



ASSESSMENT and  
QUALIFICATIONS  
ALLIANCE

## **GCE in Information and Communication Technology**

### **Regional Standardisation Meetings for Centres: 2003 Examinations**

### **Advice and Information about ICT 3 and 6**

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## GCE in Information and Communication Technology Regional Standardisation Meeting for Centres for ICT3 and ICT6

|              |  |
|--------------|--|
| 9.30 – 10.00 | Coffee on Arrival  |
| 10.00        | <ul style="list-style-type: none"> <li>• How to interpret the marking criteria for ICT 3</li> <li>• Consideration of the marked ICT 3 Coursework Exemplars A and C. (Exemplar A will be issued to you at the meeting.)</li> </ul> <p>Refreshment break</p> <p><b>Group Session</b></p> <ul style="list-style-type: none"> <li>• Re-consider Coursework Exemplar B in the light of the discussions about the marking criteria and Exemplars A and C.</li> <li>• Report marks back to the Coursework Adviser.</li> </ul> |
| 12.30        | <p><b>Plenary Session</b></p> <ul style="list-style-type: none"> <li>• Managing ICT 3 and ICT 6 coursework in the classroom, including how to control the volume of coursework completed by candidates.</li> </ul>   |
| 1.00 – 1.45  | Lunch  |
| 1.45         | <ul style="list-style-type: none"> <li>• How to interpret the marking criteria for ICT 6</li> <li>• Consideration of the marked ICT 6 Coursework Exemplars 1 and 2 (Exemplar 1 will be issued to you at the meeting.)</li> </ul> <p><b>Group Session</b></p> <ul style="list-style-type: none"> <li>• Re-consider Coursework Exemplar 3 in the light of the discussions about the marking criteria and Exemplars 1 and 2.</li> <li>• Report marks back to the Coursework Adviser.</li> </ul>                           |
| 3.30 – 4.00  | <ul style="list-style-type: none"> <li>• Question and answer session</li> </ul>  |
| 4.00         | Close  |

**AS ICT 3 Check Sheet<sup>NB:</sup>**

| <b>Specification (13)</b>                | <b>13</b>   | <b>11</b>  | <b>10</b>  | <b>8</b>   | <b>7</b>  | <b>4</b>   | <b>3</b> | <b>1</b> | <b>0</b> |          |
|--|---|--|--|--|---|--|----------|----------|----------|----------|
| Requirements Specification               | ... is detailed and matches the needs of the end-user |  |  | Lacks detail or does not fully match the needs of the end-user | ... is vague  |  |          | None     |          |          |
| Input, processing & output needs         | Match the req. spec. & are clearly stated             | Match the req. spec. & are stated                                    | Stated but do not fully match or are unclear               | Vaguely considered   |   |  | None     |          |          |          |
| Design Work                              | Effective designs, third party imp. Possible          | Either effective but not third party or, third party but inefficient | Incomplete and also is not effective                       | Little work  |   |  | None     |          |          |          |
| Test strategy & plan                     | Approp. Test strategy. Effective and full test plan   | Test strategy and plans present but are ltd.                         | Strategy present but incomplete test plan is vague.        | Vague  |   |  | None     |          |          |          |
| <b>Implementation (20)</b>               | <b>20</b>   | <b>16</b>  | <b>15</b>  | <b>11</b>  | <b>10</b>   | <b>6</b>   | <b>5</b> | <b>1</b> | <b>0</b> |          |
| Solution ...                             | Effective and operable in the proposed environment    | Operable in the proposed environment but has inefficiencies          | A partial solution but those aspects completed are useable | Limited and not practically operable                           |   |  | None     |          |          |          |
| Appropriate techniques ...               | Have been used  | Some have been used  | Some have been used, partial evidence                      | Few used   |   |  | None     |          |          |          |
| Generic and package specific skills ...  | Fully employed in an effective and appropriate manner | Fully employed but not always in an effective and appropriate manner | Employed but not always effectively or appropriately       | Simplistic and/or not used appropriately                       |   |  | None     |          |          |          |
| Hardware & software facilities ...       | Fully justified in relation to the solution           | some have been fully justified in relation to the solution           | Vaguely justified  | Not justified  |   |  | None     |          |          |          |
| <b>Testing (12)</b>                      |   |  |  | <b>12</b>  | <b>9</b>  | <b>8</b>   | <b>5</b> | <b>4</b> | <b>1</b> | <b>0</b> |
| Strategy and plan                        |   |  |  | Followed systematically using normal, erroneous & extreme data | Followed systematically using only normal data                                    | Followed in a limited way using only normal data |          |          | None     |          |
| Results of testing                       |   |  |  | Fully documented with outputs x-ref to the plan                | Partially documented with some outputs x-ref to the plan                          | Little documentation of the results              |          |          | None     |          |
| Corrective action                        |   |  |  | Taken and fully documented                                     | Some evidence   | Little evidence                                  |          |          | None     |          |
| <b>Evaluation (6)</b>                    |   |  |  | <b>6</b>   | <b>4</b>  | <b>3</b>   | <b>1</b> | <b>0</b> |          |          |
| Assessment                               |   |  |  | Fully completed  | Partly assessed   | None   |          |          |          |          |
| Awareness of criteria                    |   |  |  | Fully completed  | Partially aware   | None   |          |          |          |          |
| Limitations                              |   |  |  | Clearly identified   | Vague   | None   |          |          |          |          |
| <b>User Doc (9)</b>                      |   |  |  | <b>9</b>   | <b>7</b>  | <b>6</b>   | <b>4</b> | <b>3</b> | <b>1</b> | <b>0</b> |
| Functions of the solution                |   |  |  | Completely c/w screen dumps                                    | Completely covered but not well described or partially covered and well described | Partially covered and not well described         |          |          | None     |          |
| Common problems                          |   |  |  | Covered  | Briefly referred to   | Vague  |          |          | None     |          |
| Appropriate to the needs of the end-user |   |  |  | Well suited  | Partially   | Vaguely  |          |          | None     |          |

