



APPLIED INFORMATION TECHNOLOGY

Stage 3

WACE Examination 2012

Marking Key

Marking keys are an explicit statement about what the examiner expects of candidates when they respond to a question. They are essential to fair assessment because their proper construction underpins reliability and validity.

When examiners design an examination, they develop provisional marking keys that can be reviewed at a marking key ratification meeting and modified as necessary in the light of candidate responses.

Section One: Multiple-choice

10% (20 Marks)

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

Section Two: Short answer

15% (30 Marks)

Question 21

(4 marks)

- (a) What is meant by the term 'digital divide'? (1 mark)

Description	Marks
separation between those with access to technology and those without i.e. 'haves' versus 'have not'; first world countries versus third world countries, socio-economic factors	1
Total	1

- (b) Identify **three** issues associated with the digital divide. (3 marks)

Description	Marks
Any three of:	
<ul style="list-style-type: none"> • costs of hardware and/or software • power • ability to get access to technology • supporting equipment • potential for people to be manipulated by technology • age related issues 	1–3
Total	3
Accept other relevant answers.	

Question 22

(6 marks)

- (a) What is the purpose of using a disk fragmentation tool? (1 mark)

Description	Marks
Any one of:	
<ul style="list-style-type: none"> • to increase the contiguous nature of unused space • to decrease file fragmentation • to decrease opportunity for file corruption 	1
Total	1
Accept other relevant answers.	

- (b) State **two** advantages of using a disk fragmentation tool. (2 marks)

Description	Marks
Any two of:	
<ul style="list-style-type: none"> • some or all of its files are stored non-contiguously • files are accessed quicker • disk space used more efficiently • hard disk checked for bad sectors or areas • files refreshed during copying, movement to new areas 	1–2
Total	2
Accept other relevant answers.	

- (c) State **two** strategies that can be used to increase the available disk space, without losing data. (2 marks)

Description	Marks
Any two of:	
<ul style="list-style-type: none"> • deleting temporary files e.g. browser temp files or OS such as page files • compressing seldom used files • emptying recycle bin • purchase of an external hard drive • cloud storage 	1–2
Total	2
Accept other relevant answers.	

- (d) What is meant by the term ‘incremental backup’? (1 mark)

Description	Marks
an incremental backup only backs up what has been changed since the last backup	1
Total	1
Accept other relevant answers.	

Question 23 (4 marks)

- (a) What is the purpose of a requirements analysis when constructing a software system? (1 mark)

Description	Marks
to identify what the system needs to do, outline scope and establish customers’ needs and system requirements	1
Total	1
Accept other relevant answers.	

- (b) Identify **three** methods used in conducting a requirements analysis. (3 marks)

Description	Marks
Any three of:	
<ul style="list-style-type: none"> • developing scenarios • surveys • calculate usage levels • interviews with stakeholders • workplace observations 	1–3
Total	3
Accept other relevant answers.	

Question 24

(6 marks)

Identify **three** types of intellectual property. Provide an example of how each can be breached in the Information Communication Technology (ICT) industry.

Description	Marks
Any three of:	
• copyright – the exclusive right to copy something	1
copying software/content without permission	1
• patents – the exclusive right to make something	1
using hardware design without permission	1
• trademarks – the exclusive right to use a name or image	1
using product/company names without permission	1
• registered designs – the exclusive right to use an overall design	1
using designs without permission e.g. Graphical User Interfaces (GUIs)	1
Total	6
Accept other relevant answers.	

Question 25

(6 marks)

Identify and describe **three** commonly used network protocols.

Description	Marks
Any three of:	
• HTTP	1
transferring web pages	1
• HTTPS	1
secure information transfer	1
• TCP/IP	1
packet switching	1
• SMTP	1
email transfer	1
• WAP	1
wireless access	1
Total	6
Accept other relevant answers.	

Question 26

(4 marks)

(a) What is the purpose of data mining?

(1 mark)

Description	Marks
to extract knowledge or patterns from large amounts of historical data	1
Total	1
Accept other relevant answers.	

(b) Identify **three** ways in which a company could use the information gained from data mining to inform the marketing of its products.

(3 marks)

Description	Marks
Any three of:	
<ul style="list-style-type: none"> • market trends for new products. • price setting • audience identification • popular products • successful products • successful mediums of advertising 	1–3
Total	3
Accept other relevant answers.	

