Information & Communication Technology A

General Certificate of Secondary Education **1994/1094**

Mark Scheme for the Components

January 2008

1994/1094/MS/R/08J

CONTENTS

General Certificate of Secondary Education

Information and Communication Technology A (1994/1094)

MARK SCHEMES FOR THE COMPONENTS

Oxford Cambridge and RSA Examinations

Mark Scheme 2357/01 Paper 1 (Foundation)

Question	Answer		Marks

1

Device	Input (✓)	Output (✓)
Red, amber and green lights		✓
Warning panel		✓
Internal warning speaker		✓
Button	✓	

[3]

2   CD-ROM

Hard disk   **[2]**

3   **Ticks as shown**

Item	Hardware (✓)	Software (✓)
CAD package		✓
Database		✓
Keyboard	✓	
Mouse	✓	
Virus checker		✓

[5]

4

Task	Type of computer
Creating complex computer images in an office	Desktop computer
Instant access to notes and reminders while on the move	PDA
Editing large video files	Desktop computer
Word processing documents when travelling on a train	Laptop computer

[4]

5

	True (✓)	False (✓)
Sensors are output devices.		✓
Emails always carry viruses.		✓
Information found on the Internet is always accurate.		✓
Computers can be used to record data collected in a traffic survey.	✓	
Computer assisted learning (CAL) allows pupils to work at their own pace.	✓	
Computer Aided Design (CAD) can be used to plan a new kitchen.	✓	

[6]

6   **(a)**   **One from:**

- Copy/cut **and** paste
- Insert (from file)/import
- Drag (from graphics package)   **[1]**

     (b)   **One from:**

- Crop
- Resize/enlarge   **[1]**

     (c)   Right aligned/justified   **[1]**

     (d)   **One from:**

- Cannot be used without permission of the owner
- Copyright   **[1]**

     (e)   **Two from:**

- No paper in printer
- No/low ink/toner
- Paper jam
- Printer off-line/broken**/**disconnected/unplugged
- Chose incorrect printer/printer driver/printer not installed/software malfunction
- Print allocation exceeded
- No access privileges for printer
- Insufficient memory in printer   **[2]**

     (f)   A copy of the file   **[1]**

     (g)   **One from:**

- Original lost/deleted
- Original corrupted   **[1]**

     (h)   **Two from:**

- Take backups regularly/eg, backup protocol eg, grandfather/father/son
- Store on removable medium/suitable medium/remote eg, web storage/named example
- Keep away from original files/secure storage
- Check that the backup is usable   **[2]**

7   **Three from:**

- Change the amount of brightness
- Type of scan – black and white/photograph/number of colours/greyscale
- Choose/change resolution
- Choose file type
- Select image area/crop image/erase image sections
- Rotation/flip/mirrored
- Zoom/enlargement/shrinking

*Must be related to scanning software and **not** generic application features eg print*

copy/paste/save/load.   **[3]**

8   **(a)**   To identify user to the system/to allow access to storage area/profile   **[1]**

(b)   For security/prevent unauthorised access   **[1]**

(c)   **Two from:**

- Mixture of letters, numbers, other characters
- Not personal to the user
- Must be able to remember it
- Keep it secret/don't tell anyone else
- Use a mixture of upper and lowercase
- Learn it/do not write it down
- Do not use a real/dictionary word
- Use a suitable length/number of characters   **[2]**

(d)   **Two from:**

- Spread of viruses
- Security issues eg hacking
- Plagiarism issues
- Computers may run slower
- Reference to hardware/software failure, eg, server failure

(e)   **Four from:**

- Inappropriate materials made inaccessible eg pornography/drugs/weapons
- To safeguard students from eg inappropriate contacts/cyber bullying
- To prevent copying/downloading of work
- To avoid being sued
- (Impulse) buying
- Gambling
- Chat rooms (made inaccessible)
- Prevent download of viruses
- Prevent distraction of students, eg, playing games
- Prevent download of large files, eg, videos/block some of the web services which are memory intensive to stop slowing of network   **[4]**

