CAMBRIDGE NATIONALS

Teacher Guide

INFORMATION TECHNOLOGIES

J808

Exploring our question papers

Version 1

Contents

INTRODUCTION

We developed our Cambridge National in Information Technologies qualification for first teaching from September 2017. Following the first assessments in June 2018, we have produced this guide to share the story of our assessment approach and explore our question papers with you.

During the development, we talked to a wide range of teachers to influence the structure of our question papers. Underlying principles for us were to:

- **keep presentation clear** (font style, space for working)

- **ensure we're always assessing** understanding and use of Information Technologies (without letting the language of our questions be an obstacle to understanding what is needed)

- **be clear** on Command Word usage.

1. BASIC ASSESSMENT STRUCTURE

There are two units of assessment.

To claim the Level 1/2 Cambridge National Certificate in Information Technologies qualification, students must complete both units of assessment.

Unit of Assessment	Assessment Type	Marks	Duration	Weighting
Entry code R012 - Understanding tools, techniques, methods and processes for technological solutions	Written examination	80 marks (120 UMS)	1 hour 45 minutes	50 %
Entry code R013 - Developing technological solutions	OCR Set Assignment is marked by your centre staff and moderated by OCR	80 marks (120 UMS)	Approximately 20 hours	50 %

'Learning by doing' is essential to gain the Knowledge, Skills and Understanding that underpin the assessments. We encourage holistic delivery and require the synoptic application of skills, knowledge and understanding.

Question Paper R012

This assessment is designed to test breadth of understanding of the specification using a range of question styles.
- Low tariff questions – between 1 and 2 marks
- Medium tariff questions – between 3 and 6 marks
- High tariff questions – between 7 and 10 marks

Learning Outcome (LO) Assessment Coverage

The assessments will directly assess the learning outcomes (LO) of the qualification as follows:

Entry code R012 - Understanding tools, techniques, methods and processes for technological solutions *This will directly assess the learning outcomes titled as 'Understand':*	Weighting
LO1: Understand the tools and techniques that can be used to initiate and plan solutions	25%
LO3: Understand how data and information can be collected, stored and used	25%
LO4: Understand the factors to be considered when collecting and processing data and storing data/information	25%
LO6: Understand the different methods of processing data and presenting information	25%

2.   ASSESSMENT

(a)   Our basic assessment principles

The principles and rationale underpinning our test construction approach for Cambridge National vocational qualifications are outlined below.

Group	No.	Accessibility Principle	Why?
Look and feel of the paper	1	**Layout (clear for all)** • Arial font. • Adequate space for responses	To make it easy for students to add their responses.
	2	**Tone (assessing good understanding of Information Technology without letting the language of our questions be an obstacle to understanding what is needed)** • The use of overly complicated language and grammatical constructions will be avoided. • Contexts and vocabulary will be considered for currency and appropriateness to students. • Language used throughout the question will be consistent. For example, usage in the stem of a question matches that throughout the rest of the question and any titles given to any diagrams or tables. • Technical words will be used appropriately to underpin the technologies being assessed.	To make it as clear as possible what response is expected.
Assessment approach	3	Negative questions will be kept to a minimum.	Used well, negative questions can be a good way of testing understanding but can also easily lead to confusion. We will only ever use negatives where it is the most appropriate approach to take.
	4	Will be a series of short scenarios, directly linked to questions being asked.	To ensure no superfluous materials are included and to ensure information is presented in the clearest possible way. Students will be able to make clear links between the scenarios and the questions being asked.

Group	No.	Accessibility Principle	Why?
Assessment approach	5	Names will not be used, technical job roles will be used where appropriate.	To avoid imparting cultural/ gender bias into questions through choice of name or confusing students through choices of names they are unfamiliar with. Examples of terminology include.IT Technician and Project Manager when phrasing questions.
	6	Images, diagrams and data will only be used where they genuinely support what is required in the question. We will avoid students needing to turn pages by aiming to always have images, diagrams and questions on facing pages.	To avoid unnecessary page turning and distracting images for the students that do not help them understand what is required in the question.
	7	Text will not be wrapped around images/diagrams/graphs.	To retain clarity.
	8	Structuring paper into sections and inform students which questions relate to which scenario.	To aid clarity and set assessment expectations required of students.

(b) Use or i.e./e.g. in teaching content

The teaching content describes what has to be taught to ensure that students are able to access the highest marks.

Anything which follows an i.e. details what must be taught as part of that area of content.

Anything which follows an e.g. is illustrative; it should be noted that where e.g. is used, students must know and be able to apply relevant examples in their work, though these do not need to be the same ones specified in the teaching content.