**Your Mark:**
**/60**

# Managing Coursework

## Some helpful hints on managing coursework in the classroom

1. Scheduling of coursework and co-ordination with theory work is important. Be aware of, for example, the timing of Easter in relation to the final deadline for marks. Avoid clashing with other subject deadlines. Allow time for students to improve coursework, if needed, at the end.
2. Be aware of the weighting of coursework – all AS units, ICT 1, 2, and 3, are now marked out of 60 but ICT 1 and 2 are worth up to 90 UMS marks each, 3 is worth 120 UMS marks. For A2 ICT 4, and 5 are marked out of 90 and (coincidentally) are worth 90 UMS marks, ICT 6 is worth 120 UMS marks.
3. Allow time for choosing coursework topics and for discussing them with students – it takes a lot longer than you think, but getting a sensible choice made initially can save a lot of problems later on.
4. Make sure that students make a sensible choice of coursework; it is far better for students who are weaker to complete a simpler project than to struggle with a more complex problem. The first marks in any individual section are the easiest to achieve. There is evidence that some centres are allowing students to look at *systems* for ICT 3 when the specification asks for the solution to a *task*. Ask yourself whether the student actually has time to do (thoroughly) in the time they have available the topic they have chosen, or will they end up with a half finished or simplistic solution that fails to meet the criteria.
5. Don't let students be over ambitious. It is much easier to add on extra functions to a simpler project if you have time, than to struggle to finish a complex one.
6. This will probably be the biggest piece of coursework that your students have ever undertaken. They will have no idea initially what is expected of them. Make sure you keep impressing on them, and parents, and other staff, the importance (i.e. the weighting) of coursework in this qualification.
7. Make sure that you are clear on what you want the students to include in their project work. This means reading the Teacher's Guide, the subject content for the units, the Principal Moderator's Reports and the marking criteria.
8. Make sure students have the necessary "ICT coursework skills" to enable them to complete such a piece of work. This does not mean simply knowing the software, but knowing how to write a description of the task, what it should contain (performance criteria or end user requirements etc). You may need to take some time showing students examples of these and discussing good and bad examples of them.
9. Don't expect students to know what a test strategy or plan, an evaluation or design should include. They need to be taught what these things are, why you need them and what they should include. Showing by example is the best approach, but then leaving the students to do their own themselves, but remain available for the students to consult you, as necessary.

You might, for example, set an exercise that is purely about devising a test plan and data for a particular problem, or writing an evaluation of a piece of software they have trialled. If you do have to do any of the work for the student then this must be declared on the Candidate Record Sheet, a copy of which can be obtained from AQA Publications, the address of which is on the last page of this booklet and on the inside cover of the specification. Candidates cannot receive credit for material provided to them by the teacher.

10. Similarly, ensure that the students have the correct “tools” available e.g. that they know how to draw an ER diagram and a data flow diagram; that they clearly know what is meant by processes and that they can write a design for a macro.
11. Care needs to be taken if a centre-led piece of coursework has been used to ensure that the students all have the opportunity to reach the highest mark bands. They must show evidence that the work is all their own. This can be particularly difficult to achieve in the specification if the centre-led approach is taken.
12. Encourage students to be organised and to keep everything they do together in a folder – sample documents, printouts etc. The same applies when submitting the coursework to the Moderator– make it “moderator friendly” i.e. coursework should not be submitted in a loose leaf form, even if each page is numbered; all pages should be bound together in way that is easy to read and send in the post. Also students tend to take more pride in their work if it is well presented BUT N.B.: this should not be at the cost of the content!!
13. Always get the students to wordprocess their work straight away; don’t let them write things out in rough and then type it up – this just wastes time and is harder to correct and save.
14. Encourage students to take screen shots as they go along and put them into a Word document, along with the date they took them and what they show. The candidate needs to do this to gather testing and corrective action evidence, and it helps to do it as he/she goes along, otherwise they will only have the final version at the end and it may be incomplete.
15. AQA will not accept excuses of lost disks, crashed hard drives etc – they are ICT students and as such should know how to prevent such problems! Do keep a regular backup of all of your students' work and ensure that they do the same. This means making sure that all paperwork can be replicated or replaced.
16. The coursework needs breaking down in to “bite sized” chunks. Students cannot cope with too much at once and they find it difficult to complete pieces of work with long time scales. Try getting them to do a section at a time and give deadlines for each. Stress the importance of not getting behind and how it is easier to gain more marks by completing all sections, rather than to do a lot on just one or two.
17. Use your time sensibly – make sure you have any problems sorted out when you get the chance so that the students are not held up. That means making sure that they really do know what they are trying to achieve from the start, and spending more time then will pay dividends later. Think about organising work schedules and exercises to free up time to spend with the students individually. We all know how difficult it is to get round 20 students in a practical lesson!

18. Avoid students spending time on large quantities of unnecessary work. The criteria are designed to assess the student's understanding of, and skills in design, testing etc. This does not mean that they need to produce the same design every time for a series of 10 forms. Why not think more of a common design for all forms and then a way of summarising the specific differences between them. If looking at a style for a DTP, Word or Web, project why not look at the style needed overall, rather than lots of different fonts, colours and sizes of text which make a lot of paper but help little in meeting the criteria.
19. The test strategy helps the students to identify the different types of testing they are going to do. It also allows them to explain that they would carry out similar tests on validation on other items so that they don't end up with (an unnecessary) 100 pages of unit testing and button testing, but then no testing of the actual processes in the solution. Remember that candidates are supposed to prove to the Moderator that the solution does what it is supposed to do, and that they understand the principles of why and what to test.
20. A key problem with coursework is often the lack of evidence provided by the candidates of what they have done. Remember that the Moderator cannot see the solution working, they need to have paper evidence of underlying formulas used, macros and design views of forms – not just what a user will see. Try to ensure that students take copies of these as they go along. For example, in Excel it may be worth having two copies of the final solution – one to use for printing formulas. The technique of cutting and pasting the odd formula into a piece of text doesn't really prove that it is there in the solution, and that it works correctly!
21. Use the marking criteria to help the students to structure their coursework. It will be far easier for you and an external Moderator to assess the work if it is divided into sections with sub-headings that relate to the criteria e.g. inputs, processes and outputs, test strategy, test plan, test data and so on.
22. Full annotation of coursework takes a long time and in this type of coursework candidates may not achieve a mark on a criteria based on one page but on a whole section, or several separate pages. Try to ensure that, where you locate evidence, you flag it up for the Moderator to see so as to explain to him/her why you have awarded your mark.
23. Keep checking – don't expect students just to get on with their coursework – it is the rare one that does this without some “encouragement”
24. If you have any concerns, contact your Coursework Adviser. They will be able to give more specific suggestions or guidance. Always keep in mind the overarching aim of the coursework.
25. Of all the components, the two coursework units have the most influence on a candidate's overall grade, so make sure that enough time is spent on it. The occasional blitz of spending all allocated time on coursework may be a good idea to get them started off, or to allow for the inevitable mad printing out splurge towards the end!

