APPLIED INFORMATION TECHNOLOGY

Stage 3

WACE Examination 2010

Final Marking Key

Section One: Multiple-choice   **20 Marks**

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

Section Two: Short answer   15% (30 Marks)

Question 21   **(4 marks)**

Outline **four** ways in which the effective use of ICT can increase the productivity of manufacturing industries.

Description	Marks
One mark for each valid response to a maximum of 4 marks 1. It reduces **costs** by increasing the capability of machinery, thus reducing the need for human input. 2. It increases **flexibility** in production planning and scheduling, reducing lead times and improving responsiveness to customer needs. 3. It facilitates accurate and fast modelling of industrial processes, enabling their optimisation in various ways. **Responsive** 4. It improves **communication** between team members, record-keeping, etc. 5. Rapid prototyping and modelling 6. Access global markets for sales, accessing resources and research Marker's notes for other possible answers:	0–4
	Total 4

Question 22   **(5 marks)**

(a)   Define 'inclusivity' as it applies to the design of an ICT product or service.   (1 mark)

Description	Marks
One mark for a clear definition Inclusivity in design means ensuring that a product or system is accessible to as many users as possible.	0-1
	Total 1

(b)   A design needs to be made inclusive of an ageing population. Identify **four** barriers to inclusivity and outline their solutions.   (4 marks)

Description	Marks
One mark for each valid response to a maximum of 4 marks 1. Compensate for failing eyesight, e.g. by providing a zoom facility. 2. Compensate for failing hearing, e.g. by providing visual alternatives to sound. 3. Compensate for failing dexterity, e.g. by providing large buttons/icons to click on. 4. Compensate for failing memory, e.g. by storing relevant important data. 5. Compensate for failing mobility, e.g. by providing remote control facilities. Marker's notes for other possible answers:	0–4
	Total 4

Question 23 **(6 marks)**

(a)   Describe **four** aspects of an ICT project that need to be monitored and documented
       over the course of its development.   (4 marks)

Description	Marks
One mark for each type of information with a valid justification to a maximum of 4 marks 1. Project spending, to check that the budget is not exceeded. 2. Client expectations, to check if design changes are needed. 3. Personnel situation, to ensure that the required skills and manpower is available. 4. Provision of hardware and software, to ensure that the goals are achievable. 5. Timelines , to ensure that they are being met or progress made. Marker's notes for other possible answers:	0–4
	Total 4

(b)   Define 'top-down' as a project management strategy.   (1 mark)

Description	Marks
One mark each for a clear explanation A top-down project starts with a high-level specification of the system being built, and iteratively refines this specification until all parts of the specification can be implemented directly.	0-1
	Total 1

(c)   Define 'bottom-up' *as a* project management strategy.   (1 mark)

Description	Marks
One mark each for a clear explanation A bottom-up project starts by implementing a range of low-level facilities and then iteratively building larger sub-systems using these facilities, until finally the entire system can be assembled.	0-1
	Total 1

Question 24 **(2 marks)**

Describe briefly the type of network traffic the following protocols control.

(a)   HTTP   (1 mark)

Description	Marks
HTTP controls, establish connection, allows web page traffic or Hyper text Note to markers: No mark for correct expansion of the acronym	0 -1
	Total 1

(b)   SMTP   (1 mark)

Description	Marks
SMTP controls email or small messaging Note to markers: No mark for correct expansion of the acronym	0 -1
	Total 1

Question 25   **(11 marks)**

You wish to outsource the purchasing of a number of computers.

(a)   List **four** criteria you would use to select a company to supply the computers.   (4 marks)

Description	Marks
One mark per valid criteria to a maximum of 4 marks - Cost - Machine performance against industry benchmarks - TCO – Total Cost of Ownership - Vendor history - Vendor ability to support equipment - Reliability of equipment - Reputation of vendor and equipment - Added services - Management - Training - support	0–4
	Total 4

(b)   To minimise the cost you consider reusing old computer components and peripherals in or with your new computers. Describe, with a suitable example, **two** problems that may be encountered.   (4 marks)

