RECOGNISING ACHIEVEMENT

AS/A Level GCE

ICT

OCR AS/A Level GCE in ICT

Unit G064 – Exemplification of Mark Scheme

Exemplification of Mark Scheme: Teachers' Notes

(a) Definition, Investigation and Analysis [23 marks]

(i) Definition – nature of the problem to be investigated [2 marks]

1 mark	a brief description of the organisation or group that has the problem and an introduction to the client and/or the end user(s) and their place within the organisation or group; *For example: name, location, purpose, number of employees, name(s) of relevant staff, their positions in the company, consideration of different users (end user, client, managers) who may have different needs,* ***may be an organisation chart****.*
1 mark	an outline of the problem that needs to be solved. *A very brief outline of the problem as seen at this early stage,* ***can be given by the company****.*

This section will be relatively short; one or two paragraphs would suffice.

(ii) Investigation [12 marks]

2 marks	thorough planning of the mechanics of the interview situation; *where, when, how (e.g. email, telephone, in person). Consideration of why the method(s) was/were chosen.*
3 marks	reasoned set of questions to elicit important information (possible responses have been considered and follow-up questions have been planned); • **3 marks**: *a comprehensive list of questions with follow up questions for some. Reasoning for each question or group of questions*. ***Questions will be different for different groups of people where relevant (client/end user)*** • **2 marks**: *a list of basic questions with some attempt at justifying most of them.* ***Some attempt at follow up questions*** • **1 mark**: *a basic set of questions with little or no reasoning.*
1 mark	record of key responses of interview, demonstrating two-way discussion; *a record of responses from the interviewee(s) including follow-ups. Does not have to be a verbatim transcript of the entire conversation.* ***All relevant parties who have involvement in the system will have been interviewed***

3 marks	evidence of analysis of the current system or of likely problem areas, arriving at reasoned conclusions that will show evidence of being agreed by client; **3 marks:** *full summary of the current situation with all problem areas discussed, conclusions about what the issues are, agreement from the client in the form of a signed letter/document* **2 marks:** *summary of the current situation, a discussion of problem areas in the current system, agreement from the client as before.* **1 mark:** *brief summary of the current method/system used*
2 marks	Information collected about the requirements of the new system **2 marks:** *a complete set of information about the new system, with justification* **1 mark:** *some information collected but may be incomplete and/or unjustified*
1 mark	clear presentation of the information collected about the new system

(iii) Analysis [9 marks]

3 marks	a requirements specification containing a number of clearly defined objectives that the solution should meet. These must be arrived at through consultation with the client; **3 marks**: *a list of requirements which cover all aspects discovered during data collection. This may be reworked several times, if necessary, in consultation with the client. If so, this should be documented. Agreement, in writing, from the client.* ***The requirements are specific.*** **2 marks:** *a list of requirements, covering* ***most*** *of the aspects of the proposed solution and can be linked to the investigation. Agreement, in writing, from the client.* ***The requirements lack detail*** **1 mark:** *some basic requirements which cover* ***some*** *of the aspects of the proposed solution, agreed to in writing by the client.*
3 marks	a comparison of a number of different methods of solution, one of which may be the present solution and at least two others to allow a reasoned decision to be made in consultation with the client; **2-3 marks:** *three solutions are considered in terms of cost, feasibility, extent to which they meet the objectives. Chosen system is identified and justified in terms of cost and benefits to the organisation.* **1 mark:** *three solutions are considered to a limited depth. The final system will be identified with limited justification*
3 marks	a reasoned list of hardware and software requirements for the new system, providing clear justification for each choice in relation to the problem to be solved. **3 marks:** *clear list of hardware and software, possibly offering two alternative choices for each, with sensible justification based on the needs of the client and/or solution. Inputs, processing, outputs and storage devices and software are all covered for 3 marks.* **1-2 marks**: *a list of hardware and software with basic justification for each and with limited reference to the client/solution needs. There may be gaps.*

(b) Design [15 marks]

(i) Nature of the solution [13 marks]

