



**Western Australian Certificate of Education
Examination, 2009
Question/answer booklet**

**APPLIED
INFORMATION
TECHNOLOGY**

**Written paper
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
- Production Booklet for Section Four

To be provided by the candidate

- Standard items: pens, pencils, eraser, correction fluid, 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 attempted	Suggested working time (minutes)	Marks available
Section One: Multiple-Choice	20	20	20	20
Section Two: Short Answer Questions	6	6	35	30
Section Three: Extended Answer Questions	2	2	50	50
Section Four: Production	1	1	75	100
Total marks				200

Instructions to candidates

1. The rules for the conduct of Western Australian external examinations are detailed in the *Year 12 Information Handbook 2009*. Sitting this examination implies that you agree to abide by these rules.
2. Section One: Answer all questions on the separate Multiple-Choice Answer Sheet. Use a blue or black pen or a B or 2B pencil.
3. Section Two and Section Three: Answer all questions in this Question/Answer Booklet.
4. Section Four: Answer all parts to this question in the separate Production Booklet.
5. Additional answer pages are provided in the back of this Question/Answer Booklet and the Production Booklet. If you need to use them, indicate in the original answer space where the answer is continued, e.g. write 'continued on page 22'.

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

Attempt all questions in this section. Each question is worth **one** mark.

Record an answer for questions 1–20 on the separate Multiple-Choice Answer Sheet using a blue or black pen or a B or 2B pencil.

If you make an error, follow the instruction given to you on the Multiple-Choice Answer Sheet.

Suggested working time for this section is 20 minutes.

1. A large corporation uses a data warehouse to assist with its strategic decision-making process. What is a data warehouse?
 - (a) A building used to house backup tapes from the corporation.
 - (b) A data store of historical trading transactions.
 - (c) A data store of many companies' trading transactions.
 - (d) A data store of the day's trading transactions.

2. A proposed network design requires transmission media with very high transfer rates and the longest possible transmission distance between repeaters/switches. Which of the following transmission media meets the proposed network requirements?
 - (a) Category 5 UTP
 - (b) Shielded coaxial cable
 - (c) Category 6e UTP
 - (d) Optic fibre

3. Identify from the following which network topology has a central hub/switch that connects all hosts and if it fails, the network will become inoperative.
 - (a) Star
 - (b) Bus
 - (c) Token ring
 - (d) Mesh

4. A new business wants to advertise as widely as possible. The business has decided to send an e-mail to every e-mail address it can obtain from the Internet. What Commonwealth legislation should the business be concerned with if it decides to proceed?
 - (a) Copyright Act
 - (b) Telecommunications Act
 - (c) Spam Act
 - (d) Fair usage

5. You have connected a USB external 1 terabyte hard drive and copied onto it all data from your desktop computer. How could you protect the data stored on the external hard drive from external threats?
- (a) Replace the external hard drive every year.
 - (b) Regularly run backup software to keep the data up to date.
 - (c) Regularly change the mapped drive letter on your desktop computer to the external hard drive.
 - (d) Regularly scan the external drive for any malware and store it in a safe place.
6. Why are design principles followed when developing multi-media products?
- (a) So that everyone uses the same standards.
 - (b) So that the file sizes are kept to a minimum.
 - (c) So as to create interesting and eye-catching products.
 - (d) So that files are kept to a minimum of three formats.
7. Encryption on data files is primarily done to
- (a) secure the data.
 - (b) reduce the file size.
 - (c) speed up transmission.
 - (d) speed up data retrieval.
8. When a computer file is moved over a network, the transfer time is independent of the
- (a) size of the file.
 - (b) technology used in the network hardware.
 - (c) level of security in the network.
 - (d) file type.
9. The image below demonstrates a principle of design.



This is the principle of

- (a) symmetry.
- (b) rhythm.
- (c) balance.
- (d) emphasis.

