GCE A Level Examiners' Report

Computer Science

A Level

Summer 2026

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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.***

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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.eduqas.co.uk/
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Executive Summary

Overall performance in A-Level Computer Science for Summer 2026 was positive, with candidates demonstrating secure knowledge and understanding across a broad range of specification content. Across both examined components, candidates engaged well with the assessments, with response rates typically exceeding 95%. The assessments provided an effective balance of accessible and demanding questions, allowing candidates across the ability range to demonstrate achievement while differentiating effectively between levels of performance. Many candidates also produced high-quality coursework projects, with moderators reporting a significant number of good and some notable excellent submissions.

In Component 1, candidates performed particularly well on questions relating to data structures, Boolean logic, algorithm design, binary trees, complexity graphs and bit manipulation. Strong performance was evident where candidates were required to apply procedural knowledge or construct solutions to defined problems. More demanding areas included programming language concepts, comparisons between procedural and object-oriented methodologies, the application of programming concepts to real-time systems, and backup and recovery procedures. Extended-response questions often revealed that candidates possessed the underlying knowledge but were less successful when required to provide detailed explanations, comparisons and technical evaluations.

Performance in Component 2 was strongest in data representation, binary arithmetic, floating-point calculations, SQL and aspects of cybersecurity and internet policy. Candidates generally demonstrated confidence when solving programming and mathematical problems, and SQL continued to be a well-taught area of the specification. Less successful responses were typically found in questions requiring deeper technical explanation, including virtual memory, communication devices, multiplexers, network infrastructure and cryptographic key exchange. As in previous series, descriptive questions frequently produced responses that were correct in principle but lacked the depth, reasoning and technical detail required to access higher marks.

Component 3 continued to produce many projects of a good standard, with the strongest candidates demonstrating clear links between investigation, design, development, testing and evaluation. Successful projects were characterised by well-defined objectives, detailed data structure design, effective use of advanced programming techniques, comprehensive testing and thoughtful evaluation. Moderators identified strong practice where candidates used feedback to refine designs and supported their projects with video evidence. However, some candidates did not fully exploit the capabilities of their chosen programming language, while others provided insufficient evidence of complex data structures, developmental testing or evaluative reflection. In some cases, software could not be executed because required libraries or dependencies were not supplied.

Across the qualification, a common theme was that candidates generally performed more effectively on procedural, mathematical and programming tasks than on questions requiring extended written explanation, analysis and evaluation. Stronger candidates consistently used accurate technical terminology, developed reasoned arguments and supported their responses with relevant examples. Within coursework, the quality of investigation, objective setting, data structure design and evaluation often proved to be the key differentiators between mark bands.

Areas for improvement include developing deeper understanding of programming paradigms, real-time systems, backup and recovery procedures, communication devices, networking concepts, virtual memory and cryptographic processes. Candidates should be encouraged to provide more detailed technical explanations and evaluative responses rather than descriptive accounts. Within Component 3, greater emphasis should be placed on

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producing detailed investigations, designing complex data structures, evidencing developmental testing throughout the project lifecycle and providing reflective evaluations.

Centres are encouraged to make use of Eduqas digital classroom resources, knowledge organisers, past papers and Professional Learning opportunities to support candidates in these areas and prepare effectively for future assessment series.

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COMPUTER SCIENCE

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Component 1: Programming and System Development

Overview of the Component

The paper was generally well attempted, with most questions attracting response rates above 95%, indicating that candidates were able to engage with much of the assessment. Facility factor (FF) values suggest a balanced paper overall, containing a mixture of accessible, moderately demanding and more challenging questions. According to the assessment guidance, facility factors above 80% indicate very accessible items, whilst values below 20% would indicate highly demanding items. Questions with facility factors close to the middle range typically provide the greatest opportunity for discrimination between candidates of differing abilities.

Comments on individual questions/sections

Question 1: Stack and Queue Data Structures

Question 1 proved highly accessible, with a facility factor of 84.1% and a mean score of 3.4 out of 4. Nearly all candidates attempted the question (99.5%), demonstrating confidence with fundamental data structure concepts. Candidates generally showed a secure understanding of the operational characteristics of stacks and queues and were usually able to identify suitable applications. The relatively low standard deviation indicates that performance was consistent across the cohort, suggesting that this was an effective introductory question designed to allow most candidates to demonstrate core knowledge.

