



Western Australian Certificate of Education Examination, 2013

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	6	6	35	30	15
Section Three: Extended answer	2	2	50	50	25
Section Four: Production	1	1	75	70	50
Total					100

Instructions to candidates

- The rules for the conduct of Western Australian external examinations are detailed in the *Year 12 Information Handbook 2013*. 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, Three and Four: Answer **all** questions. Write 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. What part of a computer stores data permanently?
 - (a) network interface card
 - (b) secondary storage
 - (c) CPU
 - (d) primary storage

2. In what units is the speed of a computer's processor expressed?
 - (a) Hertz
 - (b) Bytes
 - (c) Microns
 - (d) Bits

3. The development of operating systems has allowed the use of touch as an input method on various hardware devices. This is an example of
 - (a) haptic technology.
 - (b) human kinetics.
 - (c) robotic technology.
 - (d) mobile technology.

4. Approximately how many bits are there in a megabyte?
 - (a) 1 000
 - (b) 1 000 000
 - (c) 8 000
 - (d) 8 000 000

5. Forms on a website that allow users to communicate directly with a company are examples of
 - (a) data validation.
 - (b) data entry.
 - (c) data archiving.
 - (d) data mining.

See next page

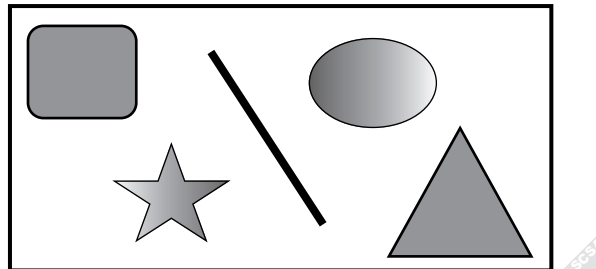
6. Colours are said to be contrasting if they are very

- (a) different in value.
- (b) high in value.
- (c) low in value.
- (d) intense in value.

7. The element of design that represents tactile qualities is

- (a) pattern.
- (b) unity.
- (c) texture.
- (d) shape.

8. Which **two** design principles have been used in the image below?



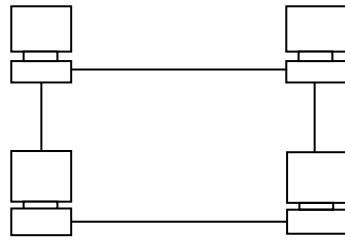
- (a) lines and texture
- (b) balance and shapes
- (c) contrast and repetition
- (d) unity and colour

9. Which of the following types of media would support the fastest transmission of large amounts of data between two adjacent buildings?

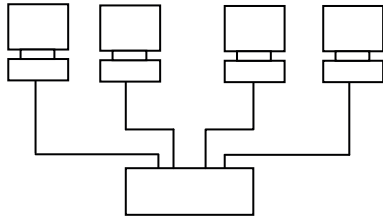
- (a) Bluetooth
- (b) coaxial
- (c) wireless
- (d) fibre optic

10. Which image below demonstrates a star network topology for a Local Area Network (LAN)?

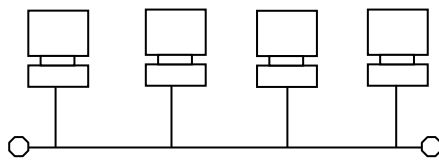
(a)



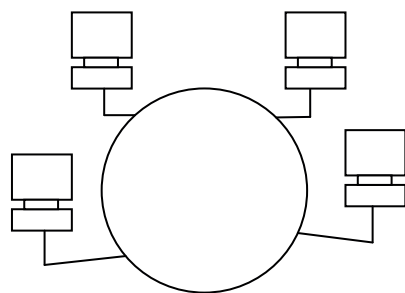
(b)



(c)



(d)



11. A database that indexes and stores data that is required for the analysis of historical and current transactions is known as a

- (a) data warehouse.
- (b) data mart.
- (c) data mine.
- (d) data house.