Where content will be part of the exam and the content contains i.e. and e.g. under specific areas of content, the following rules will be adhered to when setting questions:

- a direct question may be asked where the teaching content is shown with an i.e.

- a direct question will not be asked about a specific example where teaching content is shown as an e.g. Any questions relating to the area of content will offer students the opportunity to provide their own examples as the content has not specified with which examples they should be familiar.

(c) Demand through the paper

We ease students into the paper by starting with a lower demand question and then slowly ramping up difficulty, i.e. the most difficult questions should come towards the end of each section. Similarly, within a multi-part question we aim to start with an easier lead in building through successive parts of the question.

(d) Command words

The key list of common command words used in our exams is listed below. The definitions are intended to provide guidance to teachers and students as to what a student will be expected to do when these words are used in examinations.

The exact response expected to a command word will be dependent on the context. At all times, we advise students to read the full question carefully to be sure of what they are being asked to do.

Command word	Definition
Analyse	Break down in order to bring out the essential elements or structure. To identify parts and relationships, and to interpret information to reach conclusions.
Assess	Offer a reasoned judgement of the standard/quality of situation/ skills informed by relevant facts.
Compare	Give an account of the similarities and differences between two (or more) items or situations, referring to both (all) of them throughout.
Define	Asking for a definition of a specific technical process.
Describe	Give a detailed account or picture of a situation, event, pattern or process.
Discuss	Offer a considered and balanced review that includes a range of arguments, factors or hypotheses. Opinions or conclusions should be presented clearly and supported by appropriate evidence.
Evaluate	Assess the implications and limitations; to make judgements about the ideas, works, solutions or methods in relation to selected criteria.
Explain	Give a detailed account including reasons or causes.
Give	Supply information that is relevant to a specific context.
Identify	Provide an answer from a number of possibilities. Recognise and state briefly a distinguishing factor or feature.
Justify	Give valid reasons or evidence to support an answer or conclusion.
List	Give a sequence of brief answers with no explanation.
Name	To provide appropriate word(s) or term(s).
State	Give a specific name, value or other brief answer without explanation or calculation.
Suggest	Give possible alternatives, produce an idea, put forward, e.g. an idea or plan, for consideration.
To what extent	The degree to which a particular fact or perspective can be supported.
What	Asking for information specifying something.
Why	For what reason, cause or purpose has a selection been made.

3.   QUESTION TYPE EXAMPLES AND COMMENTS

(a)   Low Tariff questions (1 to 2 Marks)

These question types can assess any learning objective. We will either get students to give a number of specific responses (i.e. three components of a planning tool) or we will ask for a specific example of a technology that might be used (i.e. hardware type).

We use short answer questions because these questions tend to assess knowledge recall of individual specification areas such as the example given below. They also allow a question to build from a low tariff base to more demanding questions styles and tariffs later in the question. It is worth bearing in mind that not all knowledge recall is low demand and depending on what is being asked questions can differentiate by ability by using this style.

All of this allows us to deliver a broad specification coverage that enables us keep our examinations at a manageable length.

The question requires the identification of information and links this to methods of storage.

14   The collected data needs to be stored using a loyalty scheme reference before it is processed. An example of a loyalty scheme reference for a customer is MKN6394294.

(a)   Identify the data type you would select to store this information.

_____

_____

[1]

Answer: Alphanumeric

Specification reference	Mark allocation	LO target	Specimen assessment material question
3.1.2.b	1	LO3	R012 Question 14(a)

(b) Mid tariff question (3 to 6 Marks)

For mid tariff questions we want students to move beyond the recall of knowledge and demonstrate to us that they understand particular concepts and terms within the specification through application to different contexts. Normally, these questions have a numerical value within them – i.e. two reasons, two benefits, two advantages, etc. The expectation is that students will be able to make a point (i.e. identification) and then expand on this identification to secure additional marks.

Consider the example below:

5

10   Another way of collecting data is through the use of a sensor.

Explain two advantages of using a sensor to collect the data when people use a bus route.

Advantage 1 _____

_____

_____

_____

Advantage 2 _____

_____

_____

_____

[4]

The question is asking students to explain two advantages of using a sensor to collect data for 4 marks. To achieve full marks students will need to recall two advantages of using a sensor to collect data within the context given and then explain why this data collection method would be used. If the question was left as it is but the tariff was increased to six marks then again recall of two advantages would be required but the student could access more marks for their explanation.

Specification reference	Mark allocation	LO target	Specimen assessment material question
3.3.1.a.iii 3.3.1.b.ii.iii	4	3	R012 Question 10

Answer:

Question	Answer/Indicative content	Mark	Guidance
10	• The sensor could count when people get on and off the bus (1), so this will save time (1) • The counting of people happens automatically (1) so there is less chance for human error (1) • People don't have to answer direct questions (1) which will avoid false information being collected (1) • Any other valid answer	4	Points marking approach.

