



Western Australian Certificate of Education Examination, 2010

Question/Answer Booklet

APPLIED INFORMATION TECHNOLOGY

Stage 3

Please place your student identification label in this box

Student Number: In figures

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In words

Time allowed for this paper

Reading time before commencing work: ten minutes

Working time for paper: three hours

Materials required/recommended for this paper

To be provided by the supervisor

This Question/Answer Booklet

Multiple-choice Answer Sheet

To be provided by the candidate

Standard items: pens, pencils, eraser, correction fluid/tape, ruler, highlighters

Important note to candidates

No other items may be taken into the examination room. It is **your** responsibility to ensure that you do not have any unauthorised notes or other items of a non-personal nature in the examination room. If you have any unauthorised material with you, hand it to the supervisor **before** reading any further.

Structure of this paper

Section	Number of questions available	Number of questions to be answered	Suggested working time (minutes)	Marks available	Percentage of exam
Section One: Multiple-choice	20	20	20	20	10
Section Two: Short answer	6	6	35	30	15
Section Three: Extended answer	2	2	50	50	25
Section Four: Production	1	1	75	100	50
Total					100

Instructions to candidates

1. The rules for the conduct of Western Australian external examinations are detailed in the *Year 12 Information Handbook 2010*. Sitting this examination implies that you agree to abide by these rules.
2. Answer the questions according to the following instructions.

Section One: Answer all questions on the separate Multiple-choice Answer Sheet provided. For each question shade the box to indicate your answer. Use only a blue or black pen to shade the boxes. If you make a mistake, place a cross through that square, do not erase or use correction fluid, and shade your new answer. Marks will not be deducted for incorrect answers. No marks will be given if more than one answer is completed for any question.

Sections Two, Three and Four: Answer **all** questions. Write answers in this Question/Answer Booklet.

3. You must be careful to confine your responses to the specific questions asked and to follow any instructions that are specific to a particular question.
4. Spare pages are included at the end of this booklet. They can be used for planning your responses and/or as additional space if required to continue an answer.
 - Planning: If you use the spare pages for planning, indicate this clearly at the top of the page.
 - Continuing an answer: If you need to use the space to continue an answer, indicate in the original answer space where the answer is continued, i.e. give the page number. Fill in the number of the question(s) that you are continuing to answer at the top of the page.

Section One: Multiple-Choice**10% (20 Marks)**

This section has **20** questions. Answer **all** questions.

Answer all questions on the separate Multiple-choice Answer Sheet provided. For each question shade the box to indicate your answer. Use only a blue or black pen to shade the boxes. If you make a mistake, place a cross through that square, do not erase or use correction fluid, and shade your new answer. Marks will not be deducted for incorrect answers. No marks will be given if more than one answer is completed for any question.

Suggested working time: 20 minutes.

1. The phrase 'green computing' most commonly refers to
 - (a) energy-efficient enabled computers.
 - (b) sharing of resources between computer systems.
 - (c) making local CPU resources available for networked projects.
 - (d) reusing software scrap for future projects.

2. What is an author required to do in order to assert copyright on their intellectual property?
 - (a) include their name on the work
 - (b) register their work with the government
 - (c) retain possession of the original copy of the work
 - (d) nothing: copyright is assigned automatically

3. The main difference between a tablet computer and a netbook is that the tablet computer has
 - (a) a colour screen.
 - (b) a touch screen.
 - (c) no internal hard drive.
 - (d) no built-in networking facilities.

4. The process of 'defragmentation' of a hard drive involves the
 - (a) removing unwanted files to increase the amount of free space.
 - (b) backing up files to reorganise them logically.
 - (c) moving files to make existing files and free space contiguous.
 - (d) creating new directories to make existing files easier to access.

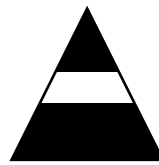
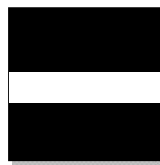
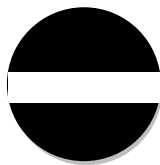
5. A new version of software is said to be 'backwards compatible' if
 - (a) it can read data files created using previous versions.
 - (b) it can read data files in either previous or future versions.
 - (c) data files created can be read using previous versions.
 - (d) data files created can be read in either previous or future versions.

See next page

6. A compaction algorithm typically reduces the size of a 2MB file by 75%. It also includes 200KB of additional code in the compressed file. What is the approximate total file size?
- (a) 700KB
 - (b) 1.7MB
 - (c) 550KB
 - (d) 1.65MB

7. A 'firewall' is security software that inspects and controls network traffic
- (a) into a computer.
 - (b) out of a computer.
 - (c) in both directions.
 - (d) in neither direction.

8. Which design principle is illustrated by the following pictures?



- (a) balance
 - (b) emphasis
 - (c) proportion
 - (d) harmony
9. Downloading movies and music without permission violates laws related to
- (a) equity.
 - (b) intellectual property.
 - (c) copyright.
 - (d) fair use or fair dealing.
10. 'Requirements analysis' involves determining what
- (a) physical resources will be needed for a project.
 - (b) human resources will be needed for a project.
 - (c) features the client expects from a system.
 - (d) facilities the system needs in order to perform its tasks.
11. The principal feature of a web page that uses push technology is that the
- (a) client doesn't initiate the transfer of information.
 - (b) server doesn't contain all of the necessary information.
 - (c) information is transferred via a number of different channels.
 - (d) information is encrypted at the server rather than at the client.

