

Examiners' report

A LEVEL

COMPUTER SCIENCE

**OCR Level 3 Advanced GCE in
Computer Science**

H446

For first teaching in 2015

H446/01 Summer 2025 series

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Introduction

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

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. A selection of candidate responses is also provided. 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.

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.

A full copy of the question paper and the mark scheme can be downloaded from [Teach Cambridge](#).

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Paper 1 series overview

H446/01 (Computer Systems) is one of two examined components for the GCE A Level Computer Science.

This component focuses on:

- 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 be successful in this question paper, candidates need to be able to demonstrate and apply knowledge across all the topics listed above in different contexts. It is important that candidates apply their knowledge to the question where a scenario or data is provided.

Definitions were at times not clearly expressed and key terms not used. Candidates were able to access the full range of marks across the question paper, and it was good to see so many candidates attempting to apply their knowledge on the extended response questions.

Candidates who did well on this paper generally:	Candidates who did less well on this paper generally:
• used terminology correctly • applied their knowledge to the context of the question • used knowledge application and evaluation in the extended response questions showing good understanding of the topic • were able to give full comparisons when required • were able to write correct SQL and LMC statements for a given problem.	• gave vague responses that did not use terminology correctly • gave generic responses which were not applied to the context • showed only basic knowledge in extended response questions • gave only one side for comparison questions.

Question 1 (a)

1 Charlie is about to study a computer games design course at university. He needs to purchase a computer to allow him to design and edit the graphics in his games, including video files.

(a) Charlie's computer contains a data bus, an address bus and a control bus.

State the purpose of each of these three buses.

Data bus

.....

Address bus

.....

Control bus

.....

[3]

This question was generally successfully responded to with most candidates given 2 or 3 marks. There were some candidates who misunderstood that a bus is for the transfer of data/addresses/signals and does not have control over components.

Question 1 (b) (i)

- (b) Charlie will need to use input **and** output devices when designing and editing his computer games.
- (i) State **one** input device **and one** output device that Charlie could use **and** give an example use of each.

Input device

Device name

.....

Example use

.....

Output device

Device name

.....

Example use

.....

[4]

For this question candidates were given a context of designing and editing games. Those candidates that gave an example use related to this context were given full marks. Those candidates who gave less successful responses to this question, tended to give correct input and output devices but generic uses which were not related to the context in the question stem.

Question 1 (b) (ii)

- (ii) Charlie will need to store a large collection of files containing high definition images and high definition videos that he will use during his course.

State a type of secondary storage device that Charlie could use and give a reason why.

Type of storage

.....

Reason.....

.....

[2]

This question was generally well responded to with most candidates given full marks. Candidates who lost a mark on this question by giving a device name rather than a type were able to achieve a follow through mark for then giving a valid reason for the device they had given.

Question 1 (c) (i)

- (c) In addition to the Central Processing Unit (CPU), Charlie will purchase a Graphical Processing Unit (GPU) that will be used to process and display the graphics in his games.
- (i) Tick (✓) **one** box on each row to indicate if each statement is referring to a CPU **or** a GPU.

Statement	CPU	GPU
Suited to performing simple operations in parallel on larger data sets		
Suited to performing complex operations on smaller data sets		

[2]

Most candidates were able to access both marks for this question. Less successful responses were the wrong way round so were given no marks.

Question 1 (c) (ii)

(ii) State **two** benefits of using a GPU to process and display the graphics in computer games.

Benefit 1

.....

Benefit 2

.....

[2]

This question asked for candidates to give two benefits which processing and displaying graphics. Many candidates wrote generic responses which gave benefits of a GPU but did not respond to the question being asked.

Question 1 (d) (i)

(d) Charlie will require an operating system that will allow him to have several applications open at the same time.

(i) State which type of operating system Charlie will need to install.

.....

..... [1]

Most candidates were able to access this mark.

Question 1 (d) (ii)

(ii) An operating system that Charlie is thinking about installing uses a multi-level feedback queue.

Describe how a multi-level feedback queue works.

.....

.....

.....

.....

.....

..... [3]

Few candidates gained full marks on this question. Many discussed a single queue and missed the point of a multi-level feedback queues (MLFQ) using multiple queues.