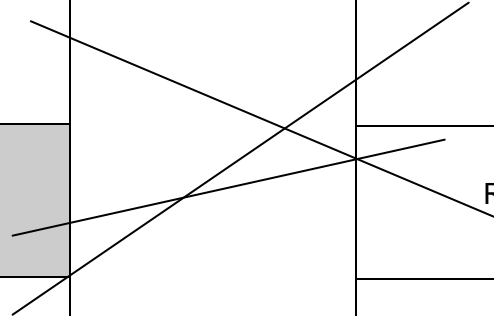**(f)**   No need to convert data as already digital/data stays in digital domain   **[1]**

9   **(a)**   Record

                 Field

                 Searching

                 File

     (b)   **[4]**

Example of data	Data type
13 March 1969	Boolean
Marianne	Real number
65.67	Date
Y/N	Text

(13 March 1969 → Date; Marianne → Text; 65.67 → Real number; Y/N → Boolean)

                                                                 [3]

10   (a)   One from:

- CD-R(W)
- DVD-/+R
- DVD RW(W)/RAM
- Flash memory/memory stick/USB pen
- Appropriate portable device eg MP3 player
- External/removable hard drive

   Do not accept: floppy disk, CD-ROM, CD, DVD   **[1]**

(b)   Two from:

- Portable
- Small
- Re-usable
- Large capacity
- Can be used on any computer   **[2]**

11   Two from:

- The use of communication links/internet
- Between people who are geographically separated
- More than two persons involved
- Can see/hear each other (video conference)   **[2]**

12   Two descriptions

- **Formulas**
- For calculations

- **In-built functions eg average, countif, sum/goal seek, etc**
- For complex calculations/manipulate data

- **Other features eg macros, sort, conditional formatting**
- With appropriate description of use

- **Graphs**
- For display of data/trends/analysis

- **Automatic recalculation**
- For update/up to date results
- Is faster than manual
- Related data

- **Use of absolute referencing**
- Use of same information in different places

- **Constant variable**
- Refers to same variable that does not change

- **Use of relative referencing**
- To change variables   **[4]**

Total marks: [60]

- **Constant variable**
- Refers to same variable that does not change

Mark Scheme 2357/02 Paper 1 (Higher)

Marks

1   **Three from:**

- Change the amount of brightness
- Type of scan – black and white/photograph/number of colours/greyscale
- Choose/change resolution
- Choose file type
- Select image area/crop image/erase image sections
- Rotation/flip/mirrored
- Zoom/enlargement/shrinking

*Must be related to scanning software and **not** generic application features eg print copy/paste/save/load.*   **[3]**

2   **(a)**   To identify user to the system/to allow access to storage area/profile   **[1]**

(b)   For security/prevent unauthorised access   **[1]**

(c)   **Two from:**

- Mixture of letters, numbers, other characters
- Not personal to the user
- Must be able to remember it
- Keep it secret/don't tell anyone else
- Use a mixture of upper and lowercase
- Learn it/do not write it down
- Do not use a real/dictionary word
- Use a suitable length/number of characters   **[2]**

