

THE UNIVERSITY OF AUCKLAND

FIRST SEMESTER, 2008

Campus: City

COMPUTER SCIENCE

Mastering Cyberspace: An Introduction to Practical Computing

(Time Allowed: ONE hour)

NOTE: You must answer **all** questions in this test.

No calculators are permitted

Answer Section A (Multiple choice questions) on the Teleform answer sheet provided. Answer Section B in the space provided in this booklet.

There is space at the back for answers that overflow the allotted space.

Surname	Sample Answers
Forenames	
Student ID	
Login (UPI)	

	Question	Mark	Out Of
1 - 20	Multiple Choice		50
21	Acronyms		5
22	Digital Images and Internet		20
23	XHTML and CSS		25
	TOTAL		100

SECTION A

MULTIPLE CHOICE QUESTIONS

Each question in this section is worth 2.5 marks. There is only one correct answer for each question. Select your preferred alternative on the Teleform answer sheet provided.

1. Which of the following is the best definition of a bit?
 - (a). A bit is a binary number consisting of more than one byte
 - (b). A bit is a binary number consisting of exactly one digit
 - (c). A bit is a binary number consisting of 8 bytes
 - (d). A bit is a binary number consisting of more than one digit
 - (e). A bit is a binary number consisting of 8 digits

2. What decimal number is represented by the binary number 1101?
 - (a). 16
 - (b). 28
 - (c). 11
 - (d). 5
 - (e). 13

3. Which of the following lists is in increasing order of magnitude?
 - (a). mega, kilo, giga, tera
 - (b). kilo, mega, giga, tera
 - (c). kilo, tera, mega, giga
 - (d). mega, tera, giga, kilo
 - (e). kilo, giga, mega, tera

4. Which one of the following statements is **false**?

- (a). Accessing memory on a Hard Drive is faster than accessing memory from RAM
- (b). A Hard Drive is used for mass storage (sometimes called secondary storage)
- (c). A Hard Drive typically has a larger storage capacity than RAM
- (d). RAM is an example of a volatile storage device
- (e). RAM stands for Random Access Memory.

5. Which one of the following items is **not** hardware?

- (a). CPU
- (b). Power Supply
- (c). System Unit
- (d). Mouse
- (e). Operating System

6. Given the following advertisement, what is the size of the primary memory?

Intel® Pentium® D Processor 930 with Dual Core Processor 3GHz
Genuine Windows® XP Home Edition
512MB DDR2 SDRAM at 533MHz
160GB SATA 3.0Gb with NCQ
16X Max DVD+/-RW with Dual Layer Write Capabilities
19" LCD Flat Panel
256MB ATI® Radeon X600 HyperMemory Graphics
Integrated 7.1 Audio

- (a). 160 GB
- (b). 512 MB
- (c). 256 MB
- (d). 3 GHz
- (e). 533 MHz

7. Which of the following statements about file formats is **false**?

- (a). Changing the file extension will change the way information in the file is encoded
- (b). Some file formats are open standards and others are proprietary standards
- (c). In a Windows OS, a file extension determines the application that is used to open the file.
- (d). The interpretation of the data in a file depends on the file extension
- (e). A file format defines the way information in a file is interpreted

8. Which of the following is **not** an operating system?

- (a). Microsoft Office
- (b). Linux
- (c). Windows XP
- (d). Unix
- (e). Macintosh OS X

9. Which of the following statements is **true**?

- (a). A CLI is easier to use for beginners, but a GUI is more powerful for experts
- (b). A Graphical User Interface is an Operating System
- (c). A GUI is based on windows, menus, icons and pointers
- (d). A Command Line Interface is used by Microsoft Office
- (e). Whenever we apply a command using a menu, we are using a CLI

10. Why was packet switching technology used for the Internet instead of circuit switching?
- (a). Circuit switching technology could not be used to send large files across the network
 - (b). The military wanted to make it more difficult for people to spy on the network.
 - (c). Packet switching networks make it easier for human beings to understand IP addresses
 - (d). Circuit switching technology is slower than packet switching
 - (e). Packet switching can be used to transfer information when parts of the network are destroyed

11. Which of the following lists of events is ordered in chronological order, from the earliest event to the most recent?
- (a). ARPANET created
DNS created
TCP/IP created
WWW created
 - (b). ARPANET created
TCP/IP created
WWW created
DNS created
 - (c). WWW created
ARPANET created
TCP/IP created
DNS created
 - (d). TCP/IP created
WWW created
ARPANET created
DNS created
 - (e). ARPANET created
TCP/IP created
DNS created
WWW created

