

THE UNIVERSITY OF AUCKLAND

SECOND SEMESTER, 2017

Campus: City

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 worth 2.5 marks. There are 40 questions.
6. 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] If a task takes a computer 1 hour to perform today, according to Moore's Law as taught in lectures, approximately how long would it take a similarly priced computer to perform the task in 2020?

- (a) 30 seconds.
- (b) 15 minutes.**
- (c) 10 minutes.
- (d) 1 minute.
- (e) 8 minutes.

Question 2

[2.5 marks] A \$2000 computer in year xxxx takes around 24 minutes to do a task. A \$2000 computer today takes around 6 minutes to do the same task. What year is xxxx according to Moore's Law as taught in lectures?

- (a) 2008
- (b) 2011
- (c) 2010
- (d) 2014**
- (e) 2015

Question 3

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

- (a) A graphics card is an example of an expansion card.
- (b) A touch screen is an output device only.**
- (c) When you power off your computer, data stored in its RAM is lost.
- (d) A RAID setup can be used to increase access speed or storage reliability.
- (e) SSDs are a form of secondary storage.

Question 4

[2.5 marks] Look at the following computer specifications:

Intel Core i7-6800K 6 Core 3.4 GHz
15 MB CPU cache
32 GB DDR4 2800MHz
NVIDIA GTX1080 8GB GDDR5
2TB SATA3 HDD
500GB SATA3 SSD

Which of the following statements is TRUE?

- (a) There is a total of approximately 40 GB of volatile memory.
- (b) This computer has 2TB of secondary memory.
- (c) This computer is equipped with a quad-core CPU.
- (d) This computer does not have a discrete graphics card.
- (e) The 15 MB CPU cache is the slowest form of memory available on this computer.

Question 5

[2.5 marks] Which of the following sequences is arranged in descending order of memory capacity (i.e. from the largest memory capacity to the smallest)?

- (a) 1 MB, 1 GiB, 1 GB, 1 TiB, 1 TB
- (b) 1 TiB, 1 TB, 1 GiB, 1 GB, 1 MB
- (c) 1 GB, 1 GiB, 1 TB, 1 TiB, 1 MB
- (d) 1 TB, 1 TiB, 1 GB, 1 GiB, 1 MB
- (e) 1 MB, 1 GB, 1 GiB, 1 TB, 1 TiB

Question 6

[2.5 marks] What is the minimum number of bits required to represent 128 different values?

- (a) 7 bits.
- (b) 6 bits.
- (c) 32 bits.
- (d) 16 bits.
- (e) 8 bits.

Question 7

[2.5 marks] Which of the following binary values is equal to 37 in decimal?

- (a) 110001
- (b) 101010
- (c) 110101
- (d) 101001
- (e) 100101

Question 8

[2.5 marks] Which of the following decimal values is equal to 1110111 in binary?

- (a) 77
- (b) 238
- (c) 119
- (d) 167
- (e) 63

Question 9

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

- (a) A file extension determines how binary numbers are used to encode information in a file.
- (b) A file format determines how binary numbers are used to encode information in a file.
- (c) File formats only use proprietary standards for security reasons.
- (d) Most programs are able to understand any file format.
- (e) None of the above.

Question 10

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

- (a) Freeware can generate revenue through the use of ads.
- (b) Freemium software is characterized by a free tier and one or more paid tiers.
- (c) All freeware is open source.
- (d) All open source software is free to use.
- (e) Commercial proprietary software must be purchased.

Question 11

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

- (a) A GUI lets a user perform tasks by interacting with graphical elements.
- (b) A GUI is always the better option rather than a CLI as it is easier to use.
- (c) There is a learning curve for novice users of a CLI.
- (d) Keyboard shortcuts can be used to make a GUI more efficient.
- (e) With a CLI, users enter text commands at a prompt.

Question 12

[2.5 marks] Which of the following is application software?

- I A web browser like Mozilla Firefox.
- II An email client like Microsoft Outlook.
- III Music software like iTunes.
- IV A maintenance tool like Disk Cleanup.
- V A development environment like Visual Studio.

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

Question 13

[2.5 marks] Which of the following forms of communication are synchronous?

