



GCSE MARKING SCHEME

AUTUMN 2020

**COMPUTER SCIENCE - COMPONENT 2
C500U20-1**

INTRODUCTION

This marking scheme was used by WJEC for the 2020 examination. It was finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conference was held shortly after the paper was taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

GCSE COMPUTER SCIENCE
AUTUMN 2020 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.	<p>1 mark for each correct <u>pair</u> in the correct location: i.e: <h1> </h1></p> <p> (Note http:// is required or the link will not work correctly on many devices)</p> <p>Accept alternative tags e.g. <big></big> instead of <h1></h1>, etc</p> <p>Accept alternative HTML (not CSS) solutions which work (only if the identical formatting would be achieved).</p> <pre> <html> <head> <title> Manage mobile devices </title> </head> <body> <h1> Mobile Device Management </h1> <p> In this mobile first age it is vital that all company devices are managed. </p> <p> MDM software allows devices to be:: Locked Wiped Tracked </p> <p> From anywhere in the world!</p> <p>Click the link below to find out more:</p> <p> www.manageourmobiles.com </p> </pre>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1 (1st image)</p> <p>1 ul and li</p> <p>1 a href and http or s</p>		2b		10

Q	Answer	Mark	AO1	AO2	AO3	Total
	<pre> <p> <blockquote>"Mobile device management is a must for any company or organisation"</blockquote> - CEO </p> </body> </html> </pre>	<p>1(2nd correct image)</p> <p>1(block quote)</p>				

Q	Answer	Mark	AO1	AO2	AO3	Total														
2. (a)						9														
(i)	OUT	1	1a																	
(ii)	STA	1	1a																	
(iii)	SUB	1	1a																	
(b)	<table border="1"> <thead> <tr> <th>Data to be stored:</th> <th>Most appropriate data type:</th> </tr> </thead> <tbody> <tr> <td>"Hello"</td> <td>String</td> </tr> <tr> <td>1.1</td> <td>Real</td> </tr> <tr> <td>TRUE</td> <td>Boolean</td> </tr> <tr> <td>465</td> <td>Integer</td> </tr> <tr> <td>L</td> <td>Character</td> </tr> <tr> <td>"The quick brown fox"</td> <td>String</td> </tr> </tbody> </table>	Data to be stored:	Most appropriate data type:	"Hello"	String	1.1	Real	TRUE	Boolean	465	Integer	L	Character	"The quick brown fox"	String	 1 1 1 1 1 1		2a 2a 2a 2a 2a 2a		
Data to be stored:	Most appropriate data type:																			
"Hello"	String																			
1.1	Real																			
TRUE	Boolean																			
465	Integer																			
L	Character																			
"The quick brown fox"	String																			
3. (a)	Award one mark to a maximum of two for each correct sentence.	1+1	1b			9														
(i)	The Scope of a variable defines which parts of an algorithm is visible Usually the whole program or a subroutine Cannot be accessed outside of this scope/subroutine/program																			
(ii)	Award one mark to a maximum of three for each correct sentence. <ul style="list-style-type: none"> The lifetime of a variable refers to how long the variable is kept in memory How long the data is retained How long until the memory is wiped Local variables data lost when local subroutine ends Static variables survive the end of a method and exist as long as the class Until the object is deleted/destroyed 	1+1+1	1b																	
(b)	Award 1 mark for each correct row completed <table border="1"> <tbody> <tr> <td>Counter is:</td> <td>1</td> </tr> <tr> <td>Multi is:</td> <td>2</td> </tr> <tr> <td>Counter is:</td> <td>2</td> </tr> <tr> <td>Multi is:</td> <td>4</td> </tr> </tbody> </table>	Counter is:	1	Multi is:	2	Counter is:	2	Multi is:	4	 1 1 1 1		2b 2b 2b 2b								
Counter is:	1																			
Multi is:	2																			
Counter is:	2																			
Multi is:	4																			