Question 2(a): High-Level and Low-Level Languages

Performance on Question 2(a) was considerably less secure. The facility factor of 38.6% and mean score of 2.3 out of 6 indicate that many candidates struggled to provide sufficiently detailed explanations of the differences between high-level and low-level languages. Although almost all candidates attempted the question, responses frequently lacked depth and precision. The question successfully differentiated between candidates with a broad conceptual understanding of programming languages and those with only superficial knowledge.

Question 2(b): High-Level Languages and Real-Time Applications

This was one of the more demanding short-answer questions on the paper, with a facility factor of 37.0% and a mean mark of 1.5 out of 4. While candidates generally understood the characteristics of high-level languages, many found it more difficult to apply this knowledge to real-time processing environments. Successful responses linked language abstraction and translation overheads to timing constraints, whereas weaker responses often repeated generic statements about high-level languages without addressing real-time requirements.

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Question 3(a): Truth Table Construction

Question 3(a) was answered very successfully, achieving a facility factor of 82.5% and a mean mark of 4.1 out of 5. Candidates demonstrated strong procedural skills in constructing truth tables and evaluating Boolean expressions. The high attempt rate and strong performance suggest that Boolean logic remains an area of relative strength for the cohort.

Question 3(b): Boolean Expressions with XOR

Performance was similarly strong on Question 3(b), which recorded a facility factor of 82.2%. Most candidates were able to evaluate the XOR operator correctly and combine it with additional Boolean operations. Although some candidates made isolated errors when combining intermediate results, the question was generally accessible and functioned effectively as a test of applied logical reasoning.

Question 4: Procedural and Object-Oriented Programming

Question 4 was among the more challenging extended-response items, with a facility factor of 37.1% and a mean score of 3.0 out of 8. Candidates frequently demonstrated some knowledge of procedural programming but often struggled to articulate clear and developed comparisons with object-oriented methodologies. Responses from stronger candidates discussed abstraction, encapsulation, classes and objects in detail, whereas weaker responses relied on simple definitions with limited comparative analysis. The relatively large standard deviation indicates substantial variation in candidate performance, suggesting that the question discriminated effectively between different ability levels.

Question 5(a): Boolean Algebra Simplification

Question 5(a) performed well, with a facility factor of 67.9%. Most candidates were able to apply Boolean algebra identities successfully, although some procedural errors occurred when simplifying multiple stages. The spread of marks suggests that while the question was accessible, it still offered opportunities for stronger candidates to demonstrate greater fluency and accuracy.

Question 5(b): Boolean Algebra Simplification

This was one of the stronger-performing algebra questions, achieving a facility factor of 73.1%. Candidates generally demonstrated confidence when applying identities involving constants and simplification rules. The question proved accessible across the ability range whilst still rewarding methodical working and knowledge of fundamental Boolean laws.

Question 6: Algorithm Design

The algorithm-writing question was answered successfully by most candidates, with a facility factor of 75.6% and a mean score of 6.8 out of 9. Candidates generally demonstrated a good understanding of iteration, random number generation, validation of answers and use of counters. Strong responses presented clear, structured algorithms meeting all requirements. Weaker responses typically omitted one or more specification points, most commonly the handling of both quotient and remainder or the accumulation of correct responses. Overall, the question functioned effectively in assessing practical algorithmic thinking.

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Question 7(a): Integrated Development Environments

Question 7(a) showed moderate difficulty, recording a facility factor of 52.7%. Many candidates could identify features found within an IDE, such as debugging and compilation tools, but fewer were able to explain clearly how these differentiate an IDE from a basic text editor. Candidate responses often demonstrated recognition rather than detailed understanding.

Question 7(b): Auto-Completion in IDEs

Performance was weaker on Question 7(b), with a facility factor of 46.4%. While most candidates recognised that auto-completion speeds development, fewer could provide developed explanations linking the feature to productivity gains, error reduction and improved efficiency. The question was effective in distinguishing descriptive responses from those showing greater understanding of software development practices.

