

CAMBRIDGE NATIONALS

Examiners' report

INFORMATION TECHNOLOGIES

J808

R012 January 2021 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 are 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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R012 series overview

Due to the current pandemic, numbers sitting the January 2021 series were very much lower than has previously been the case. However, across the cohort that did sit the examination, there were some very good performances.

It is clear that candidates are coming to grips with the demands of the Level of Response questions, with many candidates writing clear explanations. As will be discussed below, however, candidates are reminded that they should respond to the particular focus of the question, including the context, if they are to achieve full marks.

<i>Candidates who did well on this paper generally did the following:</i>	<i>Candidates who did less well on this paper generally did the following:</i>
<ul style="list-style-type: none">• Answered every question.• Based their answers on the mini scenario provided at the start of each section, including rejecting certain possible answers as not fitting that scenario.• Focused on the key words in each question, so that questions that asked for a description had a number of points made, while questions that asked for an explanation focused on why a certain factor or impact was efficacious.	<ul style="list-style-type: none">• Did not answer every question.• Did not respond to the scenario provided or gave general answers that lacked context.

Section A overview

These questions are general and not based on an overall context, although answers should be in context where it has been provided in the question.

Questions 1 to 4 and 6 to 8 were intended to be settling question, that afforded candidates the opportunity to get a few questions answered before the more demanding questions started.

These questions were generally answered very well. However, it is worth stressing that the list of demographics in the syllabus is a closed list and so only answers from that list were accepted.

Question 5

5 Describe what is meant by the term **ransomware**.

.....

.....

.....

..... [2]

This was the first of the more challenging questions. The vast majority of candidates did very well on this question. In some cases, however, they repeated the question and so stated that a ransom needed to be paid. This was not given marks, unless this ransom was exemplified.

Section B overview

The first of the scenario section was based on a clothing store. Candidates were given a clear context for the section.

Question 9

Read the scenario below. Questions 9–14 relate to this scenario.

Pro-Sportswear (PS) is a clothing store specialising in trainers and fashionable sportswear for teenagers. It currently uses a paper-based system to store sales and stock information.

PS is planning a project to convert the paper-based system to a digital system. The digital system will make sure data is automatically updated based on the sales going through the tills in the clothing store.

PS will be able to analyse the processed data to find out more about:

- monthly sales figures for the trainers and fashionable sportswear;
- top-selling products within any calendar month;
- weekly stock levels clearly identifying low stock items.

- 9 Identify **two** user requirements that would be **inputs** to the initiation phase of the project life cycle for this project.

User requirement 1:

User requirement 2: [2]

In the scenario, the candidates were given a number of clear targets for the project, ranging from converting a paper-based system to a digital system through to being able to identify top-selling products.

When asked to identify user requirements, candidates really do not need to go further than lifting the required sections from the scenario. Despite this, many candidates gave vague answers, such as “time” and “budget”, neither of which was acceptable.

The final three bullet points were so clearly identified in the scenario, that only one from the three was accepted as an answer.

Question 10

- 10 Identify and describe **one** disadvantage of using a task list as a project management planning tool for this project.

Disadvantage:

.....

Description:

.....

[2]

Many candidates were able to describe a disadvantage of using a task list, with most focussing on the lack of timing as their issue.

However, there were a number of misconceptions. Possibly the most frequently seen was that a task list lacked structure and order. As a task list is fundamentally one task followed by another, in a rigid order, it was hard to support such answers.

Question 11 (a)

- 11 (a) Identify **two** tests that could be used when testing the digital system.

Test 1:

Test 2:

[2]

This question was very much in the same vein as Question 9 and required candidates to identify two tests that matched the scenario. As with all assessment in applied courses, answers need to be based on the context of the question. Therefore, non-specific tests were not accepted, other than end user and acceptance testing.

Candidates could select a number of different tests that related to the scenario, including "Does the system automatically update", for example.

Despite this, candidates gave a range of non-specific answers, such as "how fast can the system run". At best, this is extremely vague, at worst this is a rote learned answer that has is not based on the scenario.

Question 11 (b)

(b) Explain **one** reason why **testing** would be carried out on the digital system.

.....

.....

.....

..... [2]

Candidates could choose to answer this question by stating what would be achieved by testing or what could happen if testing did not occur.

As a result, there was a wide range of acceptable answers, including testing to see that the system works and then fixing it if it does not (albeit, with a touch more context), through to explanations of the possible impact on the business if testing did not happen.

Exemplar 1

Testing would be carried out on the digital system because if PS don't test their security then they could lose everything if hacked. [2]

This candidate exemplifies a suitable response based on what would happen if testing did not occur. The candidate has identified the area that would be tested (security) and then given a further statement of why this testing would be important. The two responses together make up an explanation. This is not the best response seen, and the explanation could be better expressed, but it does represent a well-structured response that follows the “point and explain” structure required for 2 marks explain questions.

Key point call out

Please consider asking candidates to practice their explanations and descriptions. When doing so, the command word is obviously key, but so is the number of marks available. For example, if an explain question is worth 3 marks, a typical and successful structure would be to firstly identify an advantage. Then, state something more about the advantage and, finally, state why this is an advantage.

