THE UNIVERSITY OF AUCKLAND

SUMMER SEMESTER, 2016
Campus: City

COMPUTER SCIENCE

An Introduction to Practical Computing

TEST <mark>MODEL ANSWERS</mark>

(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.

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] Which one of the following is an example of volatile storage?

    (a) USB drive
    (b) HDD
    (c) CD
    (d) RAM
    (e) SSD

Question 2
[2.5 marks] Which one of the following is an advantage of using RAID?

    (a) Helps to avoid data loss through redundancy.
    (b) Allows computer manufacturers to create thinner system units.
    (c) Helps to protect computers from attacks by hackers.
    (d) Reduces the amount of power used by a computer.
    (e) None of the above.

Question 3
[2.5 marks] What is one difference between an HDD and an SSD?

    (a) An HDD is located inside the system unit while an SSD is located outside the system unit.
    (b) An HDD provides faster access to data than an SSD.
    (c) An HDD operates more quietly than an SSD.
    (d) There is no difference. They are the same thing.
    (e) An HDD uses spinning disks to store data while an SSD uses flash memory to store data.

Question 4
[2.5 marks] Which one of the following decimal numbers is equal to the binary number 10101110?

    (a) 46
    (b) 174
    (c) 206
    (d) 190
    (e) None of the above.

Question 5

[2.5 marks] Which is the largest value in the following list, if decimal prefixes are used?

(a) 400,000 KB
(b) 1 TB
(c) 2,000,000 MB
(d) 100,000,000 bytes
(e) 50 GB

Question 6

[2.5 marks] If a computer program uses an 8-bit colour scheme, how many different colours can be used within the program?

(a) 256
(b) 40
(c) 64
(d) 16
(e) 8

Question 7

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

(a) Open source software allows anyone to read the software's source code.
(b) Copyright legally protects proprietary software from being copied by a person without the owner's permission.
(c) If you modify a piece of proprietary software by yourself, then you can distribute it without requiring a licence.
(d) Shareware allows a user to try the software before they buy it.
(e) In New Zealand, you cannot be granted a patent for a piece of software that you develop.

Question 8

[2.5 marks] What is the main function of a file extension?

(a) Makes it easier for a person to organise files on their computer.
(b) Allows the operating system to determine a file's format.
(c) Makes it easier for computer programs to correctly format files.
(d) Allows files with the same extension to easily attach to each other.
(e) None of the above.

Question 9
[2.5 marks] Which one of the following is NOT an example of proprietary software?

   (a) Microsoft Office
   (b) Windows Media Player
   (c) Adobe PDF Reader
   (d) Adobe Photoshop
   (e) Apache OpenOffice

Question 10
[2.5 marks] What is the function of a modem?

   (a) Converts digital signals from a computer into an electrical signal that can be sent on a physical connection such as a phone line, and vice versa.
   (b) Provides additional security for a computer when it is connected to the Internet.
   (c) Enables multiple computers to share files with each other.
   (d) Assigns an IP address to a computer when it connects to the Internet.
   (e) None of the above.

Question 11
[2.5 marks] Which one of the following protocols is NOT commonly used on the Internet?

   (a) SMTP
   (b) HTTP
   (c) IPFS
   (d) IP
   (e) POP3

Question 12
[2.5 marks] Which one of the following is NOT a function of TCP/IP?

   (a) Responsible for loading content on webpages.
   (b) Uniquely identifies a computer on the Internet.
   (c) Regulates the flow of packets over the Internet.
   (d) Routes packets from the source computer to the destination computer.
   (e) Ensures that missing packets will be sent to the destination computer.

Question 13
[2.5 marks] Which of the following is an example of synchronous communication?

   (a) Text message
   (b) Forum post
   (c) Facebook chat
   (d) Postal mail
   (e) None of the above.

Question 14
[2.5 marks] Which of the following statements about IMAP is FALSE?

(a) Emails are downloaded from the email server to a local computer and deleted from the server after download.
(b) Email clients can be set to maintain local copies of emails.
(c) Emails can usually only be read when connected to the Internet.
(d) Emails can be accessed from different machines.
(e) None of the above.

Question 15
[2.5 marks] Which of the following is NOT an issue with email privacy?

(a) Some major companies and governmental agencies are able to check their employees' emails.
(b) Emails may be intercepted while in transit.
(c) The administrator of the destination mail server has access to emails.
(d) Email encryption, while frequently used, is easily cracked.
(e) Backup copies of emails may be made automatically by the mail server.

Question 16
[2.5 marks] Which of the following is the correct Wiki markup for creating an internal link to a Wiki page called User:Dazh001, with the link label "here"?

(a) `[[here|User:Dazh001]]`
(b) `https://wiki.cs.auckland.ac.nz/stageonewiki/index.php/User:Dazh001`
(c) `[here|User:Dazh001]`
(d) `[User:Dazh001|here]`
(e) `[[User:Dazh001|here]]`

Question 17
[2.5 marks] Which of the following statements is FALSE?