Exemplar 1

Contains many queues of different priorities based on the time taken to carry out that task. Processes can be swapped between queues if necessary for example there is a change of priority or an interrupt signal is recieved. ~~Processes from~~ Queues can also be based on different types of processes. [3]

The candidate has shown a good understanding of multi-level feedback queues. They have shown they understand that there are multiple queues and that these have different priorities. They have shown they understand processes being able to move between queues based on their behaviour/priority and that processes are put into different queues. This candidate was able to gain full marks.

Question 1 (d) (iii)

(iii) An operating system manages and installs device drivers.

Explain why hardware devices require a device driver.

.....

.....

.....

..... [2]

Most candidates were able to access the mark for allowing a device to communicate with the operating system (OS), but few went on to then give a second point of why/how.

Question 1 (e)

(e) Once Charlie has installed an operating system he will need to install utility software.

State **two** utilities that Charlie could install and state the purpose of each.

Utility 1

.....

Purpose

.....

Utility 2

.....

Purpose

..... [4]

Most candidates could state two utilities however some candidates gave less successful responses by giving a vague purpose. There were a few candidates who responded with applications rather than utilities.

Question 2 (a) (i)

2 OCR Consultants is designing a computer for a large company.

(a) OCR Consultants is designing the architecture of the CPU.

(i) Compare **two** differences between the Von Neumann architecture and the Harvard architecture.

Difference 1

.....

.....

.....

Difference 2

.....

.....

.....

[4]

This question has been a common question on previous question papers and as such was well responded to by many candidates. There are still some candidates who did not use the correct terminology which would be expected in a question of this type.

Exemplar 2

Difference 1 Von Neumann stores program data and instructions in the same area in memory. Harvard stores program data and instructions in different memory areas.

Difference 2 Von Neumann uses the same bus to transfer program data and instructions. Harvard uses different buses for transferring data and instructions.

[4]

The candidate has used correct terminology and has given a clear comparison covering both Von Neumann and Harvard architecture.

Assessment for learning - Comparison questions

Candidates should be encouraged to give a full comparison of both sides in comparison questions. A candidate giving the response as 'Von Neumann stores data and instructions in the same memory unit and Harvard does not' will only be able to access the first mark.

Question 2 (a) (ii)

(ii) OCR Consultants is considering using pipelining.

State **two** benefits of using pipelining.

Benefit 1

.....

Benefit 2

.....

[2]

Generally, this question was well responded to with the biggest misconception being to state multiple cores or parallel processing.

Question 2 (a) (iii)

(iii) OCR Consultants can base the CPU around a RISC architecture or a CISC architecture.

Compare **two** differences between a RISC architecture and a CISC architecture.

Difference 1

.....

.....

.....

Difference 2

.....

.....

.....

[4]

As in all comparison questions candidates need to make sure that they give a full comparison and do not just list unrelated features of each. Most candidates were able to access marks on this question which has been a question on previous question papers.

Question 2 (a) (iv)

(iv) Describe a benefit of making the CPU a multicore CPU.

.....

.....

.....

..... [2]

Many candidates were able to access the marks for parallel processing and multiple instructions being processed at the same time.

Question 2 (b)*

(b)* The employees of the large company work remotely from home and use large databases that store a lot of sensitive data. They need to be able to use the databases to search and sort data quickly.

OCR Consultants is considering two approaches:

- **thin client approach** – this is where the database is stored virtually on a remote server. All of the data processing is also completed on a remote server on virtual machines. The employees' computers are only used to capture the data input and display the results from the virtual machines
- **thick client approach** – this is where most of the processing is done on the employees' computer using specialised software to access the remote database.

Discuss the benefits and drawbacks of each of these approaches.

You should include the following in your answer:

- what is meant by virtual machines and virtual storage
- the benefits and drawbacks of a thin client and thick client approach described in the question
- a conclusion justifying which approach would be most suitable for this scenario.

[9]

Many candidates were able to gain marks on this question across the three mark bands. Some candidates showed good understanding and were able to give a well justified conclusion. There were some candidates who merely repeated the information given in the question stem without any further expansion or application. Some candidates talked about cloud storage and then went on to describe how this would be insecure due to being held by a different company which was not relevant in this scenario. There were some candidates that confused virtual memory and virtual storage and gave descriptions of how virtual memory works.

Question 3 (a) (i) and (ii)

3

(a)

(i) Convert the denary number **189** into an 8-bit binary number.

.....

.....

.....

..... [1]

(ii) Convert the denary number **189** into a hexadecimal value.

.....

.....

.....

