

# THE UNIVERSITY OF AUCKLAND

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SECOND SEMESTER, 2018  
Campus: City

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## COMPUTER SCIENCE

### An Introduction to Practical Computing

### TEST SOLUTIONS

(Time Allowed: ONE hour)

#### DIRECTIONS

1. Compare the test version number on the Teleform sheet supplied with the version number in the top left corner of this page. If they do not match, ask the test supervisor for a new sheet.
2. Enter your name and Student ID (in pencil) on the Teleform sheet and shade in the corresponding bubbles underneath. Your name and Student Id should both be entered left aligned. If your name is longer than the number of boxes provided, truncate it.
3. Answer all questions on the Teleform answer sheet provided.
4. Use a dark pencil to shade in your answers in the multiple choice answer boxes on the Teleform sheet. Check that the question number on the sheet corresponds to the question number in this question book. If you spoil your sheet, ask the supervisor for a replacement.
5. Each question is expected to have exactly 1 (one) correct answer. If you believe that a question has either NO answer or MULTIPLE correct answers, select the ONE you believe is most likely to be the intended answer.
6. Each question is worth 2.5 marks. There are 40 questions.
7. Calculators are NOT permitted.

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**MULTIPLE CHOICE QUESTIONS**

For each question, choose the best answer according to the information presented in lectures. Select your preferred answer on the Teleform answer sheet by shading in the appropriate box in pencil. There are 40 questions. Each question is worth 2.5 marks.

**Question 1**

[2.5 marks] Take a look at the specifications for a gaming PC below:

Intel Core i9 CPU  
Nvidia Geforce GTX 1080Ti 11 GB  
500 GB SSD  
2 TB HDD  
32 GB DDR RAM  
Windows 10 Home edition

Which of following statements regarding this PC are TRUE?

- I.** The PC comes with a discrete graphics card.
- II.** There are 2 TB of secondary memory.
- III.** There are 32 GB of volatile memory
- IV.** The PC comes with an operating system.
- V.** The PC comes with a motherboard.

- (a) I, III, IV, and V.
- (b) I, II, IV, and V.
- (c) I, II, III, IV, and V.
- (d) I, IV, and V.**
- (e) IV and V.

**Question 2**

[2.5 marks] A CPU costing \$500 today takes 2 minutes to complete a particular task. Using Moore's Law as taught in lectures, how long will it take an identically priced CPU to complete the same task 4½ years from now?

- (a) 45 seconds.
- (b) 15 seconds.**
- (c) 27 seconds.
- (d) 1 minute.
- (e) 30 seconds.

**Question 3**

[2.5 marks] Which of the following statements is FALSE?

- (a) Secondary storage is non-volatile storage.
- (b) We can use RAID to pool multiple secondary storage devices to form larger, more reliable storage, with faster access speeds.
- (c) Video memory found in graphics cards is volatile memory.
- (d) Primary memory (RAM) is the fastest form of memory in a computer.**
- (e) None of the above.

**Question 4**

[2.5 marks] Jason wants to create a character encoding scheme using binary numbers. He decides to allocate one byte for the encoding scheme. How many different characters can his encoding scheme represent?

- (a) 32
- (b) 256**
- (c) 64
- (d) 512
- (e) 128

**Question 5**

[2.5 marks] What is the decimal equivalent of the binary number 1101101?

- (a) 218
- (b) 54
- (c) 109**
- (d) 77
- (e) None of the above.

**Question 6**

[2.5 marks] What is the binary equivalent of the decimal number 157?

- (a) 10011101**
- (b) 1011101
- (c) 10111011
- (d) 10111001
- (e) None of the above.

**Question 7**

[2.5 marks] Which of the following are NOT classed as system software?

- I. Device Drivers
- II. Operating System
- III. Music Software
- IV. Web browsers
- V. Disk Cleanup

- (a) I, III and V.
- (b) IV and V.
- (c) III, IV and V.
- (d) They are all system software.
- (e) III and IV.

**Question 8**

[2.5 marks] Which of the following statements is FALSE?

