



GCE AS MARKING SCHEME

SUMMER 2025

**AS (NEW)
COMPUTER SCIENCE - UNIT 2
2500U20-1**

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.

WJEC GCE AS COMPUTER SCIENCE - UNIT 2

SUMMER 2025 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.

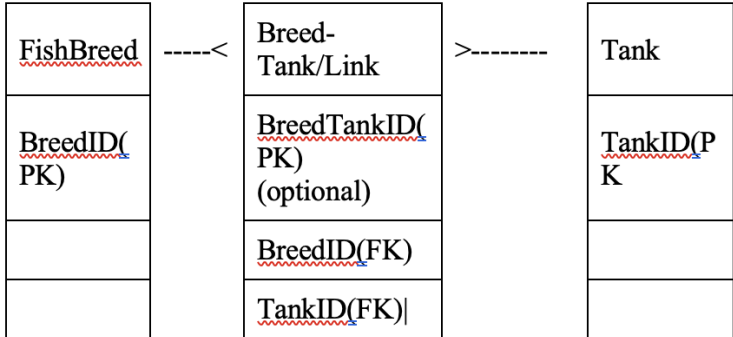
Stage 2 – Deciding on the mark

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.

Section A

Q	Answer	Mark	AO1	AO2	AO3	Total
1	Award 1 mark for each: - Name of FishBreed table is relevant - Name of Tank table is relevant - linking table exists - Name of linking table is relevant - Correct relationship link from breed to linking table (1:M) - Correct relationship from tank to linking table (1:M) (must indicate many side for each mark above) - FishBreed AND Tanks table has a primary key - Linking table has BOTH foreign keys  <pre> graph LR FB[FishBreed] --- 1:M BTL[Breed-Tank/Link] BTL --- 1:M T[Tank] FB -- PK --> B1[BreedID(PK)] BTL -- FK --> B2[BreedTankID(PK) optional] BTL -- FK --> B3[BreedID(FK)] BTL -- FK --> B4[TankID(FK)] T -- PK --> T1[TankID(PK)] </pre>	8		8		8

Q	Answer	Mark	AO1	AO2	AO3	Total								
2	Answer must be within the context of AZT's aquarium scenario as all marks are awarded for AO2.1b: Scenario clearly states the AZT has a specialist IT user All answers must reflect this. Indicative content: AZT could use a Graphical user interface (GUI) A GUI is a type of interface that allows staff to interact with a computer system through graphical icons. <table><tr><th>Benefits</th><th>Drawbacks</th></tr><tr><td> • Intuitive for staff • Easy to navigate for non specialist staff • Uses Windows, Icons, Menus and Pointers which staff may be familiar with • No complicated commands for staff to learn </td><td> • Requires a large amount of memory so cost of purchase is higher • Is relatively processor intensive cost again for purchase • GUIs take up a much larger amount of hard disk space than other interfaces. </td></tr></table> AZ could use a Command Line interface (CLI) A Command Line Interface is an entirely text-based interface that would allow AZ owner to communicate with the computer system by typing in commands <table><tr><th>Benefits</th><th>Drawbacks</th></tr><tr><td> • Quicker to type commands so staff can continue with other tasks • Quicker to input commands as shortcut keys can be used again saves staff time • Little memory and processing power needed compared with other interfaces saving on cost to AZ • Staff members who have memorised the commands find it very fast to use </td><td> • Very confusing for staff who have never used a command line interface will the previous IT user still be efficient/as fast as he recalls being? • Commands have to be typed precisely. If there is a spelling error the command will fail frustrating efficient use • A large number of NEW commands MAY need to be learned • Not suitable for a novice/difficult for new staff to learn if he hires staff </td></tr></table> Award up to 2 marks for description of each UI that AZ could use x 2 Award 1 mark for advantage to AZ owner or company of UI x2 Award 1 mark for disadvantage to Owner or company of UI x2	Benefits	Drawbacks	• Intuitive for staff • Easy to navigate for non specialist staff • Uses Windows, Icons, Menus and Pointers which staff may be familiar with • No complicated commands for staff to learn	• Requires a large amount of memory so cost of purchase is higher • Is relatively processor intensive cost again for purchase • GUIs take up a much larger amount of hard disk space than other interfaces.	Benefits	Drawbacks	• Quicker to type commands so staff can continue with other tasks • Quicker to input commands as shortcut keys can be used again saves staff time • Little memory and processing power needed compared with other interfaces saving on cost to AZ • Staff members who have memorised the commands find it very fast to use	• Very confusing for staff who have never used a command line interface will the previous IT user still be efficient/as fast as he recalls being? • Commands have to be typed precisely. If there is a spelling error the command will fail frustrating efficient use • A large number of NEW commands MAY need to be learned • Not suitable for a novice/difficult for new staff to learn if he hires staff	8		8		8
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Q	Answer	Mark	AO1	AO2	AO3	Total
3	Award ONE mark up to a maximum of 8 for each valid point from below. Direct “big bang” approach can be adopted - sudden change to new system • Could be used where a failure would not be catastrophic • Can be cheaper to implement • New system is available immediately if required • Can be the least disruptive if implemented well • New system may not work as well until staff are fully used to using it • If new system fails organisation have no system which could be costly or dangerous Phased changeover - part-by-part (by functionality) • Allows users to gradually get used to the new system • Staff training can be done in stages • All staff can focus on one area to resolve any problems • Problems can be fixed quicker as more experts to resolve one functionality problem at a time • Difficulties identified in one area can be resolved and managed in next area • Might cause problems in the changeover period when they need to communicate with each other and have different systems • Slower to get new system up and running compared to some other methods • If a part of the new system fails, there is no back-up system, so data can be lost Some systems cannot easily be broken down by functionality	8		8		8