Description	Marks
One mark for a valid issue and one mark for an example of the issue to a maximum of 4 marks - Compatibility of old hardware with new hardware – graphics cards won't fit new slots. - Compatibility of old software with new operating systems – 64bit vs 32 bit - No drivers for old peripherals. - No plugs / IO ports for equipment such as no LPT ports on new hardware for printers.	0–4
	Total 4

(c)   A company does not have an IT support department. Describe **three** ways in which it could support its staff that use computers.   (3 marks)

Description	Marks
One mark for a valid answer to a maximum of 3 marks – accept list - Forums - Bulletin boards - On-line tutorials - Live chats - Support through a local company – on call - Power users access to	0–3

	Total 3
Question 26	**(2 marks)**

A large international company has imposed a ban on accessing social networking sites from its computer networks. The employees would like to have this ban lifted.

List and justify **two** benefits that the company could gain from allowing its staff to access social networking sites.

Description	Marks
One mark for each benefit with a valid justification to a maximum of 2 marks • Forums to get information • Collaborate with others at school/work or around the world. • Share work or problems with others • Create interest groups – chess club, rocket clubs etc.	0–2
	Total 2

Section Three: Extended answer   **25% (50 Marks)**

Question 27   **(25 marks)**

Firefly Fine Dining is an international restaurant chain. It has restaurants situated on almost every continent and in smaller nations located in the Caribbean Sea and the Pacific and Indian Oceans. Each restaurant has been positioned in popular tourist areas. The management of Firefly wants all transactions conducted at the restaurants sent to its central database at the close of each restaurant's business day. In addition, the management wants each restaurant to send all of its data files (which record sales, customer information, employee timesheets, payments made and supplies ordered) to its head office in Perth to be stored on the company's server.

(a)   All files from each location must be sent across the internet. Describe what the company could do to reduce the cost and the time taken to transmit each file.   (4 marks)

Description	Marks
Describes a way in which the cost **and** the time taken to transmit data files across the internet are reduced (see notes below for possible reasons).	4
Outlines briefly a way in which the cost **and** the time taken to transmit data files across the internet could be reduced.	3
Makes generalised comments that suggest a way in which the cost **and** the time taken to transmit data files across the internet could be reduced. **or** Describes a way in which the cost **or** the time taken to transmit data files across the internet is reduced (see notes below for possible reasons).	2
Outlines briefly a way in which the cost **or** the time taken to transmit data files across the internet could be reduced.	1
Limited response.	0
	Total 4

Markers Notes:
    • Zip / Compressed files
    • File formats, csv / xlsx, text, rtf, doc
    • Time – off peak
    • Network / Internet / Server speeds
    • Incremental backup.
    • Automation	

Markers Notes:
    •
    •	

(b)   The company's head office wants to conduct a video conference meeting with all of its managers at the same time. Discuss **four** issues that would affect the success of the conference and suggest alternative methods that would address these issues. (8 marks)

Description	Marks
One mark for each valid issue and one mark for an alternative, to a maximum of 8 marks • Time delays between sites – do a number of conferences depending on continent. • Language barriers – interpreters • Bandwidth issues, some using satellites causing lag or inability to carry signal. Use phones in low bandwidth areas • Software not the same. • Setting up computers to do the conference • Establishing video conference equipment • Time zones • Cultural – language, accents	0–8
	Total 8

(c)   Some of the information that is sent from various locations around the world to the head office is confidential. Explain **four** methods that would ensure the security and integrity of the data on a PC before it was sent.   (8 marks)

Description	Marks
Two marks per valid issue with an explanation, 1 mark just for issues with no explanation. Maximum 8 marks. • Encrypt data before being sent to deny access • Passwords used on PC ends to prevent access • Secure PCs away from customer access • Firewalls on PC to stop access • Anti-malware on PCs to prevent access • Virus protection • Levels of access or authorisation	0–8
	Total 8

(d)   The data collected at the head office is stored in a data warehouse. Explain what a data warehouse is and list **three** ways in which the management could use the data to benefit the company.   (5 marks)

Description	Marks
Two marks for a valid data warehouse explanation and 1 per use, to a maximum of 5 marks. A collection of data, from a variety of sources, organized to provide useful guidance to an organization's decision makers. •	0–2
Uses • Decision making process • Show trends in business • Indicate what is popular, what is not. • Cost trends • What is profitable, what is not • Historical	1–3

	Total 5

Question 28 (25 marks)

Nimble Office has recently conducted an internal review of its employees and discovered that some employees have a basic knowledge of the use of ICT. You have been asked to advise Nimble Office on how to improve these employees' knowledge of and skills in processing and managing typical office data, such as text documents and spreadsheets.

