

**A LEVEL**

**Examiners' report**

# **COMPUTER SCIENCE**

**H446**

For first teaching in 2015

**H446/01 Autumn 2020 series**

## Introduction

Our examiners' reports are produced to offer constructive feedback on candidates' performance in the examinations. They provide useful guidance for future candidates.



Reports for the Autumn 2020 series will provide a broad commentary about candidate performance, with the aim for them to be useful future teaching tools. As an exception for this series they will not contain any questions from the question paper nor examples of candidate answers.

The reports will include a general commentary on candidates' performance, identify technical aspects examined in the questions and highlight good performance and where performance could be improved. The reports will also explain aspects which caused difficulty and why the difficulties arose, whether through a lack of knowledge, poor examination technique, or any other identifiable and explainable reason.

A full copy of the question paper and the mark scheme can be downloaded from OCR.

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## Paper 1 series overview

H446/01 is one of two examination components for the GCE Computer Science. It is a non-calculator paper with a focus on Computer Systems and contains much of the foundation knowledge required for the other two units including:

- The characteristics of contemporary processors,
- input, output and storage devices
- Software and software development
- Exchanging data
- Data types, data structures and algorithms
- Legal, moral, cultural and ethical issues.

To do well on this paper, candidates need to be able to demonstrate and apply knowledge across all of the topics listed above in different contexts. Fundamental definitions were, at times, not clearly expressed and this was evident in the database questions, and in particular the question on Hashing. In the extended answer questions to gain credit, it is important that candidates apply their answer to the context of the question. Many candidates lost marks through not contextualising their responses across all 3 extended answer questions. There is a lot of application in this paper and candidates need to relate what they are saying to the scenario given. A number of candidates appeared to struggle with the rigour of the examination, and it was clear that they were unable to show the required higher order skills to be able to gain the marks for the AO2 and AO3 questions. A good understanding of programming and logic would have enabled candidates to access marks on the programming questions and algorithms were at times over complicated leading to mistakes which stopped the candidate from accessing the full range of marks.

The paper differentiated the candidates effectively and the scripts included a full range of marks.

| <b><i>Candidates who did well on this paper generally did the following:</i></b>  | <b><i>Candidates who did less well on this paper generally did the following:</i></b>   |
|---|---|
| <ul style="list-style-type: none"> <li>• Applied their knowledge well to the context of the questions</li> <li>• Produced logical algorithms that addressed the problem</li> <li>• Gave good clear definitions</li> </ul> | <ul style="list-style-type: none"> <li>• Did not apply their response to the given contexts</li> <li>• Over complicated their algorithms</li> <li>• Showed a lack of knowledge of Object-Oriented (OO) programming</li> </ul> |


## Section overview

Candidates tended to perform better on the more numerical questions with the majority of students gaining marks for the binary and hexadecimal questions.

OO programming was an area where some candidates were unable to gain high marks and candidates would be advised to practice OO coding to enable them to access marks across the whole specification.

## Themes in candidate responses

Many candidates were confused by database relationships and the idea of referential integrity. Some mixed up Atomicity in ACID with referential integrity and many had linked rooms to customers and to bookings which would have led to a relationship if a customer had booked more than one room.

|   |                             |  |
|---|-----------------------------|--|
|  | <p><b>Misconception</b></p> | <p>A foreign key links two databases and not 2 tables/entities.<br/>Candidates need to be aware that the relationships link tables within the same database, not separate databases.</p> |
|---|-----------------------------|--|

## Comments on responses by question type

### Level of response questions

In all level of response questions application is needed as well as evaluation in order to gain the higher marks. Candidates who did this were able to access the marks in the higher mark bands. Candidates who gave descriptions but no application were only able to access the bottom mark band. In the extended response questions, there was a lot of opportunity to relate the scenario to the question but many candidates just gave descriptions of security issues and prevention methods and OO concepts.


## Key teaching and learning points – comments on improving performance

Candidates should have lots of opportunity to practice algorithms for given problems in both procedural and OO pseudocode.

Candidates should be given the opportunity to practice writing extended responses to questions for a given scenario.

## Guidance on using this paper as a mock

There are a good range of questions and topics but candidates should be encouraged to read the question more than once.

|   |                           |  |
|---|---------------------------|--|
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## Supporting you through 2020-2021

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