

APPLIED INFORMATION TECHNOLOGY

STAGE 3

REVISION QUESTIONS BOOKLET

This booklet contains questions for the following sections:

- **Multiple Choice**
- **Short Answer**
- **Long Answer**

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MULTIPLE-CHOICE QUESTIONS

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

1. 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
2. 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
3. Which of the following does not replicate itself to other computers?
 - (a) virus
 - (b) worm
 - (c) Trojan horse
 - (d) none of the above
4. 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
5. 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
6. The operating system is often referred to as the software environment or the
 - (a) Network
 - (b) Platform
 - (c) Foot plate
 - (d) Desktop
7. 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
8. 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
9. 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
10. 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.
11. 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
12. What two ports are replacing the traditional ports (parallel, serial, keyboard, mouse, audio, SCSI) in computers today?
- (a) MIDI and Synthesiser
 - (b) USB and FireWire
 - (c) Firewall and EPort
 - (d) Video and microphone
13. What medium will allow the highest transfer rate and capacity to carry data?
- (a) UTP Coaxial 5 cable
 - (b) Coaxial cable
 - (c) UTP Category 3 cable
 - (d) Fibre optic cable
14. What type of storage device is a thumb drive device?
- (a) Tape
 - (b) Magnetic
 - (c) Optical
 - (d) Flash Memory

15. Which one of the following is **not** a type of backup?
- (a) differential
 - (b) incremental
 - (c) **internal**
 - (d) full
16. 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?
- (a) **daily**
 - (b) weekly
 - (c) monthly
 - (d) yearly
17. 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)
18. 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)
19. 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
20. 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
21. 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

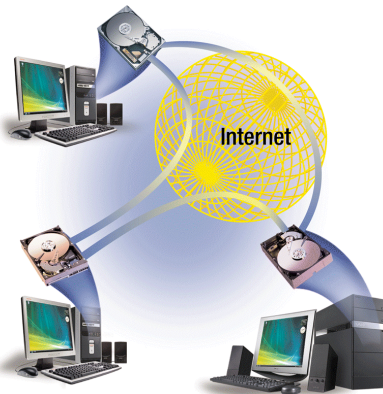
22. What is a disadvantage of digital convergence?

- (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.

23. 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

24. 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

25. 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

26. 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

27. 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

28. 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.
29. The amount of data, instructions and information that can travel over a communications channel is called
- (a) Compression
 - (b) Bandwidth
 - (c) Resource availability
 - (d) Transmission access
30. What part of a computer holds the data only temporarily?
- (a) hard disk drive
 - (b) central processing unit
 - (c) primary storage
 - (d) secondary storage
31. What part of a computer holds the data semi-permanently?
- (a) hard disk drive
 - (b) central processing unit
 - (c) primary cache
 - (d) secondary cache
32. Which one of the following methods is the **least** secure way of sending an email across the Internet?
- (a) using a strong encryption
 - (b) using a password to protect the contents
 - (c) using the default settings for most common email clients
 - (d) using a ciphertext
33. The effectiveness of securing data by using public-key encryption is based upon the difficulty of:
- (a) intercepting electronic messages
 - (b) guessing a user's password
 - (c) translating between different data representations
 - (d) factorising very large numbers
34. What is the most secure way to protect your digital data on the internet against unauthorised access?
- (a) strong encryption
 - (b) password protection
 - (c) biometric device
 - (d) computer lock

35. Complete the sentence with one of the words below.

A web site that uses _____ to secure its data is known as a secure site.

- (a) hypertext
 - (b) decryption
 - (c) encryption
 - (d) passwords
36. Which system would you recommend to a website developer who produces their own graphics?
- (a) Dialup 56Kb, 512 MB RAM, 2.6 GHz processor, 20 GB Hard drive.
 - (b) ADSL 512Kb/s, 2 GB RAM, Intel Duo Core 2.16 GHz, 80 GB Hard drive.
 - (c) ADSL 512 Kb/s, 256 MB RAM, Dual AMD 2.01 GHz, 100 GB Hard drive.
 - (d) Dialup 56Kb, 2GB RAM, AMD 2.01 GHz, 10 GB Hard drive.
37. When online shopping, what is the name of the protocol that appears in the URL to indicate that data can be securely transmitted?
- (a) SMTP
 - (b) HTTPS
 - (c) HTTP
 - (d) HTML
38. 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?
- (a) Data can be securely transmitted
 - (b) Data can be entered
 - (c) Data can be validated
 - (d) Data can be disposed of or archived
39. 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
40. Computers have two formats for displaying and processing digital images. These two formats are:
- (a) HTML and HTTP
 - (b) Vector and raster (bitmap)
 - (c) Digital and analogue
 - (d) Digital and convergence
41. Web pages are coded using
- (a) File transfer protocol
 - (b) Tab delimited data
 - (c) Hypertext Markup Language
 - (d) Rich text format