12. 'Technological convergence' is best understood as different
- (a) industries evolving to use similar approaches.
 - (b) technologies evolving to perform similar tasks.
 - (c) tasks evolving to use similar technologies.
 - (d) professions evolving to employ similar methods.
13. Which of the following network topologies uses a 'control token'?
- (a) tree network
 - (b) ring network
 - (c) mesh network
 - (d) star network
14. The principal difference between the HTTP and HTTPS protocols is that
- (a) HTTP can transfer larger files.
 - (b) HTTPS can transfer files faster.
 - (c) HTTP can transfer more file types.
 - (d) HTTPS can transfer files more securely.
15. Which one of the following applications would be used in 'desktop publishing'?
- (a) Adobe Acrobat Reader
 - (b) Three panel brochure
 - (c) A text book on desktop publishing
 - (d) Web page
16. How many frames per second are generally required to achieve *real-time* computer animation?
- (a) 6
 - (b) 60
 - (c) 600
 - (d) 6,000
17. A NIC (network interface card) enables a computer to
- (a) establish virtual links between your computer and any peripheral.
 - (b) establish a link to networked peripherals.
 - (c) establish a link directly to the internet.
 - (d) all of the above.

18. Calculate the approximate broadband speed of 16 GB of data travelling a distance of 100 km at an average speed of 40 km/hr.
- (a) 64 Kbit/second
 - (b) 512 Kbit/second
 - (c) 2 Mbit/second
 - (d) 16 Mbit/second
19. 'Data mining' refers to
- (a) the acquisition of data.
 - (b) the verification of data.
 - (c) finding patterns in data.
 - (d) the security of data.
20. When using lossless compression, the compression and uncompression of a file results in a file that is
- (a) smaller in size than the original file.
 - (b) the same size as the original file.
 - (c) 10 K larger in size to the original file.
 - (d) larger in size than the original file.

End of Section One

See next page

Section Two: Short answer

15% (30 Marks)

This section has **six (6)** questions. Answer **all** questions.

Write your answers in the space provided.

Spare pages are included at the end of this booklet. They can be used for planning your responses and/or as additional space if required to continue an answer.

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Suggested working time: 35 minutes.

Question 21

(4 marks)

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

Question 22

(5 marks)

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

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

One: _____

Two: _____

Three: _____

Four: _____

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)

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

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

Question 24 (2 marks)

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

(a) HTTP (1 mark)

(b) SMTP (1 mark)

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)

- (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)

- (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)

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.

End of Section Two

See next page

Section Three: Extended answer

25% (50 Marks)

This section contains **two (2)** questions. You must answer **both** questions. Write your answers in the spaces provided.

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Suggested working time: 50 minutes.

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)

Cost: _____

Time: _____

(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)

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)

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See next page

Section Four: Production

50% (100 Marks)

There is **one** question in this section. You must answer **all** parts of the question.

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Suggested working time: 75 minutes.

Question 29

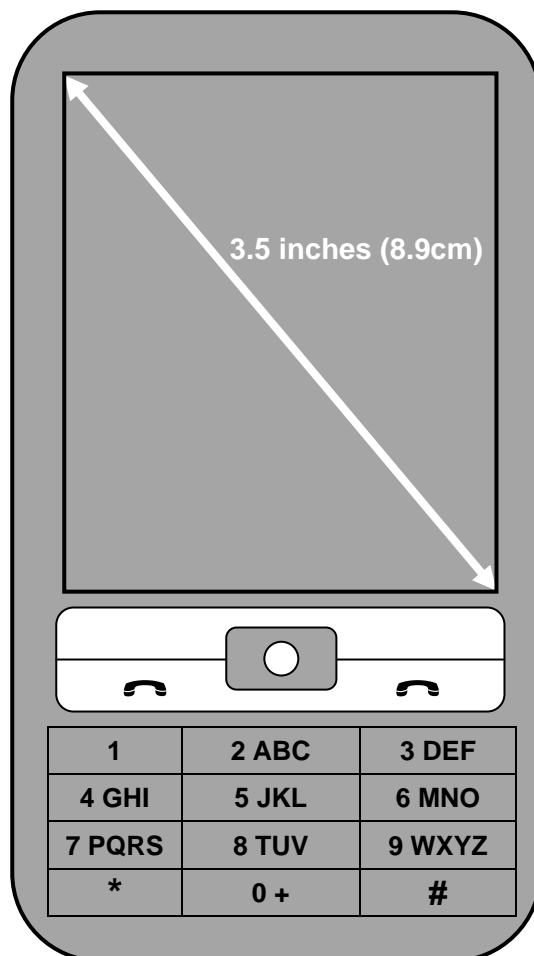
A company called AnyTime-AnyWhere Network Solutions is an Internet Service Provider (ISP).

AnyTime-AnyWhere has a website that allows potential and existing customers to browse its products and services. The website also has a variety of features for its customers. Existing customers can log in and access the status of their internet accounts as well as access chat rooms where they can discuss various issues and topics.

AnyTime-AnyWhere wishes to increase its access to a new market audience that includes users of mobile technologies such as web enabled mobile phones, PDAs and other mobile internet capable devices. To do this AnyTime-AnyWhere wants to create a website that can be viewed on and suit the design features of mobile devices. The website will be called the **mobile website**.

Your task is to develop a mobile website for AnyTime-AnyWhere to be viewed on mobile devices.

An example of a mobile device is provided below. It has a display that is 3.5 inches (8.9cm) diagonally and 480 x 320 pixel resolution at 163 ppi.



In order to develop a mobile website, you will need to complete **four** parts of the task. An overview of this process is outlined below:

Part 1: Pre-design

(30 marks)

Identify trends in mobile computing.
Analyse the design of a website and a mobile website.