## **Annotating Coursework**

All coursework submitted in the sample of work sent to the Moderator at the end of the course should be annotated "to identify, as precisely as possible, where the relevant assessment criteria have been satisfied to that the reasons for the award of marks are clear," (GCE ICT specification, section 20.4 and QCA's GCE Code of Practice, para. 82). It is understood, however, that teachers may not wish to permanently annotate coursework and that marks are not necessarily achieved at one point in the work only. It is therefore acceptable to write these notes on the *Candidate Record Form* (using supplementary sheets of paper, if necessary). By annotating in this way you will be directing the Moderator to the exact points in the coursework where you consider that your candidates are picking up marks.

## **A Word about the Word Count**

Candidates will not be penalised by AQA for exceeding the ICT 6 word recommendation of 8000 words, although candidates will find it a useful discipline if they can keep the Report to within this volume. The word count of the Report comprises the substantive text which candidates write in the coursework submitted for assessment. It does not include such things as the text in screen dumps, the content of cells, annotation of screen dumps, and such like.

There isn't a volume recommendation for ICT 3, but it should be brought to candidates' attention that the time spent on coursework for any subject should not exceed the equivalent weighting of that component in the examination, taking into account both its practical/skills element, and the extent to which it allows candidates to learn about any theory associated with both question papers and coursework. For example, if the weighting of a unit comprises 30% of a qualification, it should take up no more than this amount of class and personal study time.

## **Candidates Working as Part of a Group: What You Need to Know**

Candidates can participate in group activity in any aspect of work relating to coursework provided that, for an activity which is to be submitted to AQA for assessment, the teacher can observe the individual's contribution to group work and award an appropriate mark. Any aspect of coursework provided by the teacher cannot be credited to the candidate.

## **Magnetic and Optical Computer-based Material: Not Creditable**

Please note that Moderators are instructed not to view any magnetic or optical computer-based material. Such material cannot therefore contribute to the marks.



## ICT6 Check Sheet<sup>NB:</sup>

|                   |     |           |  |  |
|-------------------|-----|-----------|--|--|
| Centre            |     | Candidate |  |  |
| General Comments: |     |           |  |  |
|                   |     |           |  |  |
| Your Total Mark   | /90 |           |  |  |

|   | 18    | 15 | 14   | 10 | 9                             | 8 | 7 | 6 | 5                                     | 4 | 3 | 2                      | 1 | 0                     |
|---|-------|----|--|----|-------------------------------|---|---|---|---------------------------------------|---|---|------------------------|---|-----------------------|
| <b>Analysis</b>   |       |    |  |    |                               |   |   |   |                                       |   |   |                        |   |                       |
| Appropriate problem specified independently and in conjunction with the end-user? | Yes   |    | Yes, but only with reference to the end-user |    | Yes, but some guidance needed |   |   |   | Yes, but considerable guidance needed |   |   | No, simplistic problem |   | No analysis submitted |
| Problem statement is clear, covering nature and context?                          | Yes   |    | Clear outline                                |    | simple outline only           |   |   |   | superficial outline only              |   |   | Not stated             |   |                       |
| Requirements of the end-user clearly identified?                                  | Yes   |    | Many are recognised                          |    | Attempted                     |   |   |   | Only some are given                   |   |   | Minimal                |   |                       |
| Capabilities and limitations of resources are fully recognised?                   | Yes   |    | Many are recognised                          |    | Attempted                     |   |   |   | Only some                             |   |   | Minimal                |   |                       |
| Info flow and data dynamics have been identified ...                              | Fully |    | Partly                                       |    | Only as a limited subset      |   |   |   | Not identified                        |   |   | Not stated             |   |                       |
| User skills and training needs identified?  | Yes   |    | Partly                                       |    | Little work                   |   |   |   | Minimal                               |   |   | No work                |   |                       |
| Evaluation criteria are fully identified?   | Yes   |    | Some   |    | Few                           |   |   |   | None                                  |   |   | No work                |   |                       |
| <b>Analysis</b>   | /18   |    |  |    |                               |   |   |   |                                       |   |   |                        |   |                       |

|  | 16               | 13 | 12                                    | 11 | 10 | 9 | 8                              | 7 | 6 | 5  | 4 | 3 | 2                | 1 | 0                                     |
|--|------------------|----|---------------------------------------|----|----|---|--------------------------------|---|---|--|---|---|------------------|---|---------------------------------------|
| <b>Design</b>  |                  |    |                                       |    |    |   |                                |   |   |  |   |   |                  |   |                                       |
| Range of approaches is relevant and detailed?                    | Yes              |    | Relevant but lacks detail             |    |    |   | Limited                        |   |   | one approach                                       |   |   | Little work      |   | No detail of chosen solution provided |
| Choice of solution has compelling reasons?                       | Yes              |    | Justified                             |    |    |   | Reasons are weak               |   |   | Reasons are vague                                  |   |   | invalid          |   |                                       |
| Solution is detailed and third party implementation is possible? | Yes              |    | Third party but with difficulty       |    |    |   | Candidate only could replicate |   |   | Candidate only could replicate but with difficulty |   |   | Superficial      |   |                                       |
| Schedule and work plan are ...                                   | Well defined     |    | Included                              |    |    |   | Included but limited           |   |   | Included but poorly thought out                    |   |   | Vague or missing |   |                                       |
| Test plan  | Effective & full |    | Devised with some test data specified |    |    |   | Present                        |   |   | Present but poor                                   |   |   | Vague or missing |   |                                       |
| <b>Design</b>  | /16              |    |                                       |    |    |   |                                |   |   |  |   |   |                  |   |                                       |

<sup>NB:</sup> This check sheet must be used in conjunction with the marking criteria in the published specification.

