



Western Australian Certificate of Education Examination, 2015

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

Number of additional
answer booklets used:
(if applicable)

To be provided by the candidate

Standard items: pens (blue/black preferred), pencils (including coloured), sharpener,
correction fluid/tape, eraser, ruler, highlighters

Special items: nil

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 total exam
Section One: Multiple-choice	20	20	20	20	10
Section Two: Short answer	8	8	90	40	35
Extended answer	1	1		20	15
Section Three: Response/Production	1	1	70	62	40
				Total	100

Instructions to candidates

- The rules for the conduct of Western Australian external examinations are detailed in the *Year 12 Information Handbook 2015*. Sitting this examination implies that you agree to abide by these rules.
- 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, then shade your new answer. Do not erase or use correction fluid/tape. 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 and Three: Answer **all** questions. Write your answers in this Question/Answer Booklet.

- 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.
- 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 that you are continuing to answer at the top of the page.

See next page

Section One: Multiple-choice

10% (20 Marks)

This section has **20** 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, then shade your new answer. Do not erase or use correction fluid/tape. 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 purpose of a flow chart in project management is to
 - (a) establish contracts between project partners.
 - (b) capture the structure of information presented.
 - (c) elicit user requirements for the product.
 - (d) illustrate how the project will proceed.

2. Why should data be encrypted?
 - (a) to protect it against unauthorised access
 - (b) to transmit it across the internet
 - (c) to reduce its size
 - (d) to provide compatibility across different platforms

3. Which of the following hardware components is **least** necessary in order for a computer to function?
 - (a) the central processing unit
 - (b) the hard disk drive
 - (c) the random access memory
 - (d) the motherboard

4. For students in remote locations, a difficulty with online education is
 - (a) the physical distance from the teacher.
 - (b) having sufficient time to study.
 - (c) inadequate speed for real-time communication.
 - (d) malicious hacking of students' accounts.

5. The visual layout and appearance considerations of a web page are **most** relevant to its
 - (a) correctness.
 - (b) performance.
 - (c) usability.
 - (d) maintainability.

See next page

6. Which of the following features of a graphical user interface (GUI) promotes inclusivity for visually-impaired users?
- (a) the ability to run a program in the background
 - (b) the ability to open multiple windows
 - (c) the ability to reduce the size of a window
 - (d) the ability to change the size of an image
7. Many password systems allow a user a limited number of failed attempts before locking an account. How does this increase the security of the account?
- (a) It forces the user to create a simple password.
 - (b) It forces the user to think carefully before typing in the password.
 - (c) It limits the number of times the user can login to the account.
 - (d) It limits the opportunities for guessing a password.
8. Social networking sites have rules about posting other people's personal details. The types of posts that would be acceptable on most sites are images of or comments about other people that
- (a) are interesting and informative.
 - (b) damage their reputation.
 - (c) are considered to be gossip.
 - (d) have been altered to appear funny.
9. Which of the following image file types is commonly used for publishing raster images?
- (a) .gif
 - (b) .png
 - (c) .jpg
 - (d) .tif
10. 'Technological convergence' often refers to the integration of two or more technologies in a single device. The effect of this convergence is that, compared to the original devices, the new device
- (a) is smaller.
 - (b) is faster.
 - (c) performs similar tasks.
 - (d) performs more tasks.
11. An incremental backup system backs up files changed since the last
- (a) backup.
 - (b) full backup.
 - (c) user logon.
 - (d) system restart.

12. In multi-layer track recording of sound, each track records a separate
- (a) range of frequencies.
 - (b) instrument.
 - (c) group of instruments.
 - (d) source of any type.
13. A common way to make a large quantity of data available worldwide is to provide copies in various locations. Why would this be done?
- (a) to reduce the size of the hosting computer
 - (b) to improve access to the data
 - (c) to control transmission times to distant parts of the world
 - (d) to reduce the volume of traffic to be sent
14. To manage the security of data, an audit trail for a database records a number of details. Which of the following details would the audit trail **not** record?
- (a) who accessed the database
 - (b) why the database was accessed
 - (c) what data was accessed
 - (d) when the database was accessed
15. A digital signature, when included in an email message, consists of a user's
- (a) physical signature.
 - (b) alphanumeric password.
 - (c) personal mathematical key.
 - (d) biometric information.
16. Which of the following would be **most** useful in determining time on task in a project?
- (a) a Gantt chart
 - (b) a storyboard
 - (c) a site map
 - (d) a flow chart
17. One major impact of the use of Web 3.0 technologies would be to
- (a) enable search engines to handle more complex queries.
 - (b) facilitate the combination of data in different formats.
 - (c) reduce data volumes for mobile applications.
 - (d) provide redundancy in the storage of web pages.

