GCSE

Information & Communication Technology A

Combined Mark Schemes
And Report on the Units

June 2005

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June 2005

General Points about the application of the Mark Scheme

Where there is only one answer given this is the only answer available.

Where a candidate has to choose a number of answers from a list there should be no more answers than that asked for in the question.

If a candidate gives more answers than asked for then every answer over the specified number is ignored – only the first answers in the lists up to the specified number of answers are to be marked. For questions requiring a tick in a row of boxes eg in an answer table, where a candidate gives more than one tick per row, then no marks are awarded for that row.

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Vague answers such as "quicker, easier" are not credited unless there is a clear context from the question, an explanation to accompany the word or the candidate's answer puts it into context.

Trade names are not to be given credit unless accompanied by a description of their function e.g. 'MS Word' would gain no credit but 'the word processor MS Word' would be credited.

Mark Scheme

Question		Answer	Mark
1	**(a)**	**Ticks should be as follows:**	

Task	Flatbed scanner	Mouse	Keyboard	Digital camera
Typing page titles			✔	
Choosing colours from a menu		✔		
Inputting a colour print to the computer	✔			
Obtaining original photographs of a school play				✔

[4]

If more than 1 tick per row, then 0 for that row.

(b)   One from:
- Speakers.
- Headphones.   **[1]**

2   **(a)**   **Ticks should appear as follows:**

	Has the fastest access time	Portable but has a small storage capacity	Portable with a large storage capacity	Suitable for recording very large video files
RAM	✔			
CD-ROM			✔	
Floppy disk		✔		
120 GByte Hard disk drive				✔

If more than 1 tick per row, then 0 for that row.   **[4]**

(b)   **Ticks should appear as follows:**

	Input Device	Output Device	Both
Bar code Reader	✔		
Touch Screen			✔
Motor		✔	

If more than 1 tick per row, then 0 for that row.   **[3]**

3 **(a)** There are several possible sequences:

Number
(2)
7
6
x
x
x
1

3, 4 and 5 can be in any order at x in thes three boxes

[3]

Marks to be awarded as follows:

Mark	Criteria
1	At least 3 in the correct boxes.
2	At least 4 in the correct boxes.
3	All 6 correct.

(b) **Two from:**
- Microwave oven.
- Central heating controls.
- Cooker.
- Tea/coffee maker.
- Vacuum cleaner.
- Washing machine
- Dishwasher
- Refridgerator [2]
- Tumble dryer.

Accept only devices with microprocessor control.

4 **(a)** Fill. [1]
(b) Rotate. [1]
(c) Layer/ paste. [1]

    (d)   **Two from:**
- No need for drawing skills/hard to draw with a mouse.
- Better quality images/neater.
- Ready-made images.
- Can search for an image.
- Large numbers of images to choose from.
- Can copy/paste image/don't have scanner.
- More convenient/quicker/easier. **[2]**

    (e)   **Three from:**
- Help wizard.
- On-line help.
- User manual/book/magazine.
- Ask another person/expert by personal contact/mail/telephone. **[3]**
- Ask another person/expert by electronic help via eg email/bulletin board etc.

    (f)   **One from:**
- Loss of original.
- Damage/corruption of original.
- Inadvertently wrongly changing/editing the original. **[1]**

    (g)   **Two from:**
- Floppy disks do not have large enough capacity/memory.
- Floppy disks are easily damaged/lost.
- Floppy disks are too slow.
- No floppy disk drive.

                                                                          [2]

5   **(a)**   Six/6.   **[1]**

    (b)   Seven/7.   **[1]**

Ticks should appear as follows:

(c)

Field Name	Field Type Chosen		
	Boolean	**Alphanumeric**	**Numeric**
Price			✔
Sold	✔		
Car Stock Code		✔	
Type of Car		✔	

If more than 1 tick per row then 0 or that row.

    (d)   Car Stock Code   **[1]**

    (e)   £4,500.00/four thousand five hundred pounds/forty-five hundred pounds.   **[1]**

(f) Four/4. [1]

6 **(a)** **Three from:**
- Compact/small/fit in pocket/luggagelight in weight/handheld.
- Can be used anywhere/portable.
- Can be used without being
- overseen/discreetly/portable/unobtrusively.
- Can be used without being overseen.
- Can connect to Internet for eg mail/web browsing while away from the office.
- No need for connection to mains electricity supply/batteries. [3]
- Can synchronise with desktop computer.
- Switches on instantly/no loading time

(b) **Two from:**
- Larger screen for viewing.
- Better screen resolution/better graphics.
- Larger keyboard.
- More powerful processor so faster for eg graphics.
- More memory.
- More/larger secondary storage eg have large hard disks.
- Speakers/sounds.
- Attaching peripherals eg digital camera/connected to projector for presentations. [2]
- Wider range of software.

7 **(a)** D5. [1]

(b)(i) **Two from:**
- Format as currency/add a £ sign.
- Format to two decimal places. [2]
- Justify to decimal point.

(b)(ii) **Two from:**
- Select the cells/columns/data.
- Choose format.
- Choose type of format. [2]

(c) **Marks to be awarded as follows:**

D5+D13 or Sum(D5:D13) or Sum(D5+D13) or Sum(D5,D13)
Correct formula used using column C is acceptable for 2 marks
Range D2 to D14 acceptable for 2 marks

For 1 mark, one incorrect cell reference used. Formula has some merit, but will not work. [2]

8   (a)   One from:
- Hyperlink.
- Link to other pages/positions on page.   **[1]**

(b)   Points from:

- Add images/clipart/photos/scans
    to encourage visitors to stay.
    to illustrate the goods for sale..
- Add video clips/animations
    to illustrate the video content.
- Add sounds
    to illustrate the audio content.
- Add pop-ups
    to advertise etc.
- Add links
    to other pages on the site.
- Add colours
    to enhance the appearance.
- Use different fonts
    to enhance the page visually.
- Useful content/information
    some idea of the use of the content/information.

Marks to be awarded as follows:

	1 point	2 points
No expansions	1	2
1 expansion	2	3
2 or more expansions	3	4

[4]

(c)   Two from:

- Add a search engine to the site.
- Add link back to home page to assist return to start.
- Add more links to other pages.
- Add buttons/icons as links/navigation bar.
- Add a contents list to show what the site contains/site map/menu page/links in same place.   **[2]**
- Include anchor points to assist navigation around pages.

(d)   **Answers from:**

- Increased costs of
    setting up the system/maintaining/hosting the system.
- Use of secure server
    for Internet transactions.
- Hackers
    may break into the system/steal data.
- Credit card fraud
    use of stolen/invalid cards/cost implications.
- Over demand
    Cannot keep up with the demands for goods.
- Staff training
    Time issues.
    Cost issues.
    Skill levels.
- Fewer people visit the store
    Can buy goods on the internet
    No need to leave home

Marks to be awarded as follows:

	1 point	2 points
No expansions	1	2
1 expansion	2	3
2 or more expansions	3	4

[4]

TOTAL   **[60]**

Mark Scheme 2357/02
June 2005

General Points about the application of the Mark Scheme

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If a candidate gives more answers than asked for then every answer over the specified number is ignored – only the first answers in the lists up to the specified number of answers are to be marked. For questions requiring a tick in a row of boxes eg in an answer table, where a candidate gives more than one tick per row, then no marks are awarded for that row. Similarly, if a candidate enters more than two ticks in a column, then deduct one mark per extra tick, down to zero.
Single word answers are not normally given credit.

Vague answers such as "quicker, easier" are not credited unless there is a clear context from the question, an explanation to accompany the word or the candidate's answer puts it into context.

Trade names are not to be given credit unless accompanied by a description of their function e.g. 'MS Word' would gain no credit but 'the word processor MS Word' would be credited.

Mark Scheme

1 **(a) Ticks should appear as follows:**

Field Name	Field Type Chosen		
	Boolean	**Alphanumeric**	**Numeric**
Price			✓
Sold	✓		
Car Stock Code		✓	
Type of Car		✓	

   If more than 1 tick per row then 0 for that row

                                                                                    [4]

   (b) Car Stock Code   **[1]**

   (c) £4,500.00/four thousand five hundred pounds/forty-five hundred pounds.   **[1]**

   (d) Four/4.   **[1]**

2 **(a) Three from:**
   - Compact/small/fit in pocket/luggage/light in weight/handheld.
   - Can be used anywhere/portable.
   - Can be used without being overseen/discreetly/unobtrusively.
   - Can connect to Internet for eg mail/web browsing while away from the office.
   - No need for connection to mains electricity supply/batteries.
   - Can synchronise with desktop computer.

- Switches on instantly/no loading time.

[3]

(b) Two from:
- Larger screen for viewing.
- Better screen resolution/better graphics.
- Larger keyboard.
- More powerful processor so faster for eg graphics.
- More memory.
- More/larger secondary storage eg have large hard disks.
- Speakers/sounds.
- Attaching peripherals eg digital camera/connected to projector for presentations.
- Wider range of software

[2]

3   (a) Two from:
- Select data.
- Choose graph/chart wizard.
- Choose type of graph/chart/state type eg pie chart.
- Add titles/legends.
- Save as new chart/within worksheet.

