Government of **Western Australia**
School Curriculum and Standards Authority

ATAR course examination, 2021

Question/Answer booklet

APPLIED INFORMATION TECHNOLOGY

Please place your student identification label in this box

WA student number: In figures

In words

Time allowed for this paper

Reading time before commencing work: ten minutes
Working time: three hours

Materials required/recommended for this paper

To be provided by the supervisor

This Question/Answer booklet
Multiple-choice answer sheet

Number of additional answer booklets used (if applicable):

To be provided by the candidate

Standard items: pens (blue/black preferred), pencils (including coloured), sharpener, correction fluid/tape, eraser, ruler, highlighters

Special items: nil

Important note to candidates

No other items may be taken into the examination room. It is **your** responsibility to ensure that you do not have any unauthorised material. If you have any unauthorised material with you, hand it to the supervisor **before** reading any further.

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Structure of this paper

Section	Number of questions available	Number of questions to be answered	Suggested working time (minutes)	Marks available	Percentage of examination
Section One Multiple-choice	15	15	20	15	15
Section Two Short answer	8	8	40	53	25
Section Three Extended answer	1	1	50	41	20
Section Four Scenario	1	1	70	73	40
				Total	100

Instructions to candidates

1. The rules for the conduct of the Western Australian external examinations are detailed in the *Year 12 Information Handbook 2021: Part II Examinations*. Sitting this examination implies that you agree to abide by these rules.

2. Answer the questions according to the following instructions.

   Section One: Answer all questions on the separate Multiple-choice answer sheet provided. For each question, shade the box to indicate your answer. Use only a blue or black pen to shade the boxes. Do not use erasable or gel pens. If you make a mistake, place a cross through that square, then shade your new answer. Do not erase or use correction fluid/tape. Marks will not be deducted for incorrect answers. No marks will be given if more than one answer is completed for any question.

   Sections Two, Three and Four: Write your answers to the questions in this Question/Answer booklet.

3. You must be careful to confine your answers to the specific questions asked and to follow any instructions that are specific to a particular question.

4. Supplementary pages for planning/continuing your answers to questions are provided at the end of this Question/Answer booklet. If you use these pages to continue an answer, indicate at the original answer where the answer is continued, i.e. give the page number.

See next page

Section One: Multiple-choice **15% (15 Marks)**

This section has **15** questions. Answer **all** questions on the separate Multiple-choice answer sheet provided. For each question, shade the box to indicate your answer. Use only a blue or black pen to shade the boxes. Do not use erasable or gel pens. If you make a mistake, place a cross through that square, then shade your new answer. Do not erase or use correction fluid/tape. Marks will not be deducted for incorrect answers. No marks will be given if more than one answer is completed for any question.

Suggested working time: 20 minutes.

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1. Which one of the following hardware items connects devices within a wired Local Area Network?

   (a) modem
   (b) wireless access point
   (c) switch
   (d) server

2. Which one of the following security measures filters the information coming through an internet connection to a network or computer system?

   (a) anti virus program
   (b) firewall
   (c) passwords
   (d) biometrics

3. The web address https://www.scsa.wa.edu.au is entered into a browser and the page is displayed. Which of the following **best** describes how the website loaded?

   (a) HTTP request is sent to host server; host server sends back HTTP response with the HTML for the web page.
   (b) HTML request is sent to host server; host server returns the web page using HTML protocol.
   (c) HTTPS request is sent to host server; host server sends back HTTPS response with the HTML for the web page.
   (d) HTTPS request is sent to the host server; host server returns the web page using HTML protocol.

4. Which of the following would a web designer use to incorporate help features into the design of their web page?

   (a) inclusivity, accessibility and usability
   (b) GUI and user experience (UX)
   (c) GUI and inclusivity
   (d) hierarchical organisation of content and accessibility

See next page

5. Which colour scheme is **best** used to increase the contrast level of a design?

   (a) analogous
   (b) primary
   (c) complementary
   (d) monochromatic

6. Protecting the idea or functionality of software code is an example of which type of intellectual property?

   (a) patent
   (b) registered design
   (c) trademarks
   (d) copyright

7. This feature encloses text or graphics to allow a desktop publisher to move, shape or format the information on a page as a separate object.

