

APPLIED INFORMATION TECHNOLOGY

STAGE 3

REVISION QUESTIONS BOOKLET

This booklet contains questions for the following sections:

- Multiple Choice
- Short Answer
- Long Answer

(Information obtained from: Curriculum Council of WA Sample Exams 2008 & 2009; WACE Exam 2008; and EdWest Trial Exam 2008)

Table of Contents

MULTIPLE-CHOICE QUESTIONS	3
SHORT ANSWER QUESTIONS – GROUP 1	20
SHORT ANSWER QUESTIONS – GROUP 2	25
SHORT ANSWER QUESTIONS – GROUP 3	29
SHORT ANSWER QUESTIONS – GROUP 4 (2009 WACE Exam).....	33
EXTENDED ANSWER QUESTIONS SECTION – GROUP 1	39
SECTION THREE: EXTENDED ANSWER – GROUP 2.....	47
EXTENDED ANSWER QUESTIONS SECTION – GROUP 3.....	54
EXTENDED ANSWER QUESTIONS SECTION – GROUP 4 (2009 WACE Exam)	61

MULTIPLE-CHOICE QUESTIONS

In this section they generally allow 1 minute to answer each question and 1 mark per correct question

1. 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 they be concerned with if it decides to proceed?
 - a. Copyright Act
 - b. Telecommunications Act
 - c. Spam Act
 - d. Fair usage
2. You have received an email with the word [SPAM] attached to the subject of the message. What does SPAM indicate?
 - (a) The email contains a virus
 - (b) The email is from a company called SPAM
 - (c) The email cannot be opened
 - (d) The email is considered to be junk mail
3. A program that is placed on a computer without the user's knowledge and then collects information about that user is called?
 - (a) web bug
 - (a) spam
 - (a) trojan horse
 - (a) spyware
4. Which of the following does not replicate itself to other computers?
 - (a) virus
 - (b) worm
 - (c) Trojan horse
 - (d) none of the above
5. Which of the following would damage a computer program by infecting a program negatively without the user knowledge or permission?
 - (a) Spam
 - (b) Pop-up blocker
 - (c) Cracker
 - (d) Computer virus
6. 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

7. The operating system of a machine manages the allocation of resources such as memory. When the computer is put under pressure by the use of multiple pieces of application software, it uses _____ memory to allocate a portion of the Hard Disk Drive to function as additional RAM.
- (a) Virtual
 - (b) Dynamic
 - (c) Read
 - (d) Flash
8. The operating system is often referred to as the software environment or the
- (a) Network
 - (b) Platform
 - (c) Foot plate
 - (d) Desktop
9. What would be the recommended requirement of RAM for computer systems used in the photography industry?
- (a) 2 thousand bytes
 - (b) 2 million bytes
 - (c) 2 billion bytes
 - (d) 2 trillion bytes
10. The ability to insert and remove flash memory and other devices while the computer is running is called
- (a) Pack and Go
 - (b) Pick and Choose
 - (c) Plug and Play
 - (d) Park and Ride
11. Web pages are coded using
- (a) File transfer protocol
 - (b) American standard code for information interchange
 - (c) Hypertext Markup Language
 - (d) All of the above
12. Which of the following is a true statement about a database?
- (a) The records in one table may not relate to records in any other table.
 - (b) Each department or area within an organisation might have its own set of tables.
 - (c) Data is stored in separate tables so it is difficult to access and can be isolated.
 - (d) The data is stored in tables of related records.
13. A company wishes to upgrade the manual filing system that it uses to manage customer information, staff records, inventory and financial details. Which one of the following solutions would best suit the needs of the company?
- (a) Multiple flat file database system
 - (b) Multiple spreadsheets
 - (c) A document management system
 - (d) A relational database management system

14. A large corporation uses a data warehouse to assist with its strategic decision-making process. What is a data warehouse?
- A building used to house backup tapes for the corporation
 - A data store of historical trading transactions
 - A data store of many companies' trading transactions
 - A data store of the day's trading transactions
15. What two ports are replacing the traditional ports (parallel, serial, keyboard, mouse, audio, SCSI) in computers today?
- MIDI and Synthesiser
 - USB and FireWire
 - Firewall and EPort
 - Video and microphone
16. What medium will allow the highest transfer rate and capacity to carry data?
- UTP Coaxial 5 cable
 - Coaxial cable
 - UTP Category 3 cable
 - Fibre optic cable
17. A proposed network design that 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?
- Category 5 UTP
 - Shielded coaxial cable
 - Category 6e UTP
 - Optic fibre
18. What type of storage device is a thumb drive device?
- Tape
 - Magnetic
 - Optical
 - Flash Memory
19. Which one of the following is **not** a type of backup?
- differential
 - incremental
 - internal
 - full
20. You have a 25 gigabyte (25 GB) database containing current financial transactions of customers, of which less than 1% is changed each month. What type of backup regime would you use?
- daily
 - weekly
 - monthly
 - yearly

21. A student wants to choose a storage format for a photo story she has produced which has a file size of 900 000 kilo bytes. Which would be the most suitable storage medium?
- (a) Floppy Disk (1.44 MB)
 - (b) CD-RW (800 MB)
 - (c) DVD-R (4.7 GB)
 - (d) USB (Flash or Thumb) Drive (256 MB)
22. Which one of the following would be the most suitable medium for storing a large picture file that needs extensive processing?
- (a) Floppy drive
 - (b) SATA or SCSI drive
 - (c) DVD-R (4.7 GB)
 - (d) USB (Flash or Thumb) drive (256 Mb)
23. When capturing a video clip onto a computer, you notice that the video is being captured at a rate of 1 megabyte (1 Mb) for every second of video. The video is 10 minutes long. What storage device would be able to hold the captured video file?
- (a) 256 Mb
 - (b) 512 Mb
 - (c) 1 Gb
 - (d) 128 Mb
24. 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 achieve transfer time?
- a. 2 seconds
 - b. 4 seconds
 - c. 16 seconds
 - d. 32 seconds
25. One of your friends is a power user who runs 3D CAD and Animation software. Which of the following configurations would be an appropriate system for her?
- (a) 2.13 GHz Core 2 Duo processor, with 2 GB/DDR2 SDRAM
 - (b) 2.93 GHz Core 2 Extreme processor, with 4 GB/DDR2 SDRAM
 - (c) 2.20 GHz Athlon 64 X2 processor, with 1 GB/DDR2 SDRAM
 - (d) 2.00 GHz Sempron processor, with 512 MB/DDR SDRAM
26. Recent mobile phone technologies enable video, images and voice to be transmitted. Which one of the following technologies allows for this latest capability?
- (a) Bluetooth
 - (b) Wi-Fi
 - (c) Bandwidth
 - (d) Infrared
27. What is a disadvantage of digital convergence?
- (a) Digital products are very expensive to make.
 - (b) Digital versions of products degrade with use.
 - (c) Portability and transmission.
 - (d) Cost of upgrading computer hardware and software to meet the demands of new products.

