



APPLIED INFORMATION TECHNOLOGY

ATAR course examination 2022

Marking key

Marking keys are an explicit statement about what the examining panel expect of candidates when they respond to particular examination items. They help ensure a consistent interpretation of the criteria that guide the awarding of marks.

Section One: Multiple-choice

15% (15 Marks)

Question	Answer
1	b
2	d
3	b and c
4	a
5	c
6	a
7	d
8	b
9	a
10	c
11	d
12	a
13	c
14	b
15	d

Section Two: Short answer

25% (55 Marks)

Question 16

(4 marks)

Discuss why it is important for designers to protect their intellectual property (IP).

Description	Marks
Discusses why it is important for designers to protect their intellectual property.	4
Explains why it is important for designers to protect their intellectual property.	3
Describes why it is important for designers to protect their intellectual property.	2
Makes a statement about intellectual property.	1
Total	4
Answers could include: If you are a successful designer, you are paid to generate ideas. Intellectual property (IP) rights exist to protect the expression of ideas. It is important to make sure nobody uses your designs and passes them off as their own so that they can benefit from the sales of their designs. If a design is stolen it may result in legal action. Accept other relevant answers.	

Question 17

(6 marks)

Explain **two** issues a business might face in using cloud computing.

Description	Marks
For each issue (2 x 3 marks)	
Explains an issue a business may face with the use of cloud computing.	3
Describes an issue a business may face with the use of cloud computing.	2
Makes superficial comment/s about an issue a business may face with the use of cloud computing.	1
Total	6
Answers could include: <ul style="list-style-type: none"> • availability – it is necessary for cloud systems to be reliable and robust for businesses that are dependent on services provided by third-party. If not this may impact business operations • confidentiality of data – organisational data may be compromised if there are no appropriate safeguards, policies and procedures in place. The business needs to ensure the host service provider robust security safeguards in place like data encryption and physical safeguards • high cost – as some businesses may need data intensive applications on the cloud and this requires high network bandwidth. With higher bandwidth come higher costs. • Breach of security – as the data is stored online there is a possibility that hackers may obtain access to the data. In doing so they can edit, steal or manipulate the data, causing the business issues. Accept other relevant answers.	

Question 18

(10 marks)

- (a) Describe **two** effects of using digital communication when collaborating on a school project. (4 marks)

Description	Marks
For each effect (2 x 2 marks)	
Describes the effect of using digital communication when collaborating on a school project.	2
Makes superficial comment/s about the effect of using digital communication.	1
Total	4
<p>Answers could include:</p> <ul style="list-style-type: none"> allows student team members to work with others from any location, which reduces downtime like travelling to and from school, isolation and allows students to be productive when it best suits them. This should lead to quicker and more productive turnaround time for completion of project technical issues would impact the successful use of digital communication when collaborating. For example, students without good internet connectivity, students who do not have access to technology as well as disagreements may lead to the breakdown of communications. This in turn may affect the completion of the school project. 	
Accept other relevant answers.	

- (b) Compare **two** ways in which digital communication can be used for collaborating on a school project. (6 marks)

Description	Marks
For each (2 x 3 marks)	
Compares a way digital communication can be used for collaborating on a school project.	3
Describes a way digital communication can be used for collaborating on a school project.	2
Makes a general statement about a way digital communication can be used for educational purpose.	1
Total	6
<p>Answers could include:</p> <ul style="list-style-type: none"> • video conferencing and emails are two types of digital communication strategies that can be used for collaborating on a school project. Both strategies allow for sharing files, information and documents anywhere, anytime there is internet connection • video conferencing allows for students to meet in real time via online video or chat discussion. Video meetings can facilitate group collaboration with screen sharing, whiteboard features and group discussion. In email, we can only send messages but in video conferencing, we can talk to people, have discussions as well as message them • an online meeting can also reduce potential for miscommunication as everyone is on the call together and any issues can be discussed then whereas attempting to communicate vital project details via an email can cause confusion, even when clearly written out. An online meeting can also communicate pertinent details in less time than it takes to respond to an email. Video conferencing is thus more effective for collaboration • for email, the sender has to be online, whereas in video conferencing, both people are required to be online with video conferencing, appropriate bandwidth and internet speed is essential to a quality conference. Sending emails does not require much bandwidth. 	
Accept other relevant answers.	

