



GCSE MARKING SCHEME

SUMMER 2024

COMPUTER SCIENCE - COMPONENT 2
C500U20-1

About this marking scheme

The purpose of this marking scheme is to provide teachers, learners, and other interested parties, with an understanding of the assessment criteria used to assess this specific assessment.

This marking scheme reflects the criteria by which this assessment was marked in a live series and was finalised following detailed discussion at an examiners' conference. A team of qualified examiners were trained specifically in the application of this marking scheme. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners. It may not be possible, or appropriate, to capture every variation that a candidate may present in their responses within this marking scheme. However, during the training conference, examiners were guided in using their professional judgement to credit alternative valid responses as instructed by the document, and through reviewing exemplar responses.

Without the benefit of participation in the examiners' conference, teachers, learners and other users, may have different views on certain matters of detail or interpretation. Therefore, it is strongly recommended that this marking scheme is used alongside other guidance, such as published exemplar materials or Guidance for Teaching. This marking scheme is final and will not be changed, unless in the event that a clear error is identified, as it reflects the criteria used to assess candidate responses during the live series.

EDUQAS GCSE COMPUTER SCIENCE
COMPONENT 2: COMPUTER PROGRAMMING
SUMMER 2024 MARK SCHEME

Guidance for examiners

Positive marking

It should be remembered that learners are writing under examination conditions and credit should be given for what the learner writes, rather than adopting the approach of penalising him/her for any omissions. It should be possible for a very good response to achieve full marks and a very poor one to achieve zero marks. Marks should not be deducted for a less than perfect answer if it satisfies the criteria of the mark scheme.

For questions that are objective or points-based the mark scheme should be applied precisely. Marks should be awarded as indicated and no further subdivision made.

For band marked questions mark schemes are in two parts.

Part 1 is advice on the indicative content that suggests the range of computer science concepts, theory, issues and arguments which may be included in the learner's answers. These can be used to assess the quality of the learner's response.

Part 2 is an assessment grid advising bands and associated marks that should be given to responses which demonstrate the qualities needed in AO1, AO2 and AO3. Where a response is not credit worthy or not attempted it is indicated on the grid as mark band zero.

Banded mark schemes

Banded mark schemes are divided so that each band has a relevant descriptor. The descriptor for the band provides a description of the performance level for that band. Each band contains marks.

Examiners should first read and annotate a learner's answer to pick out the evidence that is being assessed in that question. Once the annotation is complete, the mark scheme can be applied.

This is done as a two-stage process.

Stage 1 – Deciding on the band

When deciding on a band, the answer should be viewed holistically. Beginning at the lowest band, examiners should look at the learner's answer and check whether it matches the descriptor for that band. Examiners should look at the descriptor for that band and see if it matches the qualities shown in the learner's answer. If the descriptor at the lowest band is satisfied, examiners should move up to the next band and repeat this process for each band until the descriptor matches the answer.

If an answer covers different aspects of different bands within the mark scheme, a 'best fit' approach should be adopted to decide on the band and then the learner's response should be used to decide on the mark within the band. For instance if a response is mainly in band 2 but with a limited amount of band 3 content, the answer would be placed in band 2, but the mark awarded would be close to the top of band 2 as a result of the band 3 content. Examiners should not seek to mark candidates down as a result of small omissions in minor areas of an answer.

Stage 2 – Deciding on the mark

Once the band has been decided, examiners can then assign a mark. During standardising (marking conference), detailed advice from the Principal Examiner on the qualities of each mark band will be given. Examiners will then receive examples of answers in each mark band that have been awarded a mark by the Principal Examiner. Examiners should mark the examples and compare their marks with those of the Principal Examiner.

When marking, examiners can use these examples to decide whether a learner's response is of a superior, inferior or comparable standard to the example. Examiners are reminded of the need to revisit the answer as they apply the mark scheme in order to confirm that the band and the mark allocated is appropriate to the response provided.

