

MS3

WELSH JOINT EDUCATION COMMITTEE

£3.00

CYD-BWYLLGOR ADDYSG CYMRU

**General Certificate of Education
Advanced Subsidiary/Advanced**

**Tystysgrif Addysg Gyffredinol
Uwch Gyfrannol/Uwch**

MARKING SCHEMES

SUMMER 2007

**INFORMATION AND
COMMUNICATION TECHNOLOGY**

WJEC
CBAC

INTRODUCTION

The marking schemes which follow were those used by the WJEC for the Summer 2007 examination in GCE INFORMATION AND COMMUNICATION TECHNOLOGY. They were finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conferences were held shortly after the papers were taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conferences was to ensure that the marking schemes were interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conferences, teachers may have different views on certain matters of detail or interpretation.

The WJEC regrets that it cannot enter into any discussion or correspondence about these marking schemes.

ICT

Unit 1

Marking Scheme June 2007

1. (a) Knowledge is derived from information by applying rules to it, or equivalent information example i.e. 120/70, 135/60 blood pressure readings or 1 64.5, 2 59.3, 3 61.4, 4 62.1 lane and times from a swimming race knowledge example doctor can see patient is getting better or swimmer in lane 2 won the race. [1]
- (b) Any 2 from
Speed up data entry, reduce the possibility of errors (data input), allows data to be stored in the most economical way (saves storage space not just memory). Not easier to validate. (Care with same answer written twice). [1]
- Problem, coarsening data, not enough categories – i.e. hair colour not enough categories and different people put the same colour into different categories, i.e. light brown, mousey some people put into first and some into second etc. [1]
2. (a) Aids decision making (e.g. identify gaps in the market) [1]
monitoring progress [1]
targeting of resources [1]
- (b) Any three from:
Costs involved with **data collection (direct and indirect)**
expert to design form, setting up questionnaires to collect information, doing interviews (travelling etc), going through documents to find information, buying information from another company. [1]
- data entry** employing people to type in the data, time to type [1]
processing and maintenance technician to run computer, repair equipment, refill paper, buying software, data maintenance etc. [1]
3. (a) (i) Interviewee lies or makes mistake, incomplete information supplied, badly designed question (not incorrect target) etc. [1]
- (ii) Keyboard operator misreads source data, transposition error, typing in a page twice, missing out a page, incorrect validation etc. [1]
- (iii) Power surge, bug in software, virus, overflow errors, badly designed query etc. [1]

- (b) Verification is the checking that data has been copied correctly from one medium to another (entered, transferred). [1]
- Validation is the checking that data is sensible or reasonable (not valid or correct). [1]
- Look for *difference* between validation and verification
Presence, format, range, type, fixed value, check digit (example). [1]
4. (a) Preprepared page with pictures, words which are going to be reused e.g. Letterhead with firm info and logo (common info or set layout) [1]
- (b) Contains info on font style, size, margins, language etc e.g. Change Headings to 16 point arial etc. [1]
- (c) Incorporating data automatically from a store into an outline letter to produce a set of personalised letters. [1]
e.g. Creating a set of letters informing clients of a change of staff. [1]
5. (a) Information can be shared and collected from a central pool [1]
IT manager can monitor what work staff are doing from central point [1]
IT manager can install software from central point without going around each machine. [1]
- Backups can be centrally done.
 - The user can work at a multitude of points.
 - User security policies can be centrally administered.
 - Pop up messages with important information.
 - Web conferencing without leaving the desk.
 - Easier to collect data from a number of stations to be stored centrally.
- (b) A **closed** private network only accessible by certain users. [1]
- Allows staff to access privileged work from home. [1]
Allows users access to information which outsiders cannot have.
Allows additional security to information as stays inside the organisation.

6. Any 3 points with examples 3 x 2
- Home cinema,
 - Music,
 - Home shopping,
 - Ticket booking/Holiday booking,
 - Photography,
 - Interactive tv,
 - Teleworking,
 - Home banking,
 - Family History research,
 - Chat rooms
 - Gaming,
 - Internet phone
 - Control of heating, lighting, household equipment etc
7. (a) Any 4 points from or any 2 well argued. [4]
- Need to register under the DPA, stating intended data use and what data will be held: password systems should be set up to protect the data from unauthorised access; physical controls (locks, pass cards, security staff) should ensure no unauthorised access to the system; students should be given access to data stored on them, if only payroll do not have to register, blackmail and Computer Misuse Act, backup, don't keep longer than necessary any other point from DPA.
- (b) Any 3 points or 2 marks for 1 very well argued point a code of practice expected of all staff should be developed to cover aspects like handling of data, use of passwords (changing etc), ensure others can work i.e. not playing games, not downloading music and clogging the system, not doing anything illegal, logging off when not using the system, not accessing pornography etc, not using machines for personal use, not harassing workmates with email, not introducing viruses. [3]
8. (a) Max 3 from [5]
- either Pulse, Central venous pressure, Blood gases, Breath gases, Brain Monitoring, ECG heart monitoring, Fluid level, Pressure in the skull, Respiration, Kidney function, Blood sugar level Or 24/7 monitoring of patients, alarms if situations change, accurate recording, frees up nurse time, allows doctors to spot trends with some many readings

- (b) Every patient entering hospital has bracelet with barcode, every unit of blood has barcode, arose from CJD problems. [1]

Any 2 from [2]

Blood can be tracked from donor to patient (origin)

Ensuring that the correct blood is given to the correct patient, cutting down the chance of mistake. (categorise and store)

Stock control of blood

Out of date blood not given

Cutting down the chance of cross contamination.

- (c) MRI (magnetic resonance image) [1]

CAT (computerised axial tomography) (CT scan) [1]

Scans made up of a number of slices through the patient.

Allows 2 doctors to investigate problems that could only be looked at previously by surgery. E.g. inner part of the brain can be examined, inside joints, blockages in veins etc, 3D image

- (d) Any 4 points or 2 well argued points [4]

Acts as an overview of lists and details.

In the future want to link up all patient records across Britain so that any hospital can see full record and improve patient care.

Security of information and the compatibility will be a problem.

Booking appointments over the Internet.

Epidemiological investigations.

Improved scanners, facial scanning and reconstruction, remote diagnosis, robotic surgery, sensors to replace hearing in patients, laser eye surgery, bionic limbs

Expert system if very well developed from current system.