| <b>Implementation</b>                          | 15   | 11 | 10   | 6 | 5                      | 1 | 0                             |
|--|--|----|--|---|------------------------|---|-------------------------------|
| Implementation is ...                          | Full and effective with no obvious defects |    | Reasonable effective and contains the essential elements |   | Partial                |   | There is no evidence provided |
| Software and hardware facilities have been ... | Appropriately and fully exploited          |    | Exploited some features                                  |   | Exploited few features |   |                               |
| Documentation is ...                           | Clear and thorough                         |    | Lacks detail   |   | Largely missing        |   |                               |
| Implementation                                 | /15  |    |  |   |                        |   |                               |

| <b>Testing</b>              | 15  | 11 | 10                                       | 6 | 5                                      | 1 | 0                               |
|-----------------------------|---|----|--|---|--|---|---------------------------------|
| Test data used ...          | Covers most or all eventualities                  |    | Covers a range of relevant eventualities |   | Limited and not always relevant        |   | There is no evidence of testing |
| End-user involvement is ... | Clearly evidenced and reflects full participation |    | Evidenced but only partial involvement   |   | Evidenced but involvement is limited   |   |                                 |
| System ...                  | Works with a full range of test data              |    | Works with a limited range               |   | Fails to meet the design specification |   |                                 |
| Testing                     | /15   |    |  |   |  |   |                                 |

| <b>User Guide</b>             | 8                                  | 7 | 6 | 5                       | 4 | 3                | 2 | 1 | 0                     |
|-------------------------------|------------------------------------|---|---|-------------------------|---|------------------|---|---|-----------------------|
| User guide is ...             | Comprehensive and well illustrated |   |   | Illustrated and useable |   | Poorly described |   |   | No user guide present |
| All relevant aspects covered? | Yes                                |   |   | General use only        |   | Partial          |   |   |                       |
| User Guide                    | /8                                 |   |   |                         |   |                  |   |   |                       |

| <b>Evaluation</b>   | 10  | 9 | 8         | 7 | 6                | 5 | 4                   | 3 | 2 | 1 | 0                             |
|---|-----|---|-----------|---|------------------|---|---------------------|---|---|---|-------------------------------|
| Have a full range of quantitative and qualitative criteria been considered? | Yes |   | Partly    |   | Partially        |   | Minimal             |   |   |   | No attempt made at evaluation |
| Is it fully evaluated against the needs of the end-user?                    | Yes |   | Mostly    |   | In Part          |   | Little attempt made |   |   |   |                               |
| Modifications/enhancements fully discussed?                                 | Yes |   | Specified |   | In a limited way |   | Minimal             |   |   |   |                               |
| Evaluation  | /10 |   |           |   |                  |   |                     |   |   |   |                               |

| <b>Presentation</b>                                | 8         | 7 | 6                      | 5 | 4                        | 3 | 2                      | 1 | 0 |                     |
|--|-----------|---|------------------------|---|--------------------------|---|------------------------|---|---|---------------------|
| Written style                                      | Excellent |   | Good                   |   | Satisfactory             |   | Weak                   |   |   | No report submitted |
| Illustrated  | Very well |   | Well                   |   | Satisfactory             |   | Weak                   |   |   |                     |
| Organisation                                       | Excellent |   | Good                   |   | Satisfactory             |   | Weak                   |   |   |                     |
| It describes the project accurately and concisely? | Yes       |   | Reasonable but limited |   | Deficiencies & omissions |   | Considerable omissions |   |   |                     |
| Preparation  | /8        |   |                        |   |                          |   |                        |   |   |                     |

# **The Principal Moderator's Report on ICT 3 and ICT 6**

## **June 2002 Series of the Examination**

### **Unit 3 The Use of Generic Application Software for Task Solution**

#### **General Comments**

The majority of the work submitted was produced using Microsoft Office suite of applications and was either spreadsheet or database implementations. Generally the spreadsheet implementations were of a higher standard than the database implementations, with more software specific features relevant to the solving of the problem being exploited.

The problems attempted were generally suitable for the requirements of the specification and, in most cases, the resulting solutions were appropriate. Some centres misinterpreted the standard in terms of the criteria published and often awarding too much credit. This was particularly evident when marks were awarded yet the candidate presented limited evidence of implementation and testing.

#### ***Specification***

Great care needs to be taken when advising candidates about the nature of the problem to be solved. For example, it was sometimes seen that in a database style project that very complex problems with too much scope were tackled. Whilst suitable for ICT 6, such problems often led to the candidate producing a superficial solution that was often not operable within the environment described.

Most candidates gave due consideration to user requirements and there were some good attempts to identify input, processing and output needs. Weaker candidates gave vague descriptions, referring to “keyboard input” and “screen output”, but failed to consider these needs in sufficient detail,

Some good design work was seen but problems did exist where there was insufficient evidence to support a third party implementation. Often this was because candidates focused solely on the visual elements of interface design. In spreadsheet work, often there was no design for the macros that appeared later in the implementation. In database work there was often a failure to consider how the data would be manipulated e.g. query design. Many candidates did not clearly describe the origins for their database structures and many, as a result, could not correctly formulate the entities and attributes into a coherent, workable database structure. Too many projects were seen where the solution was implemented using a flat-file structure rather than a relational database. A further weakness was the use of multiple tables consisting only of one-to-one relationships.

Very few candidates produced a written, coherent testing strategy. Test plans and test data were, at times, limited. For database implementations, data sets for testing must be included. For example, if a query that locates delinquent borrowers for a library is to be tested, it must be clear which records from the stored data are expected to be retrieved. Candidates should clearly test that the major functions of the implementation work. For example, if the purpose of the project is to conduct a stock re-order then this function needs to be checked for the correct output, and the data on which it should act should be clearly defined. Some candidates spent far too much time testing validation at the expense of the critical tasks that the project intended to deliver.

### ***Implementation***

Some candidates failed to realise or understand that documentary evidence must be provided to prove that they had met the assessment objectives. There must be clear proof in the submitted project to establish that the solution described has been built, and to show the Moderator what skills and techniques were deployed. Spreadsheet solutions must include printouts of the formulae used where the cell references can be clearly identified and checked. Thus care must be taken that screen shots are legible.

Evidence of the quality of the implementation can be taken from the testing section, however there must be clear documentation of the solution to allow a judgement to be made by the Moderator on the effectiveness of the solution produced in meeting the assessment criteria.

### ***Testing***

It is *critical* that the fundamental purpose of the project is fully tested and that hard copy evidence of this is included for the Moderator to see. It is the intention that testing should take place as the solution is developed and that candidates should show the problems that occurred, the steps they took to solve these problems and any subsequent re-testing to show success.

Weak test plans focussing solely on testing validation, input masks and navigation do not provide adequate proof and the focus must be on the main objectives of the solution.

### ***Evaluation***

Before attempting this section candidates must be clear on the general criteria for the assessment of an Information Technology based solution. The candidate is then expected to reflect on how well their solution meets these criteria. The criteria may need extending depending upon the nature of the project but the candidates must discuss their success/failure and not simply state the evaluation criteria stating whether it has been achieved.

### ***User Documentation***

The focus for this work should be on the main task that the solution delivers and the explanation of it in a form suitable for the prospective (real or realistic) end-user. To this end, many candidates produced sound, good quality user documentation which demonstrated normal use of the system with some candidates providing forms of on-line help.

