



Examiners' report

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KS4 PERFORMANCE TABLES

OCR Level 1/Level 2

Cambridge National in
IT

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R050 Summer 2024 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 answers 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 OCR.

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R050 series overview

This was the first summer session for Unit R050 on the redeveloped specification for IT. R050 counts for 40% of specification, a significant proportion of their overall grade, and must take place once or at the same time as the second NEA has been submitted. This does mean that candidates are more likely to be in their final year of GCSE level studies and so have taken part in more concerted examination practice across all their subjects. This therefore means that the cohort sitting the examination is older and should be more experienced in exam technique.

The introduction of the terminal rule also impacted candidates' responses in that greater synoptic understanding could be expected. However, significant gaps in knowledge were seen across the question paper. This is concerning when candidates are finishing their course.

As with the legacy Information Technologies specification R012, there are aspects of R050 that require a depth of understanding that cannot be taught purely by their application in NEA units. An example of this would be with data validation techniques. While candidates may have used them in the R060 assignments, the understanding of their purpose, range of methods and how they protect data integrity was lacking.

R050 also contains content that is not covered in the NEA units which needs to be taught and revised fully. An example of this, would be the use of network drives and connectivity methods. While candidates may use different storage and connectivity methods, their understanding of how they work, and their advantages/disadvantages needs further development.

Candidates who did well on this paper generally:	Candidates who did less well on this paper generally:
<ul style="list-style-type: none"> • knew the listed teaching content of the specification • picked up 1 mark on a range of questions for knowing the content • answered in context of the question for mark two • understood the technical knowledge underpinning the question • wrote concise and specific answers. 	<ul style="list-style-type: none"> • lacked knowledge of the listed teaching content from the specification • produced answers that were not clear in their structure and detail • did not read the question properly, so marks were lost.

Section A overview

This section of the question paper contains several short response questions that do not require any application to context to be answered. There are 15 marks in this section, which means that any candidate who gains double figures in marks is well on their way to gaining at least a Level 1 Pass for R050.

The questions in this section assess pure knowledge recall from across the Topic Areas (TA) of the specification. In this session, while candidates tended to pick up some marks throughout the section, there was a significant gap in knowledge seen across the cohort.

Question 1

- 1 Identify **one** type of mind map.

..... [1]

There are several specific types of mind maps listed in the specification which this question was targeted at. While this question was answered well in the main, many candidates responded with other design tools or generic terms such as spider diagram, which were too vague.

Question 2

- 2 Identify **one** display hardware consideration.

..... [1]

This question again targeted a specific content list in the unit specification. A significant number of candidates did not know this content.

Question 3

- 3 Complete the following:

Information = + structure + [2]

Most candidates gained at least 1 mark on this question. Those who did not gain any marks did so not from wrong answers but from not attempting to answer, showing a gap in their knowledge.

Question 4

- 4 Identify the data type shown below.

47.95

..... [1]

This question was generally well answered by all candidates.

Question 5

- 5 Which type of malware gathers information about a user's actions on a device?

..... [1]

This question saw a mixture of responses. Candidates who did not gain a mark on this question provided responses that were not specific enough. For example, 'Trojan Horse', this could contain a range of malware and so was too vague for a mark to be given.

Question 6

- 6 Which physical protection measure uses a fingerprint?

..... [1]

While this question was generally well answered, candidates lost marks by not being specific in their response. Examples such as 'touch' and 'phone' were too vague.

Question 7

- 7 Identify the legislation that relates to access to data from an organisation.

..... [1]

This question was generally well answered by all candidates.

Question 8

8 Draw a line to link the type of software to the correct description.

You will only use **two** types of software to complete this task.

Type of Software	Description
Collaboration	Makes teamwork more productive and effective
Database	Stores data and records in an organised way
Word processing	

[2]

This question was generally well answered. Some candidates did however lose marks by drawing more than one line from one type of software to a description.

Question 9

9 Which connectivity method provides internet access wherever needed?

..... [1]

This question was not well answered with candidates being in the main too vague in their response. Candidates tended to answer with methods such as 'Wi-Fi' or 'wireless' that do not provide access without other connection methods.

Question 10

10 Which audience demographic relates to where the audience lives?

Tick (✓) **one** box only.

A Accessibility

☐

B Age

☐

C Gender

☐

D Location

☐

[1]

Generally, this question was well answered.

Question 11

11 Complete the following:

The Internet of Everything (IoE) is a network connection of people, process, data

and

[1]

Despite the IoE being made up of 4 specific pillars, a large number of candidates could not identify the missing pillar from this question.

Question 12

12 Identify **two** emergency services that could use the IoE.

1

2

[2]

This question was generally well answered, with most candidates gaining at least 1 mark on this question.

