THE UNIVERSITY OF AUCKLAND

TEST 2004

COMPUTER SCIENCE

Introduction to Computing and the Internet

Time Allowed: ONE hour

(100 Marks)

Surname
(Family name)

First Name(s)
(Given names)

Student ID:

Login:

NOTE: Write your answers in the space provided.
                There is space at the back for answers that overflow the allocated space

Mark Allocation	
Hardware	/ 8
Software	/ 14
History	/ 8
Networks	/ 10
Spreadsheets	/ 20
Databases	/ 20
HTML	/ 20
Total	/100

Hardware (8 marks)

1. Give two examples of input devices and two examples of output devices for computers.

Input:	Output:
Keyboard,mouse,microphone etc.	Monitor, printer, speaker etc.

(4 marks)

2. Give one example of *Primary Storage* and one example of *Secondary Storage*. Name one advantage and one disadvantage of *Secondary Storage*.

Primary storage: RAM, ROM(not a good example, but accepted)
Secondary storage: Floppy disk, CD, hard drive, flash card, tape

Advantage: Cheap, holds a lot of data, portable(bad example), non-
          volatile
Disadvantage: Slow

(4 marks)

Software (14 marks)

3. The two main styles of interface to an operating system are *GUIs* and *command line interfaces*. Give one advantage of each.

```
GUI: Easy to learn, good for beginners (1 mark for "easy to use")
CLI: Fast, good for advanced users
```
(4 marks)

4. Assign each of the following points to *Application Software* or *System Software* (or both).
    A. Solves a particular problem (domain)
    B. Shares CPU time between tasks
    C. Sends data to the computer's hardware
    D. Runs in a session
    E. Manages memory
    F. Has a user interface

Application Software:	System Software:
A	B
D	C
F	E
	F

One mark for each letter in correct place (and not in an incorrect one). One mark for F if it is in both columns.

(6 marks)

5. Give one advantage and one disadvantage of using *Unicode* instead of *ASCII*.

```
Advantage: Can represent many characters, from all languages
Disadvantage: Uses twice as many (16 or 32) bits, slower transfer
times, larger files
```
(4 marks)

History (8 marks)

6. Gordon Moore's name appears twice in the history of computing. For what two things is he famous?

```
Not thermonuclear war.
1: Moore's Law, law about CPU speed increases
2: Founding Intel
```

(4 marks)

7. In the **mid-1980's** Apple's market share quickly declined. Of the following pieces of software, which most contributed to this decline?
   A. BASIC
   B. DOS
   C. LISA
   D. LOTUS 1-2-3
   E. VisiCalc
   F. Windows 3.0

```
D
```
(2 marks)

8. Charles Babbage is called the "father of computers" for which of the following?
   A. Constructing the first mechanical calculating machine
   B. Designing the first programmable calculating machine
   C. Founding Microsoft
   D. Selling the first home computer
   E. Writing the first computer program

```
B
```
(2 marks)

Networks (10 marks)

9. Computers can send data through many different mediums. One such medium is as light through a fibre optic cable. Name two other mediums through which data can be transferred.

```
Through the air as microwaves, to satellites
Through copper wire or telephone cable as electricity
```
(2 marks)

10. What do LAN and WAN stand for? What is the difference between them?

```
LAN: Local Area Network
WAN: Wide Area Network
LAN = within 1km, WAN = greater than 1 km distance
```
(4 marks)

11. The *Stoned virus* and the *Love Bug virus* are examples of well known viruses with two very different methods of spreading. Describe how and when these viruses copy themselves.

```
Stoned: copied itself to disks when they are used on an infected
        machine
Love Bug: sent itself by email to everyone on the address book
        when it is first run
```
(4 marks)

Spreadsheets (20 marks)

Functions that *might* be helpful for this section:

If(logical, true_value, false_value)   And(boolean_1, boolean_2)

Sum(Cell Range)   Or(boolean_1, boolean_2)

Average(Cell Range)   Not(boolean_1)

Max(Cell Range)   Vlookup(lookup_value, Cell Range, index,

Min(Cell Range)   approximate match <true/false>)

Count(Cell Range)

All questions in this section refer to the table shown below. This table gives a list of bus fares for up to 4 stages, and an example of 5 users of the bus service. The cells marked in grey have been generated by formulas and it will be your job to work out what those formulas should be.

