

Qualification accredited

Sample assessment material

Cambridge Advanced National in Cyber Security

Cambridge OCR Level 3 Alternative Academic Qualification
Cambridge Advanced National in Cyber Security

Cambridge OCR Level 3 Alternative Academic Qualification
Cambridge Advanced National in Cyber Security and Networks

Certificate | H037
Extended Certificate | H137
For first teaching in 2026

F193: Fundamentals of cyber security

Version 1.0 | May 2026
ocr.org.uk/cambridge-advanced-nationals

Introduction

This is Sample Assessment Material (SAM) which has been produced for the Cambridge OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Cyber Security (Certificate) and the Cambridge OCR Level 3 Alternative Academic Qualification Cambridge Advanced National in Cyber Security and Networks (Extended Certificate).

The SAM is an example exam paper that we publish alongside a new specification to help illustrate its intended style and structure when a qualification is first launched. We wanted to share the story of our assessment approach with you so when you look through the paper you will find we have pointed out certain features and explained the decisions we have made.

Resources to help support in teaching different areas of content can be found on the Cambridge OCR Level 3 Alternative Academic Qualification Cambridge Advanced Nationals in Cyber Security and Networks webpage under [‘Teaching’](#).

Our exam papers are developed with accessibility in mind. The [Understanding the assessment guide](#) tells you a little more about the principles and rationale underpinning our approach for the qualifications. The ‘Command Words’ are in both the Understanding the Assessment guide and the specification. These tell you what we mean by each command word and how students should approach the question and understand its demand.

Appendix B of the specification: Command Words, gives detail about what is expected of each command word that will be included in exams and mark schemes. You can include teaching around the expectations of these as part of your teaching.

You said, we did

During the development of these qualifications, we talked extensively with teachers, subject experts, higher education institutions and our senior assessment teams to influence their structure, content and assessment materials. We then shared our final materials with teachers to make sure that they met their needs.

You told us that you wanted the exam to take similar approaches to the exam in the current Cambridge National in Information Technology qualification. We have tried to do this by using a familiar tone and style of questioning.

You told us to keep this exam as short as possible but retain time to allow students to read the scenario and respond to questions. We have done this by reducing the number of available marks to 60 and setting this exams duration to 1 hour 15 minutes.

You told us that you wanted the exam to be based on a single context, that develops through the paper, so that is what we’ve done.

You told us that scenarios used in the exam should be accessible and easy for students to understand. We have done this by only using scenarios with things that students will have encountered.



All students will sit the exam at the same time on the same day.

<<Date>> - <<Morning/Afternoon>>

**Level 3 Alternative Academic Qualification Cambridge
Advanced National in Cyber Security**

This unit is part of the Certificate and Extended Certificate qualifications.

**Level 3 Alternative Academic Qualification Cambridge
Advanced National in Cyber Security and Networks**

H037/H137 Unit F193: Fundamentals of cyber security

This exam will always be set and marked by us. Exams will be available in January and June each year. Students can resit this unit and the best result will be used to calculate the certification result.

Sample Assessment Material (SAM)

Time allowed: 1 hour 15 minutes

The time allowed is designed to give students approximately one minute per mark plus reading time.

You must have:
• the Insert (inserted)

Students may be provided with stimulus material such as an Insert for use in the question paper.

Please write clearly in black ink. Do not write in the barcodes.

Centre number Candidate number

First name(s) _____

Last name _____

Date of birth

If students require additional space to write their response(s), lined paper may be available at the end of the exam paper in a live exam. Remember the question number(s) **must** be clearly shown.

INSTRUCTIONS

- Use black ink.
- Write your answer to each question in the space provided. You can use extra paper if you need to, but you must clearly show your candidate number, the centre number and the question numbers.
- In the live exam there might be lined pages at the end of the question paper for you to use if you need extra space. Remember, you must clearly show the question numbers.
- Answer **all** the questions.

INFORMATION

- The total mark for this paper is **60**
- The marks for each question are shown in brackets [].
- This document consists of **16** pages.

This exam will always have 60 marks. There are no sections in this exam.

ADVICE

- Read each question carefully before you start your answer.

This exam will have a range of question types. Question types include:

- Forced choice/controlled response questions. These are typically worth 1 to 4 marks.
- Short answer closed response questions. These are typically worth 1 to 4 marks.
- Extended constructed response questions with points-based marks schemes. These are typically worth 1 to 4 marks.
- Extended constructed response questions with levels of response marks schemes. These are typically worth 6 or 9 marks.

