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

## ATAR course examination, 2020

## 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 | 51 | 25 |
| Section Three Extended answer | 1 | 1 | 50 | 43 | 20 |
| Section Four Scenario | 1 | 1 | 70 | 67 | 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 2020: 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.

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

4. 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.

5. 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 of the following colours are complementary?

   (a) blue and red
   (b) blue and orange
   (c) blue and purple
   (d) blue and green

2. In a video application, a transition is

   (a) added between two frames in the timeline.
   (b) added to an individual frame in the timeline.
   (c) the title of the sound layer in the application.
   (d) the inserting of a new track in the application.

3. Which of the following aspects are all associated with typography?

   (a) alignment, line, tracking, size
   (b) format, kerning, space, aperture
   (c) shape, tracking, masking, pica
   (d) space, alignment, size, format

4. An advantage to publishing a document as a .pdf file rather than an .epub file is it

   (a) can natively allow multimedia to be embedded.
   (b) will look exactly as the designer intended when opened.
   (c) is an open source that allows easy publishing and editing.
   (d) will be scaled to suit the screen of the device being used.

5. Online defamation involves

   (a) damage caused to the character or reputation of an individual or business on the basis of truths published on the internet.
   (b) a truthful attack on the good name of a business or individual by a competitor on the internet.
   (c) damage caused to a business or individual from a factual negative campaign by a disgruntled employee on the internet.
   (d) damage caused to the character or reputation of an individual or business on the basis of untruths published on the internet.

**See next page**

6. A prototype approach to project management

   (a) is characterised by a distinct set of activities or tasks.
   (b) is characterised by the monitoring of resources and timelines.
   (c) breaks the task down into manageable stages.
   (d) involves modification of the product with the client.

7. A digital signature is

   (a) an online version of the user's handwritten signature that has been digitally scanned and is used to verify the user.
   (b) data that is attached to a document that will automatically hide the true meaning of the information.
   (c) a code electronically-transmitted with a document to verify its contents and the sender's identity.
   (d) an electronic 'password' that allows an organisation to exchange data securely over the internet.

8. Which is correct in relation to differential backups? It is used to backup

   (a) data since the last full backup.
   (b) data since the last incremental backup.
   (c) all data from the user to the backup.
   (d) data from the cloud.

9. Censorship of online information is an impact in our technological world. Online censorship is the

   (a) suppression of online material that may be considered harmful or sensitive on the grounds that it is objectionable.
   (b) removal of online communication of false statements about a person that injure the reputation of the person.
   (c) use of internet protocol (IP) blocking of websites to block all websites on a single hosting server due to the location being the same.
   (d) removal of publicly available content created by consumers such as video, blogs, discussion-form posts and digital images.

10. The *Australian Freedom of Information (FOI) Act 1982*

   (a) allows individuals to request access to documents held by all Australian government ministers and agencies.
   (b) establishes an information publication scheme requiring agencies to select which details they publish online about their functions and structure.
   (c) allows agencies and ministers to release documents that would be exempt unless prevented by a secrecy requirement in another law.
   (d) allows people to request that ministers or agencies amend or annotate any information they hold about their elderly parents.

**See next page**

11. A predecessor to modern mobile communication standards that allowed mobile phones to access information before they fully supported HTML was the

(a) Mobile Phone Data Standard.
(b) Mobile Information Protocol.
(c) Wireless Application Protocol.
(d) Wireless Evolution Standard.

12. The use of a calendar pop-up box to select a specific date on an online form is a type of

(a) validation technique.
(b) verifiability technique.
(c) validity technique.
(d) verification technique.

13. A program running on a computer that is constantly looking for malicious code that might be a threat is called

(a) an authentication utility.
(b) a digital certificate.
(c) an anti-virus software.
(d) a biometric diagnostic.

14. A range of tools that could be used to evaluate the effectiveness of a digital solution in accordance with the design brief would include

(a) client feedback, storyboards and surveys.
(b) surveys, client feedback and self-reflection.
(c) social media, self-reflection and collaboration.
(d) collaboration, social media and observations.