	A	B	C	D	E	F	G	H
5		TOTAL COST BY STAGE						
6		Stages	Total Cost					
7		1	$1.30					
8		2	$2.60					
9		3	$3.60					
10		4	$4.60					
11								
12		Discount	40%					
13								
14		Name	Stages	Age	Base cost	Concession	Cost per trip	
15		Jono	3	25	3.6	0%	3.6	
16		Ann	2	32	2.6	0%	2.6	
17		Sheila	2	16	2.6	40%	1.56	
18		Percival	1	45	1.3	0%	1.3	
19		Andy	4	66	4.6	40%	2.76	
20								
21		AVERAGE		36.8	2.94	16%	2.364	
22								

12. Cells D21 to G21 hold the average values of the users of the bus service. For example, D21 is the average of the **age**s found in cells D15 to D19.

    Give a formula to be entered in cell D21 that correctly calculates the *average* ages. When the formula is filled right into cells E21 to G21 it should give the correct values for those cells.

    =AVERAGE(D15:D19)

    (5 marks)

13. The **Base cost** found in cells E15 to E19 is simply the appropriate value from the **Total Cost** that can be found in cells C7 to C10.

    Give a VLOOKUP formula to be entered in cell E15 that will *look up* the correct cost based on the number of **stages** (in this case, in cell C15). When the formula is filled down into cells E16 to E19 it should give the correct values for those cells.

    ```
    =VLOOKUP(C15,$B$7:$C$10,2,FALSE)
    ```

    (5 marks)

14. The **Concession** is the amount of discount received by this customer. Customers receive the **discount** (value from cell C12) *if* they are a child (their age is less than 18) *or if* they are a senior (their age is greater than 65). Those who do not fit these criteria receive 0 concession.

    You are required to write an IF formula to do this.

    ```
    =IF(D15<18, $C$12, IF(D15>65, $C$12, 0))

        Or

    =IF(OR(D15<18, D15>65), $C$12, 0)
    ```

    (5 marks)

15. The **Cost per trip** is calculated by taking the **Base cost** (calculated in Question 13), *minus* a discount which is the **Base cost** *times* the **Concession** (calculated in Question 14).

    Give a formula to be entered in cell G15 that will correctly calculate this value. When the formula is copied down into cells G16 to G19 it should give the correct values for those cells.

    ```
    =E15-E15*F15
    ```

    (5 marks)

Databases (20 marks)

All questions in this section refer to the Ham Radio Users database pictured above. The picture on the left shows a table named **ContactHistory**. The top right shows a table named **Hams**. Bottom right shows the **relationship** between these two tables.

16. What would be the results of the following SQL query?
```
    SELECT * FROM ContactHistory WHERE Details='Swapped Details'
```

4	213MN	15/01/1999	Swapped Details
7	345KX	18/01/1999	Swapped Details

(6 marks)

Questions 17 and 18 refer to the Query By Example screen shown above.

17. What are the results of this query?

Ivan Smith	Brussels
Pierre Bloggs	Paris
Kevin Brown	London

(6 marks)

18. What SQL would this query produce? (Any SQL that gives the same results will do).

```
SELECT HamName, Location
FROM Hams
ORDER BY HamID DESC;
```

(using DESCENDING instead of DESC is fine)

(4 marks)

19. What is the relationship between the ContactHistory and Hams tables? State the
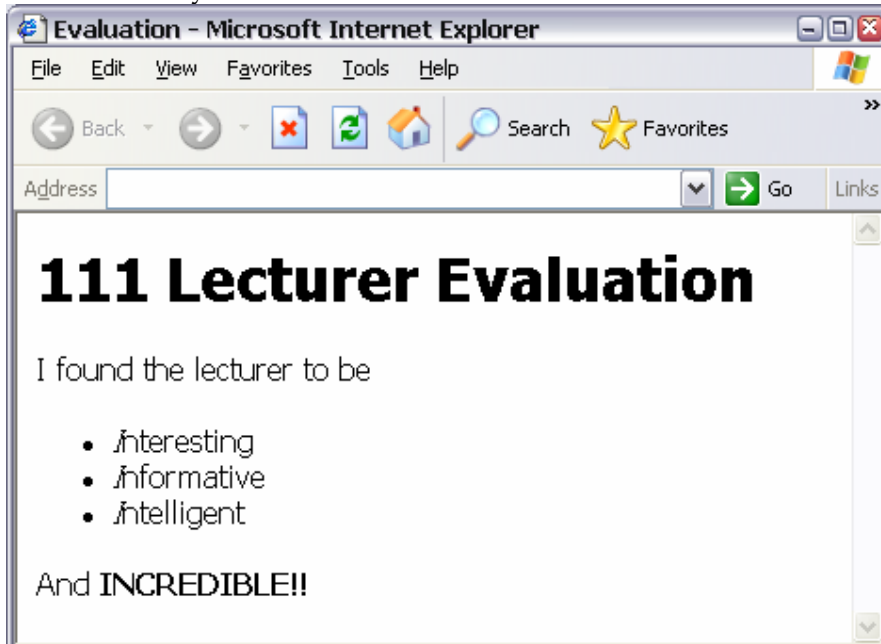   primary key and foreign key in this relationship.

```
It is a one to many relation
The primary key is the HamID field in Hams
The foreign key is the HamID field in ContactHistory
```