Question 19

(12 marks)

- (a) Explain the purpose of a content management system (CMS). (3 marks)

Description	Marks
Explains the purpose of a content management system (CMS).	3
Describes the purpose of a content management system (CMS).	2
Makes general comments about the purpose of a content management system (CMS).	1
Total	3
<p>Answers could include:</p> <p>CMS is a software application whose purpose is to manage content, allowing multiple contributors to create, edit, collaborate on, publish and store digital content. Common use cases for CMS platforms include running and maintaining organisation intranets, blogs, news websites, corporate websites, and ecommerce websites.</p> <p>Accept other relevant answers.</p>	

- (b) Macy is starting a business selling cupcakes. She has been advised to explore a content management system (CMS) to build and manage a website for her business. Explain **three** features of a CMS that would benefit Macy's business. (9 marks)

Description	Marks
For each feature (3 x 3 marks)	
Explains a feature of a CMS that would benefit Macy's business.	3
Describes a feature of a CMS that would benefit Macy's business.	2
Identifies a feature of a CMS that would benefit Macy's business.	1
Total	9
<p>Answers could include:</p> <ul style="list-style-type: none"> no coding knowledge required. No need to rely and pay for web developers and designers to establish her business website as even with limited technical resources and time she can still build a powerful website for her business thereby saving money easy to collaborate with other systems like a commerce system. She can include a checkout button user roles and permissions. CMS allows you to collaborate in a safe way as there are built-in users roles and permissions which means users can write, publish and manage content but won't be able to alter the functionality of the website the ability to deliver content to multiple channels. Most content management systems were originally designed to serve only the web channel. But now we have mobile apps, voice assistants, IoT devices and modern app experiences such as single-page applications. <p>Accept other relevant answers.</p>	

Question 20

(4 marks)

Describe **two** ways in which digital technology has contributed to improved productivity in the workplace.

Description	Marks
For each (2 x 2 marks)	
Describes a way that digital technology has contributed to improved productivity in the workplace.	2
Makes superficial comment/s about how digital technology has contributed to improved productivity in the workplace.	1
Total	4
Answers could include:	
<ul style="list-style-type: none"> improving digital technology has provided better access to global markets to source new products and services which can increase productivity in the workplace ability to work remotely and non-traditional work hours (24/7) which can contribute to increased productivity file sharing technology like Dropbox, eliminates need for manual sharing of files which means quicker access to files and hence increased productivity file-sharing tools also make it easy for employees to track the history of changes that were made to a document. Team members can quickly identify who made what changes and provide clarifications if necessary. This in turn would increase productivity. 	
Accept other relevant answers.	

Question 21

(4 marks)

Identify and explain **one** method that would allow a user to access their files without having a physical storage device.

Description	Marks
Identifies a method.	1
Subtotal	1
Explains method that may allow a user to retrieve their files without the personal need for a physical storage device.	3
Describes method that that may allow a user to retrieve their files without the personal need for a physical storage device.	2
Makes a superficial comment about data in the cloud.	1
Subtotal	3
Total	4
Answers could include:	
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Accept other relevant answers.	