Question 8: Backus-Naur Form

Question 8 produced a facility factor of 53.0%, indicating moderate demand. Candidates generally understood the purpose of BNF notation but often found it challenging to construct a complete formal definition satisfying all citation requirements. Stronger candidates produced well-structured grammatical definitions with appropriate recursion and terminal/non-terminal notation. Weaker candidates frequently omitted validation constraints or confused BNF with regular expression syntax.

Question 9(a): Binary Tree Construction

Question 9(a) was one of the most accessible items on the paper, achieving a facility factor of 92.6% and a mean mark of 2.8 out of 3. Candidates demonstrated a strong grasp of binary tree insertion rules and were generally able to construct the required diagram accurately. The low standard deviation suggests highly consistent performance across the cohort.

Question 9(b): Binary Tree Array Representation

The second part of the binary tree question proved substantially more demanding, with a facility factor of just 44.0%. Although many candidates could construct the tree itself, fewer were confident converting the structure into a two-dimensional array representation with correct pointer values. This suggests that candidates were more familiar with conceptual tree structures than with alternative storage implementations.

Question 9(c): Tree Deletion

Question 9(c) was answered successfully by most candidates, recording a facility factor of 89.5%. Once the structure had been established, candidates generally understood the deletion process and could redraw the amended tree correctly. The high success rate suggests that deletion of a terminal node was well understood by the majority of the cohort.

Question 10(a): Selection Sort and Big O Analysis

Question 10(a) achieved a facility factor of 54.4%, placing it within the moderate difficulty range. Candidates often identified the correct algorithm but were less secure when evaluating efficiency and explaining growth rates using Big O notation. Stronger candidates demonstrated clear understanding of nested iteration and quadratic performance characteristics, while weaker candidates often offered unsupported assertions.

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Question 10(b): Time Complexity Graph

This was a highly accessible question with a facility factor of 86.0%. Candidates generally demonstrated confidence in representing complexity graphically once the growth rate had been identified. Most responses showed an appropriate visual representation of quadratic growth.

Question 10(c): Space Complexity

Performance was stronger than might be expected for complexity theory, with a facility factor of 64.8%. Candidates were generally able to recognise that selection sort requires minimal additional storage and therefore exhibits constant space complexity. Some candidates, however, confused memory usage with execution time.

Question 11: Bit Masking

Question 11 was reasonably accessible, producing a facility factor of 68.3%. Candidates usually identified an appropriate mask and recognised the role of logical operations in extracting specific bits. Errors tended to arise from incorrect mask construction or imprecise explanation of the resulting operation. Overall, the question discriminated effectively while remaining accessible to the majority of candidates.

Question 12: Backup and Recovery Procedures

The final extended-response question was the most demanding item on the paper, with a facility factor of only 31.6% and a mean score of 3.8 out of 12. Despite a very high attempt rate, many candidates were unable to sustain sufficiently detailed discussion across the full range of backup and recovery procedures. Responses often focused solely on reasons for backing up data, with limited treatment of full, differential and incremental backup strategies or recovery processes. The large mark tariff and relatively high standard deviation indicate substantial variation in quality, making this one of the strongest discriminating questions on the paper.

Overall Assessment

The paper functioned effectively across the ability range. Highly accessible items, including Questions 1, 3(a), 3(b), 9(a), 9(c) and 10(b), provided opportunities for candidates to demonstrate fundamental knowledge and skills. More demanding questions, notably Questions 2(a), 2(b), 4 and 12, successfully differentiated stronger candidates through requirements for explanation, evaluation and extended technical understanding. The consistently high attempt rates suggest that candidates were able to engage with almost all areas of the specification, while the spread of facility factors indicates a suitably balanced assessment offering opportunities for achievement across the full ability spectrum.

