

THE UNIVERSITY OF AUCKLAND

TEST 2005

COMPUTER SCIENCE

Introduction to Computing and the Internet

Time Allowed: ONE hour

(100 Marks)

Surname

(Family name)

Sample Solutions

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	/ 10
Software	/ 10
History	/ 10
Networks	/ 10
Spreadsheets	/ 20
Databases	/ 20
HTML	/ 20
Total	/100

Answer Sheet

Name: _____

- 2 -

COMPSCI 111 S2C

Hardware (10 marks)

1. What does *CPU* stand for?

Central Processing Unit

(2 marks)

2. Exactly how many bytes are there in a kilobyte?

1024

(2 marks)

3. What does Moore's Law state?

The CPU speed (number of transistors) doubles every 18 months.

(4 marks)

4. What does a *bus* do in a computer?

Transports data between components.

(2 marks)

CONTINUED

Answer Sheet

Name: _____

- 3 -

COMPSCI 111 S2C

Software (10 marks)

5. The *Application Programming Interface (API)* describes communication between which two of the following:

Applications Drivers Hardware Operating System User

Applications and the Operating System

(2 marks)

6. Name two tasks performed by the *supervisor (kernel)* of an operating system.

Manages other parts of the operating system
Context switching for multi-users
Multi-tasking
Time sharing
Execution of processes on the CPU

(4 marks)

7. Give one example of an *official* standard.

ASCII
JPEG
MP3

(2 marks)

8. What is ASCII (American Standard Code for Information Interchange)?

A code for representing English characters as numbers

(2 marks)

CONTINUED

Answer Sheet

Name: _____

- 4 -

COMPSCI 111 S2C

History (10 marks)

9. What was Herman Hollerith's contribution in the 1890's to computing?

Started the Tabulating Machine Company that completed the US census in only 3 years.

(2 marks)

10. What is Ada Augusta famous for?

Being the first computer programmer.

(2 marks)

11. Give two developments from Xerox PARC that are still used today.

Mouse
GUI
WYSIWYG
Laser printer

(4 marks)

12. Microsoft's first major success was in selling a BASIC language interpreter. Name either the man they sold it to or the product it was designed for.

Ed Roberts
Altair

(2 marks)

CONTINUED

Answer Sheet

Name: _____

- 5 -

COMPSCI 111 S2C

Networks (10 marks)

13. What does the term *transfer rate* mean in terms of networks?

The amount of data that can be sent in one second through the network.

(2 marks)

14. What improvement did packet switching (like in ARPANET) make over circuit switching when it was invented in the 1960's?

A network with packet switching would still function if part of it was destroyed.

(2 marks)

15. What is the difference between LAN and WAN?

LAN is a network within 1km, WAN is a network spanning more than 1km.

(2 marks)

16. Give two forms of behaviour that are considered *bad* netiquette.

Flaming
SHOUTING
Posting personal messages on newsgroups/forums
Not reading the FAQ before asking questions
Not reading other posts before replying

(4 marks)

CONTINUED

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

	A	B	C	D	E
1	Weather Data				
2					
3		Low	High	Variation	
4	Monday	8	16	8	
5	Tuesday	5	14	9	
6	Wednesday	5	11	6	
7	Thursday	4	16	12	
8	Friday	6	15	9	
9	Saturday	3	12	9	
10	Sunday	4	14	10	
11					
12	Week's Low	3		Temp	Label
13	Week's High	16		0	Cold
14	Week's Average	9.5		10	Warm
15	Summary	Warm		20	Hot

All questions in this section refer to the table shown above. You will be required to fill in formulas for the shaded cells.

17. Cells D4 to D10 hold the *Variation* in temperature which is the difference between the day's high and the day's low.

Give a formula for cell D4 that, when filled down, correctly calculates the *Variation* for each day.

=C4-B4

(5 marks)

Answer Sheet

Name: _____

- 7 -

COMPSCI 111 S2C

18. The cell B12 holds the lowest temperature for the week. Give the formula for this cell.

```
=MIN(B4:B10)
```

(5 marks)

19. Cell B14 holds the week's average temperature. This can be calculated by taking the average of the lows, plus the average of the highs, all divided by two.

Give a formula for cell B14 that correctly calculates the *Week's Average*.

```
=(AVERAGE(B4:B10) + AVERAGE(C4:C10))/2
```

(5 marks)

20. The cell B15 gives a one-word summary of the week's temperatures. This word is determined by looking up the entry for the *Week's High* in cells D13 to E15.

Give a formula for cell B15 that correctly looks up the word corresponding to the week's high. (Note: you must use a VLOOKUP to do this)

```
=VLOOKUP(B13, D13:E15, 2, TRUE)
```

(5 marks)

CONTINUED

Answer Sheet

Name: _____

- 8 -

COMPSCI 111 S2C

Databases (20 marks)

21. If two fields in a table form a *composite* primary key what does this mean?

The two fields together form the primary key which must be unique.

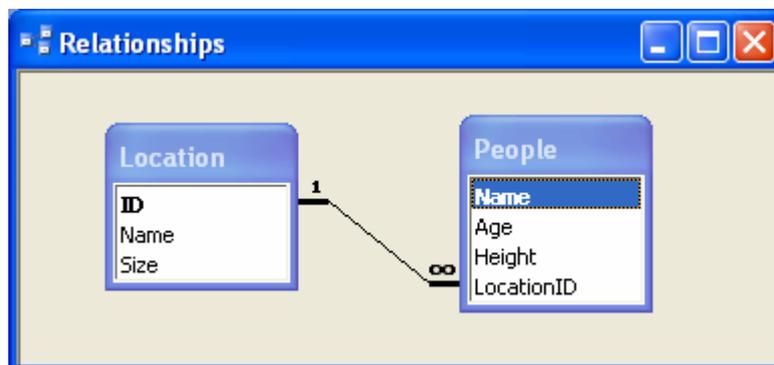
(4 marks)

	Name	Age	Height
	Barbara	12	145
	Barry	65	176
	Barry	65	176
	Bob	26	201
	Betty	43	182

22. Why is the example above not a valid relational database table?

The entry for Barry is duplicated, so there can be no primary key.

