



APPLIED INFORMATION TECHNOLOGY

ATAR course examination 2016

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

Section Two: Short answer

25% (44 Marks)

Question 16

(5 marks)

- (a) State **two** reasons why it is important for a business to create a code of conduct for its employees. (2 marks)

Description	Marks
States two valid reasons why it is important for a business to create a code of conduct for its employees.	1–2
Total	2
Answers could include: <ul style="list-style-type: none"> • to ensure employee acknowledgement and compliance in relation to expectations of behaviour/conduct in that workplace • to ensure employee acknowledgement of the disciplinary actions that will be taken in the event of inappropriate behaviour/conduct • to outline to employees their obligation to act in accordance with the ethics and values of the organisation. 	

- (b) List **three** elements that are typically included in a code of conduct. (3 marks)

Description	Marks
Any three of:	
<ul style="list-style-type: none"> • work hours • email use • internet use • monitoring of ICT usage • privacy. 	1–3
Total	3
Accept other relevant answers.	

Question 17

(4 marks)

Outline **two** benefits to a business of using a template in a particular application software.

Description	Marks
For each of the two benefits:	
Outlines a valid benefit to a business of using a template in a particular application software.	2
Identifies an aspect of a benefit to a business of using a template in a particular application software.	1
Total	4
Answers could include: <ul style="list-style-type: none"> • increased productivity due to time saved by employee/s not having to create another document • enables consistency in layout of docs used by employee/s • facilitates further efficiency as less errors/editing requirements when text not constantly created • facilitates savings in terms of time and cost, no repetition. 	

Question 18

(4 marks)

A business wants to convert its printed documentation to digital publications. Describe **one** advantage and **one** disadvantage to the business of implementing this conversion.

Description	Marks
Advantage	
Describes one advantage to the business in converting its printed documentation to digital publications.	2
Identifies an aspect of how the business may gain by converting its printed documentation to digital publications.	1
Sub-total	2
Disadvantage	
Describes one disadvantage to the business in converting its printed documentation to digital publications.	2
Identifies an aspect of how the business may be negatively affected by converting its printed documentation to digital publications.	1
Sub-total	2
Overall total	4
<p>Answers could include advantages such as:</p> <ul style="list-style-type: none"> reduced cost due to printing paper, printer cartridges, printers, specialised machinery etc not being required and less labour intensive processes easier distribution as transport of printed material will be not required, digital publications can be emailed or shared on cloud storage universally accessible documents can be uploaded on a website and available 24/7 reduced need for physical storage of hard copy documents e.g. filing cabinets not required as documents are saved digitally. <p>Answers could include disadvantages such as:</p> <ul style="list-style-type: none"> additional cost due to requiring a device e.g. tablet, phone, laptop or desktop to access or read the digital publication additional cost and organisation of a specific application to open the digital document e.g. Adobe Reader additional cost and organisation of extra electronic storage to save digital publications. 	

Question 19

(5 marks)

(a) Explain the concept of 'online defamation' in Australia.

(3 marks)

Description	Marks
Explains the concept of online defamation in Australia.	3
Identifies aspect/s of online defamation or provides an example of online defamation.	2
Makes superficial comment/s about online defamation.	1
Total	3
<p>Answers could include:</p> <ul style="list-style-type: none"> online defamation in Australia is when someone intentionally communicates/posts/writes false things about someone in an online environment in order to damage the reputation of that person, decrease the respect for them, encourage a lack of confidence in the person – slander/character assassination. 	

- (b) Outline **one** appropriate action a person in Australia can take if they believe they have been the victim of online defamation. (2 marks)

Description	Marks
Outlines an appropriate action a person in Australia can take if they believe they have been the victim of online defamation.	2
Identifies an appropriate action a person in Australia can take if they believe they have been the victim of online defamation.	1
Total	2
Answers could include: <ul style="list-style-type: none"> • they can formally approach the person/host and request that they remove the information • they can seek legal advice in terms of taking legal action against the person responsible for the online defamation e.g. suing the person • they can have a lawyer compose a legal letter to the person responsible for the online defamation asking them to remove the information, threatening legal action should they choose not to remove it. 	