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COMPUTER SCIENCE

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COMPONENT 2 – COMPUTER ARCHITECTURE, DATA, COMMUNICATION AND APPLICATIONS

Overview of the Component

The Component 2 Examination is well established and produces consistent outcomes which result in stable grade boundaries. The examination addresses each of the three Assessment Objectives (AOs) described in the specification, as follows: -

	Description	Weighting
AO1	Demonstrate knowledge and understanding of the principles and concepts of computer science, including abstraction, logic, algorithms and data representation.	44/100
AO2	Apply knowledge and understanding of the principles and concepts of computer science, including to analyse problems in computational terms.	40/100
AO3	Design, program and evaluate computer systems that solve problems, making reasoned judgements about these and presenting conclusions.	16/100

The balance between the AOs is set and adhered to, which, together with the scope of the specification content, produces a structure for a consistent assessment.
For this series, most candidates found the assessment to be accessible with question 'attempted rates' ranging from 97% to 100%. The candidates were well prepared and were able to demonstrate a wide knowledge of the topics in the specification, with questions requiring precise responses to programming or mathematical problems producing high marks.

As in previous series the questions requiring more descriptive answers often produced responses that were correct but lacked adequate reasoning or detail. For these types of questions, it is suggested that candidates should concentrate on the technical aspects of the topic and include examples to illustrate and help structure their responses.

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Comments on individual questions/sections

Example AO1 Questions.

Q1. *Types of memory and secondary storage devices. Overall mean mark of 4.9/12 with a facility factor for part (a) of 0.57, for part (b) of 0.80 and for part (c) of 0.24.*

(a) Compare the functional characteristics of contemporary magnetic and solid state secondary storage devices.

[4]

(b) Identify two types of volatile memory.

[2]

(c) Explain the purpose of and processes involved in a computer's use of virtual memory.

[6]

The comparison of magnetic and solid-state storage for part (a) was generally accessible where stronger candidates structured responses around clear comparative points such as the differing technologies, access speed, durability, power consumption and storage capacity. Weaker responses tended to provide isolated facts about each technology without making direct comparisons.

For part (b) candidates generally demonstrated secure knowledge of volatile memory, with most correctly identifying valid examples.

The part (c) extended response on virtual memory proved considerably more challenging. Whilst many candidates understood that virtual memory extends available memory capacity, fewer were able to explain the process in sufficient detail. The more successful responses explained the transfer of data and program instructions between secondary storage and RAM and linked this process to memory management, with reference to page / swap files.

Q5. *Communication devices. Overall mean mark of 3.1/12 with a facility factor for part (a) of 0.42, for part (b) of 0.31 and for part (c) of 0.23.*

(a) Explain the different roles carried out by routers and switches

[4]

(b) Multiplexing techniques have been widely applied in modern communication systems. Explain **one** primary function of a multiplexer.

[3]

(c) Describe a disadvantage of including a multiplexer on a network

[2]

One of the weaker-performing questions of the paper. For part (a) many candidates were unable to clearly distinguish between the functions of routers and switches. Answers frequently described both devices as transferring data without sufficient reference to packet routing, addressing or network areas.

For part (b) candidates often demonstrated limited understanding of the purpose of a multiplexer, with many responses relying on general descriptions of data transmission rather than explaining how multiple signals may share a communication channel. Part (c) generated few good responses, with 'delays' being the most frequent disadvantage put forward.

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Q12. *Rules and expectations for employees' use of the internet at work.*

Discuss the content that you consider should be included in a business organisation's internet policy. *Mean mark of 4.1/10.*

[10]

The discussion question at the end of the paper on an internet policy generated responses across the full mark range. Most candidates could identify relevant policy content such as acceptable use, security requirements and monitoring procedures. Higher-scoring candidates developed these points in detail and presented a balanced discussion. Less successful responses tended to provide brief lists of policy items with limited explanation of their purpose within an organisation.

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Example AO2 Questions.