Part 2: Design

(28 marks)

Explore how to meet AnyTime-AnyWhere's design criteria.
Design a mobile website.

Part 3: Analysis

(30 marks)

Justify how your design meets the requirements.

Part 4: Modification of design

(12 marks)

Modify your design of a mobile website so that it is inclusive of older users.

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)

One: _____

Two: _____

Three: _____

Four: _____

Five: _____

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

PayPal brings m-commerce to Australia

PayPal has added mobile commerce (m-commerce) to its range of services offered to Australian mobile phone users, with the launch of the PayPal Mobile Checkout.

The service offers consumers the opportunity to make instant and secure payments to businesses through a mobile phone.

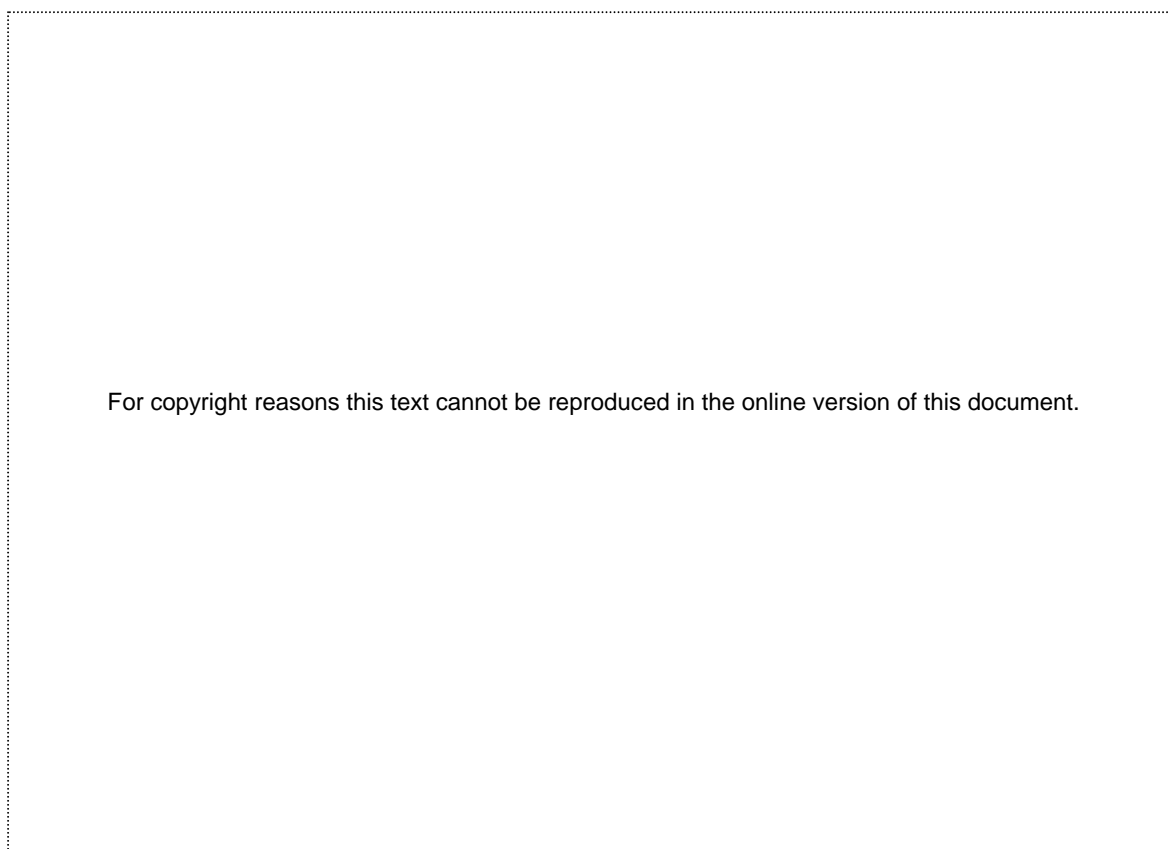
When using the service, customers can access sites designed for mobile devices on their mobile phone and purchase products and services using their PayPal account.

Not all mobile phones will be able to access mobile websites and purchase products and services, only users with “smart phones” that have secure payment functionality built into their operating systems will be able to participate.

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)

