THE UNIVERSITY OF AUCKLAND

SEMESTER TWO 2020
Campus: City

COMPUTER SCIENCE

An Introduction to Practical Computing
Test

(Time Allowed: 75 minutes)

SAMPLE ANSWERS

NOTE:
This test is out of **100** marks.
Attempt **ALL** questions.
Upload your answers to Canvas as a pdf document.

This test contributes 20% towards your final grade.

You will need to put your answers into a Word document and save it as a pdf. Upload the pdf to Canvas, just like you do for your lab assignments.

The work must be your own. Your test will be run through Turnitin so please ensure you do not copy and paste from the Internet. All your answers must be expressed in your own words. On the next page you will be asked to include a sentence in your answers document which states that the test is your own work.

Answer all questions in a Word document and save it as a pdf document.

Name your answers document with your upi (login name) followed by CS111Test.pdf, for example, `abcd123CS111Test.pdf`. Upload the pdf to Canvas.

Q0 [0 marks]
Please include the following statement as the answer to question Q0:
For the duration of this test, I, (insert your name here), confirm that I will not discuss the content of the test with anyone else. I will not give any assistance to another student taking this test. I will not receive any assistance from any person or tutoring service. I will not post any information about this test on the Internet.

Note: The following specifications for a desktop computer are to be used to answer Questions 1 - 4:

Intel Core i9-7900X 8 Core 3.5 GHz
20 MB L3 cache
16 GB DDR4 RAM
NVIDIA GeForce GT 8 GB GDDR5
2 TB SATA3 HDD
500 GB SSD
Ubuntu Linux 18.04

Q1 [3 marks]
What is the speed of this computer's CPU?
3.5 GHz

Q2 [3 marks]
How much volatile memory does this computer have?
24 GB (also 20 MB cache - but no marks deducted if this was not included)

Q3 [3 marks]
How much non-volatile memory does this computer have?
2.5 TB

Q4 [3 marks]
Does this computer have a motherboard?
Yes

Q5 [4 marks]
Moore's Law states that "The number of transistors on a single integrated circuit doubles approximately every 18 months, while the price remains the same". Therefore, according to Moore's Law, in 9 years' time, given the same price, how much faster will CPUs be?
64 times faster

Q6 [5 marks]
How many different numbers can be represented using half a byte?
16 different numbers

Q7 [4 marks]
If we had a machine that had 6 dials with each dial having 10 different states (0 – 9), how many different numbers could we represent?
1,000,000 different numbers

Q8 [4 marks]
What is the result of the following binary calculation? $11001_2 - 111_2$
10010_2

Q9 [3 marks]
Why was VisiCalc known as the first killer application?
Because VisiCalc was the first spreadsheet program for personal computers and the first application that caused people to go out and buy apple II's just to run VisiCalc

Q10 [2 marks]
Which of the following statements are TRUE?

  I.   Claude Shannon was the first to make the connection between binary arithmetic and electric circuitry.
  II. Patch cables were used to program early computers.
  III. In 1842, there were people who believed the Analytical Engine might be able to write poetry.
  IV. Programs for the Analytical Engine could contain loops and if-statements.
  V.   Steve Jobs used a lot of the innovations that he saw at Xerox PARC in creating the Macintosh.
All are true, I, II, III, IV, and V

Q11 [2 marks]
Which of the following statements are TRUE?

  I.   The R2BF tries to help individuals preserve their privacy.
  II. A proxy can use a cache to enable faster processing of requests.
  III. Filter bubbles occur because of personalised information.
  IV. A firewall prevents unauthorized access to a private network.
All of these are true

Q12 [4 marks]
Which of the following statements about harmful content are FALSE?

  I.   If the author of harmful content doesn't respond to a request to remove the content then the host must remove the content within 48 hours.
  II.   The Harmful Digital Communications Act 2015 is designed to prevent copyright infringement.
  III. Software is protected by copyright law in a similar way to other authored content.
  IV.   A blacklist of IP addresses can be used to prevent access to locations on the list.
  V.   All material viewed in NZ must comply with NZ laws regardless of the country of origin.
  VI.   Peer to Peer (P2P) networks using BitTorrent are illegal.
II, VI are false

Q13 [3 marks]
What is the ASCII code for the word "Crocodile"?
67 114 111 99 111 100 105 108 101

Q14 [3 marks]
Describe 3 advantages of using user defined MS-Word styles when creating a document.
consistency, easy to apply, quick to change

Q15 [3 marks]
How do circuit switching networks differ from packet-switching networks?
The circuit switch networks make a continuous link from one user to the other. Usually made of a hierarchy of nodes. A packet switching network breaks a message into pieces and sends them out on the internet to find their way to the other user. There is no continuous link and there is no hierarchy of central nodes.

Q16 [3 marks]
Are the Internet and WWW synonymous?
No, they are not synonymous. The Internet is the hardware and protocols that are used to pass information on the Internet. The WWW are the html pages, the webpage servers and browser client software that supports the WWW.