10. When a computer connects to the Internet, it requires an IP address. If a computer has a dynamic IP address, it can change whenever
- (a) the computer opens a new browser.
 - (b) the computer reconnects to the network.
 - (c) the computer downloads a web page.
 - (d) web pages stored on the computer are modified.
11. A password is required to contain 5–10 characters. The characters must include at least one upper-case letter, one lower-case letter, one number and one punctuation mark. Which of the following strings does not meet these requirements?
- (a) ABC1?
 - (b) Wales9-3NZ.
 - (c) Me&u2
 - (d) wr@nitE
12. The speeds of broadband Internet connections at home are often much lower than the Internet Service Providers' advertised figures. This may be a result of
- (a) varying quality of phone lines.
 - (b) varying distance from the telephone exchange.
 - (c) varying levels of contention in the network.
 - (d) all of the above.
13. The major organisation responsible for accrediting computer industry qualifications in Australia is
- (a) Engineers Australia.
 - (b) Australian Computer Society.
 - (c) Association for Computing Machinery.
 - (d) Australian Institute of Software Engineers.
14. You need to send a 2 megabyte file across a 500 kilobit per second network. If you compress the file by 50% before transmission, what is the minimum achievable transfer time?
- (a) 2 seconds
 - (b) 4 seconds
 - (c) 16 seconds
 - (d) 32 seconds
15. Haptic technology enables
- (a) users to interface with technology via touch.
 - (b) users to obtain tactile feedback from an interface.
 - (c) users to interface with the technology via voice recognition.
 - (d) users to touch and use verbal commands to interact with technology.

16. An interactive whiteboard operates as a
- (a) specialised peripheral device that uses sensing technology to track user interaction on a whiteboard screen surface.
 - (b) specialised peripheral device that allows the user to draw on the computer screen using their finger or a stylus.
 - (c) stylus-based interface that combines with a projector to create an interactive learning environment.
 - (d) GUI-based interface that projects onto a whiteboard so that users can interact with applications.
17. Occupational safety and health issues are prompting ICT developers to
- (a) include disclaimers on their products to avoid legal action in the event of user injury.
 - (b) warn distributors against selling their products to customers who are under 18 years of age.
 - (c) create products that advise users on the importance of safe and healthy work practices.
 - (d) include warnings, advice and disclaimers on their products about safety and health risks.
18. In computer-aided manufacturing, peripheral devices suitable for use in the production stage of the manufacturing process could be described as
- (a) hardware external to the computer that assists users to manufacture products.
 - (b) software that assists engineers and machinists to manufacture products.
 - (c) any input devices that assist engineers and machinists to manufacture products.
 - (d) software that controls hardware so that users can manufacture products.
19. Cross-website advertising refers to an emerging trend on the World Wide Web where
- (a) web site developers place the same advertisements on many different web pages on the same web site.
 - (b) two or more companies advertise each other's products and services on their web site.
 - (c) web page designers place advertisements opposite from each other on the same web page to achieve balanced design.
 - (d) web site developers create advertisements that can be viewed across different web browser software.
20. You wish to install a web cam so that you can have a two-way video connection and chat online with your friend. Which of the following type of Internet connection would provide both you and your friend with the best quality of video?
- (a) Dialup
 - (b) ISDN
 - (c) ADSL 2+
 - (d) Satellite

End of Section One

See next page

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Section Two: Short Answer

30 Marks

There are six questions in this section. Attempt all questions.

Write your answers in the spaces provided.

Suggested working time for this section is 35 minutes.

Question 1

(4 marks)

A search engine company has announced that in addition to providing client access to email, GPS tracking systems, satellite pictures and maps of the world, document sharing, messaging, videos and blogging, it will also store all of your data on their servers. The intention of this service is to remove the necessity for a large hard drive on your computer.

In addition, a software company is also promoting the use of their software online. Rather than purchasing, installing and maintaining software, users can download the required application when needed and pay for it according to the rate of use. The advantage of this service for users is that they can access, edit or send data wherever and whenever they want.

List and describe briefly two areas of concern with these online services.

Question 2

(5 marks)

A company has expanded over the last five years and as a result has a range of computer equipment that has been purchased over this period. The newly-appointed IT manager has decided that the company needs to introduce a Standard Operating Environment (SOE) in order to establish a standard set of hardware and software throughout the company.

