

THE UNIVERSITY OF AUCKLAND

SECOND SEMESTER, 2017

Campus: City

COMPUTER SCIENCE

An Introduction to Practical Computing

(Time Allowed: TWO hours)

NOTE:

You must answer **all** questions in this exam.

Calculators are NOT 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	
Forename(s)	
Student ID	
Login (UPI)	

	Question	Mark	Out Of
1 - 30	Multiple Choice		30
31	Programming using Python		10
32	Spreadsheets		15
33	Databases		15
34	HTML5 and CSS		15
35	LaTeX		15
	TOTAL		100

SECTION A**MULTIPLE CHOICE QUESTIONS**

Each question in this section is worth **1 mark**. There is only **one** correct answer for each question. For each question, choose the **best** answer according to the information presented in lectures. Select your preferred answer on the Teleform answer sheet provided by shading in the appropriate box.

Question 1 Bitmap and Vector graphics

[1 mark]

Question 2 Software and Licenses

[1 mark]

Question 3 Bits, Bytes and Digital Information

[1 mark]

Question 4 Bits, Bytes and Digital Information

[1 mark]

Question 5 Publishing Online using tools

[1 mark]

Question 6 Bitmap and Vector graphics

[1 mark]

Question 7 Word Processing

[1 mark]

Question 8 Electronic Communication

[1 mark]

Question 9 Health and Technology

[1 mark]

Question 10 Electronic Communication

[1 mark]

Question 11 Computer Hardware

[1 mark]

Question 12 Software and Licenses

[1 mark]

Question 13 Publishing Online using tools

[1 mark]

Question 14 Social and Legal Issues

[1 mark]

Question 15 Social and Legal Issues
[1 mark]

Question 16 Word Processing
[1 mark]

Question 17 Health and Technology
[1 mark]

Question 18 Electronic Presentation
[1 mark]

Question 19 Electronic Presentation
[1 mark]

Question 20 Artificial Intelligence
[1 mark]

Question 21 Artificial Intelligence
[1 mark]

Question 22 The World Wide Web
[1 mark]

Question 23 The World Wide Web
[1 mark]

Question 24 Networking and the Internet
[1 mark]

Question 25 Networking and the Internet
[1 mark]

Question 26 History of Computing
[1 mark]

Question 27 History of Computing
[1 mark]

Question 28 Computer Games
[1 mark]

Question 29 Computer Games
[1 mark]

Question 30 Computer Hardware

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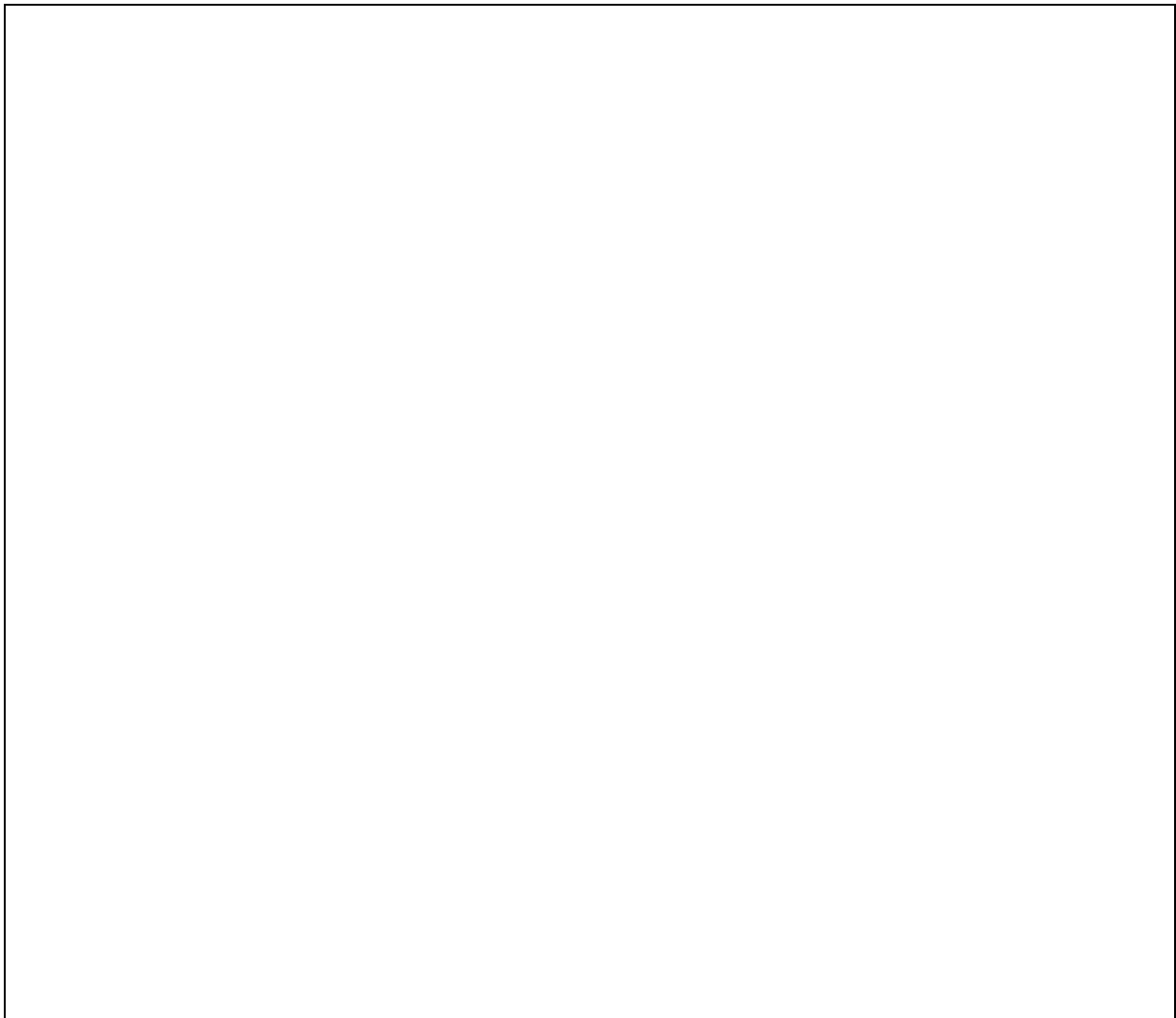
QUESTION/ANSWER BOOKLET FOLLOWS

