AQA

ASSESSMENT and
QUALIFICATIONS
ALLIANCE

General Certificate of Education

Applied Information and Communication Technology 8751, 8753, 8756 & 8759

IT13   **Systems Analysis**

Report on the Examination

2007 examination - June series

Introduction

This was the first session with availability of all of the units for both the user and practitioner awards at A2 and the second session for AS. The general standard of work seen across the AS units showed a definite improvement over the last session. The general standard of work across the A2 units was very pleasing with much creative work seen and clear indications that candidates with a wide range of abilities are succeeding with this Specification. This of course is inevitably not true of all candidates. Many centres should be congratulated on their approach to these courses as they have embraced the meaning of Applied ICT. Some centres, however, do need to consider the approaches taken to some of the units so that they can help candidates to attain the best possible marks. Centres are encouraged to make full use of the advice, materials, such as the Teachers Guide, and training available to them and to attend the feedback meetings for the A2 units and standardisation meetings that will be held in Autumn 2007 for both AS and A2 units.

Unit 13: Systems Analysis (IT13)

General comments

As mentioned in the general introduction this was the first session when the full A2 Single and Double Award was available to candidates. Work was seen across nearly all Units that achieved the full range of marks.

It is important for centres to realise that there is a change in demand for candidates undertaking the A2 units, over that expected as AS level. The level of demand of the AS assessment is that expected of candidates half-way through a full A-Level course of study. The A2 units, set at a higher level than AS, are designed to assess knowledge, understanding and skills expected of candidates who have completed the second half of a full Advanced Level qualification.

There is also a difference in emphasis between the AS and A2 on Assessment Objectives. Emphasis in the A2 is on processes involved in producing a solution, rather than the solution itself. This means that double the marks are allocated to AO4 (28 marks) than at AS and 17 or 18 mark are allocated to AO3.

Because of the increased emphasis on processes, it is important for candidates to see the piece of work undertaken as a whole, not just as a series of sub-tasks. Where Centres had presented candidates with a given piece of work, or assignment, that was broken down into a series of mini-assignments the work presented was not coherent and often limited the marks that the candidates could obtain. It is also not in the spirit of the Specification for candidates to carry out work in this way, as it prevents them from experiencing the whole process of producing a solution for a client and makes the work produced very mechanistic.

28 marks are available for AO4 in each of the A2 units. Candidates are only able to achieve 1 mark for time management and planning unless they have included an estimate of the time they anticipate that they will require in order to complete each of the tasks they have planned to do. At AS level the candidates should have learnt the rudiments of time planning, and by A2 should be able to quantify the amount of time required for different parts of their work. It was particularly disappointing that candidates appeared unable to build on their experience at AS level in order to provide evaluation criteria that they could clearly identify as quantitative and qualitative. By the time candidates reach A2 level they should be able to create evaluation criteria that allow them to assess whether they have met the needs of the client. Test strategies and plans were weak throughout – especially on the units where there is no tangible product to test. Candidates need to consider how to test a non-working model and how to test a design.

General remarks about A2 portfolios

A well organised portfolio is easy to assess and moderate. Few portfolios had an accurate contents page; many had no headers or footers on the work included; many did not distinguish between different parts or sections of work. Consecutive page numbering from the beginning to the end of the portfolio is essential for accurate recording of assessment decisions.

The portfolios should contain only the evidence required for assessment against the marking grids, with witness statements included at the point where they are supporting the evidence. Many candidates included lots of unnecessary material – including copies of teacher-set assignments, sets of notes and class work, which did not gain any marks.

Unit 13: Systems Analysis (IT13)

The unit is about the investigation, feasibility and logical analysis for a proposed system (application). Most centres did this and correctly stopped at the logical analysis, a few did it as a database system production or at least database design portfolio. In these cases, it became quite difficult to mark, as aspects such as test plans tended to refer to the system rather than the analysis.

Some candidates chose systems that were large and complex to analyse, which made it harder to show their skills accurately. It is better to choose smaller and simple systems which will make the learning of analysis techniques more straightforward.

Logically the work should be undertaken in the order AO2, investigation, AO3 Feasibility study, then AO1, production of the system Specification (logical analysis).