These allow us to assess the following Performance Objectives:

- PO1 – Show knowledge and understanding
- PO2 – Apply knowledge and understanding
- PO3 – Analyse and evaluate knowledge, understanding and performance.

The questions will sample content from across all topic areas. At least one question (or sub-part) will relate to each topic area. Sub-content topic areas will be sampled across exam papers, over time.

2

1 Lavender Haze is a business selling specialist chocolate. The business has two small shops, one in Manchester and one in Leeds. Lavender Haze also has an e-store which can be accessed through their website. The e-store allows customers from all over the United Kingdom to order specialist chocolate and hot chocolate powders.

Each shop stocks a variety of specialist chocolate and uses a shared database of products, which is stored on the business' own server in the Leeds shop. This server, located in a small office, also stores customer information, including names, addresses, food allergies, chocolate preference, phone numbers, email addresses, and credit card details. Lavender Haze stores their staff records on the same server.

(a) The CIA triad is an important concept in cyber security. The C refers to confidentiality.

Which of the following is **not** confidential customer information stored on the server in the Leeds shop?

Tick (✓) **one** box.

Chocolate preference

Credit card details

Email addresses

Food allergy

(b) Explain **one** change Lavender Haze can make to protect the confidentiality of their staff records.

.....

.....

.....

.....

..... [2]

All questions in this exam will relate to a single scenario. The scenario will always be introduced at the start of this exam and will develop throughout.

The number of marks for each question will always be given at the end of the question and will always be right aligned.

[1]

The number of points needed will always be written as a word in **bold**.

3

2 What is the process of only allowing permitted files and applications on a system?
Tick (✓) **one** box.

- Biometrics
- Cryptography
- Machine Learning
- Whitelist

[1]

This is an example of a 1 mark multiple choice question (MCQ). The response options will always be in alphabetical order consisting of one correct response and three distractors.

The number of ticks (✓) required to answer an MCQ question will always be written as a word in **bold**.

Students should use a single tick (✓) in one box to indicate their response to this question. The mark scheme will allow any other indicator of the chosen response. If more than one box is ticked, zero marks are given.

3 One of the staff has discovered that the server in the Leeds shop has been hacked.

(a) What can hacking also be called?

..... [1]

The scenario will develop throughout this exam.

(b) State **two** characteristics of a black hat hacker.

1.....

2.....

[2]

Appendix B in the specification contains a glossary of **Command Words** which could be used in this exam. The glossary tells you what we mean by each command word.

This question assesses PO1 (show knowledge and understanding) as it refers to hacking **a business server** rather than **Lavender Haze's servers**. Student responses will not need to be applied to the scenario. The question wording will always indicate when a question assesses PO1. In this exam, there will be between 15 and 25 PO1 marks.

(c) Explain **one** possible motivation for a hacker when hacking a business server.

..... [2]

.....

.....

.....

.....

THIS PAGE HAS BEEN LEFT INTENTIONALLY BLANK

Where a question requires students to use a stimulus, we may leave a blank page, so all question parts are together on adjoining pages.

6

5 Following the visit from the computer forensic engineer the cyber security company provided an incident report to the shop manager in Leeds. The incident report is in the **Insert**.

(a)
(i) Identify the vulnerability vector attacked by the hacker from the incident report.
..... [1]

(ii) Explain how the vulnerability vector identified in **5(a)(i)** was attacked.
.....
.....
.....
..... [2]

(b)
(i) Identify the incident category level faced by Lavender Haze.
..... [1]

(ii) Identify **two** external stakeholders from the incident report that need to be notified of the cyber security incident.
1.....
2..... [2]

(iii) Identify **one** impact in the incident report.
..... [1]

Responses to these questions require students to use the **incident report** provided in the **Insert**. This will be clearly indicated when students **must** use additional stimulus material in their responses.

Where a response **must** relate to an answer given in another question, this will be clearly indicated.

These **identification** questions assess PO2 (apply knowledge and understanding). Student responses must be taken from the incident report provided in the **Insert**.

This question assesses PO2 (apply knowledge and understanding) as it specifically refers to 'Lavender Haze'. The student responses must be applied to the scenario. The question wording will always indicate when a question assesses PO2.

In this exam, there will be between 20 and 30 PO2 marks.

Students need to apply their understanding (PO2) by explaining one reason why the type of information could have been targeted in the incident. Student responses **must** be applied to scenario.