Systems to automatically collect information from a patient via such things as a bracelets

Any other sensible point.

Quality of Communication – award marks using the following criteria:

- *straightforward ideas expressed clearly, if not always fluently. Sentences and paragraphs may not always be well connected. Arguments may sometimes stray from the point or be weakly presented. There may be some errors of grammar, punctuation and spelling, but not such as to suggest a weakness in these areas – 1 mark;*
- *moderately complex ideas expressed very clearly and fluently. Sentences and paragraphs will follow on from each other smoothly and logically. Arguments will be consistently relevant and well structured. There will be few, if any, errors of grammar, punctuation and spelling – 2 marks.*

ICT

Unit 2

Marking Scheme June 2007

Task 1 – DESKTOP PUBLISHING		
<i>Components</i>	<i>Criteria</i>	<i>Max. Mark</i>
Design of document	Purpose of document / intended user	1
	Image / ethos being conveyed <i>Not intended audience</i>	1
	Detailed design of documents	4
	<ul style="list-style-type: none"> • 1 mark was awarded for an outline layout with inherent page orientation and identifying which frames were text and which were for pictures. • 1 mark was awarded for details of the ‘data’ <i>both</i> text and graphics • 1 mark was awarded for details of fonts and font sizes to be used • 1 mark was awarded for details of special features used such as margins, tab settings line spacing paragraph styles etc. 	
Use of basic features	Use of different font styles and sizes	1
	Use of bold, centre and underline	1
	Justification (<i>Right or Full NOT Left alignment</i>)	1
	Bullet points	1
	WordArt	1
	Shading effects	1
	Headers and footers <i>Both needed to be present</i>	1
	Use of at least two forms of electronic combination of graphical images (<i>1 mark for each form of image</i>)	2
Use of advanced features	Tables	1
	Each of the following may be awarded one mark – up to a maximum of 5 marks for this section.	5
	Different paragraph formats(<i>evidence before and after</i>)	
	Different line spacing (<i>evidence before and after</i>)	
	Superscript and subscript (<i>Sensible use; not automatic</i>)	
	Customised tables – <i>cell merging / text direction not just coloured cells or borders</i>	
	Page or frame borders	
	Set and use own tabs(<i>evidence in annotated screen shots</i>) <i>Do not give automatic tabs created by bullet points</i>	
	Set and use own indents (<i>evidence in annotated screen shots</i>)	
	Watermarks	
	Pagination	
	Use of layering (<i>forward and behind</i>)	

Task 2 – AUTOMATED DOCUMENTS		
<i>Components</i>	<i>Criteria</i>	<i>Max. Mark</i>
Design of document	Purpose of document / intended user	1
	Image / ethos being conveyed	1
	Detailed design of document	4
	<ul style="list-style-type: none"> • 1 mark was awarded for the basic layout and page orientation • 1 mark was awarded for automated features including fields and macros. • 1 mark for font styles and sizes used • 1 mark was awarded for the data on the document including origin of graphics and description or planning of the data in the letter. 	
Use of basic features	Import data from an external source	
	1 mark was awarded for the wordprocessed template document showing the fields incorporated into the document	2
	1 mark was for evidence of the database used, usually a screenshot or printout.	2
	Use of suitable format and layout for data	
	1 mark for a suitable letter	
	1 mark no capital letter or spelling mistakes in the letter or in the data imported from the database. Names and addresses in the database had to be realistic and not nonsense. The layout had to be professional and contain contact details of the organisation. The layout had to be clear not squashed into the top third of the page and should not contain graphics put in as watermarks which obscured the writing.	2
	Ensure automated routines work	
	1 mark for printouts of the letter. There should be at least 3 records / letters. One example would not get a mark.	
	1 mark was given if there were no spacing errors in the merged data.	

<i>Components</i>	<i>Criteria</i>	<i>Max. Mark</i>
Use of advanced features	<p>Individual macros or modules created using internal programming capabilities of the software package.</p> <p>To get these marks a candidate could have</p> <p>Either Provide 3 simple play and record macros on the single document and evidence that they work including names of macros, key presses or toolbar icons used.</p> <p>Or</p> <ul style="list-style-type: none"> • write a macro using original visual basic code or the programming capabilities of the software. (1 mark) • the macro must be tested and evidenced as screenshots and the code printed out. (1 mark) • each line of the code annotated by the candidate to show understanding. (1 mark) <p>Individually designed templates (<i>other than the normal template</i>)</p> <p>To get these marks the candidate could have</p> <p>Either <i>In its simplest form this could be a 'master' document which is saved in the template file store. Screen shot evidence would have to be provided.</i></p> <p><i>Some candidates created a letter headed notepaper to be used in the mailmerge but again did not save it as a template but only as a word document.</i></p> <p>For the extra two marks 2 of the following 1 mark. Some alteration to the standardized toolbars would have to be undertaken and again screen shot evidence would have to be provided.</p> <p>Or 1 mark Show use of template document for another use e.g. use letter head template in memo or compliments slip</p> <p>Or 1 mark Create own style sheet and again screen shot evidence would have to be provided.</p> <p>Or 1 mark Alternatively standard documents such as application or survey forms and questionnaires could contain features such as tick boxes or list boxes</p> <p>Or 1 mark Macros that take text and transform them into tables (Not wizard)</p>	<p>3</p> <p>3</p>

Task 3 – PRESENTATION		
<i>Components</i>	<i>Criteria</i>	<i>Max. Mark</i>
Design of presentation	Purpose of document / intended user e.g. justifying use of colour scheme. Not just ‘friendly’ or ‘fun’.	1
	Image / ethos being conveyed	1
	Detailed design of documents/presentation/web page	4
	<ul style="list-style-type: none"> • 1 mark is for the basic background style and outline layout of the presentation with inherent page orientation and identified which frames were text and which were for pictures. • 1 mark is for details of the data both text and graphics in theses frames. • 1 mark if they added details of fonts and font sizes used. • 1 mark is for details of animation, transition, hotspots, hypertext, bookmarks sound and video etc. 	
	<p><i>It was acceptable to put the final design section (animations etc) on a printout of the presentation as candidates could not reasonably be expected to consider these before implementation as they would probably experiment with them during implementation.</i></p> <p><i>One very good form of evidence for transition, animations etc was to screenshot the creation of their chosen techniques.</i></p>	
Use of basic features	Background styles – consistency/theme	1
	Animation effects – screen shot evidence	1
	Transition effects	1
	Hypertext – link to external entity	1
	Hotspots – graphical link – internal/external	1
	Bookmarks – internal link/anchor	1

