

# THE UNIVERSITY OF AUCKLAND

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**SECOND SEMESTER, 2019**

**Campus: City**

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**COMPUTER SCIENCE**

**An Introduction to Practical Computing**

**TEST**

**(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] How are CPUs generally kept cool?

- (a) Using a heat sink and a fan.
- (b) Using less electricity.
- (c) By using less graphics.
- (d) By using less memory.
- (e) By processing slower.

**Question 2**

[2.5 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 3 years' time, CPUs will be how much faster?

- (a) 10 times
- (b) 6 times
- (c) 8 times
- (d) 12 times
- (e) 4 times

**Question 3**

[2.5 marks] Which of the following is an input device?

- (a) Speaker
- (b) Printer
- (c) Virtual Reality headset
- (d) Mouse
- (e) Monitor

**Question 4**

[2.5 marks] Who invented the idea of the universal machine, which is the basis of all computers?

- (a) Charles Babbage
- (b) Alan Turing
- (c) Steve Wozniak
- (d) Konrad Zuse
- (e) Bill Gates

**Question 5**

[2.5 marks] Where was Colossus the first programmable digital computer built?

- (a) Manchester University
- (b) Cambridge University
- (c) Harvard
- (d) Silicon Valley
- (e) Bletchley Park

**Question 6**

[2.5 marks] What is NOT part of a von Neumann machine?

- (a) Cooling Fan
- (b) Processing Unit
- (c) Memory
- (d) Control Unit
- (e) Input/Output

**Question 7**

[2.5 marks] Which of the following did Xerox NOT invent at PARC?

- (a) Ethernet
- (b) The Graphical User Interface (GUI)
- (c) The mouse
- (d) The laser printer
- (e) PostScript

**Question 8**

[2.5 marks] Which Harvard University student quit college to write software for the Altair 8800?

- (a) Steve Wozniak
- (b) Alan Kay
- (c) Doug Engelbart
- (d) Bill Gates
- (e) Frederick Terman

**Question 9**

[2.5 marks] Which of the following Internet protocols is used for email?

- (a) UDP
- (b) IMAP
- (c) FTP
- (d) TCP/IP
- (e) HTTP

**Question 10**

[2.5 marks] Which of the following best describes a DNS server?

- (a) It provides a backup of your data.
- (b) It serves up webpages for domains.
- (c) It stores your email centrally.
- (d) It converts between human-readable text (domain names) and IP addresses.
- (e) It prevents illegal access to the network

**Question 11**

[2.5 marks] What network model does the Internet use?

- (a) Circuit switching
- (b) Wide area network
- (c) Packet switching
- (d) Large area network
- (e) World Wide Web

**Question 12**

[2.5 marks] When was the first email sent?

- (a) Early 1980s.
- (b) Mid 1980s.
- (c) Mid 1970s.
- (d) Early 1970s.
- (e) Mid 1960s.

**Question 13**

[2.5 marks] Which of the following is a protocol for sending emails?

- (a) FTP
- (b) SMTP
- (c) UDP
- (d) POP3
- (e) IMAP

**Question 14**

[2.5 marks] What is your best action if you receive an email from a person you do not know with a file attachment?

- (a) Forward the email to your friends.
- (b) Reply to the sender asking who they are.
- (c) Delete the mail immediately.
- (d) Open the mail.
- (e) Open the mail and the attachment.

**Question 15**

[2.5 marks] What is “blog” short for?

- (a) Brilliant log
- (b) Web log
- (c) Big log
- (d) Biography log
- (e) Bachelor’s log

**Question 16**

[2.5 marks] Which of the following is a micro-blogging service?

- (a) Twitter
- (b) Facebook
- (c) YouTube
- (d) WordPress
- (e) Blogger

**Question 17**

[2.5 marks] Studies have shown that articles in Wikipedia ...

- (a) have a much higher error rate than Encyclopedia Britannica.
- (b) have approximately the same error rate as Encyclopedia Britannica.
- (c) have a much lower error rate than Encyclopedia Britannica.
- (d) are far less accurate for academic topics than articles on pop culture and politics.
- (e) None of the above.

**Question 18**

[2.5 marks] Who can edit a Wiki?