15. If a firewall is capable of content filtering, it will be able to

(a) search for a snippet of code or signature using a pre-defined rule set.
(b) monitor requests from start to finish using Transmission Control Protocol.
(c) place requests on hold but retrieving the content on behalf of the user.
(d) allow or deny specific attachment types, keywords and file formats.

**End of Section One**

**See next page**

**Section Two: Short answer** **25% (51 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.

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**Question 16** **(4 marks)**

A benefit of Web 3.0 is the move towards being able to access data from anywhere. This has seen an increase in connectivity of devices such as home automations and smart appliances.

(a) Identify **two** negative issues that consumers need to be aware of in relation to this increased connectivity in their homes. (2 marks)

One: _____

_____

Two: _____

_____

(b) Describe a way that Web 3.0 interconnectivity can be used to improve experiences for consumers. (2 marks)

_____

_____

_____

_____

**Question 17** **(5 marks)**

(a) State the purpose of the world wide web consortium (W3C). (1 mark)

(b) The W3C has produced a set of standards. Describe **two** ways in which a designer could develop a web page for an international audience. (4 marks)

One:

Two:

**Question 18** **(4 marks)**

Data mining is a process used by companies around the world.

(a) Define data mining. (1 mark)

(b) Explain how a business could use data mining. (3 marks)

**Question 19** **(10 marks)**

Varsity Site provides distance education services that deliver all communication, course delivery and materials online.

(a) Describe **two** ways in which the use of digital communication could enhance the university's provision of learning materials. (4 marks)

One: _____

_____

_____

_____

Two: _____

_____

_____

_____

(b) Describe **two** issues that the university would need to address with its online system to ensure that it met appropriate accessibility guidelines. (4 marks)

One: _____

_____

_____

_____

Two: _____

_____

_____

_____

(c) Identify **two** implications of virtual collaboration for Varsity Site students completing its courses. (2 marks)

One: _____

_____

_____

Two: _____

_____

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**Question 20** **(7 marks)**

(a) Outline the concept of intellectual property in Australia. (1 mark)

_____

_____

(b) Identify **three** types of intellectual property. Provide an example of how each can be breached in relation to digital products. (6 marks)

One: _____

_____

_____

_____

Two: _____

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_____

_____

Three: _____

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**Question 21** **(6 marks)**

(a) Identify **two** reasons why an organisation would have a workplace code of conduct. (2 marks)

One: _____

_____

Two: _____

_____

(b) Describe **two** reasons why a business might monitor an employee's emails and/or internet use. (4 marks)

One: _____

_____

_____

_____

Two: _____

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_____

_____

**Question 22** **(9 marks)**

A new marketing company is considering purchasing new computers for the multimedia creators it employs. These creators are responsible for image modification, web development and video production.

The company has asked you to identify **three** important components of these devices. Describe why each component would be an appropriate choice for its employees and how it will affect the usability of the device.

| Component | Description of appropriateness and usability |
|---|---|
| | |
| | |
| | |

**See next page**

**Question 23** **(6 marks)**

When doing research for an assignment, you are trying to ensure that all the information you are considering is current, accurate and verifiable. Describe what you should be looking for to ensure your information is:

- current
- accurate
- verifiable.

Current: _____

_____

_____

Accurate: _____

_____

_____

Verifiable: _____

_____

_____

**End of Section Two**

**See next page**

**Section Three: Extended answer** **20% (43 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.

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**Question 24** **(43 marks)**

Plumbers Galore is a family-owned business set up by three brothers. It employs ten plumbers and three office staff. Due to an expansion of the business, it is moving to a larger warehouse and showroom. As a result, Plumbers Galore will employ five more office staff to manage bookings, invoicing and expenses, as well as hiring an additional five plumbers and purchasing on-road servicing vans.

All the service vans have a navigation system installed and all plumbers are equipped with iPads and smart phones to manage their bookings and deal with emergency calls whilst on the road.

In their original premises, Plumbers Galore used a wired and wireless hybrid system in the main office. It is reviewing how it manages the administration of the business, with the aim to improve the connectivity and reliability of its network services.

Plumbers Galore has recently developed a new website that provides potential customers with information on the types of products and services offered. Plumbers Galore also has a mobile platform that allows customers to pay their bills online.