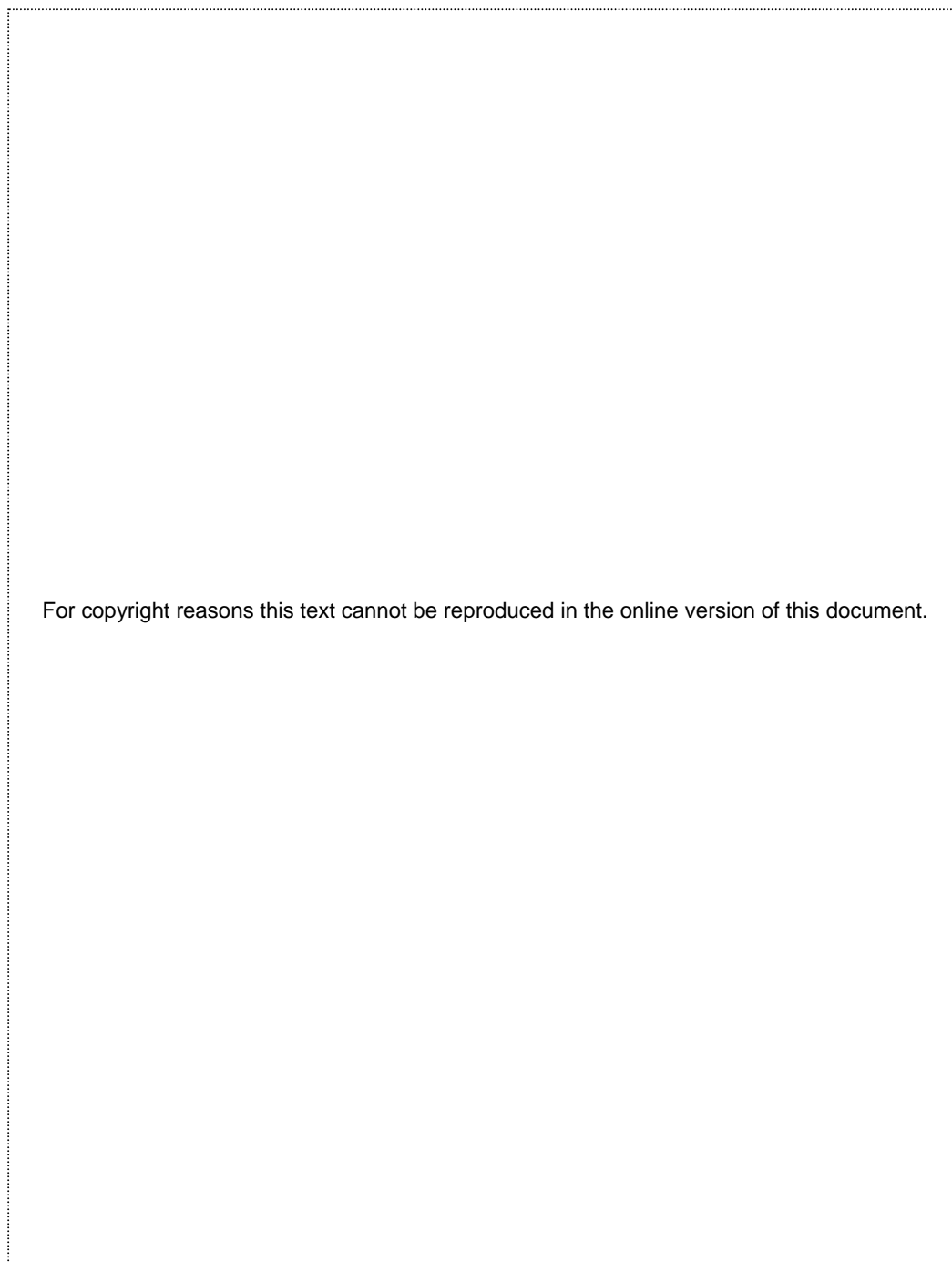
Stimulus A: website



(The bottom part of this web page is not shown here)

See next page

Stimulus B: mobile website



(The bottom part of this web page is not shown here)

See next page

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.

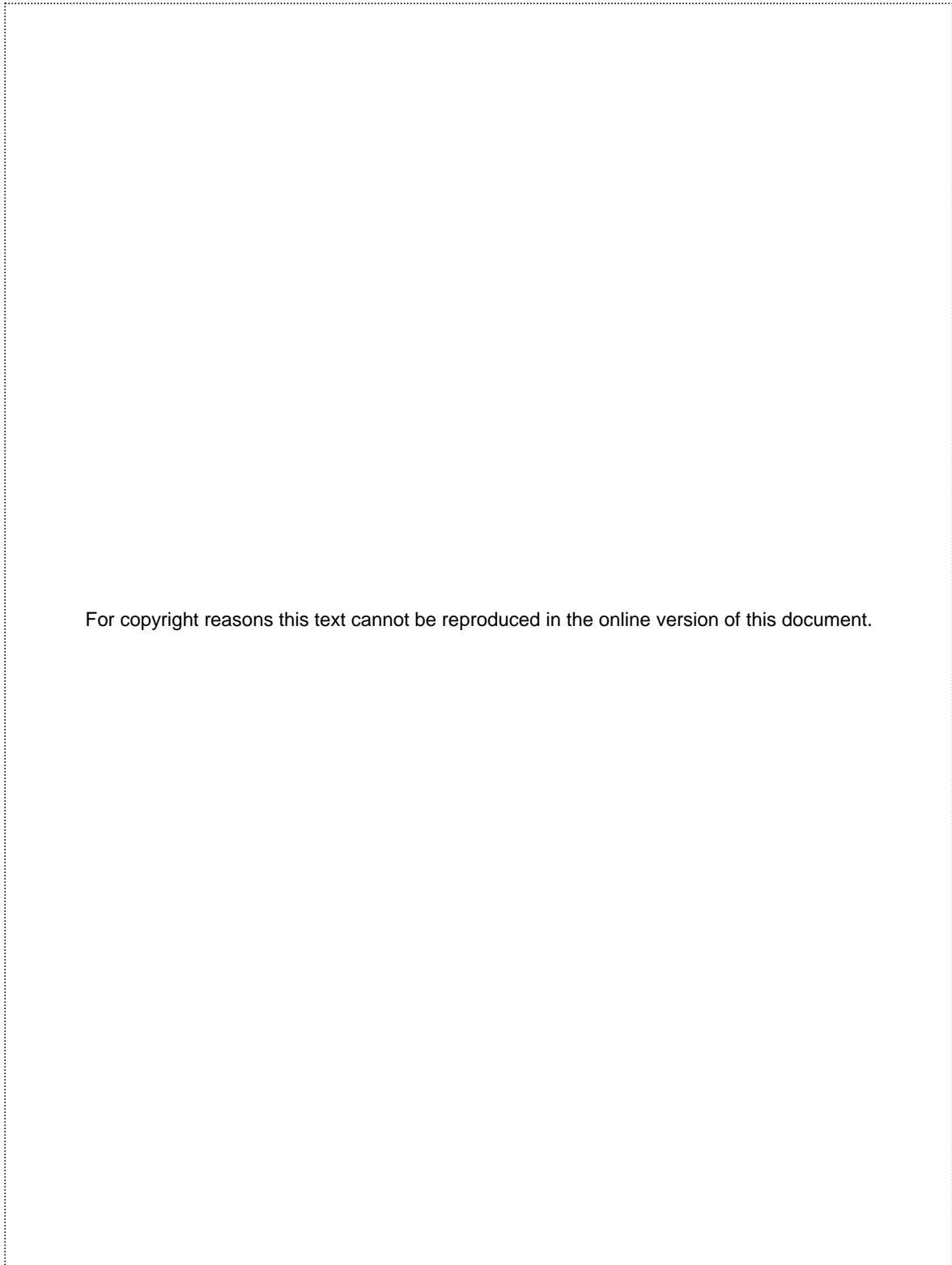
AnyTime-Anywhere design criteria:

- 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)

(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.

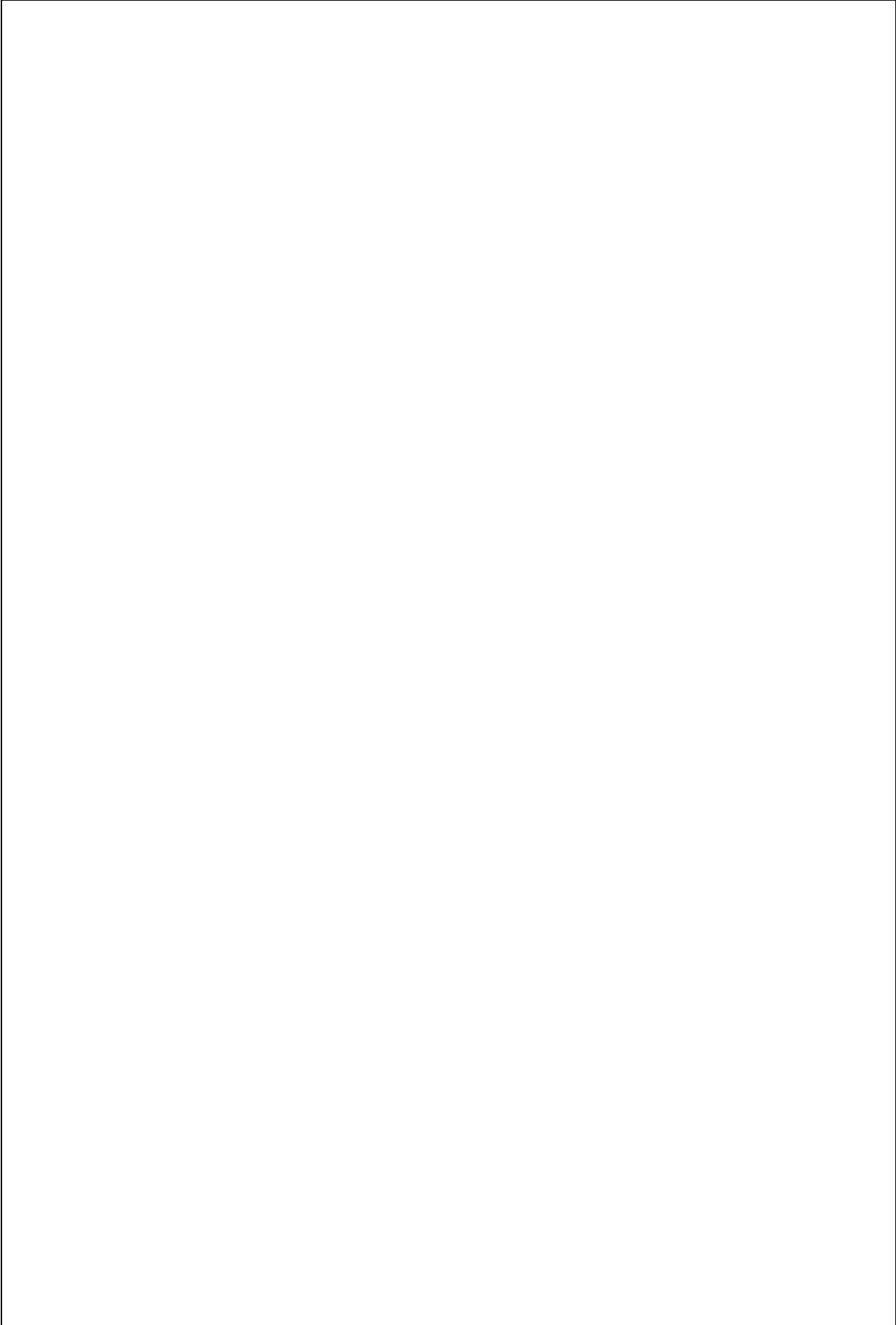
In your design you must:

- incorporate AnyTime-AnyWhere’s design criteria (5 marks)
- address one emerging ICT trend } identified in Part 1 (2 marks)
- address one social trend } (2 marks)
- select design features for a mobile device (identified in Part 1(c)) (5 marks)
- use an appropriate design methodology to manage your ideas (e.g. clear sketches, dimensions, annotations, sequencing of work, checklists, etc.) (4 marks)