- (a) The IT manager wants to do some benchmarking to determine what computer hardware is best suited to the company's expansion. What is meant by the term 'benchmark' in the context of computing? (1 mark)

- (b) Technicians have loaded an application from an old computer to a new SOE computer, but the application will not run. Provide one reason why the application will not run. (1 mark)

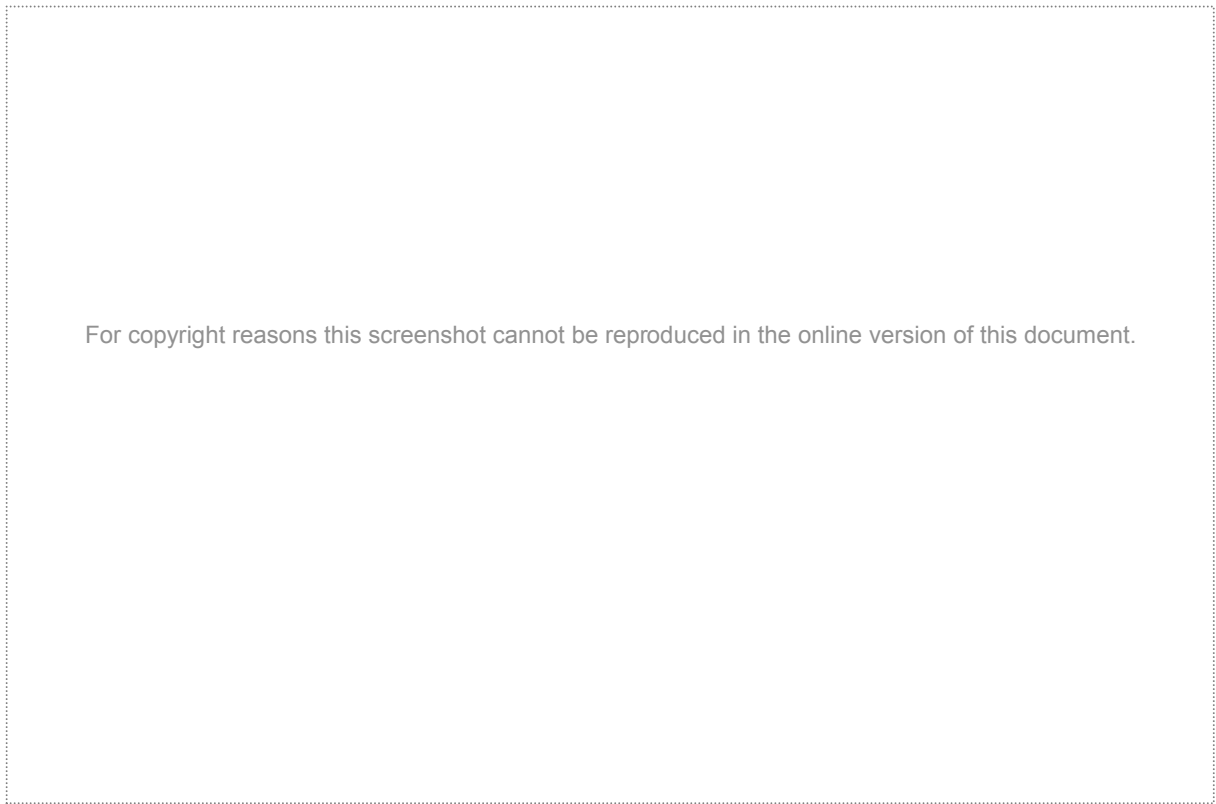
- (c) List two reasons why the company would want to standardise its hardware and software. (2 marks)

- (d) Describe one procedure to help maintain the efficient running of new SOE computers. (1 mark)

Question 3

(6 marks)

The image below shows part of Online Music Store's homepage.



In the image above, identify and justify three design features that promote usability.

Question 4

(5 marks)

Describe five strategies a business with extensive dependence on information communication technologies (ICT) could use to maintain employees' ICT skill levels.

Question 5

(4 marks)

Describe briefly four approaches a large organisation can adopt to provide secure access to shared computer files on a local area network connection to the World Wide Web.

Question 6

(6 marks)

When selecting software for a small or home office, a consumer is often presented with the choice of purchasing either proprietary licensed software (company developed) or open source software (community developed).

Describe and justify three selection criteria that would assist in the purchase of proprietary licensed or open-source software.

End of Section Two

See next page

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See next page

Section Three: Extended Answer

50 Marks

There are two questions in this section. Attempt **both** questions.

Write your answers in the spaces provided.

Suggested working time for this section is 35 minutes.