Question 22

(6 marks)

(a) Describe the concept of online censorship of information in a global context. (2 marks)

Description	Marks
Describes the concept of online censorship of information in a global context.	2
Makes a superficial comment about the concept of online censorship of information in a global context.	1
Total	2
<p>Answers could include:</p> <ul style="list-style-type: none"> online censorship is the control of what can be accessed, published, or viewed on the Internet. It may be carried out by governments, regulators or private organisations or by one's self online censorship can take multiple forms, from filtering and blocking content to monitoring, controlling and penalising users who access certain content. <p>Accept other relevant answers.</p>	

(b) Describe **two** effects of online censorship of information by governments. (4 marks)

Description	Marks
For each effect (2 x 2 marks)	
Describes an effect of online censorship of information by governments.	2
Makes a superficial comment in relation to online censorship of information.	1
Total	4
<p>Answers could include:</p> <ul style="list-style-type: none"> the effects of online censorship of information by governments can be both positive or negative. For example, when information is censored, real information is not provided to the people and a number of consequences can arise from this including ignorance, inability to make informed decisions. This may violate freedom of speech. Some governments may justify online censorship of information by blocking the internet to maintain political stability, protect national security, and impose traditional social values in some situations, the censorship of information by governments is necessary to protect people and/or groups for example from hate speech inciting racism and sexism; or promoting drug use, pornography, gambling sites. <p>Accept other relevant answers.</p>	

Question 23

(9 marks)

- (a) Identify a suitable mobile device and describe how it could be used to process customers' orders and payments from their tables. (3 marks)

Description	Marks
Identifies a suitable mobile device for specified client requirements.	1
Subtotal	1
Describes how the mobile device can be used for customers' orders and payments from their tables.	2
Makes a superficial comment about the mobile device.	1
Subtotal	2
Total	3
<p>Answers could include:</p> <ul style="list-style-type: none"> • suitable device: iPad, tablet • customers can access the menu items via the device. The menu items can have pictures of the food, description and price. As soon as the orders are taken at the table using the iPad, these are then sent directly to the printer in the kitchen and the chef can start immediately. These speeds up service while reducing the congestion of staff running back and forth to the kitchen with orders. When customers are ready to pay, staff can easily process payment using the iPad point-of-sale (POS) system instantly at the table • using an iPad, customers can interact with the menu and click on the item they want to order. This replaces the need for additional staff and physical menus. The orders will be sent directly to the kitchen to the chef to start preparation. Payment can also be made via the iPad point-of-sale (POS) which is a cloud-based system. <p>Accept other relevant answers.</p>	

Question 23 (continued)

- (b) Explain **two** advantages for the café of using the mobile device identified in part (a).
(6 marks)

Description	Marks
For each advantage (2 x 3 marks)	
Explains an advantage of using the mobile device identified in part (a) for the café.	3
Describes an advantage of using the mobile device identified in part (a) for the café.	2
Makes a superficial comment about a mobile device.	1
Total	6
<p>Answers could include:</p> <ul style="list-style-type: none"> enhanced customer experience: Staff can use the iPad to take customer orders which means orders go to the kitchen faster and will be prepared quicker. The customers will receive what they ordered in less time than they expected which leads to a more positive dining experience. With the iPad also being able to accept payments from customers at the table, customers will not need to line up to pay. These services will be sped up and will lead to a more positive dining experience <p style="text-align: center;">For copyright reasons this text cannot be reproduced in the online version of this document</p>	
Accept other relevant answers.	

Section Three: Extended answer

20% (44 Marks)

Question 24

(44 marks)

- (a) Using an example from the Care Hospital's practices, discuss the impact of convergence trends in the hospital. (6 marks)