To advise Nimble Office on this issue, you must address the following:
- Outline **three** criteria that can be used to determine competent use of standard office applications. (6 marks)
- Develop a methodology for assessing the extent to which employees meet these **three** criteria. (6 marks)
- Describe **four** strategies for improving the knowledge of and skills in processing and managing typical office data. (8 marks)
- If the company were to implement a new 'employee information system', recommend and justify **two** features that should be included to help it manage all employees' knowledge and skills while accommodating the rapid changes in ICT. (5 marks)

You may use annotated diagrams or sketches to help you express your ideas.

	Description	Marks
dot point 1	Lists three criteria	3
	Lists two criteria	2
	Lists one criteria	1
Outline three criteria that can be	List no or incorrect criteria	0
used to determine		**/3**
competent use of standard office applications (6 marks)	Outlines how each criterion can be used to determine effectively employees' competent use of standard office applications.	3
	Outlines how each criterion can be used to determine employees' competent use of standard office applications.	2
speed, accuracy, formatting, presentations,	Presents generalised and superficial comments on how each criterion may assist in determining employees' skills and/or knowledge	1
printing,storage, transferring etc.	Lists three criteria and provides limited to no outline.	0
		/3
Dot point 2	Develops a pertinent methodology that indicates what and how evidence is to be collected in order to provide a realistic and workable assessment of the three competencies.	6
Develop a methodology to assess the three competencies	Develops a methodology that indicates what and how evidence is to be collected in order to provide a workable assessment of the three competencies.	5
(6 marks)	Develops a methodology that engages with the three competencies and makes comments of how and what evidence is needed to be assessed.	4
workflow application, time sheets, sampling,	Provides a methodology that outlines in general terms how and what evidence is needed to be assessed.	3
self appraisal.	Provides a basic methodology that outlines in general terms how or what evidence is needed to be assessed.	2

	Outlines in general terms how or what evidence is needed to be assessed. Does not indicate what competencies are being assessed.	1
	Lists a way of assessment with no supporting comments.	0
		/6

dot point 3 **Describe four strategies for improving the knowledge and skills of processing and managing typical office data. (8 marks)** **training, courses, online, mentor, $s, promotion incentives**	Provides insightful descriptions of tailoring each strategy for the specific purpose of improving the management of typical office data.	7–8
	Provides detailed descriptions of how each strategy considers the purpose of improving the management of typical office data.	6
	Provides descriptions of how **most** strategies address the purpose of improving the management of typical office data.	4–5
	Up to four strategies are given. Provides general comments on how to improve the knowledge and skills of standard office applications with some consideration for how to manage typical office data.	2–3
	Provides generalised and superficial comments on how to improve the knowledge and skills of standard office applications with limited consideration for how to manage typical office data.	1
	Lists strategies with limited comments for support.	0
		/8
Dot point 4 **…recommend and justify two features that should be included to help it manage all employees' knowledge and skills while accommodating for the rapid change in ICT.** **(5 marks)**	Recommends two features. Provides pertinent and insightful justifications as to how the recommendations are intended to assist management in tracking employees' skills and identify ongoing training needs.	5
	Recommends two features, with well-considered justification as to how the recommendations are intended to assist management in tracking employees' skills and identify ongoing training needs.	4
	Recommends two features, with justification as to how the recommendations are intended to assist management in tracking employees' skills and identify ongoing training needs.	3
	Up to two recommendations provided with generalised comments as support.	2
	Up to two recommendations provided with limited support.	1
	Up to two recommendations provided with no supporting comments.	0
		/5
		Total 25

2 Features (HR system)
easily accessible by staff to update
online and interactive, request PD, Offer PD and Log PD, e.g. AISWA and WACOT to some degree

Section Four: Production   **50% (100 Marks)**

Question 29

Part 1: Pre-design   **(30 marks)**

(a)   In preparation for designing AnyTime-AnyWhere's mobile website, identify **five** emerging ICT trends, outlining briefly how they will inform your design.   (5 marks)

Emerging Trends: more mobile devices in use, more services being offered, and convergence of technologies combine to offer more functionality to the user.