Section Three: Extended answer

25% (50 Marks)

Question 27

(25 marks)

- (a) Tickets-Online has installed its servers in a locked room with a biometric lock. List and explain **four** other measures it should take to help protect the data and the hardware on which it is stored. (8 marks)

Description	Marks
Any four of:	
• anti-virus software protects data from external attacks	1 1
• anti-spam software protects data from external attacks	1 1
• secure logons ensure authorised people only access data	1 1
• regular backups off site allows for recreation of data should it be lost or damaged onsite	1 1
• hardware maintenance program protects hardware from predictable failures	1 1
• encryption methods secures data from unauthorised access	1 1
• firewalls protects data from internal and external attacks	1 1
Total	8
Accept other relevant answers.	

- (b) Tickets-Online has agreed to sell tickets for one of the biggest and most popular bands in the world. Tickets to the band’s previous concerts have sold out very quickly. Discuss **three** issues relating to the rapid transfer of large volumes of data Tickets-Online needs to consider to ensure its system performs efficiently. (9 marks)

Description	Marks
For each issue:	
Identifies the issue.	1
Links the issue to the rapid transfer of large volumes of data and what Tickets-Online needs to consider.	2
Comments broadly on the issue in relation to the rapid transfer of large volumes of data.	1
Total	9
Answers could include: <ul style="list-style-type: none"> • reliability of servers – need to be operational for sale period, determine if they need an upgrade to cope with work • communications lines – increased band width • service level agreements with support agencies and service providers • risk management plan – check availability of key spare parts, ensure support personnel onsite in case of faults • timing of sale – ensure it starts outside of high traffic times of the day • promotion of the event – ensure customers know what details/information they should have ready when purchasing • establish members club – facilitates presales 	
Accept other relevant answers.	

- (c) Tickets-Online engages in the activities listed below. Identify and explain the appropriate legislation that relates to each activity. (6 marks)

Description	Marks
publishing videos and images on its website	
the Copyright Act	1
permission to use multimedia from artists for marketing purposes	1
emailing customers after an event	
the Spam Act	1
the company has an obligation to seek permission to email customers marketing materials	1
using data collected from customers	
the Privacy Act	1
the company has an obligation to protect the personal information it collects from customers	1
Total	6

- (d) The personal and financial data entered into the Tickets-Online database system includes customers' credit card details, date of birth, driver's licence number and address. Describe **one** quality assurance process that could be implemented to ensure this data is accurate and usable. (2 marks)

Description	Marks
Any one of:	
• passwords secures data from unauthorised access	1 1
• firewalls secures portions of network (website from unauthorised external access)	1 1
• encryption secures the data using an encryption code	1 1
• anti-virus software provides protection from malicious attacks	1 1
• data validation techniques process of ensuring data is correct and up-to-date	1 1
Total	2
Accept other relevant answers.	

Question 28

(25 marks)

- (a) Complete the table below by listing **two** advantages and **two** disadvantages of online banking for a bank, bank employees and bank customers. (12 marks)

Description	Marks
Bank: Advantages of online banking. Any two of:	
<ul style="list-style-type: none"> • fewer workers needed – less wages • fewer branches needed – less rental • workers can be less qualified – lower wages 	1–2
Bank: Disadvantages of online banking. Any two of:	
<ul style="list-style-type: none"> • customer dissatisfaction – lose business • initial large expenditure on redundancies • initial large expenditure on retraining • initial large expenditure for technical set-up 	1–2
Bank employee: Advantages of online banking. Any two of:	
<ul style="list-style-type: none"> • flexi time • retraining for another career • less manual tasks/data entry 	1–2
Bank employee: Disadvantages of online banking. Any two of:	
<ul style="list-style-type: none"> • job loss • less human interaction • up skilling in the use of new technology • OSH concerns of using technology 	1–2
Bank customer: Advantages of online banking. Any two of:	
<ul style="list-style-type: none"> • do not have to spend money and/or time travelling to the bank • easier to transfer money from one account to another • more efficient 24/7 access 	1–2
Bank customer: Disadvantages of online banking. Any two of:	
<ul style="list-style-type: none"> • hackers could hack into your account • loss of face to face interaction at branch • cannot withdraw money due to bank error • cannot withdraw money due to technical issues 	1–2
Total	12
Accept other relevant answers.	