## **Unit 3 - The Use of Generic Application Software for Task Solution (31712 candidates)**

| Grade                 | Max. mark | A  | B  | C  | D  | E  |
|-----------------------|-----------|----|----|----|----|----|
| Scaled Boundary Mark  | 60        | 42 | 36 | 30 | 24 | 18 |
| Uniform Boundary Mark | 120       | 96 | 84 | 72 | 60 | 48 |

## Unit 6 The Use of Information Systems for Problem Solving

### General Comments

A number of coursework supervisors built on their previous experience with module IT06 and facilitated the production of high standards of work from their candidates; work that was accurately and consistently marked within the assessment criteria. Where discrepancies occurred, these were due to there being inadequate evidence within the candidates' reports to support the judgements being made by the supervisor.

The key issue to this unit is, "... to produce an information system for a real end-user." Genuine interaction between the candidate and the end-user is an *essential* requirement for this unit and has a critical effect on the assessment, particularly within the testing section. In addition, work for this module is then expected to reflect a realistic situation where data is expected to change over time. A number of candidates produced "one-off" solutions that either solved a single problem with no need for reusability or trivialised the solution so that it could not be operated over time.

The majority of work seen was implemented using *Microsoft Access* and this facilitated some high quality implementations. The over reliance of some candidates on textbook-based situations gave them limited opportunity to achieve the full scope of the implementation.

### *Analysis*

The purpose of this section is to explain fully the precise operation of the current system and the constraints upon it to the point that the design could be developed by a third party. Frequently it became clear that candidates did not have a full enough understanding of the problem they were solving and this often then led on to simplistic or inappropriate solutions.

Some form of data and process analysis is essential in order to identify fully the information flow and data dynamics. Certainly a data dictionary should be produced in this section, particularly if a database design is to be considered at a later stage. Unfortunately high marks were sometimes awarded for superficial attempts at this section. The simple inclusion of a data flow diagram without other essential written descriptive work is unlikely to ensure that the information flows and data dynamics have been fully identified. Systems analysis tools and techniques are widely explained through a vast range of resources and texts. It is expected that candidates will make appropriate and sensible use of these tools and techniques.

It is clear that this section makes the greatest contribution towards the candidate's successful completion of this unit. Without a full understanding of the problem and how the system currently operates, candidates will be limited in the solution they are able to develop.

### *Design*

In ICT 6, the discussion of possible solutions has now been subsumed within a single design section. However, candidates often gave a simple list, with the justification being a statement of the functions of the software package to be used. The theory for judging the suitability of software against specified criteria and user requirements is covered in module ICT5.

To achieve high marks for Design, not only must a competent third party be able to implement from the designs given, but an effective and full testing strategy and plan must be present in this section of the documentation.

It was pleasing to see candidates attempting normalisation when a database solution was selected. A distinct weakness, however, was the over-concentration on the visual aspects of design. Candidates often gave good form or report designs, but many candidates neglected to design the queries for the system, or give sufficient detail about those queries. Candidates often failed to clearly document the processing methods that would be

applied to their data. Macros were often mentioned as existing and were documented in the Implementation, but too often were completely omitted from the Design work.

Testing was not well documented at this stage with few candidates producing a test strategy and plan(s) before implementation. The candidate must have a clear idea of the desired result, the criteria for success and the nature and scope of the data used for the test. The main focus for testing must be on the main functionality of the system. For example, in a car hire system it is essential that the candidate is able to show that an available car can be hired, that it cannot be double booked and that the car can be returned and so made available for subsequent bookings. Over-reliance on navigation testing and on validation tests for entering a single object to a table, e.g. a new customer, is relevant but should not be the main thrust of testing.

With regard to planning, it was encouraging to see the use of appropriate techniques such as Gantt or PERT charts often produced by software means. The use of software to plan and manage progress is pleasing to see, but the simple inclusion of one diagram within the report is not a compelling reason to give very high marks for planning for implementation without other supporting documentation.

### ***Implementation***

Candidates must focus on proving that they have generated a full and effective solution to the problem posed. Whilst evidence may be drawn from the testing phase to support this judgement, there must be adequate technical documentation within this section to support the judgements made.

### ***Testing***

Testing continues to be one of the weakest aspects of candidates' reports, despite many centres using appropriately structured test plans. It is clear that there is still an over reliance only on testing events. Is it common to read of a test for "pressing a button" and then to read "works as expected" with no proof. Systems designed for ICT 6 must manipulate data. The candidate must clearly demonstrate what events need to be considered, how and what data these events manipulate, and the resulting output.

The marking criteria states that the, "...system works with a full range of test data." When candidates did use appropriate data it often did not address the full range of values expected. This was often due to inadequate planning for testing which may relate to candidates not bring fully sure of the what their system was supposed to achieve.

To get into the highest mark range for the Testing criteria, there must be, "clear evidence of end-user involvement in testing." This was a significant change for the ICT 6 assessment and allowance was made in the moderation of this year's work for conversion to the new requirements. No such allowance will be made for further assessments and evidence of participation must be clear in future if a high mark is to be accepted by the Moderator.

### ***User Guide***

In IT 6, the User Guide was assessed as part of the Report; in ICT 6 it is assessed separately from the Report. To gain high marks in this section, user guides must be comprehensive. A common weakness was the inclusion of detail about how the software package works, rather than comprehensive detail about the software customisation produced. Systems should deal with problems in which there is dynamic change to data and clearly the guides should deal with the issue, including issues such as archiving where necessary.

### ***Evaluation***

Candidates will be familiar with the generalised criteria for assessment. Whilst any information system will have general criteria that can be applied (e.g. how robust the solution is), the candidate must make these criteria specific to the problem in hand. The candidate must identify suitable performance indicators, both qualitative and quantitative, against which to assess the performance of the solution. Evidence must be provided within

the report and as part of the discussion. For example, if a candidate had set an objective relating to accuracy of processed data, then it is necessary to state what degree of accuracy is required. In discussion of whether this objective had been met, the candidate should offer reference to proof, which should be available within the testing section of the report.

### ***Report***

The final report should be clearly delineated, have page numbering and a list of contents. Overall it should be possible for a third party to follow the progress of the solution through its stages, clearly seeing the development of the system. Illustrations should be used when appropriate. Candidates are reminded of the need for accurate spelling and grammar.