(c)
(i) Identify **one** type of information from the incident report that could have been targeted in the cyber security incident on Lavender Haze.
..... [1]

(ii) Explain **one** reason why the type of information identified in 5(c)(i) could have been targeted in the cyber security incident on Lavender Haze.
.....
.....
.....
..... [2]

(d) Describe **one** form of disruption that Lavender Haze would have faced due to the cyber security incident.
.....
.....
.....
..... [2]

In this question, students need to apply their understanding (PO2). 1 mark is for identifying a form of disruption Lavender Haze faced during the cyber security incident and the second mark is for describing how Lavender Haze were affected. Student responses **must** be applied to scenario.

6 As news of the data breach spreads, customers start contacting the shop, worried about their personal information. Some customers report unusual charges on their credit cards and other customers are concerned about identity theft.

Discuss how far you agree with this statement:
Lavender Haze could suffer significant losses because of the cyber security incident.

In your answer you **must** write about:

- the ways you agree with the statement.
- the ways you do **not** agree with the statement.
- **how far overall** you agree **and** your reasons.

[9]

This is an example of a **discuss** question. The question is assessing PO3 (analyse and evaluate knowledge, understanding and performance).

Key words will be in **bold**.

This exam will have one level of response (LOR) question worth 9 marks. This needs an extended written response. This question assesses PO3 (analyse and evaluate knowledge, understanding and performance) requiring discussion. The question topic may be drawn from any relevant aspect of the unit's teaching content.

Extended response questions give students an opportunity to show the extent of their knowledge and understanding of the subject.

7 The e-store and website are hosted by an external company which Lavender Haze pay a subscription for. Each shop has a fibre connection providing fast internet access. The Leeds shop also has its own unsecured Wi-Fi network linking the shop's computer and till to the business server and website.

The cyber security company identified that the Wi-Fi in the Leeds shop is another weakness that could be attacked.

Explain **one** way that Lavender Haze's Wi-Fi at the Leeds shop could be attacked.

This question assesses PO2 (apply knowledge and understanding) as it specifically refers to "Lavender Haze". The question The student responses **must** be applied to the scenario.

.....

.....

.....

..... [2]

8 The cyber security incident report discovered that Lavender Haze did not have adequate security measures in place to prevent the cyberattack. The cyber security company provided several recommendations that should be implemented to reduce the cyber threat faced by Lavender Haze.

(a) Explain **one** way a firewall can protect servers.

Where a question asks students to explain, they must show (PO1) their understanding. It is not enough to recall knowledge alone.

.....

.....

.....

..... [2]

9 Customers can purchase chocolate by visiting one of the shops or through the e-store. When customers want to make a purchase through the e-store they must create an account which is stored on the hosted web server. Customers can email Lavender Haze to ask if they have products in stock and place orders.

(a)

(i) State one method of protecting data in transit.

..... [1]

(ii) Explain how the method stated in 9(a)(i) protects the data in transit.

.....
.....
.....
..... [2]

(b) Outline what a honeypot is.

.....
..... [1]

This **state** question assesses PO1 (show knowledge and understanding).

The number of lines given for a question indicates the approximate length of the response needed.

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 teachers](#) and 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**

✉ **support@ocr.org.uk**

🏠 **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**

Sign up for **Teach Cambridge** to access your planning, teaching and assessment support material.



Cambridge OCR is part of Cambridge University Press & Assessment, a department of the University of Cambridge.

Cambridge OCR is a Company Limited by Guarantee and an exempt charity. Registered in England.

Registered office: The Triangle Building, Shaftesbury Road, Cambridge, CB2 8EA. Registered company number: 3484466.

We operate academic and vocational qualifications regulated by Ofqual, Qualifications Wales and CCEA as listed in their qualifications registers.

We are committed to providing a fully accessible experience across all our products, platforms, and websites. Find out more about our [accessibility standards](#).

© Cambridge OCR 2026. All rights reserved. We retain the copyright on all our publications. However, our registered centres are permitted to copy and distribute our material for their own internal use, in line with any specific restrictions detailed in the publication. Find out more about our [copyright policies](#).

We update our publications regularly so please check you have the most up-to-date version.

We cannot be held responsible for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication and do not guarantee that any content on such websites is, or will remain, accurate or appropriate.

When we update our specifications, you'll see a new version number and a summary of the changes. While we do our best to reflect these changes in all associated resources on [Teach Cambridge](#), if you notice any discrepancies, please refer to the latest specification on our website and [let us know](#).

Our resources do not represent any teaching method we expect you to use. We cannot be held responsible for any errors or omissions in our resources.