<i>Components</i>	<i>Criteria</i>	<i>Max. Mark</i>
Use of advanced features	Use of sound 1 mark simple use e.g. <ul style="list-style-type: none"> • Sound coming in automatically from a video only evidence in transcript or if you see them speaking / they say they gave an introduction. • Internal sound features of PowerPoint or 'Clapping noise'. • Import sound files from disc (must evidence capture). 1 mark for extended activity e.g. <ul style="list-style-type: none"> • download music from Internet (MP3) • burn from a CD • Use sound recorder in Windows • Dictates sound using a microphone to overlay PowerPoint • edit or create own sound files <p><i>2 marks can be awarded for downloading or burning from CD etc if there is evidence that this happened.</i></p>	2
	Use of original video (filmed by candidate) 1 mark record video drop it into presentation unaltered (1) No mark for black square	2
	1 mark for extra features e.g. planning/story board / transcript of text /quality of video	
	Use of original animation / Flash graphics 1 mark simple graphic <ul style="list-style-type: none"> • e.g. wordart grows and shrinks • simple video alteration adding a simple first screen 1 mark more complex use/video alteration <ul style="list-style-type: none"> • more complex graphical animations • more complex video editing (Titles credits editing effects such as blurring. Old fashioned effects etc) 	2
	<p>There were generally three approaches to this section</p> <p><i>Animated Images</i></p> <p>1 mark for simple 'flash type animation (two commands) e.g. create ball then make ball bounce. (allow 3d-text.com for 1 mark)</p> <p>1 mark a more complex one More than three commands /features/layers put in</p> <p>NB animated Gifs not produced entirely by the candidate gained no marks.</p>	

<i>Components</i>	<i>Criteria</i>	<i>Max. Mark</i>
	<p><i>Video editing</i></p> <p>1 mark was awarded for one effect put onto a video e.g. transition effects or editing effects where evidence was provided.</p> <p>1 mark was given for an additional effect such as scrolling titles or credits, screen effects such as sepia effects where evidence was provided.</p> <p>In the case of screen effects before and after evidence would be needed.</p> <p><i>A mixture of these two approaches</i></p> <p>1 mark was awarded for a simple Gif type animation.</p> <p>1 mark was awarded for one effect put onto their original video.</p>	

EVALUATION	
Criteria	Max. Mark
A detailed and critical evaluation of all three tasks which examines the data, system and suggests future modifications <i>5-6 marks</i>	6
A detailed evaluation of all tasks, which addresses the system and future modification. <i>4-3 marks</i>	
Not all tasks have been evaluated or only a brief evaluation of all three tasks and limited suggestions for future modifications. <i>2-1 marks</i>	

COMPRESSION AND STORAGE TECHNIQUES	
Criteria	Max. Mark
Identification of method Discussion of the relative merits/properties of and need for compression format such as <i>JPEG, TIFF, WAV etc...</i> <i>Or</i> Did they explain why we use compression techniques?	1
Justification of chosen method Did they justify use of their chosen formats in two out of the three areas? If only a general description do not give the second mark	1

Total Out of 65

Evaluation

1 – 2 marks

- Where candidates simple described what they had done ‘I did this ... then I did this....’ No matter how extensively they could not get more than two marks
- If candidates did not cover all three tasks they were awarded marks in the 1 - 2 mark band.
- If they described what they had done in all three tasks but did not evaluate them and did not suggest any improvements in any section they were awarded 1 mark only
- If they described what they had done in all three tasks but did not evaluate them and did suggest any improvements in any section they were awarded 2 marks

3 – 4 marks

Candidates had to evaluate all their tasks, saying why they thought features and techniques used worked well or did not work well and suggest some improvements to be awarded marks in the 3-4 band.

- If they evaluate only 1 task well and were weaker on the other two but did suggest some improvements they would only be awarded 3 marks
- Generally if they evaluated two tasks well but were weak on one but did suggest improvements on at least two they gained four marks.

5 – 6 marks

Only the more able candidates critically evaluated all three tasks and suggested improvements in all three.

Differentiation was based upon detail in the evaluation of all three tasks and in making suggestions for future improvements.

The following was used as a general guide for awarding marks in the evaluation

Evaluation	Marks					
Task	1	2	3	4	5	6
Task 1	Description of what they did	Description of what they did	Outline evaluation	Detailed evaluation	Critical and detailed evaluation	Critical and detailed evaluation
Task 2	Description of what they did	Description of what they did	Outline evaluation	Detailed evaluation	Critical and detailed evaluation	Critical and detailed evaluation
Task 3	Description of what they did	Description of what they did	Outline evaluation	Outline evaluation	Detailed evaluation	Critical and detailed evaluation
Improvements	No Improvements	Improvements in any section	Some improvements in any section	Some improvements on at least 2 sections	Suggestions for improvements in all areas	Detailed suggestions for improvements in all areas
Coverage	Not all tasks covered And weak	Not all tasks covered But some detail	All Tasks Covered			

ICT

Unit 4

Marking Scheme June 2007

1. (a) (i) *A Touch sensitive screen.* **2 Marks**

1 mark Description of use 1 mark Benefit

e.g. *Shop POS* – don't have to remember prices
– no typing /more accurate

Public information system such as in museums

– no need for a mouse or keyboard which could get stolen or broken easily

Disabled use – overcomes difficulties with spelling/dyslexia

- (ii) *biometric device* **2 Marks**

1 mark Description of use

e.g. retina scan/iris recognition to gain access to room, thumbprints to take out a library book

1 mark Benefit

Individual / difficult to copy
Accuracy
Can lose smart cards

- (b) **3 Marks**

1 mark example

2 marks for two problems

Or 2 marks for two examples and one mark for problem

Speech recognition systems

E.g. Voice control in car navigation systems

Security systems

Control systems

Problems

Have to train computer to recognise voice which takes a long time

Delays in getting commands recognised

Natural language interfaces

E.g. Giving instruction / asking question such as in expert systems

Problems

- Users may speak different languages; local accents may not be recognised;
- some words sound the same – two, to, too: there, their, whether, weather
- punctuation has to be said e.g. user must say 'comma' which is not a natural way of talking.
- Use of sound makes high demands on memory and processor speed.