(4 marks)



23. What sort of relationship exists between the *People* and *Location* tables shown above? State the foreign key and primary key in this relationship.

One-to-many
Primary Key: ID
Foreign Key: LocationID

(4 marks)

CONTINUED

Answer Sheet

Name: _____

- 9 -

COMPSCI 111 S2C

24. In the database shown above, why do the records for the *Location* table have to be filled before the records of the *People* table? (Hint: consider the relationship between the tables)

Because a value cannot be entered in a field that is a foreign key (Location ID) before the value exists as a primary key in the other table (ID).

(4 marks)

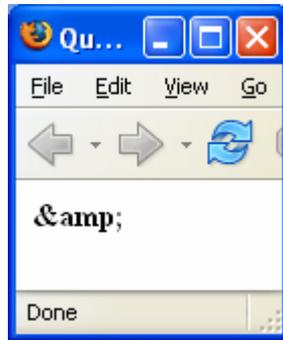
25. Write an SQL statement to select the *Names* from the table *People*.

```
SELECT Name FROM People
```

(4 marks)

CONTINUED

HTML (20 marks)



26. Give the body of the html source that will display “&” as shown in the diagram above.

```
<body>  
  
  &amp; ; amp ;  
  
</body>
```

(3 marks)

27. What is HTML an abbreviation for?

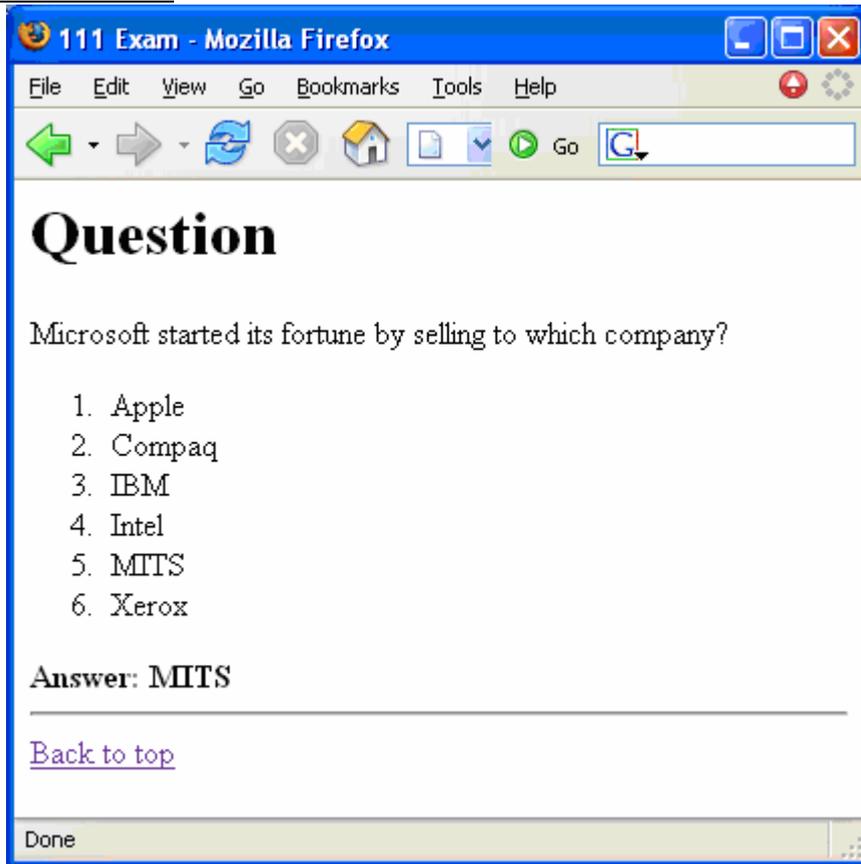
Hypertext markup language

(3 marks)

28. What does the “three-click” rule mean in terms of web design?

Any page in a website should be accessible using a maximum of three clicks.

(3 marks)



25. Fill in the blanks in the html source below so that it displays the page shown above.

```

<html>
  <_HEAD_>
    <_TITLE_>111 Exam<_TITLE_>
  <_HEAD_>

  <body>
    <_H1_> <a _NAME_="top">Question</a> <_H1_>
    Microsoft started its fortune by selling to which company?
    <_OL_>
      <li>Apple</li>
      <li>Compaq</li>
      <li>IBM</li>
      <li>Intel</li>
      <li>MITS</li>
      <li>Xerox</li>
    <_OL_>

    <strong>Answer: MITS</strong>
    <_HR_>

    <a _HREF_="#top">Back to top</a>
  </body>
</html>

```

(11 marks)

Answer Sheet

Name: _____
Overflow Sheet 1

- 12 -

COMPSCI 111 S2C

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

CONTINUED

Answer Sheet

Name: _____
Overflow Sheet 2

- 13 -

COMPSCI 111 S2C

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

CONTINUED

Answer Sheet

Name: _____
Overflow Sheet 3

- 14 -

COMPSCI 111 S2C

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

CONTINUED

Rough Working

This sheet will **NOT** be marked

Rough Working

This sheet will **NOT** be marked

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