Indicative content is also provided for banded mark schemes. Indicative content is not exhaustive, and any other valid points must be credited. In order to reach the highest bands of the mark scheme a learner need not cover all of the points mentioned in the indicative content but must meet the requirements of the highest mark band. Where a response is not creditworthy, that is contains nothing of any significance to the mark scheme, or where no response has been provided, no marks should be awarded.

Q	Answer	Mark	AO1	AO2	AO3	Total
1.	Award marks where indicated for a screenshot showing:					6
(a)	Failed login screen message (1) (incorrect username(1) & incorrect password (1)) Award marks for a screenshot and/or statement.	3		3		
(b)	Correct login screen message (1) (correct username (1) & password (1) from provided file: i.e. Root 1234) Award marks for a screenshot and/or statement.	3		3		
2.	Award one mark for each code reference line in the Exam Answers document:					3
(a)	Write line or file name code from Python	1		1		
(b)	Button code (either line) from Python	1		1		
(c)	Any selection (if, =) from Python	1		1		
3.	Award one mark for each correct location of annotation (1 line above, below or to the right of the line) up to a maximum of four. Within the Payroll.py file only. Award one mark for describing each example up to a maximum of four. Indicative content for each example:	4 4		4 4		8
(a)	<code>#This sets the window form . . . to . . .</code>					
(b)	<code>#The * / - + here does . . .</code>					
(c)	<code># = sets a variable to something</code>					
(d)	<code>#. . . gives you a back button (etc)</code>					

Q	Answer	Mark	AO1	AO2	AO3	Total
4.	Award one mark for each correct concept designed in pseudo-code (Pseudo-code syntax and examples are provided in the subject specification) • declare variables • output string literal • input into variables • output a variable • calculate total (correct values) • correct outputs Indicative content BEGIN Subroutine DECLARE estimatedHours AS INTEGER DECLARE numberOfItems AS INTEGER DECLARE timeCost AS INTEGER DECLARE stockCost AS INTEGER DECLARE totalCost AS INTEGER OUTPUT "Enter the estimated number of hours for the course:" INPUT estimatedHours timeCost = estimatedHours * 20 OUTPUT "The cost for time is: £" & timeCost OUTPUT "Enter the number of stock items needed:" INPUT numberOfItems stockCost = numberOfItems * 10 OUTPUT "The cost for stock items is: £" & stockCost totalCost = timeCost + stockCost OUTPUT "The total cost of the course is: £" & totalCost END Subroutine	1 1 1 1 1 1			1 1 1 1 1 1	6
5.	Award one mark for each correct concept designed in pseudo-code (Pseudo-code syntax and examples are provided in the subject specification) • declare variables • output string literal • input into variables • multiplication in correct order • calculate total (correct values) • correct numerically output Indicative content	1 1 1 1 1 1			1 1 1 1 1 1	6

Q	Answer	Mark	AO1	AO2	AO3	Total
	Begin Subroutine DECLARE costPerBrushLesson AS INTEGER DECLARE costPerPaperLesson AS INTEGER DECLARE numberOfLessons AS INTEGER DECLARE totalCost AS INTEGER OUTPUT "Enter the cost for brushes per lesson:" INPUT costPerBrushLesson OUTPUT "Enter the cost for paper per lesson:" INPUT costPerPaperLesson OUTPUT "Enter the number of lessons attended:" INPUT numberOfLessons totalCost = (costPerBrushLesson + costPerPaperLesson) * numberOfLessons OUTPUT "The total cost for the number of lessons is: £" & totalCost End Subroutine					