4 marks	design of data handling, including capture, preparation and storage or design of website to include map and diagrammatic representation of links; **4 marks:** *a complete set of system designs appropriate to the solution including some or all of the following as relevant: data storage, data flows and processes. The designs can be in diagrammatic or textual format. The designs should be sufficient that they could be picked up and developed by a third party.* **2-3 marks:** *some of the above are evident but elements appropriate to the solution may be missing or incomplete.* **1 mark:** *a basic attempt at the above. More than one element appropriate to the solution is missing.*
4 marks	design of inputs, processing and outputs, including error capture reports as appropriate, based clearly on the analysis of the client requirements; **4 marks:** *designs and design specifications for all **input** forms, including colours, fonts, sizes etc. Complete **interface designs** showing any validation, lookups, calculations which are carried out. Complete **processing** designs for example, queries, calculations, formulae, manipulation of HTML or other code. **Security** procedures which may include back up and restore routines, passwords and access rights.. Design of **outputs**, automated emails, files created and appended to. **All designs are logically correct and fit for purpose.*** **2-3 marks:** *may be missing some of the above elements but must cover all areas of input, output, processing and storage. There may be loose ends.* **1 mark:** *basic designs showing little depth and missing important elements.*
1 mark	clear evidence of end user/client involvement in decision making and evidence that the options of the user/client have had an effect on the solution.
4 marks	a test plan that will identify a number of tests that will be carried out on completion of the work. Each test outlined should be clearly related to the relevant requirements stated in the requirement specification, all of which should feature in the test plan. The specific test to be carried out should be included in the plan together with the result expected. The tests specified in the test plan will be completed during the testing of the solution (some elements of testing should involve the end user(s)). **4 marks**: a complete plan which tests the solution in relation to the requirements, pathways through the system and validation routines. Normal, erroneous, extreme data are considered where relevant. **2-3 marks**: test plan covers most aspects of the system against all three points above. Consideration of one or two of normal, erroneous, extreme data but probably not all three. **1 mark**: a basic plan which does not consider extreme/erroneous data or have specific inputs and expected outputs identified.

(ii) Project plan [2 marks]

2 marks	Clear description, diagrammatic or otherwise, of the different tasks necessary to complete the solution and a clear timetable. **2 marks:** *a complete task model (e.g Gantt Chart, Pert Chart, CPA, table, calendar) which is progressive and covers all of the software development section. There will be consideration of predecessors and successors. It is accepted that, at this level, pupils will not necessarily judge timings accurately.* **1 mark:** *a basic model with occasional gaps or with some tasks out of order.*

(c) Software Development, Testing and Installation [21 marks]

(i) Software Development and Testing [14 marks]

8 marks	• **6-8 marks**: the candidate has solved a problem that has needed a level of complexity greater than a simple linear type solution; • **3-5 marks**: the candidate has attempted to solve a problem that has needed a level of complexity greater than a simple linear type solution and has been successful in some aspects; • **0-2 marks**: the candidate has produced a solution that is a linear style of solution in the use of software; ***General Notes on this section****:* *This section should include printouts/screen shots of every screen in the system and all code written by the candidate should be identified and annotated.* *For a **database** this might include: tables, forms, queries, reports, macros, code. For a **spreadsheet**: all worksheets, formula view, macros, users forms, named ranged. For a **website**: all pages, associated data, structure (e.g. database/spreadsheet/text files attached), macro code, HTML code, CSS code, directory structure printout.*
2 marks	evidence of the development of one aspect of the system that processes data **2 marks:** *detailed evidence of the development of one aspect of the system that involves the processing of data. The detail is sufficient for that aspect to be recreated.* **1 mark:** *annotated evidence of the development of one aspect of the system that involves the processing of data. There may be gaps in the evidence provided.*

2 marks	hard-copy evidence of an effective HCI with annotations explaining its effective solutions for problems that had been highlighted in the requirements specification; **2 marks:** *annotated evidence of a HCI and how it meets user requirements. Evidence of customisation of the interface, **for example**, of changing colours, adding images/logos or removal of record selectors.* **1 mark:** *annotated evidence of a HCI which meets some but not all requirements. Limited additional customisation of the interface*.
2 marks	evidence that each of the tests specified in the test plan have been carried out, that they are linked to the hard copy evidence, that the results have been analysed and that any necessary action has been identified. **2 marks:** *Screenshot evidence of **all** tests in the test plan being carried out. Actual input and output data as specified in the test plan is clearly identified. Any failed tests are documented, corrected and retested. There is clear evidence of user testing of the system.* **1 mark:** *Most tests are carried out, but inputs and outputs may not always be clearly identified. Failed tests are not always corrected and /or retested. There is some evidence of user testing being attempted.*