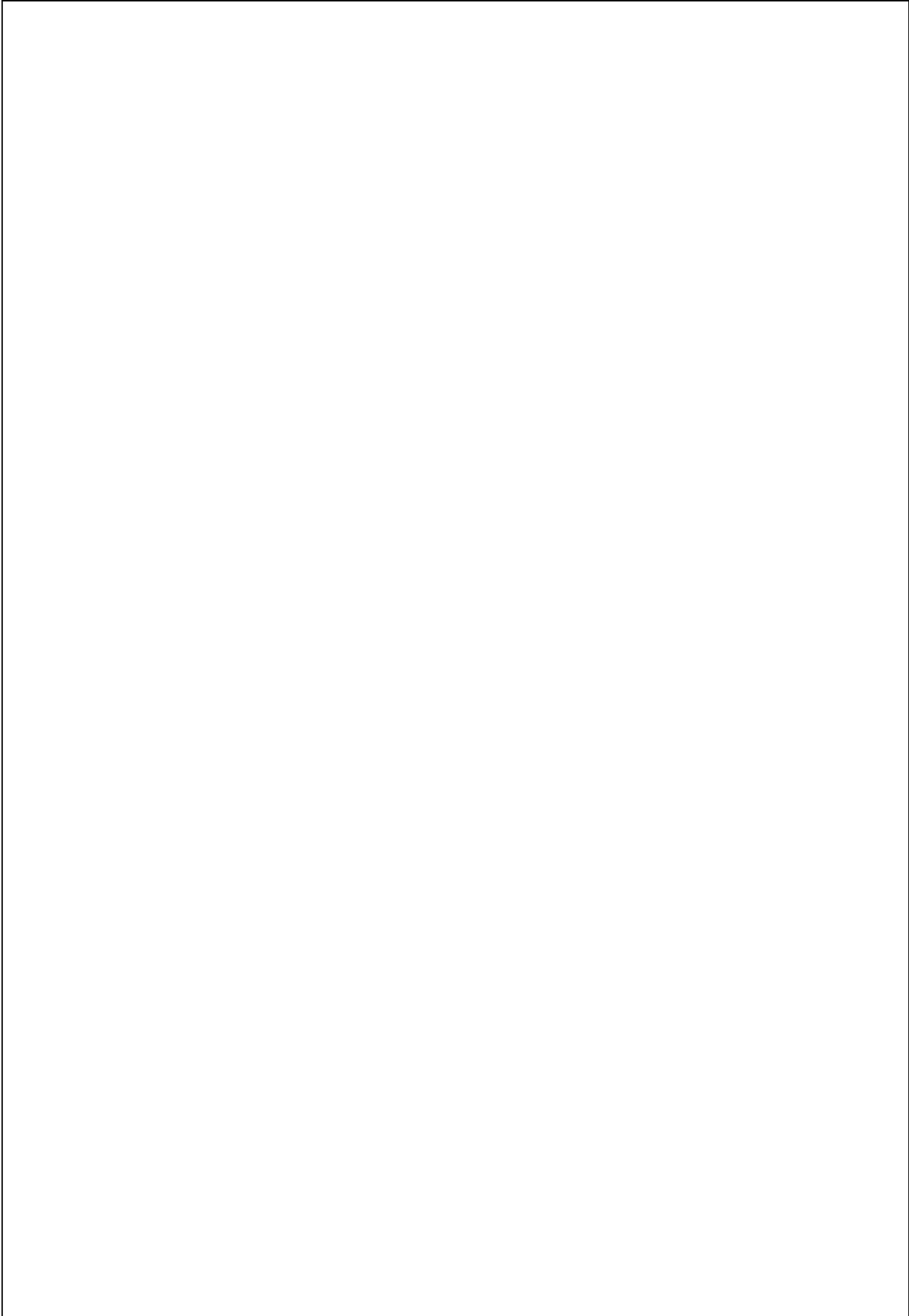
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Mobile website design



See next page

Additional working space for mobile website design, if required.
Note: Further working space is provided on pages 42 and 43.



See next page

(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)