Question 20

(9 marks)

Explain how using each of the following will ensure security when processing data.

Description	
For each of the three : (digital signatures, digital certificates, encryption)	
Explains how it is used to ensure security when processing data.	3
Makes general comments about how it is used to ensure security when processing data.	2
Provides superficial information related to security when processing data.	1
Total	9
Answers could include: <ul style="list-style-type: none"> • digital signatures – mathematical technique which validates the authenticity of the message. Digital code (based on public key cryptography) attached to an electronic document to be transmitted by web to verify sender and contents. A validated signature allows a recipient to believe it was created by a known sender • digital certificates – electronic ‘passport’ which verifies sender from the web and allows receiver to encode a reply, provides a public key which proves ownership. Certificate contains serial number, name of certificate holder, expiration dates, copy of certificate holder’s public key and digital signature of certificate-issuing authority • encryption – the encoding of messages ensures that only authorised people can read the information, conversion of data to encrypt. The message to be sent via the web is encrypted by applying an encryption algorithm and an encryption key. The message is then decrypted by using the same method but in reverse. This increases the security of the message while in transit. 	

Question 21

(4 marks)

- (a) Outline why it is important to evaluate the specifications of a computer system for usability. (2 marks)

Description	Marks
Outlines why it is important to evaluate the specifications of a computer system for usability.	2
Makes superficial comment/s about the specifications of a computer system for usability.	1
Total	2
Answers could include: <ul style="list-style-type: none"> • to avoid incompatible internal hardware being added to the system • to ensure that software will be able to run with the specifications of the computer system • to ensure that peripherals will be compatible with the system. 	

- (b) A software application suggests at least 1GB of RAM but recommends 3GB of RAM. State **two** problems that could arise if the software was installed on a computer system with 1GB of RAM. (2 marks)

Description	Marks
Any two of:	
<ul style="list-style-type: none"> • software could 'crash' • software could run slower • there could be a delay in using certain functions of the software. 	1–2
Total	2
Accept other relevant answers.	

Question 22

(7 marks)

(a) Describe **two** features specific to Web 3.0.

(4 marks)

Description	Marks
For each of the two features:	
Describes the feature of Web 3.0.	2
Identifies the feature of Web 3.0.	1
Total	4
Answers could include features such as: <ul style="list-style-type: none"> • dynamic applications • computers interpret information • computers distribute useful information that is tailored • computers generate own raw data • semantic searches • search engines tailor searches to users • natural language searches • data mining. 	

(b) State **three** ways in which Web 3.0 has affected the use of web-enabled devices.

(3 marks)

Description	Marks
Any three of:	
<ul style="list-style-type: none"> • enabled more efficient searching • contributed to improved marketing • contributed to improved web browsing • enabled predictive searches • enabled advertisers to better target profiles. 	1–3
Total	3
Accept other relevant answers.	

Question 23

(6 marks)

Describe in detail **two** benefits to a web-development company of using a Content Management System (CMS).

Description	Marks
For each of the two benefits:	
Describes in detail the benefit to a web-development company of using a CMS.	3
Makes general comments about the benefit to a web-development company of using a CMS.	2
Makes superficial comment/s about the benefit to a web-development company of using a CMS.	1
Total	6
Answers could include: <ul style="list-style-type: none"> • supports the creation and modification of digital content using a common user interface • facilitates central management • enables multiple users • facilitates a collaborative environment • facilitates ease of management. 	