Q17 [3 marks]
Describe the difference(s) between a router and a modem.
A modem converts digital to analog and back again, while a router routes signals to the appropriate computer on the network.

Q18 [5 marks]
Describe the difference(s) between asynchronous communication and synchronous communication, giving two examples of each form of communication.
Synchronous communication means that both people must be online at the same time in order to communicate. Asynchronous means that a person can leave a message for a person to pick up at a later time. The users DO NOT need to be online at the same time.
Synchronous: telephone call, zoom call.
Asynchronous: txt message, email message, zoom recording.

Q19 [3 marks]
Are employers permitted to read your emails on the company's email system or do privacy laws prevent this?
Yes, employers reserve the right to read your email sent to your business email address.
There is no privacy law which protects this in New Zealand.

Q20 [4 marks]
Is Wikipedia a reliable source of information? Give 4 reasons for your answer.
Yes. Study in 2005 in Nature said it was as reliable as Encyclopedia Britannica.

Bots look for and try to remove vandalism.
People in the Recent Change Patrol look at recent changes and try to fix problems.
Readers can report vandalism.
Registered users can use watchlists to monitor changes on a page.
Changes to pages can be reverted to previous content.

"No" was also marked correct if valid reasons were stated.

Q21 [6 marks]
What wiki markup would you use to produce the following formatted content in a wiki?

- *Bold decisions*
  - **must be made**
- *at all times*

```
*"Bold decisions"
**"'must be made"'
*"""at all times"""
```

Q22 [5 marks]
List five of the possible health problems associated with using social media.
Depression
Anxiety
Computer Vision Syndrome
Hearing Loss
Repetitive Strain Injury

Q23 [3 marks]
Which of the following statements about Occupational Overuse Syndrome (OOS) are TRUE?

   I.   OOS is also referred to as Repetitive Strain Injury (RSI).
  II.   OOS is an umbrella term for a range of conditions characterised by muscle discomfort, aches and pains, muscle tightness and spasms, and numbness and tingling.
 III.   OOS pain may eventually become constant and associated with loss of muscle strength and sleep disturbances.
  IV.   OOS can only be caused by using a computer.

I, II, III are True

NOTE: The following spreadsheet is used to hold movie ticket sales data and is to be used in the next two questions:

	A	B	C	D	E	F	G
1							
2			**Movie Ticket Sales**				
3							
4		**Movie**	**Tickets Available**	**Tickets Sold**	**Tickets Left**	**Sales**	
5		This Town	50	21	29	$315	
6		Daffodils	50	18	32	$270	
7		Rams	50	23	27	$345	
8		Vai	50	16	34	$240	
9		Bellbird	50	12	38	$180	
10		**TOTAL:**	**250**	**90**	**160**	**$1,350**	
11							
12			**Ticket Price:**	**$15**			
13							

Q24 [5 marks]
In the spreadsheet above what is the best formula for Cell F5 so it can be filled down? The ticket price is in Cell D12.

=D5 * $D$12

Q25 [3 marks]
In the spreadsheet above what is the best formula for Cell C10 so it can be filled across?

=SUM(C5:C9)

Q26 [5 marks]
The following spreadsheet contains an analysis of earthquakes that occurred from January to
July. What is the best formula to use in Cell C4 so that it can extract the appropriate class
from the table in Columns E and F? The formula must be able to be filled down.

	A	B	C	D	E	F	G
1							
2		**Biggest**			**Earthquake Classes**		
3	**Month**	**Earthquake**	**Description**		**Magnitude**	**Class**	
4	Jan	2	None		0	None	
5	Feb	3.3	Minor		3	Minor	
6	Mar	4.4	Light		3.9	Light	
7	Apr	6.6	Strong		4.9	Moderate	
8	May	5.5	Moderate		5.9	Strong	
9	June	7.8	Major		6.9	Major	
10	July	8.2	Great		7.9	Great	
11							

=VLOOKUP(B4, $E$4:$F$10, 2, TRUE)

Q27 [6 marks]
The following spreadsheet contains data about movie ticket sales. The price for each movie
depends on the day of the week and can be extracted from the table in Cells C3:I4.   What is
the best formula for Cell D8?   The formula must be able to be filled down.

	A	B	C	D	E	F	G	H	I	J
1										
2			**Movie Prices**							
3		Day:	Mon	Tues	Wed	Thurs	Fri	Sat	Sun	
4		Price:	15	10	10	15	20	20	20	
5										
6			Ticket							
7		Day	Sales	Revenue						
8		Mon	23	345						
9		Tues	17	170						
10		Wed	15	150						
11		Thurs	22	330						
12		Fri	45	900						
13		Sat	62	1240						
14		Sun	53	1060						
15		TOTAL:	237	4195						
16										

=HLOOKUP(B8, $C$3:$I$4, 2, FALSE) * C8