Part 4: Modification of design

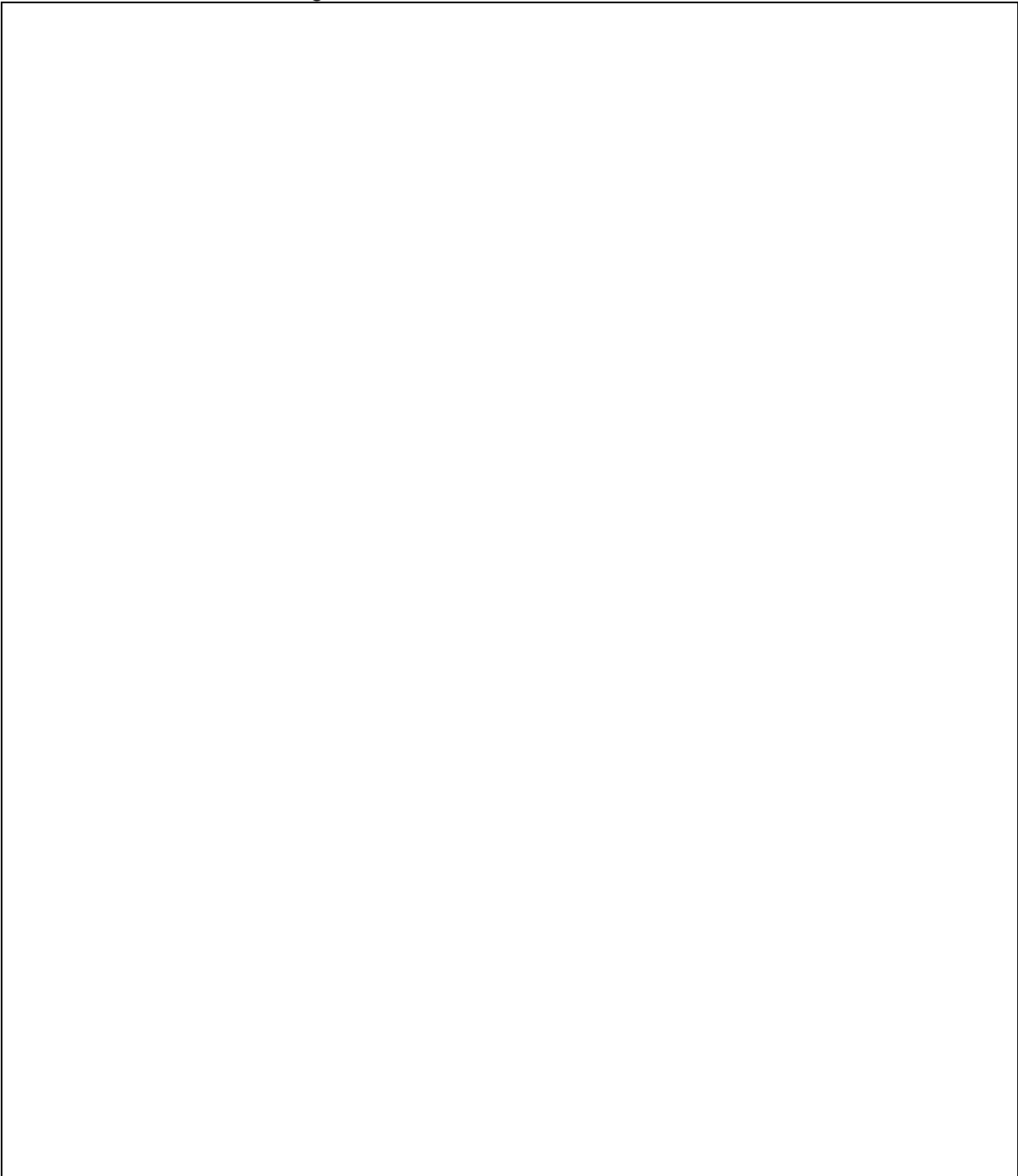
(12 marks)

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.

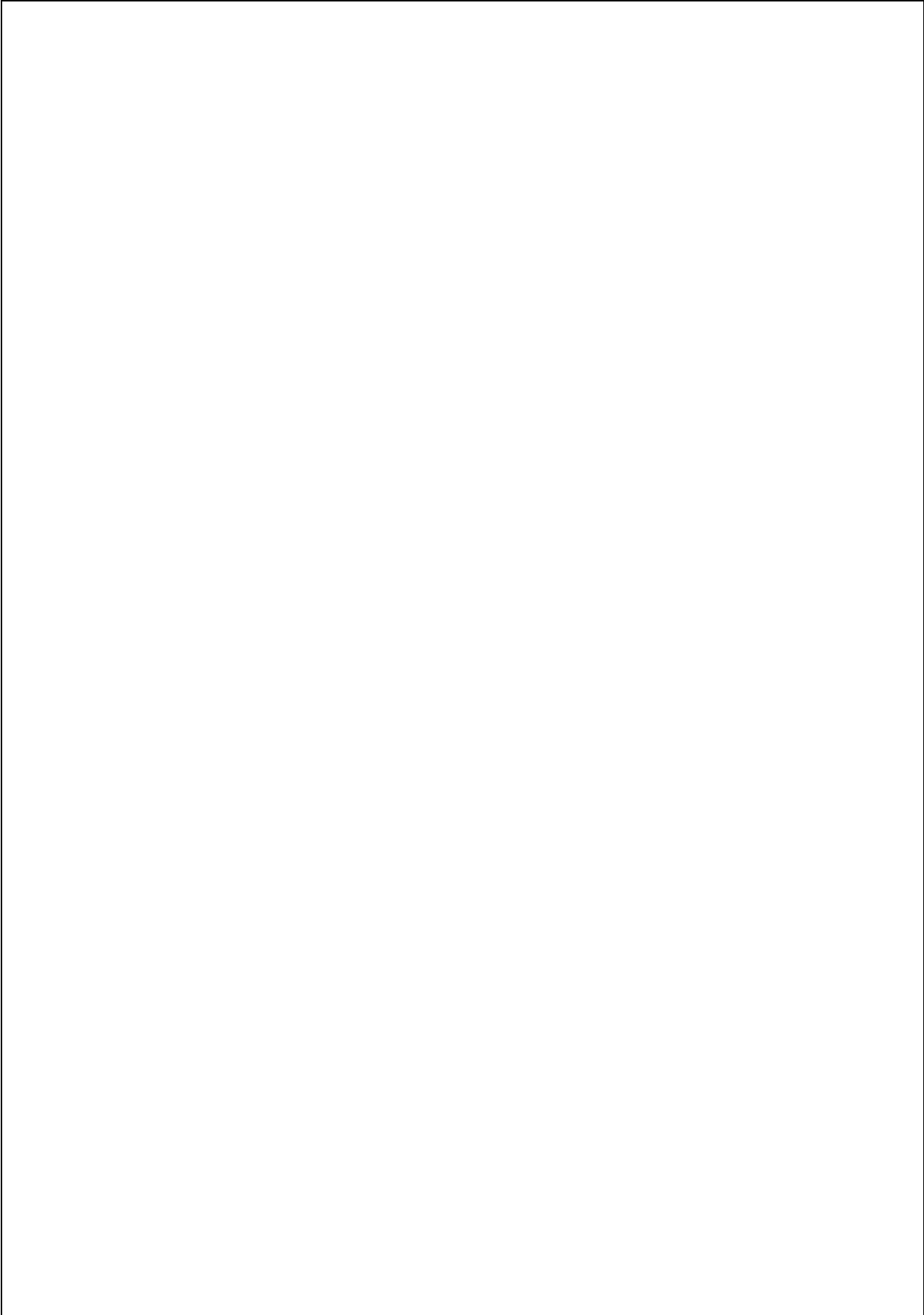
Modify your mobile website design, using appropriate annotations to outline how you have incorporated the above design requirements.