Description	Marks
Discusses with an example, the impact of convergence trends in the hospital.	6
Explains, with an example, the impact of convergence trends in the hospital.	5
Describes, using an example, the impact of convergence trends in the hospital.	4
Outlines the impact of convergence trends in the hospital.	3
Identifies the impact of convergence trends in the hospital.	2
Makes a superficial comment about the impact of convergence trends in the hospital.	1
Total	6
<p>Answers could include:</p> <ul style="list-style-type: none"> the smartphone combines multiple technologies into one device including camera, video camera, barcode scanner and internet connectivity. These technologies contribute to improving patient care and management in the hospital. It has also greatly improved processes in the hospital leading to increased productivity. For example, staff can use the smartphones to easily connect online to the hospital's database server to access patient data anywhere and anytime. They need not search for a physical patient's file before visiting the patient and in an emergency, the patient's information is quickly accessible via the smartphone by using the barcode scanner on their smartphones, staff can verify the patient's identity via their identification band around their wrist and accordingly administer the medication to the patient. This has greatly reduced errors, potential harm to the patients and costs to the hospital using the video camera to record healing of wounds so that there is video evidence that healing is occurring as it is supposed to which allows for better patient care staff can also use their smartphones to carry out work emails which means they need not go back to their offices but can email anytime when it is convenient which saves time and improves workflow the hospital also saves money from having personal desktop computers for all staff as the smartphone can achieve many of the tasks previously carried out on desktops with the movement from paper based to online systems and the use of convergent devices also comes an increase in cybersecurity risks. For example, computers and personal smartphones at the hospital were hacked, and patient data was blocked. This caused a lot of stress for workers who were trying to assist patients. Personal and sensitive information was also leaked online which is a breach of patient privacy. 	
Accept other relevant answers.	

Question 24 (continued)

- (b) Using an example for each, explain **three** types of network security measures the hospital could use to keep its data safe. (9 marks)

Description	Marks
For each of the three network security measures (3 x 3 marks)	
Explains the network security measure in direct reference to the scenario.	3
Makes general comments about the network security measure.	2
Identifies an aspect of the network security measure.	1
Total	9
<p>Answers could include:</p> <ul style="list-style-type: none"> • firewall – a firewall is a network security system that monitors incoming and outgoing traffic on a network. It creates a barrier between a known/trusted network and an unknown/untrusted network. As the hospital have no current firewall, it would benefit the hospital by helping them block out any unknown users, hackers, viruses and worms • passwords – although the hospital already has a password in place, it is generic for all staff. All staff also have access to the same email address, which often contains phishing scams and emails. By having proper authentication measures, and individual passwords for all staff, this will improve the security of the hospital. Passwords should include a combination of numbers, letters, symbols and capital letters • physical security – the hospital has no physical security measures in place. Currently the local server is located next to the staff computer station and is accessible to all staff. The server needs to be in locked room, accessible only to select staff via biometric entry with 24/7 video surveillance. The computers/ desktops also requires to be behind locked doors and only staff with allowed access via password or biometric to doors should be allowed in. This will ensure better security measures, in order to protect hardware, software and data. 	
Accept other relevant answers.	

- (c) Using an example for each, outline **two** advantages and **two** disadvantages of accessing personal and sensitive patient information via software connected to the network as opposed to a paper-based system. (8 marks)

Description	Marks
For each advantage (2 x 2 marks)	
Outlines, using an example, an advantage of using online software as opposed to a paper-based system.	2
Identifies an advantage of using online software as opposed to a paper-based system.	1
Subtotal	2
For each disadvantage (2 x 2 marks)	
Outlines, using an example, a disadvantage of using online software as opposed to a paper-based system.	2
Identifies a disadvantage of using online software as opposed to a paper-based system.	1
Subtotal	2
Total	8
<p>Answers could include:</p> <p>Advantages:</p> <ul style="list-style-type: none"> • using accessing information via the network as opposed to a paper-based system is staff can have access to patient data anytime anywhere in the hospital via their smartphones and hence provide better care and management for patients • another advantage is staff can continue working on administrative tasks like emails and updating records anywhere in the hospital without having to return to their office personal computer station to do this. <p>Disadvantages:</p> <ul style="list-style-type: none"> • the reliance on internet connectivity. If the internet is down, access to patient data will be impeded and may affect patient care and management • accessing information via the network may pose more of a security risk as it easier to hack; and hence compromise the security of personal and sensitive information. Updates such as security updates and software updates may result in down time for the online system, which can result in delays for the hospital. <p>Accept other relevant answers.</p>	

Question 24 (continued)

(d) With reference to the scenario, explain the following issues with the use of cloud computing:

- confidentiality of data
- sensitivity of documents
- level of accessibility.