## **Unit 6 - The Use of Information Systems for Problem Solving (14234 candidates)**

| Grade                 | Max. mark | A  | B  | C  | D  | E  |
|-----------------------|-----------|----|----|----|----|----|
| Scaled Boundary Mark  | 90        | 59 | 50 | 42 | 34 | 26 |
| Uniform Boundary Mark | 120       | 96 | 84 | 72 | 60 | 48 |

## Internal Standardisation and the Code of Practice

1. According to the GCE Code of Practice, the examining group responsible for the GCE award, "must require centres to standardise assessments across different assessors and teaching groups. This is to ensure that ... all candidates in the centre have been judged against the same standards..." (para. 84). In other words, the internal standardisation of coursework must be carried out where more than one teacher is responsible for the assessment of coursework so that candidates' marks can be submitted to AQA in a single rank order for the whole centre. The following information has been prepared to assist centres in the fulfilment of this requirement.
2. **It is the responsibility of the teacher representing the centre at the Standardisation Meeting to make sure that the standard set by AQA is used at the internal Standardisation Meeting. Centres which fail to conduct *effective* internal standardisation run the risk of jeopardising their candidates' marks.**

### Internal Standardising: Proposed Method

3. Internal standardisation can be undertaken by centres in a variety of ways; the method chosen is at the discretion of the centre. However, whichever method is used, it must involve the use of reference materials and trial marking of common pieces of work by the teachers concerned until a common standard of marking is reached. One method of internal standardising is suggested in paragraph 4, below.
4. The Coursework Exemplars supplied by AQA set the standard for the marking of the ICT 3 and ICT 6 components. It is therefore these Exemplars which should be used as reference material in centres' internal standardisation of coursework assessment.

The same method used at AQA's Standardisation Meeting should be adopted for internal standardising in the centre. The stages are as follows.

- |                     |   |
|---------------------|---|
| <b>First Stage</b>  | Study the marked exemplar for ICT 3.  |
| <b>Second Stage</b> | With pencil marks erased from when it was used at AQA's Standardisation Meeting, mark and annotate the "clean" exemplar for ICT 3 against the criteria of the appropriate mark scheme.<br><br>Any discrepancies between the marks given by individual members of staff and AQA's mark for this exemplar should be discussed and resolved. |
| <b>Third Stage</b>  | Return to the coursework of your own candidates and apply the AQA standard.   |
| <b>Fourth Stage</b> | Repeat the process for ICT 6.   |

This process can be extended to work generated by the centre until a common marking standard is reached between the teachers concerned.



## Certification of Internal Standardisation

5. The Head of the Centre and participating staff are required to confirm that assessments have been internally standardised across different teachers by completing a *Centre Declaration Sheet*. This sheet must then be sent to your Moderator with the sample of your candidates' coursework. If you do not have a copy of the *Centre Declaration Sheet* one can be obtained by writing to, telephoning or emailing AQA at Publications Department, Aldon House, 39 Heald Grove, Rusholme, Manchester. M14 4PB (Tel: 0161 953 1170; Facsimile 0161 953 1177) or photocopy the sheet at the back of the specification.

## Information about the Method of Moderator Sampling and Moderation

- Teachers meet together in the autumn for a Standardisation Meeting to discuss the coursework exemplars provided by AQA. (Coursework exemplars are usually drawn from the previous year's cohort of candidates.) Teachers will then return to their centres to mark their candidates' work.
- In December and April in the year of the examination, centres will be sent a Centre Mark Sheet (CMS). Centres must insert the coursework mark for each of ICT 3 and ICT 6 for each candidate and send the top copy to AQA, and the second and third copies to the Moderator, together with the *Centre Declaration Sheet*.  
All Centre Mark Sheets must be sent to *arrive no later than 10 January for the January series of the examination or 15 May for the June series*.
- Moderators then attend a training meeting at the offices of AQA in the Autumn and Spring terms before the January and June examinations to discuss administrative procedures, to mark further coursework exemplar material chosen by the Principal Moderator, and to remind themselves of the standards of marking .
- When the Moderator receives the CMS he/she will then return a copy of the Centre Mark Sheet to the centre to indicate which candidates' coursework, duly marked and annotated, must be sent to him/her. Each item in each ICT 3 and ICT 6 sample must be prefaced by a *Candidate Record Sheet* (completed by the candidate) and, if used, an ICT 6 Project Advice Form. Further samples of work may be requested later.
- The Moderator's marks for the sample are sent to the Manchester offices of AQA. Centres' coursework marks are then adjusted by a computer using a process known as regression. Please see *The moderation of centre-assessed components: an explanation for centres*, below, for more information about regression.
- When the results are published, centres will receive a computer print-out providing details of any adjustments to their candidates' marks. All centres will also receive a written report on the sample of work submitted to AQA.
- Additional feedback to centres is provided through the Principal Moderator's Report and at the subsequent year's Standardisation Meeting.
- Attendance at future Standardisation Meetings will, for most centres, be at their discretion but it is strongly encouraged by AQA. However, for certain categories of centres, attendance at the following year's Standardisation Meeting will be compulsory. The types of centres whose attendance will be compulsory are given in para. 22.1 of the specification.

# **The Moderation of Centre-Assessed Components (including VCE/GNVQ Portfolio Units)**

## **An explanation for centres**

### **Introduction**

When results are sent to centres, details of candidates' final marks for centre-assessed units/components are included. By comparing these marks with the original centre marks, centres can see whether their marking in a particular unit/component was accepted without any change or whether adjustments were made.

When an adjustment has been made, centres wish to know how the final marks were determined. This document explains the procedure which is used.

### **Why is moderation necessary?**

The *GCSE, GCE, VCE and GNVQ Code of Practice* requires that marks submitted by each centre must be moderated by the examining body and that marks must be adjusted where necessary to bring centres' assessments into line with standards generally.

Awarding marks entails human judgement so, when a moderator looks at a centre's marking, it is unlikely that there will be precise agreement. Two people assessing the same piece of work may disagree on whether enough of a skill has been demonstrated or whether an answer is clear. Even one person may mark a piece of work, then re-mark it later and make slightly different judgements without being 'wrong' either time. It is possible to reduce differences with practice, experience and discussion but they will always exist. A small *tolerance* is therefore allowed on centre assessment. If the differences between a moderator's marking and a centre's marking are within this tolerance, the differences can be taken as a legitimate variation in judgement and the centre's marks can be accepted. If the differences are outside the tolerance, an adjustment will be needed to align the centre's standard of marking with the agreed AQA standard.

