Qualification awaiting accreditation

CAMBRIDGE OCR

Sample assessment material

Cambridge OCR Level 3 V Level in Digital Systems and Data

H101

Unit F016: Digital solution design and communication

Version 0.1 | November 2026

ocr.org.uk/V Levels

Introduction

This sample assessment material (SAM) is an example exam paper published alongside the specification. It's designed to show the style and structure you can expect from our question papers.

As the qualification develops, we may update the question paper template. To make sure you're working with the most up-to-date information, we recommend using the latest set of past papers where possible.

To help you get the most from this SAM, we also provide two supporting resources:

- **Assessment story** – this explains the structure of the qualification and our approach to both examined and non-exam assessment.
- **Annotated SAMs** – these guide you through the key features of the exam paper and highlight the different types of questions students will encounter in the exam.

Summary of updates

Section	Change	Version	Date
N/A	First draft – Awaiting accreditation.	0.1	4th November 2026

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Cambridge OCR Level 3 V Level in Digital Systems and Data

H101

Unit F016: Digital solution design and communication

Sample question paper

Time allowed: 1 hour 15 minutes

No extra materials are needed.

Please write clearly in black ink.

Centre number | | | | | | Candidate number | | | | |

First name(s) _____

Last name _____

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 has **10** pages.

Advice

- Read each question carefully before you start your answer.

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Version 0.1

Section A

1 Complete the sentences about the principles of problem solving.

Use **two** words from the list.

abstraction **decomposition** **iteration** **selection**

Breaking down a problem into smaller, more manageable parts is called ……...

Repeating a set of steps until a condition is met is called …….

[2] (AO1.1)

2 Which is an example of a prototyping model?

Tick (✓) **one** box.

Agile ☐

Evolutionary ☐

Kanban ☐

[1] (AO1.3)

3 Complete the sentence about the responsibilities of a software engineer.

Use **two** words from the list.

approving **financial** **functional** **testing**

A software engineer is responsible for writing and ……. code so that the digital system meets the …… requirements.

[2] (AO1.1)

4 Identify **two** constraints that can influence the design of a new digital system.

1 .....

2 .....

[2] (AO1.2)

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5 Identify **two** purposes of use case diagrams when designing digital systems.

1 .....

2 .....

[2] (AO1.3)

6 Complete the sentence about how user feedback could be used when developing a new digital system.

Use **one** word from the list.

licensed **purchased** **refined**

User feedback means problems can be identified in the design, so the system can be

……. before it is released.

[1] (AO1.3)

7 Which stage of developing a digital solution is feasibility part of?

Tick (✓) **one** box.

Creation ☐

Design ☐

Planning ☐

[1] (AO1.3)

8 Describe what an automated system is.

.....

.....

.....

.....**[2]**
(AO1.1)

Sample

9 Identify **two** components of a structured AI prompt.

1 .....

2 .....

[2] (AO1.1)

10 Complete the sentences about the limitations of outputs from AI-enabled systems.

Use **two** words from the list.

bias **hallucination** **transparency** **validation**

When an AI system produces information that sounds convincing but is false or made up, this is called …….

If an AI system is trained on unrepresentative data, its outputs may show …….. against some groups of people.

[2] (AO1.1)

11 Identify **two** characteristics of email.

1 .....

2 .....

[2] (AO1.1)

12 Which Creative Commons licence condition means a user must credit the creator of a photo?

Tick (✓) **one** box.

Attribution ☐

Copyright ☐

Patents ☐

[1] (AO1.2)

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13 Explain **one** impact of AI usage on natural resources.

.....

.....

.....

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

(AO1.3)

14 Complete the table to match the document to its use when responding to user issues.

Use **two** documents from the list.

FAQ **Manual** **Report** **Service update**

Response use	**Document**
Provides full, step-by-step instructions on how to set up and use a system	.....
Provides affected users with the status of a problem or issue	.....

[2] (AO1.3)

15 Identify **one** legal requirement a business must meet when disposing of old computer equipment.

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

(AO1.2)

Sample

Section B

16 Tidewell Bathrooms want a new web portal that will improve customer communication. The portal will allow customers to monitor their bathroom installation timeline and make any changes to their order.

(a) Explain **one** purpose of the new web portal.

.....

.....

.....

.....**[2]**
(AO2.1)

(b) Explain **one** method that the company developing the digital system can use to gather user requirements from the bathroom company.

Method: .....