(9 marks)

Description	Marks
For each issue (3 x 3 marks)	
Explains the issue of cloud computing, making direct links to the scenario.	3
Describes the issue of cloud computing, making direct links to the scenario.	2
Makes general comments about an issue of cloud computing.	1
Total	9
<p>Answers could include:</p> <p>Confidentiality of data:</p> <ul style="list-style-type: none"> • when using a third party cloud service to store the hospital’s data in the cloud, there is an inherent security risk to the hospital’s data. The hospital will not have full control over the data. If security is not appropriate, it runs the risk of data being leaked or hacked. The hospital should ensure that the third party provider has appropriate safeguards in place against vulnerabilities. Similar to the ransomware attack and hacking of the hospital’s network system, the third party cloud service would also be exposed to such threats. <p>Sensitivity of documents:</p> <ul style="list-style-type: none"> • any data that is sensitive and stored on the cloud should not be misplaced or uploaded to a place where it can be accessed by everyone. It is important that sensitive information is kept private and only accessed by appropriate parties. In the context of a hospital, this is extremely important with patients’ personal and sensitive information. This information being leaked may cause severe damage and result in the loss, theft and disclosure of sensitive healthcare data. <p>Level of accessibility:</p> <ul style="list-style-type: none"> • different users should be granted different access privileges regarding data. This is important in a hospital context as not all people need access to specific data about patients. Selective restrictions can be put in place to allow for appropriate access to the data in the cloud. There is currently no level of accessibility in the hospital, as all staff have access to all emails and data. 	
Accept other relevant answers.	

- (e) Explain, using **two** examples, how the hospital could improve its archiving and backup of data. (6 marks)

Description	Marks
For each (2 x 3 marks)	
Explains how the hospital could improve their archiving and backup of data.	3
Describes how the hospital could improve their archiving and backup of data.	2
Makes a superficial comment about how the hospital could improve their archiving and/or backup of data.	1
Total	6
<p>Answers could include:</p> <p>Currently the hospital only does a backup once a month which may cause important data to be lost in the event the server is affected by a virus or other DOS. Regular backups are recommended. A number of options include:</p> <ul style="list-style-type: none"> the hospital could do a differential backup, which backs up any data since the last full backup. This method would allow the hospital to backup data faster than a full backup. The hospital could do an incremental backup, which backs up any data since the most recent incremental backup. This requires less storage space for the hospital and a fast back up speed. The hospital could do a daily backup, due to the amount of data and information being saved, updated and stored on a regular basis. As files would be getting updated every day in the hospital, a daily back up could be a good way to improve their storage of information the hospital does not archive data. Archiving data involves keeping a collection of data and records for long term retention. Archived data is not actively used in day-to-day situations but is a beneficial strategy for storing patient information. Data would need to be stored and saved for a long period of time, and therefore the hospital should be archiving their data in case this information is needed again in the future. 	
Accept other relevant answers.	

Question 24 (continued)

- (f) Describe what a disaster recovery plan is and discuss how it would benefit the hospital. (6 marks)

