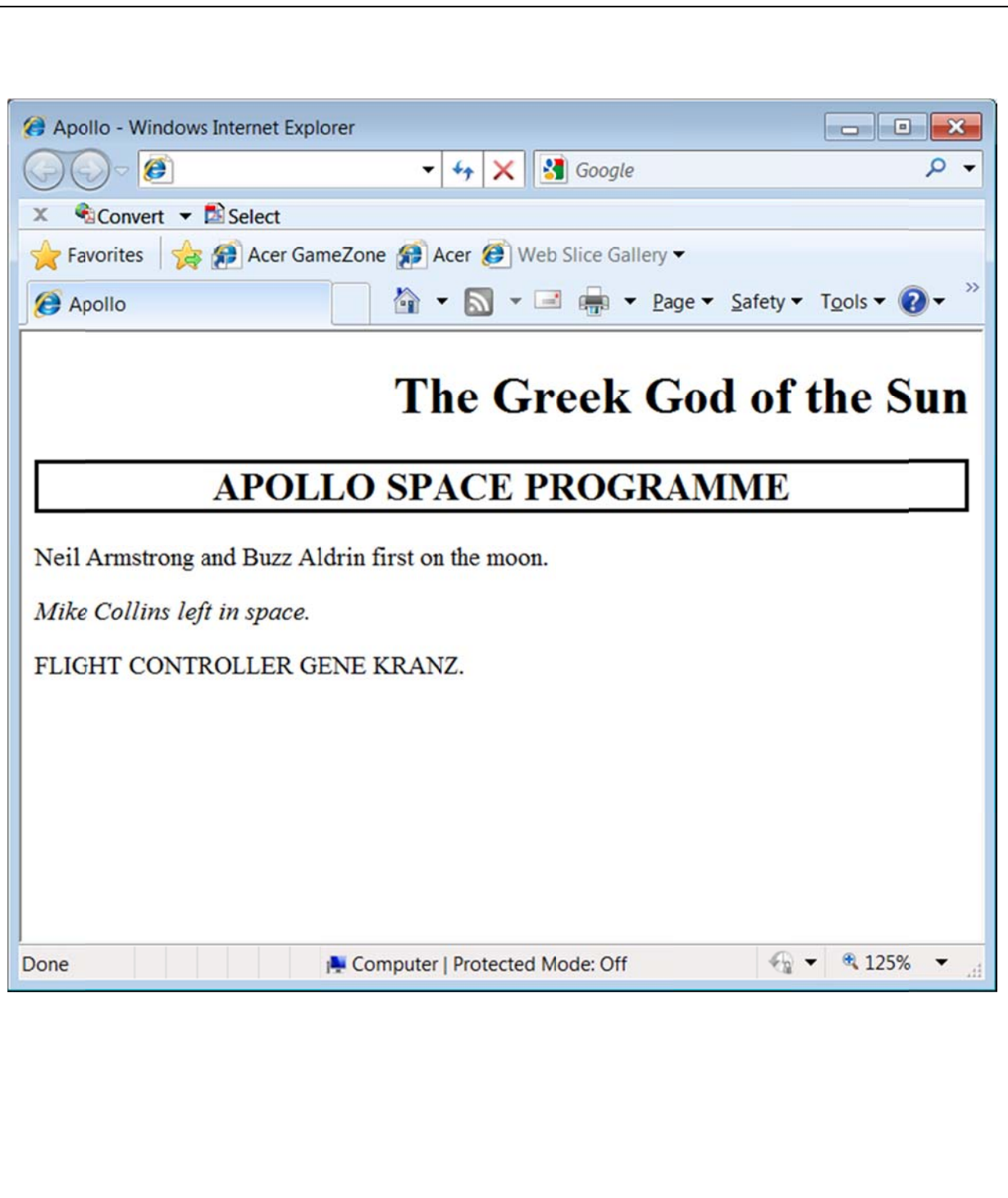
```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE html
  PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
  <title>Apollo</title>
  <link rel="stylesheet" href="test.css" type="text/css" />
  <style type="text/css">
    h1 {text-align: right;}
  </style>
</head>

<body>
  <h1>The Greek God of the Sun</h1>
  <!--
    Chosen as the name for the moon landing programme.
  -->
  <h2 class="command" style="border-width: medium;
    border-style: solid">Apollo Space Programme</h2>
  <p>Neil Armstrong and Buzz Aldrin first on the moon.</p>
  <p id="command">
    Mike Collins
    left in space.
  </p>
  <p class="command">Flight controller Gene Kranz.</p>
</body>
</html>
```