**See next page**

**Question 24** (continued)

(a) Plumbers Galore has recently created a disaster recovery plan. Describe **two** benefits to the business by creating such a plan. (4 marks)

One: _____

Two: _____

(b) Most of Plumbers Galore's customers pay via the mobile platform. Outline **three** ways in which Plumbers Galore can provide secure online payment for its customers. (6 marks)

One: _____

Two: _____

Three: _____

(c) The devices within Plumbers Galore's new office and showroom will need to connect to a network via 802.3 or 802.11x.

(i) Provide **two** characteristics of each of the following network communication standards. (4 marks)

802.3

One: _____

_____

Two: _____

_____

802.11x

One: _____

_____

Two: _____

_____

(ii) Identify the communication standard that would be most appropriate for the administration staff to connect the Plumbers Galore network and justify your choice. (3 marks)

_____

_____

_____

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**Question 24** (continued)

(d) Plumbers Galore is aware that there are threats to network security, and it wants to ensure appropriate measures are in place to minimise these threats.

Describe **two** security measures that will assist in protecting the network. (4 marks)

One: _____

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_____

Two: _____

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(e) Describe **two** benefits that emerging technologies could provide for Plumbers Galore staff and/or potential customers. (4 marks)

One: _____

_____

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_____

Two: _____

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_____

(f) Plumbers Galore has purchased mobile devices for employees.

(i) Describe **two** productivity impacts for Plumbers Galore employees. (4 marks)

One: _____

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Two: _____

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(ii) Describe **two** impacts of access to knowledge or resources for Plumbers Galore employees. (4 marks)

One: _____

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Two: _____

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**Question 24** (continued)

(g) Describe **three** reasons why Plumbers Galore should consider using a content management system (CMS) for its business website. (6 marks)

One: _____

_____

_____

_____

Two: _____

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_____

Three: _____

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(h) With increasing reliance on connectivity and reliability of online services, Plumbers Galore have realised its current Internet Service Provider (ISP) agreement is outdated. Outline **two** features that Plumbers Galore should take into account for a new agreement to ensure its business needs are met. (4 marks)

One: _____

_____

_____

_____

Two: _____

_____

_____

_____

**End of Section Three**

**See next page**

**Section Four: Scenario** **40% (67 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.

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**Question 25** **(67 marks)**

Green Aussie is a company that wishes to raise awareness of the regeneration of bushfire-affected land.

It has developed a program which promotes the revegetation and replanting in areas of affected land, re-fencing of agricultural areas, and soil erosion control. The program is scheduled for completion in the next twelve months, to assist in the fast recovery from bushfire.

Green Aussie is positive that with the right website and marketing, it will have a very successful regeneration program that will attract volunteers from around the world.

You have been contracted to design an inclusive and usable website to promote its regeneration program.

At a minimum, the website homepage will need to include the following:
- information about Green Aussie and its mission
- details regarding locations of the regeneration program
- information about volunteering in the regeneration program
- links for volunteers to sign up to a range of activities in the regeneration program.

**See next page**

**Question 25** (continued)

(a) When designing websites, an important consideration is the organisation of the content. Identify and outline **two** methods of organising content. Use an example of each method in your answer. (6 marks)

(b) Explain how you intend to incorporate the following help features into the design of your website. (6 marks)

Usability:

Inclusivity:

(c) Describe how **three** publishing features will be used in the construction of your website.
(6 marks)

(d) Outline **two** ways in which you could include user-generated content in your website.
(4 marks)

**Question 25** (continued)

(e) Design the website homepage for Green Aussie in the spaces provided on pages 24 and 25. You may use the space below to plan your design.

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. (2 marks)

(v) a help feature that allows accessibility. (2 marks)

Planning: anything written on this page will **not** be marked.