Description	Marks
Identifies five emerging ICT trends and outlines how each is relevant in informing a design for a mobile device.	5
Identifies four emerging ICT trends and outlines how each is relevant in informing a design for a mobile device.	4
Identifies three emerging ICT trends and outlines how each is relevant in informing a design for a mobile device.	3
Identifies two emerging ICT trends and outlines how each is relevant in informing a design for a mobile device. **or** Lists five emerging ICT trends	2
Identifies five emerging ICT trends and outlines how each is relevant in informing a design for a mobile device. **or** Lists four emerging ICT trends	1
Lists up to three emerging ICT trends	0
	Total 5

Notes: Candidates may refer to the following trends in their responses:
- Simplicity of page layout
- Use of white space on a small screen
- No images
- Prioritising content
- Minimal text entry
- Use of drop-down menus to save space
- Html5
- CSS3
- Flash enabled browsers
- Standards compliance
- Interfaces
- Dominance of iPhone like interfaces
- Location services gps
- Web 2.0
- Social networks
-

(b)   Discuss **two** issues relating to social implications and trends raised in the article 'PayPal brings m-commerce to Australia' below.   (4 marks)

Description	Marks
1 mark for each simplistic but valid discussed point with an extra 1 mark for a more detailed discussion, to a maximum of 4 marks *Possible responses:* 1. Cater for impulse buyers 2. Security of personal information, identity theft 3. Theft of mobile phones more likely 4. Cashless society, good or bad? 5. Will all adults now need a smart mobile phone and a PayPal account? 6. Access to technology 7. Inclusivity 8. Digital divide 9. Fraudulent sales	1–4
	Total 4

To assist you in developing the mobile website AnyTime-AnyWhere has provided an example of a website (Stimulus A) and a mobile website (Stimulus B) from a competitor's site.

(c)   Identify (by circling and naming) **five** design **features** for the website and **five** design features for the mobile website.   (5 marks)

Description	Marks
Identifies correctly 10 design features	5
Identifies correctly 8–9 design features	4
Identifies correctly 6–7 design features	3
Identifies correctly 4–5 design features	2
Identifies correctly 2–3 design features	1
Identifies correctly 0–1 design feature	0
	Total 5

Notes: Candidates may refer to the following design features in their responses:

Stimulus A
- *Web2 features*

Stimulus B
- use of drop down menus – saves space
- targeted information, different on mobile web site
- less advertising
- use of contrasting colours
- minimal navigation options

(d)   Compare the stimulus materials A and B and explain why certain design features are used to suit the specific viewing requirements of a website and a mobile website. Refer to **four** of the design features identified in part (c) to support your response.   (16 marks)

What feature	1 mark per repeated feature in the web and mobile site
Compare	2 marks per feature compared with a detailed comparison
Why	1 mark for identifying why that feature was applied, linking the restrictions associated with the hardware and software.

Part 2: Design   **(28 marks)**

(a)   AnyTime-AnyWhere has given you five design criteria that it wants incorporated into its mobile website. Justify briefly **one** way in which you could meet each of the criteria listed below in your design for a mobile website.

        AnyTime-AnyWhere design criteria:
1. meet user needs quickly	(2 marks)
2. distinguish clearly selected items	(2 marks)
3. make user input as simple as possible	(2 marks)
4. display only essential information	(2 marks)
5. design manageable page layouts for users of a mobile device.	(2 marks)

Description		Marks
1. **meet user needs quickly**	Lists one way	1
	Justifies implementation	1
2. **distinguish clearly selected items**	Lists one way	1
	Justifies implementation	1
3. **make user input as simple as possible**	Lists one way	1
	Justifies implementation	1
4. **display only essential information**	Lists one way	1
	Justifies implementation	1
5. **design suitable page layouts for a mobile device**	Lists one way	1
	Justifies implementation	1
		Total 10