28. On a network, the major difference between the server and client computers is that the server ordinarily has
- (a) less power, less storage space, and decreased communication capabilities
 - (b) less power, less storage space, but expanded communication capabilities
 - (c) more power, more storage space, but decreased communication capabilities
 - (d) more power, more storage space, and expanded communication capabilities
29. As illustrated in the diagram below a type of network on which users connect directly to each other's hard disks and exchange files is



- (a) LAN
 - (b) P2P
 - (c) WAN
 - (d) WiFi
30. The best way without cabling, to network computers throughout your home is through
- (a) DSL modem
 - (b) an ISDN modem
 - (c) a network card
 - (d) a wireless router
31. Which one of the following statements is true?
- (a) A hub is a device that connects and passes packets between two network segments that use different communication protocols
 - (b) ADSL stands for Asymmetric Digital Subscriber Line
 - (c) A router is a device that connects any number of servers
 - (d) A switch is a device used to provide connection between two different protocols
32. A good method of Internet web form data validation is so that
- (a) the server checks data to see if it fits a validation rule
 - (b) the server checks data to see if it complies with a valid format
 - (c) all fields are filled in and check that the data fit into a valid range
 - (d) data is prevented from being submitted to the server until it passes a range of client side validation tests
33. Which one of the following statements is **false**?
- (a) A bridge is a device that connects and passes packets between two network segments on the same network that use the same communication protocol.
 - (b) ISDN stands for Internet Services Digital Network.
 - (c) A router is a device that connects any number of LANs.
 - (d) A switch is a device used to provide connection to all devices on the network.

34. 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.
- Star
 - Bus
 - Token ring
 - Mesh
35. The amount of data, instructions and information that can travel over a communications channel is called
- Compression
 - Bandwidth
 - Resource availability
 - Transmission access
36. What part of a computer holds the data only temporarily?
- hard disk drive
 - central processing unit
 - primary storage
 - secondary storage
37. What part of a computer holds the data semi-permanently?
- hard disk drive
 - central processing unit
 - primary cache
 - secondary cache
38. A password is required to contain 5-10 characters. The characters must include at least one uppercase letter, lowercase letter, one number and one punctuation mark. Which of the following strings does not meet these requirements?
- ABC1?
 - Wales9-3NZ.
 - Me&u2
 - wr@nitE
39. Which one of the following methods is the **least** secure way of sending an email across the Internet?
- using a strong encryption
 - using a password to protect the contents
 - using the default settings for most common email clients
 - using a ciphertext
40. The effectiveness of securing data by using public-key encryption is based upon the difficulty of:
- intercepting electronic messages
 - guessing a user's password
 - translating between different data representations
 - factoring very large numbers
41. What is the most secure way to protect your digital data on the internet against unauthorised access?
- strong encryption
 - password protection
 - biometric device
 - computer lock

42. Encryption on data files is primarily done to
- Secure the data
 - Reduce the file size
 - Speed up transmission
 - Speed up data retrieval
43. Complete the sentence with one of the words below.
- A web site that uses _____ to secure its data is known as a secure site.
- hypertext
 - decryption
 - encryption
 - passwords
44. Which system would you recommend to a website developer who produces their own graphics?
- Dialup 56Kb, 512 MB RAM, 2.6 GHz processor, 20 GB Hard drive.
 - ADSL 512Kb/s, 2 GB RAM, Intel Duo Core 2.16 GHz, 80 GB Hard drive.
 - ADSL 512 Kb/s, 256 MB RAM, Dual AMD 2.01 GHz, 100 GB Hard drive.
 - Dialup 56Kb, 2GB RAM, AMD 2.01 GHz, 10 GB Hard drive.
45. The speeds of Internet connections at home are often much lower than the Internet Service Providers' advertised figures. This may be a result of
- varying quality of phone lines.
 - varying distance from the telephone exchange.
 - varying levels of contention in the network
 - all of the above.
46. 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 the best quality of video?
- Dialup
 - ISDN
 - ADSL 2+
 - Satellite
47. When online shopping, what is the name of the protocol that appears in the URL to indicate that data can be securely transmitted?
- SMTP
 - HTTPS
 - HTTP
 - HTML
48. If you accessed a website on the World Wide Web and https was in the URL address, what would it indicate to you about the site?
- Data can be securely transmitted
 - Data can be entered
 - Data can be validated
 - Data can be disposed of or archived

49. What would you use to ensure that only registered users gain access to a restricted area of a website?
- (a) Web browser
 - (b) Authentication
 - (c) Firewall
 - (d) Encryption
50. Computers have two formats for displaying and processing digital images. These two formats are:
- (a) HTML and HTTP
 - (b) Vector and raster
 - (c) Digital and analogue
 - (d) Digital and convergence
51. Web pages are coded using
- (a) File transfer protocol
 - (b) Tab delimited data
 - (c) Hypertext Markup Language
 - (d) Rich text format
52. What would you use to ensure that only registered users gain access to a restricted area of a website
- (a) Web browser
 - (b) User name and password
 - (c) Firewall
 - (d) Encryption and decryption
53. The internet is the backbone that connects various networks around the world on the Internet together. The series of numbers representing the a web address are known as:
- (a) URL
 - (b) HTTP
 - (c) IP address
 - (d) Domain name
54. When a computer connects to the Internet, it requires an address, known as 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.
55. The privacy Act is located at the following website address <http://www.comlaw.gov.au/Legislation/ActCompilation1.nsf>. The segment www.comlaw.gov.au is the
- (a) URL
 - (b) Hypertext transfer protocol
 - (c) Name of the resource file
 - (d) Domain name of the server containing the resource

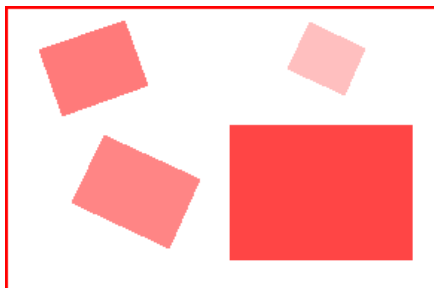
56. Using a form on a website is an example of
- (a) data security
 - (b) data entry
 - (c) validation
 - (d) disposal/archiving
57. Cross-web site advertising refers to an emerging trend on the World Wide Web where
- a. website developers place the same advertisements on many different web pages on 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
58. What are the most important criteria you would use when evaluating an internet information source?
- (a) Editorial style of the website, number of hits, look of site
 - (b) Identifiable author, currency of information, editorial style
 - (c) Identifiable author, number of hits, look of site
 - (d) Look of site, identifiable author, currency of information
59. You have a raw image of a product and you are investigating the relationship between image sizes and file formats for your website. You are keen to ensure that download speeds are maximised so your end users are not left frustrated by lagging. However you also do not want to compromise quality. Which of the following sequences of file formats represent the file size of your image from smallest through to the largest?
- (a) .bmp, .tiff, .jpeg, .png
 - (b) .gif, .bmp, .tiff, .jpeg
 - (c) .tiff, .bmp, .jpeg, .gif
 - (d) .gif, .png, .jpeg, .tiff
60. Which one of the following is not used by vector-drawn objects?
- (a) Lines
 - (b) Circles
 - (c) Polygons
 - (d) Photographs
61. Which of the following is true regarding lossy compression and lossless compression?
- (a) With lossless compression the original data is restored when the file is open
 - (b) With lossy compression the original data is restored when the file is open
 - (c) GIF and PNG graphic file formats are both lossy methods of data compression
 - (d) The JPEG format is a lossless method of data compression