Q	Answer	Mark	AO1	AO2	AO3	Total
6.	Award one mark for each bulleted item listed below.					28
(a)	New form exists (does not require title name or content.)	1			1	
(b)	- New form has a title or label - Title on form reads "Add Stock item"	1 1			1 1	
	(not case sensitive)					
(c)	- Data entry or textbox allowing typing for the following: - Stock ID - Name - Description - Cost - Expiry Date - Supplier	6			6	
(d)	- label for each of above - intuitive layout (not overlapping or placed at random on form)	6 1			6 1	
(e)	- Button on form - Caption for "Save" any valid title/label e.g. "SAVE" - Button initiates save routine - Standard data saved from form into text file	1 1 1 1			1 1 1 1	
(f)	- Back button on form - Main menu displayed when clicked.	1 1			1 1	
(g)	Annotation within Python file for following: - Creating new form code/GUI has annotation - File handling code has annotation - Back to main menu/Save button/code has annotation - Title has annotation - Labels have annotation - Text boxes have annotation	1 1 1 1 1 1		1 1 1 1 1 1		

Q	Answer	Mark	AO1	AO2	AO3	Total
7.	Award one mark for each test successfully carried out.					4
(a)	• Screenshot of Python form with details from QP filled. Stock ID: 101 Name: A4 Paper Description: Low weight A4 paper Cost: 4 Expiry Date: 1/1/2040 Supplier: WJEC	1		1		
(b)	• Screenshot including confirmatory message.	1		1		
(c)	• Screenshot of text file (1) with details from QP saved to Stock.txt (ignore other data present from testing) (1).	2		2		
8.	Award one mark for each correct change within the Python program (Payroll.py) of tax rate to 0.21 (OR percentage method).	1		1		8
(a)(i)		1		1		
(ii)	Award one mark for annotation around the tax calculation code.	1		1		
	Must be line above, same line or line below.					
	Award one mark for suitable description of tax value	1		1		
	Exemplar:					
	#Tax rate changed to 0.21 as per client requirement					
(b) (i)	Award one mark for each change within Python program (Payroll.py) of national insurance rate to 0.085 (OR percentage method)	1		1		
		1		1		
(ii)	Award one mark for annotation around the national insurance calculation code.	1		1		
	Must be line above, same line or line below.					
	Award one mark for suitable description of tax value	1		1		
	Exemplar:					
	#Tax rate changed to 0.085 as per client requirement					

Q	Answer	Mark	AO1	AO2	AO3	Total
9.	Award one mark for each correct calculation result in the screenshots within the answer document with the following values: Payroll Gross Pay 1000 Calculate Tax: 210.0 National Insurance: 85.0 Pension Contribution: 100.0 Deductions: 395.0 Net Pay: 605.0 Back	5		5		5

Q	Answer	Mark	AO1	AO2	AO3	Total
10.	Award marks according to the band described below. Indicative content Two refinements that the candidate states are successful: • New tax rate • New National Insurance rate • New form designed Explanations of how the code achieves these refinements. • An annotated line of code for tax change • An annotated line of code for NI change • Annotated the stock saving code Consideration of how the final program could be improved upon, for example 1 mark for any: • Validation added (to either above) • User Interface (Percentage Tax or NI visible on screen) • Extensibility (changeable value on screen not hard coded) • Reused code for stock saving	6			6	6

Band	AO3.2c (Max 6 marks)
	5 - 6 marks
3	The candidate has: • shown strong understanding of the requirements of the question and a clear knowledge of the indicative content. Clear knowledge is defined as a response that provides five to six relevant detailed points from the indicative content • shown a sustained line of reasoning which is coherent, relevant, substantiated and logically structured • used appropriate terminology and accurate spelling, punctuation and grammar.
	3 - 4 marks
2	The candidate has: • shown some understanding of the requirements of the question and sound knowledge of the indicative content. Sound knowledge is defined as a response that provides three to four relevant detailed points from the indicative content • shown a line of reasoning which is partially coherent, largely relevant, supported by some evidence and with some structure • used mainly appropriate scientific terminology and some accurate spelling, punctuation and grammar.
	1 - 2 marks
1	The candidate has: • shown limited understanding of the requirements of the question and superficial knowledge of the indicative content. Superficial knowledge is defined as a response that provides one to two relevant points from the indicative content • shown a basic line of reasoning which is not coherent, largely irrelevant with very little structure • used limited scientific terminology and inaccuracies in spelling, punctuation and grammar.
	0 marks
0	No attempt made or no response worthy of credit.