Possible responses:
1. Provide search feature, drop down lists, Tabs
2. Font and or colour change, background highlight
3. Use of drop down menus, use of predictive text, multiple screens, voice activation
4. Show headings, intro sentences, links to expanded documents or related articles
5. Auto reformat for portrait or landscape viewing on most common smallest screen size

One long column or swipe screen
Multiple expanding / collapsible headings

(b)   Below is a snapshot taken from AnyTime-AnyWhere's website. Design a sample mobile
        website using some or all of the content presented in the snapshot.
        In your design you must:
- 1. incorporate AnyTime-AnyWhere's design criteria   (5 marks)
- 2. address one emerging ICT trend } identified in Part 1   (2 marks)
- 3. address one social trend   }   (2 marks)
- 4. select design features for a mobile device (identified in Part 1(c))   (5 marks)
- 5. use an appropriate design methodology to manage your ideas
       (e.g. clear sketches, dimensions, annotations, sequencing of work, checklists,
       etc.)   (4 marks)

Description		Marks
Dot point 1 **Incorporation of AnyTime-AnyWhere's design criteria**	**Multiple** applications of design criteria and extensive content coverage resulting in a original, appealing functional web page	5
	Good application of the design criteria providing functionality and usability appropriate for the mobile web. Good content coverage	4
	Designs a web page that covers **all** of the design criteria, using a lot of the website content.	3
	Designs a web page that simplistically covers **some** application of the design criteria, using a lot of the website content.	2
	Attempts to design a web page that implement some design criteria with limited use of the website content.	1
	Minimal attempt made at designing a web page incorporating the design criteria.	0
		/5
Dot point 2 **Address one emerging ICT trend**	Incorporated identified emerging ICT trend seamlessly into their design.	2
	No design feature identifiable as an ICT trend.	0
		/2
Dot point 3 **Address one social trend**	Incorporated identified social trend seamlessly into their design.	2
	No design feature identifiable as a social trend.	0
		/2
Dot point 4 **Selection of design features for the mobile device**	1 mark per mobile website feature	5
		4
		3
		2
		1
		0
		/5
Dot point 5 **Use of an appropriate design methodology**	1 mark for each item identified to a maximum of 4	4
	no evidence of planning and/or initial design ideas.	0
		/4
		Total 18

Part 3: Analysis **(30 marks)**

(a)   Justify how your mobile website design addresses the design criteria and how your
       selection of **three** design features suits the viewing requirements for a mobile website.

(25 marks)

AnyTime-AnyWhere's design criteria
1.   meet user needs quickly
2.   distinguish clearly selected items
3.   make user input as simple as possible
4.   display only essential information
5.   design manageable page layouts for users of a mobile device.

	Description	
Design Features Justification of the selection of three design features for the purpose of meeting the viewing requirements of a mobile website.	Presents insightful and appropriate justification detailing how three pertinent design features were considered for the purpose of suiting a mobile website.	
	Provides appropriate justification detailing how three pertinent design features were considered for the purpose of suiting a mobile website.	
	Provides some justification explaining how **three** design features were considered for the purpose of suiting a mobile website.	
	Provides an explanation discussing how three design features were considered for a mobile website, at least two features meet the purpose **or** provides appropriate justification detailing how **two** pertinent design features were considered for the purpose of suiting a mobile website.	
	Provides comments on three design features generalising the purpose of selection for a mobile website **or** provides some justification explaining how two design features were considered for the purpose of suiting a mobile website.	
	Provides superficial comments on three design features generalising the purpose of selection for a mobile website **or** provides appropriate justification detailing how one design feature was considered for the purpose of suiting a mobile website.	
	Provides limited indication for how the purpose of selecting design features for a mobile website were considered.	
AnyTime-AnyWhere		
Justification of how design addresses AnyTime-AnyWhere's design criteria		
Meet user needs quickly	Presents insightful and appropriate justification detailing the way/s in which this criterion is addressed.	
	Provides appropriate justification outlining the way/s in which this criterion is addressed.3 or 4	
	Provides some justification outlining the way/s in which this criterion is addressed.1 or 2	
	Presents superficial references to this criterion	
Distinguish clearly selected items	Presents insightful and appropriate justification detailing the way/s in which this criterion is addressed.	
	Provides appropriate justification outlining the way/s in which this criterion is addressed.	
	Provides some justification outlining the way/s in which this criterion is addressed.	
	Presents superficial references to this criterion	
Make user input as simple as possible	Presents insightful and appropriate justification detailing the way/s in which this criterion is addressed.	
	Provides appropriate justification outlining the way/s in which this criterion is addressed.	
	Provides some justification outlining the way/s in which this criterion is addressed.	
	Presents superficial references to this criterion	
Display only essential information	Presents insightful and appropriate justification detailing the way/s in which this criterion is addressed.	
	Provides appropriate justification outlining the way/s in which this criterion is addressed.	
	Provides some justification outlining the way/s in which this criterion is addressed.	
	Presents superficial references to this criterion	