18. When testing data for verifiability, you would check whether the data is
- (a) correct.
 - (b) useful.
 - (c) provable.
 - (d) comprehensible.
19. HyperText Markup Language (HTML) is used to
- (a) provide the styling of a website.
 - (b) provide the basic structure of a website.
 - (c) provide both the style and structure of a website.
 - (d) allow the user to interact with a website.
20. Compared with laptop or notebook computers, tablet devices generally have
- (a) larger screen size.
 - (b) more RAM.
 - (c) a thinner design.
 - (d) greater weight.

End of Section One

See next page

Section Two: Short and extended answer**50% (60 Marks)**

This section has **nine (9)** questions, **eight (8)** short answer questions worth 35% and **one (1)** extended answer question worth 15%. Answer **all** questions. Write your answers in the spaces 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.

- 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 that you are continuing to answer at the top of the page.

Suggested working time: 90 minutes.

Short Answer**35% (40 marks)****Question 21****(6 marks)**

A company is setting up an ICT system in which they plan to store all of their files on a server and access those files via up to ten other computers. The company has been advised to install a star network.

- (a) State **two** reasons why this network topology would be most suitable for the setup. (2 marks)

One: _____

Two: _____

- (b) Describe briefly **two** risks of using this network topology. (2 marks)

One: _____

Two: _____

- (c) The company requires a server to store large, commonly-used files. List **two** hardware specifications for this server. (2 marks)

One: _____

Two: _____

See next page

Question 22

(8 marks)

(a) Define 'data in the cloud'.

(2 marks)

(b) Identify and describe **three** advantages of storing data in the cloud.

(6 marks)

One: _____

Two: _____

Three: _____

Question 23

(8 marks)

(a) State the purpose of a service level agreement (SLA).

(2 marks)

(b) List **three** types of services that are commonly addressed in an SLA.

(3 marks)

One: _____

Two: _____

Three: _____

(c) With reference to an SLA, explain the term 'availability of service'.

(3 marks)

Question 24

(4 marks)

You have accessed a social networking site and observed a conversation thread in which people were making comments regarding a friend of yours. You believe that these comments constitute online defamation.

- (a) What is meant by 'online defamation'? (2 marks)

- (b) List **two** behaviours that are regarded as online defamation. (2 marks)

One: _____

Two: _____

Question 25

(3 marks)

How does a designer ensure the usability of a web page on a range of digital devices?

Question 26

(3 marks)

State the relationship between the elements of design and the principles of design.

Question 27

(2 marks)

'Freedom of information' refers to the ability to request access to specific types of information held by government agencies.

Give **two** examples of the types of information to which it applies.

One: _____

Two: _____

Question 28

(6 marks)

Benchmarking is a tool used to evaluate the usability and specifications of a computer.

- (a) With regard to computer hardware, describe briefly the process of benchmarking and explain its importance. (3 marks)

- (b) With regard to software vendors, describe the role of the benchmarking process. (3 marks)

Extended Answer

15% (20 marks)

Question 29

(20 marks)

The Home and Housing Property Group (HHPG) is a company that specialises in providing information to real estate agents.

One of its main functions is to supply subscriber agents with detailed histories of properties and their past and present owners and tenants. Agents can check out prospective tenants and determine a future rental or selling price that is based on the location of the property. HHPG stores its data in several secure databases.

HHPG stores details that include:

- whether a property is a house, unit or duplex
- a description of the property, such as brick/tile, weatherboard, single level, double storey, multi-level
- the size of the land parcel in square metres
- the size of the dwelling in square metres
- a list of past and present owners of the dwelling
- a price history of the property
- a list of past and present tenants
- rent paid throughout the life of the property
- a history of neighbourhood disputes
- details of tenant history
- details of tenants who damage property or owe money.

HHPG is interested in redeveloping its online presence and has approached a number of companies about providing a redesign brief for creating a modern online database that ensures confidentiality for agents, owners and tenants.

HHPG stores all of its relevant information on property rentals, owners and disputes in separate databases. HHPG's managers have heard of the concept of data warehouses but are unsure of the difference between a data mart and a data warehouse and how these could relate to their company.