Section Three: Extended answer

20% (39 Marks)

Question 24

(39 marks)

- (a) Identify the communication standard that is best suited to this network and provide **three** characteristics of this communication standard. (4 marks)

Description	Marks
Communication standard	
802.11x (wireless)	1
Sub-total	1
Any three of:	
<ul style="list-style-type: none"> • communication standard developed for wireless LAN (WLAN) technology (small geographic footprint) • communication (over the air) between wireless client and a base station or two wireless clients • communication in 2.4, 3.6, 5 and 60 Ghz frequency bands • it functions at the MAC and physical layer. 	1–3
Sub-total	3
Accept other relevant answers.	
Overall total	4

- (b) While conducting your research on networks, you are learning about the various types of communication protocols. Discuss the characteristics of the TCP/IP communication protocol. (6 marks)

Description	Marks
Discusses characteristics of the TCP/IP communication protocol.	6
Describes in some detail most characteristics of the TCP/IP communication protocol.	5
Provides some relevant points about some characteristics of the TCP/IP communication protocol.	4
Identifies some characteristics of the TCP/IP communication protocol.	3
Makes general comments about the TCP/IP communication protocol.	2
Makes superficial comment/s about the TCP and/or the IP communication protocol.	1
Total	6
<p>Answers could include:</p> <p>TCP</p> <div style="border: 1px dashed gray; padding: 10px; margin: 10px 0;"> <p>For copyright reasons this text cannot be reproduced in the online version of this document, but may be viewed at http://vlaurie.com/computers2/Articles/protocol.htm</p> </div> <p>IP</p> <div style="border: 1px dashed gray; padding: 10px; margin: 10px 0;"> <p>For copyright reasons this text cannot be reproduced in the online version of this document, but may be viewed at http://vlaurie.com/computers2/Articles/protocol.htm</p> </div>	

- (c) Describe **three** strategies that you will advise the home owner to use to ensure the security of their business information within the wireless network. (9 marks)

Description	Marks
For each of the three strategies:	
Describes the strategy they will advise the home owner to use to ensure the security of their business information within the wireless network.	3
Makes general comments about the strategy they will advise the home owner to use to ensure the security of their business information within the wireless network.	2
Makes superficial comment/s about the strategy they will advise the home owner to use in relation to the security of their business information within the wireless network.	1
Total	9
Answers could include: <ul style="list-style-type: none"> • firewalls (hardware and/or software) – designed to prevent unauthorised access to a private network • passwords – complex password of six to eight alphanumeric and special characters will provide unauthorised access to a computer or private network • physical security – involves the use of locks on windows, doors or cupboards that house the devices used in a private network • biometrics – used to identify individuals and manage access control. 	

- (d) Explain why the home owner should implement a Disaster Recovery Plan (DRP) for their home business. (4 marks)

Description	Marks
Explains why the home owner should implement a DRP for their home business.	4
Provides some relevant points about why the home owner should implement a DRP for their home business.	3
Makes general comments about the home owner implementing a DRP in relation to their home business.	2
Makes superficial comment/s about the home owner implementing a DRP in relation to their home business.	1
Total	4
Answers could include: <ul style="list-style-type: none"> • to recover and protect IT infrastructure • to protect client data • to ensure business continuity • to provide system redundancy. 	

Question 24 (continued)

- (e) You are aware that the DRP will require a data backup strategy. Identify **three** backup techniques that you will be suggesting the home owner implement and explain why each technique is appropriate. (6 marks)

Description	Marks
For each of the three techniques:	
Explains why the technique is appropriate.	2
Identifies a valid technique.	1
Total	6
<p>Answers could include:</p> <ul style="list-style-type: none"> • full backup – is the starting point for all backups, stores all files and folders and if done frequently, results in faster and simpler restore operations. The most comprehensive, self-contained backup – best solution in data protection. • differential backup – contains all files that have changed since the last full backup. This backup shortens restore time compared to a full backup or incremental backup. • incremental backup – backs up all files modified since the last full, differential or incremental backup. Takes the least time to complete. • daily backup – copies all the files selected that have been modified on the day the daily backup is performed. 	