Q	Answer	Mark	AO1	AO2	AO3	Total															
4 (a)	Award ONE mark for each correct time and targetSalt value. <table><tr><td>iteration:</td><td>time:</td><td>targetSalt:</td></tr><tr><td>1</td><td>1</td><td>2</td></tr><tr><td>2</td><td>1</td><td>3</td></tr><tr><td>3</td><td>2</td><td>5</td></tr><tr><td>4</td><td>3</td><td>8</td></tr></table>	iteration:	time:	targetSalt:	1	1	2	2	1	3	3	2	5	4	3	8	8		8		12
iteration:	time:	targetSalt:																			
1	1	2																			
2	1	3																			
3	2	5																			
4	3	8																			
(b)	1 mark for example. of FinalSalt Number AND targetSalt Number 1 mark for example of FinalSalt divided by targetSalt that results in a number beyond one decimal place. 1 mark for exemplifying OR stating difficulty in recording a number beyond one decimal place. 1 mark for stating that truncation could be inaccurate up to 0.09/how inaccurate the example calculation is.	4		4																	

Q	Answer	Mark	AO1	AO2	AO3	Total
5	Any valid/functional loop based algorithm that returns outputs as stated in question: <pre> 1. current is real 2. set current = 100 3. 4. repeat {start a loop} 5. 6. input current 7. 8. if current = 100 then 9. output "Rogue value input" 10. else 11. 12. if current >6 then 13. output "add water" 14. else 15. 16. if current > 4 AND current <6 then 17. output "stop addition" 18. else 19. 20. if current <2 AND current >1 then 21. output "add salt" 22. else 23. 24. if current <1 then 25. output "double the salt addition" 26. else 27. 28. if current <0 OR current >10 then 29. output "Reading error" 30. end if 31. 32. {Multiple end if may be here} 33. 34. until current = 100 35. output "Algorithm terminated" 36. 37. end </pre>	8			8	8

Q	Answer	Mark	AO1	AO2	AO3	Total
	Award 1 mark for each: • Input currentLevel • use of a loop (terminating condition accepted not expected) • comparison >6 • comparison 4-6 • comparison <2 • comparison <1 • comparison < 0 AND >10 with output "Reading error". • Algorithm provides all correct outputs Marks awarded for concepts demonstrated above. Other solutions incorporating above concepts that provide exactly the same result would be awarded credit. Line numbers and indentation not required.					

Section B

Q	Answer	Mark	AO1	AO2	AO3	Total
1	Indicative content: • Button available to save data • Button available to count data • The number of records appear on screen (in any form) • Suitable annotation	4			4	4

Band	AO3.1b Max 4 marks
3	4 marks The candidate has: • Implemented all the points required as stated in the indicative content • Used and fully exploited the programming facilities of the language • Demonstrated a sound understanding of the appropriate tools and techniques available to them
2	2-3 marks The candidate has: • Implemented the majority of the points required as stated in the indicative content. Majority is defined as a response that provides two or three items of the functionality signalled in the indicative content • Used and exploited the programming facilities of the language • Demonstrated an understanding of the tools and techniques available to them
1	1 mark The candidate has: • Implemented only one of the points required as stated in the indicative content • Used some of the programming facilities of the language • Demonstrated a limited understanding of the tools and techniques available to them
0	0 marks • Response not credit worthy or not attempted.

Q	Answer	Mark	AO1	AO2	AO3	Total
2	Indicative content: • Input a number • If the value is 100 the message displayed: “program terminated” program ends. • use of a loop (terminating condition accepted not expected) • comparison >6 • comparison 4-6 • comparison <2 • comparison <1 • comparison < 0 AND >10 with output “Reading error”. • Store the last salinity reading on disk in a text file called SaltResult • Retrieve the last reading from disk. • Creates a data file called saltResult.txt or .dat or any reasonable name • Descriptive/useful feedback that file has been saved ○ Candidates may use custom data types / standard methods / put/get streamwriter/ print # etc • HCI fit for purpose (Textual or GUI)	12			12	12

Band	AO3.1b Max 12 marks
3	9-12 marks The candidate has: - Created a new program including all or the majority of the functionality as required in the question and stated in the indicative content. The majority of the functionality is defined as a response that provides nine to twelve items of the functionality signalled in the indicative content - Used and fully exploited the programming facilities of the language - Demonstrated a sound understanding of the appropriate tools and techniques available to them - Written code that is well structured - Provided evidence of a completed user interface which aids user interaction and is intuitive
2	5-8 marks The candidate has: - Created a new program including most of the functionality as required in the question and stated in the indicative content. Most of the functionality is defined as a response that provides five to eight items of the functionality signalled in the indicative content - Made use of an appropriate range of the programming facilities of the language - Demonstrated an understanding of the tools and techniques available to them - Provided evidence of a completed user interface which aids user interaction
1	1-4 marks The candidate has: - Created a new program with a limited range of the functionality as stated in the indicative content or improved the prototype provided by adding a limited range of the new functionality as stated in the indicative content. A limited range of functionality is defined as a response that provides one to four items of the functionality signalled in the indicative content - Used a limited range of the programming facilities of the language - Demonstrated a limited understanding of the tools and techniques available to them - Provided evidence of a user interface
0	0 marks Response not credit worthy or not attempted.