[2]

(b) Two from:
- Select the cells/columns/data.
- Choose format.
- Choose type of format.

[2]

(c) Marks to be awarded as follows:

D5+D13 or Sum(D5:D13) or Sum(D5+D13) or Sum(D5,D13)

Correct formula used using column C is acceptable for 2 marks

Range D2 to D14 acceptable for 2 marks

***For 1 mark**, one incorrect cell reference used. Formula has some merit, but will not work.*

[2]

4   (a)   One from:
- Hyperlink.
- Link to other pages/positions on page.

[1]

(b)   Points from:
- Add images/clipart/photos/scans
    to encourage visitors to stay.
    to illustrate the goods for sale
- Add video/animation clips/animations
    to illustrate the video content.
- Add sounds
    to illustrate the audio content.
- Add pop-ups
    to advertise etc.
- Add links
    to other pages on the site.
- Add colours
    to enhance the appearance.
- Use different fonts
    to enhance the page visually.
- Useful content/information
    Some idea of the use of the content/information.

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[4]

(c)   Two from:
- Add a search engine to the site.
- Add link back to home page to assist return to start.
- Add more links to other pages.
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- Add a contents list to show what the site contains/site map/menu page/put links in same place.
- Include anchor points to assist navigation around pages.

[2]

(d) Answers from:
- Increased costs of
     setting up the system/maintaining/hosting the system.
- Use of secure server
     for Internet transactions.
- Hackers
     may break into the system/steal data.
- Credit card fraud
     use of stolen/invalid cards/cost implications.
- Over demand
     Cannot keep up with the demands for goods.
- Staff training
   Time issues.
   Cost issues.
   Skill levels.
- Fewer people visit the store
   Can buy goods on the internet
   No need to leave home

Marks to be awarded as follows:

	1 point	2 points
No expansions	1	2
1 expansion	2	3
2 or more expansions	3	4

[4]

5   (a)

1 mark for an example of analogue data.
1 mark for an explanation of analogue data.
1 mark for an example of digital data.
1 mark for an explanation of digital data.

Points from:

Description of digital data:
Digital information is characterized by discrete states.
Digital data is made up of 0's and 1's.

Examples of digital data:
For example, a digital clock may show time in one-minute intervals. The numbers only change once per minute. A binary digital signal is a series of two values, usually represented by "0" and "1." Each 0 or 1 is called a bit (binary digit). Groups of bits can be coded to represent data.

Description of analogue data:
Analogue data can be any value within a defined range.
An analogue signal constantly changes, taking on values throughout the range of possible values.
Analogue signals have properties of frequency, amplitude and phase.

Examples of analogue data:
Sound waves such as the human voice would be one example of an analogue signal.

[4]

(b)

```
<
HEATER ON
>
HEATER OFF
```

[4]

6   **Points from:**

Denise may use his account to
- Masquerade as him
   - to send abusive emails.
- log on as him
   - to look at his work
   - to change/edit his work
- Delete his work
   - so he will have to do it again..
- Copy his work
   - and pass it off as her own (plagiarism).
   - and pass it to others (theft).
- Download forbidden software
- And view/use inappropriate materials/perform illegal
   - activities.
- Change his password
   - lock Barry out of his account.
- Pass on the password to others
   - others will use his account illegally

- Barry will be blamed for the abuse/suffer consequences
- Punishment although innocent.
- Withdrawal of computer privileges.
- Loss of his work.
- Blamed as a conspirator in copying etc.

Marks to be awarded as follows:

	1 point	2 points
No expansions	1	2
1 expansion	2	3
2 or more expansions	3	4

[4]

7   **Points from these areas:**

Disabilities
  Limb problems
     use of eyelid sensors/switches to control items.
     use of computer-controlled wheelchairs/lifts.
     use of foot switches linked to computers.
     voice activated control of devices.
Leisure
    use of microprocessor controlled devices/remote for TV, audio,
              DAB, satellite TV.
Domestic Chores
     Programmable washing machines/dryers/cookers etc
              free up time for other activities.
Environmental control
   Air conditioning, climate control, central heating removes need
              to constantly monitor.service, tend eg fires
Automated ordering of items.
    on-line shopping, automated ordering by eg refrigerators
    removes need to repeated shopping trips thus freeing time for
    other activities.

Marks to be awarded as follows:

	1 point	2 points
No expansions	1	2
1 expansion	2	3
2 or more expansions	3	4

[4]

8   *Contents of a User Guide to include:*

System requirements
         list of hardware/software needed.
         to ensure that software will work
Installation guide
          to install/get started with the software
Overview of software
          what the software does
User Guide
          how to use the software/save/delete/print etc
Help
       troubleshooting guide
       where to get help/contact details
       how to get help
Serial no.
       to allow registration/installation.

Marks to be awarded as follows:
1 mark for the item,
1 mark for a description.

[6]

9   **Points from:**

Benefits
Always on/anytime access to Internet
      no need to actively connect.
      regular updates eg news/FT index available all the time.
High speed connections
      faster downloads of files/no interruptions/won't time out.
      faster loading of pages.
      access to video/audio channels.
Telephone line is left free
      don't need a second line
      for voice/fax use.
Can host web site at home
      no need to pay for external service.
Email delivered from server as it arrives at server
      no need to request it.
Multiple computers/small home network
      more than one computer/user can access the Internet at once.
Some services are only available on broadband
      Because some files are time sensitive, eg video files

Drawbacks:
More accessible to hackers
      due to likelihood of longer connection time to Internet
Greater need for firewall
      to prevent hacking.
      to disguise IP address/identity.
Computer can be used by spammers
      for illegal email
         Intrusive email
         abusive email.
         hoax email.
Cannot access from elsewhere
      service is restricted to the billing address.

This question to be marked as a graded response question using this grid of criteria:

	1 point	2 points	3 points	4 or more points
No expansions	1	2	3	4
1 expansion	2	3	4	5
2 expansions	3	4	5	6
3 expansions	4	5	6	7
4 expansions	5	6	7	8
5 or more expansions	6	7	8	9

1 mark is also available for a reasoned conclusion – up to the maximum for the question.

                                                [9]
                                        Total [60]

Mark Scheme 2359/01
June 2005

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Question				Mark

1   a   **Two from**:
               • Bar-code (reader).
               • MICR / magnetic ink / character recognition.   **[2]**

    b   **Two from**:
               • Hard disk drive.
               • CD-RW drive.   **[2]**

    c   **Two from**:
               • Operating system.
               • Central processing unit.   **[2]**

2   **Three from**:
               • Upload straight to computer/easy to load or similar.
               • Recognised format.
               • Acceptable for editing by software.(any form of editing)
               • Preview before accepting.
               • Repeatedly take picture until satisfied.
               • No developing costs.
               • No delay/waiting for developing.
               • Images can be deleted to save memory space
               • Better quality of photos   **[3]**

3   a)   **Two from**:
               • B6 / £105.00
               • C6 / £36.00
               • E6 / £141.00
               Accept eg, for first bullet point, 'Cell B in Row 6' etc
               Do not accept headings   **[2]**

    b)   **Two from**:
               • Using alternative numbers in place of any number in column A.
               • Calculate the answer (by hand)/use a calculator.
               • Compare the answer with the spreadsheet answer.   **[2]**

4   (a)   **One from**:
               • Read Only Memory
               • Memory which is not lost when computer switched off
               • Non – volatile   **[1]**
    (b)   **One from**:
               • (data fixed on some form of) optical storage media/CD/DVD
               • To store or hold data.
               • To show data on a chip.
               • Operating system.
               • Any computer controlled appliance.   **[1]**

Question			Mark
5		**Two maximum** for each different appliance from:	

Two maximum for each different appliance from:
- Dishwasher.
- Tumble dryer.
- Refrigerator/freezer.
- Toaster.
- Kettle/tea maker/coffee maker.
- Cooker/portable grill/sandwich maker.
- Microwave.
- Any thing with an LED screen

Two maximum for each different use from:
- To control time on/off.
- To control temperature.
- To establish cycle/process.
- To control cycle.
- To inform/order items depleted. **[4]**

6   **Two from**:
- So unauthorised access/hacking.
- Does not result in understandable data.
- To protect sensitive data
- From being understood if falling in to the wrong hands. **[2]**

7   (a)   Correct answer only, no brand names
- Desk Top Publisher. **[1]**

      (b)   **Three from**:
- Quicker than searching for alternative.
- Know that file type is compatible.
- Don't have to take / scan / draw own pictures.
- Huge number available.
- Cheaper than buying other clip-art discs.
- Instructions for use included with package.
- Better quality than own drawings.
- Copyright **[3]**

      (c)   **Two from**:
- The use of (multiple) windows (instead of a command line interface).
- The use of icons (to represent long instructions).
- The use of menus (to enable choices to be made).
- The use of (a mouse and onscreen) pointers (to enable choices to be made simply).
- Toolbars. **[3]**

8   **Three from**:
- Questionnaires.
- Interviews.
- Observations/shadowing.
- (Examine) documentation.