Description	Marks
Disaster Recovery Plan	
Describes what a disaster recovery plan is.	2
Makes general comments about what a disaster recovery plan is.	1
Subtotal	2
Benefits	
Discusses how a disaster plan would benefit the hospital.	4
Explains how a disaster plan would benefit the hospital.	3
Describes how a disaster recovery plan would benefit the hospital.	2
Makes a superficial comment about the benefits of a disaster recovery plan.	1
Subtotal	4
Total	6
<p>Answers could include:</p> <p>Disaster recovery plan:</p> <ul style="list-style-type: none"> a disaster recovery plan is a formal document created by an organisation that contains detailed instructions on how to respond to unplanned incidents such as natural disasters, power outages, cyber-attacks and any other disruptive events. <p>Benefit:</p> <ul style="list-style-type: none"> the hospital would benefit from having a disaster recovery plan because such a plan would ensure the hospital's operations/processes can be resumed as quickly as possible and access to medical data is restored with minimal downtime following any type of catastrophe. This is crucial in a hospital where access to patient data is critical without a disaster recovery plan, the hospital may have a delayed recovery or even fail following any type of significant disruption. Also less downtime means less costs and normal business can be resumed as quickly as possible. It also means minimising the impact on patient care and management. 	
Accept other relevant answers.	

Section Four: Scenario

40% (67 Marks)

Question 25

(67 marks)

- (a) 'Prototype' and 'structured' are two project management approaches. Given this scenario, recommend and justify a project management approach suitable for the development of the design. (4 marks)

Description	Marks
Project management approach	
Recommends structured project management approach.	1
Subtotal	1
Justification	
Justifies why the chosen project management approach is appropriate for this project.	3
Describes why the chosen project management approach is appropriate for this project.	2
Makes a superficial comment about the chosen project management approach.	1
Subtotal	3
Total	4
Answers could include:	
The structured project management approach is the suitable approach as the scenario details the team of designers who will be running the project and progressing it through stages which includes testing and feedback in the development of the website and app. The prototype approach, on the other hand, is for a small scale model or a prototype be built quickly where it can be tested by stakeholders gaining ongoing feedback during the development of the system and hence will not be suitable for this project based on the scenario.	
Accept other relevant answers.	

- (b) Explain, in relation to the case study, why it is important to develop a graphical user interface (GUI) suitable for a target audience. (4 marks)

Description	Marks
Explains, in relation to the case study, why it is important to develop a graphical user interface (GUI) suitable for a target audience.	4
Describes, in relation to the case study, why it is important to develop a graphical user interface (GUI) suitable for a target audience.	3
Makes general comments about the importance of developing a graphical user interface (GUI) suitable for a target audience.	2
Makes a superficial comment about the importance of a graphical user interface (GUI).	1
Total	4
Answers could include:	
Conducting research on the target audience profile of the website and app allows the designers to create a website/app that is ideal for their audience. Research enables the product to be created specifically for the target audience; usable, accessible, and promoted in a way that ensures maximum benefit. Developing research allows the designers to establish a method on how to reach an audience, understanding the needs and motivations of the target audience and what factors influence their behaviour.	
Accept other relevant answers.	

Question 25 (continued)

- (c) Comment on the difference between user experience (UX) and user interface (UI).
(4 marks)

Description	Marks
Comments in detail on the difference between user experience and user interface.	4
Makes a general comment on the difference between user experience and user interface.	3
Makes a superficial comment(s) about the difference between user experience and user interface.	2
Makes a statement about either user experience or user interface.	1
Total	4
<p>Answers could include:</p> <p>The user interface (UI) refers to the aesthetic elements like buttons, typography, colour schemes, that the user interacts with. The UI design considers the look and feel of the product, while the user experience (UX) deals with the overall engagement users have when interacting with a product. Products designed with user experience in mind are easy to use and provide a positive experience.</p> <p>Accept other relevant answers.</p>	

- (d) Describe **three** features that you would expect to be included in the user interface for both the website and app.
(6 marks)

Description	Marks
For each feature (3x 2 marks)	
Describes a feature that the target audience will expect of the website and app.	2
Makes general comments about one feature that the target audience will expect of the website and/or app.	1
Total	6
<p>Answers could include:</p> <ul style="list-style-type: none"> • Simplicity: users would expect the website and app to be intuitive to use and navigate providing them with the required information with little effort. • Security: login details, such as username and password would be required to be stored securely. Users would expect their private information to be stored safely and securely. • Search options: users would expect the ability to search for their courses and programs. The search options will provide ease of use for the users. <p>Accept other relevant answers.</p>	

(e) Design the website homepage for Great Western University (GWU) in the space provided.