Please focus on what the candidate is being asked to explain. If it is an advantage, candidates should be stating why the identified advantage is an advantage. Where candidates begin such explanations with phrases such as “this is good because”, their explanation is often suitable. .

Question 12

- 12** Data will be automatically updated based on the sales going through the tills in the clothing store. This data will be processed, providing PS with information on sales, popular selling items and stock levels.

Discuss **how** the automated system will improve the **quality** of the data compared to using a manual method. **[10]**

.....

.....

.....

.....

.....

.....

This first Level of Response question was answered with mixed success. Some candidates gave very clear answers that clearly and directly compared automated and manual systems and their impact on the quality of data. Typically, these comparisons focused on accuracy of data. In the best cases, candidates explained how manual systems might lead to inaccurate data, and then, in a sort of “whereas” argument, explained how automated systems reduced the inaccuracy. Often, the use of “whereas” made the comparative nature of these arguments even more clear.

Other candidates seemed to misinterpret the focus of the question, and discussed an ability to identify stock levels, for example. This could be a reference to the scenario at the start of the question or could have been an impact of looking at questions set in previous sessions, where candidates had been asked to consider stock levels and ordering processes.

As with all Levels of Response questions, candidates needed to work with the context to achieve the higher marks. Where candidates discussed sales of shoes or sportswear, this context was clearly shown. However, this was not always the case and some candidates did not achieve full marks for otherwise strong responses because of this.

Question 13 (a)

- 13 (a)** The digital system has been attacked by a **rootkit**.

Describe how the **rootkit** would be a threat to the digital system.

.....

.....

.....

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

This second question on threats to the system (following Question 5 in the introductory section), provided candidates with an opportunity to show their understanding of rootkit attacks, which, arguably, represent a slightly different focus to similar questions in the past.

Some candidates did well, while many others did not. A significant number chose not to answer the question.

Question 13 (b)

- (b) Identify **one** prevention measure that PS could use to **minimise** a rootkit attack.

Justify your response.

Prevention measure:

Justification:

.....

.....

.....

[3]

Many candidates chose to give “anti-virus software” as their answer. This was not given marks. Furthermore, candidates stated that the organisation should not open unsolicited emails. This answer is not acceptable, as, without unsolicited emails, how is any modern business able to function?

Question 14

- 14 PS will provide a document for staff to refer to when using the new system.

State the **most appropriate** document for this purpose.

..... [1]

Any form of instruction document was accepted as a correct answer for this question, and a wide range of answers was given.

A sizeable minority chose to identify a **type** of software, rather than a document, for this answer.

Section C overview

The context now changed to a fitness centre. It is worth stressing that this paper was written before the current pandemic. Considering changed experiences, the original mark scheme was expanded to take account of answers that might not previously have been given or accepted.

Question 15

Read the scenario below. Questions 15–19 relate to this scenario.

Progress Fitness Centre (PFC) is a fitness and health centre. The main customer base is people who live near the centre. The centre is looking to expand its customer base and is considering how IT can be used to promote its services.

PFC is investing in the development of a mobile app enabling customers to book fitness classes, pay for membership and read customer reviews. In order to access the mobile app customers will be required to enter their personal details.

PFC wants to invite current and potential customers to an open event. The event will provide information on the services available. Customers will see exercise classes in action and have the opportunity to apply for membership.

- 15 PFC will use **social media** to promote the Centre and attract new customers.

Identify and explain **two** advantages and **one** disadvantage **to PFC** of using **social media** for this purpose.

Advantage 1:

.....

Explanation:

.....

Advantage 2:

.....

Explanation:

.....

Disadvantage:

.....

Explanation:

.....

[6]

This question was deliberately intended to be not overly challenging. Where candidates focused on the use of **social media** and the need to attract new customers, there was a range of good answers, with many candidates achieving all 6 marks available for this question.

However, some candidates focused on the mobile app that was also identified in the scenario. Where candidates did so, these answers were not given marks. Other candidates focused on the impact on customers, rather than PFC. For example, where candidates argued that social media is free to use, this is acceptable, but where candidates argued that personal data can be lost, this is not. This is irrelevant on two counts. Firstly, it is an impact on the customer and secondly, the choice to use social media is a personal one and any data loss due to accessing social media sites cannot be blamed on PFC.

Exemplar 2

Advantage 1: Wide range of potential customers

Explanation: Using social media will allow PFC to reach a large number of people because lots of people use social media.

Advantage 2: PFC will be able to post photos of the Centre and show the facilities they offer

Explanation: PFC can give people a preview of what they offer which will make people more likely to go since they have an idea of what it will be like

Disadvantage: Social media requires access to the internet

Explanation: Not everyone has access to the internet and therefore will not be able to go on to social media and access the information.

[6]

In this response, the candidate has explained two clear advantages and has been given 4 marks.

However, the disadvantage was not given marks, as this was considered to be a disadvantage to the client, rather than PFC. In such questions, responses based on "they won't be able to do it" or "it is not working" should be avoided, as they are rarely accepted.