      Do not accept: Surveys or Market research **[3]**

Question			Mark

9 (a) **Two from**:
- All data to be input is collected (together).
- Then processed in one go / as a single operation.   **[2]**

(b) **Two from**:
- No need to be immediate/wages only done weekly or monthly
- No need to influence behaviour in outside world
- No need to accept continuous input
- No need to continuously update someone's wages/real time needs continuous updating
- Would mean constant use of processing power
- Because of specialised stationery use
- Because processing cannot start until all data for week/month has been collected   **[2]**

10 **Two from**:
- Field/attribute/data size.
- Field/attribute/data type.
- Any validation rules applicable.
- Field/attribute name.
- Record size.
- Number of tables (in relational database)
- File/table names
- Identify key field/primary (id)
- Relationships/links to other tables

Do not accept: header names   **[2]**

11 (a) **Two from**:
- Can check individual shopping items present.
- Can check correct prices charged.
- Can check special offers included.
- Need not keep close watch on items being scanned because can check later.
- Proof of purchase.   **[2]**

(b) **Two from**:
- Perceived to be giving a better customer service.
- Gives proof of what has been scanned/purchased.
- Allows check-out person to check with customer when/if problems arise.
- Added security.   **[2]**

(c) **Five from**:
- Item/barcode scanned.
- Item recognised/identified.
- Item(s) removed from stock total (when stock sold).
- Item(s) added to stock total (when stock replenished).
- Stock total compared to reorder level.
- If stock level <= to reorder level.
- Order for more stock generated (automatically).
- Trends/fluctuations of sales of particular items reported.
- Sales totals of items/stock regularly generated and reported.
- Stock/item values generated and reported.
- Regular reports of sales values generated.

Do not accept: a manual system   **[5]**

Question		Mark
12	**Two paired from**:	

One mark only for repeated answer.

- Obtaining user feedback [1] using interview/questionnaire/observing when using finished system. [1]
- Identifying future developments [1] by checking users' responses. [1]
- Identify areas which testing has shown to be a problem [1] by examining documentation produced by the system. [1]
- Identify improvements [1] that could be made by checking user responses [1]

For a Max of three marks, using "Comparing the finished product" twice

- Comparing the finished product (and reporting on differences) [1] and **any two from**:
  with the system specification
  task brief
  design
  user requirements   **[4]**

13   **Two paired from** :
- Projector [1] to display presentation to audience. [1]
- (Remote) keyboard/mouse/tracker ball/joystick [1] to instruct computer to begin/end/change presentation. [1]
- Speakers [1] to allow any audio to be heard (by audience). [1]
- Microphone [1] to give commentary if necessary. [1]
- Sound card [1] to enable audio included in presentation. [1]
- CD drive/Zip drive/DVD drive/hard drive/memory stick [1] to store and allow access to the presentation. [1]
- Electronic white board [1] to view, and possible control and add to the presentation as it is running. [1]
- Large amount of RAM [1] to enable rapid response to requirements of presentation. [1]
- Camera [1] to include in the presentation [1]
- Scanner [1] to transfer images (to the computer) [1]
- Printer [1] to obtain hard copies for distribution [1]
- Laser pen [1] to highlight points on presentation (from a distance) [1]
- (Large) screen/VDU/white board [1] to enable all audience to see presentation [1]

      [4]

14   (a)   **Two from**:
- Camera/web cam.
- Mic(rophone).
- Analogue – digital/digital – analogue converter.
- ISDN/ASDL/broadband lines/modem.
- Satellite dish.
- Speakers/headphones.
- Sound card
- Video/graphics card

Do not accept: - Dial up/Laptop/Projector   **[2]**

(b) (i) **Two from**:
- Time is saved (no time lost) in putting on the conference.
- Fewer travel expenses.
- No hotel accommodation costs.
- No conference room costs.
- Time saved in travelling.
- No need to travel
- Can call meetings at short notice/easier to get people together/more regular meetings

Do not accept: – cheaper / quicker / more convenient on own **[2]**

14 (b) (ii) **Two from**:
- Less social interaction with fellow aid workers.
- Need to organise aid work around time of conference.
- Added stress imposed by timing of conference/time zones.
- Possible weight of equipment.
- Possible difficulty with electricity supply/communication links.
- Problems caused by equipment failure.
- Needs training/time for training/inability to use equipment.

Do not accept: - political issues/war zones **[2]**

TOTAL 60 marks

Mark Scheme 2359/02
June 2005

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Question	Answer	Mark

1   **Three from**:
- Questionnaires.
- Interviews.
- Observations/shadowing.
- (Examine) documentation.

        Do not accept: Surveys or Market research   **[3]**

2   **Two from**:
- No need to be immediate/wages only done weekly or monthly
- No need to influence behaviour in outside world
- No need to accept continuous input
- No need to continuously update someone's wages/real time needs continuous updating
- Would mean constant use of processing power
- Because of specialised stationery use
- Because processing cannot start until all data for week/month has been collected   **[2]**

3   **Two from**:
- Field/attribute/data size.
- Field/attribute/data type.
- Any validation rules applicable.
- Field/attribute name.
- Record size.
- Number of tables (in relational database)
- File/table names
- Identify key field/primary (id)
- Relationships/links to other tables

        Do not accept: header names   **[2]**

4   (a)   **Two from**:
- Can check individual shopping items present.
- Can check correct prices charged.
- Can check special offers included.
- Need not keep close watch on items being scanned because can check later.
- Proof of purchase.   **[2]**

    (b)   **Two from**:
- Perceived to be giving a better customer service.
- Gives proof of what has been scanned/purchased.
- Allows check-out person to check with customer when/if problems   **[2]**

* arise.
* Added security.

Question	Answer	Mark
(c)	**Five from**:	

* Item/barcode scanned.
* Item recognised/identified.
* Item(s) removed from stock total (when stock sold).
* Item(s) added to stock total (when stock replenished).
* Stock total compared to reorder level.
* If stock level <= to reorder level.
* Order for more stock generated (automatically).
* Trends/fluctuations of sales of particular items reported.
* Sales totals of items/stock regularly generated and reported.
* Stock/item values generated and reported.
* Regular reports of sales values generated.

Do not accept: a manual system   **[5]**

5   **Two paired from**:
        One mark only for repeated answer.

* Obtaining user feedback [1] using interview/questionnaire/observing when using finished system. [1]
* Identifying future developments [1] by checking users' responses. [1]
* Identify areas which testing has shown to be a problem [1] by examining documentation produced by the system. [1]
* Identify improvements [1] that could be made by checking user responses [1]

For a Max of three marks, using "Comparing the finished product" twice

* Comparing the finished product (and reporting on differences) [1] and **any two from**:
  with the system specification
  task brief
  design
  user requirements   **[4]**

6   **Two paired from** :
* Projector [1] to display presentation to audience. [1]
* (Remote) keyboard/mouse/tracker ball/joystick [1] to instruct computer to begin/end/change presentation. [1]
* Speakers [1] to allow any audio to be heard (by audience). [1]
* Microphone [1] to give commentary if necessary. [1]
* Sound card [1] to enable audio included in presentation. [1]
* CD drive/Zip drive/DVD drive/hard drive/memory stick [1] to store and allow access to the presentation. [1]
* Electronic white board [1] to view, and possible control and add to the presentation as it is running. [1]
* Large amount of RAM [1] to enable rapid response to requirements of presentation. [1]
* Camera [1] to include in the presentation [1]
* Scanner [1] to transfer images (to the computer) [1]
* Printer [1] to obtain hard copies for distribution [1]   **[4]**

- Laser pen [1] to highlight points on presentation (from a distance) [1]
- (Large) screen/VDU/white board [1] to enable all audience to see presentation [1]

Question		Answer	Mark
7	(a)	**Two from**:	

- Camera/web cam.
- Mic(rophone).
- Analogue – digital/digital – analogue converter.
- ISDN/ASDL/broadband lines/modem.
- Satellite dish.
- Speakers/headphones.
- Sound card
- Video/graphics card

Do not accept: - Dial up/Laptop/Projector   **[2]**

(b) (i) **Two from**:
- Time is saved (no time lost) in putting on the conference.
- Fewer travel expenses.
- No hotel accommodation costs.
- No conference room costs.
- Time saved in travelling.
- No need to travel
- Can call meetings at short notice/easier to get people together/more regular meetings

Do not accept: – cheaper / quicker / more convenient on own   **[2]**

(ii) **Two from**:
- Less social interaction with fellow aid workers.
- Need to organise aid work around time of conference.
- Added stress imposed by timing of conference/time zones.
- Possible weight of equipment.
- Possible difficulty with electricity supply/communication links.
- Problems caused by equipment failure.
- Needs training/time for training/inability to use equipment.