Q	Answer	Mark	AO1	AO2	AO3	Total										
4. (a)	<pre> 1 Declare LoginScreen 2 username is string 3 password is string 4 counter is integer 5 loggedIn is boolean 6 set loggedIn = FALSE 7 set counter = 0 8 do 9 output "Type in username" 10 input username 11 output "Type in password" 12 input password 13 if username = "User1" AND password = "Pass1" then 14 output "Username and password correct" 15 set loggedIn = TRUE 16 else 17 output "Please try again" 18 counter = counter + 1 19 end if 20 loop until counter = 3 21 End Subroutine </pre>	1 1 1 1		2b 2b 2b 2b		8										
(b)	<p>Award one mark for each correctly selected line from above + valid reason. Order in table is not important.</p> <table border="1"> <thead> <tr> <th>Line:</th> <th>Reason</th> </tr> </thead> <tbody> <tr> <td>input password</td> <td>Allows user to enter password</td> </tr> <tr> <td>set loggedIn = TRUE</td> <td>Triggers Boolean value / sets logged in</td> </tr> <tr> <td>counter = counter + 1</td> <td>Increments counter / keeps track of attempts</td> </tr> <tr> <td>End Subroutine</td> <td>Ends subroutine/program/attempts at login</td> </tr> </tbody> </table>	Line:	Reason	input password	Allows user to enter password	set loggedIn = TRUE	Triggers Boolean value / sets logged in	counter = counter + 1	Increments counter / keeps track of attempts	End Subroutine	Ends subroutine/program/attempts at login	1 1 1 1			3c 3c 3c 3c	
Line:	Reason															
input password	Allows user to enter password															
set loggedIn = TRUE	Triggers Boolean value / sets logged in															
counter = counter + 1	Increments counter / keeps track of attempts															
End Subroutine	Ends subroutine/program/attempts at login															

Q	Answer	Mark	AO1	AO2	AO3	Total																				
5.	<p>Award 1 mark for correct line in correct location only.</p> <p>Start: (no marks)</p> <table border="1" data-bbox="276 376 550 421"> <tr> <td>9</td> <td>5</td> <td>10</td> <td>2</td> </tr> </table> <p>First operation:</p> <table border="1" data-bbox="276 504 550 548"> <tr> <td>5</td> <td>9</td> <td>10</td> <td>2</td> </tr> </table> <p>second operation:</p> <table border="1" data-bbox="276 631 550 676"> <tr> <td>5</td> <td>9</td> <td>2</td> <td>10</td> </tr> </table> <p>Third operation</p> <table border="1" data-bbox="276 759 550 804"> <tr> <td>5</td> <td>2</td> <td>9</td> <td>10</td> </tr> </table> <p>Final operation:</p> <table border="1" data-bbox="276 887 550 931"> <tr> <td>2</td> <td>5</td> <td>9</td> <td>10</td> </tr> </table>	9	5	10	2	5	9	10	2	5	9	2	10	5	2	9	10	2	5	9	10	1 1 1 1		2b		4
9	5	10	2																							
5	9	10	2																							
5	9	2	10																							
5	2	9	10																							
2	5	9	10																							
6	<p>Award 1 mark for each bulleted item below</p> <ul style="list-style-type: none"> • New world called ADVERT • Class called Phones • Six Phone objects on world on load • Phones move randomly • World saved as FinalAdvert 	1 1 1 1 1			3b	5																				

Q	Answer	Mark	AO1	AO2	AO3	Total
7.	1 mark per bullet point below:				3b	15
(a)	World is pre-populated on load with: <ul style="list-style-type: none"> • one computer only • one or more Static shocks • one or more micro Chips. 	1 1 1				
(b)	<ul style="list-style-type: none"> • statics move randomly around world. • chips move randomly around world. • random movement implemented using a function (such as <code>getRandomNumber</code>) 	1 1 1				
(c)	<ul style="list-style-type: none"> • computer moves around world according to arrow keys. • computer moves with appropriate relative speed to chips (equal to or greater than the speed of the chip) 	1 1				
(d)	<ul style="list-style-type: none"> • chip is removed from world on collision with computer. 	1				
(e)	<ul style="list-style-type: none"> • sound plays when computer and chip collide 	1				
(f)	<ul style="list-style-type: none"> • counter added to world. • counter increments when computer and chip collide. 	1 1				
(g)	<ul style="list-style-type: none"> • counter decrements when static and chip collide. 	1				
(h)	<ul style="list-style-type: none"> • Chip is removed from world on collision with static. 	1				
(i)	<ul style="list-style-type: none"> • Greenfoot world saved correctly as <code>finalStatic7</code> 	1				