(d)   **Two from:**

- Spread of viruses
- Security issues eg hacking
- Plagiarism issues
- Computers may run slower
- Reference to hardware/software failure, eg, server failure   **[2]**
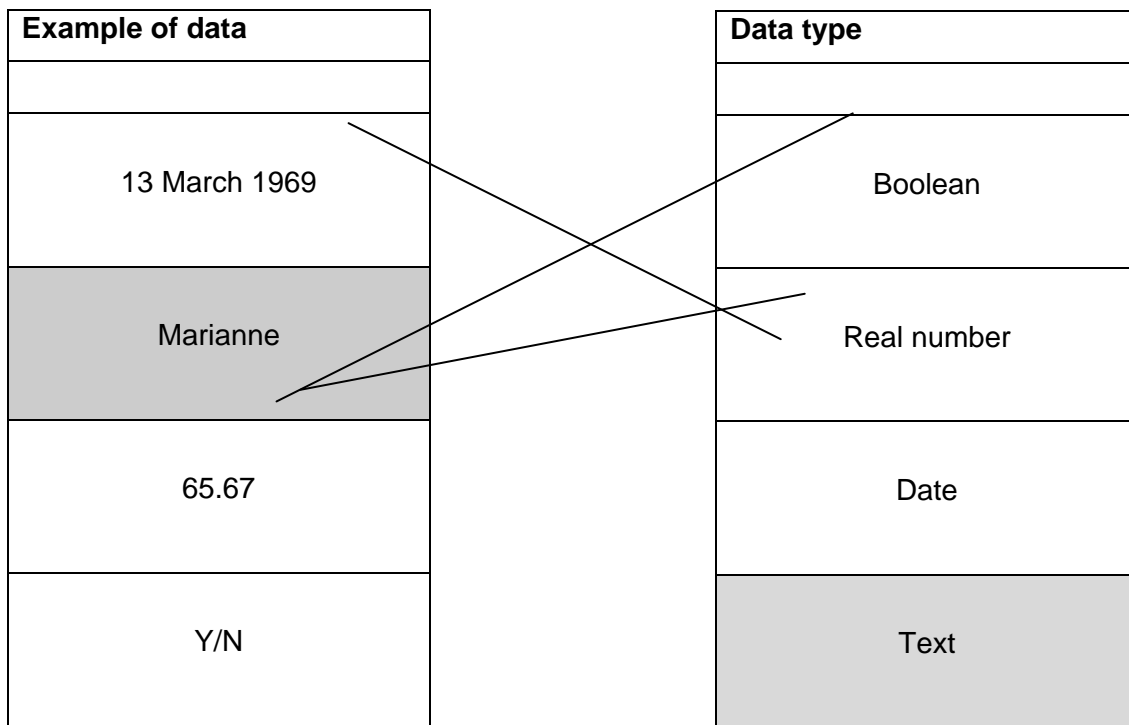
(e)   **Four from:**

- Inappropriate materials made inaccessible eg pornography/drugs/weapons
- To safeguard students from eg inappropriate contacts/cyber bullying
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- To avoid being sued
- (Impulse) buying
- Gambling
- Chat rooms (made inaccessible)
- Prevent download of viruses
- Prevent distraction of students, eg, playing games
- Prevent download of large files, eg, videos/block some of the web services which are memory intensive to stop slowing of network   **[4]**

(f)   No need to convert data as already digital/data stays in digital domain   **[1]**

3   **(a)**   Record

               Field

               Searching

               File   **[4]**

       (b)

Example of data	Data type
13 March 1969	Boolean
Marianne	Real number
65.67	Date
Y/N	Text

(lines connect: 13 March 1969 → Real number; Marianne → Boolean/crossing; 65.67 and Y/N matched)

                                                                                [3]

4   **(a)**   **One from:**

- CD-R(W)
- DVD-/+R
- DVD RW(W)/RAM
- Flash memory/memory stick/USB pen
- Appropriate portable device eg MP3 player
- External/removable hard drive

           Do not accept: floppy disk, CD-ROM, CD, DVD   **[1]**

       (b)   **Two from:**

- Portable
- Small
- Re-usable
- Large capacity
- Can be used on any computer   **[2]**

5   **Two from:**

- The use of communication links/internet
- Between people who are geographically separated
- More than two persons involved
- Can see/hear each other (video conference) **[2]**

6 **Two descriptions**

- **Formulas**
- For calculations

- **In-built functions eg average, countif, sum/goal seek, etc**
- For complex calculations/manipulate data

- **Other features eg macros, sort, conditional formatting**
- With appropriate description of use

- **Graphs**
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- **Automatic recalculation**
- For update/up to date results
- Is faster than manual
- Related data