   (a) layers
   (b) frames
   (c) templates
   (d) columns

8. Lee would like to display her professional photographs on her online profile. Which of the following is the **most** suitable solution?

   (a) Ensure high resolution images are displayed on the site to showcase the quality of her work.
   (b) Provide alternative text to cater for those users with their images turned off through the browser.
   (c) Compress the photographs to ensure images are displayed on the website but allow for fast load-time.
   (d) Display small thumbnail images to speed load-time, and when the thumbnail image is clicked or hovered over, a larger image is downloaded.

9. Which of the following statements describes an incremental backup correctly?

   (a) It backs up the files that have changed the day the backup is performed.
   (b) It backs up the files that have changed since the last full backup.
   (c) It backs up the files that have changed since the last backup.
   (d) It backs up all files to a storage device.

10. 802.3 is the standard that defines the specifications for

    (a) a wireless local area network (WLAN).
    (b) sending and receiving packets across the internet.
    (c) hosts that are arranged in a logical order in a local area network (LAN).
    (d) ethernet hosts to detect a collision in a local area network (LAN).

See next page

11. Alexa®, Siri® and Google Assistant® are examples of a machine's ability to simulate human intelligence. This technology is called

(a) augmented reality (AR).
(b) natural language processing (NLP).
(c) artificial intelligence (AI).
(d) virtual reality (VR).

12. Dana is studying Film and Television and wants to buy a new desktop to complete audio, graphic and video (including virtual reality) editing and rendering. Which of the following desktop specifications would be **best** for Dana's needs.

(a) i5 quad core, integrated graphics, 8GB RAM, 256GB solid state drive (SSD)
(b) i7 quad core, 4GB graphics processing unit (GPU), 16GB RAM, 1TB hard disk drive (HDD)
(c) i5 six core, 2GB graphics processing unit (GPU), 16 GB RAM, 500GB hard disk drive (HDD)
(d) i7 six core, integrated graphics, 16GB RAM, 256GB solid state drive (SSD) and 500GB hard disk drive (HDD)

13. Which of the following file formats is the **most** appropriate for the web when creating graphics that may require scalability, such as logos?

(a) .png
(b) .gif
(c) .tif
(d) .svg

14. In typography, kerning means to

(a) adjust the spacing between two individual letters.
(b) rotate the text around an object.
(c) vertically adjust the size of the font for a word.
(d) adjust the spacing between multiple lines of text.

15. An advantage of an ePublication over a pdf is

(a) the format of every screen can be chosen.
(b) the display of content can be adjusted for the device.
(c) it can be used as fillable forms.
(d) it has multi-platform access.

End of Section One

See next page

Section Two: Short answer **25% (53 Marks)**

This section has **eight** questions. Answer **all** questions. Write your answers in the spaces provided.

Supplementary pages for planning/continuing your answers to questions are provided at the end of this Question/Answer booklet. If you use these pages to continue an answer, indicate at the original answer where the answer is continued, i.e. give the page number.

Suggested working time: 40 minutes.

Question 16 **(3 marks)**

Explain how Hypertext Markup Language (HTML) and Cascading Style Sheets (CSS) work together in web design.

Question 17 **(13 marks)**

(a) Identify an appropriate form for online data collection and explain its effectiveness in evaluating a design solution. (4 marks)

(b) Explain, using examples, **three** validation techniques that can be used for online forms. (9 marks)

One: _____

Two: _____

Three: _____

Question 18 **(9 marks)**

Identify **three** actions of staff that can affect data security in a small business. Describe a solution for each action.

One: _____

Question 18 (continued)

Two:

Three:

Question 19 **(5 marks)**

(a) Describe the concept of User-Generated Content (UGC). (2 marks)

(b) Explain how a brand or business can take advantage of UGC. (3 marks)

Question 20 **(4 marks)**

Explain the difference between encryption and digital signature in securing data.