62. If a designer wanted to email a colleague some sample designs for review, what should she do to her graphic files?
(Alternate question with same options and answer: You do a lot of work from home and send documents to and from work by email. Your Internet Service Provider has warned you that there is a limit on the size of email file attachments. What should you do to a file you intend to email that exceeds the file size limit?)
- (a) Compress the file in a .zip format
 - (b) Encrypt the file in 8 bit format
 - (c) Compress the file as a .tiff (tif)
 - (d) Send the file in a raw file format
63. 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
64. A designer wanted to save a colour photograph so that it had the highest possible quality with the lowest possible file size. Which would be the most appropriate file format?
- (a) jpeg (jpg)
 - (b) bmp (pict)
 - (c) gif (gif)
 - (d) tiff (tif)
65. A photographer has been asked to supply a colour photograph in digital format to a graphic artist for inclusion in a magazine layout. In this instance which format should **not** be used?
- (a) PNG
 - (b) bmp (pct)
 - (c) gif
 - (d) tiff (tif)
66. Which one of the following file formats allows for transparency once exported?
- (a) jpeg (jpg)
 - (b) gif (gif)
 - (c) bmp (pict)
 - (d) tiff (tif)
67. What is the study of ergonomics?
- (a) It is the equal rights of all people to have access to Information and Communication Technology (ICT)
 - (b) The ability of an individual to control their personal data
 - (c) The right to control the production and reproduction of work
 - (d) It is the relationship between machines and the people who use them
68. The correct acronym to describe an injury or disorder of the muscles, nerves, tendons, ligaments, and joints acquired due to the nature of a person's work or the manner in which they are performing it is
- (a) OOS
 - (b) RSI
 - (c) ISP
 - (d) PGP

69. If employees find themselves in an unsafe work environment, what category of Federal and State government legislation covers this situation?
- (a) Freedom of Information
 - (b) Telecommunications Privacy
 - (c) Workplace Relations
 - (d) Occupational Safety and Health
70. The letters OHS refer to an Act of Parliament. The letters stand for:
- (a) Overuse and Health Syndrome
 - (b) Occupational Health and Safety
 - (c) Occupational Heart and Safety
 - (d) Overweight and Health Syndrome
71. What is the principal ergonomic problem with notebook computers?
- (a) Processors are too slow
 - (b) Monitors are too small
 - (c) Keyboards are too small
 - (d) Monitors and keyboards cannot be physically separated
72. Employers aim to provide optimum work conditions to ensure greater work efficiency and ensure employee comfort. Consultants were asked to submit four recommendations to reduce eye fatigue. Which one of the following recommendations would be the most effective to reduce eye fatigue?
- (a) Regular breaks and eye exercises, ergonomic workstation design, limit monitor glare and reflection, 19" LCD monitor
 - (b) Regular breaks and eye exercises, ergonomic workstation design, limit monitor glare and reflection, 19" CRT monitor
 - (c) Regular breaks and eye exercises, ergonomic workstation design, fluorescent lighting, 19" monitor
 - (d) Two minutes break every 30 minutes, ergonomic workstation design, natural lighting, plasma screen
73. 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. including warnings, advice and disclaimers on their products about safety and health risks.
74. What is NOT a form of intellectual property rights?
- (a) Patent
 - (b) Plagiarism
 - (c) Registered designs
 - (d) Trademarks

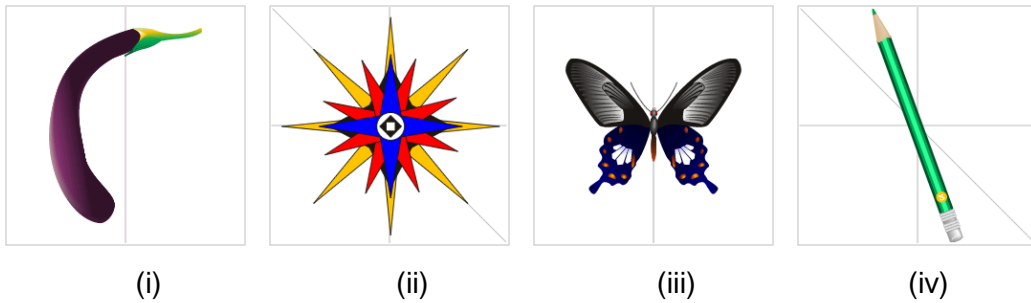
**Image one****Image two****Image three****Image four**

75. Which one of the images above demonstrates the basic design principle of repetition?
- (a) Image one
 - (b) Image two
 - (c) Image three
 - (d) Image four



76. The above two images demonstrate a principle of design. This is the principle of
- (a) symmetry
 - (b) repetition
 - (c) balance
 - (d) emphasis

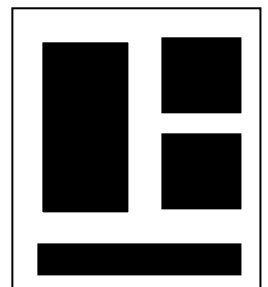
77. Balance is a design principle. There are three different types of balance when using colour, shape and position. Which of the following display asymmetrical balance?



- (a) (i) and (ii)
- (b) (ii) and (iii)
- (c) (iii) and (iv)
- (d) (iv) and (i)

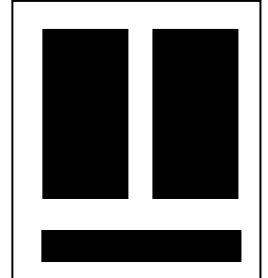
78. This image demonstrates the basic design principle of:

- (a) unity
- (b) balance
- (c) rhythm
- (d) scale



79. This image demonstrates a principle of design. This principle of

- (a) symmetry
- (b) repetition
- (c) rhythm
- (d) emphasis



80. Why are design principles followed when developing 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

81. The image below demonstrates a principle of design



This is the principle of

- a. Symmetry
- b. Rhythm
- c. Balance
- d. emphasis

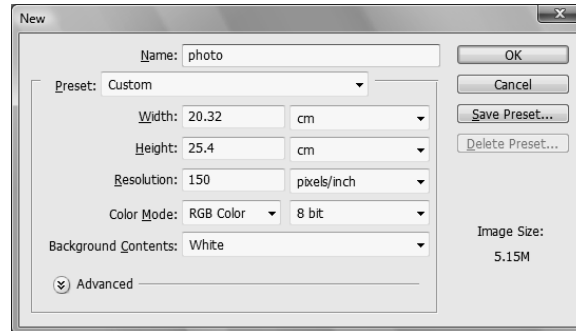
82. The Australian Federal Government has recognised the need to protect consumer interest by passing legislation to enable CD owners to copy recorded music they own so that it can be played on their own MP3 devices.