- (f) The home owner has heard the expression ‘data in the cloud’ and is wondering if their client information should be transferred to an online data storage method. To assist their understanding, outline **one** advantage and **one** disadvantage of utilising data in the cloud. (4 marks)

Description	Marks
Advantage	
Outlines one advantage of utilising data in the cloud.	2
Identifies a positive aspect of using data in the cloud.	1
Sub-total	2
Disadvantage	
Outlines one disadvantage of utilising data in the cloud.	2
Identifies a negative aspect of using data in the cloud.	1
Sub-total	2
Overall total	4
<p>Answers could include:</p> <p>Advantages</p> <ul style="list-style-type: none"> • cost savings – no in-house storage servers required. Reduced capital costs due to reduced hardware requirements • reliability – providers of data in the cloud guarantee 24/7/365 and 99.99% availability • no backup required – data backup by online data storage company • mobility – can access data over multiple devices. <p>Disadvantages</p> <ul style="list-style-type: none"> • security of data in the cloud • limited control over the data in the cloud • privacy of the data – data stored on devices owned by other companies, companies have access to the data • internet required to access data. 	

- (g) The wireless network has now been installed in the home but the home owner has noticed that there are issues with the reliability of the internet connection when two or more devices are streaming a video. Identify **two** reasons why these issues could be occurring and outline a different solution for each that could be implemented in the design of the Local Area Network (LAN). (6 marks)

Description	Marks
Reasons	
Identifies two valid reasons for internet connection reliability issues.	1–2
Sub-total	2
Solution for each of the two reasons (Note – A different solution must be provided for each reason.)	
Outlines an appropriate solution for the identified internet connection issue that could be implemented in the design of the LAN.	2
Makes superficial comment/s about solving the identified internet connection issue in relation to the design of the LAN.	1
Sub-total	4
Overall total	6
Answers could include: <ul style="list-style-type: none"> • insufficient bandwidth – increase bandwidth of internet connection • incorrect plan, ADSL1 versus ADSL 2 versus NBN connection – adjust internet service-provider plan • hardware failure of router – replace router • wireless access points faulty – replace wireless access points • inappropriate network infrastructure and/or layout – redesigning and/or relocating components. 	

Section Four: Scenario

40% (61 Marks)

Question 25

(61 marks)

- (a) Identify **one** project management approach you will use and explain why this approach is appropriate. (4 marks)

Description	Marks
Project approach	
Identifies an appropriate project management approach.	1
Sub-total	1
Explanation	
Explains why the identified project management approach is appropriate.	3
Makes general comments about why the identified project management approach is appropriate.	2
Makes superficial comment/s about the identified project management approach.	1
Sub-total	3
Overall total	4
Answers could include: <ul style="list-style-type: none"> • prototype – involves creating a model of something and modifying/developing it in consultation with the client, this will ensure for effective visuals and trouble-shooting • structured – involves the project going through a number a phases characterised by a distinct set of activities or tasks that take the project from start to conclusion, this will ensure breaking the task down into manageable stages and the monitoring of resources and timelines. 	

- (b) Identify **two** project planning tools that you will use when designing the app and the website for this project. Explain how using each of these tools will assist you with the development of the digital solution. (8 marks)

Description	Marks
Project planning tools	
Identifies two appropriate project planning tools.	1–2
Sub-total	2
Explanation	
For each of the two project planning tools:	
Explains how using the identified project planning tool will assist with the development of the digital solution.	3
Makes general comments about using the identified project planning tool in the development of the digital solution.	2
Makes superficial comment/s about the identified project planning tool in relation to the digital solution.	1
Sub-total	6
Overall total	8
Answers could include: <ul style="list-style-type: none"> • storyboards to represent the draft/layout of the app and the website • site maps to represent the structure of the app and the website • flow charts to display the navigation of the app and the website • Gantt charts to illustrate the schedule in designing the app and the website • project management software to plan, organise and manage resources in developing the app and the website. 	

- (c) Outline **three** ways in which you will incorporate an appropriate user experience (UX) into the design of your app and website. (6 marks)

Description	Marks
For each of the three ways:	
Outlines the way they will incorporate user experience (UX) into the design of their app and website.	2
Makes superficial comment/s about UX in relation to the design of their app and website.	1
Total	6
Answers could include the: <ul style="list-style-type: none"> • selection of particular images • use of typography • choice of principles of design • layout. 	