(a) Ward Cunningham developed the first wiki.
(b) Wikipedia runs on MediaWiki.
(c) Wikipedia was launched in 1995.
(d) Wikipedia is the world's largest wiki.
(e) Wiki is a Hawaiian word meaning "quick".

Question 18

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

   (a) There are no privacy issues with blogging.
   (b) By default, posts are displayed in reverse chronological order.
   (c) Twitter is the world's most popular blogging service.
   (d) Facebook is the world's most popular blogging service.
   (e) By default, posts are displayed in chronological order.

Question 19

[2.5 marks] Given the following URL, name the protocol being used to access the following web resource:

`https://www.cs.auckland.ac.nz/resources/Internet/TCP`

   (a) Hypermedia Transfer Protocol
   (b) Hypertext Transfer Protocol
   (c) Hypermedia Transfer Protocol Secure
   (d) Transmission Control Protocol
   (e) Hypertext Transfer Protocol Secure

Question 20

[2.5 marks] Which of the following search terms would you use to Google search for information about exam timetables within the University of Auckland website (`www.auckland.ac.nz`)?

   (a) `"exam timetables" + www.auckland.ac.nz`
   (b) `auckland.ac.nz subject:exam timetables`
   (c) `University of Auckland exam timetables`
   (d) `"exam timetables" site:auckland.ac.nz`
   (e) `"exam timetables" AND "www.auckland.ac.nz"`

Question 21

[2.5 marks] Which of the following is NOT a valid IPv4 address?

   (a) 192.0.0.34
   (b) 256.12.13.1
   (c) 199.200.0.0
   (d) 234.15.67.9
   (e) 176.192.217.101

Question 22
[2.5 marks] What is the ASCII code for the word "Quick"?

(a) 82 85 74 68 76
(b) 80 84 72 66 74
(c) 81 85 73 67 75
(d) 81 117 105 99 107
(e) 113 117 105 99 107

Question 23
[2.5 marks] Which of the following is WYSIWYG?

(a) HTML5
(b) OpenOffice Writer
(c) Wiki markup
(d) LaTeX
(e) Python

Question 24
[2.5 marks] Which of the following statements is FALSE?

(a) References are found at the end of a document.
(b) Citations tell the reader where the information came from.
(c) References should enable the reader to retrieve the information source.
(d) Citations are found within the text.
(e) Citations provide details about the information source.

Question 25
[2.5 marks] Which of the following is the correct LaTeX code for the formula below?

$$\sum_{i=1}^{\infty} \frac{\sqrt{x_i^{2i}} - \gamma}{x_i}$$

(a) `$\sum_{i=1}^\infty\frac{\sqrt{x_i^{2i}}-\gamma}{x_i}$`
(b) `$\sum_{i=1}^\infty\frac{\sqrt{x_i^{2i}-\gamma}}{x_i}$`
(c) `$\sum_i=1^\infty\frac{\sqrt{x_i^2i}-\gamma}{x_i}$`
(d) `$\sum_{i=1}^\infty\frac{x_i}{\sqrt{x_i^{2i}-\gamma}}$`
(e) `$\sum_i=1^\infty\frac{\sqrt{x_i^2i-\gamma}}{x_i}$`

Question 26

[2.5 marks] Which of the following is the correct LaTeX code for the formula below?

$$\left(\frac{x_1^2}{1!} + \frac{x_2^2}{2!} + \cdots + \frac{x_n^2}{n!} \right)$$

(a) `$(\frac{x_1^2}{1!}+\frac{x_2^2}{2!}+\cdots+\frac{x_n^2}{n!})$`

(b) `$(\frac{x_1^2}{1!}+\frac{x_2^2}{2!}+\ldots+\frac{x_n^2}{n!})$`

(c) `$\left(\frac{x_1^2}{1!}+\frac{x_2^2}{2!}+...+\frac{x_n^2}{n!} \right)$`

(d) `$\left(\frac{x_1^2}{1!}+\frac{x_2^2}{2!}+\cdots+\frac{x_n^2}{n!} \right)$`

(e) `$(\frac{x_1^2}{1!}+\frac{x_2^2}{2!}+...+\frac{x_n^2}{n!})$`

Question 27

[2.5 marks] Which of the following formulas will the LaTeX code provided below produce?

`$\pi\int_-1^1(x^3-2x^2+7x-43)^2$`

(a) $\pi \int_{-1}^{1} (x^3 - 2x^2 + 7x - 43)^2$

(b) $\pi \int^{-} 1_1 (x^3 - 2x^2 + 7x - 43)^2$

(c) $\pi \int_{-} 1^1 (x^3 - 2x^2 + 7x - 43)^2$

(d) $\pi \int_{1}^{-1} (x^3 - 2x^2 + 7x - 43)^2$

(e) $\pi \int -1^1 (x^3 - 2x^2 + 7x - 43)^2$

Question 28

[2.5 marks] Which of the following is the correct LaTeX code for adding an image called "TestImage.eps" to a document, and setting its width to 25 millimetres?

