



Examiners' report

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R050 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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R050 series overview

This was the second summer session for R050. 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 have so 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.

In comparison to both sessions last year the level of knowledge and understanding seen this session showed a marked improvement. This is in line with the January session this year.

However, as with January, candidates did not, in the main, write their responses clearly. Centres are advised to make sure that candidates are clear about the command word requirements and know how to construct their answers precisely. In this session, this was the biggest barrier to higher marks being attained overall. This is despite the range of question types used to assess the candidate's knowledge and understanding.

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. Examples of this would be testing and test data.

While candidates may have completed testing in the R060 and R070 assignments, the understanding of what constitutes specific text data was lacking. This is an issue that was also seen in the NEA task for R060 during moderation, where specific test data was not consistently provided.

R050 also contains content that is not covered in the NEA units which needs to be taught and revised fully such as the use of digital communications and the Internet of Everything (IoE).

Candidates who did well on this paper generally:	Candidates who did less well on this paper generally:
• read the question carefully • knew the content listed in the specification • applied context appropriately • knew the different components of a wireframe.	• did not read the questions carefully • did not know the listed content • produced answers that were not clear in their structure and lacked specific detail • were confused about the differences between a wireframe and other design tools.

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. This section of the question paper tests PO1, knowledge and understanding with no application to a context.

Question 1

1 Identify the design tool that would include a process box.

Tick (✓) **one** box only.

A Flow chart

☐

B Mind map

☐

C Visualisation diagram

☐

D Wireframe

☐

[1]

This was generally well answered, with most candidates gaining a mark.

Question 2

2 Identify **one** hardware consideration when designing a Human Computer Interface (HCI).

..... [1]

Despite hardware considerations being content listed in the specification (TA2.2), nearly half of the cohort provided incorrect responses for this question.

Question 3

3 Identify **one** digital platform that could be used to store stock records.

..... [1]

Despite digital platforms being content listed in the specification (TA2.3), nearly half of the cohort provided incorrect responses for this question. The most common incorrect response seen was the cloud which is not specific enough. The same as with Google Drive/ MS OneDrive, a specific software would need to be used to store the stock data within these locations.

Question 4

4 Complete the following sentence using **two** terms from the list below:

- double entry
- format check
- manual checking
- range check.

Data verification is carried out using and
..... tools.

[2]

Generally, this was well answered with many candidates gaining at least 1 mark on this question. Almost half gained both marks.

Question 5

5 A portable USB flash drive is **one** type of external storage device.

Identify **two other** external storage devices.

1

2 [2]

Most candidates gained no marks on this question, which for content listed in the specification (TA3.4) is below expectations. The most common incorrect responses referred to storage media such as CD, DVD and even floppy disc.

Question 6

6 Identify the validation tool that checks for the correct number of characters during data entry.

..... [1]

Few candidates gained a mark on this question. The most common incorrect answer was range check, which does not check for a specific number of characters. This question once again, in line with previous exam sessions, shows a lack of understanding of the purpose and use of the validation tools listed in the specification. This is despite them being in the R050 unit content and required application in the NEA assignments.

Question 7

7 What does 2FA stand for?

..... [1]

Generally, this was well answered with many candidates gaining a mark for this question.

Question 8

8 Identify the type of malware that displays unwanted advertisements on a mobile device.

..... [1]

This question had a mixed response, with basically half of candidates getting it correct and half incorrect. Once again this is below expectations when this is part of the listed content in the specification (TA 4.1).

Question 9

9 Identify the legislation that covers the physical use of computer hardware for work purposes.

..... [1]

Many candidates did not gain this mark. Candidate responses imply that the question may not have been fully understood, especially the second half of the question, hence ignoring the 'physical use of computer hardware for work purposes'. This is highlighted in the most common incorrect response seen, the Computer Misuse Act. The candidates had picked up on four words – identify, legislation, use, computer. This is another area (TA4.4) where candidates need to be taught the specific details required as these are not covered in the NEAs.