The mark scheme clearly highlights the marking protocol as explained above. In the first example a student has recalled the fact that a sensor could count when people get on and off the business. The expansion to this is that this data collection method will save time (i.e. why the data collection method would be used).

(c)   High Tariff questions (7 to 10 Marks)

As these questions are testing the organisation as well as the substance of the response they are marked using a levels of response mark scheme with marking bands. They will normally come at the end of the sections and require students to pull together all acquired knowledge and understanding into one cohesive narrative. The command word will reflect the need for students to produce extended prose and there will be a specific context provided to frame a student's response. The question may include some bullet points as scaffolding if it is felt that the concepts being tested are challenging.

The question may ask students to discuss advantages, impacts, consequences, implications, benefits, drawbacks, etc. Ideally to secure the top mark band as in the example below students will need to provide a number of impacts on the stakeholder in question with an appropriate level of explanation. Students who do nothing more than list generic impacts of cyber-security attacks will struggle to get out of mark band 1.

These question types could be in the form of an open-ended, essay-style questions; synoptic questions linking concepts from across the specification or data interpretation questions.

---

10   The team will follow the project life cycle to complete this project.

Discuss the advantages **to the school** of the project being completed using the project life cycle.

....

....

....

Specification reference	Mark allocation	LO target	June 2018 past paper question
1.1.1, 1.1.2, 1.2 1.3	8	LO1	R012 Question 10

Answer:

Question			Answer/Indicative content	Mark Guidance
10			**Indicative Content:** • Financial resources can be allocated in advance, so that the school can plan spending and keep within its budget. • Phase reviews take place, meaning that the school will be able to see the progress being made and to see that the project is on schedule, this will increase the confidence that the school has that the cashless payment system will be delivered on time. • The feasibility report produced by the project team will allow the school to abandon/postpone the project after the initiation phase, if it will not be possible to deliver the cashless payment system within the time/financial constraints. • The project team will have created agreed project and test plans, so the school will know what the delivered cashless payment system will be like. • A recognised series of steps to help organise the project.	**Mark Band 3: (6-8 marks)** Candidate explains the advantages to the school of following the project life cycle when developing the cashless payment system. Answer will be given in context. At the bottom of the mark band more than one advantage has been explained, each in reasonable depth. **Mark Band 2: (3-5 marks)** Candidate describes the advantages to the school of following the project life cycle when developing the cashless payment system. Answer may not be given in context. At the top of the mark band more than one advantage has been described. At the bottom of the mark band weak description of one advantage. **Mark Band 1: (1-2 marks)** Candidate identifies generic points in relation to the project life cycle. At the top of the mark band more than one advantage identified. At the bottom of the mark band any point made. **0 marks** No answer given or answer not worthy of credit.

MARKING APPROACH FOR LEVEL OF RESPONSE QUESTIONS

On the right hand side of the mark scheme the band descriptors exemplify the qualitative and/or quantitative nature of the student's response that examiners will be looking to credit. The movement between the bands is clear and transparent – i.e. at band 1 students identify generic points in relation to the project life cycle. At mark band 2 students are expected to describe advantages of following the project life cycle although the answers may not always be given in context. At mark band 3 students are expected to explain advantages of following the project life cycle within the context given. Within band 2 and band 3 a number of advantages described or explained will secure high marks within the band.

On the left hand side the indicative content is provided. This list can never be exhaustive but what it does show is the key lines of enquiry that may be taken by students when responding to this question. This list of indicative content is checked against live scripts when the mark scheme is finalised. Markers are expected to align the indicative content with the band descriptors to arrive at a mark for each student.

Our examiners are also given the following guidance to aid their marking of level of response questions (this information is repeated in our published mark schemes including our specimen assessment materials).

Read through the whole answer from start to finish, using the Level descriptors to help you decide whether it is a strong or weak answer. The indicative information technology content in the Guidance column indicates the expected parameters for students' answers, but be prepared to recognise and credit unexpected approaches where they show relevance.

Using a 'best-fit' approach based on the skills and IT content evidenced within the answer, first decide which set of level descriptors, Level 1, Level 2 or Level 3, best describes the overall quality of the answer. Once the level is located, award the higher or lower mark:

The higher mark should be awarded where the level descriptor has been evidenced and all aspects of the communication statement (in italics) have been met.

The lower mark should be awarded where the level descriptor has been evidenced but aspects of the communication statement (in italics) are missing.

Looking for a resource?

There is now a quick and easy search tool to help find **free** resources for your qualification:

www.ocr.org.uk/i-want-to/find-resources/