Speech synthesis

This is the computer speaking to the user e.g. giving out telephone numbers or telephone selection systems.

Problems

- The sound is very flat
- Users complain of confusion and a lack of personal contact if your enquiry isn't on the list of options given or you don't know which option it is in.

2. (a) **1 mark for each method x 2** **4 Marks**
1 mark for description of how used x 2

Urls

Type in the exact address of the website into the address bar

Web crawlers /search engines

Type in a key word and select from given list

Boolean searches

Type in key words with AND and OR etc to give more precise list

- (b) **1 mark for each method x 2** **4 Marks**
1 mark for description of how used x 2

Bookmarks / Hyperlinks

Predefined links which take you directly to part or the page

Hotspots

Click on an image of the product to find out more details of the product / go to product section

Key word searches

Type in a keyword and go directly to that section

2 Marks

3. (a) **1 mark Shared processing across the Internet/networks** / Distributed databases are different databases stored at different locations but linked together so they appear to be one large database.

1 mark description of example

e.g. SETI research into radio signals. **SETI**, or the Search for Extraterrestrial Intelligence, is a scientific effort seeking to determine if there is intelligent life outside Earth. **SETI**, listens for artificial radio signals coming from other stars.

E.g. A hotel chain may store details of guests booking on its local network but because each hotel is networked a distributed database can be used and staff in one hotel can see booking in another hotel and managers can monitor booking across the whole chain. Similarly for a chain of shops.

Example might give explanation of 'distributed database'.

- (b) **Benefits** **2 Marks**

- Allows the local processor to be used to share processing when not being used for other activities
- Data used locally can be stored locally and network traffic kept to a minimum
- If data lost on central site it could be reduplicated from local site
- Allows sharing of data and of the results of processing of the data.
- New locations can be added to the database without the need for rewriting the entire database.

- (c) **1 mark for each example** **2 Marks**

Both must be description 1 mark can be awarded for simply naming two examples.

- Wireless PDA's used by Doctors at the scene of an accident can accessing patient records.
- Wireless networks may be used as part of a LAN e.g. a mobile bar code reader in a warehouse transmitting data to a shop or HQ
- A delivery driver using a hand held device to confirm deliveries with a central database.
- Hand held chip and pin data entry in restaurants for entering details of cars payments.
- Wireless PCMCIA cards used in a laptop and linked to GSM satellite links which give access to Internet without need for wireless nodes e.g. used by travelling businessmen.
- Wireless remote controls used to turn over TV channels.
- Wireless devices such as Printers/ keyboards/mobile phones and description of use.

Any reasonable answer

4. (a) **1 mark for customer measure and 1 mark for bank measure** **2 Marks**

Customer. Verification procedures

- Read data in forms carefully before submitting e.g. when purchasing online
- Double entry keying e.g. when creating passwords for accounts

Bank. Validation procedures

Range checks; presence checks; check digits; format checks; input masks etc

- (b) **1 mark for each problem and 1 mark for each corresponding prevention (allow one type of prevention only once) x 3** **6 Marks**

Must have at least one accidental loss. And one malicious damage

ACCIDENTAL LOSS

Accidental destruction of files due to fire, terrorism, floods

Backup systems must be described

- keep back up files – offsite - and in fireproof containers
- use an online tape or disc streamer which automatically backs up data on a network
- use grandfather father son security system in batch processing systems. e.g. payroll
- RAID systems – mirror discs (Redundant Array of Inexpensive Disc)

Accidental destruction of files due to human error etc

Prevent overwriting

- put the write protect notch on your disc
- make hard discs read only

MALICIOUS DAMAGE

Hacking – unauthorised access

Prevention

Define security status and access rights for users

All authorised users should be given user names and passwords. This will limit unauthorised access to the network.

Hierarchy of Passwords

- Identification User Name
- Authentication Password
- Authorisation – What files you can see and what your allowed to do

Restrict physical access to files e.g. smart cards to control entrance to rooms.
Secured areas to hold servers

Biometric scans such as voice or hand prints; retina scans;

Firewalls. a special environment set up to trap a hacker logging in over remote connections. It authenticates messages coming into the network and verifies the legitimacy of the user to enter the network.

Proxy servers

This device tries to stop intruders from identifying the IP (Internet Protocol) address of a user workstation accessing the Internet.

Call Back procedures

Some companies operate a dial-back system. A user logs on to a computer which immediately disconnects the line and dials the user back. This would stop a user logging on with someone else's password.

Encryption

Data transmitted over a network is coded before transmission. This means that anybody intercepting the transmitted data would not be able to understand it. The data needs to be de-coded by the proper recipient.

Spreading a computer virus

These are programs introduced into computer systems which destroy or alter files by rewriting over data or by copying themselves over and over again until computer system is full and cannot continue.

Prevention

- **Don't' download** unknown programs from the Internet straight to hard disc. Only use reputable sources.
- **Write protect** media so can't be written onto
- **Don't copy illegal software**
- Use a **virus scanning** software and **virus eradication** program. Make sure this is **kept up to date with the latest virus definitions** – available from the Internet.
- Use **diskless workstations** on networks
- **Control access to portable media** and do not let users use own disk etc on the organisations system.

Computer fraud – white-collar crime

- **Bogus data entry** when entering data
- **Bogus output** – output may be destroyed to prevent discovery of fraudulent data entry or processing
- **Alteration of files** e.g. employee alters salary rate or hours worked

Prevention or 'White Collar' computer crimes

- **Monitor** all programs and users actions should be monitored and logged. All users should be identifiable and all files capable of being audited keep online transaction logs
- **Auditing procedures** to detect fraud

4. (c) 1 mark for each factor 2 Marks

- Identify potential threats
- Likelihood of risk occurring
- Short and long term consequences of the threat
- How well equipped is the company to deal with the threat

5. (a) 1 mark for disadvantage and 1 mark for example x 2 4 Marks

- **Data is duplicated** causing unnecessary waste of storage space.
- Example - the lecturer name 'H Smith' is repeatedly stored in the above data.
- **Data inconsistency** - if data is stored more than once there may be differences [egg in spelling] or transcription errors.
- Example 'J Evans' might be mistyped as 'J Evins' or the course code 186 might be mistyped as 816. The computer will not know which one is correct.