- (a) Only computer bots.
- (b) Anyone.
- (c) Nobody once it’s published.
- (d) Anyone with authorised access.
- (e) Only the editor.

**Question 19**

[2.5 marks] Who invented the concept of hypertext?

- (a) Steve Jobs
- (b) Tim Berners-Lee
- (c) Vannevar Bush
- (d) Tommy Flowers
- (e) Bill Gates

**Question 20**

[2.5 marks] Where was the World Wide Web invented?

- (a) Silicon Valley
- (b) CERN
- (c) Microsoft
- (d) Xerox
- (e) IBM

**Question 21**

[2.5 marks] Which organization creates standards for the World Wide Web?

- (a) W3C
- (b) The International Web Organisation
- (c) IBM
- (d) Stanford University
- (e) The European Union

**Question 22**

[2.5 marks] How many characters can the ASCII encoding system represent?

- (a) 1024
- (b) 128
- (c) 2048
- (d) 256
- (e) 512

**Question 23**

[2.5 marks] Which of the following uses WYSIWYG?

- (a) Word
- (b) LaTeX
- (c) HTML
- (d) Wiki markup
- (e) None of the above.

**Question 24**

[2.5 marks] Where in a document would “endnotes” appear?

- (a) In a separate document.
- (b) At the bottom of the page.
- (c) In the side margin.
- (d) At the end of a document.
- (e) In the body of the text.

**Question 25**

[2.5 marks] IBM's Deep Blue computer played what game?

- (a) Othello
- (b) Chess
- (c) Go
- (d) Backgammon
- (e) StarCraft

**Question 26**

[2.5 marks] How many participants are there in a typical Turing Test?

- (a) 5
- (b) 2
- (c) 4
- (d) 1
- (e) 3

**Question 27**

[2.5 marks] Which of the following best describes the philosophical viewpoint put forward by the Chinese room thought experiment?

- (a) If a machine does not understand Chinese, it is not intelligent.
- (b) Machines can learn to become intelligent.
- (c) Without understanding, a machine's activity cannot be described as intelligent.
- (d) Matching symbols is all that is required for a machine to be intelligent.
- (e) If a person cannot differentiate between a machine and another person when communicating with them, the machine is intelligent.

**Question 28**

[2.5 marks] What is the "base" of the binary system?

- (a) 2
- (b) 4
- (c) 8
- (d) 10
- (e) 1

**Question 29**

[2.5 marks] How many numbers can be represented by 2 bits?

- (a) 16
- (b) 2
- (c) 4
- (d) 8
- (e) 12



**Question 30**

[2.5 marks] What is the binary number 110 in decimal?

- (a) 3
- (b) 2
- (c) 8
- (d) 6
- (e) 11

**Question 31**

[2.5 marks] Imagine you have taken a picture with a 25-megapixel digital camera. For ease of calculation, assume that the picture is square, not rectangular. You decide to print this picture on a printer that can print 2000 dots per inch. What would the dimensions of the picture be?

- (a) 2.5 inches by 2.5 inches
- (b) 1.5 inches by 1.5 inches
- (c) 2 inches by 2 inches
- (d) 1 inch by 1 inch
- (e) None of the above.

**Question 32**

[2.5 marks] Assume you have taken another square picture with the 25-megapixel digital camera discussed in the previous question. This time around you decide to view the picture on your computer screen that can display 2000 pixels by 1000 pixels. What fraction of the image is viewable on the screen?

- (a)  $2/25$
- (b)  $1/4$
- (c)  $2/5$
- (d)  $1/5$
- (e) None of the above.

**Question 33**

[2.5 marks] How much memory is required for a 256 colour image, 400 pixels wide by 250 pixels high?

- (a) 10 KB
- (b) 80 KB
- (c) 1 KB
- (d) 800 KB
- (e) 100 KB

**Question 34**

[2.5 marks] Jessica has a lot of uncompressed images she wants to store on her computer. Before storing these images, she wants to compress them using one of the following options. She does not want to lose any image data when she compresses her images. Which of the following option(s) should she NOT use?

- I. Reducing the number of colours used by her images before storing them.
- II. Storing her images using the GIF image format.
- III. Storing her images using the PNG image format.
- IV. Storing her images using the JPEG image format.