What is the correct term used in the Australian Copyright Act of 1968 to describe this practise?

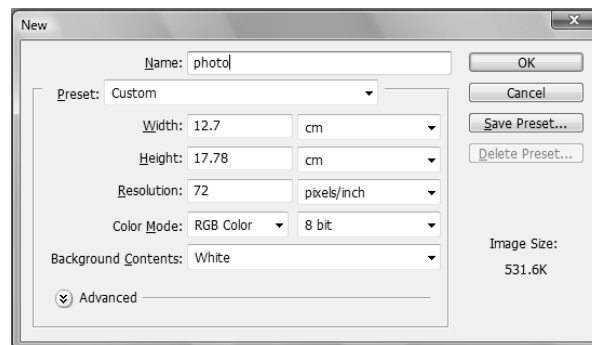
- (a) Common Use
 - (b) APRA Licence
 - (c) Fair Dealing
 - (d) Public Domain
83. What Federal Government Act provides an employer the opportunity to observe his employees' 'work related' productivity?
- (a) Freedom of Information Act
 - (b) Privacy Act
 - (c) Workplace Relations Act
 - (d) Public Works Act
84. 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
85. In a typical IT department, what job title oversees Web site performance and maintains links between a company's Web server and Internet access provider?
- (e) Web administrator
 - (f) Web developer
 - (g) Web graphic designer
 - (h) Web programmer
86. What type of storage device is a thumb drive device?
- (a) Tape
 - (b) Magnetic
 - (c) Optical
 - (d) Flash Memory
87. What is the name of the memory area where data such as text and images is temporarily stored when you cut or copy within an application?
- (a) Clipboard
 - (b) Notebook
 - (c) ROM
 - (d) Flash memory

88. A publicity officer employs a photographer to take some promotional photographs at a product launch. As the photos need to be used in various screen and print publications, the following screen shots show characteristics of differing file formats. Which one of the following formats should the publicity officer choose to receive the photos for maximum versatility?

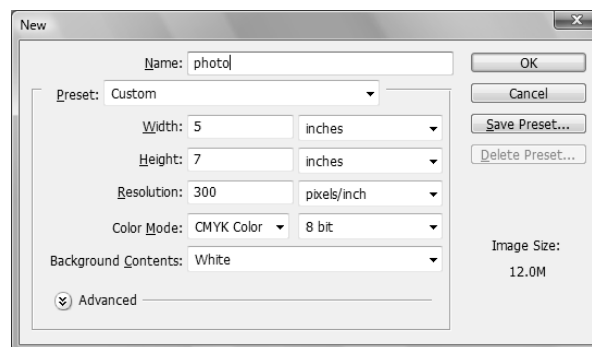
(a)



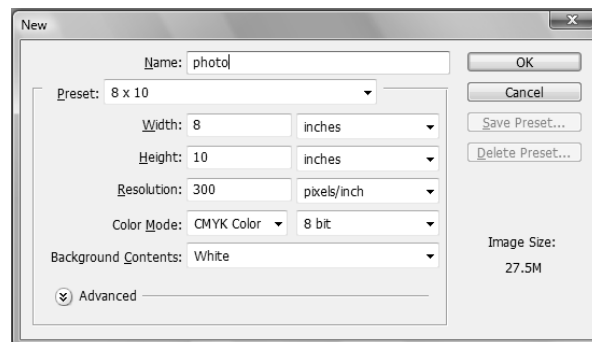
(b)



(c)



(d)



89. 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
90. 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 the users can manufacture products
91. A company wishes to upgrade the manual filing system that it uses to manage customer information, staff records, inventory and financial details. Which one of the following solutions would best suit the needs of the company?
- (a) Multiple flat file database system
 - (b) Multiple spreadsheets
 - (c) A document management system
 - (d) A relational database management system
92. Haptic technology enables
- (a) users to interface with the 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
93. The key attributes of open source software are that
- (a) software is free, maintenance is provided, modifications are allowed
 - (b) software is free, source is included, correctness is guaranteed
 - (c) source is included, redistribution is unrestricted, modifications are allowed
 - (d) correctness is guaranteed, maintenance is provided, redistribution is unrestricted
94. Running multiple applications simultaneously on a single processor computer is known as:
- (a) multicomputing
 - (b) multiprogramming
 - (c) multiprocessing
 - (d) pipelining
95. You are about to publish samples of your work on a website but are worried that you might be accused of plagiarism. What should you have done whilst you were producing your work to ensure that you are not accused of plagiarism?
- (a) Copyrighted your work
 - (b) Not copyrighted your work
 - (c) Copied, paraphrased or summarised, with appropriate acknowledgement
 - (d) Copied, paraphrased or summarised, without appropriate acknowledgement

STAGE 3 APPLIED INFORMATION TECHNOLOGY

SHORT ANSWERS SECTION

SHORT ANSWER QUESTIONS – GROUP 1**Question 1:**

StarFit is a small company of 10 employees. You have been asked by the company to write a legal disclaimer to be included at the bottom of all emails

- (a) Explain why StarFit feels it is necessary to adopt a policy that staff must include a legal disclaimer on all company emails. (2 marks)

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- (b) Effective communication for StarFit is vital for the business. How might the use of email impact positively or negatively on the way staff communicate with clients and colleagues? Identify three impacts and explain their consequences. (3 marks)

Impact One:

Consequence:

.....

Impact Two:

Consequence:

.....

Impact Three:

Consequence:

.....

Question 2:

Manufacturers are converging numerous technologies into single hand held devices.

This trend is having an impact on many areas of society.

- (a) Give two examples of existing information communication technologies that can be found in hand held devices. (2 marks)

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- (b) Explain one impact convergence is having on each of the three areas listed below (3 marks)

Individuals:

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Communities:

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The Environment:

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Question 3:

You have decided to become a games programmer and have set up your own business. You have a very small budget and costs associated with software must be considered carefully. You have investigated the cost of proprietary software as well as open source software.

Fill out the table below in order to compare the stated attributes of proprietary software with open source software.

(5 marks)

	Proprietary	Open source software
Definition		
Example		
Vendor support		

Question 4:

An organisation accesses multimedia via the Internet. Name and outline the purpose of three types of hardware and two types of software that the organisation is likely to install and use when connecting its computers to the Internet.