Section B overview

This section contains a range of questions based on the context for this examination series, a computer game for teaching primary school pupils. This section required candidates to not only answer questions based on the content that they knew, but also to apply that knowledge to the context. This forms the vocational aspect of the question paper. Candidates who did not do well on this section, either did not have an appropriate level of knowledge from the unit content or did not apply their knowledge in enough detail.

Question 13 (a)

A computer game is being created to teach primary school pupils about road safety. Pupils will play the game by answering four questions about road safety. Each time they answer a question, the pupils will receive feedback about their answer.

The game will be played using a website on a desktop computer.

- 13** The development team has gathered information from primary schools to help inform decisions about the design of the game.

The information has been gathered using an online survey collection method.

- (a)** Explain **one** advantage and **one** disadvantage of using online surveys to collect information.

Advantage

.....

.....

.....

Disadvantage

.....

.....

.....

[4]

Most candidates gained at least 1 mark on this question. Marks tended to be lost for lack of specificity on the response. Where candidates provided responses such as 'it's easier', 'it's faster' were not given a mark unless they qualified their response such as 'easier to collect information'.

Question 13 (b)

- (b) Identify **one other** primary data collection method that could be used to collect information.

..... [1]

This question was answered well in the main. Candidates who lost marks did so again by being vague in the responses or by not reading the question, which asked for one other method. This precluded the use of online survey or online questionnaire which is the same point in the specification and in the previous question.

Question 14 (a)

- 14 The game will be played on a website.

- (a) Explain how using a Human Computer Interface (HCI) on a website will impact the design of the HCI.

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

This question was not as well answered as a similar question in the January question paper. Candidates were not clear about how the design of a HCI would be influenced by the use on a website. Those candidates who did answer this question well explained issues such as device types/size, interaction methods. Those candidates who attained the best result on this question clearly used their knowledge from the NEA assignments, where the HCI needs to be considered in the work produced.

Assessment for learning



Centres should consider teaching fully the principles of HCI design from R060 (TA1.2.3) together with R050 (TA2.2 and TA2.4). This would greatly aid the candidates' knowledge and understanding of how a HCI is designed and works. This would then aid not only the examination but also both of the NEA units where the 'what the user sees' and how they interact with a device/package needs to be considered.

Exemplar 1

whether the user can tap on
certain icons or not

This candidate response gains 1 mark for referring to how different interactions would need to be considered – in this case tap on icon. The response does not then go to explain how (increased size etc.) or why (use of a touchscreen) this should be considered in the HCI design for use on a website.

Question 14 (b)

(b) The game will be played on a website.

One threat to the website is a Denial of Service (DoS) attack.

Discuss the effects of a DoS attack on the website.

In your answer you **must** consider the:

- purpose of a DoS attack;
- impact on the website;
- logical prevention measures that could be used to mitigate against the DoS attack.

[9]

This question saw a wide range of responses as would be expected. Candidates who did well on this question structured their answer to cover the three bullet points listed. This allowed them to address each in turn and cover the required aspect. However, marks were lost by candidates who were not clear about the purpose of a DoS attack. Many responses were seen with generic cyber attack purposes such as locking out of accounts etc. which are more relevant to other forms of attack such as malware attacks.

Marks were gained by candidates who explained the impact on the website using knowledge about how the business would be affected e.g. loss of reputation, loss of business etc. Further marks were lost by not being clear about how a DoS attack could be mitigated. Many responses were seen that referred to using VPNs or ethical hackers, these were not relevant for this context. Candidates who did well explained clearly how a mitigation such as a firewall would monitor and slow traffic requests down.

Question 14 (c)

(c) The road safety game is designed in the following way:

- When the game starts, pupils enter their name.
- A question then appears on the screen with a correct and incorrect answer. Pupils must select their answer.
- If they select the correct answer a point is added to their score.
- If they select the incorrect answer, an information message appears on the screen. The message disappears after five seconds.
- The next question appears.
- After four questions have been answered, the pupil's score is shown on the screen.

Create a flowchart for this process in the game.

Marks will be awarded for:

- layout;
- content.

[8]

This question was in the main done well with most candidates gaining marks in Level 2. This showed that candidates have transferred their knowledge and understanding from the NEA units into the exam.

Those candidates who did not do well missed out details from the question and did not use the appropriate symbols consistently.

Question 14 (d)

(d) Identify the data type that will be used for the score at the end of the game. Justify your choice.

Data type

Justification

.....

.....

.....

[3]

While many candidates gained 1 mark on this question for identifying the data type, the reasoning shown in the justification was variable. Marks were often lost by candidates being vague in their response.

Question 14 (e)

- (e) Explain how a presence check will be used to check that pupils have answered a question.