Q2. Binary arithmetic, shifts and two's compliment. *Overall mean mark of 8.3/10 with a facility factor for part (a) of 0.95, for part (b) of 0.73, for part (c) of 0.90 and for part (d) of 0.61.*

(a) Using 8 bit binary numbers and showing your working calculate the sum of 44_{10} and 84_{10}. [4]

(b) Describe the effect of carrying out a right shift of two places to the value calculated in part (a). [2]

(c) Two's complement is a method of representing signed binary numbers.
Using two's complement calculate the sum of -44_{10} and 84_{10}. [2]

(d) The hexadecimal numbering system can be used to represent binary numbers. Convert 0111 1111 and 1000 1011_2 into two hexadecimal numbers. Showing your working calculate, using hexadecimal notation, the sum of the two resulting numbers. [2]

Performance on data representation was particularly strong. Candidates demonstrated a secure understanding of binary addition, shifting operations and two's complement representation. These questions were the most accessible on the paper and were answered successfully by the majority of candidates.

The hexadecimal question proved to be more demanding. The binary-to-hexadecimal conversions were generally done correctly, but errors frequently occurred in the handling of carries during the hexadecimal addition.

Q3. *Floating point form, using 16 bits as shown. Overall mean mark of 5/6 with a facility factor for part (a) of 0.83, and for part (b) of 0.85.*

Mantissa	Exponent
10 bits in two's complement form. The binary point in the mantissa is immediately after the left bit.	6 bits in two's complement form.

(a) Clearly showing your working, convert 61.875_{10} into this format [3]

(b) In a different computer system, real numbers are stored in floating point form, with an 8-bit signed mantissa and a 4-bit signed exponent.

Clearly showing your working, calculate the decimal value of 0.1101011 0101_2 in this computer system. [3]

The floating-point question was also answered well. Most candidates were able to convert values to and from floating-point representation correctly and were able to demonstrate a sound understanding of mantissas and exponents.

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Q9. *Cryptography algorithm. Overall mean mark of 2.8 / 6 with a facility factor for part (a) of 0.69, and for part (b) of 0.35.*

	User A	Insecure Channel	User B
Private Keys	a = 3		b = 2
Shared Public Keys		X = 12, Y = 30	
Calculation (i)	$A = X^a$ MOD Y		$B = X^b$ MOD Y
Share		A B	
Calculation (ii)	$K1 = B^a$ MOD Y		$K2 = A^b$ MOD Y
Secret Key	K1		K2

(a) Using the values given in the table calculate K1 and K2. [2]

(b) Describe the process carried out by the algorithm illustrated in the table. [4]

Candidates generally coped well with the numerical element of the cryptography question and were able to complete the calculations required accurately.

Most candidates correctly identified the asymmetric process illustrated in the table although understanding of the underlying key exchange process was less secure, with many responses describing encryption in general terms rather than explaining the specific purpose of public and private keys in establishing a shared and secure secret key.

AO3 Questions

The AO requirements of the specification result in some certainty that assembly language programming and writing SQL commands will be part of the assessment, although the balance between the two topics is not fixed.

For 2026 a 40 / 60 balance was adopted which produced an overall mean mark of 12 / 16.

Q4. *Assembly language programming. Mean mark of 4.6 / 6 with a facility factor of 0.77.*

Using registers R, T and S, and assembly language commands from the table, write a program to calculate the total and count of a series of input data values, terminated by a negative rogue value.

For example: input 50, 200, 140, 90, 110, -1 output 590, 5

[6]

The assembly language instruction set provided for this question is closely based on the instruction sets from previous versions of the assessment.

The programming task was generally well addressed, with many candidates able to demonstrate a clear understanding of initialisation, looping structures and accumulator-based processing.

Strong responses successfully incorporated the rogue value, maintained an accurate count and total, and produced the required outputs. Less successful candidates often omitted initialisation of registers or failed to position the termination test appropriately within the logic of the solution.