Many candidates followed this path through the portfolio and produced coherent pieces of work. However, overall there were not many high scoring portfolios seen, as many of the analysis tools were used inaccurately, and candidates planned the testing of the end solution rather than the testing of the analysis that was the subject of the portfolio. Whilst it is acceptable to run this analysis in conjunction with another unit, the work for this portfolio must concentrate only on the analysis work required.

There was confusion over Data Flow Diagram (DFD) levels in many cases – Level 0, is also known as the Context diagram or the scope diagram and is normally seen in the Feasibility report, for either the current system, the proposed system or both. Levels 1, 2, 3 and beyond are usually seen in the systems Specification, describing main system processes (level 1), each one of the level 1 boxes broken into sub-processes (level 2), then any further break down of level 2 processes (level 3). The data stores and flows in and out of the system to external entities should follow through from the top to the bottom. The boundaries of the system should be shown.

Similarly, Entity-Relationship diagrams (ERDs) were not always produced accurately. It is acceptable, at logical analysis stage, to have a many-to-many relationship to start with. First normal form, which is the only step required for the portfolio, would create a third entity to remove the many-to-many relationship, by creating a 'linking' entity. There is no requirement to fully normalise the data at this stage as it is not known how the data will be held.

Some candidates pre-judged the design and implementation of the system and showed evidence of ERDs and input forms already created in a package. These are not acceptable as evidence for this unit.

Assessment Objective 1 (17 marks)

Row 1 – Some candidates produced accurate DFDs that went beyond level 1, gaining 2 or more marks, but very few showed clear understanding of the technique. Many failed to include a symbol key and left the viewer to guess which items were processes and which data stores, as they used a non-standard set of symbols. Many 'process' boxes contained narrative rather than process titles. Few sets of DFDs followed through accurately between the levels.

Row 2 – Some candidates produced understandable process Specifications either in structured English or flowchart form, but many were incomprehensible or given in terms of a MS Access query, which is not relevant at logical analysis stage. Some candidates only included one

process Specification and many did not produce any. Only a very small minority gained all 3 marks on this row.

Row 3 – Both the E-R diagram and a data dictionary had to be present to gain 1 mark. There were many candidates who failed to include one or the other, or whose data dictionary did not bear any relation to their E-R diagram or the system they were specifying. Some candidates produced over-complicated E-R diagrams, a reflection on the over-complexity of the system they were looking at. For the third mark on this row, it was necessary to show and explain how the final ERD had been formed and to have a comprehensive data dictionary that fully described all the data fields required, including the relationships between the different entities.

Row 4 – most candidates scored at least 1 mark for some input Specifications, although there was a tendency to only include a screen design. For the higher marks, annotations as to where the data in the fields was from and how it was entered was necessary, and extra description, on a field by field basis with accurate spacing, entry field sizes and positioning on screen of all text and fields is required for the top mark.

Row 5 – Most candidates scored 1 mark for some form of output design. Again, more detail, accuracy and annotation is required for the 2nd mark. By A2 level, clear, accurate, detailed designs should be second nature to double award candidates.

Row 6 – The standard ways of working for this unit is gained by using the correct symbology in DFDs, E-R diagram, Data dictionary as well as showing sensible and logical folder and file names, version numbering and so on. Having proper naming conventions for the data fields is also necessary for the higher marks. Most candidates scored 1 mark at least, with the stronger candidates gaining 2 or 3.

Assessment Objective 2 (7 marks)

Row 1 – Many candidates used interview and questionnaire as their two techniques, expecting to gain 2 marks. However, questionnaire is often not an appropriate method, especially when only talking to one person, so if the candidate had not also used another technique (observation or looking at documentation) then they gained only 1 mark. Most candidates scored at least 1 mark here, with many scoring both marks.

Row 2 – Many centres had directed their candidates well here, so there were some excellent discussions of different investigation techniques and why they would use or not use each one. Many candidates scored 2 or 3 marks on this row. Candidates who failed to do an explicit discussion often gained 1 mark for their write-up of an interview conducted, combined with comments within their general narrative.

Row 3 – The system descriptions varied from a short paragraph to a full company history with a clear understanding of the business processes involved for which a system is being proposed. Most candidates scored 1 mark and many scored both marks here. Although not explicitly required, a brief discussion of what is currently in place and any shortcomings would underline the need for a new or improved system.