SECTION B

Answer all questions in this section in the space provided. If you run out of space, please use the Overflow Sheet and indicate in the allotted space that you have used the Overflow Sheet.

31. Programming Using Python (10 marks)

(a) What is the output of the following program?

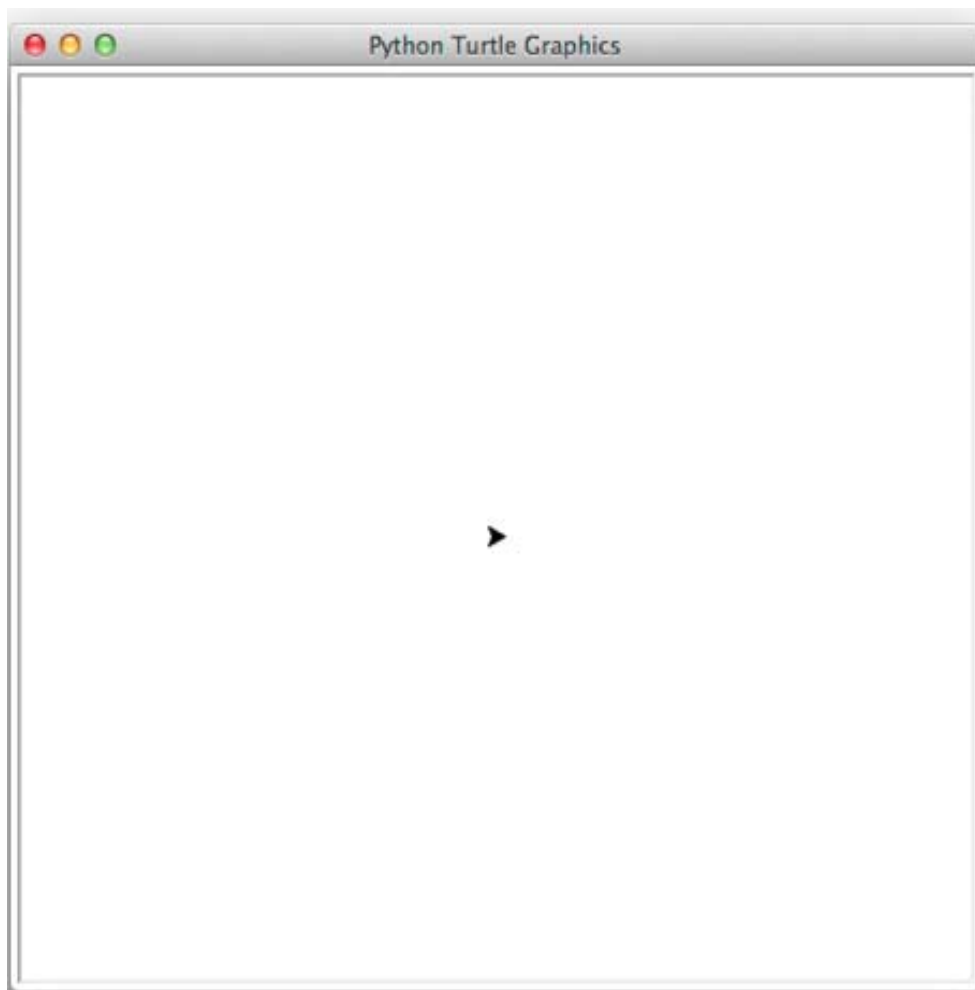


(3 marks)