Question 21 **(8 marks)**

(a) Describe the concept of freedom of information (FOI) in Australia. (2 marks)

(b) Describe **three** key provisions that FOI provides to an individual in relation to digital products. (6 marks)

One:

Two:

Three:

Question 22 **(6 marks)**

Harvey is in the process of producing a documentary and was told to use multi-layer track editing and effects. Describe to Harvey the **two** video application features below and how they may enhance his documentary.

Multi-layer: _____

Effects: _____

Question 23 **(5 marks)**

(a) Define the term 'outsourcing'. (1 mark)

(b) Describe the impact on businesses outsourcing information technology services with regard to digital technologies and global markets. (4 marks)

Digital technologies: _____

Global markets: _____

End of Section Two

See next page

Section Three: Extended answer **20% (41 Marks)**

This section contains **one** question. Write your answers in the spaces provided.

Supplementary pages for planning/continuing your answers to questions are provided at the end of this Question/Answer booklet. If you use these pages to continue an answer, indicate at the original answer where the answer is continued, i.e. give the page number.

Suggested working time: 50 minutes.

Question 24 **(41 marks)**

Read the article excerpt from *The ABC News* below, which focuses on security concerns over TikTok.

Australian intelligence agencies investigate … TikTok over security concerns

TikTok is facing intensifying scrutiny in Canberra, with intelligence agencies putting the app under the microscope and some MPs pressing the Australian Federal Government to ban it.

The video-sharing app is enormously popular with young people in their teens and 20s, with more than 1.56 million Australians downloading it to their phones. But analysts say TikTok harvests huge amounts of data, and warn that the foreign company which owns it – ByteDance – may be forced to share that information with their government.

The ABC has been told that the Australian Federal Government is conducting two complementary investigations into the app. The Prime Minister has directed intelligence agencies to investigate whether TikTok poses a security threat. Simultaneously, the Department of Home Affairs is investigating what steps the Australian Government can take to manage any privacy or data security risks it poses.

TikTok Australia stores user data in the US and Singapore, and the company insists TikTok users do not have to worry about their personal information being compromised. In a statement, it said: 'TikTok does not share information of our users in Australia with any foreign government.'

Representatives from TikTok Australia will also front a parliamentary committee that is investigating the threat of foreign interference through social media. The committee is being chaired by Labor Senator Jenny McAllister, who said there were credible reports TikTok took more data than its users realised.

It's not just TikTok facing scrutiny: representatives from Google, Facebook, Twitter and WeChat have also been called to give evidence at the committee. Jenny McAllister said it would be 'naïve to imagine that Australia would be immune from social media disinformation campaigns.' She said the committee would press the social media giants to explain what steps they were taking to disrupt foreign interference and stated 'I think we need significantly greater transparency from these platforms.'

See next page

Question 24 (continued)

'Online applications (apps) are constantly monitored over a number of concerns'.

Discuss the above statement with reference to the TikTok article and include the following in your answer:

(a) Define the term 'personal information' and identify **two** types of personal information that may be held by TikTok about its users. (4 marks)

(b) Describe **two** reasons why the Australian Government may want to censor information on TikTok and explain how this would be negative for its users. (7 marks)

(c) Describe how TikTok may be used to defame an individual and list **three** actions they may take if they have been defamed. (6 marks)

(d) Discuss, using examples, how development and convergence trends in contemporary digital technologies have affected the lifestyle of online content creators and viewers. (6 marks)

(e) Explain, using examples, **three** different ways in which a user can secure their personal data when using online applications. (9 marks)

(f) Use examples to explain **three** different ways in which TikTok can ensure the security of personal and/or sensitive information gathered from its users. (9 marks)

See next page

See next page

See next page

End of Section Three

See next page

Section Four: Scenario **40% (73 Marks)**

This section contains **one** question. Write your answers in the spaces provided.

Supplementary pages for planning/continuing your answers to questions are provided at the end of this Question/Answer booklet. If you use these pages to continue an answer, indicate at the original answer where the answer is continued, i.e. give the page number.