- (b) A bank's Information Communication Technology (ICT) Manager has become aware that many employees are working at computers for extended periods of time. What relevant Act should the manager consider? Describe **two** strategies the manager should consider in this situation to ensure compliance with this legislation. (5 marks)

Description	Marks
Occupational Safety and Health (OSH) Act	1
For each strategy:	
Describes the strategy and links to compliance with OSH legislation.	2
Identifies the strategy.	1
Total	5
Answers could include: <ul style="list-style-type: none"> • provide and maintain safe systems of and procedures for work to ensure compliance with OSH Act regulations and standards • provide information, instruction, training and supervision to ensure safe work practices and health and safety of employees • eliminate hazards/manage risks to ensure a duty of care is provided to employees • provide a mechanism to allow employees to be represented on health and safety issues in the workplace 	
Accept other relevant answers.	

- (c) Describe **three** ways in which the bank could ensure employees develop and maintain the skills necessary to use its new or improved software systems. (3 marks)

Description	Marks
on the job training workshops	1
short courses by an external provider	1
develop power users to assist other staff as required	1
Total	3
Accept other relevant answers.	

- (d) A bank employee has been provided with the opportunity to participate in video conferencing. Describe and justify the desktop computer system they would require. (5 marks)

Description	Marks
Describes a desktop computer system that includes any five of the components listed below: <ul style="list-style-type: none"> • computer processor capable of running video conferencing software • RAM capable of running video conferencing software • Hard Disk Space capable of running video conferencing software • connectivity to access the internet • VGA Monitor resolution of 800X600 to display the video • webcam to conduct video conference 	1–5
Total	5
Accept other relevant answers.	
NB if a list of hardware is provided, no marks awarded.	

Section Four: Production

50% (68 Marks)

Question 29

(68 Marks)

- (a) Identify the target audience for the website provided on page 18. Explain how **two** features of the website specifically engage the target audience. (7 marks)

Description	Marks
Identifies the target audience by providing more than two characteristics e.g. target audience are adults, male or female and individuals who are interested in art with money to invest or spend on art.	3
Identifies the target audience by providing two characteristics.	2
Identifies the target audience by listing only one characteristic.	1
For each feature of the website:	
Identifies a feature/target audience element of the website.	1
Describes how the identified target audience element has been used to engage the target audience.	1
Total	7
<p>Note: candidates must identify the target audience element as per those listed in the syllabus (see below).</p> <ul style="list-style-type: none"> • intent/purpose • presentation medium • parameters of design • content • navigation structure • interface • aesthetics • relevant language and terminology 	

- (b) Identify **two** compositional rules used by the website designer. Describe how effectively they have been used. (6 marks)

Description	Marks
Any two of:	
<ul style="list-style-type: none"> • focal point/centre of interest • rule of thirds • leading lines • framing • underlying geometric frame work-eye flow 	1–2
For each compositional rule:	
Provides a detailed explanation as to how effectively the compositional rule has been used.	2
Comments generally as to how the compositional rule has been used.	1
Total	6 marks
<p>Note: compositional rules must be identified as per those listed in the syllabus (see above).</p> <p>Answers could include:</p> <ul style="list-style-type: none"> • framing - the designer has used dark bars of colour at the top and bottom of the page so that it frames the information and focusses the eye on the page 	

- (c) Review the screen capture of the website on page 18. Identify **five** design principles or elements of design that could have been used more effectively. Circle each design principle or element of design and label it with a number in the white space surrounding the screen capture.

Explain how each identified design principle or element of design could have been used more effectively. (15 marks)

Description	Marks
For each design principle or element of design:	
Identifies the design principle or element of design.	1
Circles and labels the design principle or element of design appropriately on the screen capture.	1
Explains how the design principle or element of design could have been used more effectively.	1
Total	15
<p>Note: candidates must identify the design principle or element of design as per those listed in the syllabus (see below).</p> <ul style="list-style-type: none"> • creative design principles including: <ul style="list-style-type: none"> ◦ balance-symmetry, asymmetry, radial ◦ proportion ◦ dominance ◦ harmony/unity/proximity ◦ repetition ◦ contrast • elements of design including: <ul style="list-style-type: none"> ◦ space-positive and negative ◦ alignment/ position ◦ line ◦ texture ◦ colour ◦ shape/form 	