Question 10

10 What is Voice over Internet Protocol (VoIP) used for?

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

Despite the term used in the question providing a clear idea about its use, most candidates did not get this question correct. The main reason for not gaining the mark was for vagueness in answers i.e. 'it's used to talk' 'it's used for phone calls'. These are not specific enough as these can happen without using the internet i.e. mobile phone calls. This goes back to the introduction of this report where lack of clarity in responses was mentioned.

Question 11

11 Which of the following is an example of an audience demographic?

Tick (✓) **one** box only.

- | | | |
|----------|---------------|--------------------------|
| A | Accessibility | ☐ |
| B | Biometric | ☐ |
| C | Pretexting | ☐ |
| D | Smartphone | ☐ |

[1]

Most candidates got this question correct. The main incorrect answer seen was not Biometric but Smartphone. This indicates either a lack of understanding of what demographics (TA5.5) are or what candidates surmise sets individuals apart from each other. Once again, the groupings are listed content in the specification.

Question 12

12 Draw a line to link the Internet of Everything (IoE) interactivity to the correct example.

You will only use **two** examples to complete this task.

IoE Interactivity

Device to
device (D2D)

Human to
device (H2D)

Example

Interaction with a digital
assistant

Creating an infographic

Laptop wirelessly sending
instructions to a printer

[2]

Many candidates gained both marks on this question correctly matching the IoE interactivity to the example.

Section B overview

This section contains a range of questions based on the context for this examination series, a wearable fitness device. 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 wearable fitness device allows a user to track their activity levels. One type of fitness device can be worn on the wrist of the user. The device can provide the user with a range of information including:

- date and time
- number of steps taken each day
- number of active minutes each day.

13 The wearable fitness device uses a Human Computer Interface (HCI).

(a) Explain the purpose of having a HCI within the wearable fitness device.

.....

.....

.....

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

Over half of the cohort picked up both marks on this question, providing an answer that explained the purpose of the HCI within the context of the wearable fitness device. Candidates who only gained 1 mark tended to provide answers that were not linked to the context of the question. While providing a use of the HCI, e.g. to show, to access, etc. they were too general in their linking to the context of the tracker.

Question 13 (b)

(b) Explain **two** disadvantages of having a HCI within the wearable fitness device.

- 1
-
-
-
- 2
-
-
-

[4]

This question was not particularly well answered with many candidates not being able to provide a disadvantage of the HCI being included within the fitness device. Many candidates did not gain marks by providing responses that were referring to the physical device rather than the HCI. An example of this was a reference to 'running out of battery because it's not being charged'. This is a hardware/device issue not related to the inclusion of a HCI and is therefore incorrect. However, candidates who explained that the 'HCI could drain the battery off the device quicker' were given marks. This is a direct disadvantage of the HCI being within the fitness device.

Exemplar 1

- 1 ~~uses the~~ Requires more memory so the device
~~is~~ will be bulkier ~~as it will need a bigger~~
 battery and chip to process commands.
- 2 ~~the~~ The device has to ~~cost~~ will increase cost
 of the device which could impact sales of the device
 so less are sold.

Response 1 gains both marks for explaining how a HCI would require more memory (which applies knowledge from TA2.2) and how this can make a device bigger which fits in the context of the wearable fitness device.

Response 2 gains both marks for explaining how a HCI will increase the cost of a device (1) so leading to less sales (1) This is a wider disadvantage which in the context of the question and that this is a vocational qualification is correct.

Question 13 (c)

- (c) Other than touch, identify **one** method of user interaction that could be used for the HCI on the wearable fitness device.

..... [1]

Most candidates gained this mark with the most common response being 'voice.'

Question 14 (a)

- 14** The wearable fitness device links to an account which can be accessed through a new website.

When a user registers and logs on to the website they will be able to see all of their fitness data and information.

- (a)** Explain **two** disadvantages **to a user** of using the website to view their personal fitness information.

1

.....

.....

.....

2

.....

.....

.....

[4]

Most candidates gained at least 2 marks on this question. Candidates demonstrated a good understanding of the disadvantages of using a website by clearly stating at least one general disadvantage. Marks tended to be lost for not relating the disadvantages to the context of the question i.e. the personal fitness information.