Explanation: .....

.....

.....

.....

[3] (AO1.3/AO2.1)

(c) Analyse the sustainability **benefits** to Tidewell Bathrooms of using a web portal.

.....

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.....**[6]**
(AO3.2)

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(d) Create a wireframe of the new web portal login screen.

Marks will be awarded for:

- use of relevant wireframe components and conventions
- content relevant to the web portal login screen.

[6] (AO2.3/AO2.4)

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17 Bourn Progress Support Services (BPSS) provides IT support to several organisations.

Organisation staff report IT issues to the BPSS IT support helpdesk through an AI-enabled system.

(a) Explain **one** questioning technique that the AI-enabled system could use to gather the information from the organisation's staff.

Questioning technique: .....

Explanation: .....

.....

.....

.....

[3] (AO1.3/AO2.1)

(b) Explain **two** factors that could impact the quality of the communication between BPSS and the organisations it supports.

1 .....

.....

.....

.....

2 .....

.....

.....

.....

[4] (AO2.1)

(c) Describe **one** way BPSS can use AI responsibly.

.....

.....

.....

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

(AO1.1/AO2.1)

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(d) BPSS wants to use the AI-enabled system to assign tickets in the IT support helpdesk system.

Evaluate if BPSS should use AI-enabled systems to assign tickets.

Your answer must include:

- advantages and disadvantages of using AI-enabled systems to assign tickets
- a judgement about AI-enabled systems being used
- support for your judgement from across the course of study.

[9] (AO3.1)

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End of sample question paper

Sample

Cambridge OCR Level 3 V Level in Digital Systems and Data

H101

Unit F016: Digital solution design and communication

Sample mark scheme

Sample

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Marking instructions

Crossed-out answers

If a student has crossed out an answer and written a clear alternative, do **not** mark the crossed-out answer.

If a student has crossed out an answer and **not** written a clear alternative, give the student the benefit of the doubt and mark the crossed-out answer if it's readable.

Multiple choice question answers

When a multiple choice question has only one correct answer and a student has written two or more answers (even if one of these answers is correct), you should **not** award a mark.

When a student writes more than one answer

1. Questions that ask for a set number (including 1) of short answers or points

If a question asks for a set number of short answers or points (e.g. **two** reasons for something), mark only the **first set number** of answers/points.

First mark the answers/points against any printed numbers on the answer lines, marking the **first** answer/point written against each printed number. **Then**, if students have not followed the printed numbers, mark the answers/points from left to right on each line and **then** line by line until the set number of answers/points have been marked. Do **not** mark the remaining answers/points.

2. Questions that ask for a single developed answer

If a student has written two or more answers to a question that only requires a single (developed) answer, and has **not** crossed out unintended answers, mark only the first answer.

3. Contradictory answers in points-based questions

When a student has written contradictory answers, do **not** award any marks, even if one of the answers is correct.

Levels of response marking

1. To determine the level start at the highest level and work down until you reach the level that best describes the answer

2. To determine the mark within the level, consider the following:

Quality of the answer	**Award mark**
Consistently meets the criteria for this level	At the top of the level (6 and 9 mark questions)
Meets the criteria but with some inconsistency	At the middle of the level (9 mark questions)
On the borderline of this level and the one below	At the bottom of the level (6 and 9 mark questions)

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Annotations

Annotation	Meaning
	Correct response
	Incorrect response
	Positive
	Negative
	Level 1
	Level 2
	Level 3
	Omission mark
	Benefit of doubt given (this annotation counts as a mark so do not tick as well)
	Contradiction
	Repeat
	Too vague
	Noted but no credit given

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Mark scheme

1	
Max mark	2 **(AO1.1)**
Answer	Breaking down a problem down into smaller, more manageable parts is called **decomposition** (1) Repeating a set of steps until a condition is met is called **iteration** (1)
Guidance	Correct answers only

2	
Max mark	1 **(AO1.3)**
Answer	Evolutionary (1)
Guidance	Correct answer only

3	
Max mark	2 **(AO1.1)**
Answer	A Software Engineer is responsible for writing and **testing** (1) code so that the digital system meets the **functional** (1) requirements.
Guidance	Correct answers only

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4	
Max mark	2 **(AO1.2)**
Answer	Two from e.g.: • Budget (1) • Data storage location (1) • Hardware (1) • Integration with existing systems (1) • Organisational policies (1) • Security (1) • Software (1) • Staffing (1) • Time (1) **Credit any other relevant response**
Guidance	Accept equivalent wording