- I Email
- II Forum posts
- III Blogging
- IV Telephone calls
- V Instant messaging

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

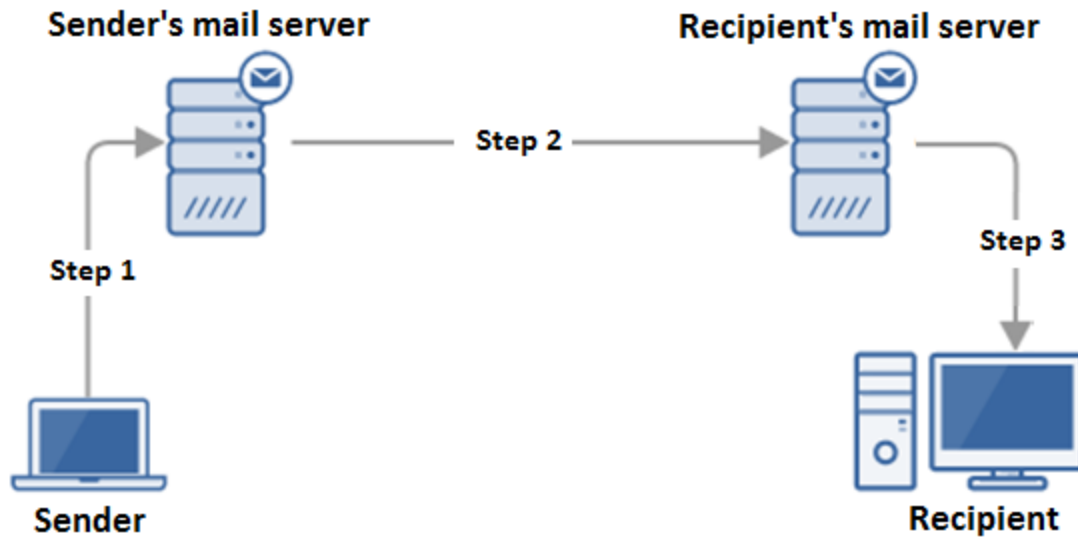
Question 14

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

- I It is impossible to remain completely anonymous on the Web.
- II It is becoming easier to remain anonymous on the Web.
- III Government run surveillance programmes are eroding online anonymity.
- IV Online advertisers are obliged to abide by Do Not Track requests.
- V Tor uses onion routing to obscure the path that data packets take, when moving from a sender to a receiver.

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

Note: Use the following diagram to answer the next two questions.

**Question 15**

[2.5 marks] What protocol is used for **Step 1** in the above diagram?

- (a) SMTP
- (b) TCP
- (c) HTTP
- (d) IMAP
- (e) POP3

Question 16

[2.5 marks] What protocol is used for **Step 2** in the above diagram?

- (a) HTTP
- (b) TCP
- (c) IMAP
- (d) POP3
- (e) SMTP

Question 17

[2.5 marks] What is the Wiki markup that would produce the following list?

- Microsoft
 1. Xbox One
 2. Xbox One X
- Sony
 1. PS4
 2. PS4 Pro

(a) *Microsoft
**Xbox One
**Xbox One X
*Sony
**PS4
**PS4 Pro

(b) #Microsoft
##Xbox One
##Xbox One X
#Sony
##PS4
##PS4 Pro

(c) #Microsoft
#*Xbox One
#*Xbox One X
#Sony
#*PS4
#*PS4 Pro

(d) *Microsoft
*#Xbox One
*#Xbox One X
*Sony
*#PS4
*#PS4 Pro

(e) None of the above.

Question 18

[2.5 marks] What is the Wiki markup that would produce the following content?

Damir's Wiki user page

CS website

- (a) `Damir's [[User:Dazh001|Wiki user page]]
bb
CS [https://www.cs.auckland.ac.nz website]`
- (b) `Damir's [User:Dazh001 Wiki user page]

CS [[https://www.cs.auckland.ac.nz|website]]`
- (c) `Damir's [User:Dazh001 Wiki user page]
CS [[https://www.cs.auckland.ac.nz|website]]`
- (d) `Damir's [[User:Dazh001|Wiki user page]]
CS [https://www.cs.auckland.ac.nz website]`
- (e) None of the above.

Question 19

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

- (a) Wikis are websites that enable user collaboration and the quick update of information.
- (b) Wikipedia was launched in 2001 by Jimmy Wales and Larry Sanger.
- (c) Small portions of content are shared on a microblog.
- (d) Information placed on the Internet is easily erased.
- (e) Wikipedia and our Stage One Wiki both run on the MediaWiki software platform.

Question 20

[2.5 marks] John downloads a media player application. Shortly after starting the application he discovers that all of his documents are deleted. What sort of malware has John downloaded?

- (a) Worm.
- (b) Spyware.
- (c) Trojan.
- (d) Logic bomb.
- (e) Virus.