Suggested working time: 70 minutes.

Question 25 **(73 marks)**

Boom Leisure Centre is a new multipurpose sport and leisure centre, situated in Alkimos, north of Perth. The centre is due to be opened in December 2021 and will provide for organised sporting fixtures, casual use of the courts, fitness classes, swimming lessons, casual pool entry, a gym, venue hire, day care and a cafe.

This is a new centre for the area and the local council wants to raise awareness of the facility and its many activities to encourage attendance and membership when it opens. The council believes, with a suitable website and strategic marketing, it will attract interest in the facility.

The council has contracted you to project manage the design of a website and mobile application (app) for Boom Leisure Centre.

It is the intention of the council to quickly build a small-scale model of the website and app that can be tested first with a group of stakeholders, including fitness trainers and residents. It has requested that you, as project manager, engage with the users to obtain ongoing feedback during the development of the website and app. They believe integrating feedback from the group will be significant in ensuring the successful rollout of the full website in December 2021.

The homepage of the website and app should include the following:
- About us
- Membership and entry fees
- Fitness facilities and programs
- Swimming facilities and programs
- Sports
- Activities and leisure programs
- Venue hire
- Cafe.

See next page

(a) Identify **one** project management approach you would use and explain why you would use it in designing a solution for Boom Leisure Centre. (4 marks)

(b) Identify **three** project planning tools that you will use to design the website and app for Boom Leisure Centre. Describe how each of these tools will be used during the development of the solution. (9 marks)

One:

Two:

Question 25 (continued)

Three: _____

(c) (i) Describe the purpose of the world wide web consortium (W3C). (2 marks)

(ii) Explain how your website will reflect compliance with the following Web Design and Applications standards of the W3C. (9 marks)

Graphics: _____

Audio and video: _____

Mobile web:

(d) Explain how you intend to incorporate the following concepts into your app or website design. (6 marks)

Usability:

Accessibility:

Question 25 (continued)

(e) Design the website homepage for Boom Leisure Centre in the space provided on pages 22 and 23.

Your design must include annotations and show:

(i) layout and structure of your intended design. (5 marks)
(ii) elements and principles of design used and the relationship between them. (3 marks)
(iii) organisation of content suitable for the given digital medium. (3 marks)
(iv) user-generated content feature(s) suitable for the given digital medium. (3 marks)
(v) a help feature that enables accessibility. (2 marks)

Anything written on this page will not be marked.