5	
Max mark	2 **(AO1.3)**
Answer	Two from e.g.: • Identifying different user types (1) • Break down the system into parts (1) • To show the interactions between users and the system (1) • Identify what the system must do (1) • Identify where the system boundary lies (1) **Credit any other relevant response**
Guidance	Accept equivalent wording

6	
Max mark	1 **(AO1.3)**
Answer	User feedback means problems can be identified in the design, so the system can be **refined** (1) before it is released.
Guidance	Correct answer only

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7	
Max mark	1 **(AO1.3)**
Answer	Planning (1)
Guidance	Correct answer only

8	
Max mark	2 **(AO1.1)**
Answer	Up to **two** marks for describing what an automated system is **One** mark for saying what a system is **One** mark for saying how it works automatically e.g: • A set of connected components that work together to achieve a purpose (1) by following pre-programmed rules/instructions/ algorithms to perform tasks (1) • A set of hardware and software components that work together (1) to carry out tasks/make decisions without the need for human intervention (1) **Credit any other relevant response**
Guidance	**Do not accept**: • Repeating the question (e.g. “a system that is automated”) • Example on its own with no description Accept equivalent wording

9	
Max mark	2 **(AO1.1)**
Answer	Two from: • Role (1) • Task (1) • Context (1) • Constraint (1) • Output format (1)
Guidance	Accept equivalent wording

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10	
Max mark	2 **(AO1.1)**
Answer	When an AI system produces information that sounds convincing but is false or made up, this is called **hallucination** (1). If an AI system is trained on unrepresentative data, its outputs may show **bias** (1). against some groups of people
Guidance	Correct answers only

11	
Max mark	2 **(AO1.1)**
Answer	Two from e.g.: • Written (1) • Structured (1) • Can attach files (1) • Same message can be sent to more than one person at a time/CC (1) • BCC (1) • Asynchronous (1) • Accessibility (screen readers/ translation) (1) • Not system dependant (1) **Credit any other relevant response**
Guidance	Accept equivalent wording

12	
Max mark	1 **(AO1.2)**
Answer	Attribution (1)
Guidance	Correct answer only

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<table>
<tr><td colspan="2">13</td></tr>
<tr><td>Max mark</td><td>2
(AO1.3)</td></tr>
<tr><td>Answer</td><td>Up to two marks for explaining impact
One mark for identified impact
One mark saying how links to AI usage
e.g.:
Large amounts of fresh water are used/water scarcity (1) to cool the data centres that run AI models, because training and running AI generates a lot of heat (1).
Increased consumption of fossil fuels/gas/coal (1) because AI models need large amounts of electricity to train/to respond to every prompt (1)
Rare earth metals/minerals are depleted/running low (1) because they are mined to make the specialist chips/servers needed to run AI (1).
Credit any other relevant response</td></tr>
<tr><td>Guidance</td><td>Response does not need to be applied to a specific context. The purpose can be quite wide in relation to use in development.

Be aware of answers linked to any current (at time of exam sitting) issues that may be in the news.

Accept equivalent wording</td></tr>
</table>

<table>
<tr><td colspan="2">14</td></tr>
<tr><td>Max mark</td><td>2
(AO1.3)</td></tr>
<tr><td>Answer</td><td>
<table>
<tr><th>Response use</th><th>Document</th></tr>
<tr><td>Provides full, step-by-step instructions on how to set up and use a system</td><td>Manual (1)</td></tr>
<tr><td>Provides affected users with the status of a problem or issue</td><td>Service update (1)</td></tr>
</table>
</td></tr>
<tr><td>Guidance</td><td>Correct answers only</td></tr>
</table>

<table>
<tr><td colspan="2">15</td></tr>
<tr><td>Max mark</td><td>1
(AO1.2)</td></tr>
<tr><td>Answer</td><td>One from e.g.:
Permanently erase all personal data (1)
Dispose of device without harming environment (1)
Use licenced contractors (1)
Credit any other relevant response</td></tr>
<tr><td>Guidance</td><td>Accept equivalent wording</td></tr>
</table>