(d) Charles Stacey Fine Art has engaged you to design **one** of three new pages for its current website

- online sales
- live video link to auctions
- a virtual gallery

Using the current look and feel and design style of the website, create the new page. You must provide evidence that a design methodology has been used to document your ideas, for example drafts, clear sketches, dimensions and annotations. (15 marks)

Description	Marks
Look and feel	
Creates a webpage that matches the current look and feel of the website exactly.	4–5
Creates a webpage that reflects the current look and feel of the website to an extent.	2–3
Creates a webpage that reflects minimal elements of the current look and feel of the website.	1
Creates a webpage that does not reflect the current look and feel of the website.	0
New page design	
Produces a workable design that fits with requirements and current page.	4–5
Produces a design that is possibly workable but it is unclear as to how it works or how it could be used.	2–3
Produces a design that has no indications as to how it will work or be used.	1
Does not produce a design or the sketches produced are not useable.	0
Design methodology	
Produces a clear design that is easily understood with effective annotations and dimensions. The design could be given to someone else and be used by that person to produce the required result.	4–5
Produces a basic design with some annotations, dimensions or drafts. The design could not be given to someone else and be used to produce the required result.	2–3
Produces a brief, 'sketchy' idea of the product.	1
Produces a design that displays no methodology at all.	0
Total	15

(e) Charles Stacey Fine Art has decided to increase its market share by developing a range of promotional products including the following.

- clothing
- fashion accessories
- food
- beverages
- giftware e.g. cups, key rings, pens, glassware and china

As a designer, you have been requested to outline

- the product you intend to promote.
- the target audience for the product.
- what new or emerging technology/medium you will use to promote the product (you are **not** restricted to a website).
- how you will use **two** design principles and underlying elements of design to promote the product. (10 marks)

Description	Marks
Product:	
State the product to be promoted.	1
Target audience:	
Outline in detail the target audience for the identified product	2
Identifies the target audience for the identified product.	1
Technology/medium:	
Outlines in detail an appropriate new or emerging technology/medium to promote the identified product	3
Outlines a new or emerging technology/medium to the identified product and the identified target audience.	2
Identifies the new or emerging technology/medium to promote of the identified product.	1
Design principles:	
For each design principle:	
Identifies both design principles plus underlining element.	1
Outlines an appropriate use of the design principle to promote the product.	1
Total	10

Note: candidates must identify the design principle or element of design as per those listed in the syllabus (see below).

- creative design principles including:
 - balance-symmetry, asymmetry, radial
 - rhythm
 - proportion
 - dominance
 - harmony/unity/proximity
 - repetition
 - pattern
 - movement
 - contrast
- elements of design including:
 - space-positive and negative
 - alignment/ position
 - line
 - texture
 - colour

- | |
|---|
| <ul style="list-style-type: none"> ◦ shape/form ◦ value |
|---|

(f) Based on your outline in Question 29(e), create the innovative design that will promote your selected product. Using the space below, sketch your design and annotate relevant design principles and elements of design. (15 marks)

Description	Marks
Does the design match the proposal?	
Creates a design that directly corresponds to the outline presented in Question 29(e).	3
Creates a design that reflects most of the intentions outlined in Question 29(e).	2
Creates a design with only tenuous links to the outline presented in Question 29(e).	1
Creates a design with no links to the outline presented in Question 29(e).	0
Design principles:	
Uses two design principles effectively.	2
Uses one design principle effectively.	1
No evidence of a design principle being used.	0
Elements of design:	
Uses two supporting elements of design effectively.	2
Uses one supporting element of design effectively.	1
No evidence of a supporting element of design being used.	0
Design:	
Produces a design that is clear and easy to follow.	3
Produces a design can be understood and followed.	2
Produces a design that is difficult to understand.	1
Produces a design that cannot be understood.	0
Annotations:	
Produces a design that is clearly labelled and annotated.	2
Produces a design that includes labels and annotations but some are irrelevant.	1
Produces a design without any labels or annotations.	0
Is the design practical and useable?	
Produces a design that is very practical and useable as per intentions captured in the design proposal.	3
Produces a design is basic, practical and useable.	2
Produces a design that shows some practicality but design falls short of indicating how.	1
Produces a design that is not practical or useable.	0
Total	15