12. If you scan an image from a magazine of a rock group performing and place it on the web, you may infringe the
- (a) Privacy Act.
 - (b) Copyright Act.
 - (c) Piracy Act.
 - (d) Spam Act.
13. System maintenance is sometimes required when disk fragmentation occurs where
- (a) a hard drive is not working.
 - (b) a hard drive is not installed properly.
 - (c) the files on a hard drive are not accessible.
 - (d) the files on a hard drive are not stored contiguously.
14. Which one of the following file types is usually regarded as non-writeable?
- (a) .doc
 - (b) .txt
 - (c) .pdf
 - (d) .ppt
15. When manipulating an image, the aspect ratio is
- (a) dark- to light-coloured pixels.
 - (b) width to height.
 - (c) downloads to uploads.
 - (d) resolution to file size.
16. In graphic design, 'negative space' in an image refers to space
- (a) that is a dark colour.
 - (b) that is not currently being used.
 - (c) around or between objects.
 - (d) around the edge of the image.
17. A communications protocol is a
- (a) language defining how network messages should be formatted.
 - (b) manual stating how computers should be connected together.
 - (c) document detailing how emails should be structured.
 - (d) service agreement describing how to report computer problems.

18. When using 3D modelling software, 'rendering' is the process of
- (a) writing a program that generates images.
 - (b) generating a virtual model from a program.
 - (c) generating an image from a virtual model.
 - (d) displaying an image on a screen.
19. Which of the following is a biometric access control technique?
- (a) a username
 - (b) a password
 - (c) a fingerprint
 - (d) a PIN
20. Which row of data in the table below reflects accuracy but **not** currency?

Year	Country	Number of medals
2000	Australia	58
2004	USA	101
2008	China	100
2012	USA	104

- (a) USA won the most medals at the last Olympics.
- (b) China won the most medals at the last Olympics.
- (c) Australia won the most medals at the last Olympics.
- (d) USA has won the most medals over the past 12 years.

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 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.

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Suggested working time: 35 minutes.

Question 21

(4 marks)

List **four** Occupational Safety and Health (OSH) issues involved in using computers in the workplace.

Question 22

(4 marks)

For any industrial or commercial context, explain **two** ways in which ICT can improve the productivity of an organisation.

Question 23

(4 marks)

Explain **two** technical methods businesses use to provide internet censorship.

Question 24

(6 marks)

Name **two** ICT industry qualifications, the organisation that offers each qualification and the principal skill or knowledge gained by achieving each qualification.

Question 25

(6 marks)

- (a) Describe briefly **two** main hardware components of a system that enable it to offer faster graphic processing. (2 marks)

- (b) Name **two** specific types of applications that require faster graphic processing. (2 marks)

- (c) Modern computers offer faster graphics. What problem does this cause? How is it commonly solved? (2 marks)

Question 26

(6 marks)

- (a) Describe briefly how technology has allowed employees to work remotely. (2 marks)

- (b) Describe briefly the term 'video conferencing'. (2 marks)

- (c) Name **two** benefits that companies gain from using video conferencing. (2 marks)

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.

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: 50 minutes.

Question 27

(25 marks)

You have been asked to act as a consultant for a national advertising company, PerthNow, which is considering implementing a Bring Your Own Device (BYOD) program for its organisation. BYOD is a policy initiative that allows employees to bring to the workplace personally owned devices (usually mobile phones, tablet devices, laptops, PDAs). BYOD allows access to company ICT resources.

The Chief Executive Officer (CEO) of PerthNow has received several requests from employees, but his preliminary research suggests there is much to consider to ensure appropriate planning policies are in place to support the implementation of a BYOD program.

Currently PerthNow allows employees to access the internet and their email via their smartphones. However, employees are keen to choose their own devices, tablets, smartphones and have the cost reimbursed by the business.

PerthNow currently outsources its IT support and the provider is concerned about the security risks and its ability to support a BYOD program.

The CEO wants to be better informed and asks you the following questions to assist with his research.



- (a) Explain **three** advantages and **three** disadvantages of BYOD for both the employees and the employer, PerthNow. (12 marks)

Employee	Employer, PerthNow
Advantages	Advantages
One:	One:
Two:	Two:
Three:	Three:
Disadvantages	Disadvantages
One:	One:
Two:	Two:
Three:	Three:

Question 27 (continued)

- (b) List **four** ways in which PerthNow could protect its data in a BYOD environment. (4 marks)

- (c) Outline **three** issues PerthNow would need to include in its existing appropriate use policy to cover employees with BYO devices. (3 marks)

- (d) Outline **three** hardware capabilities PerthNow would require if it allowed employees access to BYO devices in the work environment. (3 marks)

- (e) Suggest **three** software applications that would be useful to an account sales executive working in a mobile environment for PerthNow. (3 marks)

Question 28

(25 marks)

A university conducts distance education services through which all programs are delivered and communication occurs online. The university provides access to a portal environment where staff and students can communicate via video, online chat, blogs and discussion boards. The university library provides access to e-books and electronic journals. Academic staff maintain a virtual classroom, providing material for each subject.