PLANNING ONLY

See next page

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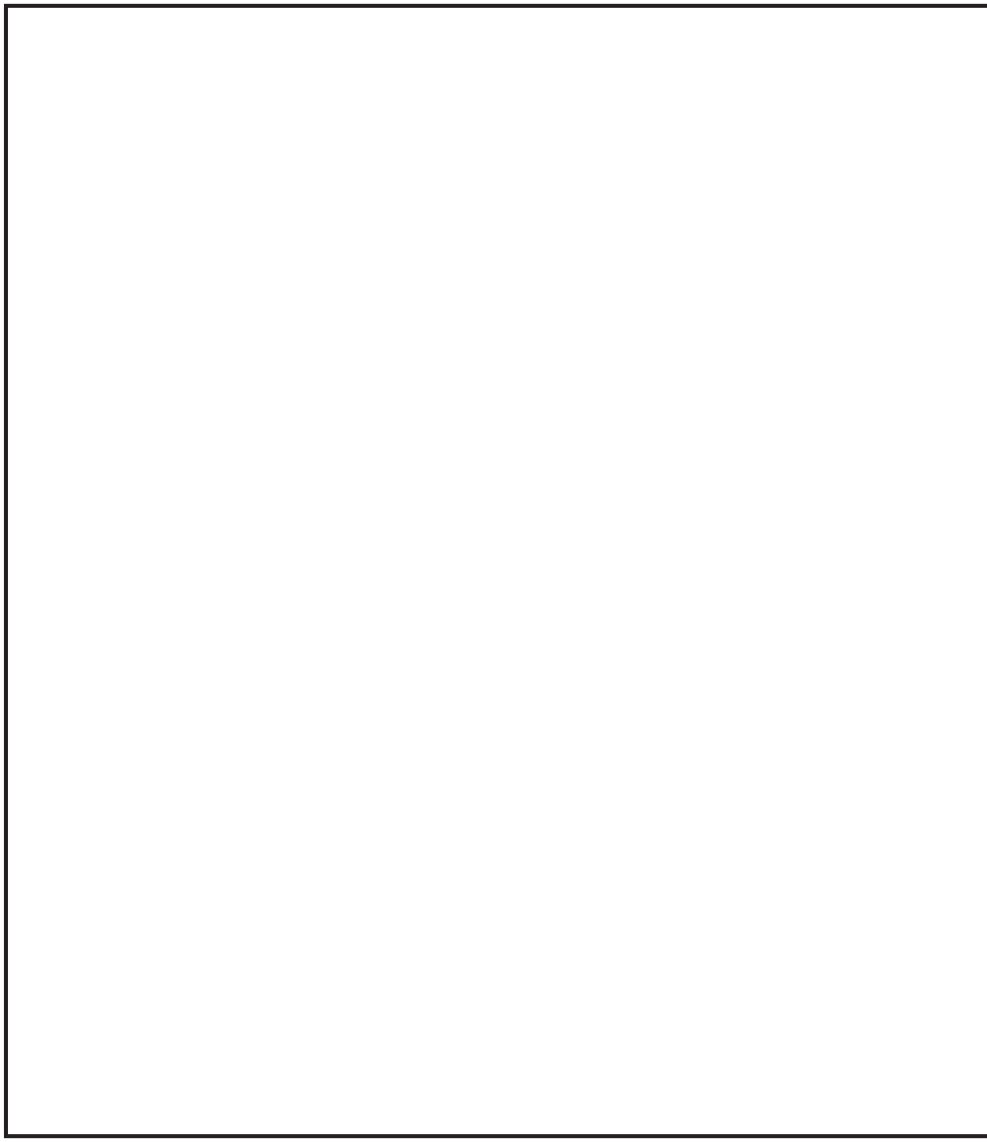
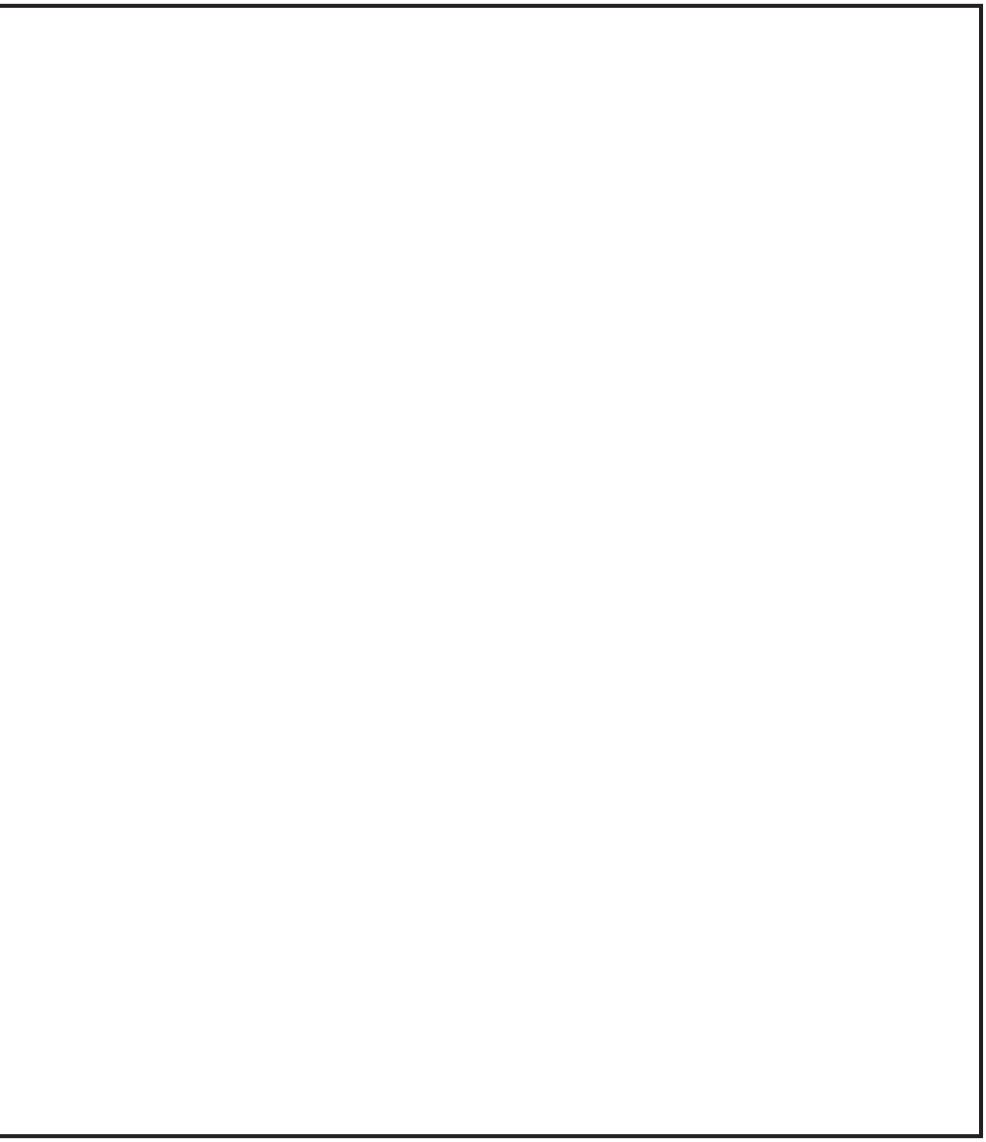
See next page