Do not accept: - political issues/war zones   **[2]**

8   One advantage each from:
           Direct changeover.
           • The costs may be less than other methods.
           • All training could be done in one go.
           • Period of disruption is shorter.
           Phased implementation.
           • Less of a 'shock' to people running the system / have more time to
             get used to the system.
           • 'Bugs' in system will not cause huge company wide problems.
           • Training could be directed at key personnel preceding each 'phase'.
           Parallel running.
           • If anything goes wrong with either system there is a good chance that
             the work will not have to be repeated/switch back to old system.
           • Gives staff a chance to 'get used to' the new system.
           • If results differ then able to check process to establish which is
             operating correctly.

           Do not accept repeated answers

                                                                                              [3]

Question	Answer	Mark
9	**Validation:**	

Two from:
- Computerised checking
- To detect data that is unreasonable (or incomplete)
- Rule is created

One example from:
- Range
- Length
- Type
- Existency/presence
- Format check
- Referential integrity
- Check digit
- Check sum
- Batch total
- Control total

Accept if a specific example is given for any of the above, eg, between 6 and 20.

(Remember non-numeric validation, eg, only 'M or F' etc)

Verification:
Two from:
- Checking <u>entered</u> data.
- By comparing/ against original.
- At input stage (often by human).
- Human checking.

If 'Double entry' given as example, then accept 'Computer checking'.

One example from:
- Double entry
- Visual checking

Allow one mark for example on its own. **[6]**

10   **Six from**:
- Sensors constantly/continuously acquire (analogue) data
- from environment to ADC
- Digital data received from ADC by computer
- <u>Computer</u> compares received data
- with pre-set limits/previous readings
- If humidity outside set limits <u>computer</u> activates actuators
- (Computer) switches/operates/activates <u>motors</u> to open/close windows
- (Computer) switches/operates/activates humidifiers on/off
- Whole process repeats

Award marks for diagrams **provided** that points above are included.

[6]

11 If no reasons given, but mention of at least one archive and one back-up, Max 4
If no reasons given, but mention of only archive or back-up, Max 3

Archive:
- The storage of data for long periods of time
- Usually on cheapest storage media
- Not as readily available as the original material
- Often saved in a compressed form
- To free space on hard disk drive by removing little used material

Reason:
- May be needed to conform to legal requirements regarding retaining data for several years
- To speed up access times

Back-up:
- Making copies of original data
- Should be made regularly
- Use of file generation process (Son–Father-Grandfather)
- Should be stored away from the originals
- Advisable to have >1 back-up copy of important data

Reason:
To protect against accidental/deliberate loss / corruption of data/system crash **[5]**

Question 12	Answer	Mark
	If all **Advantages** OR all **Disadvantages** given, maximum **Four** marks.	

Advantages	**Disadvantages**
Ring • Simple to set up. • Information may still be passed to/from devices before any break in the cable. • Simple to determine location of fault. • No collisions of data possible. • Possibility of dual rings with information travelling in opposite directions to help prevent disruptions when one device has a problem.	**Ring** • Least common type so expertise less easy to find. • If one machine is disabled in some way the system as a whole may cease to function • Information usually travels in only one direction. • More difficult to extend than star network (as cable/bus must be broken to attach new station.) • When cable/bus is broken / single station malfunctions all other devices inoperative.
Bus • No central computer is required. • Cabling / additional hardware costs less than other topologies. • Simple to set up in a small area.	**Bus** • Only one computer can transfer information at a time. • More difficult to extend than star network (as cable/bus must be broken to attach new station.) • Must have terminators at each end to avoid errors / collisions from data bouncing back along cable. • When cable is broken / single station malfunctioning all other devices inoperative. • Too much traffic causes delay.
Star • Adding additional stations does not require the network to be closed down. • If one station goes down the rest are unaffected. • Simple to extend by or adding a second / third /... hub. • Easy to restrict access to individual devices from central hub. • Most common type so plenty of expertise. • Any computer can transfer information at the same time.	**Star** • If hub/server goes down all stations suffer. • More expensive cabling / switches / hubs / hardware than other topologies. • More complex than other topologies.

[5]

Question	Answer	Mark
13	If all **Againsts** or all **Fors** given, maximum 4 marks. Conclusion not needed, but only a maximum of **one** mark awarded for any one conclusion given.	

For	**Against**
• Learning can occur at students own pace/speed	• Equipment/enrolment may be costly
• Teaching can use multi-media	• May be more costly to set up multi-media programmes
• Student can learn at any time	• No face-to-face/social student/tutor interaction (so less incidental learning will take place)
• Learning material can be revisited automatically	
• Learning can occur at a distance from teacher/tutor/no need for student to leave home/travel	• Fewer opportunities to become involved in student social life
• Tutoring/conferencing can be done on-line	• Some disabled students may find access more difficult due to specialist equipment being needed for individual students use
• Learning patterns can be automatically diagnosed and suitable future material provided	
• Gaps in learning can be spotted and appropriate material provided to 'plug the gaps'	• Fewer opportunities to explain answers to questions if testing is predominantly multi-choice to facilitate automatic marking
• Automatic marking	• No chance of research being funded as fewer buildings exist to carry it out
• Student body can be world wide	
• May be easier for disabled students	• Practical subjects may not be suitable for CAL
• Gives equal opportunities for all students	

Example conclusions:

• Because students can learn at their own pace in the comfort of their own home with no distractions from fellow students to go 'clubbing', I believe that the Internet will help students achieve their potential in a much shorter time than going to a 'normal' university.

• As most of the testing over the internet – in computer assisted learning – relies heavily on multi-choice questions, so that less money needs to be spent on examiners and buildings, students who do not perform well in these type of tests will be put at a great disadvantage over those students who do well in them, I would prefer traditional universities to continue.

• I think learning over the internet with CAL is much better as it allows all types of students from all over the world to study and learn from the same material.

Do not accept: cost, unemployment, health problems, travel expenses, easier, more fun, faster, more accurate, no need for books etc. etc.
UNLESS well explained within context of the discussion   **[5]**

TOTAL 60 marks

Report on the Units
June 2005

Chief Examiner's Report

Units 2357 and 2358 comprise the Short Course (Specification 1094). Units 2359 and 2360 which, together with the Short Course units, comprise the Full Course (Specification 1994).

Units 2357 and 2359 are externally assessed written papers. Units 2358 and 2360 are internally assessed coursework.

General Comments on Externally assessed Units (Units 2357 and 2359)

It was apparent from the responses of candidates that they were better prepared for Unit 2357 than for Unit 2359. It is important that candidates are formally prepared for both of these Units. Note that, while it is possible for candidates to perform quite well in Unit 2357 relying on knowledge and experience of ICT gained from e.g. coursework activites, this is not possible for Unit 2359 where the more theoretical aspects of ICT are examined. Centres should endeavour to ensure that candidates are not disadvantaged by a lack of formal preparation in those areas of the specification that are tested in Unit 2359. This point has been regularly emphasised at OCR INSET sessions for this specification but it being ignored with the result that candidates are being disadvantaged in some Centres.

Centres are reminded that candidates should use generic terms such as spreadsheet, DTP, word processor etc in this specification as brand names do **not** gain credit.
Graded response mark schemes were used in this specification.

Centres are directed towards the published mark schemes for each unit for more details of the actual graded mark schemes used.

General Comments on Internally assessed Units (Units 2358 and 2360)

Centres should note that this session was the last session in which Project 1a for Unit 2358 can be assessed against the "old" criteria. For all future sessions, Project 1a work for Unit 2358 must be assessed against the new criteria.

Centres are also reminded that it is a requirement for both Unit 2358 (Projects 1a/1b) and 2360 (Project 2) to supply a Centre Authentication Form **(Form CCS160)**, signed by its teacher/assessors and this form should be posted to the moderator with the mark sheets **(MS1)** and, where applicable, coursework mark summary sheets.

Centres are once again reminded that it is a requirement for each candidate to sign a Candidate Authentication Form indicating that the work submitted is their own. **These forms should be sent to the moderator with the sample coursework as part of the coversheets for each candidate's work.**
Incomplete or inaccurate documentation received from Centres delays the whole moderation process and may result in delays in the issuing of results to those Centres that do not provide moderators with the correct paperwork. It is of particular concern in Unit 2358 (Short Course coursework, Projects 1a and 1b) where there are more choices of strands and the accompanying documentation is essential in enabling the moderator to examine the work. Centres are requested to ensure that the moderator receives the required documentation **at the latest** by the due deadline date.
Centres are referred to the published OCR documents relating to coursework administration, to the 1094/1994 Specification and to the Teacher's Guides.
Note also that OCR offers a Coursework Consultancy Service for those in any doubt of the suitability of the coursework being submitted.