(b) Using the space provided below, draw the output produced by the execution of the Python 'turtle' program listed below. Assume that the turtle begins in the middle of the window facing right and that the window is approximately 600 steps wide.

Make sure to clearly indicate:

- the path drawn by the turtle.
- the final position and direction of the turtle (using the arrowhead).

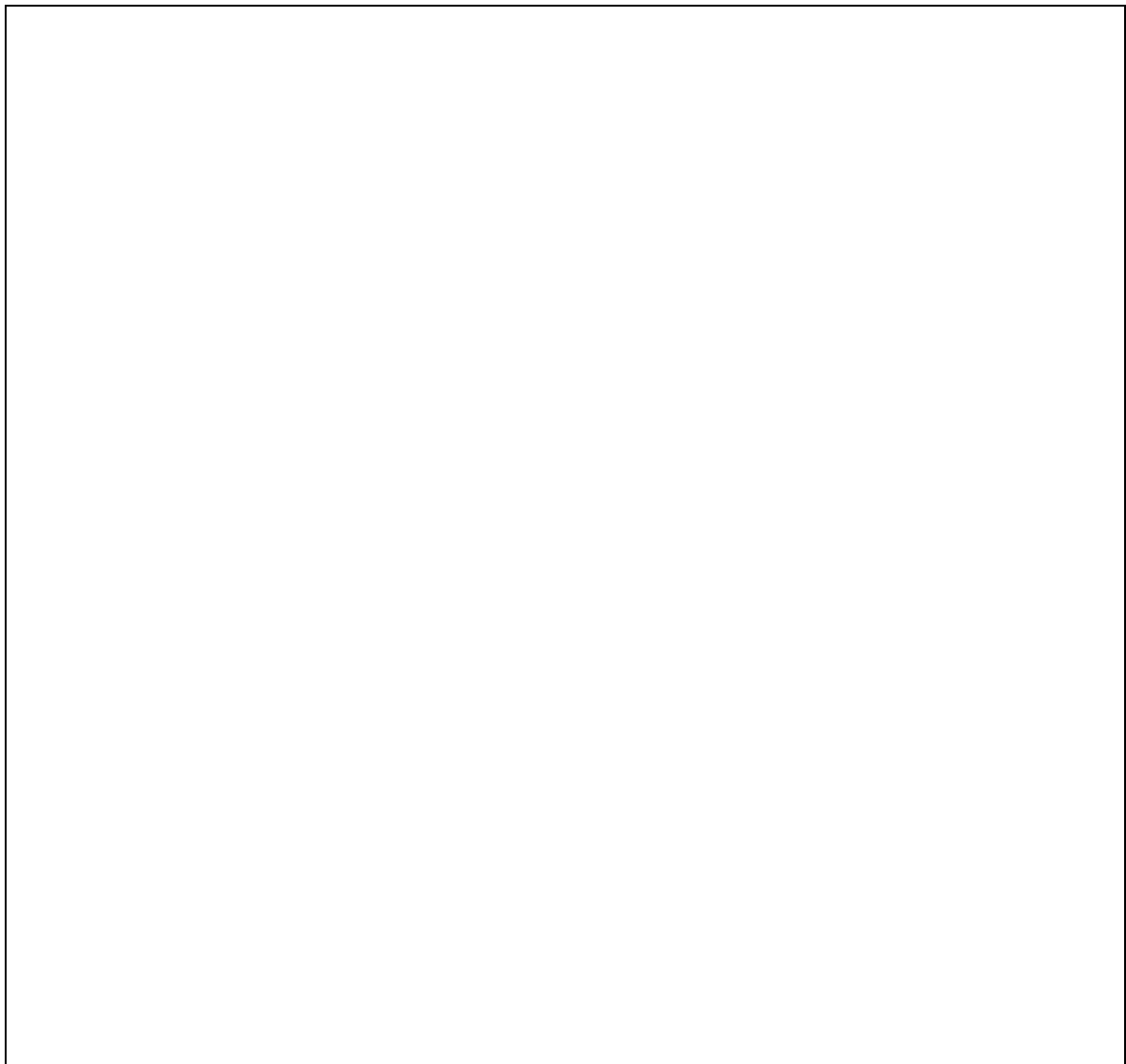


(3 marks)