- **Use of absolute referencing**
- Use of same information in different places

- **Constant variable**
- Refers to same variable that does not change

- **Use of relative referencing**
- To change variables　　　　　　　　　　　　　　　　　　　　　　　　　　**[4]**

7   **Points and expansions from:**

- Insert/import/add photographs/videos
- …for display
- Add captions to the photographs
- …to explain/add notes
- Use dissolve techniques/slide transitions
- …to draw attention on slide stage
- Use animation
- …to illustrate/add information
- Use moving text
- …to illustrate/add information
- Use bullet points
- …to illustrate/add information
- Use different font sizes
- …for titles etc
- Use different fonts
- …to attract attention/highlight text
- Use coloured backgrounds
- …to make images stand out
- Use of sound
- …to keep attention/hear speech
- Use of hyperlinks
- …to external information

Question to be marked as a graded response.

Marks to be awarded as follows:

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

[6]

8   Six from:

Main/internal memory:

- holds the data currently being used
- holds the instructions currently being used
- same access time for all locations
- directly addressable
- (RAM) can be volatile/lose contents on power off
- (ROM) can be non-volatile/contents not lost on power off
- is always semi-conductor (CMOS, MOS etc)/chip based

Secondary/backing store:

- stores more data than main memory
- stores data not in current use
- slower access times than main memory/main memory has faster access times than secondary
- non-volatile/does not lose content on power off
- can be magnetic
- can be optical
- can be flash (semi-conductor) memory   **[6]**

9   Six from:

Advantages:

- can work in own time/at own pace
- can repeat tests/material/work
- improves student performance (in topic)
- improves motivation/interest in the work
- individual tuition
- uses multimedia
- students get personalised feedback
- students maintain concentration for longer periods of time
- teachers can spend more time with individual students
- reports/analysis of student work is more detailed

Disadvantages:

- can be expensive
- students may not pay attention to teacher when asked
- student and teacher may not communicate
- reduce peer discussion and group work
- computers are not available for other uses
- may not like ICT

Max 4 if ALL advantages or ALL disadvantages given.   **[6]**

10   **Six from:**

- <u>temperature</u> sensor
- sends data to computer
- continuous (sending data)
- sensor connected (to computer/interface box)
- interface box/ADC used
- to protect computer circuitry
- convert analogue to digital data
- data logging software used
- data read at intervals
- data stored
- use of spreadsheet/database
- analysis of data
- graphs/tables produced
- export of data for presentation/report
- use of monitor/VDU to display results
- report printed
- use plotter   **[6]**

11   **Six from:**

- reduced clerical staff
- reduced manual workforce
- unemployment/redundancies
- one example eg printing industry, banking services, car manufacturing
- retraining
- workers moved to different jobs
- more jobs in computer (manufacturing) industries
- more jobs in IT service industries
- working from home – self-employed
- responsiveness/flexibility   **[6]**

Total marks: [60]

Mark Scheme 2359/01 Paper 3 (Foundation)

Q	Mark Scheme	Marks
1	(a) • questionnaires • interviews	2
	(b) • direct changeover • parallel running	2

2

	DTP (✓)	Database (✓)	Spreadsheet (✓)	Presentation (✓)
Making interesting slideshows				✓
Making a computer model			✓	
Creating a leaflet mixing text and pictures	✓			
Carrying out complex searches on data		✓		

Marks: 4

3

	Microprocessor (✓)	Mainframe (✓)
Used in a mobile phone for making a call.	✓	
Used in a bank for batch processing account details.		✓
Used in a desktop computer at home.	✓	
Used in a computer that supports thousands of users at once.		✓

Marks: 4

Q	Mark Scheme						Marks

4

	OMR (✓)	OCR (✓)	MICR (✓)	Bar code reader (✓)	Touch screen (✓)	
Reading bank details from a cheque			✓			
Importing a printed page of text into a word processor		✓				
Choosing an option at a fast food restaurant					✓	
Reading the details of a book at a library checkout desk				✓		
Reading product codes from a cereal packet				✓		**5**