- (a) State **three** workstation provisions the university would need to make available to its staff to ensure appropriate occupational safety and health in the workplace. (3 marks)

- (b) Describe **three** new innovations that could enhance the university's provision of online learning. (6 marks)

Question 28 (continued)

- (c) Describe **three** issues that the university would need to address with its online system to ensure it met appropriate accessibility guidelines. (6 marks)

Staff members undertake compulsory training on their legal obligations for copyright, intellectual property and privacy legislation. This training includes the issues of copyright for educational purposes and the intellectual property rights for materials created by university staff.

- (d) For each of the following areas, list **two** issues the university needs to include in a professional development program. (6 marks)

Copyright:

Intellectual property:

Privacy:

- (e) Explain **two** ways the university could quality assure the subject material used by academic staff in virtual classrooms. (4 marks)

End of Section Three

See next page

Section Four: Production

50% (70 Marks)

There is **one (1)** question in this section. You must answer **all** parts of the question.

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Suggested working time: 75 minutes.

Question 29

(70 marks)

Talem is a charity organisation that supports homeless children in a Third World country by providing for their basic needs, such as food, clothing, education and housing. It is run by local volunteers and relies on funds provided by local companies and individuals to allow it to maintain its program. However, the number of children in need is growing. Currently its only medium of promotion is word of mouth and this limits opportunities for international support.

Your task is to create an ICT solution of your choice to promote Talem to an **international** audience.

Identify your preferred medium for your presentation.

- | | Standard website | Mobile website | Other | (no marks) |
|-----|--|----------------|-------|------------|
| (a) | Identify three goals that your promotional medium will achieve for Talem. | | | (3 marks) |

- (b) Describe briefly **five** characteristics of the target audience that will assist Talem to increase its resources. (5 marks)

- (c) Explain how the characteristics of the target audience will affect your choice of layout and navigation and use of media.

Layout: (2 marks)

Navigation: (2 marks)

Use of media: (2 marks)