(c) In the space below, write a Python program that

The following **example** shows the exact formatting expected for the prompts and output.

Example:



(4 marks)

32. Spreadsheets (15 marks)

The following spreadsheet displays information about

(a) Cell calculates the What is the best formula to use in

Note: Your formula must be able to be filled down from correctly.

(3 marks)

- (b) Cell displays If the is a, the is – otherwise What is the best formula to use in? Your answer must use an **IF** function.

Note: Your formula must be able to be filled down from correctly.

=**IF** (_____ , _____ , _____)

(5 marks)

- (c) Cell The is summarized in the table in What is the best formula to use in? Your answer must use the **VLOOKUP** function to retrieve the
The **VLOOKUP** function has the following syntax:

VLOOKUP(lookup_value, table_array, col_index_num, range_lookup)

Note: Your formula must be able to be filled down from correctly.

= **VLOOKUP** (_____ , _____ , _____ , _____)

(3 marks)

- (d) Cell Contains The from the table in cells What is the best formula to use in Cell? Your answer must use the **VLOOKUP** function to retrieve the..... The **VLOOKUP** function has the following syntax:

VLOOKUP(lookup_value, table_array, col_index_num, range_lookup)

Note: Your formula must be able to be filled down from correctly.

= _____ * **VLOOKUP** (_____ , _____ , _____ , _____)

(4 marks)

33. Databases (15 marks)

A has asked you to make a database for their The following tables show the full contents of the database.

- (a) The..... In the space below, draw a relationship diagram for this database. Make sure to indicate the type of each relationship between tables (e.g. one-to-one, one-to-many, many-to-many).



(2 marks)

(b) Specify the foreign keys (if any) in each of the tables.

--

(3 marks)

(c) In the space below, show the output that the following SQL query would produce.

--

(5 marks)

(d) Complete the Query By Example (QBE) form below so that it generates a query that displays..... The results should..... An example of the results obtained by running the query is shown below.

Field:					
Table:					
Sort:					
Show:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Criteria:					
or:					

(5 marks)

34. HTML5 and CSS (15 marks)

The following screenshot shows the body of a web page created using HTML5 and CSS:

Complete the HTML5 code below so that it produces the output shown above.

You **must** use the styles defined in the internal style sheet in the head section below, and **must not** define any new styles.

Note: The URL for the Wikipedia page is:
"....."

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<title>HTML/CSS Exam Question</title>
<style type="text/css">
```

```
</style>  
</head>
```

```
<body>
```

```
<!-- Main Heading -->
```

(1 mark)

```
<!-- Introductory Paragraph -->
```

(3 marks)

```
<!--..... Section-->
```

(5 marks)

<!-- Section-->

(6 marks)

</body>
</html>

35. LaTeX (15 marks)

On the following pages, complete the LaTeX code that will produce the output below:

The image is stored in a file called and is in the same folder as the LaTeX code. When inserted into the document, the image.....

The following LaTeX commands have been included as a reference. You will not need to use all of these commands. Note that the basic document structure has been completed for you.

<i>Normal commands</i>	<i>Environments</i>	<i>Math mode commands</i>
<code>\section{}</code>	itemize	$\$$
<code>\subsection{}</code>	enumerate	$\sqrt{\quad}$
<code>\includegraphics{}</code>	verbatim	$\frac{\quad}{\quad}$
<code>\title{}</code>	flushright	\sin
<code>\author{}</code>	center	θ
<code>\date{}</code>	quote	\sum_{\quad}^{\quad}
<code>\maketitle</code>	displaymath	∞
<code>\item</code>	equation	\wedge
<code>\usepackage{graphicx}</code>	quotation	—
<code>\textbf{}</code>		

```
\documentclass[a4paper]{article}
```

```
\begin{document}
```

\end{document}

(15 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.

- Overflow Sheet 2 -

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.

Rough Working – This page will not be marked

Rough Working – This page will not be marked