



## **Certificate of Education**

# **GCE Applied ICT 8751, 8753, 8756 and 8759**

**IT09                  Software Development**

## **Report on the Examination**

*2010 examination - January series*

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## Unit 9: Software Development (IT09)

The format of the examination is an AQA-set assignment, for which candidates are allowed time for research and design work (the Investigation Time), then a period of Controlled Conditions during which candidates are expected to produce their software system and an evaluation of the product and their own performance.

Commentaries on exemplar work from previous series' may be accessed through the relevant Subject Manager.

### General Comments

Some candidates appeared to ignore the task set and to produce software systems for inappropriate clients. These candidates were unable to access the full range of marks.

### The Task

The task given for this examination series was:

“The secretary of a local community group or organisation wishes to use a software system to record data about its members. The secretary should be able to add and amend data about members. They should also be able to present in a graphical form, statistical information about selected groups of members.”

A significant number of candidates did not include a feature to provide a graphical representation of statistical data in the design or implementation of their software system. Candidates are expected to include all of the features required by the task in their designs, even if they go on to only partially implement the software system.

Items (a) to (g) of the task are produced during the Investigation Time, whilst items (h) to (m) are produced during the Controlled Conditions.

### Items (a) to (f) produced during Investigation Time

Many candidates did not appear to spend enough time considering the organisation or group that they would be creating the system for. This was shown in the generally poor marks awarded for items (b) to (e). This poor understanding had a detrimental effect on their performance in later items in the task.

#### Item (a)

Many candidates produced a time plan that listed the tasks to be undertaken. Few broke those tasks down into subtasks. Most candidates included an estimate of the time required to carry out the tasks. Those who provided a detailed time plan and time estimates were awarded two marks. Candidates who only reiterated the items written in the Candidate Booklet were not awarded any marks.

#### Item (b)

Most candidates did describe some kind of community group or organisation and a person within the organisation as their client, but did not describe why the software system in the task was required. Those who did were awarded one mark. A clear description of both was necessary for two marks. Some candidates appeared to ignore the task and described various types of commercial organisation.

#### Item (c)

Most candidates were awarded one mark for identifying an intended user or users and relevant IT skills, or lack of them. Some candidates used phrases such as ‘Level 2 IT skills’ which are not meaningful in this context and so were not awarded marks. Very few clearly indicated how the relevant skills of their user would affect the design of their system.

**Item (d)**

It was rare for candidates to provide a comprehensive list of client needs, which included all aspects of the task set. Many neglected to describe what the graphical representation of statistical data would be needed for and so were only awarded one mark. It was even more rare for candidates to explain how their proposed system would meet these client needs.

Most candidates stated what inputs and outputs were required to achieve the task set. Those whose proposed systems did not include the items required to achieve the task set were not awarded marks. Few candidates provided a specification of the outputs – mostly only providing an outline of the outputs as a result of drawing designs for the system's interface. Therefore few candidates achieved the second or third marks available.

There were some good pseudocode descriptions of the processing necessary, but many examples seen were simply an attempt to use actual code with a few words changed. If pseudocode is used it should be readable English that clearly describes the processing. Some candidates used plain English descriptions which also achieved the first and second marks. To achieve the third mark the description of processing must be agreed with the client.

**Item (e)**

Most candidates produced evaluation criteria that included qualitative and quantitative measures. Some were comprehensive, thus ensuring that they were appropriate to assess if the client needs had been met. These were awarded three marks. Some explained their criteria and so achieved the fourth mark.

**Item (f)**

Very few candidates specified how they would manage their files, though those that did show an awareness of file management and showed that files had been managed sensibly were awarded one mark. Versions of work file, backups and sensible file and folder names were required to achieve the second mark.

Most candidates made a good attempt at producing designs for the interface of their system, showing the key features. These were awarded one mark. Very few explained how the design choices made related to the user needs.

Some candidates showed that modular programming techniques would be used by describing reusable or public modules of code that they would write. Those who created structure charts that did not show this modularity were not awarded marks.

Most candidates provided some kind of data dictionary that defined the data structures necessary for their system. The majority of these were sufficiently detailed to be awarded two marks. Few, however, described such things as typical items of data, or validation rules that would be necessary to implement the system

**Item (g)**

Most candidates either produced a test strategy (testing parts of their system such as forms and buttons), or test plans that tested functionality. Very few produced both. Test plans should be produced with sets of normal, extreme and erroneous data to be used in testing in order for full marks to be awarded.

### **Items (h) to (m) produced during Controlled Conditions**

Candidates may only take printed or hand-written material in to Controlled Conditions, and additional material may not be brought in after the start of the first session of Controlled Conditions. Implementation of the planned software system must only be attempted under Controlled Conditions.

The majority of candidates in this examination series used Visual Basic to produce their software system. Most candidates provided evidence of using programming techniques to produce their system, with some good examples being seen. Other candidates used a variety of object-oriented languages or mySQL and PHP.

#### **Item (h)**

Most candidates provided good evidence of following their test plans and achieved two marks. Some showed what changes were needed to the solution, or the changes made, and were awarded three marks.

Very few candidates provided evidence of integration testing by, for example, adding a record, amending that record, checking whether the statistical analysis reflected the additional or amended data.

If the software system produced did not perform all of the functions specified in the task then only one of the three marks available was awarded. Many candidates did not provide a graphical representation of statistical data and so were only awarded one mark.

#### **Item (i)**

Most candidates had used appropriate candidate defined program control structures, but very few had explained their choice which is required for three marks.

Most had also used appropriate candidate defined variable, object and procedure names.

Few had identified where modular programming techniques had been used.

It was clear, in the majority of scripts, that appropriate data types had been used. Few candidates explained the choice of these data types in order to achieve the third mark available.

Most candidates produced good annotated evidence of the key features of their software system and in some cases this was good enough for three marks to be awarded.

#### **Item (j)**

Approximately half of the candidates had produced instructions for installing the software system on the client's machine and instructions for using the software system. Most of these were awarded two marks. Of the other candidates many failed to achieve any marks because they had either not provided installation instructions, or had not provided instructions on using the software system. Most had attempted this item.

#### **Item (k)**

In this item the candidate's evaluation of their software system and the quality of written communication is assessed.

Stronger candidates used well written text to analyse the success of their software systems by comparing the results of testing with the evaluation criteria and the client needs. They used an appropriate form of presentation, often text combined with tabular information, an introduction and a conclusion. They also used appropriate vocabulary to explain some of the complex ideas in their analysis. On the whole their work in this section was well structured and coherent.

**Item (l)**

Candidates who had achieved good marks for item (a) often achieved full marks for this item. Weaker candidates tended not to explain alterations to their schedule in enough detail to achieve two marks.

**Item (m)**

Few candidates discussed their own performance in enough detail to achieve two marks, though most did achieve one mark.

**Mark Ranges and Award of Grades**

Grade boundaries and cumulative percentage grades are available on the [Results statistics](#) page of the AQA Website.