..... [1]

Question 3 (a) (i) and Question 3 (a) (ii) asked for a simple conversion and in general they were both successfully responded to by candidates.

Question 3 (a) (iii)

(iii) Convert the hexadecimal value **E4** into a denary number.

.....

.....

.....

..... [1]

Many candidates were able to gain the mark here while some gave a response in binary instead of denary and missed the mark.

Question 3 (b)

(b) Explain the effect that a right shift of **three** places will have on a positive binary number.

.....

.....

.....

..... [2]

Many candidates were able to access 1 or 2 marks here. Many were aware that there was division but then went on to give a less successful response for the second mark.

Question 3 (c)

(c) Show the subtraction of these **two** floating point binary numbers.

Both numbers are stored in a normalised floating point format, using 6 bits for the mantissa and 4 for exponent.

You should show your result in the same format.

Show your working out.

011010 0011 – 010010 0010

Working space

.....

.....

.....

Final 6-bit **mantissa**

Final 4-bit **exponent**

[6]

This was an accessible question with many candidates gaining all available marks. Most candidates gained the mark for converting the exponent and moving the point. There were many ways that this question could be responded to, and all relevant methods were given marks.

Question 3 (d) (i)

(d)

(i) Show the result of applying a bitwise **AND** mask of 1010 1110 to the byte 1010 0011.

Byte	1010 0011
AND Mask	<u>1010 1110</u>
Result	

[2]

Most candidates were able to access the marks for this question although some added the Byte and the AND mask

Question 3 (d) (ii)

(ii) State the purpose of the bitwise **AND** mask.

.....

..... [1]

This question was less successfully responded to and many candidates stated what it did rather than stating the purpose of the bitwise and mask.

Question 4 (a)

4 Kofi is a software engineer and has been asked to write some code using the Little Man Computer (LMC) instruction set.

(a) State the LMC command that would be used for each description given in the table.

Description	LMC Command
Load the value stored in the memory address into the accumulator	
Branch without checking the value in the accumulator	
Store the value from the accumulator into a memory address	
Branch if zero is in the accumulator	
Branch if zero or a positive number is in the accumulator	

[3]

Most candidates were able to access all 3 marks with some making an error on one and still gaining 2 marks.

Question 4 (b)

- (b) Kofi has been asked to write a program that inputs **two** numbers and then outputs the largest of the two numbers.

Write the code for this program using the LMC instruction set.

You can assume that the two numbers will always be different.

.....

.....

.....

.....

.....

..... [4]

There were varied responses to this question. Many candidates clearly had access to LMC and had practised writing programs in it and were able to gain full marks. Some candidates incorrectly output the correct number but then did not stop the program, so it then went on to output the second number as well.

Question 4 (c)*

(c)* Kofi is working on a number of projects. These include:

- **project 1** – Writing a mobile phone app to look at the news
- **project 2** – Writing software to send temperature readings from an embedded heat sensor to other devices
- **project 3** – Writing an image editing application for a desktop computer
- **project 4** – Writing software to calculate the results of a physics experiment that produces terabytes of data
- **project 5** – Writing a new device driver for a new piece of hardware.

Discuss which of these projects should be written in a high level programming language and which should be written in a low level language.

You should include the following in your answer:

- what is meant by high level programming language and low level language
- which projects are suitable for high level and which are suitable for low level languages
- a conclusion that justifies why these different languages are needed.

[12]

There were a range of responses to this question across the three mark bands. Candidates who accessed the top mark band gave a good description of the difference between high and low level programming languages (PLs); they were able to give good justification for each project choice and gave a conclusion that justified why both were needed. Those who accessed the middle mark band gave a reasonable description of both and were able to apply their knowledge to the five projects but either gave a weak conclusion or were unable to give enough detail to explain why high or low level would be suitable for each project. Those who accessed the low mark band had basic knowledge of what a high level and a low level programming language are and tended to say high level was for complex problems and low level was for easy problems which did not require much code.

Assessment for learning



Some candidates confused what low level programming language (PL) is and either said it was binary and needed no translation or that procedural languages were low and Object-Oriented (OO) were high. The other common misconception was that low level is just for simple programs while high level is for more complex programs.

Exemplar 3

A high-level programming language is a language ~~the~~ that is closer to ^{the} English language than it is to Assembly/machine code. It is the modern standard/norm of programming and software development. A low-level language is a language that ~~employs~~ employs ~~simple~~ shorter and more general syntax, like Assembly, which uses mnemonics, and is further in similarity ~~to~~ to English. Low-level languages typically ~~are only designed for~~ ~~are~~ ~~designed for~~ ~~are~~ ~~designed for~~ more specialised programmers.