(5 marks)

Hardware

- (i)
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- (ii)
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- (iii)
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Software

- (i).....
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- (ii)
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Question 5:

- (a) Explain what **problem-solving methodology** means in the context of Information Communication Technology (ICT) (5 marks)
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- (b) Describe briefly two Information Communication Technology (ICT) skills that employers would value in an employee and justify your answers. (4 marks)

ICT Skill One:
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Justification:
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ICT Skill Two:
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Justification:

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Question 6:

- (a) Explain the term **information processing cycle**. (2 marks)

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- (b) Describe briefly three major difficulties when applying the information processing cycle in an industry context. Clearly identify the industry context you are referring to in your answer. (3 marks)

- (i)

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- (ii)

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- (iii)

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SHORT ANSWER QUESTIONS – GROUP 2**Question 1****(4 marks)**

You have been asked to configure a laptop, for a colleague at work, which is capable of accessing the Internet, the company's portal and email services from places other than his office.

Explain the technologies available to enable this access.

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Question 2**(4 marks)**

You have been requested to advise the manager of Wendy's Works, a printing business with 10 networked computers, of the on-going maintenance required to keep the computers, its devices and software operating efficiently. Discuss **TWO** maintenance-type tasks that utility programs perform.

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Question 3**(6 marks)**

As ICT manager you have been tasked with informing new employees about the rules regarding the use of ICT in the office. Discuss what practices should be considered regarding the following acts:

(a) Privacy Act

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(b) Copyright Act

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(c) Spam Act

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Question 4**(3 marks)**

Employers have a legal responsibility to provide a safe and healthy workplace for employees. List THREE ways that an employer can assist to help prevent Occupational Overuse Syndrome.

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Question 5**(5 marks)**

You work for a business that lays water pipes in regional communities and often have workers travelling a long way off major roads. You have been asked to provide a technology solution that will enable management to track vehicle movements. You are considering installing a Global Positioning System (GPS) that is networked to various managers' computers showing where the vehicles are at all times.

Although you consider your technical solution to be very sound many of the employees are uneasy with underlying comments "Big Brother is Watching".

- (a) Discuss 2 advantages and 2 disadvantages of installing such a device. (4 marks)

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- (b) Suggest one way where this technology could be successfully implemented with the support of the employees. (1 mark)

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Question 6**(8 marks)**

The Maintenance and Repairs Solutions office located in Joondalup currently have 8 stand-alone workstations with no Internet access. You have been asked to make recommendations regarding what changes can be implemented to make the office more environmentally friendly. You as the ICT manager have been tasked with making recommendations in two areas:

- (a) Name **three** hardware devices **and three** software programs that would be required to enable the paperless office? (6 marks)

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- (b) Part of the business includes a division that provides maintenance repairs to Perth schools. Currently all the employees meet at the Joondalup office, receive their daily job lists and then travel North or South to the schools to carry out the maintenance. Discuss and recommend TWO digital solutions that could be employed to limit travel between the workers' homes, head office and destinations. Your solution is to incorporate digitally converging technologies. (2 marks)

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SHORT ANSWER QUESTIONS – GROUP 3**Question 1:**

We live in a society that is increasingly dependent on online services, such as purchasing groceries, banking, selling items, meeting people, entertainment and working out how to get somewhere.

What positive impact does the dependence on online services have on society? Provide an example to justify your response. (2 marks)

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Question 2

A multimedia web authoring business has asked you to investigate and compare the operating systems of MS windows and MacOS as they are currently considering upgrading their current computer systems.

Evaluate the strengths and weaknesses of both operating systems in relation to its intended audience and make a recommendation based on your findings. (5 marks)

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Question 3:

A research company has been contracted by a retirement village to conduct a study in preparation for creating a website for its residents and potential clients. An excerpt from the study is provided below.

The research company formed two groups. The members of the first group were senior citizens, had an age structure of 65 years plus, while the second group, the control group had an age structure of 21 – 55 years. Both groups require to perform the following:

- Task One: Fact-finding on the internet
- Task Two: Buying an item online
- Task Three: Retrieving information from the internet
- Task Four: Comparing and contrasting websites of a similar nature.

The following table shows selected measurements of four usability attributes averaged across the four tasks.

	Seniors (65+ Years)	Control Group (21 – 55)
Success Rate (Task completed correctly)	52.99%	80.2%
Time on Task (min:sec)	12:33	9.3
Errors (incorrect actions per task)	8.3	0.8

(a) Explain why the control group is necessary in a study of this nature. (1 mark)

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- (b) The research company is preparing to present a report to the retirement village on its findings. What two significant conclusions can be drawn about possible features that the retirement village should include on their website? Explain the reasons for your conclusions. (3 marks)

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- (c) Review the three tasks, which were performed by the two groups. Suggest an additional task that the two groups could perform in order to improve the information that the research company would provide to the retirement village. Explain what your task is designed to evaluate and give your reasons as to why it may be relevant. (4 marks)

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Question 4:**(5 marks)**

How could a business with a broadband internet connection use this technology to improve its communication with clients, increase its productivity and establish a more efficient production processes? Use a detailed example to describe how a business could achieve this.

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SHORT ANSWER QUESTIONS – GROUP 4 (2009 WACE Exam)**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

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Question 2

(5 marks)

(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)

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(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)

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

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

(1 mark)

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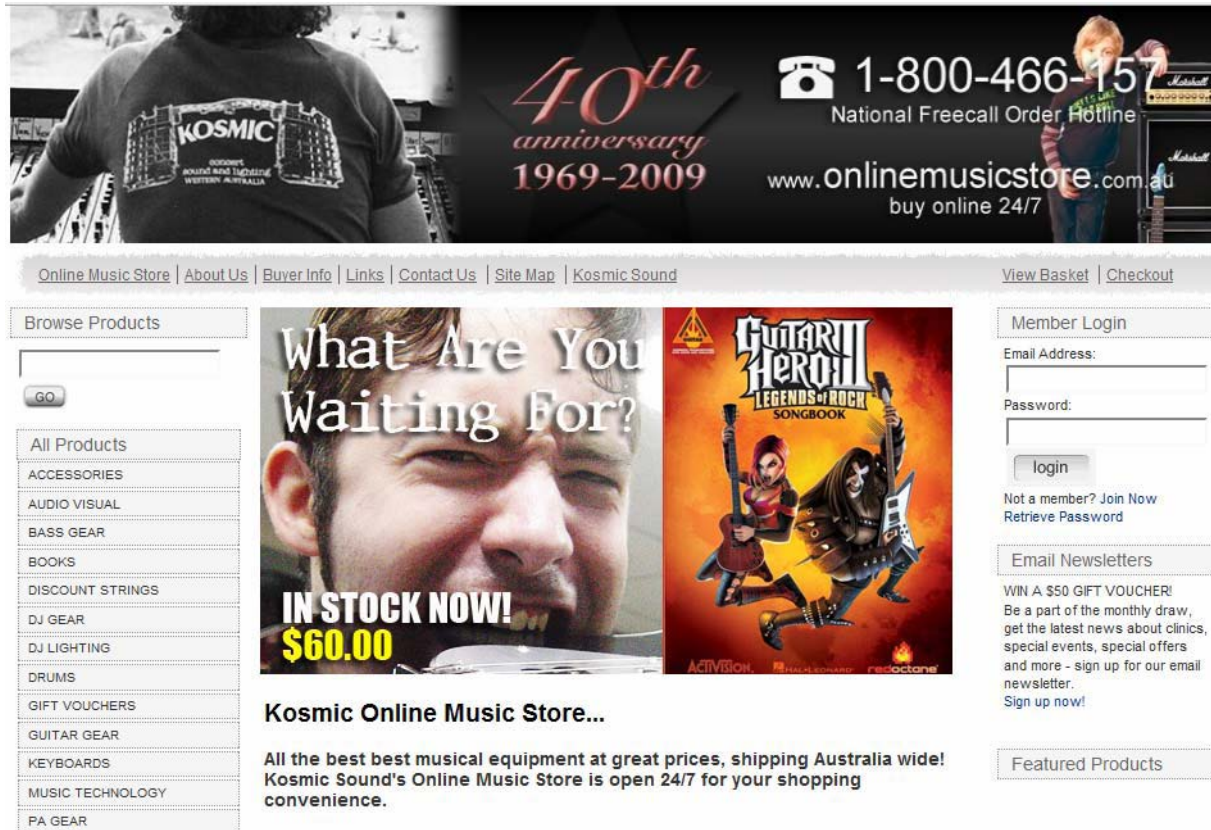
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Question 3:

(6 marks)

The image below parts of the Online Music Store's homepage.



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

This image shows a full page of white paper with horizontal dashed lines, typical of primary school handwriting practice paper. The lines are evenly spaced and run across the entire width of the page. There are no margins, text, or other markings present.

Question 4**(5 marks)**

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

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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.

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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.

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STAGE 3 APPLIED INFORMATION TECHNOLOGY

EXTENDED ANSWERS SECTION

EXTENDED ANSWER QUESTIONS SECTION – GROUP 1

In this section of the exam you will be given two questions to answer each containing a number of parts; they will be worth 25 marks each.

Question 1

Read the article below and answer the questions that follow.

Turn a smart phone into a Wi-Fi hot spot

Yardena Arar

26 March 2008

Got a 3G smart phone with Wi-Fi? Then you might soon be able to use it as a Wi-Fi hotspot for connecting your notebook or any other Wi-Fi enabled device to the internet.

North Carolina-based TapRoot Systems announced its WalkingHotSpot software, designed to effectively turn a Wi-Fi and a mobile broadband-enabled handset into a Wi-Fi router. At launch, 'WalkingHotSpot will be available only for Windows Mobile and Symbian Series 60 small phones, TapRoot CEO Bob Bickster said.

'A free demo version will be available for individuals to download from TapRoot's website', said Bicksler, 'however, the demo will only support one Wi-Fi connection at a time'.

TapRoot ultimately hopes to sell the full-featured product (which supports multiple simultaneous Wi-Fi connections) to carriers, who would then be able to offer it to their customers, probably as a paid service. TapRoot does not plan to sell directly to consumers.

Ease of Wi-Fi

Many 3G cell phones (phones that support mobile broadband for data services) can already be used as notebook modems, either via Bluetooth or cable connections. But setup of these connections can be a hassle whereas Wi-Fi connections are usually fairly easy to set up.

Bicksler stated, 'WalkingHotSpot will support any flavour of mobile broadband. However, only phones based on HSDPA/UMTS (AT&T Wireless' high-speed service) will be able to support WalkingHotSpot Wi-Fi service and voice calls simultaneously'.

Those based on EVDO (The mobile broadband technology used by Sprint and Verizon Wireless) cannot handle voice and data connections at the same time. If a call is received while downloading a file through a WalkingHotSpot Wi-Fi connection, the download would be interrupted. This is a limitation of EVDO technology, so the same would hold true for use of these phones as modems via Bluetooth or cable.

- (a) The article refers to the use of software and a smart phone to produce a wireless router. Why is this a significant development? (4 marks)

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- (b) How could the acquisition of this type of mobile technology impact on the physical ICT hardware infrastructure **and** processes and procedures within an organisation? (6 marks)

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- (c) What are some of the advantages and disadvantages to employees associated with using the types of mobile technology that are mentioned in this article? (6 marks)

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- (d) Outline three ethical issues that may arise for businesses when the technology (UBT) is made available to employees. (3 marks)

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- (e) What are some of the advantages and disadvantages that would influence an organisation in endorsing or rejecting the use of these types of mobile technology? (6 marks)

[illegible]

Question 2

(25 marks)

Read the following two paragraphs and answer the questions that follow

UltraBigTorrents in Trouble

The use of file sharing programs has once again hit plague proportions with a new torrent system commonly called **UBT** now being used to distribute files illegally on high speed ADSL 2+ minimum 12 Mbit per second connections. The system breaks the file into several large parts, allowing download of parts from multiple-connected computers. The developer of the new software has disabled all logging of connections and the connections are anonymised, the file is only 'UltraBigged' into a file at the end of the transmission to the requesting computer. The developer also claims that the software does not breach copyright.

UBT major threat vector

Security experts have warned of the dangers of the UBT file sharers. These file sharers allow for the ready transmission of malicious software. Already viruses and worms have been found in a random sample of **UBT** files downloaded by researchers.

- (a) In the second paragraph above, the vendor makes reference to viruses and worms. Outline some simple counter measures and techniques (other than the use of virus scanner) that could be employed to ensure that the possibility of attack is reduced. (4 marks)

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- (b) As a result of convergence and appropriate software, these UBT files can be downloaded to your desktop/laptop computer at home and your smart phone. On one of your recent downloads, your smart phone virus scanner detected Trojan.1337.HaXor.Rootkit.malicious software in one of the UBT files. Your computer, however, did not detect the Trojan, even on a repeat scan.

- i. What is malicious software? (1 mark)

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- ii. Provide two possible reasons why your computer virus scanner did not detect the malicious software. (2 marks)

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- (c) Other than the legal issues associated with the use of UBT under Australian law, what ethical and moral issues could impact on users? (12 marks)

This image shows a full page of a handwriting practice worksheet. It consists of multiple rows of horizontal dashed lines spaced evenly down the page, providing a guide for letter height and placement. The background is plain white, and there are no other markings or text present.

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- (d) Describe what policies and/or procedures a company should put in place to ensure that any use of UBT on its network will minimise risk to both the company's data integrity and its staff from inappropriate use. (6 marks)

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SECTION THREE: EXTENDED ANSWER – GROUP 2

Only attempt the following questions if you studied 3A **and** 3B in 2008.

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)

Read the article below and answer the questions which follow.

Mobile apps slow business uptake

Jennifer Foresheaw | *September 25, 2007*

MOBILE penetration in Australian businesses is an "escalating phenomenon", but mobile service providers are missing a major market opportunity, according to research.

The study, by analyst IDC, finds there is a large latent base of business users in need of mobilisation, and singles out first-time adopters of mobile communications and those who want to use mobile data channels more effectively with mobile email, internet protocol PBX directory functionality, and mission-critical business applications.

The report, *Australia Business Mobile Vertical 2007-2011 Forecast and Analysis: Me Against The World*, finds that businesses spent \$4.25 billion on mobile voice, messaging and data services last year.