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

```
h1,h2 {text-align: center;}

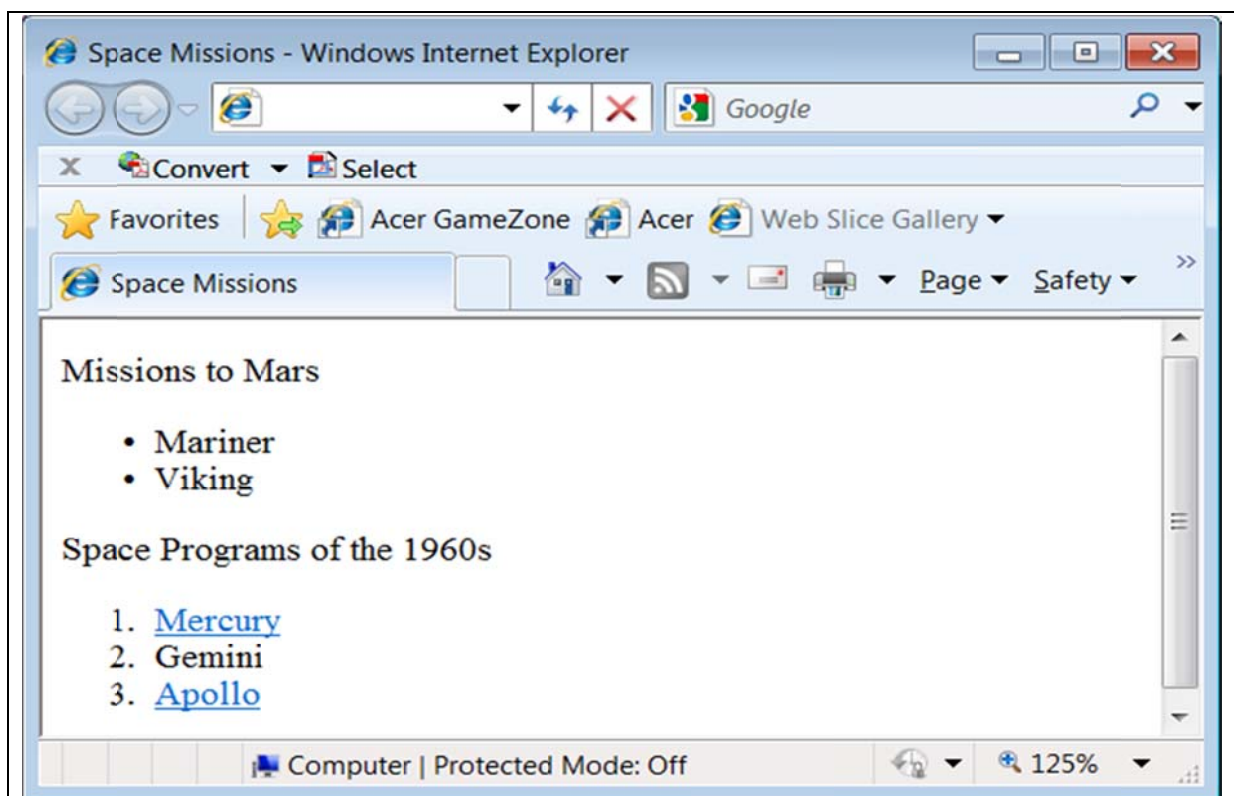
#command {font-style: italic;}
.command {text-transform: uppercase;}
```



(10 marks)

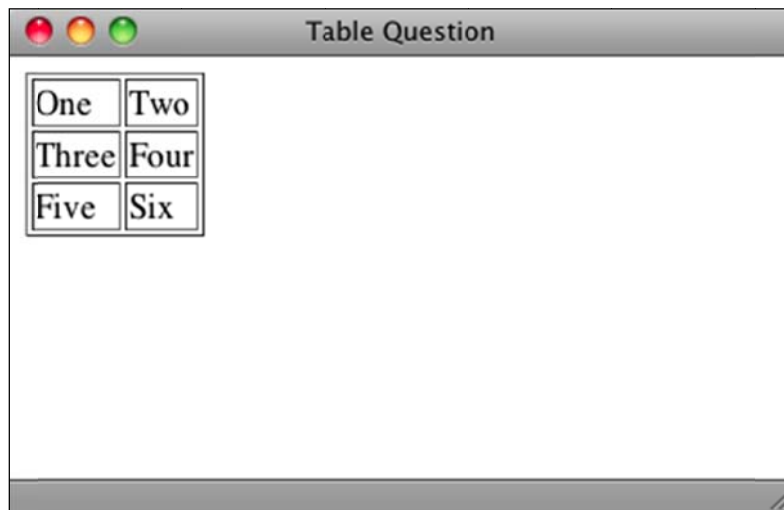
(b) Draw the appearance of the web page produced by the following code (show any links with underlines). Include the title in the browser title area.

```
<?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">
<head>
  <title>Space Missions</title>
</head>
<body>
  <p>Missions to Mars</p>
  <ul>
    <li>Mariner</li>
    <li>Viking</li>
  </ul>
  <p>Space Programs of the 1960s</p>
  <ol>
    <li><a href="mercury.html">Mercury</a></li>
    <li>Gemini</li>
    <li><a href="apollo.html">Apollo</a></li>
  </ol>
</body>
</html>
```



(5 marks)

(c) Complete the XHTML 1.0 Strict code that would produce the following table (the border has a size of "1"):



One	Two
Three	Four
Five	Six

```
<?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>Table Question</title>
</head>
<body>

<table border = "1px">
<tr>
  <td>One</td> <td>Two</td>
</tr>
<tr>
  <td>Three</td> <td>Four</td>
</tr>
<tr>
  <td>Five</td> <td>Six</td>
</tr>
</table>

</body>
</html>
```

(10 marks)