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

The following **four** questions refer to the spreadsheet below:

	A	B	C	D	E	F	G
1	<b>Chocolates!</b>			<b>Discount</b>	15		
2	<b>Brand</b>	<b>Price per Bar</b>					
3	3 Musketeers	\$1.75		<b>Invoice</b>			
4	Baby Ruth	\$1.55		<b>Chocolates</b>	<b>Price per Bar</b>	<b>Bars Bought</b>	<b>Cost</b>
5	Bounty	\$1.80		Kinder Bueno	\$2.20	5	\$11.00
6	Double Decker	\$1.60		Bounty	\$1.80	3	\$5.40
7	Kinder Bueno	\$2.20		Snickers	\$1.45	2	\$2.90
8	Kit Kat	\$1.50		Yorkie	\$1.85	4	\$7.40
9	Snickers	\$1.45		Baby Ruth	\$1.55	1	\$1.55
10	Yorkie	\$1.85		Double Decker	\$1.60	3	\$4.80
11							
12						<b>Subtotal</b>	\$33.05
13						<b>Discount:</b>	\$4.96
14						<b>Total:</b>	\$28.09

**Question 35**

[2.5 marks] **Cell G12** contains the subtotal for the order. It is obtained by finding the total cost of all the chocolate bars bought. Which of the following Excel formulas would you use in **Cell G12** to perform this calculation?

- (a) =SUM(G5:G10)
- (b) =TOTAL(G5,G10)
- (c) =TOTAL(G5:G10)
- (d) =SUM(G5,G10)
- (e) None of the above.

**Question 36**

[2.5 marks] **Cell G5** contains the cost of buying five Kinder Bueno bars. Which of the following Excel formulas would you use in **Cell G5** to perform this calculation? Your formula should fill down correctly from Cell G5 to Cell G10.

- (a) = $\$E\$5 * \$F\$5$
- (b) = $\$E\$5 * F5$
- (c) = $E5 * \$F\$5$
- (d) = $E\$5 * F\$5$
- (e) = $E5 * F5$

**Question 37**

[2.5 marks] **Cell G13** contains the discount applied to the subtotal of the order. If the subtotal is \$30 or more, the discount, specified as a percentage in Cell E1, is applied to the subtotal. Otherwise the discount is set to 0. Which of the following Excel formulas would you use in **Cell G13** to perform this calculation?

- (a) = $IF(G12 \geq 30, G12 * (E1 / 100), 0)$
- (b) = $IF(G12 > 30, G12 * E1, 0)$
- (c) = $IF(G12 > 30, 0, G12 * E1)$
- (d) = $IF(G12 \geq 30, 0, G12 * (E1 / 100))$
- (e) = $IF(G12 > 30, G12 * (E1 / 100), 0)$

**Question 38**

[2.5 marks] **Cell E5** contains the price per bar, of the chocolate being purchased as specified in Cell D5. Which of the following Excel formulas would you use in **Cell E5** to produce the given result? Your formula should fill down correctly from Cell E5 to Cell E10.

- (a) = $VLOOKUP(D5, \$A\$3 : \$B\$10, 2, TRUE)$
- (b) = $VLOOKUP(D5, \$A\$3 : \$B\$10, \$B\$3 : \$B\$10, FALSE)$
- (c) = $VLOOKUP(D5, \$A\$3, \$B\$10, 2, TRUE)$
- (d) = $VLOOKUP(D5, \$A\$3 : \$B\$10, 2, FALSE)$
- (e) = $VLOOKUP(D5, \$A\$3, \$B\$10, 2, FALSE)$

**Question 39**

[2.5 marks] If a cell contained a formula with a reference to Cell AB25 and the formula was filled left and up, which cell would be referred to in the cell 4 columns to the left and 5 rows up?

- (a) AF20
- (b) X20
- (c) Y19
- (d) AE19
- (e) W21

**Question 40**

[2.5 marks] If a cell contained a formula with a reference to Cell Q\$13 and the formula was filled right and down, which cell would be referred to in the cell 3 columns to the right and 7 rows down?

- (a) Q\$20
  - (b) S\$19
  - (c) T\$13
  - (d) T\$20
  - (e) Q\$13
-