IDC Australia mobile and wireless research analyst Jerson Yau says it is crucial that mobility stakeholders inform the market of the benefits of mobility in a business context.

He says mobile systems and services that deliver a tangible return, improve cost efficiencies and offer a high level of manageability will have universal appeal among organisations irrespective of their particular industry or size of operations.

The report predicts there will be greater demand by the management hierarchy and workforce on the ground to mobilise business applications and processes to take advantage of the perpetually connected nature of mobile services.

It also forecasts that mobile non-voice services will experience double-digit growth over the five-year period and across all business verticals.

Professional services, manufacturing and primary industries, and the retail and wholesale sectors are leading spenders on business mobile services, the report says.

The large public sector, covering government, education and healthcare, is the mid-market with a blend of "leading and lagging" usage.

Australian IT.

Foresheaw, J. (2007, September 25).

- (a) The article refers to ‘**mobile systems and services**’. What are ‘mobile systems and services’? How would the acquisition of mobile technology impact on the physical ICT hardware structure **and** work practises within an organisation? (12 marks)

This image shows a full page of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page, providing a template for handwriting practice or general note-taking. There are no margins, text, or other markings on the page.

- (b) What are some of the advantages and disadvantages to employees associated with using the types of mobile technology that are mentioned in this article? (5 marks)

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- (c) What additional factors would influence an organisation to endorse or reject the use of mobile technology? (8 marks)

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Question 2**(25 Marks)**

Read the following excerpts and answer the question that follows.

Swap Songs with Strangers**Excerpt 1:**

"Imagine that you have a mobile device that can store and play back music files, for example a mobile phone with an MP3 player. As you encounter various people, the devices you are carrying connect to each other wirelessly and media agents from the other nearby devices check the status of your media collection. Based on what you have been listening to in the past and which files you already own, new music might spontaneously and autonomously "jump" from another device to yours (and vice versa). Later, when you listen to your songs, your Push!Music player also plays some newly obtained tunes that you had not heard before."

Excerpt 2:

The creators of Push!Music have "...recently received a lot of attention in media and blogs, which is great fun! However, there are a couple of misunderstandings of Push!Music and our aims with the project ... Just to clarify a few things."

1. Push!Music is a research prototype, not a product. We have tested it in a small-scale user study but have at this point no plans to commercialize the technology.
2. The purpose is NOT to spread music or other content illegally. There are a number of systems that allow you to pay for songs you have downloaded via filesharing and even give compensation to the person you got it from, for instance Shawn Fanning's Snocap. There are also several ways you can subscribe to "all-you-can-eat" downloads, for instance the current incarnation of Fanning's previous venture Napster. When a payment model is in place, Push!Music will simply help people find more music, which can only be good for the artists.
3. When we do our current user tests, we are careful to stay strictly within the limits of Swedish law: we only use music that the users have paid for, and we limit copying to within a small circle of friends.
4. Many have brought up issues like viruses, spam and unwanted songs, advertising, the problem of correctly predicting what someone will like, etc. We are of course aware of these as potential problems with new ideas but that is no reason to not explore them! We are building and testing prototypes to find out more about both problems and unexpected opportunities.

[Push!Music project <http://www.viktoria.se/fal/projects/music/index.html>].

- (a) In excerpt 2 part 4, the vendor makes reference to viruses and spam. Outline some simple countermeasures and techniques one could employ to ensure that this possibility of attack is reduced. (4 marks)

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- (b) You found a virus scanner for your particular operating system on your MP3 player and so far it has not detected any malicious software. Due to convergence and utilities, these MP3 files are also downloaded to your desktop/laptop computer at home. On your recent download, your spyware scanner detected MP3.Trojan.Keylogger.Backdoor in one of the MP3 files.

- (i) What is a Trojan/Backdoor? (1 mark)

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- (ii) Provide two (2) possible reasons why your MP3 virus scanner did not detect the Trojan/Backdoor. (2 marks)

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- (c) Other than legal issues associated with the use of this ICT product under Australian Law, what **ethical** and **moral** issues could impact users in Australia, Sweden and elsewhere in the world? (18 marks)

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EXTENDED ANSWER QUESTIONS SECTION – GROUP 3

Only attempt the following questions if you studied 3B in 2008.

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

Write your answers in the spaces provided.

Suggested working time for this section is 50 minutes.

Question 1 (25 marks)

Read the article below and answer the questions which follow.

Bluetooth posters target customers

Stirling's train station has become the first in the country to communicate with commuters through Bluetooth.

BBC News | 6 February 2008

Visitors to the station will be given information about the city via Bluetooth posters which activate a text message to phones.

The messages will feature information on events in the city as well as shopping offers. Stirling's Thistles shopping centre is among retailers who have signed up for the service. Bluetooth is a wireless connection for phones, laptops or PDAs which can transfer information between mobile devices.

Those coming into the station who have Bluetooth capabilities will receive the text message detailing what is on in Stirling and what offers are available in the shops.

Capture and captivate

The local authority said the project was aimed at keeping residents and visitors up to date with the opportunities available to them.

Councillor Colin O'Brien said: "As a local authority it is important to connect with the community.

"This new medium is a great way for us to reach residents and visitors directly via their mobile phones and keep them informed on what is happening in the city and the new development at Forthside."

Gillian Godsell, CBS Outdoor's spokesperson which produce the Bluetooth posters, added: "This innovative method of communication is a media first for CBS Outdoor in Scotland and will allow key messages to really capture and captivate Stirling's consumers on the move."

BBC News Wednesday, 6 February 2008

http://news.bbc.co.uk/2/hi/uk_news/scotland/tayside_and_central/7228905.stm

- (a) The article refers to 'bluetooth capabilities'. What is Bluetooth and discuss its capabilities. (5 marks)

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- (b) What are the advantages and disadvantages of using Bluetooth as a form of Information and Communication Technologies (ICT) in the workplace? (6 marks)

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- (c) Discuss one work environment where this mobile technology could be beneficial and explain how this technology can be used. (10 marks)

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

- (d) Discuss the social and ethical implications of Bluetooth being used to deliver marketing information without user consent. (4 marks)

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Question 2

Refer to the excerpts from the article 'Is globalisation eroding Australia's information and communication technology (ICT) capability? Then answer the questions that follow.

Is globalisation eroding Australia's information and communication technology (ICT) capability?

Gartner analysts debate issues critical to Australia's ICT future at Symposium/ITxpo 2007

Susan Moore | SYDNEY, Australia , November 21, 2007

In a 'great debate' held at Gartner Symposium/ITxpo in Sydney today, three Gartner analysts from the Asia Pacific region argued the pros and cons of the issue and concluded by advising Australian organisations to treat global business as an opportunity rather than a threat.

Arguing the affirmative position that globalisation is eroding Australia's ICT capability, Gartner research vice president and distinguished analyst Partha Iyengar highlighted Australia's struggle to compete with its neighbours. With fewer science and technology graduates emerging from universities, Australia risks becoming an innovation backwater, he says.