12. Which of the following statements about TCP/IP is **false**?
- (a). TCP/IP is a pair of protocols that are used to transfer packets from one machine to another using the Internet
 - (b). TCP stands for Transmission Control Protocol
 - (c). IP defines network addresses and is used for routing packets
 - (d). TCP converts packets from analog to digital and digital to analog
 - (e). IP stands for Internet Protocol
13. Which of the following hardware components **can't** be used to create a network?
- (a). USB Cable
 - (b). Dial-up Modem
 - (c). Broadband modem
 - (d). Router
 - (e). Ethernet card
14. Which of the following statements about a wiki is **false**?
- (a). Only the administrators of the wiki can see who has changed the content of a page
 - (b). Anyone can contribute to a wiki, so anyone can vandalize a wiki
 - (c). Wikipedia is the world's largest wiki
 - (d). Ward Cunningham created the first wiki in 1995
 - (e). Wikis are designed to allow people to collaborate and work together to create documents

15. What was the original purpose of the WWW?
- (a). To enable commerce to be done using the Internet
 - (b). For the military to communicate more effectively
 - (c). For researchers to share documents
 - (d). To connect computers in case of a nuclear attack
 - (e). To share music and images quickly and effectively
16. Given that the ASCII code for the letter 'A' is 65, what are the codes for the word "BAD"?
- (a). 67 65 66
 - (b). 66 65 68
 - (c). 66 65 67
 - (d). 67 66 68
 - (e). 68 65 66
17. Which one of the following statements about the use of styles in Microsoft Word is **false**?
- (a). Using styles helps to maintain consistency of appearance
 - (b). Styles can be used to apply many formatting changes at once
 - (c). Defining a style is a way of giving a name to a set of formatting changes
 - (d). Once a style has been defined, it cannot be modified
 - (e). Users can create their own styles, or use the ones that are built-in

18. How many colours can be represented using 6 bits?

(a). 16

(b). 48

(c). 12

(d). 64

(e). 32

19. How much memory is required to store a black and white image that is 5 pixels high and 10 pixels long?

(a). 100 bytes

(b). 400 bits

(c). 50 bytes

(d). 50 bits

(e). 100 bits

20. If you were slowly editing a photo over many weeks, which file format would you use to save the image between editing sessions?

(a). MPEG

(b). GIF

(c). SVG

(d). PNG

(e). JPG

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.

21. State what each of the following acronyms stand for.

(a) What does CPU stand for?

Central Processing Unit

(1 mark)

(b) What does ASCII stand for?

American Standard Code for Information Interchange

(1 mark)

(c) What does GUI stand for?

Graphical User Interface

(1 mark)

(d) What does ISP stand for?

Internet Service Provider

(1 mark)

(e) What does DNS stand for?

Domain Name Server

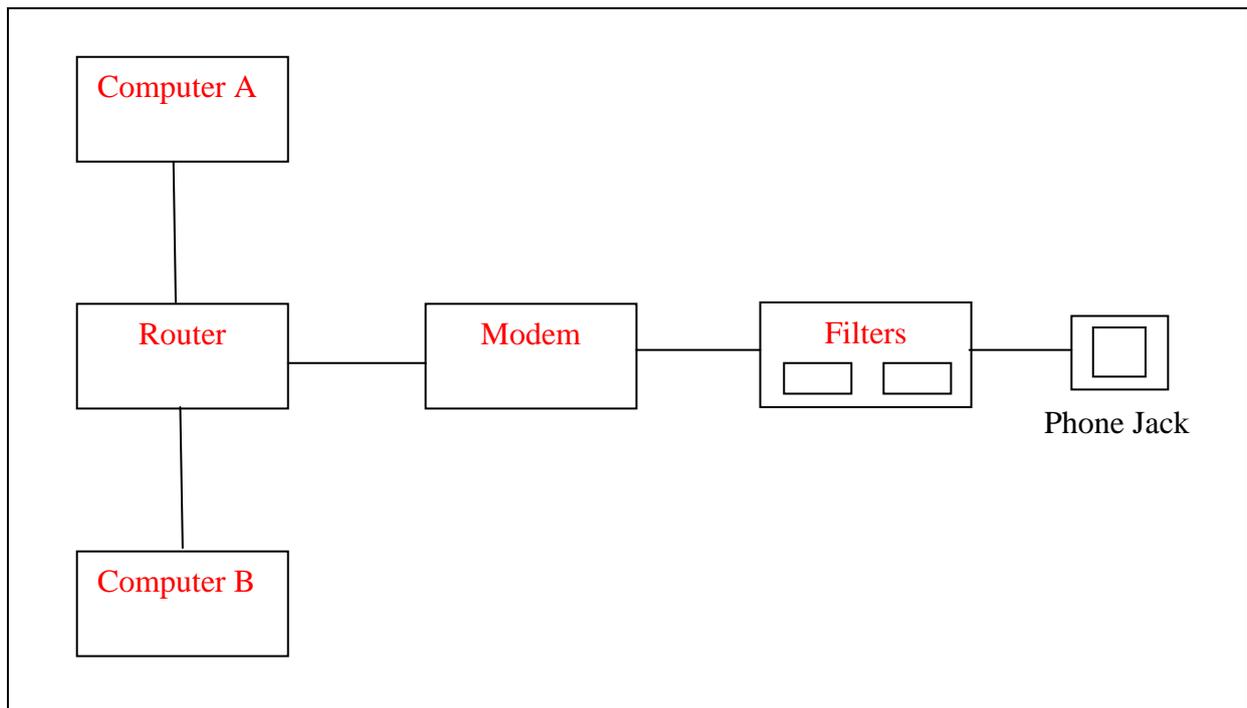
(1 mark)