    (a) `\includegraphics{width=25}[TestImage.eps]`

    (b) `\includegraphics(width=25mm){TestImage.eps}`

    (c) `\includegraphics[width=25]{TestImage.eps}`

    (d) `\includegraphics{width=25mm}[TestImage.eps]`

    (e) `\includegraphics[width=25mm]{TestImage.eps}`

Question 29

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

    (a) LaTeX is named after its creator, Leslie Lamport.

    (b) The # symbol is used to annotate comments in LaTeX.

    (c) Commands in LaTeX are case sensitive.

    (d) LaTeX is a great tool for typesetting a document with a lot of mathematical content.

    (e) LaTeX removes excess whitespace.

For the next two questions consider the following problem description and its symbolic representation:

A road has two sides: a left side `L()`, and a right side `R()`. A boy has three pets on the left side of the road: a dog (`d`), a cat (`c`), and a mouse (`m`). The goal of the problem is for the boy to get all three of his pets to the right side of the road. The boy can only take one pet across the road at a time. The action →(`x`) represents the boy taking pet `x` from the left side of the road to the right, while the action ←(`x`) represents the boy taking pet `x` from the right side of the road to the left. Crossing the street without a pet is NOT counted as an action.

Unfortunately, the boy cannot leave the dog and the cat alone on one side of the road as the dog will attack the cat. Similarly, the boy cannot leave the cat and the mouse alone on one side of the road as the cat will attack the mouse.

Question 30

[2.5 marks] What is the least number of actions required to solve the problem described above?

    (a) 6

    (b) 7

    (c) 4

    (d) 5

    (e) None of the above.

Question 31

[2.5 marks] For the problem described above, how many solutions are there that use the least number of actions?

   (a) 2
   (b) 1
   (c) 3
   (d) 4
   (e) None of the above.

Question 32

[2.5 marks] How does the Turing test determine machine intelligence?

   (a) If a machine can differentiate between a man and a woman when communicating with them, the machine is intelligent.
   (b) If a machine is self-aware and can reason, the machine is intelligent.
   (c) If a machine is able to communicate using Chinese characters, the machine is intelligent.
   (d) If a machine can be used to solve specific problems in a well-defined domain, the machine is intelligent.
   (e) If a person cannot differentiate between a machine and another person when communicating with them, the machine is intelligent.

Question 33

[2.5 marks] How many bytes are required to store a 32 colour image that is 40 pixels wide by 80 pixels high?

   (a) 16 KiB
   (b) 16 KB
   (c) 2 KiB
   (d) 2 KB
   (e) 12.8 KB

Question 34

[2.5 marks] Imagine that a square image contains 9 megapixels. If this image was viewed on a screen 1500 pixels wide by 1000 pixels high, what proportion of the image would be displayed on the screen?

   (a) 1/6
   (b) 1/9
   (c) 1/3
   (d) 1/4
   (e) 1/2

Question 35

[2.5 marks] In what way is JPEG better than PNG for photos?

    (a) The JPEG format is more popular than the PNG format.
    (b) The JPEG format supports more colours than the PNG format.
    (c) The JPEG format is lossless, while the PNG format is lossy.
    (d) Photographic experts were involved in developing the JPEG format, and not the PNG format.
    (e) The JPEG format can achieve better compression than the PNG format for photos.

Question 36

[2.5 marks] What is a game mechanic?

    (a) A player who is particularly adept at exploiting bugs in video games.
    (b) A game developer who specializes in level design.
    (c) A game engine parameter that can be set by a game designer.
    (d) A game element used to manipulate challenges.
    (e) A person who develops video games.

Question 37

[2.5 marks] A story created by players during game play is called …

    (a) an embedded narrative.
    (b) an interpreted narrative.
    (c) an intended narrative.
    (d) a co-constructed narrative.
    (e) an emergent narrative.

Question 38

[2.5 marks] Ludonarrative dissonance is the mental discomfort caused by …

    (a) moral choices in game narratives.
    (b) misalignment between gameplay and story.
    (c) violent game play.
    (d) immoral game play.
    (e) holding two or more contradictory beliefs.

Question 39

[2.5 marks] A player's understanding of a game's story is called …

    (a) co-constructed narrative.
    (b) intended narrative.
    (c) emergent narrative.
    (d) embedded narrative.
    (e) interpreted narrative.

Question 40

[2.5 marks] In game design, what is grinding?

(a) A game mechanic involving probabilistic item drops.

(b) A game dynamic involving repetition.

(c) A body movement caused by a game controller that may lead to a repetitive stress injury.

(d) Dance moves your mother would not approve of.

(e) A technique for increasing game difficulty.