- (a) Consider the list of details stored by HHPG. State **one** detail that is personal information and **one** detail that is sensitive information. (2 marks)

personal: _____

sensitive: _____

Question 29 (continued)

(b) (i) State what is meant by the term 'data mart'. (2 marks)

(ii) State what is meant by the term 'data warehouse'. (2 marks)

(c) HHPG decides to use a cloud-based data warehouse to store the detailed history of its properties. Provide **three** reasons to support this decision. (3 marks)

One: _____

Two: _____

Three: _____

- (d) With reference to data in the cloud, and considering the ethics of storing HHPG’s data, list **two** factors that need to be taken into account and explain why each factor is important. (8 marks)

One: _____

Explanation: _____

Two: _____

Explanation: _____

- (e) HHPG has concerns about the security of cloud-based data warehouses. List **three** ways by which HHPG can ensure the security of its data. (3 marks)

One: _____

Two: _____

Three: _____

End of Section Two

See next page

Section Three: Response/Production

40% (62 Marks)

This section contains **one (1)** question. Write your answers in the spaces 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.

- 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 that you are continuing to answer at the top of the page.

Suggested working time: 70 minutes.

Question 30

(62 marks)

Mary Smith is an artist who prints images of Australian animals, on a range of plates, cups and tea towels and sells them to locals and tourists. Her unique cartoon style images are in demand worldwide. Mary is keen to expand the range of products to meet the needs of her target audience and has begun to explore the use of a website to advertise her new product lines and enable customers to purchase them online.

Her easily-identifiable logo, which appears on all products sold, is a stylised version of a blue and gold kangaroo.

Mary has approached you to create a design brief and annotated layout to indicate how the website will reflect her target audience and product range, and allow her to sell her products online.

- (a) Identify **two** possible target audiences for this website. For each, state **one** feature or characteristic that will influence the website's structure and design. Give **one** example of how you intend to address that feature or characteristic. (6 marks)

Audience: _____

Feature/characteristic: _____

Example: _____

Audience: _____

Feature/characteristic: _____

Example: _____

- (b) When designing the user interface, you plan to include help features that will enhance the inclusivity of Mary's website. Name **two** features that you would include, and for each give **one** example of how you intend to use it. (4 marks)

Feature one: _____

Example: _____

Feature two: _____

Example: _____

Question 30 (continued)

- (c) When designing the user interface, you plan to include help features that will enhance the usability of Mary's website. Name **two** features that you would include, and for each give **one** example of how you intend to use it. (4 marks)

Feature one: _____

Example: _____

Feature two: _____

Example: _____

- (d) Mary wants to ensure that her website can be accessed using a range of new technologies. Outline what you would include on Mary's website to achieve this. (4 marks)

- (e) Mary is thrilled with the proposed design and layout for her website and has realised that the site needs to be maintained. She asks for your advice and you recommend the use of a content management system (CMS).

Define a CMS and provide Mary with **two** examples of how this will simplify the maintenance of her website. (3 marks)

Definition: _____

One: _____

Two: _____

- (f) Mary wants to be able to provide input and add regular updates to the design. What approach to the management of this project would be most suitable to accommodate Mary’s requirements? Justify your answer. (4 marks)

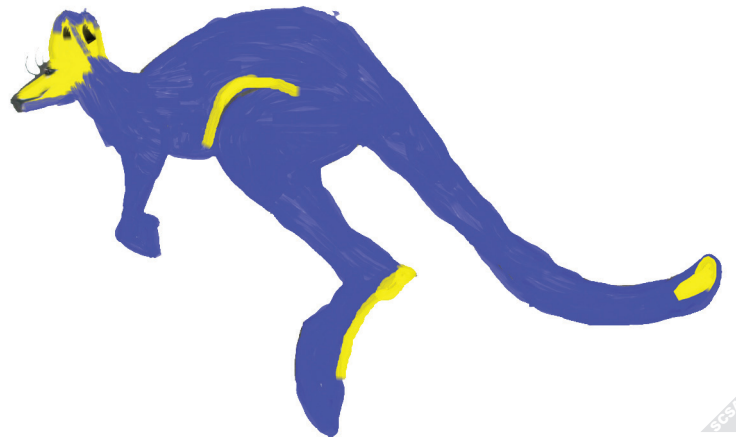
- (g) Name **one** functionality tool that would help Mary to understand the proposed web design. Outline briefly why you would use this tool. (4 marks)

- (h) Mary’s business relates specifically to her distinctive style of painting. Explain briefly **one** way in which Mary can protect her designs. (2 marks)

(Question 30 (continued))

(i) Mary is ready for you to create her new website and asks you to draft the initial design.

She requests that the **home page** includes her kangaroo logo.