Question 25 (continued)

Use the surrounding area for annotations.



See next page



See next page

Question 25 (continued)

After reviewing the website for Boom Leisure Centre, the council would like you to develop an app for members to use. They want to introduce touchless entry into the gym through quick response (QR) code. The app is to include a section where members can enter their details to obtain their unique QR codes. Members can then use the app to scan at the door for entry.

The app should also include:

- Fitness classes timetable
- Pool timetable and availability
- Member login
  - Membership details
  - QR code sign up and access
  - Class enrolment
- Live centre 'Busy' times.

(f) You are required to design the main screen of the app in the space provided on pages 26 and 27. You may use the space on page 25 to plan your response.

Your design must include annotations and show:

(i)	layout and structure of your intended design.	(5 marks)
(ii)	elements and principles of design used and the relationship between them.	(3 marks)
(iii)	organisation of content suitable for the given digital medium.	(3 marks)
(iv)	navigation controls suitable for the given digital medium.	(3 marks)
(v)	user-generated content feature(s) suitable for the given digital medium.	(3 marks)

See next page

Anything written on this page will not be marked.

PLANNING ONLY

Question 25 (continued)

Use the surrounding area for annotations.

See next page

See next page

Question 25 (continued)

(g) Explain how the user interface (UI) of your design for the website and app is different. (4 marks)

(h) Describe **three** tools that could be used to evaluate the effectiveness of your digital solution in accordance with the design brief for this project. (6 marks)

One:

Two:

Three:

End of questions

Supplementary page

Question number: _____

Supplementary page

Question number: _____

Supplementary page

Question number: _____

Supplementary page

Question number: _____

Supplementary page

Question number: _____

Supplementary page

Question number: _____

Supplementary page

Question number: _____

ACKNOWLEDGEMENTS

Question 24 Adapted from: Dziedzic, S. (2020, August 2). *Australian intelligence agencies investigate Chinese-owned TikTok over security concerns*. Retrieved June, 2021, from https://www.abc.net.au/news/2020-08-02/tiktok-under-investigation-in-australia-over-privacy-concerns/12513466

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