Description	
Design suitable page layouts for a mobile device	Presents insightful and appropriate justification detailing the way/s in which this criterion is addressed.
	Provides appropriate justification outlining the way/s in which this criterion is addressed.
	Provides some justification outlining the way/s in which this criterion is addressed.
	Presents superficial references to this criterion

(b)   Outline the ICT trend and the social trend you selected to incorporate in the design of
        your mobile website. Explain why you selected these trends and how they are relevant
        to your design.   (5 marks)

Description		Marks
Outline and explain why you selected these trends and relevance to your design	Outlines clearly the ICT and the social trend. Presents a considered explanation that details its relevance for incorporation.	5
	Outlines clearly the ICT and the social trend. Presents an explanation that details its relevance for incorporation.	4
	Outlines the ICT and the social trend. Presents an appropriate explanation outlining its relevance for incorporation.	3
	Outlines the ICT and the social trend. Makes generalised and superficial comments in an attempt to outline why it is incorporated in the design.	2
	Outlines the ICT and the social trend. Makes generalised and superficial comments. No cohesion to response, outlining the trends' relevance to the design.	1
	Minimal outline, limited discussion no relevance to design	0
		Total 5

1 each for outlining and 3 for explaining relevance

Part 4: Modification of design **(12 marks)**

AnyTime-AnyWhere wants you to modify your design to be inclusive of older mobile device users. The company has given you the following design requirements:
1.   make obvious what is clickable and what is not.
2.   implement an 'Important and frequently visited topics' section.
3.   include a site map link that can be accessed from every page.
4.   use language that is simple and easily understood.

Modify your mobile website design, using appropriate annotations to outline how you have incorporated the above design requirements.

Description		Marks
outline how you have incorporated the design requirements		
make obvious what is clickable and what is not	Outlines with clear and detailed annotations how this modification is incorporated appropriately in the design.	3
	Outlines with clear annotations how this modification is incorporated in the design.	2
	Outlines with basic or simplistic annotations how this modification is incorporated in the design.	1
	Annotates changes, but does not make reference to how it supports the design criteria.	0
implement an 'Important and frequently visited topics' section	Outlines with clear and detailed annotations how this modification is incorporated appropriately in the design.	3
	Outlines with clear annotations how this modification is incorporated in the design.	2
	Outlines with basic or simplistic annotations how this modification is incorporated in the design.	1
	Annotates changes, but does not make reference to how it supports the design criteria.	0
include a site map link that can be accessed from every page	Outlines with clear and detailed annotations how this modification is incorporated appropriately in the design.	3
	Outlines with clear annotations how this modification is incorporated in the design.	2
	Outlines with basic or simplistic annotations how this modification is incorporated in the design.	1
	Annotates changes, but does not make reference to how it supports the design criteria.	0
use language that is simple and easily understood	Outlines with clear and detailed annotations how this modification is incorporated appropriately in the design.	3
	Outlines with clear annotations how this modification is incorporated in the design.	2
	Outlines with basic or simplistic annotations how this modification is incorporated in the design.	1
	Annotates changes, but does not make reference to how it supports the design criteria.	0
		Total 12

ACKNOWLEDGEMENTS