5

Monitoring	**5**	
Implementation	**4**	
Maintenance	(6)	
Design	**2**	
Development & Testing	(3)	
Investigation & Analysis	**1**	**4**

6 **(a)** Star   **1**

(b) Bus/line   **1**

(c) **Two from:**
- sharing resources
- sharing applications/software/hardware
- sharing files/data
- emailing/sending work to teachers/home
- access work from any workstation
- pupils work can be (easily) monitored   **2**

(d) LAN/local area (network)   **1**

(e) **One from:**
- modem
- router
- hardware firewall   **1**

(f) **Two from:**
- viewing/downloading inappropriate materials
- virus problems
- hacking/security issues
- chat room issues
- Internet access can distract students from task in hand
- plagiarism/cheating   **2**

Q	Mark Scheme	Marks
(g)	**Advantage:** **One from:** • mobility • no wires/easier to install • easy to connect/disconnect/can connect anywhere **Disadvantage** **One from:** • slow • limited range • signal may be blocked by walls/obstructions • reduced security/security problems	**2**
7	**Two from:** • collects data/together over a period of time/before processing • large volume of data involved • data can be validated/verified before processing • many records to be updated… • ……at the same time • used off peak/overnight • no need for instant output	**2**

8 **(a)**

Field	Data type
Title	**text/character/alphanumeric**
Rating	**text/character/alphanumeric**
Price paid	**real/currency** **NOT number**
Medium (Tape/DVD	**Boolean**
Publication date	**date/integer/number/text /character/alphanumeric**

5

(b)   To ensure that the data entered is reasonable   **1**

(c)   **One from:**
- number of characters/digits/length
- presence check
- existence check
- lookup values
- invalid character check
- can be only one of two values/ Drop-down menu with just two possibilities   **1**

Q	Mark Scheme	Marks

(d) **Two from:**
- Visual check
- Comparing on screen/stroke printed version of database…
- …with the original data sheet

2

9 **(a)** **One from:**
For example;
- medical diagnosis
- car engine fault diagnosis
- geological/mineral surveying

1

(b) **Two from:**
- access to expert knowledge base
- access to collected wisdom of experts
- can work at own pace
- can play chess without another person
- can supply alternative solutions

2

Q	Mark Scheme	Marks
10	**Maximum 4 marks less than three 3 topics in response.**	

- automated production lines
  - less workers
  - more standard products
  - production lines can run continuously
- automated stock control
  - stock kept at correct/desired levels
  - automatic re-ordering
- Internet/on-line trading
  - reduced need for premises
  - reduced need to store stock
  - global markets
- change in work force deployment
  - less manual/low-skill workers
  - more ICT workers
  - more skilled workers
- tele-working
  - flexible hours
  - job satisfaction
  - employees can work from home/business can be run from home
- use of email
  - to send messages/documents to multiple recipients
  - attachments/to attach documents
  - can be quicker than traditional means e.g. couriers, post
- video-conferencing
  - reduced travel costs/costs of delegate accommodation/conference rooms
  - no time wasted on travelling
  - can set up conference at short notice
- training
  - on-line
  - remote
  - CAL
- advertising
  - use of (Internet) for email
  - use of web pages/sites
- globalisation
  - easy access to information around the world
- electronic money transfer
  - to supplier(s)
  - to employees/employees bank accounts

6

Q	Mark Scheme	Marks	

11   **Three from:**
- restricted file permissions
- user name <u>and</u> password
- files/folders can be protected by password(s)
- use of firewall
- access rights
- encrypting the data
- by making files hidden to other users
- by reducing access times/unavailable out of hours

Do not accept: protection software, 'read only' access rights   **3**

12   **(a)**   **Two from:**
- use of ICT
- to acquire goods/money
- not entitled to   **2**