5. (b) 1 mark for table x 2 5 Marks
1 mark for primary key x 2
1 mark for foreign key in other table

*Primary and foreign keys must be clearly identified
Examples could be;*

Student [Student No., Student Name, Date of birth, Gender, Course No#]

Course [Course No., Course Name, Lecturer No#, Lecturer Name]

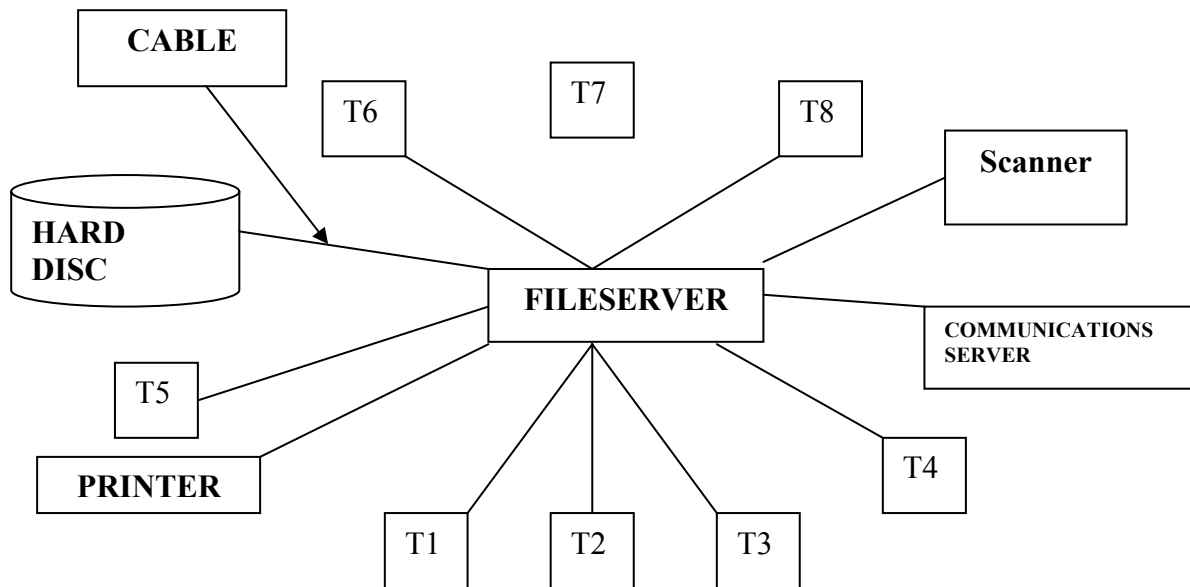
Section B

6. (a)

4 Marks

- 1 mark for star shape
- 1 mark for position of file server
- 1 mark for position of terminal or peripheral
- 1 mark for labelling the cable

Example



6. (b) 1 mark

2 marks

LAN or similar description

1 mark suitable use

Peer to peer network
 School site
 Large offices

Any reasonable answer

6. (c) **1 mark x 6 for advantages or disadvantages** **6 Marks**
(must be at least one of each)

Advantages of a Ring network

- **There is no dependence upon a central host as data transmission is supported by all devices on the ring.** Each node has sufficient intelligence to control the transmission of data from and to its own node.
- **Very high transmission speeds are possible.**
- **It is deterministic i.e. different performance levels can be determined for different traffic levels.**
- **Routing between devices is simple because messages normally travel in one direction.**
- **As data is in one direction it can transmit large volumes of data.**

Disadvantages of a Ring network

- **Systems depends upon the reliability of the ring repeater although it can be designed to bypass faulty repeaters. If one node malfunctions this can affect the operation of the network.**
- **Cabling costs**
- **Difficult to extend the ring.**

6. (d) **1 mark for naming each factor and 1 mark for fuller description x 2** **4 marks**

(i) Cost of the network

- Initial purchasing of equipment
- Installation and training
- Maintenance costs
- Size of the available budget will determine what can be done e.g. fibre optic cable is faster but is also more expensive. Wireless systems are flexible but need more maintenance

(ii) Size of the organisation

- Needs can range from a small LAN to a global WAN.
- Some communications media are limited to the distance they have to travel.
- Amount of data processing required must also be considered

(iii) How the system will be used

- What type of applications do users require?
- Will they need large data storage?
- From where will they operate the network e.g. at home in office or remote access from different locations

(iv) Existing systems to integrate

- More often networks are not developed from scratch but need to fit in with existing systems. Sometimes an extension is required e.g. when a new branch office opens.
- Therefore any new network must fit in with the operating systems and protocols of the existing.
- It must support any peripherals already in use e.g. bar code readers, printers etc.

(v) Performance and speed required

Performance in terms of;

- reliability
- user friendliness
- capacity
- speed of processing.

Different parts of the organisation may have different performance requirements. E.g. a realtime e-commerce system may require greater speeds and capacity and security than the in house payroll system

Mark for definition and 1 mark example

2 marks

Intranet is a facility only accessible within the organisations network.
e.g. bulletin boards / internal messages.

Quality of Communication

2 marks

- 6. (e) 1 mark for explanation 2 Marks**
1 mark for example

An **intranet** is network set up entirely within a LAN and can only be accessed internally.

Examples

- Web pages can be stored and accessed from anywhere on the network
- Email can be sent internally within the LAN.
- It can also be used for staff training or daily bulletins

Any reasonable answer

7. (a) **1 mark for each health hazard x 3**
1 mark for each relevant prevention x 3

6 Marks

Hazard	Prevention
RSI repetitive strain injury caused by prolonged working at computers or computer games	Ergonomic keyboards ; wrist and foot supports: correct chair positioning
Eye Strain or epileptic fits	Non flickering screens; Screen filters t remove glare; correct lighting in the room
Back problems	Adjustable chairs; foot supports: tilting screens. Take regular 15 minute breaks and walk around the room
Ozone irritation from laser printers	Locate personal laser printer 1 metre away from user
Radiation affects embryos leading to miscarriages	Screen filters

- (b) **1 mark for each named example x 3**
1 mark for further description x 3

6 Marks

- **Teleworking** – working from home using computer networks saves on transport cost time etc..
- **Video conferencing** – allows remote meetings
- **Lost jobs** – unskilled manual jobs such as filing clerks. Call centres replacing bank clerks Call centres have caused many people to lose jobs as they have been moved abroad where labour is cheaper leading to ICT 'sweat shops'.
- **New skills required / retraining** – acquire skills to use databases spreadsheets emails, programming etc.
- **New jobs** – systems analysts, programmers.