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

Description	Marks
Produces an effective drawing/representation of the layout and structure of the website that includes detailed, supporting annotations.	5
Produces an appropriate drawing/representation of the layout and structure of the website that includes some supporting annotations.	4
Produces a rudimentary drawing/representation of the layout and structure of the website that includes some relating annotations.	3
Produces a simplistic drawing of the layout and structure of the website that includes limited annotations.	2
Produces a limited drawing of the layout and structure of the website that has inadequate or no annotations.	1
Total	5

(ii) the elements and principles of design used and a critical analysis of the relationship between them (5 marks)

Description	Marks
Produces a design that clearly indicates the elements and principles of design used, the relationship between them and a comprehensive critical analysis of the relationship.	5
Produces a design that clearly indicates the elements and principles of design used, the relationship between them and a satisfactory analysis of the relationship.	4
Produces a design that clearly indicates the elements and principles of design used, the relationship between them and a limited analysis of the relationship between them.	3
Produces a design that features some of the elements and principles of design used, some description of the relationship between them and some relating annotations.	2
Produces a design where some of the elements and principles of design have been used, but the relationship between them is unclear and the design has inadequate or no annotations.	1
Total	5

(iii) organisation of content suitable for the given digital medium (3 marks)

Description	Marks
Produces a design that features logical and practical organisation of content suitable for the given digital medium and that includes supporting annotations.	3
Produces a design that shows some practical organisation of content suitable for the given digital medium and that includes some relating annotations.	2
Produces a design that shows limited organisation of content for the given digital medium and that has inadequate or no annotations.	1
Total	3

Question 25 (continued)

- (iv) user-generated content feature(s) suitable for the target audience (2 marks)

Description	Marks
Produces a design that clearly indicates user-generated content feature(s) and annotates a reason for choice.	2
Produces a design that shows some user-generated content feature(s) and includes some relating annotations.	1
Total	2

- (v) a feature that considers internationalisation. (2 marks)

Description	Marks
Includes an internationalisation feature in the design and annotates a clear purpose for feature.	2
Includes an internationalisation feature in the design with some supporting annotation.	1
Total	2

(f) You are required to annotate the grounds map design on page 29 including the following:

(i) appropriateness of the layout and structure of the draft design (5 marks)

Description	Marks
Annotations on layout and structure are relevant, comprehensive, and detailed.	5
Annotations on layout and structure are relevant and detailed.	4
Annotations on layout and structure are relevant but rudimentary.	3
Limited annotations on layout and structure.	2
Superficial annotations on layout and structure.	1
Total	5

(ii) the elements and principles of design used and a critical analysis of the relationship between them (5 marks)

Description	Marks
Annotations on the elements and principles of design used are relevant and clear, and critically analyses the relationship between them.	5
Annotations on the elements and principles of design used are relevant, and satisfactorily analyses the relationship between them.	4
Annotations on the elements and principles of design used are relevant, and provides a limited analysis of the relationship between them.	3
Some annotations on the elements and principles of design used are relevant, and provides a limited analysis of the relationship between them.	2
Some annotations on the elements or principles of design used are relevant and no analysis of the relationship between them.	1
Total	5

(iii) **one** usability consideration and its purpose (2 marks)

Description	Marks
Annotates a clear purpose for one usability consideration.	2
States a usability consideration.	1
Total	2
Answers could include:	
<ul style="list-style-type: none"> • whole map appears in one frame which thus reduces scrolling • clear and concise content easy to follow, similar to other online maps • minimalist design: clean, no clutter provides only presenting the user with what they need to know. 	
Accept other relevant answers.	