Sample

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16 (a)	
Max mark	2 **(AO2.1)**
Answer	Up to **two** marks for explaining the purpose **One** mark for identified purpose **One** mark for suitable expansion in context e.g.: • To let customers track the progress of their installation (1), so they know which stage the work has reached/when the next stage is due (1) • To keep customers informed of changes to the timeline (1), so that they know when a delivery is delayed/ the installation team date moves (1) **Credit any other relevant response**
Guidance	For both marks the context of scenario must be applied. Accept equivalent wording

16 (b)	
Max mark	3 **(AO1.3/AO2.1)**
Answer	Up to **three** marks for explaining the method **One** mark for identified method **Two** marks for explaining how method can be used in context e.g.: • Interviews (1) o To ask manager/owner (1) questions/follow up questions to gather specific details (1) • Observation (1) o To watch the staff interacting with customer queries (1) to identify how the portal can help the process (1) • Focus groups (1) o To gather a mixed group of users (1) to discuss what their priorities would be when using the portal (1) **Credit any other relevant response**
Guidance	Read full response and award marks accordingly. Candidates may include method within response and not necessarily as first point For full marks the context of scenario must be applied. Accept equivalent wording

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16 (c)	
Max mark	6 **(AO3.2)**
Answer	**Level 3 (high) 5-6 marks** A **detailed** analysis, which includes: • a range of elements broken down to consider relationships, patterns or characteristics of the subject being analysed • detailed knowledge and understanding in the context of the question • detailed explanations, interpretations and/or assessments of impact leading to a conclusion • consistent use of appropriate subject terminology. **Level 2 (mid) 3-4 marks** A **clear** analysis, which includes: • some elements broken down to consider relationships, patterns or characteristics of the subject being analysed • clear knowledge and understanding in the context of the question • clear explanations, interpretations and/or assessments of impact leading to a conclusion • some use of appropriate subject terminology. **Level 1 (low) 1-2 marks** A **brief** analysis, which includes: • at least one characteristic or element of the subject being analysed • brief knowledge and understanding in the context of the question • brief attempts at explanation, interpretation and/or assessment of impact; a limited conclusion may be attempted • limited use of appropriate subject terminology. **0 marks** Answer is **not** worthy of credit.
Guidance	Answers can include some of the following: **Environmental benefits**: • Less paper. - Quotes/invoices/design plans/order confirmations, warranties and care guides are made available through the portal instead of being printed and posted. This reduces paper use, printing and postal transport, and the waste that follows. • Fewer journeys for staff - Customers can upload photos, measurements or videos of their bathroom. This allows remote surveys or pre-checks, so fitters and surveyors make fewer site visits. • Fewer ordering errors and returns. Customers confirm specifications, colours and measurements before an order is placed. This reduces wrong orders, returns and redeliveries, along with the packaging waste and transport they create. **Economic benefits:** • Lower running costs. Printing/postage/call handling/admin costs fall. The savings can be reinvested, which keeps the business viable. • Reduced staff time on routine enquiries (“where is my order?”), because customers can self-serve 24/7. Staff can then focus on work that adds more value.

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16 (c)	
	Social benefits • Access for and to more customers. People with mobility issues, caring responsibilities or long working hours can manage their project online without needing to travel or call during opening hours. • Trust. Customers can see orders, timelines and documents in one place, which builds trust and supports long-term customer relationships. Which can lead to increased sales due to referrals. **Credit other relevant conclusions, points and examples.**

16 (d)	
Max mark	6 **(AO2.3/AO2.4)**
Answer	Up to **six** marks for creating a wireframe **3** marks for use of components and conventions **3** marks for relevant content to context

Components & conventions			**Content relevance**	
3 Marks	Effective use of components & conventions	+	3 Marks	All content is relevant
2 Marks	Some use of components & conventions		2 Marks	Some content is relevant
1 Marks	Limited use of components & conventions		1 Mark	Limited content is relevant

Guidance	Components and conventions may include: • Indications of images/text/boxes • Indications of interactions • Text style/positioning • Fonts • Colours **Credit other relevant components and conventions.** Relevant content may include • Username entry area • Password entry area • Button/call to action • Details reset • Tidewell Bathrooms house style **Credit other relevant points and examples.**

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17 (a)	
Max mark	3 **(AO1.3/AO2.1)**

Answer	Up to **three** marks for explaining a questioning technique
	One mark for identifying a questioning technique
	Two marks saying how the technique can be used in context
	e.g.:
	• Open questions (1)
	  ○ where AI asks a general question about issues (1) so staff provide details in own words (1)
	• Closed questions (1)
	  ○ where AI uses fixed response/ yes or no (1) to get quick/ specific answers (1)
	• Summarising questions (1)
	  ○ where the AI repeats the answers from staff (1) to check that the information is correct before answering (1)
	Credit any other relevant response

Guidance	Read full response and award marks accordingly. Candidates may include questioning technique within response and not necessarily as first point. For full marks the context of scenario must be applied. Be aware of answers linked to any current (at time of exam sitting) AI developments that could inform answers. Accept equivalent wording.