### **How is moderation carried out?**

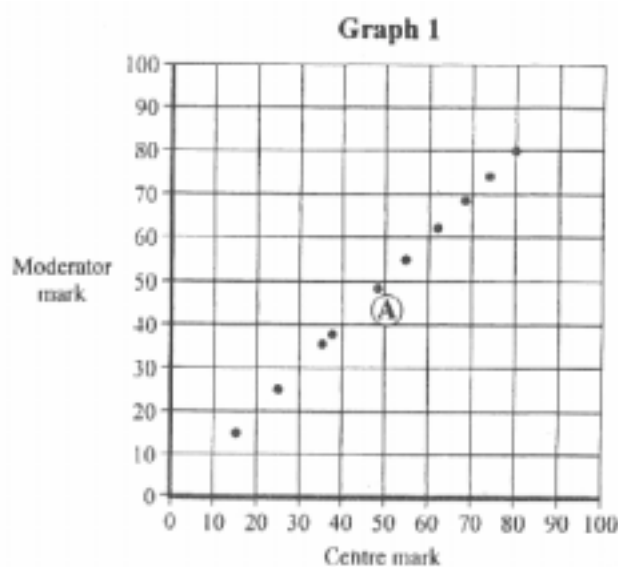
In most AQA coursework units/components and portfolio units, a sample of work from each centre is provided for a moderator (either by post or when the moderator visits). The moderator starts by considering part of the sample (called the *sub-sample*). If the moderator agrees with the marks in this sub-sample (to within the specified tolerance), then no change is made to the centre's marking. If the centre's marks for any of the work in the sub-sample are outside tolerance, the moderator considers the remainder of the centre's sample, and any necessary adjustment to the centre's marks is made using the regression technique described below. In exceptional circumstances, an adjustment which is fair to all candidates cannot be found simply by sampling the work, and at that point the moderator will request further work from the centre.

It is important to note that the marking of the sample (or sub-sample) is not a re-assessment of the individual candidates involved, as it would be unfair to amend the marks of these candidates on a different basis from the

marks of the other candidates at the centre. The sample is only intended to be *representative* of the marking standard at the centre, in order to provide an indication of whether an adjustment is needed and to determine the nature and scale of that adjustment.

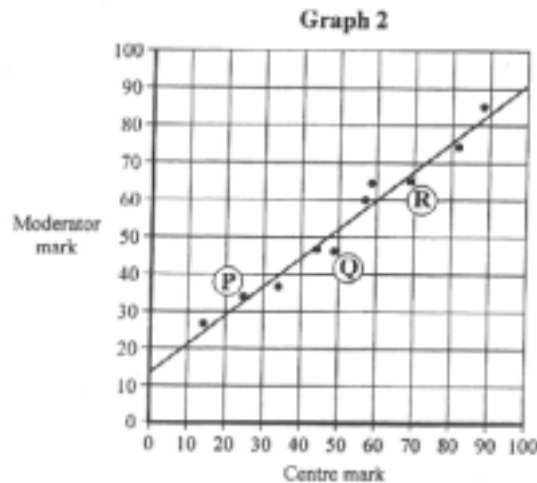
### How is regression used to make adjustments?

Regression is a method for comparing two sets of data (in this case centre marks and moderator marks) in order to find the relationship between them. To understand how regression works, think about what happens if a graph is plotted to show centre marks and moderator marks for the candidates in the sample. If the moderator re-marked a sample of ten candidates and agreed with every one of the ten centre marks, then the result would be as shown in Graph 1. For example, candidate A was given 49 marks by both the centre and the moderator.



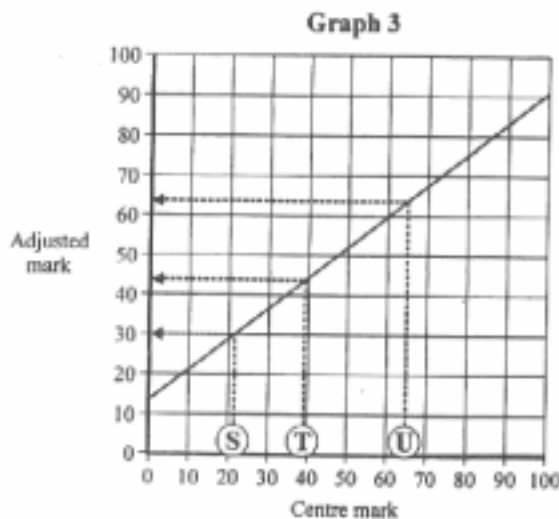
In reality moderation produces something more like Graph 2: candidate P was given 24 marks by the centre and 34 by the moderator, candidate Q was given 49 marks by the centre and 46 by the moderator, and candidate R was given 69 marks by the centre and 65 by the moderator.

The points do not lie precisely on a straight line but there is obviously a trend. A line has been drawn to show this trend. This line is known as the regression line.



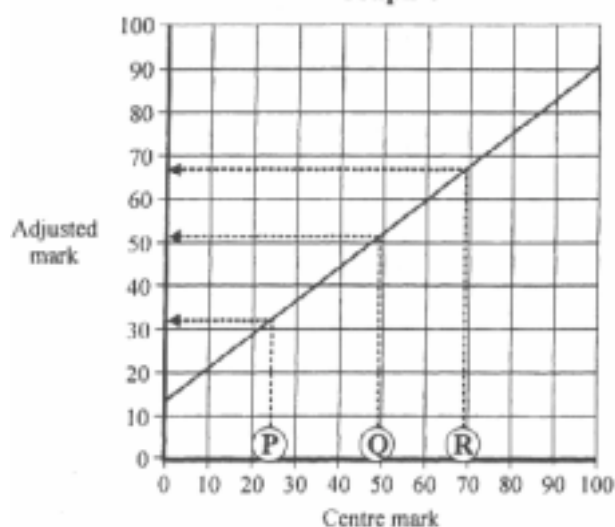
AQA uses the regression line in order to make a fair overall adjustment to the work of candidates in a centre. Graph 3 shows the line from the example given above. This can now be used to read off the adjusted mark for every candidate at the centre. For each candidate, the line gives an estimate of the mark that the moderator would have given. The estimate is based on the sample of work that was actually inspected by the moderator.

Three examples are shown in Graph 3. The centre gave Candidate S a mark of 21, Candidate T a mark of 39 and Candidate U a mark of 65. These marks are adjusted, using the regression line, to 30, 44 and 64 respectively, as shown by the broken lines.



To preserve the centre's order of merit and to ensure that the candidates whose work was sampled are treated no differently from the other candidates at the centre, the marks of all candidates are adjusted using the regression line, whether or not their work was seen by the moderator. The procedure – which is used to find the best match of the centre's marks to the general standard – does not guarantee that candidates in the sample will get the mark which the moderator gave to their work. Graph 4 shows what happens to the marks of Candidates P, Q and R from Graph 2. For example, Candidate Q has a centre mark of 49 and a moderator mark of 46 (as shown in Graph 2), but this candidate's final (adjusted) mark is 52, as shown in Graph 4.