- (a) Under the Patents Act 2013, all software can be patented.
- (b) Microsoft Word is an example of commercial proprietary software.
- (c) Freeware is free to use but is not open source.
- (d) Software is protected by copyright under the Copyright Act 1994.
- (e) Linux is an open source operating system.

**Question 9**

[2.5 marks] Which of the following statements is TRUE?

- (a) Using shortcuts, GUIs are always more efficient than CLIs for experienced users.
- (b) Software development tools are examples of system software.
- (c) Adobe Reader is open source software.
- (d) Viruses are malware that need to be associated with a host program to spread.
- (e) Uninstalling software is the best solution to software failure.

**Question 10**

[2.5 marks] Which of the following has events correctly ordered in reverse chronological order (i.e. from most recent to oldest)?

- (a) Sputnik I launched, WWW created at CERN, TCP/IP implemented in ARPANET, DNS implemented, ARPA established.
- (b) WWW created at CERN, DNS implemented, TCP/IP implemented in ARPANET, ARPA established, Sputnik I launched.
- (c) ARPA established, TCP/IP implemented in ARPANET, Sputnik I launched, WWW created at CERN, DNS implemented.
- (d) TCP/IP implemented in ARPANET, ARPA established, Sputnik I launched, DNS implemented, WWW created at CERN.
- (e) None of the above.

**Question 11**

[2.5 marks] Which of the following statements is FALSE?

- (a) DNS servers translate URLs into their equivalent IP addresses.
- (b) Protocols are usually defined in an RFC document.
- (c) TCP supports flow control and error detection.
- (d) HTTP is an Internet protocol used for transferring web pages.
- (e) UDP differs from TCP in that it does not divide messages into packets.

**Question 12**

[2.5 marks] Which of the following statements is TRUE?

- (a) Multiple backbone cable connections are available for extra capacity and redundancy.
- (b) Internet backbone cables are high-capacity Ethernet cables.
- (c) Internet backbone cables are only found over land. Transmission across seas/oceans is handled via satellite.
- (d) Internet backbone cables are free to use.
- (e) Backbone cables connect New Zealand to Australia only.

**Question 13**

[2.5 marks] Which of the following statements is FALSE?

- (a) Spam can transmit malware.
- (b) Spam is named after a Monty Python comedy sketch.
- (c) Spam is often used for phishing scams.
- (d) Due to spam filters, spam is no longer a major problem.
- (e) Spam is illegal in New Zealand.

**Question 14**

[2.5 marks] Which of the following statements are TRUE?

- I. Netiquette looks at what is socially acceptable when communicating online.
- II. Misrepresentation is an issue associated with electronic communication.
- III. Attachments are always safe if you know the sender.
- IV. The Unsolicited Electronic Messages Act 2007 only covers emails.
- V. It is not illegal for your employer to read your work emails.

- (a) I, II, and V.
- (b) III, IV and V.
- (c) I,II and III.
- (d) II, IV and V.
- (e) I, II, III, IV and V.

**Question 15**

[2.5 marks] Which of the following statements about email protocols is FALSE?

- (a) IMAP is better suited to users who want to access their emails from multiple devices.
- (b) SMTP is used to send an email to the recipient's email server.
- (c) When IMAP is used, emails cannot be deleted from the email server.
- (d) The sender's email server uses DNS to retrieve the IP address of the recipient's email server.
- (e) With POP3, emails that have been downloaded to a computer can be viewed offline.

**Question 16**

[2.5 marks] Aroha is a registered Wikipedia user and she has created a page for her favourite band. She wants to make sure that this page is not vandalized. Which of the following options provided by Wikipedia would best allow her to do this?

- (a) Placing the page on her watchlist.
- (b) Relying on fixes made by ClueBot NG.
- (c) Relying on the recent change patrol.
- (d) Relying on reader-reported vandalism.
- (e) None of the above.

**Question 17**

[2.5 marks] What wiki markup would produce the following content in the Stage One Wiki?

The *quick* **brown** fox  
jumps over the *lazy* dog.