- (c) **1 mark for discussion /identification of the law x 3** **6 Marks**
1 mark for identification and example of a moral issues raised x 3

(i) **DISINFORMATION**

Not supplying customers with up to date and relevant information/
concealment of information

Estate Agent

Legal Issues

Properties Act covers legal conveyancing

Moral example

A property developer not telling his client the property has subsidence
problems or a violent history

Hardware and software sales;

Legal Issues

Trades Descriptions Act covers suitability of purpose

Moral example

Not fully informing potential customers or clients of all available facts
concerning products or services

Prohibit salespersons from selling hardware and software soon to
become obsolete

Ensure salesmen do not pressurise unwilling customers to accept
loyalty cards.

(ii) **PRIVACY**

Informing data subjects of their legal rights and the processes for
complying with those rights

Legal Issues

Data Protection Act

Moral example

An employee using company data to create mailing lists for his own
private business

Monitoring company emails. Electronic monitoring systems can be
used to track emails. A systems technician might open other people's
emails to detect misuse or simply to be nosy.

(iii) **EQUITY**

Information poor and information rich societies.

Legal Issues

Patent laws /Trade laws

Moral Example

Ownership and access to information can often determine which organisations will be successful and which will fail. As these technologies have to be paid for the richer organisations can afford the technology whilst poorer organisation cannot. Consequentially, the rich organisations get richer and the poorer ones get relatively poorer and the gap between them gets greater, e.g. subsidising food production in Europe or putting taxes on imports to prevent the poorer countries obtaining access to richer markets.

(iv) INTELLECTUAL PROPERTY RIGHTS

Ownership rights to data.

Legal Issues

Copyright Laws / Patent laws prevent copying

Moral examples

- If you put an idea on the Internet do you own it?
- If you see a design on the Internet can you sell that design to a company?
- If you scan in the text of the book and put it on the Internet for all to be freely read; are you breaking the law?
- Can you sue someone in another continent who sells you a report on you which is full of factual errors?

Quality of Communication –

2 marks

Total 60 Marks

Quality of Written communication – award marks using the following criteria:

- *straightforward ideas expressed clearly, if not always fluently. Sentences and paragraphs may not always be well connected. Arguments may sometimes stray from the point or be weakly presented. There may be some errors of grammar, punctuation and spelling, but not such as to suggest a weakness in these areas –* **1 mark;**
- *moderately complex ideas expressed very clearly and fluently. Sentences and paragraphs will follow on from each other smoothly and logically. Arguments will be consistently relevant and well structured. There will be few, if any, errors of grammar, punctuation and spelling –* **2 marks;**
- *moderately complex ideas expressed very clearly and fluently. Sentences and paragraphs will follow on from each other smoothly and logically. Arguments will be consistently relevant and well structured. There will be few, if any, errors of grammar, punctuation and spelling –* **2 marks.**

ICT5a – Controlled Test

Mark Scheme

Summer 2007

ANALYSIS OF EXISTING SYSTEM AND FEASIBILITY REPORT			
<i>Outline Marking Criteria</i>	<i>Very detailed and accurate</i>	<i>Some detail, brief description or a list</i>	<i>None</i>
Existing hardware and software	3-2	1	0
Definition of the scope of the present system	4-3	2-1	0
Major data processing functions and processes	4-3	2-1	0
Identification of problems with the present system	4-3	2-1	0
Identification of user requirements for the new system	4-3	2-1	0
Analysis of costs and benefits of the new system	4-3	2-1	0
SYSTEM SPECIFICATION AND DESIGN			
<i>Outline Marking Criteria</i>	<i>Very detailed and accurate</i>	<i>Some detail, brief description or a list</i>	<i>None</i>
Developments required in hardware and software.	4-3	2-1	0
System specification of proposed system including suitable Low level DFDs, to describe the main data processing events	4-3	2-1	0
An entity relationship diagram which has at least three related entities and which describes the relationships between them.	4-3	2-1	0
A detailed process specification in the form of a systems diagram	4-3	2-1	0
SYSTEM IMPLEMENTATION			
<i>Outline Marking Criteria</i>	<i>Very detailed and accurate</i>	<i>Some detail, brief description or a list</i>	<i>None</i>
Report on suitable methods for implementing the system and justification of the chosen solution	4-3	2-1	0

SYSTEM MAINTENANCE			
<i>Outline Marking Criteria</i>	<i>Very detailed and accurate</i>	<i>Some detail, brief description or a list</i>	<i>None</i>
Report on suitable methods for maintaining the system	4-3	2-1	0

SYSTEM EVALUATION			
<i>Outline Marking Criteria</i>	<i>Very detailed and accurate</i>	<i>Some detail, brief description or a list</i>	<i>None</i>
Criteria for evaluating the system	4-3	2-1	0
Cost benefit analysis to support recommendations	4-3	2-1	0

PROJECT PLANNING			
<i>Outline Marking Criteria</i>	<i>Detailed and accurate</i>	<i>A list</i>	<i>None</i>
Working to a time plan and adopting standard ways of working	2	1	0

QUALITY OF REPORT				
<i>Outline Marking Criteria</i>	<i>Well written, clear, consistent and accurate presentation</i>	<i>A clear report, with only minor issues of quality and / or accuracy</i>	<i>Some errors or inaccuracies, but generally understandable</i>	<i>Poor quality with many inaccuracies which affect readability of the report</i>
Overall quality of the finished report	3	2	1	0

ICT5b

Mark Scheme

Summer 2007

<i>Outline Marking Criteria</i>		<i>Max. Mark</i>
ANALYSIS OF EXISTING PUBLICATION		
Background to the organisation or user and description of existing hardware and software or production techniques.	Outline the background to the organisation or user.	1
	Produce a description of existing hardware and software and/or production techniques presently used.	2
Identification of a document and its function or purpose	<p>Examine an existing substantial publication or range of documents presently produced by the user and produce a report* of its function or purpose.</p> <p>Either 1 mark X 4 for each of four documents.</p> <p>Describe who is the intended audience and the main function of the document and its data.</p> <p>Or if 1 substantial doc</p> <p>1 mark for general purpose /audience</p> <p>3 marks for detailed analysis of purpose of different sections of the document and the data in it.</p> <p>A copy/xerox or screenshot of the original publication(s) should be included with the submission or no marks can be awarded.</p>	4