Assessment Objective 3 (18 marks)

Logically, AO2 row 3 is the start point for the feasibility report and is the introduction to the feasibility discussions about the proposed new or improved system. Between AO3 rows 4 and 5, there should be a section offering alternative solutions to the problems of developing this system. This is included in the marking grid as AO4, row 6. There is no need for extensive discussions as to the problems with the current system.

Row 1 – Combined with AO2 row 3, most candidates clearly showed what the system is for and most candidates also included a comprehensive list of client needs, although some were confused. Stronger candidates were able to clearly describe the requirements, gaining 3 marks.

Row 2 – For more than 1 mark, candidates had to include both a High level (level 0) DFD, also known as a Context diagram, and a description of the scope of the proposed system. For the purposes of marking this row, this year, the High level DFD could be for either the existing system or the proposed. In future years, it is important that it is for the proposed system.

Row 3 – Many candidates included some statements about hardware, software or personnel, but many failed to discuss what is currently in place as well as what is required to meet the requirements of the new system. To get the marks for discussion (for 2 or more marks), then there must be consideration of what is the minimum requirements for the technical aspects and user capability for the new system and what the implications of those minimum requirements are. Only a few candidates scored all 4 marks available by showing the clear understanding of these issues.

Row 4 – Many candidates produced cost benefit analyses but failed to mention constraints on development, thus scoring no marks on this row. For the 4th mark, external constraints, such as legal aspects, supplier or customer considerations needed to be mentioned. Very few candidates scored well on this row.

Row 5 – Most candidates scored 1 or 2 marks for their recommendation. AO4 Row 6 forms the precursor to these recommendations. It is expected that an order of actions might be required and priorities created, needed for the 3rd mark. To gain the 4th mark, the feasibility report needs to have been taken back and checked with the client – very few candidates showed evidence of this that was meaningful or authenticated.

Assessment Objective 4 (28 marks)

Row 1 – For the 1st and 2nd mark, evidence could be provided by a narrative in a diary and on the time plan and by the production of the two analysis documents. The third mark requires a lot more evaluation and strengths, weaknesses are required to be discussed for the higher marks on the row. Most candidates gained 1 or 2 marks, but only the stronger candidates gained any more than 3 marks.

Row 2 – as time management and deadline keeping were on the same row for this unit, it was even more important for candidates to include estimates of time in hours for detailed task lists. Very few candidates had done this, so most scored only 1 mark, however good their monitoring may have been.

Row 3 – Candidates could score 1 or 2 marks on the basis of their client needs and requirements given in the feasibility report (AO2, row 3), but a few managed to gain further marks by saying how they were going to test the proposed system, in logical form, against those requirements. Many ignored this row, although a few did gain marks by explaining that they would take it to the client to see if it would meet their needs from the business perspective.

For example, test planning on rows 3 and 4 could include checking the accuracy and logic of DFDs by following flows and data stores up and down the levels; that the E-R diagram and Data dictionary have matching entities; checking that names are used consistently; that processes are doing a single action.

Row 4 – Many candidates scored no marks for testing as they thought this was to do with the finished system, whether or not they were developing it. This should be about testing the accuracy of the analysis – is the scope correct? Are the DFDs correct? Are the designs,

processes, and data analysis all correct? How can I get it checked, and who by? This is the strategy required here. Very few candidates scored any marks at all on this row or the next.

Row 5 – Some candidates scored 1 mark on this row for showing that they had checked some of the analysis with the client, and a few had used an expert (the teacher, generally) or a third party to look at their work. Most failed to score here.

Sign-off from the client is a good way to show that some testing has been done. A witness statement from a third party would prove that the analysis had been checked for accuracy.

Row 6 – Some candidates scored 1 or 2 marks on this row, but only a very few actually took their recommendations back to the client and adjusted them after feedback.

Row 7 – Most candidates scored 2 or 3 marks for their written expression. For the higher marks on this row, the Investigation write-up, the feasibility report and the systems Specification should be presented as such, with separate contents pages, headers and footers and presented properly sectionalised. Many candidates put their portfolios together in a haphazard way, not always putting section titles on work and repeating sections in different parts of the portfolio. Page numbers for the purposes of assessment must start at 1 at the front of the portfolio to the back, but individual documents could also have internal page numbers. Candidates must make clear which is which – for instance by including the a short document title as part of the page number e.g. FS-1, FS-2 etc

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the **Results statistics** page of the AQA website.