42. 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
43. The internet is the backbone that connects various networks around the world on the Internet together. The series of numbers representing a web address are known as:
- (a) URL
 - (b) HTTP
 - (c) IP address
 - (d) Domain name
44. 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
45. Using a form on a website is an example of
- (a) data security
 - (b) data entry
 - (c) validation
 - (d) disposal/archiving
46. 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
47. 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
48. Which one of the following is not used by vector-drawn objects?
- (a) Lines
 - (b) Circles
 - (c) Polygons
 - (d) Photographs

49. 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
50. 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
51. 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)
52. 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)
53. Which one of the following file formats allows for transparency once exported?
- (a) jpeg (jpg)
 - (b) gif (gif)
 - (c) bmp (pict)
 - (d) tiff (tif)
54. 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

55. 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
56. 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
57. 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
58. 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
59. 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
60. What is NOT a form of intellectual property rights?
- (a) Patent
 - (b) Plagiarism
 - (c) Registered designs
 - (d) Trademarks

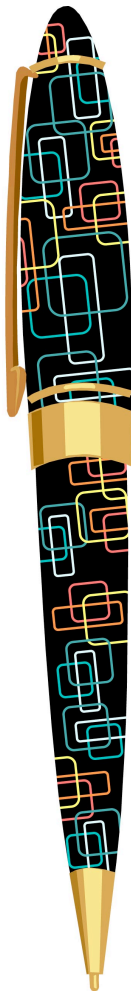


Image one

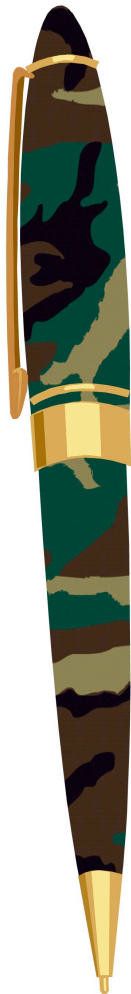


Image two



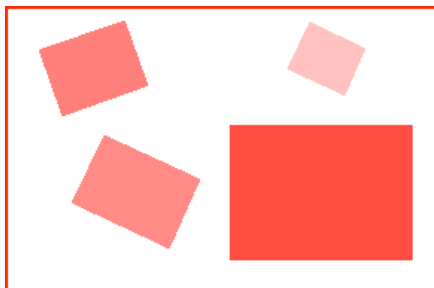
Image three



Image four

61. Which one of the images above demonstrates the basic design principle of repetition?

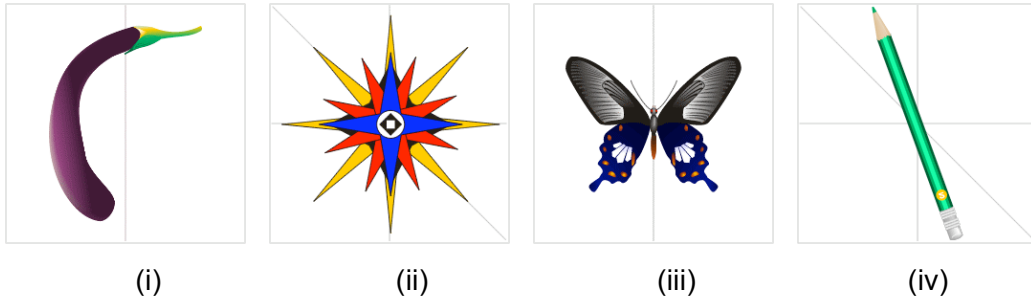
- (a) Image one
- (b) Image two
- (c) Image three
- (d) Image four



62. The above two images demonstrate a principle of design. This is the principle of

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

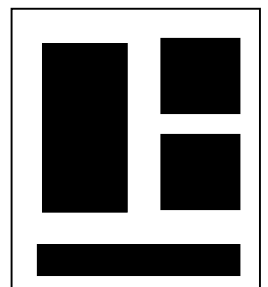
63. Balance is a design principle. There are three different types of balance when using colour, shape and position. Which of the following display asymmetrical balance?