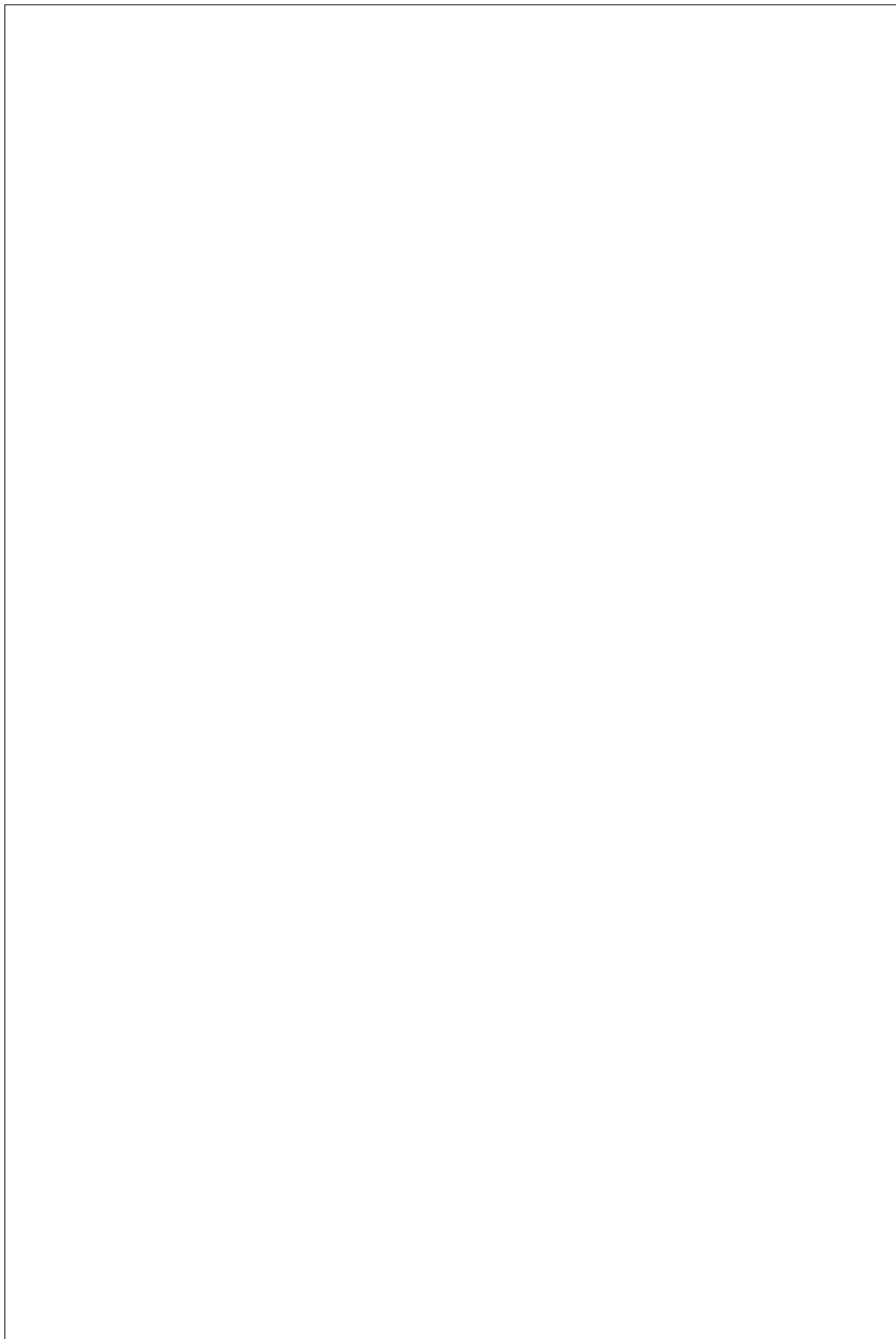
Question 29 (continued)

- (d) Given the nature and goals of Talem, list and justify **five** essential design features that you will need to include in the promotional medium. (10 marks)

(e) (i) Create the main page layout for your ICT solution for Talem in your chosen medium on pages 22 and 23. You need to ensure that the design will assist Talem to meet its goals and will be appropriate for its target audience. Using the framework provided, make detailed annotations on your design that refer to your identified target audience.

- Usability (2 marks)
- How the elements create the principles of design (6 marks)
- One emerging design trend (1 mark)
- Design features, as identified in part (d) (3 marks)
- Inclusivity (4 marks)

Question 29 (continued)



Note: Further working space is provided at the back of the Question/Answer Booklet.

See next page



Note: Further working space is provided at the back of the Question/Answer Booklet.

See next page

Question 29 (continued)

- (e) (ii) Explain **two** technical issues relating to data processing and transfer that you would need to consider.

One: (1 mark)

How can you overcome this issue? (2 marks)

Two: (1 mark)

How can you overcome this issue? (2 marks)

- (f) A website alone is unlikely to promote Talem successfully. Other marketing tools will be required to support it in reaching its goals.
 - (i) Explain **four** emerging ICT trends that Talem could use to increase audience awareness of the website. (8 marks)

Question 29 (continued)

- (ii) The president of the Australian Doctors Association is on Talem's board and has decided to utilise a forthcoming Australian medical conference to increase awareness of the organisation. He has hired a graphic designer to create an image to increase exposure to the ICT solution you have designed. This will be printed on the back cover of the conference booklet to encourage attendees to support Talem.

Annotate the image on page 27 to:

- identify the design principles applied and the underlying design elements (3 marks)
- identify how the image has been created specifically to attract the target audience. (2 marks)



You make miracles happen...

Join us and help other children like Amelie Rose

and so do we

TALEM
FOUNDATION

www.talem.com

See next page

Additional working space if required.

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Additional working space if required.

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ACKNOWLEDGEMENTS

Section Three

Question 27 ESET. (2012). *BYOD security is no LOL matter* [Image]. Retrieved March 25, 2013, from www.welivesecurity.com/2012/04/04/byod-infographic-for-security-not-a-pretty-picture/

Section Four

Question 29 (f) ii Photograph courtesy of Miladie Chia and examining panel.

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