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Q7. *SQL Commands. Overall mean mark of 7.7 / 10 with a facility factor for part (a) of 0.80, for part (b) of 0.72, for part (c) of 0.86 and for part (d) of 0.70.*

EXHIBITION

exhibitionID	theme	startDate	durationWks	room1	room2	room3
0006	Modern Art	19/06/26	6	N	Y	N
0011	The local landscape	18/08/26	2	Y	Y	N
0015	Sculpture	09/09/26	8	Y	Y	Y
0024	People portraits	20/11/26	6	Y	N	N
0028	Watercolours	01/02/27	4	N	N	Y

ARTIST

artistID	exhibitionID	specialism	fName	sName	contactTel
005	0028	Watercolour	Jeremy	Edwards	0776662214
044	0015	Sculptor	Fiona	Jones	0768863498
145	0024	Portraits	Akira	Tanaka	0977022667
101	0011	Landscape	John	Pritchard	0268876645
202	0024	Portraits	Dinesh	Chanda	0987556431

(a) Write an SQL command to output the **exhibitionID** and **startDate** for all exhibitions allocated to **room3.** [2]

(b) Write an SQL command to list the **Names** and **specialism** only for all artists that are involved in the 'People portraits' exhibition. [3]

(c) An additional record is to be entered into the EXHIBITION table. It is to be a modern art exhibition allocated to **room1** and **room2**, with **exhibitionID** 210. The **startDate** is 01/03/27 and the exhibition is to last for 4 weeks.
Write an SQL command to add the exhibition's details to the table [2]

(d) An additional table is required to record details of the art works. The required fields, with examples of records, are shown.

ARTWORK

workNo	artistID	title	exhibitionID	description
01	005	The cornfield	0028	Corn crop in the sunshine
02	005	High tide	0028	View of the coastline
19	145	Champion'26	0024	Portrait of Crufts winner '25

Write an SQL command to create this table using suitable data types. [3]

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Note 4 in Appendix D of the subject specification lists the commands and operators that candidates should be familiar with. The SQL questions in previous assessments also provide a good indicator of the level of complexity expected.

This is a well taught and practised area of the specification which, in this instance, generally performed well, although the mean mark achieved for part (b) was lower than expected, where many candidates had not linked the search condition given in the question to the theme stated in the relevant database table.

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COMPONENT 3 - PROGRAMMED SOLUTION TO A PROBLEM

Overview of the Component

This component requires candidates to analyse a problem in computational terms and design, develop, test and evaluate a computerised solution. AO2 and AO3 are assessed within this component.

Candidates are required to undertake a substantial programming project involving discussion, investigation, design, prototyping, post-prototype refinement of design, software development, testing and evaluation of a programmed solution to a problem of their own choice.

Many projects of a good standard were submitted for moderation this summer and moderators saw some excellent work. The strongest candidates demonstrated clear links between the investigation, design, software development, testing and evaluation sections of the project.

Comments on individual questions/sections

Discussion

The discussion section continues to provide candidates with an opportunity to explore the scope and suitability of their chosen problem before progressing to the investigation stage. In many centres this process was used effectively, with candidates receiving informed feedback from teachers, peers and other competent third parties.

Moderators observed that many candidates reflected appropriately on the feedback received and used it to refine their initial proposals. This often resulted in projects with a clearer focus and sufficient scope to support the production of work at an appropriate A Level standard.

Investigation

When candidates selected appropriate real-life problems, they were presented with a chance to conduct an investigation into the existing system. Candidates were expected to identify the data collected, processed and produced by the current system. Where this did not take place, the investigation tended to be more narrative and therefore the ability to identify suitable objectives could not take place. For students to access the higher mark bands the investigation of the existing system should be thorough.

Where candidates are not able to identify a real-life problem or have a new idea that does not have any current end users, they should carry out extended research into similar commercial systems, identifying common characteristics and should base the conclusions of their investigations on the information that they have been able to gather.

It is important that candidates produce a comprehensive working specification and that measurable objectives are set that will inform the design, prototyping, software development and testing processes. The objectives should be determined by each section of the investigation. Candidates often proposed ideas during their research but did not always follow these through into the objectives identified at the end of the investigation.

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Design
The design stage is an opportunity to effectively plan and develop the technical elements of the functional solution before its implementation. This should be forward-thinking and include a range of elements, including:

- designs of screen layouts
- consideration of all forms of inputs and outputs required
- evidence of all data structures with methods of access
- consideration of data validation
- design of programming routines for the functional solution using a recognised convention such as pseudocode or flowcharts etc.

Candidates should be encouraged to relate all elements of their design to their project. In some centres candidates are describing abstract concepts such as validation checks and sorting constructs. These only have merit when applied to the current project and can demonstrate some value to its implementation.