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

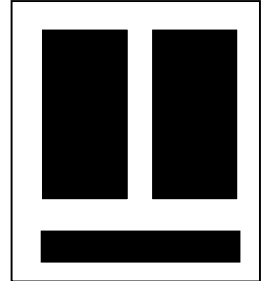
64. This image demonstrates the basic design principle of:

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



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

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



66. 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?

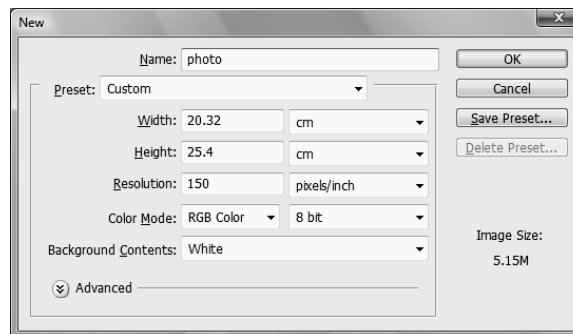
- (a) Common Use
 (b) APRA Licence
 (c) Fair Dealing
 (d) Public Domain

67. What Federal Government Act provides an employer the opportunity to observe his employees' 'work related' productivity?

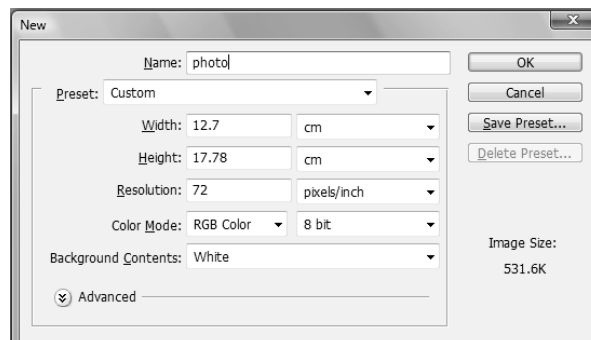
- (a) Freedom of Information Act
 (b) Privacy Act
 (c) Workplace Relations Act
 (d) Public Works Act

68. 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?
- (a) **Web administrator**
(b) Web developer
(c) Web graphic designer
(d) Web programmer
69. 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?

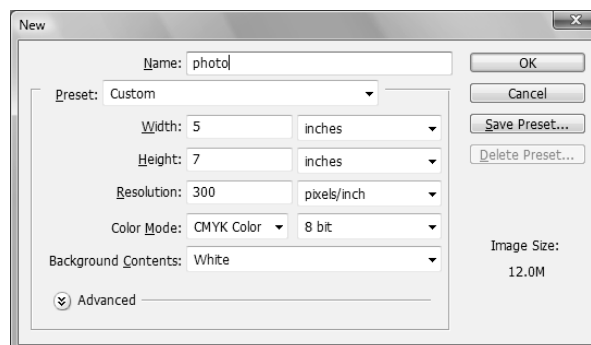
(a)



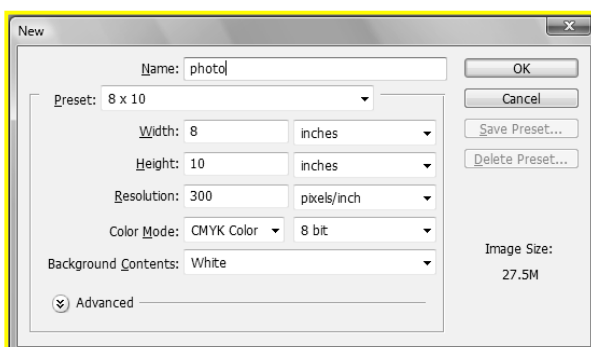
(b)



(c)



(d)



68. What type of storage device is a thumb drive device?
- (a) Tape
 - (b) Magnetic
 - (c) Optical
 - (d) Flash Memory
69. 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
70. 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
71. What medium will allow the highest transfer rate and capacity to carry data?
- (a) UTP Category 5
 - (b) Coaxial cable
 - (c) UTP Category 3 cable
 - (d) Fibre optic cable
72. 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
73. Running multiple applications simultaneously on a single processor computer is known as:
- (a) multicomputing
 - (b) multiprogramming
 - (c) multiprocessing
 - (d) pipelining
74. 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

