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For Assessment Submission
June 2015 to June 2016

GCSE COMPUTING

A453 Programming Project

CONTROLLED ASSESSMENT
MARK SCHEME

This assessment may be periodically reviewed. Please check on OCR Interchange that you have the Controlled Assessment material valid for the appropriate assessment session.

- This document consists of **4** pages. Any blank pages are indicated.
- **MAXIMUM MARKS 45.**
- The list of programming techniques referred to can be found in the specification, section 2.3.1.

Teachers are responsible for ensuring that assessment is carried out against the Controlled Assessment set for the relevant examination series (detailed above).

Assessment evidence produced that does not reflect the relevant examination series will not be accepted.

The board set scenario will consist of up to three tasks to be solved by the candidate. The three tasks may be connected but you are only required to solve the problems set and do not need to resolve these into a single solution. The marking criteria refer to the overall solution of the tasks set in the scenario and for full marks to be available you must provide solutions to all of the tasks. The overall set of solutions will be considered against the marking criteria to identify the most appropriate range, and appropriate mark within that range, for each section.

Programming Techniques 18 marks available

Marking Criteria	0–2	3–4	5–6
Use of programming techniques AO1 – 2 AO2 – 4	There is an attempt to solve parts of the tasks using few of the techniques identified. 0 = no response or responses not worthy of credit	There is an attempt at most parts of the tasks using several techniques.	There is an attempt to solve all of the tasks using most of the techniques listed.
Marking Criteria	**0–4**	**5–8**	**9–12**
Efficient use of programming techniques AO1 – 4 AO2 – 8	The techniques used produce partially working solutions to a small part of the problem. 0 = no response or responses not worthy of credit	The techniques are used appropriately giving working solutions to most of the parts of the problem. Some sections of the solution will be inefficiently coded.	The techniques are used appropriately in all cases giving an efficient, working solution for all parts of the problem.

Design 9 marks available

Marking Criteria	0–3	4–6	7–9
Design AO2 – 3 AO3 – 6	There are comments on what the task involves and a limited outline describing the intended approach to some parts of the problem. There are brief comments on how this might be tested but with no mention of success criteria. 0 = no response or responses not worthy of credit	There is a brief analysis of the tasks indicating what is required for each of the tasks. There is a set of basic algorithms outlining a solution to most parts of the problem. There is some discussion of how this is tested and how this compares to the identified outcomes in the tasks. There is discussion of the variables to be used and some general discussion of validation.	There is a detailed analysis of what is required for these tasks justifying their approach to the solution. There will be a full set of detailed algorithms representing a solution to each part of the problem. There is detailed discussion of testing and success criteria. The variables and structures are identified together with any validation required.

Development 9 marks available

Marking Criteria	0–3	4–6	7–9
Development AO2 – 5 AO3 – 4	There is some evidence to show a solution to part of the problem with some evidence to show that it works. Code is presented with little or no annotation, the variable names not reflecting their purpose and with little organisation or structure. 0 = no response or responses not worthy of credit	There is evidence to show how the solutions were developed. There is some evidence of testing during development showing that many parts of the solution work. The code is organised with sensible variable names and with some annotation indicating what sections of the code does.	There is detailed evidence showing development of the solution with evidence of systematic testing during development to show that all parts work as required. The code is well organised with meaningful variable names and detailed annotation indicating the function of each section.

Testing 9 marks available

Marking Criteria	0–3	4–6	7–9
Testing and evaluation AO2 – 4 AO3 – 5	There is evidence to show that the system has been tested for function but the test plan is limited in scope with little structure. There is limited evidence to show how the result matches the original criteria. The evidence of written communication is limited with little or no use of specialist terms. Errors in spelling, punctuation and grammar may be intrusive. Information may be ambiguous or disorganised. 0 = no response or responses not worthy of credit	There is a test plan covering many parts of the problem with some suggested test data. There is evidence that the system has been tested using this data. There is some evidence to show how the results of testing have been compared to the original criteria. There is a brief discussion of how successful or otherwise the solutions are. The quality of written communication is good using some specialist terms. There are few errors in spelling, grammar and punctuation. Information for the most part is presented in a structured format.	The test plan covers all major success criteria for the original problem with evidence to show how each of these criteria have been met, or if they have not been met, how the issue might be resolved. There is a full evaluation of the final solution against the success criteria. A high level of written communication will be obvious throughout the task and specialist terms/technology with accurate use of spelling will have been used. Grammar and punctuation are used correctly and information is presented in a coherent and structured format.