



GCE AS Examiners' Report

Computer Science
AS Level
Summer 2024

Introduction

Our Principal Examiners' report provides valuable feedback on the recent assessment series. It has been written by our Principal Examiners and Principal Moderators after the completion of marking and moderation, and details how candidates have performed in each component.

This report opens with a summary of candidates' performance, including the assessment objectives/skills/topics/themes being tested, and highlights the characteristics of successful performance and where performance could be improved. It then looks in detail at each unit, pinpointing aspects that proved challenging to some candidates and suggesting some reasons as to why that might be.¹

The information found in this report provides valuable insight for practitioners to support their teaching and learning activity. We would also encourage practitioners to share this document – in its entirety or in part – with their learners to help with exam preparation, to understand how to avoid pitfalls and to add to their revision toolbox.

Further support

Document	Description	Link
Professional Learning / CPD	Eduqas offers an extensive programme of online and face-to-face Professional Learning events. Access interactive feedback, review example candidate responses, gain practical ideas for the classroom and put questions to our dedicated team by registering for one of our events here.	https://www.eduqas.co.uk/home/professional-learning/
Past papers	Access the bank of past papers for this qualification, including the most recent assessments. Please note that we do not make past papers available on the public website until 12 months after the examination.	Portal by WJEC or on the Eduqas subject page
Grade boundary information	Grade boundaries are the minimum number of marks needed to achieve each grade. For linear specifications, a single grade is awarded for the subject, rather than for each component that contributes towards the overall grade. Grade boundaries are published on results day.	For unitised specifications click here: Results and Grade Boundaries and PRS (eduqas.co.uk)

¹ Please note that where overall performance on a question/question part was considered good, with no particular areas to highlight, these questions have not been included in the report.

Exam Results Analysis	Eduqas provides information to examination centres via the WJEC Portal. This is restricted to centre staff only. Access is granted to centre staff by the Examinations Officer at the centre.	Portal by WJEC
Classroom Resources	Access our extensive range of FREE classroom resources, including blended learning materials, exam walk-throughs and knowledge organisers to support teaching and learning.	https://resources.edugas.co.uk/
Bank of Professional Learning materials	Access our bank of Professional Learning materials from previous events from our secure website and additional pre-recorded materials available in the public domain.	Portal by WJEC or on the Eduqas subject page.
Become an examiner with WJEC.	We are always looking to recruit new examiners or moderators. These opportunities can provide you with valuable insight into the assessment process, enhance your skill set, increase your understanding of your subject and inform your teaching.	Become an Examiner Eduqas

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Executive Summary

Introduction

This report provides a summary of candidates' performance, including the assessment objectives/skills/topics/themes being tested, and highlights the characteristics of successful performance and where performance could be improved within the qualification as a whole. A final report providing detailed commentary on candidate performance in each component will be provided by 30th September 2024.

Executive Summary

The performance of candidates in the GCE AS Computer Science examinations this summer series was generally positive, showing a substantial improvement compared to the previous year. Candidates demonstrated a good understanding of key concepts and principles across a range of topics, including computer systems, data representation, and problem-solving.

In Component 1 - Fundamentals of Computer Science, which contributes 70% of the qualification, candidates performed well overall. The mean total for this component increased significantly from the previous year, indicating that the paper was more accessible. Many candidates demonstrated a strong grasp of topics such as Boolean algebra, binary arithmetic, and algorithm constructs.

Within the Boolean algebra question, many candidates were able to simplify the given expression using appropriate identities and rules, showcasing their mathematical skills. Similarly, in the binary arithmetic questions, many candidates correctly converted numbers to binary, performed binary addition, and calculated the denary value of floating-point numbers, displaying a solid understanding of data representation.

However, candidates found some areas more challenging. Describing the storage of characters in binary form proved difficult for many, with only a minority able to provide a detailed explanation. Candidates also struggled to distinguish between serial and sequential file access methods, and only a few were able to explain the potential effects of computers on the nature of employment.

Within Component 2 - Practical Programming to Solve Problems, the number of entries was low, but many candidates demonstrated a good understanding of the specification and were well prepared for the practical programming elements. Candidates generally performed well on questions related to entity-relationship diagrams and object-oriented design, displaying their ability to apply programming concepts.