17 (b)	
Max mark	4 **(AO2.1)**
Answer	Up to **four** marks for explaining two communication quality factors **One** mark for each identified factor **One** mark saying how this impacts quality of communications in context e.g.: • Accuracy of information (1) is needed to ensure that the correct action/solution is provided (1) • Clarity of language (1) by not using technical jargon that organisation staff may not understand (1) • Relevance of information by (1) only including needed information, so points are not lost (1) • Consistency of terminology used (1) as if different technicians use different formats/terms this could confuse staff (1) **Credit any other relevant response**
Guidance	Max two marks per factor Accept equivalent wording

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17 (c)	
Max mark	2 **(AO1.1/AO2.1)**
Answer	Up to **two** marks for describing how BPSS can use AI responsibly **One** mark for identifying a responsible use of AI. **One** mark describing how this supports responsible use of AI. e.g.: • Human oversight/review (1) to ensure that incorrect responses not sent to customers (1) • Having an AI AUP (1) so that staff know what they can and cannot do/use (1) • Tell customers that they are interacting with an AI bot (1) so that they are aware when they start with raising an issue (1) • Not entering personal/confidential data into AI (1) so that data/ privacy legislation is followed appropriately (1) • Check AI outputs for bias (1) so customers are treated fairly/not disadvantaged (1) **Credit any other relevant response**
Guidance	Be aware of answers linked to any current (at time of exam sitting) AI developments that could inform answers. Accept equivalent wording

17 (d)	
Max mark	9 **(AO3.1)**
Answer	**Level 3 (7-9 marks)** A **detailed** evaluation, which includes: • a balanced range of points from both sides of the argument are broken down to consider relationships, patterns or characteristics of the subject being evaluated • detailed judgement(s) with relevant reasons/justifications about how and why aspects are important, effective and/or appropriate • consistent use of appropriate subject terminology. • consistent application of relevant knowledge and understanding from across the course of study (synoptic a) • response is well constructed and develops an extended line of reasoning which is relevant, coherent and effective (synoptic b) **Level 2 (4-6 marks)** A **clear** evaluation, which includes: • an unbalanced range of points from both sides of the argument are broken down to consider relationships, patterns or characteristics of the subject being evaluated • clear judgement(s) with relevant reasons/justifications about how and why aspects are important, effective and/or appropriate • use of appropriate subject terminology • some application of relevant knowledge and understanding from across the course of study (synoptic a)

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17 (d)	
	• response is coherent and effective with some clear reasoning (synoptic b) **Level 1 (1-3 marks)** A **brief** evaluation, which includes: • unbalanced points from the argument are broken down to consider relationships, patterns or characteristics of the subject being evaluated • brief judgement(s) with limited reasons/justifications about aspects which are important, effective and/or appropriate • use of appropriate subject terminology is limited. **0 marks** Answer is not worthy of credit.
Guidance	Answers can include some of the following: **Advantages**: • Speed: tickets are triaged/handled and assigned the moment they're logged, 24/7, without waiting for a human to read the queue. • Reduced admin cost: staff no longer triage/handle issues manually, so they can spend their time on complex problems. • Pattern detection: the system can spot clusters of similar tickets, flag duplicates and identify a major incident early. • Scalability**:** the system copes with spikes in volume, for example after an outage or a software rollout, without extra staff. **Disadvantages:** • System depends on input quality: vague or incomplete descriptions ("it's not working") are easily misrouted. Screenshots and logs may not be interpreted at all. • Bias in training data: historical patterns are repeated. If certain issues were poorly prioritised, or always sent to the same people, the AI continues that. • User perception: the service can feel impersonal, which may reduce trust or satisfaction. This could lead to loss of business. • Cost and maintenance: set-up, integration with existing helpdesk systems, ongoing tuning and retraining all cost money. Synoptic link: • Content could be drawn from F017 Topics C2 and C4 and F018 Topic A2. **Credit other relevant conclusions, points and examples.**

Sample

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