     (b)   **Four from:**
- use secure site/sites with "padlock" icon…
- …data is encrypted
- use established sites/avoid less well-known sites…
- …more likely trader is honest
- do not respond to email requests for details…
- …ensure only trade with sites you choose yourself
- do not respond to advertising emails/spam…
- …without carrying out further checks to ensure
- …company is genuine
- check credit card statements…
- …ensure that no rogue transactions appear
- shred/destroy documents/bank statements/credit card statements/utility bills
- ....before disposal/to avoid use of these to discover personal details   **4**

     Total: 60 marks

Mark Scheme 2359/02 Paper 3 (Higher)

Q	Mark Scheme	Marks
1	**Advantage** **One from:** • mobility • no wires/easier to install • easy to connect/disconnect/can connect anywhere **Disadvantage** **One from:** • slow • limited range • signal may be blocked by walls/obstructions • reduced security/security problems	**2**
2	**Two from:** • collects data/together over a period of time/before processing • large volume of data involved • data can be validated/verified before processing • many records to be updated… • ……at the same time • used off peak/overnight • no need for instant output	**2**

3 **(a)**

Field	Data type
Title	**text/character/alphanumeric**
Rating	**text/character/alphanumeric**
Price paid	**real/currency** **NOT number**
Medium (Tape/DVD	**Boolean**
Publication date	**date/integer/number/text /character/alphanumeric**

Marks: **5**

(b) To ensure that the data entered is reasonable   **1**

(c) **One from:**
- number of characters/digits/length
- presence check
- existence check
- lookup values
- invalid character check
- can be only one of two values/ Drop-down menu with just two possibilities   **1**

Q	Mark Scheme	Marks
	(d) **Two from:** • Visual check • Comparing on screen/stroke printed version of database… • …with the original data sheet	**2**
4	**(a)** **One from:** **For example** • medical diagnosis • car engine fault diagnosis • geological/mineral surveying	**1**
	(b) **Two from:** • access to expert knowledge base • access to collected wisdom of experts • can work at own pace • can play chess without another person • can supply alternative solutions	**2**

Q	Mark Scheme	Marks

5	**Maximum 4 marks less than three 3 topics in response.**
	
	• automated production lines
	  o less workers
	  o more standard products
	  o production lines can run continuously
	• automated stock control
	  o stock kept at correct/desired levels
	  o automatic re-ordering
	• Internet/on-line trading
	  o reduced need for premises
	  o reduced need to store stock
	  o global markets
	• change in work force deployment
	  o less manual/low-skill workers
	  o more ICT workers
	  o more skilled workers
	• tele-working
	  o flexible hours
	  o job satisfaction
	  o employees can work from home/business can be run
	     from home
	• use of email
	  o to send messages/documents to multiple recipients
	  o attachments/to attach documents
	  o can be quicker than traditional means e.g. couriers,
	                post
	• video-conferencing
	  o reduced travel costs/costs of delegate
	               accommodation/conference rooms
	  o no time wasted on travelling
	  o can set up conference at short notice	

	• training
	  o on-line
	  o remote
	  o CAL	

	• advertising
	  o use of (Internet) for email
	  o use of web pages/sites
	• globalisation
	  o easy access to information around the world
	• electronic money transfer
	  o to supplier(s)
	  o to employees/employees bank accounts
		6

Q	Mark Scheme	Marks
6	**Three from:** • restricted file permissions • user name <u>and</u> password • files/folders can be protected by password(s) • use of firewall • access rights • encrypting the data • by making files hidden to other users • by reducing access times/unavailable out of hours **Do not accept**: protection software, 'read only' access rights	3
7	**(a)** **Two from:** • use of ICT • to acquire goods/money • not entitled to	2
	(b) Four from: • use secure site/sites with "padlock" icon… • …data is encrypted • use established sites/avoid less well-known sites… • …more likely trader is honest • do not respond to email requests for details… • …ensure only trade with sites you choose yourself • do not respond to advertising emails/spam… • …without carrying out further checks to ensure • …company is genuine • check credit card statements… • …ensure that no rogue transactions appear • shred/destroy documents/bank statements/credit card statements/utility bills • ....before disposal/to avoid use of these to discover personal details	4
8	**(i)** **Two from:** • name/title (of book) • topic (of book) • author (of book) • ISBN number (of book) • publisher (of book)	2