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)

- Ensure all users and recipients are aware of policies and procedures relating to use of company emails
- Type of statement/disclaimer clarifies the ownership of information attached and within emails. Inappropriate use of an expression of opinions may not be that of the company etc
- Ensure all users are aware of use that is appropriate – protect the organisation from legal action

- (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: **speed**

Consequence: **asynchronous (instat) communication allows those communicating to do so in real time. Speeds up business, makes more efficient.**

Impact Two: **telecommuting**

Consequence: **employees can access their emails from home or any other place thus allowing an almost continuous dialog to exist, ability to always be in contact with the office**

Impact Three: **inappropriate use**

Consequence: **staff may be tempted to use the email for personal or for inappropriate communications, resulting in possible disruption to business**

Impact: **Spam**

Consequence: **unsolicited emails waste employees time; also use up bandwidth**

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)

(Technological trend where a variety of different digital devices such as Personal Digital Assistants (PDAs) and mobile phones, just two examples of hand held devices.)

- **Mobile phones** have become smart phones that allow for internet access and email access and interactivity, taking on characteristics of a PC
- **PDA** – same as above
- **Mobile phones** that have digital camera take still images and video, along with sound recording, blue tooth, text and image messaging etc.

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

Individuals:

- Mobility without the loss of business functionality, email, internet, phone, video conferencing etc
- Personal safety improved – via mobile phone, GPS – Sat Navigation
- Entertainment via games, participation in sms voting, etc

Communities:

- Parents can work from home and be involved more with their children/community activities
- Communicating with younger generations in the community via online forums – making more informed community – can be by councils, Health authorities; politicians, etc
- New industries created (eBay, Online Services) with jobs that require different skills so some lose jobs others gain jobs

The Environment:

- Reduces the amount of devices so less demand on manufacturing resources
- Devices turnover, new models, more people purchasing them, more waste

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	Any computer software with restrictions on its use or modification	Software that permits users to use, change and improve it and redistribute it in modified or unmodified form. Often developed in a public, collaborative manner
Example	Microsoft applications Adobe Applications Apple applications	Linux, Mozilla, FireFox, OpenOffice, MySQL, PHP, Java, GIMP Any software that is OSS
Vendor support		Users are treated like co-developers Access to user forums

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

Modem – connecting to telephone/cable system
 Network card to connect computer to LAN
 Wireless points and cards for connecting computers together without using wires
 Peripherals such as speakers and a webcam
 Router/gateway/hub/bridge for directly traffic to/from multiple computers

Software

Email software for exchanging of messages with other users
 Web browser to view material on the world-wide web

Firewall/virus protection/etc to protect computers against malware
ftp software to exchange files with other users
Web authoring software to maintain web sites

Question 5:

- (a) Explain what **problem-solving methodology** means in the context of Information Communication Technology (ICT) (1 marks)

- Structured approach to creating a solution – set of steps used to solve/troubleshoot problems
- Logical series of steps to identify parts of a system that are not functioning as expected.
- Ability to isolate and test parts of a system to locate errors or problems.

- (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: Ability to use GUI system; use Help systems; problem solving; has initiative; quick learner.

Justification: Saves time which is money to a business

ICT Skill Two: Organised

Justification: If organised means others can take over that persons job easily – saving time and money for the business

Question 6:

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

- (page 6 of your text book) – A process that accepts the **(input of) raw data**; processes it into **information** – *this answer would allow you to achieve top marks.*
- = input, Process, Output, Storage into a computer processes it

- (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)

- Validity of raw data may be an issue
- Way in which the raw data has been processed may produce inaccurate information
- Information when 'outputted'/presented may be in a confused format
- Storage of the raw data and processed information may be inadequate in terms of security and retrievability

SHORT ANSWER QUESTIONS – GROUP 2

(2008 EdWest Exam questions)

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.

(1 mark to name the technology, 1 mark for describing)

Possible Answers:

- 3G networks – uses cellular radio technology to provide high speed wireless Internet connections, as long as the network range
 - *Hotspots: device forms parts wireless network providing access to email, Internet. Laptop must have either built-in wireless capability or appropriate wireless network card, PC Card or USB network adaptor
 - Broadband Internet Services. Either fibre, satellite or copper cable connections
 - PSTN – public switching Telephone network system. Modem via copper wire.
- * **Acceptable to mention either Wi-Fi or WiMAX instead of Hotspots**

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.