- (d) Explain how you intend to incorporate the following concepts into the design of your app and website:
- usability
 - inclusivity
 - accessibility.
- (9 marks)

Description	Marks
For each of the three concepts:	
Explains in detail how the concept will be incorporated into the design of their app and website.	3
Makes general comments about how the concept will be incorporated into the design of their app and website.	2
Makes superficial comment/s about the concept in relation to the design of their app and website.	1
Total	9
Answers could include: <div style="border: 1px dashed gray; padding: 10px; margin: 10px auto; width: 80%; text-align: center;"> <p>For copyright reasons this image cannot be reproduced in the online version of this document, but may be viewed at www.w3.org/WAI/intro/usable</p> </div>	

Question 25 (continued)

(e) Design the landing page (first page) of the app in the space provided on page 23 to promote the Seasons by Seaside apartments. Your design must include annotations and show the:

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

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

ii. elements and principles of design used and the relationship between them (3 marks)

Description	Marks
Elements and principles of design used and the relationship between them	
Produces a design that indicates clearly the elements and principles of design used, the relationship between them and that includes supporting annotations.	3
Produces a design that features some of the elements and principles of design used, some description of the relationship between them and that includes 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	3

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

Description	Marks
Organisation of content suitable for the given digital medium	
Produces a design that features logical and practical organisation of content for the given digital medium and that includes supporting annotations.	3
Produces a design that shows some practical organisation of content 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

- iv. navigation controls suitable for the given digital medium. (3 marks)

Description	Marks
Navigation controls suitable for the given digital medium	
Produces a design that features effective navigation for the given digital medium and that includes supporting annotations.	3
Produces a design that shows some navigation controls suitable for the given digital medium and that includes some relating annotations.	2
Produces a design that shows limited navigation controls for the given digital medium and that has inadequate or no annotations.	1
Total	3

Question 25 (continued)

(f) Design the homepage of the website on page 25 to promote the Seasons by Seaside apartments. Your design must include annotations and show the:

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

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

ii. elements and principles of design used and the relationship between them (3 marks)

Description	Marks
Elements and principles of design used and the relationship between them	
Produces a design that indicates clearly the elements and principles of design used, the relationship between them and that includes supporting annotations.	3
Produces a design that features used some of the elements and principles of design used, some description of the relationship between them and that includes 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	3

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

Description	Marks
Organisation of content suitable for the given digital medium	
Produces a design that features logical and practical organisation of content for the given digital medium and that includes supporting annotations.	3
Produces a design that shows some practical organisation of content 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

- iv. navigation controls suitable for the given digital medium. (3 marks)

Description	Marks
Navigation controls suitable for the given digital medium	
Produces a design that features effective navigation for the given digital medium and that includes supporting annotations.	3
Produces a design that shows some navigation controls suitable for the given digital medium and that includes some relating annotations.	2
Produces a design that shows limited navigation controls for the given digital medium and that has inadequate or no annotations.	1
Total	3

- (g) Describe how you will use **three** tools to evaluate the effectiveness of your digital solution in accordance with the design brief for this project. (6 marks)

Description	Marks
For each of the three tools:	
Describes how the tool will be used to evaluate the effectiveness of their digital solution in accordance with the design brief for this project.	2
Identifies the tool they will use to evaluate the effectiveness of their digital solution in accordance with the design brief for this project.	1
Total	6
Answers could include: <ul style="list-style-type: none"> • a survey of a sample group to get feedback on the digital solution • client feedback – give sample/prototype to client to get initial feedback • self-reflection – reflect on the design of the product to see if improvements could be made. 	

ACKNOWLEDGEMENTS

- Question 20** Adapted from: Wikipedia. (n.d.). *Digital signature*. Retrieved July, 2016, from https://en.wikipedia.org/wiki/Digital_signature Used under the Creative commons Attribution-Share Alike 3.0 Unported Licence.
- Question 24(b)** Adapted from: Laurie, V. (n.d.). *Computer tips, tricks, and tutorials*. Retrieved June, 2016, from <http://vlaurie.com/computers2/Articles/protocol.htm>
- Question 25(d)** Adapted from: W3C Web Accessibility Initiative. (n.d.). *Web accessibility*. Retrieved June, 2016, from www.w3.org/WAI/intro/usable

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