- (a) The `'''quick''' '''brown''' fox`  
`jumps over the '''lazy''' dog.`
- (b) The `''quick'' '''brown''' fox`  
`jumps over the '''lazy''' dog.`
- (c) The `''quick'' '''brown''' fox`  
`jumps over the '''lazy''' dog.`
- (d) The `'''quick''' '''brown''' fox`  
`jumps over the '''lazy''' dog.`
- (e) None of the above.

**Question 18**

[2.5 marks] What wiki markup would produce the following content in the Stage One Wiki?

**■ Wikis**

1. Stage One Wiki

2. Wikipedia

- (a) #Wikis  
#\*[COMPSCI111 Stage One Wiki]  
#\*[[https://www.wikipedia.org|Wikipedia]]
- (b) \*Wikis  
\*#[[COMPSCI111|Stage One Wiki]]  
\*#[https://www.wikipedia.org Wikipedia]
- (c) #Wikis  
#\*[[COMPSCI111|Stage One Wiki]]  
#\*[www.wikipedia.org Wikipedia]
- (d) \*Wikis  
\*#[COMPSCI111 Stage One Wiki]  
\*#[[https://www.wikipedia.org|Wikipedia]]
- (e) #Wikis  
#\*[[COMPSCI111|Stage One Wiki]]  
#\*[https://www.wikipedia.org Wikipedia]

**Question 19**

[2.5 marks] Which of the following is the ASCII code for “English”?

- (a) 69 110 103 108 105 115 104
- (b) 101 111 104 109 106 116 105
- (c) 70 79 72 77 74 84 73
- (d) 70 111 104 109 106 116 105
- (e) 69 78 71 76 73 83 72



**Question 20**

[2.5 marks] Which of the following statements is FALSE?

- (a) Files created by text editors store text information.
- (b) Text editors are never WYSIWYG applications.
- (c) Files created by word processors store text and formatting information.
- (d) Computer code is usually not WYSIWYG.
- (e) Word processors are generally WYSIWYG applications.

**Question 21**

[2.5 marks] Which of the following statements is FALSE?

- (a) With a continuous section break, the new section is located on the same page as the original section.
- (b) Headers and footers, if present, are found on every page in a document.
- (c) Any content below a page break is moved to the next page of a document.
- (d) Citations are found at the end of a document.
- (e) Both footnotes and endnotes provide information about something in the main text.

**Question 22**

[2.5 marks] Which of the following statements about search engines is FALSE?

- (a) A filter bubble occurs when a search algorithm offers personalised results, which can isolate people within their own bubble of information.
- (b) The “right to be forgotten” ruling means that Google has to remove out-of-date search results when requested by individuals.
- (c) Search engines use snakes to crawl across the WWW to scan webpages.
- (d) Search engines are gathering vast amounts of information about our searches and ourselves.
- (e) We cannot always trust private companies to treat our information with care.

**Question 23**

[2.5 marks] Which of the following statements about the URL

`https://www.cs.auckland.ac.nz/~andrew/teaching.html` is FALSE?

- (a) `teaching.html` is the resource.
- (b) `http` is the protocol.
- (c) `www.cs.auckland.ac.nz` is the domain.
- (d) `/~andrew/` is the path on the server.
- (e) None of the above.

**Question 24**

[2.5 marks] Which of the following statements about the World Wide Web is FALSE?

- (a) A web browser is system software used to access content on the WWW.
- (b) A webpage is a hypermedia document on the WWW that is usually accessed through a web browser.
- (c) A website is a collection of webpages usually on the same topic or theme.
- (d) A web server is a computer with software that makes files available on the WWW.
- (e) None of the above.

**Question 25**

[2.5 marks] Which of the following statements about malware is FALSE?

- (a) A Trojan is malware disguised as legitimate software.
- (b) Spyware runs in the background, monitoring the user's activities and sending the information back to the operator.
- (c) A worm is similar to a virus except it does not need a program in order to run. It spreads by itself.
- (d) A logic bomb is malware accidentally inserted into a program; it runs when a certain condition is fulfilled.
- (e) A virus inserts itself into another program. It runs and spreads itself when the program is opened.

**Question 26**

[2.5 marks] Which of the following statements about online bullying is FALSE?