Project 1 and 3 ~~may~~ ^{will} be suitable for development with a higher level programming language as the projects ~~employ~~ ^{demand} the need for complex features, like developing the user-interface ~~on~~ for both project 1 or 2 or ~~from implementing~~ ~~http requests~~ ~~using web~~ sending web requests in Project 1. Features like ^{the} user interface and web requests are typically done with the use of pre-existing libraries.

that are not accessible or usable or easily usable on low-level languages, and could result in Koki choosing a low-level programming language for ~~that~~ these projects could result in Koki investing significantly more time than necessary on implementing these ~~the~~ features.

Project 2 and ~~the~~ ⁵ are most suitable for development with a low-level programming language, as both projects involve interacting with hardware. ~~Project 2~~ Project 2 benefits from low-level language ~~usage as~~ usage as software running on the embedded device will ~~not~~ need to compact in file size, ~~and~~ which low-level languages prove to be better in lower in file size. Project ~~in~~ 5 also ~~enjoys~~ benefits from the use of a low level language ~~as~~ as device drivers need to be very optimised ~~and~~.

4 c as ~~the~~ to prevent delays in signal processing between device and hardware and software. Low-level languages provide more ~~in~~ control over ~~system~~ the system (like memory management) which promotes effective optimization.

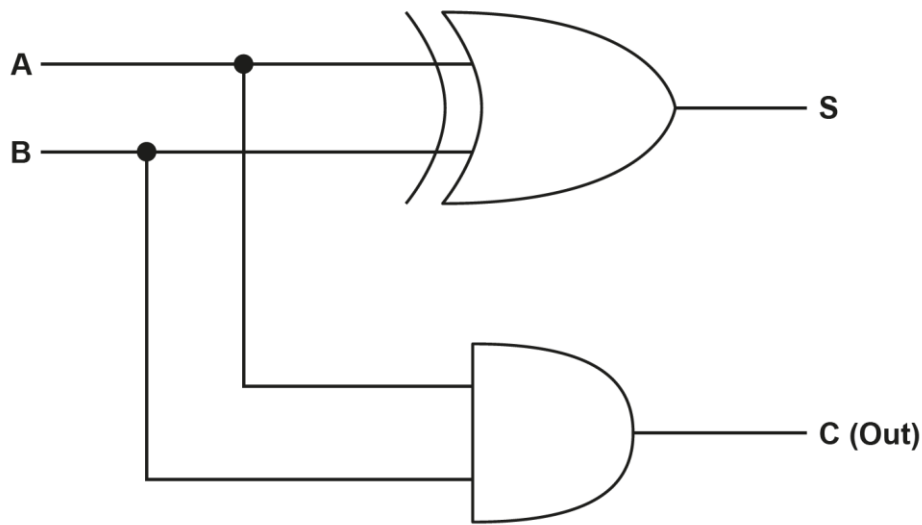
Project 1 stands to benefit from low-level languages as the computation of ~~the~~ such large amounts of data is unlikely to require many libraries, ~~and also~~ but also require lots of optimization and ~~improved~~ execution speed, which low-level languages excel in.

In conclusion, these different languages are needed as high-level languages promote quicker development and more robust solutions of complex applications through the use of libraries and heavily abstracted readable syntax, and low-level languages provide ~~the~~ developers with increased control over the system, such as memory, which makes low-level languages more suitable for optimized solutions that require lots of computation ~~over~~ of software that interacts with hardware.

The candidate has given a successful description of both high and low level programming languages. They have given relevant justification for each choice and have shown good understanding of the requirements of each project. They have given a successful conclusion.

Question 5 (a)

5 This diagram shows the logic circuit for a **half** adder.



(a) Complete the truth table for this half adder circuit.

A	B	S	C (Out)
0	0		
0	1		
1	0		
1	1		

[4]

Generally, this question was successfully responded to with most candidates accessing full marks

Question 5 (b)

(b) Describe the difference between a half adder circuit and a full adder circuit.

.....

.....

.....

..... [2]

This question was successfully responded to although some candidates gave a description of the given diagram rather than a difference.

Question 5 (c)

(c) The diagram below shows a partially completed logic circuit for a **full** adder.