Question 21

[2.5 marks] Lisa is being harassed by one of her classmates online. What options does she have to address this under the Harmful Digital Communications Act 2015?

- I She can send harmful messages back to her harasser in order to stop their bullying.
- II She can lodge a complaint with Netsafe.
- III She can apply to the District Court for an order.
- IV She can lodge a complaint to the online content host where the harmful messages can be accessed.
- V She can lodge a police report against her harasser.

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

Question 22

[2.5 marks] What is the ASCII code for the word **Midterm**?

- (a) 108 104 99 115 100 113 108
- (b) 77 73 68 84 69 82 77
- (c) 109 105 100 116 101 114 109
- (d) 78 74 69 85 70 83 78
- (e) 77 105 100 116 101 114 109**

Question 23

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

- (a) Using styles makes formatting faster and can give a document a consistent appearance.
- (b) A style is a named group of formatting decisions.
- (c) Texworks is not a WYSIWYG editor.
- (d) Sections, separated by a section break, can be independently formatted.
- (e) All of the above.**

Question 24

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

- (a) Citations are found within the document text.
- (b) Committing plagiarism is a serious breach of the University's academic integrity policy.
- (c) A bibliography is a list of references found at the end of a document.
- (d) The Academic Integrity Course is an optional course for students starting a new programme at the University of Auckland.
- (e) All material obtained from another person or organization must be acknowledged properly.

Question 25

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

- (a) Checking is one of the outcomes of the desire for instant gratification.
- (b) Distraction caused by technology only occurs in the classroom.
- (c) Digital devices distract students causing them to pay less attention in class.
- (d) Digital devices are designed to be "cognitively penetrating".
- (e) Checking refers to the act of repeatedly accessing a digital device and interrupting your current activity.

Question 26

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

- (a) Narcissism is a personality disorder only seen in hunters.
- (b) Visual cues are not an important aspect of face-to-face communication.
- (c) Increased interaction with technology has improved our face-to-face communication skills.
- (d) Young people today are less likely to report their activities to their friends on social media.
- (e) The phrase "emotional contagion" has been used to describe the transmission of depression through electronic communication.

Question 27

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

- (a) Hearing loss can be avoided by using more expensive headphones.
- (b) "Dry eye" is the major contributor to the symptoms of CVS.
- (c) Hearing loss can only be caused by exposure to loud noise.
- (d) CVS is a result of focusing our eyes on distant objects when we work.
- (e) One measure to prevent CVS is to reduce the distance between a user and their display.

Question 28

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

- (a) Factors that can lead to OOS developing are purely physical.
- (b) Taking regular breaks is one way of avoiding OOS.
- (c) An ergonomic workstation would be beneficial to someone with a desk job.
- (d) Being aware of the early symptoms of OOS and seeking treatment is important.
- (e) Texting, typing and gaming are all examples of activities that involve repetitive movements.

Question 29

[2.5 marks] Look at the following code. You can assume that the code compiles without error and produces a document.

```
\documentclass[a4paper]{article}
\usepackage{graphicx}
\begin{document}
\title{Test Question}
\author{Damir Azhar}
\date{Semester 2, 2017}

\begin{center}
\includegraphics[width=20mm]{CuteCat.png}
\end{center}
\end{document}
```

Which of the following statements is FALSE?

- (a) Without `\usepackage{graphicx}` in the preamble, we would not be able to use the `\includegraphics` command.
- (b) The image will be centered on the page and will be 20mm wide.
- (c) We are creating an article whose contents will fit A4-sized pages.
- (d) The image file “CuteCat.png” and the LaTeX file are stored in the same folder.
- (e) The title, author and date information will appear at the top of the document.

Question 30

[2.5 marks] What LaTeX code will produce the following output?

- THE quick brown
- fox jumps over
- the *lazy* dog

(a)

```
\begin{description}
  \item [The quick] brown
  \item fox [jumps] over
  \item the [lazy] dog
\end{description}
```

(b)

```
\begin{itemize}
  \item \textsc{The} \textbf{quick} brown
  \item fox \texttt{jumps} over
  \item the \textit{lazy} dog
\end{itemize}
```

(c)

```
\begin{itemize}
  \item \texttt{The} \textbf{quick} brown
  \item fox \textsc{jumps} over
  \item the \textit{lazy} dog
\end{itemize}
```

(d)

```
\begin{enumerate}
  \item \texttt{The} \textbf{quick} brown
  \item fox \textsc{jumps} over
  \item the \textit{lazy} dog
\end{enumerate}
```