Conversely, candidates found algorithm design and implementation more challenging. Many struggled to write effective algorithms to solve the given problems, and a large number scored poorly on these questions. The question requiring candidates to fix "broken" code also proved difficult, suggesting that centres may need to focus more on preparing students for these types of practical programming tasks.

Overall, the examination series has shown that candidates have a good grasp of the key concepts in computer science, with some areas identified for further development. Centres should seek to improve understanding in areas such as algorithm design, programming refinement, and understanding of the social impacts of computing.

Areas for improvement	Classroom resources	Brief description of resource
General	Portal (WJEC)	Past papers, marking schemes and exemplar materials
General – administration	EDUQAS website	Specification
General – administration	EDUQAS website	Teacher guidance
Component 1 & 2	Digital Resources (edugas.co.uk)	Knowledge organisers
Component 1 & 2	Ada Computer Science	Theory website

COMPUTER SCIENCE

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COMPONENT 1 – FUNDAMENTALS OF COMPUTER SCIENCE

Overview of the Component

Component 1 contributes 70% of the qualification assesses a range of assessment objectives (AO) as follows:

- AO1 – 57 marks
 - Demonstrate knowledge and understanding of the principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- AO2 – 36 marks
 - Apply knowledge and understanding of the principles and concepts of computer science, including to analyse problems in computational terms
- AO3 – 7 marks
 - Design, program and evaluate computer systems that solve problems, making reasoned judgements about these and presenting conclusions

During this series, a wide range of content was assessed, including:

- Parallel processing
- Boolean algebra, which also assess candidates' mathematical skills
- Storage of characters
- Representation of data and numbers as bit patterns, which also assess candidates' mathematical skills
- Serial and sequential file access
- Contemporary processes that protect the security and integrity of data
- Validation techniques
- Contingency planning for disasters
- Algorithm constructs
- Write algorithms and programs involving sequence, selection and repetition to solve nonstandard problems
- Master and transaction files
- Object-oriented programming
- The effects of computers on the nature of employment in wider society.

The mean total for Component 1 this series was approximately 50 out of 100 marks. This represents a substantial increase when compared with the mean total of 30 out of 100 in 2023, with candidates finding the paper much more accessible.

Comments on individual questions/sections

Q1 A majority of candidates were able to explain parallel processing at a superficial level, with less than half giving a suitable example. Candidates' understanding of the potential limitations was less well answered.

Q2 This question was generally well answered, with many candidates simplifying the given expression using Boolean identities and rules. Some candidates failed to simplify $(A + B).(A.\overline{B}) = A.A + A.\overline{B} + B.A + B.\overline{B}$ correctly.

Q3 Only a minority of candidates were able to describe how characters are stored in binary form, with very few having the depth in knowledge and understanding to gain full marks in the question.

Q4 This question was generally well answered.

Many candidates correctly stated the meaning of the term byte. However, only a very few candidates gave the correct meaning for the term word length, which was the worst answered part-question of the paper.

The second best answered question of the paper was the conversion of two numbers into binary, using binary addition to calculate the binary number that would result from adding them.

The third best answered question of the paper was the calculation of the denary value of the mantissa and exponent and correct conversion of the floating-point number into a denary number.

A majority of candidates correctly showed the effect of truncation and rounding on the given number. However, where candidates found this question less accessible, it was because of a lack of understanding of needing to truncate / round to two binary places.

Q5 Only a minority of candidates were able to distinguish between the use of serial and sequential file access methods in computer applications. In particular, many candidates had limited understanding of sequential file access methods.

Q6 Only a minority of candidates were able to describe contemporary processes that protect the security and integrity of data. Popular correct answers included access levels, unique username and a strong secure password, and antivirus software.

Q7 A majority of candidates were able to give examples of validation techniques. Where candidates found this question most demanding was in the describing the technique itself, where technical understanding seemed a barrier.

Q8 Candidates found this question particularly demanding. A minority of candidates were able to explain how contingency planning at the before, during and after stage can aid in the recovery from disasters. More candidates were able to outline potential threats, with popular answers including fire, flood, and lightning.

Q9 Most candidates were able to state the name given to the type of algorithm. This was the best answered question of the paper.