Question 14 (b)

- (b)** The user will input information when they log on to the website.

Describe the difference between data and information.

.....

.....

.....

..... [2]

Most candidates gained both marks on this question. Where marks were lost it tended to be for vagueness in the response that did not provide clarity over which part referred to data and which part referred to information.

Question 14 (c)

(c) Data validation will be used during the login process.

Complete the following sentence using **two** words from the list below:

- accuracy
- modification
- presenting
- processing.

Data validation checks before the data.

[2]

Most candidates gained at least 1 mark on this question, demonstrating a basic level of understanding of the data validation process.

Question 14 (d)

(d) After a user has logged into the new website they can change how the website's homepage will look each time they log in. The user can choose what information they want to see about their activity each day.

The information that can be shown includes:

- their name and photograph
- the number of steps taken that day
- the number of active minutes that day
- the amount of sleep they had that day.

Create a wireframe to plan the layout and content for the user's **homepage**.

Marks will be awarded for:

- content
- layout.

[8]

Most candidates gained at least a Level 2 response on this question, including all the information content in the bulleted list in the question. Marks were lost by candidates where they did not read the question fully and produced either a visualisation diagram rather than a wireframe or a series of wireframes for different pages, not a single homepage.

It is concerning however, the number of responses where candidates produced an incorrect response such as a flow chart. Centres should make sure that candidates are clear in their knowledge and understanding of each design tool and its use. This is especially concerning when the design tools are used in both NEA assignments and that the R050 examination is a terminal assessment at the end of the course.

Question 15 (a)

15 Before the new website is published user testing will be carried out.

The registration page will be tested so that users can only enter:

- a valid email address
- a valid password with 8–12 characters and a mix of uppercase, lowercase, numbers
- a valid username with a minimum of 5 characters.

Complete the table with examples of what test data could be used. Justify the test data you have chosen.

Test no.	Test description	Test data	Justification
1	Valid email address		
2	Password set up correctly		
3	Valid username has been entered		

[9]

This question saw the lowest level of performance on the question paper and is linked to an issue seen in the NEA units during moderation. The Principal Moderator has commented on this in their report for this session as well. The responses seen show that candidates do not know and understand what test data is and why it is used.

Most responses seen either stated data validation techniques such as format check, range check, etc. or described a testing process.

Those candidates who did well on this question provided clear test data that could be used in the context of the question, e.g. an email address, a password or possible username. For these the candidates then stated how the system would respond to this test data, e.g. accept or not depending on whether the test data met the criteria required.

Misconception



Test data is a specific piece of data that can be inputted into or outputted from a system to check that the system works correctly. For example, entering 'nameATmyemail' this would be rejected as invalid as it does not comply with an email structure.

Exemplar 2

Test no.	Test description	Test data	Justification
1	Valid email address	... @gmail.com	so information can be sent to them regarding different things.
2	Password set up correctly	ln3#k3nb/H!	meets character requirement, and contains multiple types of data so its harder to guess.
3	Valid username has been entered	chicken nugget13	a username specific to them, easier to connect with others randomised (?) so each person is different

Test 1: One mark for a valid example of test data (1)– the candidate has not included a 'real name' on the email, but we can imply what the candidate means with their answer. The justification is incorrect as it is not concerned with the use in testing but using an email for communication.

Test 2: A possible complex password is provided, that could be used as test data (1). Then the justification clearly states why this would be used as it meets the conditions provided in the bulleted list. (2)

Test 3: A valid possible username is provided (1). However, the justification is incorrect and not worthy of credit.

Question 16 (a)

16 Users will be able to access the website on different devices.

(a) Identify **two** characteristics of smartphones that make them suitable for accessing the website.

- 1
-
- 2
-

[2]

Most candidates gained at least 1 mark on this question, which is pleasing when the question only asks for characteristics to be identified/stated, not described.

The main reasons for marks being lost were responses that were too vague in their construction or contained content that was not relevant to the question context. The characteristic of 'portability' is not relevant to being suitable to access the website. The prevalence of smartphone ownership, also stated by many candidates, is not a characteristic of a smartphone.