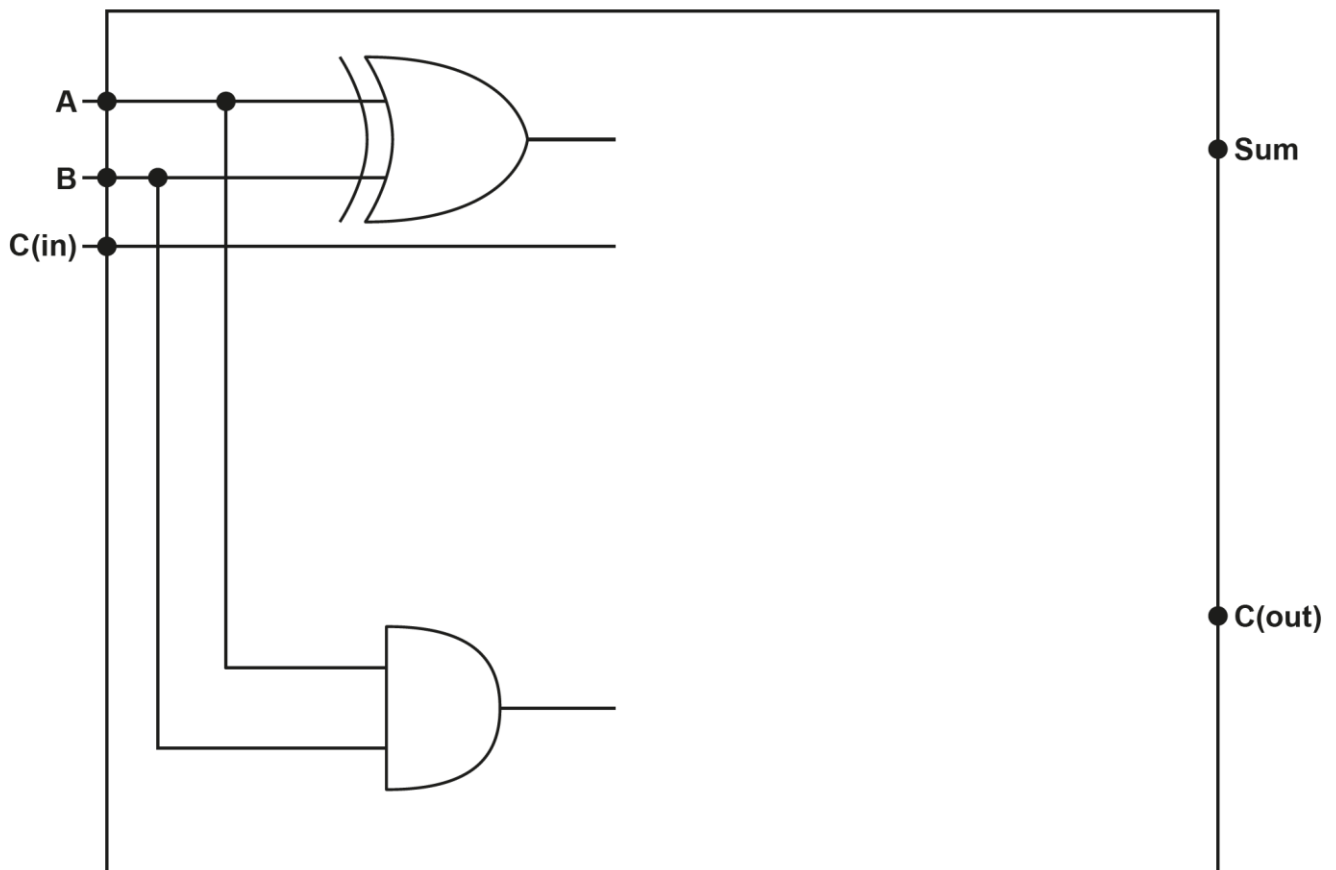
The full adder circuit contains **three** inputs:

- **A** – represents the first input
- **B** – represents the second input
- **C(in)** – represents the carry bit from the previous stage of the addition.

The full adder circuit contains **two** outputs:

- **Sum** – represents the result of adding the three inputs **A**, **B** and **C(in)**
- **C(out)** – represents the carry that is passed to the next stage of the addition.

Complete the logic circuit to represent a full adder.



[4]

Most candidates were able to access 1 mark but few could complete the logic circuit and access full marks. Less successful responses showed the first AND being an input for the next AND.