Possible answers are: (1 point for correct maintenance task; 1 for describing task)

- **Disk fragmentation:** a utility that reorganises the files and unused space on a computer's hard disk drive so that the operating system can access data more quickly and programs run faster.
- **Disk Scanner:** utility that searches for and removes unnecessary files – e.g. disk cleaner
- **Diagnostic Utility:** A utility that compiles technical information about your computer's hardware and certain system software programs and then prepares a report outlining any identified problems
- **Backup Utility:** a utility that allows users to copy, or backup selected files of an entire hard disk (usually by compression) to another storage medium such as CD, DVD, external hard drive, tape
- **Screen savers:** utility that causes a display's screen to show moving image or blank screen if there's no keyboard or mouse activity

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:

- Privacy Act

Possible answers (2 needed)

- Users must not allow other people outside the organisation to access the network
- Computers containing and providing information must be password protected
- When leaving your workstation ensure that you are logged off or computer is locked
- Do not share passwords and do not use anyone else's log in details and password
- Do not leave sensitive document printouts at the printer
- Flash drives and all other storage devices need to be secured when not being accessed.
- Copyright Act

Possible answers – any two of those listed below or similar

- You must not plagiarise other people's work and claim it as your work
- You must use the appropriate referencing when using other sources
- Respect the intellectual property rights of others
- You are not permitted to install illegal copies of software
- All shareware is copyrighted and distributed free for a trial period and hence to use it after the trial period you must send payment to the software developer

- Spam Act

Possible answers – any two of those listed below or similar

- Do not generate SPAM by forwarding SZPAM
- Do not generate SPAM
- Protect your email address to protect from SPAM
- Check for terms and conditions when you sign up for services or email newsletters
- Follow the spam filtering software messages and only allow for the email if you are only certain it is not junk

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.

Possible responses:

- Provide appropriate equipment and workstations for the job, such as ergonomically designed, adjustable furniture, chairs, desks and computers
- Ensure work area is arranged so that materials, equipment and controls can be easily reached without stretching or twisting
- Ensure that hand tools for repetitive tasks are a comfortable size, shape and weight, are well balanced for a comfortable grip and require no more than reasonable force to operate.
- Provide training and information to employees about safe work practices, for example correct work methods and postures and the correct use of tools, machinery and other equipment
- Ensure equipment is regularly maintained and replaced as needed and that new equipment is assessed on health and safety grounds before purchase.

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)

Advantages:

- If employee fails to return the technology will provide the required information of the whereabouts of the vehicle
- Assists in providing a safe working environment
- Provides with ability to track employees to ensure that they are at the required locations
- Ensure that the company vehicles are not being used for unrelated work purposes

Disadvantages:

- Employees may perceive (think) a lack of trust in them from management
- Perception of lack of trust could lead to industrial action from the workforce
- Could be costly to implement the introduction of the technology
- Ongoing problems could arise in relation to maintenance and costs of upgrading technology
- Possible technical issues may arise in integrating the technology with existing network.

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

- Involve the employees in the decision making process making sure their needs and concerns are considered
- Have a session to educate the employees of the benefits of the new technology

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)

HARDWARE	SOFTWARE
• Scanner (*this item needs to be included)	• Scanner driver (enables to utilise the full functionality of the device (scanner))
• Hub, Switch, Router	• Operating system
• Network cards for computer	• Email software
• Modem	• Browser software (e.g. FireFox, Internet Explore, Safari, etc)
• Cabling	
• Server	• Application software

- (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)

Possible answers (1 mark for recommending, 1 for describing the recommendation):

- PDA. Running Windows Mobile for Pocket PC operating system is similar to desktop or notebook computers. Allows for receiving and accepting job lists via email from Head Office.
- Smart phone: as per PDA, with capability of making and receiving phone calls
- Blackberry: Email and messaging, make and receive phone calls
- Ultra PC: serves as mobile PCs, all the capabilities of a desktop computer
- Laptop: serves as mobile PC, all the capabilities of a desktop computer

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)

Possible responses are:

- Users go out less and consequently use less (fossil) fuel
- It is more efficient so users will have more time to do other things
- Less cost on the provider i.e. no paper to handle or process
- Disabled can make contact with the world
- Information more available on medical issues, shopping specials
- Social issues forums – contact people with similar interests and ideas