- (a) If a complaint about online bullying is genuine, Netsafe will use negotiation, mediation, and persuasion (as appropriate) to resolve complaints.
- (b) Some people take advantage of online anonymity to bully and harass others online.
- (c) When an online content host gets a complaint, the host must take down the content within 48 hours regardless of whether or not the author agrees.
- (d) Netsafe is a non-profit organization and an approved agency to report online bullying to.
- (e) Our 'always online' society makes it difficult to avoid online bullying.

**Question 27**

[2.5 marks] Which of the following statements about file sharing is FALSE?

- (a) File sharing on P2P networks is legal in New Zealand even for material protected by copyright.
- (b) File sharing on P2P networks is used for copyright infringement.
- (c) When an enforcement notice is issued, the infringer can be penalised. The Copyright Tribunal can impose a penalty of up to \$15,000.
- (d) One of the Web's main aims was to help people easily share information.
- (e) P2P networks use the BitTorrent protocol to enable computers to connect to each other and share data.

**Question 28**

[2.5 marks] Which of the following statements about distraction is FALSE?

- (a) Digital devices are cognitively penetrating.
- (b) A 2012 study of university students showed that on average, a student uses a digital device for non-class purposes 11 times during a typical school day.
- (c) Distraction does not cause students to pay less attention in class and miss instruction.
- (d) Digital devices are highly pervasive and are demanding of our attention.
- (e) Checking is repeatedly accessing your digital device, interrupting your current activity.

**Question 29**

[2.5 marks] Which of the following statements about social skills is FALSE?

- (a) After 5 days at camp without digital devices, a test group's recognition of nonverbal emotional cues was significantly worse than that of the control group.
- (b) Visual cues are important. We often need to be able to modify our own behaviour in response to the reactions of others.
- (c) Increased interaction with technology has led to a reduction in human interaction.
- (d) Visual cues include facial expression, eye contact, posture, and spatial distance.
- (e) Visual cues are an important part of face-to-face communication.

**Question 30**

[2.5 marks] Which of the following statements about hearing loss is FALSE?

- (a) Some of the increase in reported hearing loss may be attributable to headphone/earbud usage.
- (b) Listening to media through headphones or earbuds for prolonged periods of time at high volume can cause permanent hearing loss.
- (c) If other people can hear the music you are listening to via headphones or earbuds, then it is most probably too loud.
- (d) You will never suffer hearing loss from listening to loud music.**
- (e) Moderate noise on a regular basis can lead to hearing loss.

**Question 31**

[2.5 marks] How much memory would be required to store a black and white image that is 20 pixels high and 10 pixels wide?

- (a) 400 bits
- (b) 25 bits
- (c) 25 bytes**
- (d) 24 bits
- (e) None of the above.

**Question 32**

[2.5 marks] How much memory would be required to store an image with 16 different colours and is 4 pixels high and 6 pixels wide?

- (a) 48 bytes
- (b) 12 bytes**
- (c) 48 bits
- (d) 12 bits
- (e) None of the above.

**Question 33**

[2.5 marks] Imagine you have taken a picture with a 16 megapixel digital camera. For ease of calculation, assume that the picture is square, not rectangular. Assume that you are printing this picture out on a printer that has approximately 1000 dots per inch. How many inches across would the picture be when it was printed?

- (a) 2 inches by 2 inches.
- (b) 1 inch by 1 inch.
- (c) 0.5 inch by 0.5 inch.
- (d) 4 inches by 4 inches.**
- (e) None of the above.

**Question 34**

[2.5 marks] Which of the following options represents the correct formula to multiply two values located in Cells **A1** and **A2** together?

- (a) =A1xA2
- (b) =\* (A1 : A2)
- (c) =MULTIPLY (A1 : A2)
- (d) =TIMES (A1 : A2)
- (e) =A1 \*A2

**Question 35**

[2.5 marks] Which of the following formulas contains an error that will prevent it from working?

- (a) B4=A1+A5
- (b) =B26-M13
- (c) =SUM(A1 : A4)
- (d) =C4/C1
- (e) =SUM(A1 , A4)

**Question 36**

[2.5 marks] Consider the following screenshot of an Excel spreadsheet:

	A	B	C
1	10	1	
2	10	1	
3			
4			
5	=(A1+A2)*(B1+B2)		
6			
7			
8			

Carefully review the formula in Cell A5. Based on your observations, which of the following values will be displayed in Cell A5?