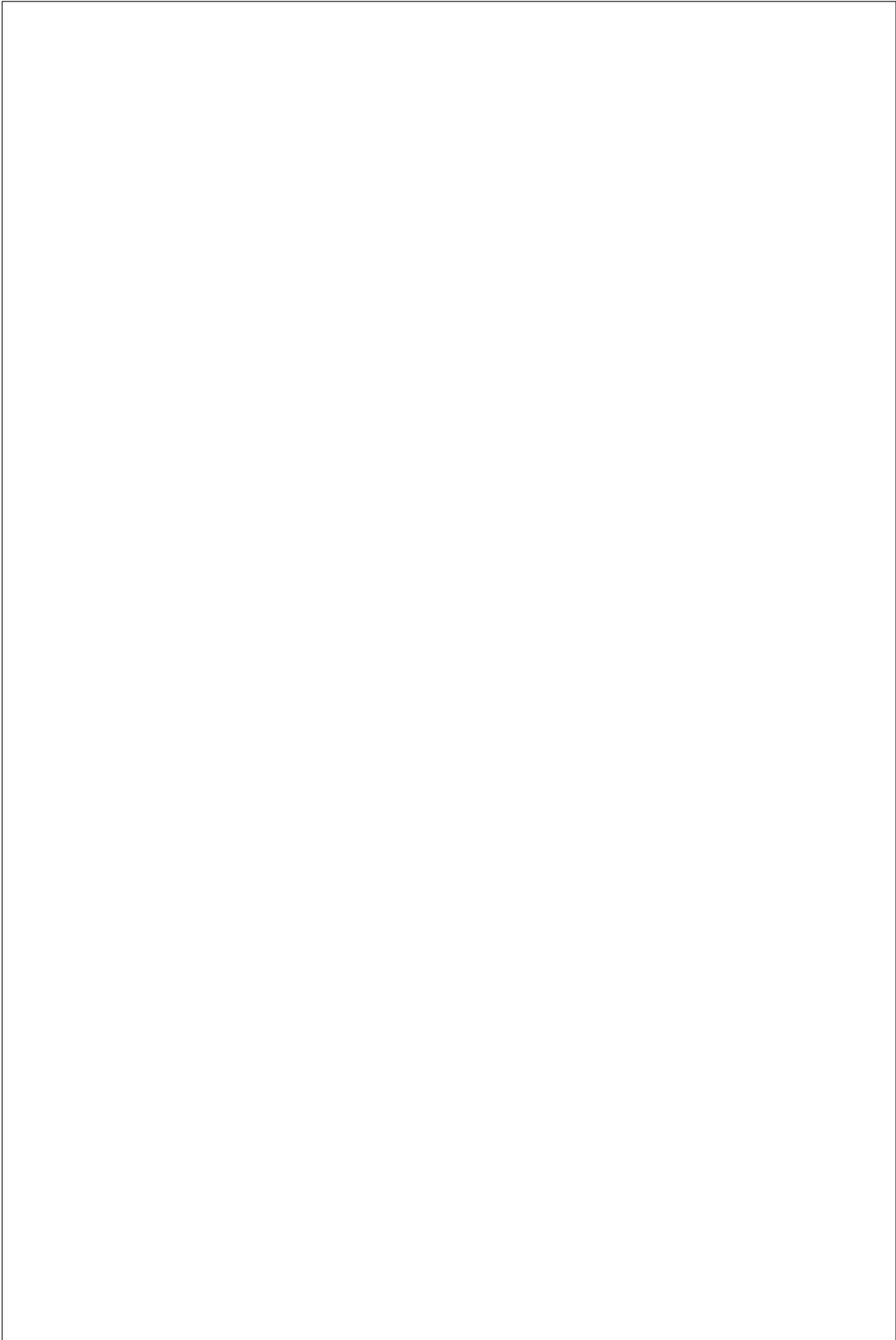
Design the **home page** in the space provided on page 21. You may use the planning space on page 26 for planning your response.

Make appropriate annotations to your design to demonstrate your understanding of the use of:

- an appropriate (e.g. wireframe) design that shows the layout and structure of your intended design (represent the position of the logo with a labelled box) (5 marks)
- the elements and principles of design and the relationship between them (4 marks)
- logical organisation of content (3 marks)
- user-generated content (e.g. contact forms, order forms) (2 marks)
- 'help' features and how these will assist the target audience/s (6 marks)
- features or tools that will enable the website to be accessed using new technologies. (2 marks)

Note: If you wish to make a second attempt, the work space is repeated on page 27 of this Question/Answer Booklet. Indicate clearly on page 27 if you have used the second work space and cancel the working on page 21.

See next page



See next page

Question 30 (continued)

- (j) Name **three** tools that Mary could use to evaluate the effectiveness of her website. For each, describe the tool and how Mary could use it to guide future changes to the website. (9 marks)

One: _____

Two: _____

Three: _____

End of questions

Planning space

A large, empty rectangular box with a thin black border, occupying most of the page below the text. It is intended for students to use for planning their work.

Additional working space



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