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)

Details of strengths and weaknesses:**MacOS**

- Very robust and stable (doesn't crash as often as Windows) and limited amount of 3rd party software available
- Created with multi-media applications in mind
- Low commercial usage
- Support not easily found
- OS versions are stable
- Inability to access core code

MS Windows

- Insecure, against hackers and most computer users can operate this OS
- Stable drivers for existing hardware, but lack of driver support for new graphics cards and other devices
- High commercial usage
- Support easily available
- Software is widely known
- Education courses on how to use it are available.
- OS versions require numerous service packs to fix bugs
- Inability to access core code if changes need to be made

Recommendations:**MacOS**

- Because it is more stable and the industry standard applications are for MacOS (multimedia)
- Well known in multi-media industry
- Suitable software available

- Support is available
- Cost effective
- Hardware specific

MS Windows

- Widely known and used
- Easily supported
- Wide range of training available
- Versions stable
- Cost of support reasonable and available.

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)

In order to make comparisons between the Seniors and other internet users

- (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)
- Seniors take longer to find, buy or download so any website catering for them must facilitate easier and hence faster ways to find, buy or download
 - Seniors have more problems (erroneous actions) so better friendlier error trapping methods should be included.
- (c) Review the three tasks, which were preformed 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)
- Tasks that relate to the use of a web browser like filling in online forms, should incorporate the use of the tab key so they can avoid using the mouse as seniors may have poor hand eye coordination. Also speeds up the process so they do not become frustrated with the form/program
 - A task that determines if a busy web page with lots of multimedia on it distracts seniors from locating information on the page.

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.

Communication with clients: able to send more information to clients faster; more detail could be sent makes for improved communication

Increased Productivity: reduces time to download and upload files especially large files; making more efficient; use the time for other tasks;

Efficient production processes: Increased flow in files, business will be able to organise better ways to manage this data, e.g. faster transfer of files among staff.

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 Bicksler 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)

- Use of phone to anywhere, any time, any network connect to other networks e.g. laptop, computer, handheld device.
- Highly mobile
- Leap forward in ability to connect multiple devices through its router (i.e. gateway)
- Seamless and wireless connection

- (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)

Impacts:

- Reduced need for hard infrastructure – computer, network cables, hubs, etc
- No need for office space (or at least reduced office space) – work at home or anywhere where you can use your phone
- Staff do not need to go to work to do their work
- Environmental – staff do not have to commute to work, saving on fuel
- Inclusivity
- Security could be a problem due to lack of control
- Work practises would be about your output not your attendance

- (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)

- Anywhere anytime – freedom to work to their schedule/needs – contactable anywhere / anytime (invasion in leisure hours by work)
- Lack of connection with real people – lead to isolation
- Security of equipment and also data – exposure to hackers when operating as wireless router, etc

...

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

- Monitoring – activities can be monitored not just by your employer, but other parties. Logs, GPS, network activity logs
- Use of technology to change work practises
- Work expectations – could be the expectation of an employer/ client that you are available to them 24/7
- Misuse of the technology but employees either knowingly or unknowingly giving access to people outside the organisation
- Privacy issues
- ...

- (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)

Potential loss of control / oversight – of people; data; workflows

Costs involved in the use of the technology i.e. equipment

Compatibility of the equipment to existing networks – could incur additional costs to implement.

Cost savings to be made – as reduction in high cost technology as mobile phone could replace a PC that has less capabilities

Easier and more efficient access to employees and information when out of the office

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)
- Only download from a trusted / reputable source
 - Only download legitimate shareware/freeware
 - Use a Spyware remover / firewall
 - Use web filtering to prevent staff from accessing websites that could allow them to download the software
- (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)
- Software that is damaging to the computer. Usually in the form of a virus, worm and/or Trojan

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

- Your virus software has not been updated
- Is it Spyware or used a non-standard (convert) channel / method
- Malware is too new and therefore does not use known signatures so was not detected

- (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)

- Loss of revenue to original artists e.g. music, software
- Loss of revenue to legitimate distributors of content e.g. TV stations, video stores
- Enabling distribution of illegal files
- Congestion of the ISP network/Internet due to high bandwidth
- Pass of infected software/files (unwittingly)

(With a question like this you need to provide an in-depth answer you; can mention only two of the above, but in greater detail.)