Graph 4



| Candidate | Centre Mark | Moderator mark | Adjusted mark |
|-----------|-------------|----------------|---------------|
| P         | 24          | 34             | 32            |
| Q         | 49          | 46             | 52            |
| R         | 69          | 65             | 67            |

### Application of the system to all centres

By means of a specially written computer program, adjustments as illustrated in Graph 4 are suggested for each centre, using the two sets of data – the original centre marks and the moderator marks for the sample. If the adjusted marks are only marginally different from the centre marks (in other words, if they fall within tolerance), the centre marks are accepted unchanged. All adjustments suggested by the computer are implemented only after review, centre by centre, and authorisation by the Subject Officer, who, in some instances may overrule the computer's suggestions.

### Summary

In summary moderation has three possible outcomes.

- (i) Where there are only small differences between the centre's marks and the moderator's marks for the candidates in the (sub-)sample, **the centre's marks are accepted for all candidates.**
- (ii) Where the differences are greater but the moderator generally agrees with the centre's rank ordering of the candidates, **the regression technique is used to adjust the marks of all candidates.**
- (iii) Exceptionally, where the moderator disagrees more significantly with the centre's marks, further work is re-marked before candidates' final marks are determined.

Marks are not altered unless necessary, and then only in a manner which treats all candidates and centres equitably.

August 2002

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## The Bulletin Board

### Duration of the ICT 1 and ICT 2 examinations in January 2003 and thereafter...

Following revisions to Curriculum 2000 in the autumn of 2001, the duration of ICT 1 and ICT 2 question papers was each reduced to 1 hour 30 minutes. These changes took effect for the first time in June 2002 and will continue thereafter. It is regretted that the copy of the specification for 2004 and thereafter *incorrectly* refers to each question paper being of 1 hour and 45 minutes' duration.

### Finalised dates of the 2003 examinations

#### January Series:

|       |          |            |                   |
|-------|----------|------------|-------------------|
| ICT 1 | 1 h 30 m | 14 January | Afternoon Session |
| ICT 2 | 1 h 30 m | 14 January | Afternoon Session |
| ICT 4 | 2 h      | 22 January | Morning Session   |
| ICT 5 | 2 h      | 27 January | Afternoon Session |

#### June Series:

|       |          |         |                   |
|-------|----------|---------|-------------------|
| ICT 1 | 1 h 30 m | 5 June  | Afternoon Session |
| ICT 2 | 1 h 30 m | 5 June  | Afternoon Session |
| ICT 4 | 2 h      | 16 June | Morning Session   |
| ICT 5 | 2 h      | 24 June | Morning Session   |

### The use of brand names in answers to questions in ICT 1, 2, 4 and 5 will not gain credit

This has been the mantra in GCE ICT question papers for some time now and candidates should be made aware of this. For the 2003 examinations, a statement to this effect will appear below each question in which the examiners consider candidates might be tempted to use brand names in their answers. A similar statement will also appear in the "**Information**" section on the front cover of all four question papers. For the examinations in January 2004 and thereafter, the statement, "The use of brand names in your answers will **not** gain credit," will appear **only** on the front cover of all question papers. Please ensure that your candidates are made aware of this.

### Consortia: the centre's responsibility to inform AQA

A consortium is formed when the candidates of two or more centres are assessed by the same teacher or group of teachers.

As the marks of such groups of candidates must be submitted to AQA in a single rank order, it is the responsibility of the Heads of the Centres concerned to ensure that all the teachers involved undergo internal standardisation procedures, and that the centres report to AQA the names and numbers of the centres taking part in the consortium arrangement at the time entries for the examination are submitted.

## A brief summary of how the Uniform Mark Scale (UMS) works

In order to convert a candidate's marks for a unit to the Uniform Mark Scale, the grade boundary marks for each unit are determined by the AQA GCE ICT Awarding Committee comprising the Chair of Examiners, the Principal Examiners for each question paper (one of whom is the Chief Examiner) and the Principal Moderator for coursework. The boundary marks for each grade (see the INSET handout for ICT 1, 2, 4 and 5 for this information) are then converted to the minimum UMS marks for each grade as shown below and all other marks are converted appropriately.

| <b>Weighting of unit in the specification for an Advanced Award</b> | 15%<br>(ICT 1, 2, 4 and 5) | 20%<br>(ICT 3 and 6) |
|---|----------------------------|----------------------|
| Max UMS Mark  | 90                         | 120                  |
| A   | 72                         | 96                   |
| B   | 63                         | 84                   |
| C   | 54                         | 72                   |
| D   | 45                         | 60                   |
| E   | 36                         | 48                   |

The maximum UMS for an Advanced Award is 600 thus any component with a weighting of 20% will have a UMS of 120; it is a coincidence that the raw mark for ICT 3 is 60; one cannot simply double the raw mark in order to find the UMS mark for a candidate.

When a candidate achieves the maximum UMS mark of 90 or 120, it is sometimes thought that he/she has a 100% raw mark for that script or piece of coursework. This is not necessarily the case: all candidates who achieve the raw mark for a Grade A + twice the difference between the raw marks for Grades A and B will receive the maximum UMS mark. For example, in ICT 6 the raw mark for a Grade A is 59; the raw mark for Grade B is 50. As twice the difference between these two marks is 18, any candidate who scores a raw mark of 77 (59 + 18) or better will get the maximum UMS mark of 120.

## All communications from AQA to your centre about GCE ICT are sent to...

...your Examinations Officer. For contractual reasons, anything about an operational examination must be sent to the Head of the Centre who (usually) delegates this responsibility to the Examinations Officer so all our correspondence is addressed to the EO, with the enclosures addressed to the Head of GCE ICT. The EO should therefore be your first point of contact about any correspondence which you are expecting from AQA about ICT.

## Project Advice Forms in 2004 and thereafter...

The Project Advice Form is changing with effect from the 2004 examinations so that it will be easier and quicker to complete, but just as effective. AQA will write to your centre with details of the new form in the Spring of 2003.

## The specification for 2004 and thereafter

This copy of the specification contains a number of changes from that for 2003. However, these changes are merely clarifications; not changes of substance. Order forms were sent to your Examinations Officer some time ago, but copies of the specification can be ordered for use by members of staff directly from: **AQA Publications Department, Aldon House, 39 Heald Grove, Rusholme, Manchester M14 4NA.**

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