Question 25 (continued)

(iv) **one** accessibility consideration and its purpose

(2 marks)

Description	Marks
Annotates a clear purpose for one accessibility consideration.	2
States an accessibility consideration.	1
Total	2
<p>Answers could include:</p> <ul style="list-style-type: none"> • colour contrast: good contrast between white box and text in it making it easier to read • typography: sans serif fonts used which is clear and legible at any size, easier to read. 	
Accept other relevant answers.	

- (g) (i) Identify **two** new or emerging technologies and explain how each technology might be used in the grounds map section of the app design. (8 marks)

Description	Marks
For each new or emerging technology (2 x 1 mark)	
Outlines a new or emerging technology.	1
Subtotal	2
For each (2 x 3 marks)	
Explains how each new or emerging technology may be used in this design.	3
Describes how each new or emerging technology may be used in this design.	2
Makes superficial comment(s) about how each new or emerging technology may be used in this design.	1
Subtotal	6
Total	8
<p>Answers could include:</p> <p>New or emerging technologies:</p> <ul style="list-style-type: none"> • GPS • Augmented Reality. <p>Explanation:</p> <ul style="list-style-type: none"> • GPS: the technology will identify the user's location and assist in the navigation to their desired location. The user can use GPS on their device to navigate around the University Campus, this will assist them in getting to class/ location on time and not getting lost. • Augmented Reality: the technology will use the phone's camera to display the user's surroundings, in addition to the digital displays on the device. The user can use augmented reality to visually navigate around the University campus, using a combination of reality and digital design. <p>Accept other relevant answers.</p>	

- (ii) Describe the specifications of **two** essential hardware components necessary for the digital device to be able to use the grounds map section of the app design. (4 marks)

Description	Marks
For each hardware specification (2 x 2 marks)	
Describes one essential hardware component required for the digital devices to use this design.	2
Makes superficial comment(s) about an essential hardware component.	1
Total	4
<p>Answers could include:</p> <p>The minimum technical specification and configuration that must be met by the hardware to ensure the correct operation of the design:</p> <ul style="list-style-type: none"> • Camera: it needs a camera to allow for Augmented Reality to work • GPS: required to produce the result related to providing location, tracking and navigation. <p>Accept other relevant answers.</p>	

Question 25 (continued)

- (iii) With respect to the grounds map section of the app, explain **two** hardware considerations likely to influence its suitability to meet users' needs. (6 marks)

Description	Marks
For each (2 x 3 marks)	
Explains a hardware consideration that is likely to influence the suitability to meet users' needs.	3
Describes a hardware consideration that is likely to influence the suitability to meet users' needs.	2
Makes general comment(s) on the impact the design has on the suitability to meet users' needs.	1
Total	6
<p>Answers could include:</p> <ul style="list-style-type: none"> • Camera: the app design relies on the mobile phone having a camera. If students do not have a suitable device, they may not be able to use the app. • Navigation: the app design requires users to have GPS enabled and location services turned on. Users may opt for security and privacy settings that prevent the app from functioning. The ability to use the device's camera and digitally display their location would not be functional and prevent the use of the app. • Touch Screen Display: the app design requires users to have a touch screen display to interact and view the features of the app. The app design requires a touch screen display to interact with the icons, view their location and navigate their surroundings. If students do not have a suitable device, the app would not be compatible, and they will not be able to download the app onto their phone. 	
Accept other relevant answers.	

ACKNOWLEDGEMENTS

- Question 21** Amazon Web Services. (n.d.). *Cloud Storage (What is Cloud Storage?)*. Retrieved September, 2022, from <https://aws.amazon.com/what-is-cloud-storage/>
- Question 23(b)** Adapted from: Prange, J. (n.d.). *15 Reasons why you Need a Restaurant iPad POS for Your Business*. Retrieved September, 2022, from <https://www.touchbistro.com/blog/why-big-businesses-are-choosing-to-run-their-companies-on-an-ipad/>

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*Published by the School Curriculum and Standards Authority of Western Australia
303 Sevenoaks Street
CANNINGTON WA 6107*