PLANNING ONLY

**See next page**

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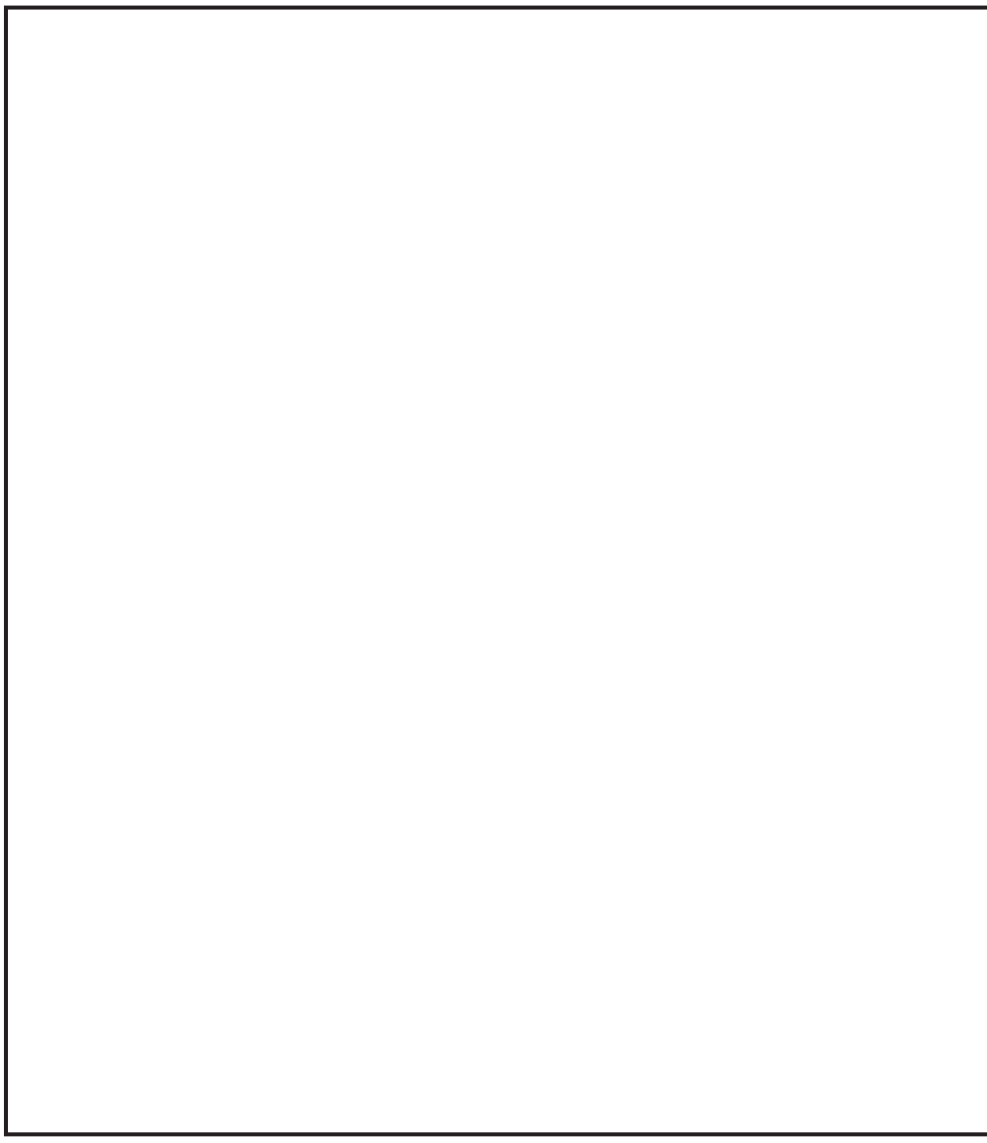
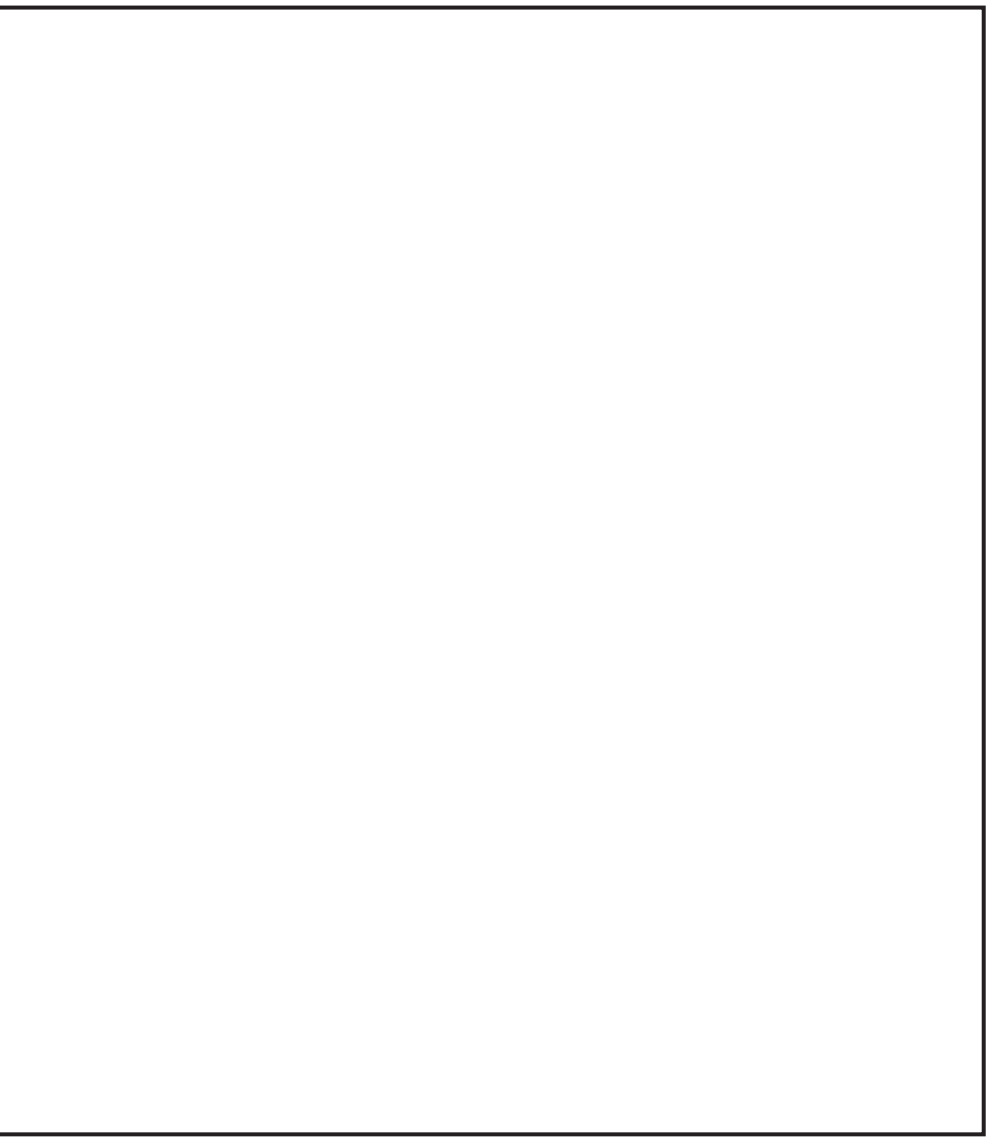
See next page