Question 5 (d)

(d) This Karnaugh map represents a different logic circuit.

		AB			
		00	01	11	10
CD	00	0	1	1	1
	01	0	1	1	0
	11	0	0	0	0
	10	0	0	1	1

Use this Karnaugh map to find the simplified expression for this circuit.

You should annotate the Karnaugh map to show the groups that you have used to find the simplified expression.

Write your simplified expression here.

.....

.....

.....

..... [4]

Most candidates were able to access some marks on this question with many gaining full marks. As is usual with this type of question, alternative notation was given mark.

Question 6 (a)

6 DCC Software is a company that creates a wide range of software products for home computers. Its products include image, video and sound editing software.

(a) DCC Software makes significant use of software libraries.

Explain the benefits of using software libraries to create software.

.....

.....

.....

.....

.....

..... [4]

Most candidates were able to explain that libraries have been pre tested and save on development time with some being also saying libraries are optimised. Few candidates were able to access full marks, but many were given 2 or 3 marks.

Question 6 (b) (i)

(b) Once DCC Software has written a piece of software, they use translators to translate the programming code.

(i) The table shows different stages of code compilation labelled **A**, **B**, **C** and **D**.

A	Lexical analysis
B	Syntax analysis
C	Code generation
D	Code optimisation

In each box write the letter of the stage that matches each description.

Converts the high level code into low level instructions

Examines the code and improves the efficiency of it without affecting the functionality

Removes comments and whitespace and then converts the high level code into tokens

Identifies syntax errors and creates an abstract syntax tree

[4]

Generally, this question was well responded to with many candidates accessing all 4 marks.

Question 6 (b) (ii) and (iii)

(ii) DCC Software is considering the benefits of both an interpreter and a compiler.

State **two** benefits of using an interpreter.

Benefit 1

.....

Benefit 2

.....

[2]

(iii) State **two** benefits of using a compiler.

Benefit 1

.....

Benefit 2

.....

[2]

Both questions generally successfully responded to however some candidates gave a feature without saying what the benefit was.

Question 6 (c) (i)

(c) DCC software uses a database table called `TblSoftware` to store details about all of their products.

ProductID	Name	Type	Price
DCC01	DCCPhotos	Image	£129.99
DCC02	DCCDraw	Image	£119.99
DCC03	DCCAnimate	Image	£99.99
DCC04	DCCMovie	Video	£189.99
DCC05	DCCEffects	Video	£99.99
DCC06	DCCAudio	Sound	£119.99

TblSoftware

(i) Write an SQL statement to insert this new product into `TblSoftware`:

ProductID:	DCC07
Name:	DCCCast
Type:	Sound
Price:	£89.99

.....

.....

.....

.....

.....

.....

..... [3]

Few candidates gained full marks on this question. Insert is one of the SQL commands in the specification and candidates should be given the opportunity to practise with the full range of the SQL commands included in appendix 5d of the specification.

Question 6 (c) (ii)

- (ii) Write an SQL statement to return the `Name` of products that have a `Price` that is less than the `Price` of the product with the `Name` "DCCDraw".

You should use a nested SELECT statement in your answer.

.....

.....

.....

.....

.....

..... [5]

Many candidates gained full marks on this question with many being able to gain some marks.

Question 7 (a)*

7*

- (a) OCR Photo is a free website designed to use Artificial Intelligence (AI) to generate unique photographs from a text description given by the user.

The AI learns by searching the internet randomly for millions of photographs and then matching these to a textual description of the photograph. The photographs include people, property, landscapes and objects.

Discuss the legal and moral implications of this approach and what OCR Photo should consider.

You should include the following in your answer:

- what is meant by AI
- the legal and moral implications of the learning approach described in the question
- a conclusion justifying if OCR Photo should use this approach or not.

[9]

There were a range of responses to this question with many candidates being able to give both legal and moral implications related to the scenario given. Some had clearly used past question papers to revise and were able to talk about possible bias which was relevant to the scenario. Most candidates mentioned 'The Copyright Design and Patents Act' and some were able to discuss the difficulties surrounding this with some giving relevant current legal reform and discussion of the debates currently happening which was pleasing to see.

Question 7 (b)

(b) OCR Photo uses run length encoding to compress the generated photographs.

A black and white photograph is encoded using **B** for the colour black and **w** for the colour white.
The encoded sequence is:

W4B1W4

W3B3W3

W2B5W2

W1B7W1

Use the grid to show the result of using run length encoding to decompress this sequence.