For future sessions, candidate should be encouraged to read the questions fully, consider the context and then be specific in their response.

Question 16 (b) (i)

(b)

(i) Explain how a username and password will help keep the user's personal fitness information secure.

-
-
-
- **[2]**

While most candidates gained at least 1 mark on this question, the responses tended to be poorly worded. Candidates were required to imply more from the responses than should be the case. Candidates who gained both marks were clear in their explanation of how the use of **both** the username and password are required to gain access.

Question 16 (b) (ii)

(ii) Other than usernames and passwords, identify **two other** logical prevention measures.

1

2 [2]

Most candidates gained at least 1 mark on this question. Marks tended to be lost for repeated measures being provided, e.g. Biometrics and facial recognition or 2FA and email code.

Question 17 (a)

17 The manufacturer of the wearable fitness device is designing an upgrade. It wants to collect data from the registered users about what improvements they would like to see.

The manufacturer will use an online survey to collect this data which will be stored in the Cloud.

(a) Explain **one advantage to the registered users** of an online survey being used to collect this data.

.....

.....

.....

..... [2]

Only just over half of the cohort managed to gain a mark on this question. This came down to two main reasons. The first was that answers were too vague in their response not providing a clear point about how the advantage stated relates to the registered users.

However, the major reason for marks being lost on this question was candidates not reading the question fully and providing responses more in line with Question 13 (a) from June 2024. While the use of past papers is a sound examination preparation technique, candidates need to make sure that they read the question in front of them fully. Responses seen were for more about how the company benefits from gathering data efficiently, rather than the registered users. This is despite the use of emboldened text in question.

Question 17 (b)

- (b) The survey will include images sourced from other websites. These will be used to show ideas for future upgrades.

Describe **two** actions that will need to be taken to comply with the Copyright, Designs and Patents Act.

- 1
-
-
-
- 2
-
-
-

[4]

Most candidates gained at least 2 marks on this question demonstrating a sound level of understanding of how to comply with the CDP Act. Candidates who did not gain marks often referred to the manufacturer of the fitness device being the owner of the images and not sourcing the images from elsewhere. Once again, this comes back to candidates reading the questions fully.

Question 17 (c)

- (c) Identify **two** disadvantages **to the manufacturer** of storing the data in a cloud storage location.

- 1
-
- 2
-

[2]

This question was generally well answered with most candidates gaining at least 1 mark. Candidates who answered the question well were specific with the risks of using cloud storage i.e. increased risk of hacking, requirement for internet connection. Those candidates who did not do as well showed a lack of understanding of how cloud computing works especially in a vocational context i.e. data is lost, can't find the data among the many files. The only reason for marks being lost was for vagueness in responses, e.g. 'it's expensive.' A suitable response would be along the lines of 'monthly fee to rent the server space is costly'.

Question 18

- 18** Users are now able to share access to their wearable fitness device and website account with a personal fitness trainer.

The personal fitness trainer will use the Internet of Everything (IoE) to access the health and fitness data. The data that can be shared includes:

- when users exercise
- where users exercise
- heart rate
- number of active minutes each day.

Discuss the suitability of using the IoE to share health and fitness data with a personal fitness trainer.

In your answer you **must** consider:

- the purpose of the IoE
- the advantages of using the IoE to share health and fitness data
- the disadvantages of using the IoE to share health and fitness data.

[9]

Candidates either did very well on this question gaining 6 marks and above or did poorly gaining one or less marks. The question contained three bullet points that needed to be considered in the response. Two of these related to the context of the question, the sharing of health and fitness data. Candidates who did well on this question explained the purpose of the IoE, not just stated what it is and contains i.e. the pillars. These candidates also clearly stated the advantages and disadvantages to the context of sharing health and fitness data, either with the personal trainer or in general.

Candidates who did not gain marks did not cover all three of the bullet points and/or only stated what the IoE can share, they did not explain the advantages/disadvantages of its use in this context.

Assessment for learning



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