(4 marks)

HTML (20 marks)

20. Complete the HTML so that it generates the page shown below. Make sure your code is readable and correctly indented.


```
<HTML>
   <HEAD>
      <TITLE>Evaluation</TITLE>
   </HEAD>
   <BODY>


      <H1>111 Lecturer Evaluation</H1>

      I found the lecturer to be

      <UL>
         <LI><EM>I</EM>nteresting</LI>
         <LI><EM>I</EM>nformative</LI>
         <LI><EM>I</EM>ntelligent</LI>
      </UL>

      And <STRONG>INCREDIBLE!!</STRONG>




   </BODY>
</HTML>
```
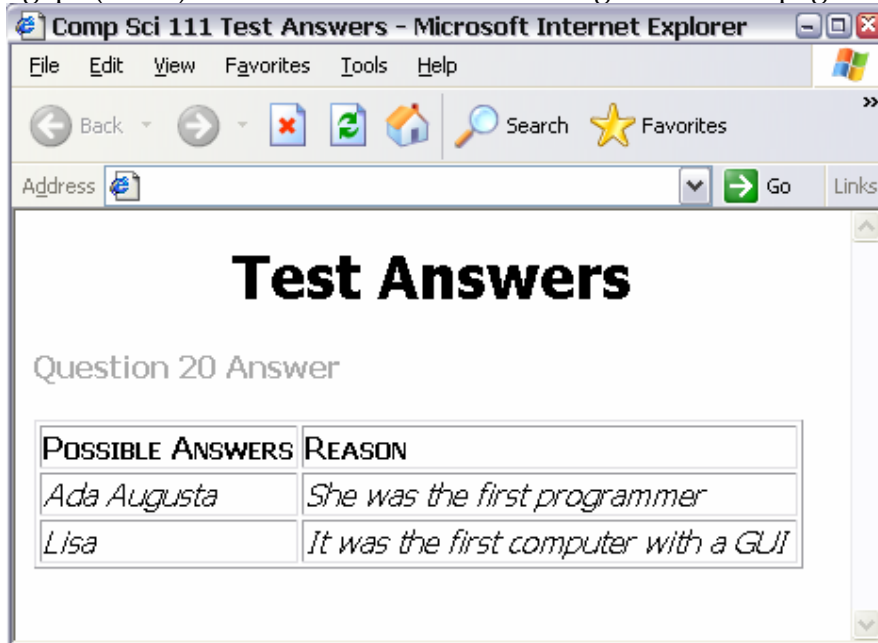
<B> and <I> can be used instead of <STRONG> and <EM>

(15 marks)

21. Fill in the gaps (boxes) in the HTML source so that it generates the page shown below.


```
<HTML>
   <HEAD>
      <STYLE>
            .title      {font-weight:bold; color:darkgray}
            .maintext   {font-style:italic}
            .strongtext {font-weight:bold; font-variant:small-caps}
            H1          {text-align:center}
      </STYLE>
      <TITLE>Comp Sci 111 Test Answers</TITLE>
   </HEAD>
   <BODY>
      <H1>Test Answers</H1>

      <P class="title">Question 20 Answer</P>

      <TABLE border="1">
            <TR class="strongtext">
                  <TD>Possible Answers</TD><TD>Reason</TD>
            </TR>
            <TR class="maintext">
                  <TD>Ada Augusta</TD>
                  <TD>She was the first programmer</TD>
            </TR>
            <TR class="maintext">
                  <TD>Lisa</TD>
                  <TD>It was the first computer with a GUI</TD>
            </TR>
      </TABLE>

   </BODY>
</HTML>
```

Note that in the first box it must be "**H1**", not "**.H1**"

(5 marks)

Write the question number next to your answer.
You must **ALSO** indicate in the allotted space that you have used the overflow sheet.

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You must **ALSO** indicate in the allotted space that you have used the overflow sheet.

Write the question number next to your answer.
You must **ALSO** indicate in the allotted space that you have used the overflow sheet.

Rough Working

This sheet will **NOT** be marked

Answer Sheet

Rough Working

This sheet will **NOT** be marked