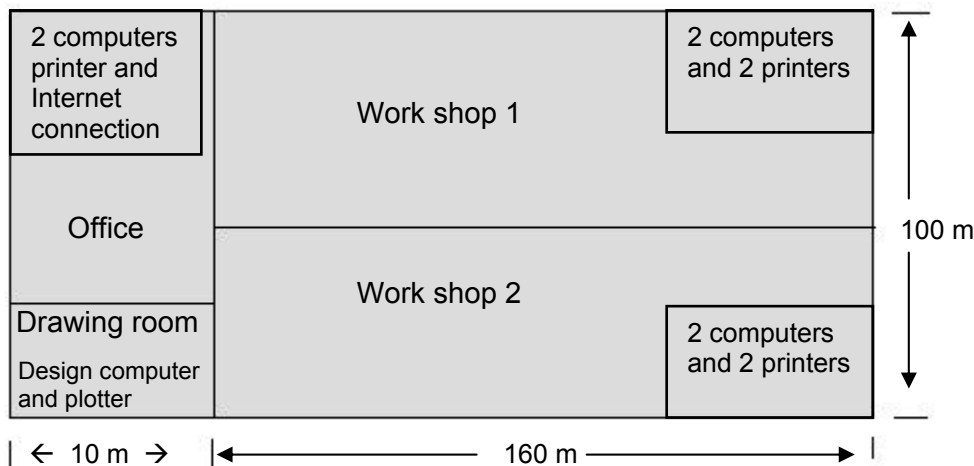
Question 1

(25 marks)

A sheet metal fabrication company called **SM Designs** makes a range of products to meet customer needs. The company uses non-networked computers extensively to

- store a collection of its plans and designs/products.
- store client contact information.
- manage financial records.
- draw new designs/plans for new and existing customers (CAD).
- control machinery through computer-aided manufacturing (CAM).
- maintain contact with customers and suppliers via the Internet.

A floor plan of the SM Designs factory is shown below.



The four computers and their respective printers used for computer-aided manufacturing (CAM) are located in the workshops. These computers and printers need to be mobile, as they are moved to where other, larger equipment is located. The computers are shielded against electro-magnetic interference produced by nearby welding equipment.

- (a) SM Designs has decided to network its computers. Using information shown in the floor plan, complete the following table, indicating what type of network media you would recommend and why. (8 marks)

Equipment	Recommended network media	Reason for recommendation
Office 2 x PCs 1 x Printer		
Drawing Room PC Plotter		
Work shop 1 2 x PCs 2 x Printers		
Work shop 2 2 x PCs 2 x Printers		

- (b) A server has been proposed for the network. List four of its functions. (4 marks)

- (c) List four precautions that need to be taken to protect the hardware once the installation of the server has been completed. (4 marks)

- (d) The data stored on the server will also need to be protected. Describe five processes and/or procedures that should be implemented to ensure data integrity. (5 marks)

SM Designs' factory is in a large industrial area where there are a number of businesses using wireless networks.

- (e) Describe four ways in which SM Designs could establish a secure wireless network in its factory that would prevent access by users who are not employed by the company. (4 marks)

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Question 2

(25 marks)

The University of Antarctica (UAnt) tries to provide a flexible workplace for its teaching staff, allowing them to perform many of their tasks remotely. However UAnt must constantly monitor its rules and policies to ensure that its facilities are being used responsibly and ethically.

- (a) UAnt has a policy that staff not be permitted to access confidential student records when off-campus. Discuss the potential problems this policy is intended to prevent.

(5 marks)

- (b) UAnt monitors its employees' use of email by filtering both incoming and outgoing messages and attachments. Discuss how this monitoring can affect the free exchange of ideas between researchers at UAnt and other universities.

(5 marks)

- (c) Discuss five network security issues that might restrict the university staff's ability to prepare teaching materials and mark students' work online at home. (10 marks)

(d) As the teaching staff at UAnt work primarily online, identify five ways in which the university can protect its staff from cyber-bullying. (5 marks)

End of Section Three

Complete Section Four in the separate Production Booklet.

Additional answer page:

See next page

ACKNOWLEDGEMENT

Section Two

Question 3: Image from: Kosmic Sound (Snapshot of Online Music Store's homepage
<http://www.onlinemusicstore.com.au>)

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