- (a) 22
- (b) 102
- (c) 40
- (d) 0
- (e) None of the above.

**Question 37**

[2.5 marks] Consider the following screenshot of an Excel spreadsheet:

	A	B	C	D	E
1	10	1	11		
2	20	2	22		
3	30	3	33		
4					

What will happen to the formula and/or the result in Cell C1 if the value of Cell B1 is modified to 10?

- (a) The formula will return an error message as the numbers that were included in the original formula are no longer the same.
- (b) The value in C1 will automatically update to the value 20.
- (c) Nothing will happen. The formula will have to be reinserted to include the new value.
- (d) Cell C1 will display a #NA error message.
- (e) Cell C1 will display the formula instead of the total amount.

**Question 38**

[2.5 marks] Consider the following screenshot of an Excel spreadsheet:

	A	B	C	D
1	Project Name	Unit Cost	Labour Cost	Total Cost
2	78.5	\$52.00	\$18.00	\$70.00
3	92.3	\$103.00	\$63.00	
4	22.1	\$25.00	\$8.00	
5	565	\$36.00	\$2.00	
6	32.1	\$45.00	\$18.00	
7	243.23	\$56.00	\$8.00	
8	25.1	\$85.00	\$55.00	

Which of the following statements correctly predicts what the contents of Cell D3 will be if the **Fill Handle** is used to fill down Cell D2?

- (a) D3 will contain an error message as the formula cannot be filled down without the references being made absolute.
- (b) D3 will contain the formula: =SUM(B3-C3)
- (c) D3 will contain the formula: =SUM(B2:C2)
- (d) D3 will contain the formula: =SUM(B3:C3)
- (e) D3 will contain the formula: =SUM(B2:B3,C2:C3)

**Question 39**

[2.5 marks] Consider the following screenshot of an Excel spreadsheet:

	A	B	C	D
1	Project Name	Unit Cost	Labour Cost	Total Cost
2	78.5	\$52.00	\$18.00	\$70.00
3	92.3	\$103.00	\$63.00	\$166.00
4	22.1	\$25.00	\$8.00	\$33.00
5	565	\$36.00	\$2.00	\$38.00
6	32.1	\$45.00	\$18.00	\$63.00
7	243.23	\$56.00	\$8.00	\$64.00
8	25.1	\$85.00	\$55.00	\$140.00
9			Total	

Which of the following formulas below will calculate the total cost of all projects when entered into Cell D9?

- (a) =SUM(D2 , D8 )
- (b) =SUM(D2 : D8 )**
- (c) =SUM(D2-D8 )
- (d) =D2 + D3 + D4 + D5 + D6 + D7 + D8 + D9
- (e) =SUM(D2+D8 )

**Question 40**

[2.5 marks] Consider the following screenshot of an Excel spreadsheet:

	A	B	C	D	E	F
1	Project Name	Unit Cost	Labour Cost	Total Cost	Budget	Over Budget
2	78.5	\$52.00	\$18.00	\$70.00	200	UNDER
3	92.3	\$103.00	\$63.00	\$166.00	100	OVER
4	22.1	\$25.00	\$8.00	\$33.00	200	UNDER
5	565	\$36.00	\$2.00	\$38.00	100	UNDER
6	32.1	\$45.00	\$18.00	\$63.00	100	UNDER
7	243.23	\$56.00	\$8.00	\$64.00	200	UNDER
8	25.1	\$85.00	\$55.00	\$140.00	100	OVER
9			Total	\$210.00		

Which of the following formulas, when inserted into Cell F2 above, will display the word "OVER" if the total cost is over the budget and will display "UNDER" otherwise?

- (a) =IF(D2>E2 , OVER , UNDER )
- (b) =IF(D2>100 , "OVER" , "UNDER" )
- (c) =IF(D2>E2 , "OVER" , "UNDER" )**
- (d) =Function(if(D2>E2 , "OVER" , "UNDER" ) )
- (e) None of the above.