Modified mobile website design:



End of questions

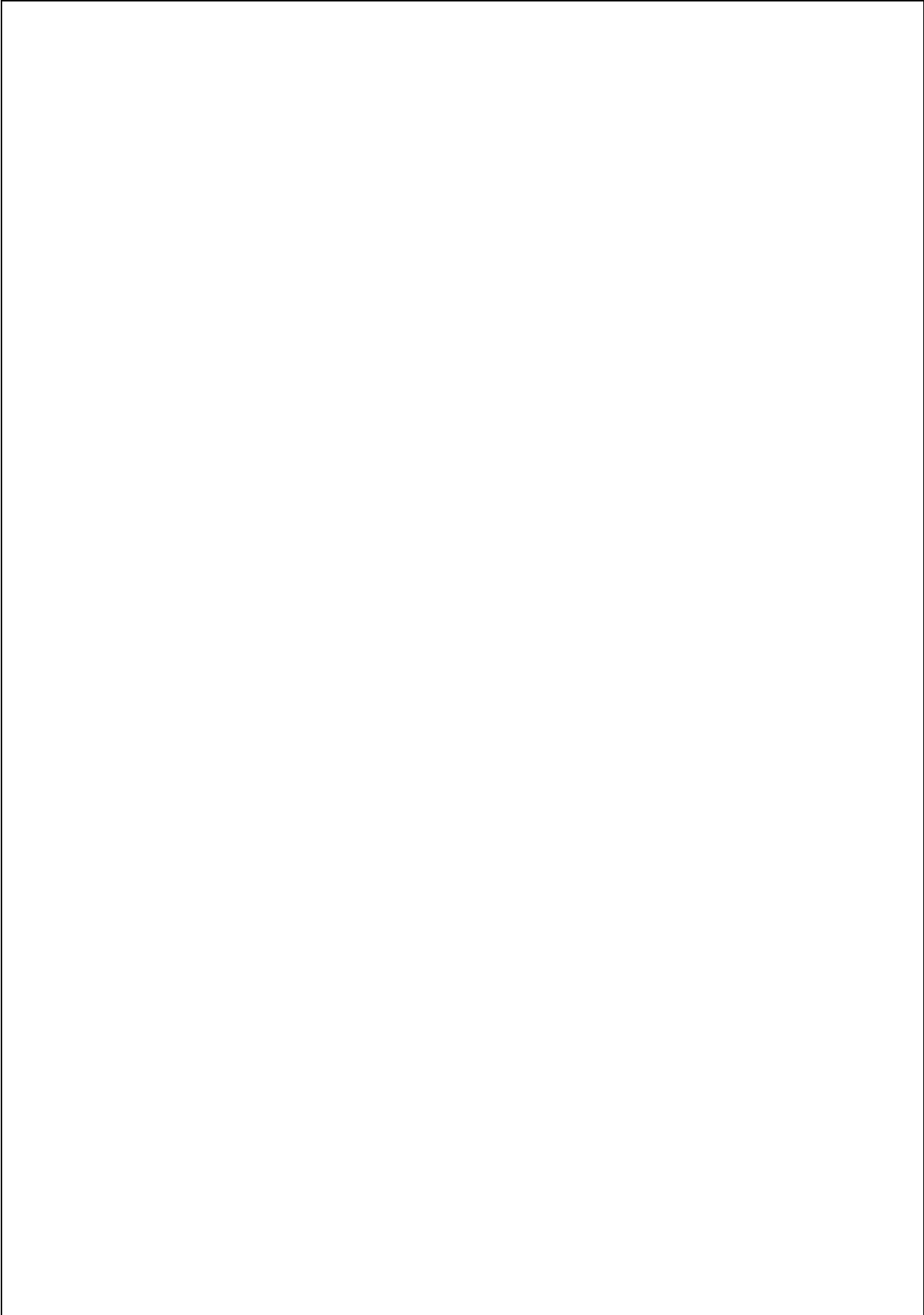
Additional working space for modified mobile website design:
Note: Further working space is provided on pages 42 and 43.



Additional working space for mobile website design or modified mobile website design, if required.

A large, empty rectangular box with a thin black border, occupying most of the page below the text. It is intended for mobile website design or modifications.

Additional working space for mobile website design or modified mobile website design, if required.

A large, empty rectangular box with a thin black border, occupying most of the page below the text. It is intended for a drawing or design related to the text above.

ACKNOWLEDGEMENTS

Question 29

- Part 1(b)** Adapted from: Inside Retailing Online. (2007). *PayPal brings m-commerce to Australia*. Retrieved April, 2010, from <http://www.insideretailing.com.au/Latest/tabid/53/ID/8431/PayPal-continues-Oz-growth.aspx>.
- Part 1(c)** News.com.au. (2010). [Screenshot from web page]. Retrieved January 12, 2010, from <http://www.news.com.au/>.
- News.com.au. (2010). [Screenshot of web page from mobile device]. Retrieved January 12, 2010, from <http://m.news.com.au/>.
- Part 2(b)** Images from: Anytime-Anywhere.com. (2010). [Screenshot from website]. Retrieved January, 2010, from <http://anytime-anywhere.com/>.

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