2357F (2357/01 Foundation Tier)

General Comments

The paper seemed accessible to most of the candidates. Overall, the marks covered the whole range of marks and there was much variation between Centres. Some candidates may have known an answer but not read or understand the question properly and did not target their responses appropriately. Thus candidates who thought they'd learned something about a topic and wrote what they knew about the topic rather than actually answering the question. Many Reponses were based solely on what appeared to be general ICT knowledge and not on what was probably taught in the classroom (e.g. in Q. 8 much was written about hacking and fraud, rather than the costs and skills necessary to establish and run a web site)

There was the use continued use of colloquial language and poorly constructed sentences, a tendency to use mobile text language and often poor, sometimes illegible, handwriting. The standard of written English does not seem to have improved at all.

Comments on Individual Questions

1   (a)   This was meant to be a straightforward question. Many candidates gained full marks. There were very few examples of students putting more than one tick on a line, which is a pleasing improvement over previous years.

    (b)   Many candidates thought that microphones were output devices. They did not read the question completely and presumably were thinking of devices needed to create the sounds.

2   (a)   Few gained full marks. There seems to be a limited knowledge of the characteristics of storage devices. There seemed to be no particular pattern to wrong answers.

    (b)   Few gained full marks. The bar-code reader was the part which was answered best of all, but candidates did not appreciate that a touch screen could be used as input or output. The random nature of answers for motor suggested that the candidates were guessing.

3   (a)   This was answered well. Candidates who thought carefully about this question scored highly.

    (b)   Pupils seemed to respond with virtually any device that could be plugged in to the electricity system – having no idea what a microprocessor was or its function. Although the focus was on labour saving and microprocessor, candidates made lucky guesses which scored marks without actually knowing why!

4   (a)   This question was answered well.

    (b)   This question was answered well.

    (c)   This question was answered well, although crop was a popular incorrect answer.

    (d)   Too many candidates gave one word answers, such as "*quicker*, to this question. Centres must make sure that candidates respond more fully to questions of this type. The most common incorrect answer was *"accurate"*.

(e)   It was encouraging to see how many candidates gave three good answers here, perhaps reflecting the work they had done in Project 1a. It was not always easy to distinguish between answers - some gave three different people to ask for help, whereas the question wanted three different methods. References to the Internet were vague. A surprising number of candidates quoted the option of trial and error to solve problems, but this did not gain marks.

(f)   There were some good answers, but some candidates appeared to be thinking about paper copies and many just gave vague answers such as 'if the computer crashes' with no indication that the file might be lost.

(g)   Many candidates scored full marks on this question, although a good number appeared to believe that viruses were transmitted only via floppy disk

5   (a)   Most candidates scored the mark.

     (b)   Many pupils again gained the mark. There were some who transposed the answers thus suggesting that they cold not differentiate the two terms. Some just counted the 'cells' for one of the answers.

     (c)   Centre variation was apparent here – the candidates seemed to have either been taught this topic properly or not. The most common wrong answer was to put 'type of car' as Boolean.

     (d)   Answered well by many candidates, though some seemed to be guessing at the field they thought was most important to the buyer, with price being quite common. Many tried to guess at a field type rather than a field.

     (e)   Many candidates did not know the difference between ascending and descending. Others could not manipulate two fields and gave £14 000, the top price, as their answer. There were as many correct as incorrect answers.

     (f)   This was very poorly answered. Candidates did not know what an OR search did, many gave the answer as 1 or 5.

6   (a)   Many candidates clearly knew what a palmtop computer was and answered this question quite well, but large numbers obviously didn't, so overall scores were low. Portable, small and easy to carry were common answers. Incorrect responses of *"better, easier, faster"* etc. were seen far too often

     (b)   Without an understanding of a palmtop and its uses, this was a difficult question for candidates to answer. Many who achieved marks did so by luck rather than application of knowledge, giving only the simpler answers such as *"smaller"* and *"easier"* which did score some marks. Candidates frequently gave general advantages, e.g. *"lots of people can see it at once",* without actually referring to the features of the desktop.

7   (a)   The required answer of the cell reference D5 was produced by a large number of candidates.

     (b) (i)   Many candidates gave £ sign required and then wanted to move columns around. Only a few appreciated the need for two decimal places, but many gave answers such as "add zeros".

       (ii)   Many candidates were able to get one mark for describing formatting. Many thought that you would just type in the £ sign and extra 0. Some candidates seemed unable to distinguish between question parts (i) and (ii).

     (c)   The formula was rarely constructed well, despite its simplicity. It was not uncommon for the cells to be wrong, for extra = signs to appear and for multiplication to replace addition. This sort of question is common and the skills required are quite basic so this is disappointing.

8   (a)   Only about half of the candidates knew the underlined characters were links. Many candidates thought the spelling was wrong or that the underlining was to draw attention to the words.

(b)   Many points were given, such as colour, change of fonts, and pictures, but expansions were not seen. This resulted in many candidates only gaining two marks for the section.

(c)   This was poorly done. Few candidates seemed to be able to visualise navigation features built into web sites. Many candidates obtained 1 mark in "links" but others failed and talked about "map to the shop" or "directions", and thought it related to physically getting to or moving around the store.

(d)   This was answered well by the good candidates. Many answers concerned themselves with deliveries not arriving and vague ideas about payments. The most common correct answers involved credit card fraud and hacking, but not many candidates described the consequences of these concerns.

2357/02 Foundation Tier

General Comments

The structure of the paper produced the intended discrimination with various questions identifying higher grade candidates. The use of a graded response mark scheme for a number of questions again produced the required discrimination allowing better candidates to score maximum, or near maximum marks, and also allowed the questions to be accessible to weaker candidates.

There was evidence that candidates failed to score marks because they incorrectly interpreted the question by failing to read it properly e.g. a question on the use of digital networks produced generalised answers about the Internet. Centres must continue to instruct their candidates in examination technique such as being aware of the number of marks available for a question and of the key words in the questions.

Comments on Individual Questions

1   (a)   This was originally perceived as an easy question given that similar questions have appeared in previous sessions. However, a significant number of candidates failed to score the mark for the "Sold" or "Type of Car" fields.
    (b)   This question was well answered.
    (c)   This question was well answered by the majority of candidates. A common incorrect answer was £14 000.
    (d)   This question was usually well answered but a significant number of candidates clearly had no understanding because answers ranged from 1 to 5.

2   (a)   Most candidates could answer this question well and knew about palmtop computers. These candidates produced good answers and were able to score the majority of the marks pointing out, for instance, that palmtops are portable and could be used while away from offices etc. A minority of candidates did not answer this question very well and were clearly guessing.
    (b)   This question was about desktop computers and their advantages and should have been well answered. Surprisingly, many answers were vague e.g. *'bigger, faster'* with no reference to the features of a desktop computer. Common, good answers referred to the use of external peripherals, the better screen resolutions, the larger secondary storage and so on.

3   (a)   Given that this type of question has appeared with almost monotonous regularity in the last few sessions, it was unsurprising that this question was answered well by most candidates.
    (b)   This question proved surprisingly difficult with many candidates unable to describe how the cells should be formatted. This is a skill required of most ICT students and should have been easy marks.
    (c)   Once again, this type of question appears quite regularly. The formula required here was quite simple so it was disappointing to see so many formulae that could not, would not, or should not be entered into a cell. Sadly, some candidates could not even identify the correct cell references.

4　(a)　This question was very well answered by all but a minority who thought the underlining was because the spelling was wrong or that the words needed attention drawing to them.

　　(b)　A graded response mark scheme was used on this question in order to ensure that the question was accessible to all candidates. Most candidates scored one or two points but only the better candidates scored 3 or 4, thus the question proved a good discriminator. Weaker candidates merely listed points (and maybe wrote that these would make it more interesting – which repeated the question) but better candidates made a point about e.g. using different fonts and then went onto explain the effect this might have on the page.

　　(c)　This question was usually well answered but a significant number of candidates repeated their answers from part (b) and thus gained no marks. Good answers included the use of anchor points, book marks, menus, buttons, links and search engines on the pages.

　　(d)　This question was answered well by many candidates who pointed out and then explained the problems such as hackers and the misuse of data, the possibility of credit card fraud and the loss of revenue, the need for a secure server for Internet transactions, the costs involved and the need to downsize eg. staff.

5　(a)　This question was very poorly answered with most candidates unable to describe the differences. It would appear that most candidates know nothing of analogue and digital data. A misconception (although it gained some credit) was to state that, e.g. *"digital is either on or off"* or *"can only BE 0 or 1"*. Only a few candidates supplied waveform diagrams to illustrate the difference – those that did usually got it right! A substantial number of candidates got the meanings the wrong way round. A large number of candidates wrote about modems being needed to convert the data and that *"analogue signals are telephone wires"*.
Many candidates wrote words to the effect *"analogue can take a range of values"* but the key words that were missing from (almost) every response were *'continuous', 'all possible', 'discrete', 'finite', 'infinite', 'in between'.*

　　(b)　Very few candidates did not score 4 marks. Those that did not usually used = instead of < and > or used a combination of the symbols.