	(ii) **Two from:**
	• search for/look up….
	     o name/title (of book)
	     o author
	     o topic
	     o ISBN
	     o publisher
		2

Q	Mark Scheme	Marks
	(iii) **Two from:** • (list of) name(s)/title(s) • (list of) authors • (list of) ISBN numbers • in/out of stock status • (list of) publisher • (list of) price	**2**
9	**Four from:** • document printed from company system • (part of) document used to collect data from customer • document returned to company • user data is input to system • data processed • feedback	**4**
10	**(a)** Data on the edge of acceptability.	**1**
	(b) Data outside the acceptable range.	**1**
	(c) Data within the acceptable range.	**1**
11	**Eight from:**	
	Maximum 6 marks if only all CLI or GUI discussed. One mark available for reasoned conclusion up to the max 8 marks.	

Command line	**GUI**	
user has to know commands	commands intuitive	
commands usually have to be in full	shortcuts possible	
user has to learn commands/more training needed	less learning/training by user required	
can be daunting/more difficult to use/make more mistakes	GUI more user friendly	
no graphics	graphics used to represent tasks	
no menus	menus used for choices	
user has complete control	choices restricted to those on menu	
commands have to be accurate/correct	spelling/typing errors avoided	
no pointing device	pointing device used to select items/choices	**8**

Q	Mark Scheme			Marks
12	**Eight from:**			
	Method	**Advantages**	**Disadvantages**	
	Collecting documents	thorough understanding of company processes	takes a long time may not see all relevant documents/may miss some documents old documents may be irrelevant/of limited use	
	Observation	obtain clearer/more accurate overview of tasks	workers may resent being watched workers may not behave normally while being watched man-power intensive	
	Questionnaires	efficient way of collecting data/send to more than one person simultaneously. can collect a lot of data in a short time focuses people on issues data can be processed quickly respondents can be more honest/answer without fear of reprisal	may not be returned/some questions may be omitted may omit to cover issues may not be completed accurately	
	Interviews	can follow up on answers to gain more in-depth information unexpected issues raised can gain clearer insight/understanding of responses	very time-consuming may be difficult to keep interviewee focussed on the questions/issues may be difficult to arrange responses may not be honest	**8**
	One is available mark for reasoned conclusion up max 8 marks.			
	Total: 60 marks			

Grade Thresholds

General Certificate of Secondary Education
ICT A (Specification Code 1094/1994)
January 2008 Examination Series

Unit Threshold Marks

Unit		Maximum Mark	A*	A	B	C	D	E	F	G	U
2357/01	Raw	60				47	43	39	36	33	0
	UMS	55				48	40	32	24	16	0
2357/02	Raw	60	42	38	34	30	25	22			
	UMS	80	72	64	56	48	40	32			
2358	Raw	60	58	52	43	35	29	23	17	11	0
	UMS	120	108	96	84	72	60	48	36	24	0
2359/01	Raw	60				32	27	23	19	15	0
	UMS	55				48	40	32	24	16	0
2359/02	Raw	60	32	27	22	17	12	9			
	UMS	80	72	64	56	48	40	32			
2360	Raw	60	53	44	35	27	23	20	17	14	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	1.5	12.3	32.9	60.6	80.3	88.8	92.6	96.8	100	758
1994	2.2	30.6	53.0	74.6	94.8	97.0	98.5	100	100	149

907 candidates were entered for aggregation this series

For a description of how UMS marks are calculated see:
http://www.ocr.org.uk/learners/ums_results.html

Statistics are correct at the time of publication.

OCR (Oxford Cambridge and RSA Examinations)
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OCR Customer Contact Centre

14 – 19 Qualifications (General)
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For staff training purposes and as part of our quality assurance
programme your call may be recorded or monitored