"Australia's gross domestic product has nothing to do with ICT, it is raw materials that drive it," said Mr Iyengar. "In comparison to other Asia Pacific nations which can offer both a strong knowledge economy combined with low wages to remain competitive, Australia is simply reliant on its export of raw materials to Asia's emerging industry powerhouses, primarily China. Clearly this resources boom won't last forever and then Australia will be in trouble."

Noting the recent drop off in student enrolments in technology-related disciplines, Mr Iyengar warned that globalisation is posing serious challenges for Australia. Citing recent data illustrating that Australia's ICT position is worsening, he posed the question "Is Australia doomed to be compared with Mexico and Poland in the future, rather than the UK or Germany as it is today?"

In presenting the opposing view that globalisation is not eroding Australia's ICT capability, Gartner research vice president and distinguished analyst Craig Baty said that Australia is already "punching above its weight" on the world stage and has nothing to fear from globalisation.

"Globalisation gives Australian businesses access to cheaper, higher quality and more reliable technology from overseas, but also gives other nations access to our expertise and services. Information technology itself is just a tool, it is what you do with it that matters," said Mr Baty.

Mr Baty argued that Australia is already a highly globalised economy and reaping the benefits of it. He cited the 'globalisation index' published by Foreign Policy and A.T. Kearney, which ranked Australia 13th out of 97 nations as a globalised economy, only one place behind the UK and well ahead of India and China, which don't even make it into the top 20.

"Global companies like IBM, which last year generated more than A\$600 million in exports for Australia, understand that Australia offers a diverse and highly skilled workforce. And for small, innovative start-ups, it

is easier to establish a business in Australia than in other nations with more red tape and barriers to entry. According to one IT services company CEO, it is cheaper to open an office in Australia than in Mumbai."

Mr Baty said that Gartner's well-known Magic Quadrants, which depict the major providers in a particular technology market that are capable of servicing global clients, feature a large number of Australian technology companies in comparison to other countries. Australian companies named in a Gartner Magic Quadrant include Mincom, Tower Software, 80-20 Software, Atlassian, Objective Corporation, Technology One and Ruleburst to name a few.

"This means that Australian companies are on the shopping list for organisations around the world that are looking for technology solutions," said Mr Baty. "Australia is already an innovative nation. ICT contributes 4.6 percent to Australia's GDP, a greater contribution than the agriculture, forestry, fishing, education and defence sectors." Mr Baty also cited a survey by the Economist Intelligence Unit (EIU), in which Australia ranked ninth out of 69 countries for its e-readiness with China and India coming in at 56th and 54th respectively.

During the debate, Gartner analysts explored questions such as: does it matter who invents or who manufactures the technology, or where? By using imported ICT products and services, are we eroding our local capability or reducing opportunities for future growth? Are we sending a signal to young people that ICT is no longer a good career? And should Australia even try to become an 'innovation engine'?

In conclusion, Gartner research vice president and distinguished analyst Rolf Jester advised Australian companies to treat globalised business as an opportunity rather than as a threat.

"The impact of globalisation on Australia's ICT capability is not pre-determined. Rather, it depends on what Australians do, as business people, as ICT professionals, as users, as vendors, employers and as voting citizens," said Mr Jester.

"Australian businesses producing ICT products and services must compete by adding unique value that global customers will value. IT users have no choice but to use the best technology and services from the global market in order to allow their organisations to compete most effectively. And governments should be judged by their ability to create and maintain the social capital that helps Australians to maximise their ability to do those things."

<http://www.gartner.com/it/page.jsp?id=548807>

- (a) Referring to the above article, list four benefits of globalisation of ICT services. (4 marks)

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- (b) What are three social consequences of Australia's ICT support being contracted overseas to India? (3 marks)

[illegible]

- (c) Should the Australian government limit Australian companies' ability to outsource ICT services to other countries? Discuss reasons for and against. (8 marks)

[illegible]

- (d)** What are some alternatives to outsourcing that would help to keep a company competitive? **(4 marks)**

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- (e)** List 6 possible career opportunities in the Computing Industry. **(6 marks)**

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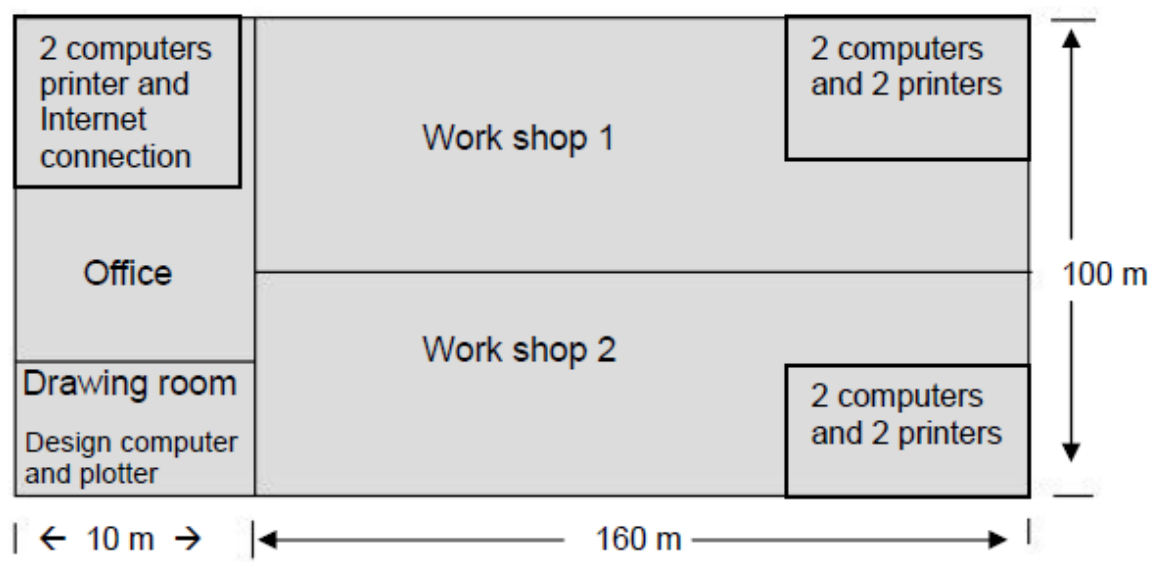
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EXTENDED ANSWER QUESTIONS SECTION – GROUP 4 (2009 WACE Exam)

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.

Question 1:**(25 marks)**

(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 (Abbreviations are accepted)	Reason for recommendation
Office: 2 x PCs 3 1 x Printer		
Drawing Room: PC Plotter		
Workshop 1: 2 x PCs 2 x Printers		
Workshop 2: 2 x PCs 2 x Printers		

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

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- (c) List four precautions that need to be taken to protect the hardware once the installation of the server has been completed. **(5 marks)**

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- (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. **(4 marks)**

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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 the 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)

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(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 researches at UAnt and other universities

(5 marks)

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

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

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