.....

.....

.....

..... [2]

Many candidates did not get a mark on this question by just repeating the wording of the question – “a presence check will check that an answer is present”. They did not explain what that means, as required by the question. Those candidates who gained full marks on this question explained clearly how it would check that data had been input/entered and that if not a message would be displayed/or progress would be prevented.

Question 14 (f)

- (f) Identify **two other** validation tools that are used to reduce errors.

1

2 [2]

This question was not answered well in general. Candidates were not clear in the difference between data validation and data verification tools. The NEA assignment for R060 (both 2023 and 2024) required the use of data validation tools to ensure the integrity of the data and their learning from these NEA assignments were not seen in candidate responses to this question.

Assessment for learning



Centres should consider teaching fully the understanding of the full range of data validation techniques during R060 where they can be practically used. This is then in line with the applied nature of the qualification.

Question 15 (a)

15 Schools can download the game to their network. The game can be stored on a network drive.

(a) Explain **one** advantage and **one** disadvantage to schools of storing data on a network drive.

Advantage

.....

.....

.....

Disadvantage

.....

.....

.....

[4]

This question saw a wide range of responses with candidates in the main showing a low level of knowledge and understanding of what a network drive is. This was illustrated by candidates referring to cloud-based storage or portable drives that could be removed and carried around. While demonstrating how cloud-based storage and working has become the norm in the main, the understanding of network drives is required for this specification. This was illustrated with candidates often referring to the need for internet access to access the data on the drive. This showed a lack of understanding of the use and differences between the internet and networks.

Exemplar 2

Advantage Network drive has a lot of storage, so can store many pupils data at one time, without running out of storage.

Disadvantage Can be susceptible to a malware attack, which can mean the data can be lost or data can be lost.

The candidate has clearly explained both an advantage and disadvantage of using a network drive. In both aspects they have identified a point and then provided a reason for that being an advantage or disadvantage.

Question 15 (b)

(b) The network drive can be accessed using a wired network.

Explain **two** disadvantages to schools of using a wired network.

1

.....

.....

.....

2

.....

.....

.....

[4]

This was another question where a wide range of responses were seen, with candidates demonstrating a low level of understanding of what wired networks are and what they require. Some candidates did not read the question fully either providing an advantage and a disadvantage of using a wired network. The question only asked for disadvantages.

Misconception



Centres should look at how networks and storage systems work, together with the differences in the different connectivity methods such as Wired and Wi-Fi. Candidates were often confused with the differences between these aspects and how they work together.

Question 16 (a)

- 16 Pupils can play the game on a smart device (thing) connected to the IoE.
- (a) A pupil can use a microphone to enter data using their voice. At the end of the game the pupil's final score will be heard by the pupil and displayed on the screen.

Complete Column 1 and Column 2 in the table below by selecting the missing pillars of the IoE from the following list:

Thing
People
Process

Each pillar can be used more than once.

Justify your selections by completing Column 3.

	Column 1	Column 2	Column 3
	Pillar 1	Pillar 2	Justification
Input		Data	<div><div></div><div></div><div></div><div></div></div>
Score	Data		<div><div></div><div></div><div></div><div></div></div>
Output	Thing		<div><div></div><div></div><div></div><div></div></div>

[9]

This question provided a wide range of responses, with most candidates gaining at least 2 marks. Marks tended to be lost in the justification section with candidates not being clear about how the pillars interact in this context.

Question 16 (b)

(b) The smart device can be accessed using Bluetooth connectivity.

Identify **two** characteristics of Bluetooth connectivity.

- 1
- 2

[2]

Most candidates were given at least 1 mark on this question. However, many marks were lost where candidates simply stated what Bluetooth is used for i.e. connect headphones, transfer data. These are not characteristics. Marks were further lost with vague responses i.e. connection range, accessible to anyone.

Question 17 (a)

17 An infographic has been created to advertise the game to schools.

(a) Identify the type of software that could be used to create the infographic.

..... [1]

Most candidates gained the mark for this question.

Question 17 (b)

(b) Explain **two** advantages to schools of an infographic being used to advertise the game.

- 1
- 2

[4]

Many candidates did not read this question properly and referred to aspects such as easy to make or cheap to make. This question was not about making an infographic but the advantages of using them to advertise. The candidates who did well on this question clearly explained an aspect of an infographic such as how they simplify information and linked this to how this is better for a younger audience to read.

Exemplar 3

- 1 It includes information and images making it much easier for customers to get a good understanding of the game.
- 2 It will be easier for people who can have inability to read and they can interpret the idea of the game from the images and graphics.

In both parts of this response the candidate has clearly identified an aspect of an infographic and then expanded on this with a reasoning of how this is advantageous.

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