<i>Outline Marking Criteria</i>		<i>Max. Mark</i>
<p>Analysis of existing publication(s) to determine 'house style'.</p> <p>What style are they trying to achieve?</p>	<p>(b) Understand the use of a 'house style' and the tools and techniques used to portray this style including:</p> <p>1 mark Writing style and tone/how choice of logo fonts reflect this. What does the logo say about the company not just what the logo is – analyse the logo or font style.</p> <p>1 mark Presentation style e.g. use of colour/images</p> <p>1 mark identify consistent themes rules / procedures adopted to help clarity and consistency</p> <p>Either</p> <p>1 mark Type of paper weight (not just light need grams) glossy parchment must have some detail</p> <p>Ok to accept white/plain paper if justify cheapness mass production or criticise it as unimaginative.</p> <p>Or 1 mark for detail on other three areas</p> <p>Marks could be applied to one document that gives enough scope and coverage or different points could be made from different documents.</p> <p>A copy/xerox or screenshot of the original publication(s) should be included with the submission or no marks can be awarded.</p>	<p>4</p>

Outline Marking Criteria		Max. Mark
<p>Description of page orientation, graphics used, text positioning and styles.</p> <p>What techniques are used to achieve it?</p> <p>1 mark only for details of fonts.</p> <p>1 marks for details of frame / layout / orientation.</p> <p>2 other marks for identification of techniques. (1 mark at least two features)</p>	<p>Layout booklet, poster, web site with frames.</p> <p>Page orientation</p> <p>Type of graphics</p> <p>Font style or similar</p> <p>Use of text positioning/ formatting/ rotation</p> <ul style="list-style-type: none"> • Special features • Paper size and orientation • Paper weight and quality • Use of embossing or watermarks • Use of tables • Borders and shading • Margin sizes • Gutters • Headers and footers • Image of the company • Techniques used to target intended audience • Contents pages and Indexes • Logos or other graphical images • Standard text • Position of text • Paragraph formats • Indent styles • Justification techniques • Use of automated bullet points or numbering • Font styles • Font sizes • Text orientation • Line spacing • Before and after spacing • Use of bold, italic, superscript and subscript <p>A copy/xerox or screenshot of the original publication(s) should be included with the submission or no marks can be awarded.</p>	<p>4</p>

<i>Outline Marking Criteria</i>		<i>Max. Mark</i>
Identify user requirements for the new publication	<p>Identify user requirements for the new publication;</p> <p>This is a more general description outlining its 1 mark purpose, ethos, target audience. +1 for detail description.</p> <p>1 mark where it will be used./distribution methods etc.+1 mark for detail</p>	4
Identify potential limitations to design and production of the new publication	<p>Identify potential limitations to design and production of the new publication.</p> <p>1 mark each for</p> <ul style="list-style-type: none"> • Costs put on by user / marketability • Hardware available for production • Software available for production • Timescale • Production or distribution methods <p><i>Or any other relevant point.</i></p> <p>Can't just repeat the above list. Must relate it to new publication and have some detail.</p> <p>DISCUSS HOW they are relevant to the design and production of the document.</p>	3
SPECIFICATION AND DESIGN		
Detailed design specification	<p>A report or bullet point list showing the detailed identification of the user requirements for the publication of at least 10 A4 pages or its equivalent. Within these 10 pages there must be a front page and a contents page. This section should spell out what should be on each page.</p> <p>1 mark what should be on the front page.</p> <p>1 mark any consistency of layout required / common features / colour schemes/data.</p> <p>1 mark other detail.</p>	3

<i>Outline Marking Criteria</i>		<i>Max. Mark</i>
Discussion of capabilities of hardware and software required.	<p>Produce a report on the capabilities of hardware and software facilities to be used;</p> <p>1 mark Must be detailed and show understanding of the hardware requirements needed for document publication including processor speed, memory size, input and output devices, storage requirements, potential problems and how to overcome these. Be able to discuss the use scanners and digital cameras.</p> <p>1 mark software NOT just naming a package but say what features could be useful or Outline the reasons for different images formats including TIF, JPEG, BMP etc .e.g. compression of files capable within the software.</p>	2
<p>Initial draft hand drawn 'mock up' design plan.</p> <p>Only 1 mark allowed if less than 10 pages</p>	<p>Hand drawn designs of all 10 pages produce an initial draft hand drawn 'mock up' design plan;</p> <p>1 mark is awarded for an outline layout with inherent page orientation and identifying which frames were text and which were for pictures.</p> <p>1 mark is awarded for details of the 'data' <i>both</i> text and graphics.</p> <p>1 mark is awarded for details of fonts and font sizes to be used.</p> <p>1 mark is awarded for details of special features used such as margins, tab settings line spacing paragraph styles etc.</p>	4

<i>Outline Marking Criteria</i>		<i>Max. Mark</i>
<p>Second draft design plan using standard proofreading symbols.</p> <p>Is it sufficiently detailed to allow meaningful comments back from the end user?</p>	<p>Produce a second draft (<i>1st electronic</i>) design plan using standard proofreading symbols. (At least three different types – only condoned two last year but was expecting more).</p> <p>1 mark for showing proof reading symbols</p> <p>2 marks quality of production in terms of amount of text and originality / quality of graphics.</p> <p>1 mark close to design plan and user requirements.</p>	4
Evidence of feedback from clients with suggestion for improvements	<p>Provide evidence of feedback from clients with suggestion for improvements;</p> <p>1 mark superficial comments</p> <p>2 marks improvements</p> <p>3 marks some criticisms (justification for improvements not just 'don't like the font!') and improvements or detailed level of feedback.</p>	3
Third draft design plan incorporating clients' comments and showing evidence of text and image enhancement and using standard proofreading symbols.	<p>Produce a third (<i>2nd electronic or final</i>) design plan incorporating clients' comments and showing evidence of text and image enhancement.</p> <p>1 mark showing responses to proofreading errors identified.</p> <p>1 mark for showing responses to client suggestions.</p> <p>1 mark use of text and images.</p> <p>1 mark level of detail and quality and significant improvement.</p>	4