[4]

Most candidates responded successfully to this question and gained full marks.

Question 8 (a)

- 8** Orla is developing a program that will allow candidates to complete quizzes for a range of subjects. Each quiz has **three** questions and each one is multiple choice with **three** possible answers.
- (a)** Orla is considering using a flat file database to store data about candidates, and the subjects and quizzes they sit.

Explain the limitations of using flat file databases.

.....

.....

.....

.....

.....

..... [4]

Most candidates were able to access at least 2 marks for this question. Few gave enough points to be given full marks.

Question 8 (b)

(b) Due to the limitations of flat file databases, Orla decides to create a relational database containing these **four** tables:

- TblCandidate – Stores data about the candidates
- TblSubject – Stores data about the subject
- TblQuiz – Stores the questions for each individual quiz and the answers
- TblResponse – Stores the candidate's responses for a given quiz.

The fields in each table are shown here. **PK** indicates the primary keys and **FK** indicates the foreign keys that are used.

TblCandidate	TblSubject	TblQuiz	TblResponse
CandidateID (PK)	SubjectID (PK)	QuizID (PK)	ResponseID (PK)
CandidateName	SubjectName	Q1Text	Date
eMail	Description	Q1Answer	Q1Response
PhoneNumber		Q2Text	Q2Response
		Q2Answer	Q3Response
		Q3Text	Score
		Q3Answer	QuizID (FK)
		SubjectID (FK)	CandidateID (FK)

Complete an Entity Relationship Diagram (ERD) to show the relationships between these **four** tables.

TblCandidate

TblSubject

TblResponse

TblQuiz

Many candidates found this question difficult and there were a range of less successful responses ranging from tables being joined with 1-1 relationships to all tables being joined in many to many relationships. Candidates should be encouraged to look at the keys in the information given and the relationship between a primary key and a foreign key.

Question 8 (c) (i) and (ii)

(c) In order to determine what tables were required, Orla used database normalisation.

(i) State **two** requirements for a database to be in Second Normal Form (2NF).

1

.....

2

.....

[2]

(ii) State **two** requirements for a database to be in Third Normal Form (3NF).

1

.....

2

.....

[2]

Most candidates were aware that the database needed to be in first normal form for it to be in second normal form and that it needed to be in second normal form for it to be in third normal form. Fewer were able to then give a correct second point with some discussing atomicity and no repetition. This type of question has been in previous question papers and candidates should use those to practise.

Question 8 (d)

- (d) Orla wants a web based version of the quiz. She develops a function called `checkAnswers` to calculate the score of each quiz on the client side using JavaScript.

Next to each candidate answer is an empty HTML element. When the user presses submit, the function, `checkAnswers`, will check if each answer is correct. If so, it will add the word "Correct" into the empty HTML element.

The function, `checkAnswers` takes **three** parameters:

- `responses` – an array of the IDs of the HTML elements that contains the user's responses.
- `feedbacks` – an array of the IDs of the HTML elements that the text "Correct" is to be written to if the candidate gets the question right. The array will be the same length as `responses`.
- `answers` – an array of the correct answer for each of the questions. The array will be the same length as `responses`.

The function returns the final score out of three for the quiz. It loops through each question to calculate if the candidate got it correct and processes it appropriately if they did.

Complete the function `checkAnswers`, using pseudocode or program code.

```
function checkAnswers(responses, feedbacks, ..... )
{
    var ..... = 0;
    for(var qCount = 0; qCount < responses.length; qCount++)
    {
        response = document.getElementById(responses[qCount]).innerHTML;
        answer = answers[.....];
        feedbackElement = document.getElementById(feedbacks[qCount]);
        if (response == answer)
        {
            score = .....
            feedbackElement.innerHTML = "Correct";
        }
    }
    ..... score;
}
```

[5]

This question was well responded to by many candidates.

Supporting you

Teach Cambridge

Make sure you visit our secure website [Teach Cambridge](#) to find the full range of resources and support for the subjects you teach. This includes secure materials such as set assignments and exemplars, online and on-demand training.

Don't have access? If your school or college teaches any OCR qualifications, please contact your exams officer. You can [forward them this link](#) to help get you started.

Reviews of marking

If any of your students' results are not as expected, you may wish to consider one of our post-results services. For full information about the options available visit the [OCR website](#).