1. *Identify the issue*
2. *Outline the issue*
3. *Evaluate the issue exploring the plus and minus of the issue*

- (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)

- Honesty at work – rely on staff not to download this type of software - why
- Downloads must be work related - why
- Limit size of download to a small amount e.g. < 1Mb, size may stop software being downloaded - why
- All files must be scanned in real time for viruses, etc - why
- All staff activity on the Internet is monitored – why

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 Foreshew | 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.

Foreshew, 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)

The answers below relate to the second part of the questions and it is not an exhaustive list of answers:

- Would need router and wireless of some sort
- Would need access to the internet – router/modem
- Each person would need handheld device compatible with communication with server over wireless network
- Work Practises “perpetually connected” benefits associated with this 24/7 connection
- Provision of office not necessarily required – decentralised
- Staff would be continually monitored
- Clients potentially have access to service 24/7
- Decreased cost associated with providing this services – no need to open up an office
- Staff would have greater ability to make decisions with clients in front of them rather than reporting back to office – some decentralisation
- Can deliver educational packages over the wireless LAN thus decrease in training costs
- Could deliver test results of health checks over system

- (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)

ADVANTAGES

- Greater flexibility in working hours
- Less demand to travel to office every day
- Ability to be accessible to clients/work without working in the confines of an office
- Flexibility in the delivery of corporate training may suit some workers over the attendance at specific course. Can attend virtual training/conferences anywhere, anytime – many courses delivered through Second Life
- Can collaborate with colleagues through MSN or other
- Can obtain information instantly with web services

DISADVANTAGES

- Perpetual connectedness may come with expectation to work 24/7
- Disconnection between work and home less obvious so may impact on downtime
- If server in office breaks down – could cause data loss with increasing reliability on data transfer
- Staff monitoring – ***data mining** by employer of your particular work habits – impact on privacy of individual
- (***Data Mining = process used with data warehouses to find patterns and relationships among data**)

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

- If there is a worker or manager with experience in utilising technology – the push factor
- Costs associated with introduction may be initially prohibitive if organisation is small

- Expertise within an organisation to be able to introduce/adopt and develop protocols
- Reliance on technology may be daunting
- Sensitive information so fear of having organisational information hacked
- Clients may not be comfortable using the technology
- If there is a demand from clients – the pull factor
- Insurmountable legal issues surrounding policy development to protect copyright and privacy

▪ **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)
- If possible, disable wireless as it is always on and only power on when you want to swap with a trusted party.
 - Investigate the possibility of third party software to stop viruses / spam / firewall
 - Make new files download to a containment area or apart from the media (allows you to vet what has come in and delete)
- (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)
- Is malware that allows remote access or comprise of computer (gives remote access or control)
- (ii) Provide two (2) possible reasons why your MP3 virus scanner did not detect the Trojan/Backdoor. (2 marks)
- Signatures not updated. Platform/OS/machine specific attack – i.e. aimed at desktop computer so inert (inactive) on MP3
- (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)

(3 marks are allocated for each other issue raised covering ethics and morals i.e. if in your answer you did not mention privacy Act – maximum marks 15. If you do not mention Copyright Act and Digital Amendment maximum marks you can achieve are 11)

- Infringes on the articles Copyright under Australian Law as opposed to Swedish law as it pushes music to another person's MP3 player without them actually paying for anything at the moment. Breaches Australian Copyright Act 1968 – Digital Amendment Act of 2000.
- Data mining for MP3 players. Finding out each individual's personal taste so there may be issues associated with the Privacy Act of 1988. If it is not a commercial product – where is the money going to come from – selling individual details.
- Filesharing and copyright issues. Australian copyright still applies (as you are in Australia) – example of this is Kazaar/Napster.
- iPhones have been subject to virus, spam and unwanted advertising so why would these not also be vulnerable. Ethically companies should afford some protection to the users of their product.
- It is in Sweden so may have some problems getting hold of persons here. This software does not conform with Australian Copyright Law.
- There is an issue of globalisation – made in Sweden but potentially used in Australia
- Morally – exploiting technology and depriving artists from earning income for their work.

- Cyberstalking – is this going to be likely given another user has access to your data and there is a level of data mining. So what guarantees are there that identity is protected?
- People most likely to purchase this software – teenagers. Ethics and morals associated with trying to persuade them that it is okay, also age.