(e)

```
\begin{enumerate}
  \item \textsc{The} \textbf{quick} brown
  \item fox \texttt{jumps} over
  \item the \textit{lazy} dog
\end{enumerate}
```

Question 31

[2.5 marks] What LaTeX code will produce the following output?

$$\sum_{k=1}^{\infty} \frac{x_0^2 + x_1^2}{\sqrt{1 - e^k}}$$

- (a) `\begin{equation}`
`\sum_{k=1}^{\infty}\frac{\sqrt{1 - e^k}}{x_0^2 + x_1^2}`
`\end{equation}`
- (b) `\begin{equation}`
`\sum^{\infty}_{k=1}\frac{x_0^2 + x_1^2}{\sqrt{1 - e^k}}`
`\end{equation}`
- (c) `\begin{displaymath}`
`\sum^{\infty}_{k=1}\frac{x_0^2 + x_1^2}{\sqrt{1 - e^k}}`
`\end{displaymath}`
- (d) `\begin{displaymath}`
`\sum_{k=1}^{\infty}\frac{\sqrt{1 - e^k}}{x_0^2 + x_1^2}`
`\end{displaymath}`
- (e) None of the above.

Question 32

[2.5 marks] What LaTeX code will produce the following output?

$$\sin(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} + \dots \quad (1)$$

- (a) `\begin{equation}`
`\sin(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} + \ldots`
`\end{equation}`
- (b) `\begin{equation}`
`\sin(x) = x - \frac{3!}{x^3} + \frac{5!}{x^5} + \dots`
`\end{equation}`
- (c) `\begin{displaymath}`
`\sin(x) = x - \frac{3!}{x^3} + \frac{5!}{x^5} + \dots`
`\end{displaymath}`
- (d) `\begin{displaymath}`
`\sin(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} + \ldots`
`\end{displaymath}`
- (e) None of the above.

Question 33

[2.5 marks] In a packet-switching network, which of the following statements is FALSE?

- (a) Each packet can go on a different route.
- (b) Each node sends the packet on to its next destination.
- (c) Data is broken into packets.
- (d) Nodes are connected physically through a central node.
- (e) The packets avoid congested or broken nodes.

Question 34

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

- (a) A LAN uses client-server or peer-to-peer configuration.
- (b) The Internet does not always use TCP/IP.
- (c) A WAN operates over distances greater than 1 km radius.
- (d) A LAN operates within a 1 km radius.
- (e) An intranet is formed when LANS are connected.

Question 35

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

- (a) The IP protocol defines routing information.
- (b) The TCP protocol combines the packets to recreate the message.
- (c) The TCP protocol lacks error detection.
- (d) An IP address is a unique identifier for computers on the Internet.
- (e) The TCP protocol divides the message into packets.

Question 36

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

- (a) DNS stands for Domain Name System.
- (b) The DNS handles both IPv4 and IPv6 addresses.
- (c) You can type an IP address directly into a browser, avoiding the DNS.
- (d) The DNS converts an IP address into human readable text.
- (e) The DNS converts human readable text into an IP address.

Question 37

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

- (a) The Internet includes the network hardware.
- (b) The WWW includes blogs.
- (c) The Internet includes the protocols that transfer data.
- (d) The WWW includes webpages.
- (e) The Internet protocols are TCP, IP, UDP, FTP, HTTP, POP3, IMAP, SMTP, RFC.

Question 38

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

- (a) A firewall sits between the client and the proxy.
- (b) A proxy can use a cache to store recent requests, allowing it to process requests faster.
- (c) A cache stores recently requested resources so they can be accessed quickly.
- (d) A firewall prevents unauthorized access to a private network.
- (e) A proxy sits between the client and the server so it can intercept and process requests.

Question 39

[2.5 marks] Given the URL:

`https://www.cs.auckland.ac.nz/~andrew/teaching.html`, which of the following statements is FALSE?

- (a) URL stands for Uniform Resource Locator.
- (b) `www.cs.auckland.ac.nz` is the domain.
- (c) `teaching.html` is the resource.
- (d) `~andrew` is the path on the server.
- (e) `https` stands for hypertext transfer protocol standard.

Question 40

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

- (a) Google search results return the same information to anyone who enters the same keywords.
 - (b) Search history can be used to identify individuals, even when searching anonymously.
 - (c) Search engines are gathering vast amounts of information about our searches and ourselves which is used for advertising purposes.
 - (d) Personalised search results can help people to find relevant information.
 - (e) A filter bubble risks isolating people within their own bubble of information.
-