**Question 25** (continued)

Use the surrounding area for annotations.



**See next page**



See next page

**Question 25** (continued)

(f) Many organisations use in-house staff to design its logo and website. Provide **two** reasons why Green Aussie may have chosen to outsource these designs to you. (4 marks)

One: _____

Two: _____

(g) Describe **two** convergence trends in contemporary digital technologies that you could consider in the design of your mobile application. (4 marks)

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See next page

**Question 25** (continued)

Green Aussie was impressed with your website design. It has now asked you to develop a mobile application for volunteers to use when in the field and for selecting the activities they wish to join. It would like the mobile application to showcase

- maps of the regeneration areas.
- a gallery of photographic images of regeneration.
- details of available volunteering activities.
- the latest news.

(h) You are required to design the main screen of the application in the space provided on page 29. You may use the space below to plan your response.

Your design must include annotations and show

(i) layout and structure of your intended design. (5 marks)

(ii) the 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)

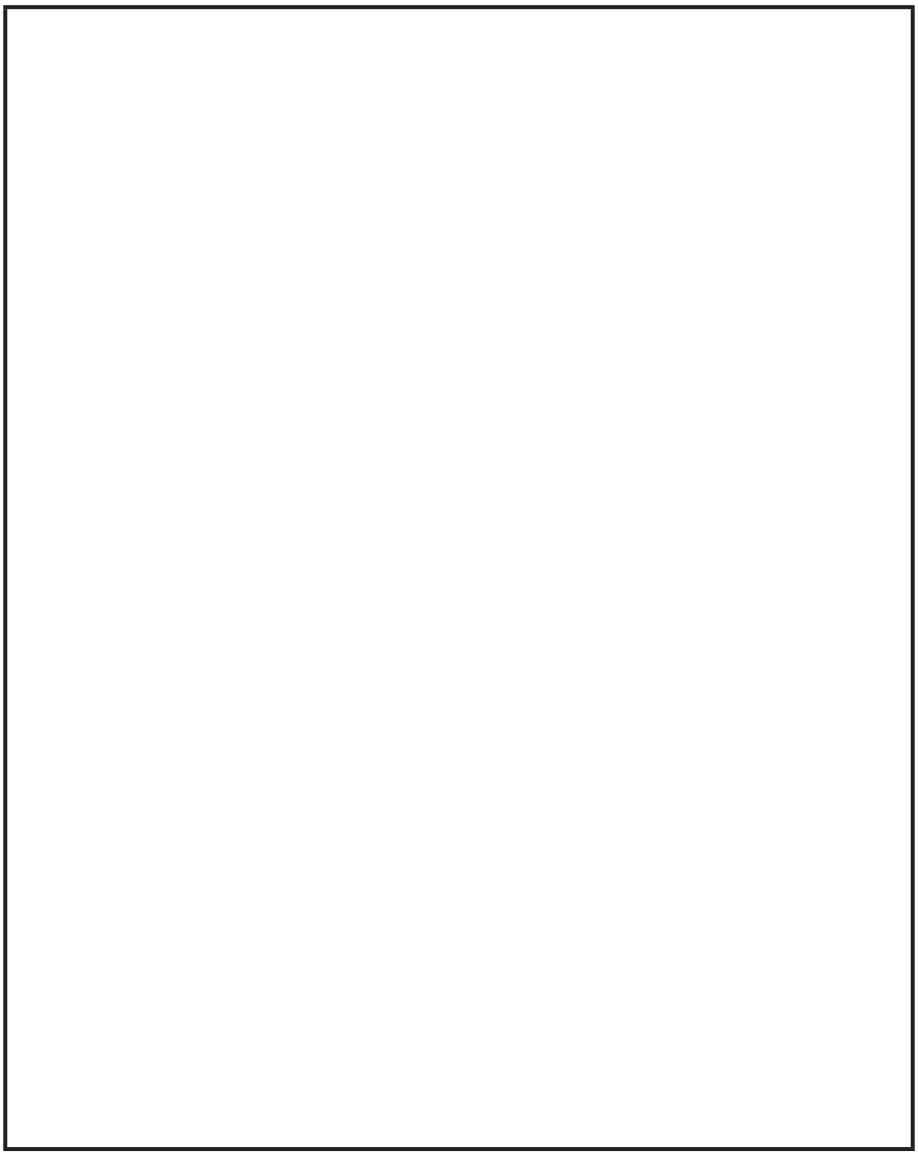
(iv) navigation controls suitable for the given digital medium. (2 marks)

(v) user-generated content feature(s) suitable for the given digital medium. (2 marks)

Planning: anything written on this page will **not** be marked.

PLANNING ONLY

Use the surrounding area for annotations.



See next page

**Question 25** (continued)

(i) Explain how you have considered the appearance of the user interface (UI) and structure in the design and application of your website. (4 marks)

UI: _____

_____

_____

_____

Structure: _____

_____

_____

_____

(j) The director of Green Aussie would like to investigate the creation of its website using an online tool. State the purpose of online software tools and describe a way that these could assist Green Aussie in the creation of its website. (3 marks)

_____

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**End of questions**

Supplementary page

Question number: _____

Supplementary page

Question number: _____

Supplementary page

Question number: _____

Supplementary page

Question number: _____

Supplementary page

Question number: _____

## ACKNOWLEDGEMENTS

**Question 10** Adapted from: Office of the Australian Information Commissioner. (n.d.). *Rights and responsibilities*. Retrieved May, 2020, from https://www.oaic.gov.au/freedom-of-information/the-foi-act/rights-and-responsibilities/
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