6　　　Most candidates stated that Barry's password could be changed thus denying him access and that, once logged on to the network, Denise could edit/view/delete files. Many also stated that the password could be given to others and that Barry would be blamed for any consequences. Only a few wrote about the use and misuse of passwords in general and thus did not obtain many, if any, marks. A rather surprising number appeared to assume that Barry was the network manager and that this password would give access to administration areas.

7 This question was not well-answered at all. Most of the responses that even mentioned *'automation'* only went as far as describing *"timers"* or *"thermostats".* Some candidates' responses implied that washing machines and microwave ovens were a very recent invention. Very little mention of different wash programmes, temperature and fill sensors, load sensors for spin-drying. Microwave ovens merely cook food faster with no mention of programmes that cook depending on the type of food or weight or can incorporate varying cooking times at different power levels? References to central heating and hot water rarely went beyond simple on/off and temperature control without describing, e.g. multi-day programmers and temperature sensors.

  Expected responses were the use of programmable entertainment devices such as DVD players/recorders and VCRs but these hardly got a mention! Even TV/VCR remote controllers were not mentioned very often. Many candidates thought this was the question about use of computers in the home – enough said! As for the changes to the way we spend time at home – well, all we seem to do is watch more TV….

8 Candidates ought to know about the documentation that accompanies ICT solutions but it would appear that many do not. While candidates who have completed Project 2 of the Full course would have covered this topic as part of the coursework, it is expected that Short Course candidates also be taught this area of the specification. This question was reasonably well answered by many candidates but there were also many that produced vague references to e.g. end-user licence agreements, passwords etc.

9 This question was quite well answered by many candidates who seemed to relish the opportunity to discuss a modern topic.

  The question produced marks that covered the entire mark range from 0 to 9, with good discrimination at the higher end.

  Some candidates confused broadband/digital networks with wireless networks and a significant few merely wrote about the advantages and disadvantages of using the Internet.

  Pleasingly, most candidates were able to discuss the benefits and drawbacks at some level and while there still some candidates who merely made lists, often bullet-pointed, with no further comments, the majority of responses were attempts to make points and then make further comments upon those points.

2358 (Short Course Projects 1a/1b)

General Comments

Where Centres failed to apply the assessment specification accurately it was mainly in the assessment of Project 1a. It is still the case that not enough Centres are encouraging their candidates to annotate their work. The teacher's guide published by OCR contains a lot of good advice and, if followed, would remove many of the problems apparently experienced by Centres when assessing the work. The training courses which the board organise also provide opportunities for individual Centres to raise points specific to their own candidates' work.

Centres are required to supply a Centre Authentication sheet signed by its teacher/assessors. This should be posted to the moderator when sending the mark sheets (MS1) and coursework summary sheets.

Centres' administration of the moderation process continued to be disappointing. Although Centres were better at adhering to the deadline for submitting coursework MS1s and summary forms, a number still failed to supply the summary forms. This delays the whole moderation process and can result in Centres failing to get their results on time. The number of errors in the completion of MS1s and coursework summary forms also cause moderators problems. It is in the Centre's own interests to complete the paperwork accurately and adhere to deadlines and to also provide the coursework sample within the 3-day deadline.

Again, the lack of internal moderation carried out in some Centres caused problems. Centres are reminded that they have a responsibility to carry out internal moderation of marking. If this trend continues moderators will be required to return the work to Centres and ask them to re-mark the work. This will obviously result in a delay in publication of results.

Project 1a

A complication this time occurred with Centres submitting work marked against the old criteria but 'translated' into marks using the new method of assessment. This was the last summer that Centres were allowed to mark under the old system. From January 2006 onwards, only the new hierachical marking criteria will be accepted.

Some Centres marked against the new criteria. In either case, it was apparent that some Centres are still not heeding the advice given in the Teacher's Guide published by OCR. Centres are still not differentiating between the need to use collected information for Level 1 skills and to 'search for' information for Level 2 work. Most candidates still failed to discriminate between the two, preferring to use only information downloaded from the Internet. This meant that they were unable to gain credit for skills 1, 2, 5 and 8. Many Centres appear to allow their candidates to go straight into producing a publication without advising the candidates on defining a purpose for the work and planning their work accordingly. Such an approach does not allow the awarding of Skills 2, 8, 15, 17 and 22. The purpose is the *reason for producing the documents* and should not be construed as the task itself. This is a requirement of even the lower mark ranges on the new scheme of assessment and failure to provide a reasonable purpose could lead to a large reduction in marks. Project 1a is similar to Project 1b now in as much as all criteria must be met in a mark range for that mark to be awarded.

The number of Centres whose candidates are defining the purpose of the work has increased. However there is still a large number of Centres where this is not the case. As has been emphasised at recent INSET sessions, candidates should not confuse a task brief with the purpose of the work. The purpose of the work is the reason why the task is

being undertaken. Most candidates who were successful concentrated on identifying an audience, usually a specific age group. The purpose of the work being to attract that type of audience.

Many candidates still failed to provide evidence that they have collected information from non-IT sources. Skill 1 requires evidence that non-IT sources have been collected.

There was a lack of annotation of some candidates' work resulting in the reduction of marks.

One other major failing was, once again, the lack of evidence of number in the work of many candidates.

As has been stated previously, the rationale behind the use of text, images and number is that in any given document the formatting of each of these is done differently. There is a requirement that candidates are aware that numbers are formatted differently to the other two forms of information. One example is the use of currency, where each one would have a currency symbol in front of it and each number would have the decimal point in line with its predecessor etc. An awareness by the candidates of the need for the different formatting requirements of numbers is all that is required. A number of candidates are still using phone numbers as their evidence of number. Telephone numbers do not meet the criterion for any skill which mentions number. Neither do other different data types such as dates or times.

Again, work lacking evidence of a list of numbers could lead to many marks being lost under the new assessment.

It is important that Centres realise that, particularly for the new assessment scheme, information has to be produced from a minimum of two non-IT sources to be included in their final booklet or slide show and also from a minimum of two IT sources for inclusion in the booklet. The Internet is considered to be only one source. It is not sufficient for candidates to look at the Internet or CD ROMs, or in magazines, books and newspapers for 'research' purposes. They must actually incorporate a minimum of four pieces of information (one from each source) into their final booklet and at least one piece should be numeric, at least one should be text and at least one should be an image.

In conclusion, it appeared that certain Centres allowed candidates to spend a lot of time producing a booklet and then, at the end of this process, tried to identify the skills which had been awarded. A more structured approach is suggested whereby candidates are advised how and where they can obtain credit for skills. One simple way of structuring the work is to allow candidates to produce between two and four pages of a booklet confining themselves to the use of in-house clipart and scanned images as their pictures. The candidates can then complete their booklets by moving on to use the Internet as a source of further information. At the other end of the spectrum, as GCSE candidates must work independently, a structure which involves worksheets which clearly define each step in the process and dictate to the candidate what they should do is also advised against. Such an approach or other on-line methods such as writing frames, can limit a candidate's opportunity to produce their own work.

Project 1b

A number of Centres are still not following the requirements of the specification that in order for a candidate to be awarded a mark within a given mark range they must match all the criteria within that mark range.

Comments on Individual Strands

Data Handling

Centres are reminded that In order for a candidate to be awarded a mark within a given mark range they must match all the criteria within that mark range. A number of Centres disregarded this requirement and had their marks reduced accordingly. In this specification the criteria are hierarchical and so if a candidate fails to verify their database, for example, they are going to get very low marks no matter how many of the higher criteria they have met.

There were still a small number of Centres awarding marks for this strand despite there being little evidence of searches (interrogation) performed on the database used. This leads to a mark of zero being awarded. The evidence required for this is a printout of the matching records.

For 14 to 16 marks to be awarded, candidates must provide evidence of using a range of sources. They must also give reasons for selecting the data for inclusion in the database. The teacher's guide for the specification explains in detail what is required. Reasons for choosing fields cannot be based on the proposition that these were what were required by a 'user'. It can be a list of possible questions (queries) which the database is required to answer which the candidate uses to deduce the fields required to answer such questions. It could be a survey of a number of possible users as to what fields would be needed and then deducing from the response what fields are required.

Some Centres are still confused over the requirements for validation. Proof that validation has worked is required. This is done by producing screen dumps showing error messages being produced as a result of the candidates setting up their own routines. The entry of text into a numeric field does not count; neither does designing field types which limit data entry. The criterion requires the candidates to write their *own* validation routines.

For marks above 19, candidates must describe their choice of software in terms of the features required to solve the problem and compare it with an alternative piece of software. Many candidates lose marks because they give a list of features which are not required by the solution or fail to give a list of features required by the solution or, indeed, give a list of features required by the solution but are equally available in the package they are rejecting. It is apparent that many candidates have little experience of using alternative data handling packages to the one they used to create their database.

For marks in the highest ranges, candidates are expected to give reasons why they have chosen the fields included in their database but left out others. They will also need to give reasons for their choice of field types and explain their choice of field lengths. A number of Centres appear to consider that it is sufficient for candidates to list these rather than give reasons for their choice. This is not acceptable.