Outline Marking Criteria		Max. Mark
<p>Evidence of stages of image manipulation techniques to improve its quality for the final document</p> <p>Must be sensible, relevant and final image must be in the final document.</p> <p>Must provide before and after evidence and evidence of stages of transformation</p>	<p>Produce a report showing evidence of stages of image manipulation techniques to improve its quality for the final document. This could be applied to several images or very detailed step by step alteration of one image.</p> <p>Examples could include;</p> <p>Either</p> <p>1 x 4 simple image manipulation</p> <ul style="list-style-type: none"> • Crop images • Cut, copy, paste, move • Use of drawing tools such as lines, fill, brush, spray shapes textures etc. on an image/logo • Rotation, mirror, translate, flip, zoom images • Watermarks and washouts <p>Or</p> <p>2 images which have evidence of the following (each of the following techniques would be worth 2 marks but only if clearly evidenced).</p> <ul style="list-style-type: none"> • Capture and import images including scanning at different resolutions and tones (not just scanning). • Using photo or picture editing packages e.g. 'Adobe Photoshop' or 'Paintshop Pro' to diffuse / render /filter etc. • Pixel editing • Stretch or other forms of manipulation (not just resizing using frame /pull handle manipulation). • Use of Pantone colours <p>Or A mixture of the above two approaches</p> <p>Or</p> <p>4 marks for each of 4 stages of significant enhancement clearly evidenced to one image.</p> <p>NOT SIMPLE SCANNING OR TAKING A PICTURE/IMPORTING WITH A DIGITAL CAMERA. THERE MUST BE SOME PHOTO MANIPULATION</p>	<p>4</p>

<i>Outline Marking Criteria</i>		<i>Max. Mark</i>
Production methods and costs	<p>Produce a report outlining production methods and costs Including: use of 'white space', target audience, binding and mass production techniques.</p> <p>1 mark one mark for detail on how it will be mass produced.</p> <p>1 mark on costs</p> <p>1 mark for extra detail consideration of alternatives;</p> <ul style="list-style-type: none"> • colour Vs Black and white • different paper glossy vs plain • different binding techniques • different production techniques 	3
IMPLEMENTATION		
<p>Good use of consistent style, standard formats appropriateness plausibility and accuracy of the information and images.</p> <p>NB If a suitable border is awarded a mark as consistent house style then it can't be awarded second mark in next section.</p>	<p>Produce the publication in camera ready copy format. Which follow a consistent 'house style' of the user and make good use of standard formats. The document should contain appropriate, plausible and accurate information and images;</p> <p>1 mark attempt to follow a in some part of the document consistent style.</p> <p>1 mark if has a recognisable house style.</p> <p>-1 if not appropriate / plausible / accurate.</p>	3

<i>Outline Marking Criteria</i>		<i>Max. Mark</i>
<p>Use of tools and techniques.</p> <p>1 mark font styles and images.</p> <p>2 marks for use of special features used such as margins, customised tables. Overlapping frames, frame borders tab settings line spacing paragraph styles etc. see list.</p> <p><i>(1 mark at least 2)</i></p> <p>1 mark for quality of production e.g. No cut off borders. No poor pixelated images, No heavy images blocking out text etc.</p>	<p>Demonstrate the use of a variety of publishing tools techniques. Some suggestions;</p> <ul style="list-style-type: none"> • Use of a variety of fonts and styles • Importing or other graphical images • Paragraph formats • Indent styles • Justification techniques • Use of automated bullet points or numbering • Text orientation including WordArt • Text boxes and columns • Line spacing • Before and after spacing • Use of bold, italic, superscript and subscript • Special features such as leading, kerning, text moulding • Paper size and orientation • Pagination • Use of embossing or watermarks and transparent frames • Use of tables • Borders and shading techniques • Margin sizes • Gutters • Headers and footers • Cut, copy, paste • Use of callouts, banners etc. • Creating style sheets etc 	4
Camera ready copy	<p>10 pages produced and printed</p> <p>-1 if not 10 pages</p> <p>-1 if no contents page or no auto page numbering (Need both).</p> <p>-1 if no front page</p>	3
MAINTENANCE		
User documentation	<p><i>Report on how the user can:</i></p> <p>1 mark access the files / directory structures</p> <p>1 mark edit, print and save any future developments /</p> <p>1 mark backup procedures/ named disc/ disc locations – all three needed and not just saving technique.</p>	3

<i>Outline Marking Criteria</i>		<i>Max. Mark</i>
EVALUATION		
Evaluation of the final document	Criteria for evaluating the publication: <ul style="list-style-type: none"> • evaluation against the user specification. • identification of problems in production and methods used to solve those problems. • identification of future potential developments and improvements 	6

Evaluation	Marks					
Task	1	2	3	4	5	6
User specification	Reference to a user specification and said it was achieved.	Reference to a user specifications and said it was achieved	Attempt made to evaluate if some of the user specifications were achieved.	Detailed evaluation of how their solution meets most of the user requirements	Critical evaluation of how their solution meets the user requirements	Critical and detailed evaluation of how their solution meets the user requirements
Production problems and solutions	No Problems mentioned	Description / list of problems and some suggestion of a solution	Some problems mentioned and a description of how they solved that problem	Several problems mentioned and a description of how they solved those problems	Critical and detailed test log	Critical and detailed test log
Improvements and developments	No Improvements	No Improvements	Some improvement in any section	Some improvements on 2 sections	Suggestions for improvements in all sections	Detailed suggestions for improvements in all areas
Coverage	Only 1 area covered	Not all areas covered But some attempt at two sections	All Tasks Covered			

<i>Outline Marking Criteria</i>		<i>Max Mark</i>
PROJECT PLANNING		
Working to a time plan and adopting standard ways of working	<p><i>Candidates must manage their work effectively and include a project time plan.</i></p> <p>1 mark should be awarded for a time plan with dates</p> <p>1 mark should be awarded for description strategies adopted for;</p> <ul style="list-style-type: none"> • saving work regularly / directory structures used • keeping dated backup copies of files on another disk, in another location • protect confidentiality and observe copyright laws 	2
Total marks 70		

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