EXTENDED ANSWER QUESTIONS SECTION – GROUP 3
(Edwest 2008 Exam)

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)

Definition:

- Bluetooth is a network standard, uses short-range radio waves to transmit data to Bluetooth enabled devices.

Capabilities:

- Activate a text message to phones for marketing purposes
- Ability to provide up-to-date information to people
- Is a form of communication that is able to broadcast without requiring phone, personal details; is a cheap form of advertising.
- Good consumer target as it only broadcasts to people within Bluetooth reception, hence reaching to people who are already there. (range ~ 10 metres; can be extended to 100metres with additional equipment)

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

Advantage Examples: (3 marks)

- No messy cables around workstation
- Bluetooth allows for broadcast to hard-to-reach younger people using free-to-user technology
- Accessibility of information
- Hands free operation
- Access to applications – email, calendar
- Quick and easy access without complications of cables having to be connected.
- Contactability aided

Disadvantages Examples: (3 marks)

- Integrating into existing PC applications
- Non-compatibility issues
- Variety of platforms – can result in problems supporting the technology
- Proliferation of devices to access corporate systems; difficult to analyse each new device to ensure security is maintained
- Many of the phones will probably not be company devices which lead to the question of who is responsible for data security on a personal device – the company or the individual?
- Potential security risks
- Integration with mail systems could be an issue
- Lifecycle management, due to quick advances in this type of technology its effectiveness modernity is not as long as a PC
- The seemingly low cost of acquisition hides the true cost of ownership – ongoing costs to access technology; cost of integrating/configuring so that it works effectively with existing network
- Problems of mobile phones and PDAs purchased that do not adhere to the usual central corporate procurement procedures

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

Any type of mobile work environments for examples:

- Service technicians who need to attend to different jobs, in a variety of different locations (e.g. could be Computer technicians; Photocopier technicians; etc)
- Manager who is not at a desk and needs to approve expenditure immediately for his/her employees
- RAC roadside technicians
- Salesmen – insurance; for drug companies; book sales, etc
- Tradesmen such as plumbers, electricians, plasterers etc who attend different jobs in different locations; need to be contacted in cases of emergency repairs needing to be carried out.
- Couriers, etc

Benefit Examples

- Speed in which can be contacted; react; perform duty away from office, physical work location
- Immediate contactability
- Small and lightweight easier to carry around than laptop
- Low power consumption
- Cheap
- Integration capabilities with existing network; software requirements

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

Some examples are:

- Forced marketing – like SPAM, unwanted
- Delivered without consumers permission - SPAM
- Consumers have no choice will receive it as they have the technology and are in the right range to receive the marketing information
- No age restrictions to material being sent – could be sent to someone under 18 who is not in the target audience
- Is a form of harassment – unwanted; unsolicited
- Privacy issues

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)

Possible answers are: (1 mark for each benefit)

- Shortage of ICT skilled people require use of outside resources in order for Australia to remain competitive in the ICT field
- Globalisation gives Australian businesses access to cheaper, higher quality and more reliable technology from overseas
- Gives other nations access to our expertise and services
- 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

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

Possible responses are:

- Australian ICT specialists have to compete on the global market
- Wages for Australian ICT skilled workers may be pushed down
- Quality of services received from outside sources may not be of the same standard as that offered by Australians
- Discouraging future Australians from wanting to pursue careers in this field – ICT

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

Possible responses are: (4 reasons for, 4 reasons against – 1 mark each)

For:

- Create job opportunities within Australia
- Countries ICT have been outsourced to may not have the legislation in place to protect private information
- Security issues in relation to sensitive information
- Language barriers could be an issue in terms of providing good customer service
- Getting the necessary quick response to getting equipment and repairs effected in a timely manner

Reasons against:

- 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
- Australian businesses need to access technology outside Australia as to be competitive
- Providing choice
- Financial benefits derived from outsourcing
- Helping sustain the economy in countries that are developing, especially when doing work where not sufficient resources are available in Australia to do so

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

Possible responses are: (1 mark each – 4 needed)

- Provide pathways for students to develop in these ICT areas
- Provide incentives to businesses to take on trainees
- Provide accredited training organisations to deliver ICT courses to a set standard
- Scholarships
- Tax benefits to Australian businesses to employ Australian ICT workers over outsourced workers

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

Possible responses are:

- ICT help Desk; Network Manager Systems Analyst Software engineer

- Database manager Multimedia specialist Graphic Designer ICT teacher
- Web page designer ICT Manager