22. The following questions relate to digital images and the Internet.

(a) Given the following pieces of hardware:

- Broadband modem
- Phone Filters
- Computer A with Network Card
- Computer B with Network Card
- Router

Draw a diagram that shows how the components would be connected together to create a home network that has internet access.



(5 marks)

(b) Explain why vandalism is not considered to be a major problem for wikis.

Because wikis usually have tools that help the community manage vandalism quickly and easily. A history of all recent changes is maintained so users can see what has changed and will be able to identify vandalized pages. Any user can restore the vandalized page to a previous version. Since the vandals are a small minority of the user base, any damage they cause is quickly corrected by the large number of users that are not vandals.

(5 marks)

(c) Why should we be concerned about the ethics (system of moral principles and values) of Google?

Search engines are the way most people find information on the Internet and Google is the most widely used search engine in the world. This means that Google has a lot of influence over access to information in society. Google is a corporation that has obligations to its shareholders to make money. Since their system is responsible for searching, ranking and displaying information, and there is no independent regulation of this system, bias in the information presented could occur without public knowledge. Many people believe that their dealings with the Chinese Govt., their response to privacy advocates and law suits involving copyright have called their ethics into question, and given us legitimate concern over the control that Google has over access to information in our society.

(5 marks)

(d) Is the following image a bitmap or a vector graphics image? Explain how you can tell the difference.



The image is a bitmap. Bitmaps represent an image using blocks of colour (pixels), like the ones visible in the curved part of the B. It looks like this image has been enlarged and the individual pixels are visible. By comparison, a Vector graphics image is represented by mathematical formulae which are used to reproduce smooth lines at any size, so if a vector graphics image was enlarged it would look identical (although larger) to the original, and you would not see the degradation of the image apparent in the example above.

(5 marks)

23. The following questions relate to XHTML and CSS.

(a) What is the correct nesting of the following XHTML tags?

```
<body> </body> <td> </td> <table> </table> <tr> </tr>
```

```
<body>
  <table>
    <tr>
      <td>
      </td>
    </tr>
  </table>
</body>
```

(4 marks)

(b) What is wrong with the following piece of XHTML?

```
<body>
<h1>Examples
<p>This is an <i>example</i> of XHTML code used in a web
page</p>
<h2> 2nd Example</h2>
<p>This is a second example of XHTML code.</body>
```

```
Missing </h1>
Missing </p> tag on last line
```

(4 marks)

(c) If a hypertext link was made to a web page called **index.html** that was stored in the **/courses/compsci111/** directory of the **www.cs.auckland.ac.nz** web server, what would be the correct href file location?

```
<a href =
"http://www.cs.auckland.ac.nz/courses/compsci111/index.html">home
</a>
```

(3 marks)

(d) If a hypertext link was made from **index.html** in the previous question to a page called **courses.html** that was stored in the **/courses/compsci111/** directory of

the `www.cs.auckland.ac.nz` web server what would be the correct *relative* href file location?

```
<a href = "courses.html">courses</a>
```

(3 marks)

(e) Write the XHTML code for the following table.

Cell One	Cell Two
Cell Three	<i>Cell Four</i>

```
<table>
  <tr>
    <td>Cell One</td>
    <td>Cell Two</td>
  </tr>
  <tr>
    <td>Cell Three</td>
    <td style = "font-style:italic" >Cell Four</td>
  </tr>
</table>
```

(7 marks)

(f) Define an XHTML CSS style rule that makes all 1st level headings blue and in bold.

```
h1 {color:blue;
     font-weight:bold;
}
```

(2 marks)

(g) **Extend** the style rule above to apply to all 2nd level headings as well.

```
h1,h2 {color:blue;
        font-weight:bold;
}
```

(2 marks)