Around half of candidate were able to show a good understanding of how the algorithm operates and describe two constructs confidently.

Q10 A pleasing majority of candidates were able to write an algorithm required to translate English words into their Spanish equivalent, using a 2D array. A significant number of candidates did however have difficulties correctly referencing the 2D array [i, j].

Q11 Candidates found this question particularly demanding. Only a few were able to describe the master and transaction file system and the update process for account balances. Similarly, only a few were able to give two advantages of using this approach for updating account balances. It is worth noting that a significant number of candidates, nearly 10%, did not attempt this question.

Q12 Candidates found the first part of this question particularly demanding. Only a few were able to correctly describe the relationship between an object and a class. This was the second worst answered part-question of the paper.

The remainder of the question was generally answered well, with a majority of candidates able to correctly give an example of a public method and method that require or don't require a parameter.

Around half of candidates were able to describe the difference between a private and protected method.

Q13 A minority of candidates were able to describe the possible effects of computers on the nature of employment in wider society. Popular answers included the effect on job creation and job losses. However, beyond this, many candidates lacked a depth in knowledge to gain more marks for the question.

Q14 Around half of candidates were able to discuss the relative merits of direct and parallel system changeover methods and describe the typical contents of user and maintenance documentation. These candidates attempted to address the question by providing a written response that has an adequate line of reasoning with elements of coherence, relevance, and logical structure. They showed an adequate understanding of the requirements of the question and a satisfactory knowledge as specified in the indicative content and used appropriate technical terminology.

Candidates were more confident in discussing the relative merits of direct and parallel system changeover methods than the typical contents of user and maintenance documentation.

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COMPONENT 2 – PRACTICAL PROGRAMMING TO SOLVE PROBLEMS

Overview of the Component

Component 2 is a practical examination with candidates required to demonstrate the application of knowledge and understanding at all times. This requires application of knowledge and practical coding which are AO2 and AO3 assessment objectives.

The number of entries for this paper was very low and making comments based on limited statistical evidence is challenging.

Most of the candidates demonstrated a good understanding of the specification, question attempted percentages were not available this series. Many candidates were well prepared, and many excellent answers were evident. There was evidence also, that some candidates had been well prepared for some of the practical programming elements.

Comments on individual questions/sections

- Q1. This was generally well answered this series with some mistakes in ER diagrams and some candidates demonstrating a weaker understanding of relationships between entities.
- Q2. Candidates needed to extract details from the question to build a flowchart. This was generally not well answered. However some candidates did use the correct symbols/terminology and demonstrated an applied understanding of the process.
- Q3. This was generally poorly attempted with few candidates scoring top marks and many candidates scoring zero marks.
- Q4. This was considered to be a demanding question, requiring practical application of modelling to decompose a problem and demonstrate understanding of UML class modelling in an Object-Oriented design environment. It was pleasing to see many candidates scoring very well in this section.
- Q5. As is usually the case with algorithm questions, some candidates scored full marks, but a large number seemed to have no clear idea about algorithm design.

- Q6. (a) This was generally not well answered this series. It was disappointing to see that some centres had not thoroughly prepared candidates for the prospect of fixing “broken” code.
- (b) This question required candidates to program a solution to a new problem. Credit was given for functionality however the candidate had implemented it.
- (c) This question was generally well answered. Many candidates showed detailed annotation of the code they had used.

Supporting you

Useful contacts and links

Our friendly subject team is on hand to support you between 8.30am and 5.00pm, Monday to Friday.

Tel: 02920 265 401

Email: CS@eduqas.co.uk

Qualification webpage: [AS and A Level Computer Science | Eduqas](#)

See other useful contacts here: [Useful Contacts | Eduqas](#)

CPD Training / Professional Learning

Access our popular, free online CPD/PL courses to receive exam feedback and put questions to our subject team, and attend one of our face-to-face events, focused on enhancing teaching and learning, providing practical classroom ideas and developing understanding of marking and assessment.

Please find details for all our courses here: <https://www.eduqas.co.uk/home/professional-learning/>

Regional Rep Team

Our regional team covers all areas of England and can provide face-to-face and online advice at a time which is convenient to you.

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We support our education communities by providing trusted qualifications and specialist support, to allow our students the opportunity to reach their full potential.



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