For the highest mark range of all, the required output must be stated. This must be in terms of the format of the output as well. As one of the criteria is to comment on how easy it was to produce tables and graphs candidates must obviously stipulate these as being part of the required output and then produce this output. This will usually be the output from a list of queries which the candidate surmises they will use to test their database. Candidates must relate all the reasons for the choice of all the various features listed in the 26 to 28 mark range to this required output.

It is to be remembered by Centres that only the most gifted of students should be awarded marks in this range as it is intended to be a true discriminator for grade A/A* candidates.

Modelling

More Centres are now aware of what a complex model is. Centres are still using writing frames as prompt sheets for candidates. Often this leads to candidates being unable to truly explore the model. Validity of a model is also still causing problems. Candidates are required to compare the model with a real life situation in order to secure credit. Some candidates failed to design a complex model but were still awarded marks above 19. It is not sufficient to make a design and then go on to create a complex model; the original design should be complex. A number of Centres failed to understand the requirement for justifying the choice of software. Candidates should define their problem then produce a list of software features required to solve the problem, followed by a description of their choice of software and how well it meets the required features. The description of how they created their spreadsheet should contain a number of screenshots illustrating how these features were used.

Measuring

A number of Centres submitted work for this strand but failed to comply with the requirements of the specification's assessment scheme. Many candidates used just one type of sensor when the specification demands a minimum of two different types of sensor. Too many Centres regard this strand as an easy option. They should remember that this strand requires the same level of detail in the documentation as any other strand. The candidates' reports must still match the specification criteria in order to obtain marks. Many IT Departments allow the Science Department to teach this strand and then mark the outcomes themselves although the outcomes obviously cover the science requirements more than the ICT. Centres are reminded that 18 hours should be spent on the teaching of and production of project 1b.

Control
There was little evidence of this strand being attempted this session.

2359F (2359/01 FoundationTier)

General Comments

The candidates performed disappointingly on a paper which allowed all candidates opportunities to display their knowledge. Many candidates failed to achieve even half marks.

Most candidates attempted the majority of the questions and made a reasonable effort throughout the paper.

It is disappointing to see so many candidates failing to answer questions well which only require fairly basic technical knowledge. The majority of candidates appeared not to have even the most rudimentary grasp of technical terms.

Below is a description of the main points of misunderstanding on the part of the candidate. Where candidates performed as expected the question has not been included.

Comments on Individual Questions

1 (a)   Generally way 1 was well-answered but few gained the mark for way 2. A number of incorrect responses such as sort code reader or cheque reader or even magnetic stripe reader were offered by many candidates.

(b)   Many candidates achieved at least one mark with *central processing unit* being the preferred incorrect response.

(c)   Many candidates failed to answer operating system preferring control devices as their answer.

2   Many candidates achieved two marks here though not many gained all three.

3 (a)   Most candidates answered this question well, although a number of candidates gave D6 as an answer or got the row number wrong.

(b)   Very few candidates gave fully correct answers. Many gave calculator or working it out manually without stating that the answer would need to be compared to the spreadsheet answer.

4 (a)   This was not answered as well as expected. Many candidates made up names to fit the initials.

(b)   Most candidates that answered this question correctly gave CD ROM as their answer.

5   Most candidates scored the mark for household appliances but many were unaware of the role of a microprocessor within the appliance.

6   Very few candidates gained two marks. Many thought that encryption was required to avoid viruses.

7 (a)   Many candidates gave Microsoft Publisher as their answer despite the rubric clearly stating that the use of brand names will attract zero marks.

(b)   This question was surprisingly poorly answered. Candidates must use clipart but obviously do not give any thought to why they do so.

(c)   The vast majority of candidates appeared to have no knowledge of this part of the specification. Some candidates achieved all 3 marks but they

were in the minority.

8   Again, candidates either understood this part of the specification or they did not. Candidates either got 2 marks or zero.

9   (a)(b) Very few candidates appeared to have any understanding of batch processing or real time processing.

10   This was also a poorly answered question. Many candidates referred to columns and rows apparently thinking that this was a question on spreadsheets.

11 (a)   Candidates appeared to be more familiar with this question perhaps relying on their own experiences.
    (b)   This question was not well answered. The question clearly refers to an itemised bill but many candidates gave the advantages of a POS.
    (c)   Many candidates had little idea of how on-line stock control systems operate. The few marks that candidates usually achieved related to using the bar code reader to scan an item and at some point the stock control level was reduced as a result.

12   Candidates failed to relate their own experiences in the production of 2360 coursework to this question. Many candidates merely sought to amplify what information had already been given in the question stem.

13   This was a question which was very well answered by the majority of candidates.

14 (a)   This part of the question was well answered
    (b)(i) Many candidates failed to see the advantages from the point of view of the company. Many gave features of video conferencing rather than advantages
      (ii) This question was poorly answered. A number of candidates mentioned cost and buying a computer when the question stem clearly stated that they already had access to a computer.

2359H (2359/02 HigherTier)

General Comments

One or two questions were answered very well, but these were the questions which relied more on candidates' general or practical ICT knowledge rather than specifically taught theoretical ICT knowledge. For example, most candidates scored well on Q. 6 for additional hardware for a multi-media presentation but scored very poorly on Q. 4(c) for an explanation of automatic stock control systems.

The majority of candidates made an attempt at all of the questions. However, there were many candidates whose level of attainment suggests that they were entered for the wrong tier.

There was also strong evidence to suggest that many candidates did not have a sufficient grasp of the concepts involved in many of the actual questions being asked. All of the questions test a wide and balanced knowledge of the specification for the paper. There were many areas, and many answers to support the conclusion, that candidates had insufficient knowledge of (often) the basics covered in the specification.

Many candidates did not appear to read the whole question, opting instead for picking out a word or two from the question and writing down what they knew about those words. It is a recurring problem but Centres must continue to explain examination technique and to instil in candidates the necessity of reading the whole of the question asked, and then answering that question.

Comments on Individual Questions

1   A spread of available marks were obtained. 'Surveys' was the most common vague answer given which gained no mark.

2   Generally this question was answered badly. Many candidates did not appear to have a clear enough understanding of 'real time processing' to say why it is unsuitable for payroll applications. There were seven marking points on the mark scheme and it was, therefore, disappointing that candidates did not understand the basic differences between 'batch' and 'real-time' processing systems enough to gain any marks. The idea that real-time processing is 'immediate', and usually reacts to correct events in the outside world, whereas batch processing used in wage slip production is a routine one off event happening once a week or month seemed to escape many candidates.

3   As most candidates would have completed a piece of data handling coursework during which consideration of the file structure would have been necessary it was felt this question would have been very well answered by most candidates. It was surprising that more candidates did not score the maximum 2 marks available. The most common answers gaining no marks were 'field' (too vague), 'query design' (wrong) and 'tables' (too vague).

4   (a),(b)   Most candidates scored at least one mark in parts a and b, though a number of candidates thought that being able to check the total amount spent was an advantage of an *itemised* bill, and that an itemised bill helped the supermarket in with it's stock control.

(c)   This question was reasonably well answered with most candidates gaining 3 marks from the 5 available. The most common error was assuming that the *automatic* stock control system would alert staff when stock ran low so *they* could order further stock. Candidates could gain full marks for following an item chronologically from scan to re-order logically i.e. scan – identify – reduce stock (or add stock if being replenished) – compare new level with re-order level – order new stock. The only need for human involvement being at the scan level. Candidates had no need then to consider the more esoteric points on the mark scheme relating to statistical analysis of one sort or another.

5   Not a well answered question, few candidates scored more than 2 marks. Many candidates referred to 'testing'. One of the first considerations in evaluation is obtaining user feedback. It is from this feedback (collected by interview, questionnaires, observation, etc.) that future developments can be considered. Evidence of problems can be gained from examining the output from the system. It was expected that many candidates who had completed their coursework would have some knowledge about comparing their finished product with their original design specification – i.e. *does it do what I said at the beginning it would do?*

6   This question was very well answered - it seemed clear that most candidates had experience of multi-media presentations and the hardware necessary to perform such a presentation.

7   (a)   This was well answered with very few candidates not gaining both marks, b(i)

    (b)(i) Though well answered by most candidates, this question still gave rise to answers which were very vague, such as "*they can say what they think*". This type of question is asked frequently. It was surprising that so few candidates failed to gain maximum marks. Two (maximum) marks could be obtained by simply stating that there would be less time travelling, and less money spent on travel.

    (ii)   This question gave rise to similar vague answers which did not reflect the actual question asked which was *'disadvantages to the aid worker'* – "*it could be slow and time consuming*" is an example of a vague answer. Again maximum marks could be gained from the obvious answers of *'reduced social interaction'* and *'equipment (or electricity) failure'*.

8   Many candidates answered by saying what each method of transition was but failed to give an advantage of the method. This was a clear case of candidates not reading, and then answering, the question set. The question clearly asks for an advantage of each method.