Access to Scripts

We've made it easier for Exams Officers to download copies of your candidates' completed papers or 'scripts'. Your centre can use these scripts to decide whether to request a review of marking and to support teaching and learning.

Our free, on-demand service, Access to Scripts is available via our single sign-on service, My Cambridge. Step-by-step instructions are on our [website](#).

Keep up-to-date

We send a monthly bulletin to tell you about important updates. You can also sign up for your subject specific updates. If you haven't already, [sign up here](#).

OCR Professional Development

Attend one of our popular professional development courses to hear directly from a senior assessor or drop in to a Q&A session. Most of our courses are delivered live via an online platform, so you can attend from any location.

Please find details for all our courses for your subject on **Teach Cambridge**. You'll also find links to our online courses on NEA marking and support.

Signed up for ExamBuilder?

ExamBuilder is the exam paper builder platform for a range of our qualifications. [Find out more](#).

Free for all OCR centres with an Interchange account, it allows unlimited users per centre. We require an [Interchange](#) username to verify your centre's users for ExamBuilder.

If you do not have an Interchange account, please contact your centre administrator (usually the Exams Officer) to request a username.

Once you have an Interchange username, use the form on [this page](#) to sign up for ExamBuilder, or ask an existing user at your centre to create an ExamBuilder account for you.

Active Results

Review students' exam performance with our free online results analysis tool. It is available for all GCSEs, AS and A Levels and Cambridge Nationals (examined units only).

[Find out more](#).

Online courses

Enhance your skills and confidence in internal assessment

What are our online courses?

Our online courses are self-paced eLearning courses designed to help you deliver, mark and administer internal assessment for our qualifications. They are suitable for both new and experienced teachers who want to refresh their knowledge and practice.

Why should you use our online courses?

With these online courses you will:

- learn about the key principles and processes of internal assessment and standardisation
- gain a deeper understanding of the marking criteria and how to apply them consistently and accurately
- see examples of student work with commentary and feedback from OCR moderators
- have the opportunity to practise marking and compare your judgements with those of OCR moderators
- receive instant feedback and guidance on your marking and standardisation skills
- be able to track your progress and achievements through the courses.

How can you access our online courses?

Access courses from [Teach Cambridge](#). Teach Cambridge is our secure teacher website, where you'll find all teacher support for your subject.

If you already have a Teach Cambridge account, you'll find the link to the **Online courses** under the **Assessment** or **Training** tab – hover over **Assessment** or **Training** on the horizontal menu and select **Online courses** from the dropdown.

If you don't have a Teach Cambridge account yet, ask your exams officer to set you up – just send them this [link](#) and ask them to add you as a Teacher.

Access the courses **anytime, anywhere and at your own pace**. You can also revisit the courses as many times as you need.

Which courses are available?

We recommend all teachers complete the module on Online courses – NEA for their subject. These courses provide subject-specific information about course content; how to prepare for planning, marking and submitting; and support with understanding the marking criteria.

The subject-specific courses are tailored for each qualification that has non-exam assessment (NEA) units, except for AS Level and Entry Level. They cover the following topics:

- the structure and content of the NEA units
- the assessment objectives and marking criteria for the NEA units
- examples of student work with commentary and feedback for the NEA units
- interactive marking practice and feedback for the NEA units.

We are also developing courses for some of the examined units, which will be available soon.

How can you get support and feedback?

If you have any queries, please contact our Customer Support Centre on 01223 553998 or email support@ocr.org.uk.

We welcome your feedback and suggestions on how to improve the online courses and make them more useful and relevant for you. You can share your views by completing the evaluation form at the end of each course.

Tell us what you think

Your feedback plays an important role in how we develop, market, support and resource qualifications now and into the future. We want you and your students to enjoy and get the best out of our qualifications and resources, but to do that we need your honest opinions to tell us whether we're on the right track or not.

You can email your thoughts to resources.feedback@ocr.org.uk or visit our [feedback page](#) to learn more about how you can help us improve our resources.



Designing and testing in [collaboration with you](#) and your students



Helping young people develop an [ethical view of the world](#)



Equality, diversity, inclusion and belonging (EDIB) are [part of everything we do](#)

Contact the team at:

☎ 01223 553998

🖥 ocr.org.uk

To stay up to date with all the relevant news about our qualifications, register for email updates at ocr.org.uk/updates

Visit our Online Support Centre at support.ocr.org.uk



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