Moderators noted that the quality of data structure design often differentiated candidates across the mark bands. To access the higher mark bands, candidates should provide detailed designs of their data structures, clearly identifying the relationships between entities and methods of access. Higher band candidates would typically be expected to develop at least four related entities, fully designed and showing the links between those entities as part of a coherent solution.

Prototype
The prototype work is intended to allow self-reflection on the chosen method of solution and the design work. Candidates should clearly identify the sections they have chosen to include explaining their justification for these.

Candidates can demonstrate their work through a series of screenshots of the project running and demonstrating the sections identified by the candidate. Many centres have also used video evidence for this section which is to be commended as it allows candidates to thoroughly demonstrate the workings of their solutions. Moderators found that video evidence often provided a clearer demonstration of functionality and supported the moderation process.

Post Prototype Refinement of Design
Following third-party feedback, candidates should refine their design and provide justifications for accepting or rejecting suggestions. This section must focus on changes to the design and not include completed code. Centres that show "before and after" comparisons of designs provide strong evidence here. However, the inclusion of final programmed changes is inappropriate in this section and will not gain any credit, this should instead be assessed under Software Development

Software Development
To access the higher mark bands all programs should fully exploit the language, using advanced programming features and well-structured data, this was not always evident.

Candidates should develop solutions supported by complex data structures. To access the higher mark bands, candidates should typically have at least four related entities within their data structure, with clearly defined relationships between them. For candidates awarded marks within the highest bands, moderators frequently saw solutions containing a more extensive data structure.

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There should be evidence of effective searching and sorting routines within the completed solution together with output content as requested by the user. The system should aim to cover all the objectives identified and fully exploit the programming facilities of the language.

Many centres included detailed annotation that helped identify where candidates had included complexity within their solutions. Many centres provided solutions that could not be run due to additional packages/libraries requirements, in this instance these should be provided or information on these additions provided in a README file and the cover sheet. It may be of benefit to provide additional video evidence of the system being used to support this section. Where centres did this, the moderation process was made easier.

Testing including Developmental Testing

Candidates should provide evidence of developmental testing throughout the development of the solution. This should demonstrate how individual components have been tested and how the outcomes of testing have informed the continued development of the system.

Where centres had included a testing table clearly outlining the types of testing taking place, typical, extreme and invalid, candidates produced some excellent testing evidence. Many centres have moved to using video evidence for this, linking the videos with the individual – tests. Where candidates have evidence of several tests in a single video, a time reference would be useful allowing the moderator to go directly to this.

It is important that the testing work should focus on the functionality of the solution in terms of:

- Input facilities including measures to ensure reasonable data entry
- Processing facilities to ensure correct and accurate output
- Appropriate output including screen and paper-based outputs

The testing should cover each objective with data designed to measure the outcomes of the system against the desired outcome.

Evaluation

It is pleasing to see many centres correctly assessing candidates' evaluations. Higher level candidates are giving detailed analysis of their performance in each section of the project and thoughtful observations about any changes to their future practices.

For candidates to access the higher mark bands they need to cover each section of the evaluation. Some candidates can find this difficult if their initial investigation is not detailed enough as these sections link together. Candidates who structure their evaluation around the assessment criteria identified on the mark sheet often produce more focused and detailed evaluations, ensuring that all required areas are addressed.

A few candidates were using this section to demonstrate their solution met all the original objectives, while this is useful it is not evaluative and could be included in testing. The expectation is that the candidates should be self-reflective in this section and fully analyse their own performance.

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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: **029 2026 5401**
Email: cs@eduqas.co.uk
Qualification webpage: https://www.eduqas.co.uk/qualifications/computer-science-asa-level/ - tab_keydocuments

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.

Get in contact today and discover how our team can support you and your students.
Regional Support Team | Eduqas

Eduqas Qualifications

We are one the largest providers of qualifications for schools, academies, sixth form and further education colleges across England, offering valued qualifications to suit a range of abilities. Each and every one of our qualifications is carefully designed to engage students and to equip them for the next stage of their lives.

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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