9   Many candidates gave examples of the two methods but then failed to gain further marks as they did not appear to fully understand the meaning of the two terms. Many candidates still seem to think that *'proof-reading'* is a method of verification when it is actually a printers/publishers/typesetters tool for looking for proof errors without any reference to the original source. Basic differences, such as validation being checking *by the computer* and verification being checking *by a human*, were awarded credit but few candidates had even this level of understanding.

10   This question was answered better than in previous years but candidates still gave answers suggesting that sensors make decisions, that they are connected directly to the humidifiers, and that the computer sends signals to *them* (the sensors) to switch on the motors to open the windows. A surprising number of candidates failed to recognise that the computer was in control of the whole system. Candidates could gain full marks for considering the system, from data acquisition to action taken, using the key words given in the question. The idea that the process is repeated continuously also gained a mark – an easy mark as the question does state that the components form a control-feedback *loop.*

11   Most candidates had reasonable knowledge of back-ups and the reasons for them but very few candidates had knowledge about, and the reasons for, archiving. It was possible for candidates to gain 3 marks out of the 5 maximum for stating obvious points about back-ups – that they are copies, should be stored away from the originals, should be made regularly, and the reason they are produced – to protect against accidental or deliberate loss.

12   As in previous years: a poorly answered question. Very few candidates understand how star networks work – or how the other topologies work either. Those candidates who gained more than a mark or two gained them for *'if the hub goes down all stations "fail"'*, *'if one station goes down the rest are unaffected'* or the *'increased expense of cabling'.*

13   It has been the practice over many examination sessions to make the last question on the Higher paper a 'discuss' question where candidates are given the opportunity to consider the benefits and drawbacks of a given statement, and to then to draw some sort of conclusion. Candidates seem now to understand what is expected of them and this question was reasonably well answered – very few students failed to gain any marks, but, equally, few students gained more than 4 marks. This differentiated very well between the less- and the more-able candidates. The main points raised which gained marks were *'could study at home', 'can work at own pace', '[there is] a lack of social interaction with other students', 'practical subjects would not be covered well',* and *'benefit of having human tutor present to further explain points causing problems'.*

2360 (Full Course Project 2)

Although it is pleasing to note an overall improvement in the way that Centres interpret the assessment criteria, it is rather disappointing to note, despite the clarifications made at the INSET sessions held since June 2004 where it was emphasised that there was a number of areas where Centres were still misinterpreting the assessment criteria for this Unit, that many of these areas continue to cause difficulties. It is hoped that the comments below will aid with further clarification.

Within the Analysis section, the task of "collecting information" continues to cause concern as different Centres appear to allow their candidates to submit, and then accept, a very wide range of evidence. This session documentation for this part of the projects was seen:

- that was data collection for the database to be set up.
- that was produced as a result of candidates targeting members of their own family as *potential users* and producing signed statements confirming that questionnaires had been completed,
- that included letters they might have sent and received, which simply formed part of the write up, not even being presented as separate pages,
- that showed a reasonable attempt at showing how candidates would contact potential users and what their replies would be.

All of these levels of response were awarded the full (four) marks but not all are worthy of that credit.

It is expected that Design is done prior to Implementation and that considerable thought is given to the various items in this section before making use of the chosen software package(s). Candidates continue to be awarded more than one mark for producing a single design for each of their tables when using e.g. Access to construct a database and/or designing outputs which are no more than default settings for that package. To be awarded more than one mark in each of the first three sections of this strand of assessment, candidates must produce more than one design for each part that they identify as being necessary to the solution. When using a spreadsheet as the required software package, to be awarded marks for designing data structure, user interface and output formats, it is essential that the candidate considers more than just the layout of the spreadsheet, the formulae to be used in various cells and any formatting that may be required.

Candidates who produced designs using their chosen software package and then discussed how they were implemented were often credited with marks for making changes to their designs. This cannot be supported as they have not included evidence of original designs that needed to be changed. Also, some candidates had been credited with making during implementation changes to their design, which turned out to be the changes they had made to one of their designs to form their chosen design.

Implementation strand 4 - the *"combine software features"* - has two levels of response and to get both marks the candidate must show that they have transferred data from one software package to another for further processing for two separate reasons. This criterion is not met by "cutting and pasting".

To be awarded more than two marks for the first part of Testing, the candidate has to show that they have demonstrated that their system does all that the user requires. Many candidates were awarded these marks for including a large amount of random testing.

User Guides should be based on how to use the system that the candidate has produced and not instruct the user on how to use the computer and the software package(s). Candidates who had little experience of using a package such as Access often demonstrated in depth how to use the software, rather than having produced a system that the user could work with without really being aware of the underlying software.

A large number of candidates were awarded high marks for evaluating a system they had produced, but had not tested sufficiently to know if it did what the user required.

Apart from the specific difficulties with the application of the assessment criteria, other problems manifested themselves. It was previously mentioned that many Centres took an unacceptably long time to respond to the request by the moderator for a sample of the work. This year, there was little progress towards improving this. However, this year was marked by a significant increase in two areas:

- The inaccurate completion of the mark sheets (MS1). Almost a third of Centres had to be sent CW/AMEND forms informing them of arithmetical or transposition errors found by moderators when looking at the coursework coversheet and the MS1.
- The acceptance of candidate work that was obviously not their own individual effort. Two such examples were:

    the use of the KS3 Strategy Mobyphone model as the basis for some candidates project with claims that they had designed the model themselves, and

    the joint production of documents by two or more candidates, with their names in the header. One example was seen where one candidate simply crossed out the other name on each sheet whilst the second candidate trimmed the tops off of each page and submitted a project on sub-A4 paper.

The assessment of the strands in this Unit is deemed to be hierarchical which means that the candidate must include evidence to support the awarding of the lower marks before being eligible for the higher mark in each strand. Many Centres assumed that if the candidate produced evidence that satisfied the highest box, then anything below could be ignored. E.g. For Analysis strand 3, which states: "*Describe the inputs, outputs and processing required. Justify a system specification for the solution compared with alternatives.*"

Some candidates were awarded 3 or 4 marks for documenting a system specification (i.e. discussing software and hardware they may require), without doing more than listing a minimal number of inputs, outputs and processing that must take place for the system to meet the user requirements i.e. they had not met the requirements for 2 marks in this strand, where they expected to *"describe".* Indeed, without actually describing, but merely listing, the inputs, outputs and processing the candidates have not met the actual criteria for full marks in this strand so should not be awarded those marks.

Most Centres used a database to complete Project 2 which allowed candidates to meet the assessment criteria more easily. The use of templates, particularly one template seen in use in several Centres, is becoming more prevalent and it should be stressed that this is not to be encouraged as it often limits candidates opportunity to meet the necessary criteria, particularly in Centres where all candidates are given a set 'problem'. This particularly appears to hinder the higher ability candidates who do not then have the opportunity to put their own 'stamp' on their work and use their own interpretation of the

assessment criteria. It should also be noted by Centres that it is felt that the use of templates, and overt and excessive teacher guidance, is against the spirit of coursework.

The moderation process was not helped in a significant proportion of moderations by the marker not adequately completing the coursework coversheets. As well as the information identifying the Centre and candidate, internal assessors are expected to indicate where evidence for the awarding of various marks might be found within the project. While not a strict requirement, annotation of the work to show where marks have been awarded greatly assists the moderation process – and is an example of good practice.

**General Certificate of Secondary Education
Information Communications Technology (1094/1994)
June 2005 Assessment Session**

Unit Threshold Marks

Unit		Maximum Mark	a*	a	b	c	d	e	f	g	u
2357F	Raw	60				42	37	33	29	25	0
	UMS	55				48	40	32	24	16	0
2357H	Raw	60	48	42	36	31	24	20			0
	UMS	80	72	64	56	48	40	32			0
2358	Raw	60	57	50	41	33	27	21	16	11	0
	UMS	120	108	96	84	72	60	48	36	24	0
2359F	Raw	60				24	20	16	12	8	0
	UMS	55				48	40	32	24	16	0
2359H	Raw	60	36	30	24	18	12	9			0
	UMS	80	72	64	56	48	40	32			0
2360	Raw	60	53	44	35	26	22	19	16	13	0
	UMS	120	108	96	84	72	60	48	36	24	0

Specification Aggregation Results

Overall threshold marks in UMS (i.e. after conversion of raw marks to uniform marks)

	Maximum Mark	A*	A	B	C	D	E	F	G	U
1094	200	180	160	140	120	100	80	60	40	0

	Maximum Mark	A*	A	B	C	D	E	F	G	U
1994	400	360	320	280	240	200	160	120	80	0

The cumulative percentage of candidates awarded each grade was as follows:

	A*	A	B	C	D	E	F	G	U	Total No. of Cands
1094	1.4	9.0	25.0	45.2	61.7	75.5	86.7	95.1	100.0	43415
1994	2.9	15.1	36.2	58.9	73.6	84.7	93.1	98.2	100.0	22401

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