(ii) Installation [7 marks]

3 marks	details of the training that will need to be available for the staff who must use the new system; **3 marks:** *detailed description of training with a plan of training required by staff including where, when, by whom, the data is needed. There will be full consideration of different groups of users, where relevant, and what their training needs will be.* **2 marks:** *may be missing some of the above elements but must cover all areas of administration and a basic plan of training needs.* **1 mark:** *basic description of training needs with little or no specific detail.*
2 marks	details of the means by which the new files are going to be created, including some indication of the scale of the problem, and also the possible need for hardware installation and the installation of the software on the hardware; **2 marks**: *consideration of the volume of data, numbers of people involved, timescales, how data will be created or transferred.* **1 mark:** *basic consideration of data files but with few specific details.*
2 marks	details of appropriate, different, methods of changeover explained so that the client can make a reasoned decision. **2 marks:** *detailed consideration of the different methods of changeover related to the system being installed.* **1 mark:** *basic consideration of different methods of changeover.*

(d) Documentation [10 marks]

Manual

8–10 marks	Candidates will produce detailed and accurate documentation. The manual will be presented in a well-structured and coherent format. Subject specific terminology will be used accurately and appropriately. The documentation will include a complete and detailed user guide covering all operations that the user would be required to perform. The on-screen guide should be well presented and easy to follow. There will be few if any errors in spelling, grammar and punctuation.
4–7 marks	Candidates will provide clear documentation. The documentation will be well presented. There is clear on-screen help to support the end user. The supporting documentation and on-screen help is well presented and covers most aspects of the operations that the user would be required to perform. Some subject specific terminology will be used. There may be occasional errors of spelling, grammar and punctuation.
0–3 marks	Candidates will provide a superficial documentation with weak supplementary user documentation covering few aspects of the operations that the user will be required to perform. The information will be poorly expressed and limited technical terms will be used. Errors of spelling, grammar and punctuation may be intrusive.

(e) Evaluation [8 marks]

4 marks	Evaluation of each of the requirements from the requirements specification including showing how the completed solution meets the requirements. Areas from the requirements specification that have not been met are discussed. **4 marks:** *a detailed evaluation of the system which includes a description of whether the requirements specification was met or not met. Any shortfalls are explained in detail.* **2-3 marks:** *an evaluation of the system which may lack specific detail but should include a description of whether the requirements specification was met. Shortfalls are mentioned but there is limited depth in the discussion of why they were not achieved.* **1 mark:** *some material which attempts to evaluate whether the solution meets the requirements specification.*
2 marks	details of extensions to the project and how these might be completed; **2 marks:** *detailed description of extensions to the system and consideration of how they might be implemented* **1 mark:** *basic consideration of extensions with no details on how they could be implemented.*
2 marks	evaluation of the finished development against the project plan from design **2 marks:** *detailed evaluation comparing the actual development against the project plan, giving reasons for any differences* **1 mark:** *basic evaluation identifying the differences between the development and the project plan*

(f) Presentation of report [3 marks]

3 marks	The candidate has provided a detailed and accurate means of navigation of the report and has tailored the language used, both technical and non-technical, to the audience for which the parts of the report were aimed. Subject-specific terminology will be used correctly. A professional approach to the presentation will be expected and a clearly understandable, dated log of events will be kept. The information will be presented in an ordered and well structured manner. There are few if any errors of grammar or spelling.
2 marks	The candidate will produce a navigable report. The contents will be determined by the requirements of the candidate rather than the reader. A log of events will have been kept. The information is presented in an ordered fashion that maintains some coherence. There may be some occasional errors of grammar or spelling.
0–1 mark	The candidate has produced some material that explains part of the solution attempted. It will be difficult to navigate and will assume much knowledge of the solution that the reader will probably not possess. The information may be expressed without a structure. Errors of grammar or spelling may be intrusive.