Question 16

- 16** PFC will need to comply with data protection legislation as customers will provide personal data when using the mobile app.

Identify and describe **one** action PFC will need to take in order to **comply** with **data protection** legislation.

Action:

.....

Description:

.....

[2]

This question asked candidates to identify an **action**, rather than simply state an aspect of data protection legislation. Despite this, many candidates simply repeated aspects of data protection legislation, such as “keep data secure”. Where candidates are asked for an action, they must provide something specific, rather than nebulous. In effect, the question is asking candidates to think of an aspect of data protection legislation and then describe something they would do, in order to keep to this aspect.

In the best cases, candidates focused on the use of firewalls or encryption, for example.

It is also worth noting that many candidates chose to state why they would use, for example, encryption, rather than describing encryption. Answers of this sort were accepted on this occasion.

Question 17

- 17 Identify and describe **two** disadvantages **to the customer** of using the mobile app to book fitness classes with PFC.

Disadvantage 1:

.....

Description:

.....

Disadvantage 2:

.....

Description:

.....

[4]

As stated previously, candidates should avoid the generic “it does not work” response that is so often given in answer to questions such as this. The question specially states that candidates are using the mobile app. Therefore, it is safe to assume that the app itself is working, the user has a mobile phone, for example, and, also, has internet access. Answers based on these issues were not given marks.

Other candidates focused on the day-to-day use of mobile apps for the purpose. There were some good answers about users requiring clarification, but this not being available, while others focused on the security risk.

Some candidates focused on the need to provide personal information and how this may make customers feel uncomfortable. It should be stressed that the mobile app being discussed was not an app to join, but rather to book a session. In such a scenario, there would be no requirement to give any personal data and so these answers were not accepted.

Question 19

- 19 During the open event, PFC would like customers to see exercise classes in action. Due to health and safety considerations, customers cannot just walk around classes.

State an IT presentation method that could be used to show the exercise classes in action.

Justify the effectiveness of your chosen method.

Presentation method:

Justification:

.....

.....

.....

[3]

We expected the pandemic to influence answers and this was the question where this was most obvious. The focus on Health and Safety was coincidental, but fortuitous, in that it gave the candidates a realistic scenario on which to base their answers. As a result, presumably, of many candidate's experiences, many candidates gave one of the many online meeting platforms as their answer to this question. Such answers were accepted.

Overall, candidates did well with this question, although a few missed the final mark because their final point of justification was to repeat the question.

Key point call out

Justifications need not be explanations and can be answered with individual points. In the response below, the candidate has achieved full marks for identifying the method. The justification is then two things about presentation software that makes it suitable.

Exemplar 3

Presentation method: Presentation Software (PowerPoint)

Justification: It is able to automatically go from one

slide to another and can play videos on each slide

It can also use speakers notes to explain

what is happening and what each class is called

[3]

Section D overview

This section focused on a data collection company that worked on behalf of festival organisers.

Question 20

Read the scenario below. Questions 20–25 relate to this scenario.

A customer profiling company, Global Data (GD), collects data on the demographics of festival-goers who attend UK summer music festivals. The types of information collected include:

- musical tastes;
- accommodation choices;
- modes of transport.

GD gathers this information for a range of different purposes.

GD is carrying out a project to review the software applications it uses as the amount of data it collects increases every year.

20 GD will be using project management software.

Identify and explain **one** advantage and **one** disadvantage **to GD** of using **project management software** for the project.

Advantage:

.....

Explanation:

.....

Disadvantage:

.....

Explanation:

.....

[4]

There were some really good answers for this question. Candidates appreciated that project management software was useful in the production of plans and also that it could be complicated to use.

It is worth stressing that the question asks about the use of the software, and not about the plans.

Therefore, candidates who stated that plans could be complicated were not given marks for this aspect of their answer.

Question 21

21 Identify and explain **one** benefit to **GD** of collecting statistical data about festival-goers.

Benefit:

.....

Explanation:

.....

[2]

Many candidates missed the point about this question and focused on the use of data by festival organisers. This was intended to be a more demanding question, but the context has caught candidates out as much as the subject knowledge.

Question 22 (a) (i)

22 GD is using the following methods to collect data about festival-goers:

- interviewing festival-goers entering a festival;
- emails providing a link to an online survey stored on GD's network;
- links from social media channels to GD's online survey.

(a) (i) Identify a **mobile technology hardware** that could be used by GD to interview festival-goers as they enter a festival.

..... [1]

Mobile technology hardware is, fundamentally, hardware that is able to access the internet. Many candidates appreciated this distinction and identified tablets and other similar devices.

Other candidates identified microphones or online surveys, neither of which were acceptable.

Question 22 (a) (ii)

(ii) State **one** benefit to **GD** of using the mobile technology hardware you have identified in part (a)(i).

..... [1]

Candidates could only be given marks for this question if they also got the answer to Question 22a(i) correct. Where candidates did so, they usually got this mark. Typically, candidates focused on portability as their answer.

Question 22 (b)

- (b) Discuss the advantages and disadvantages **to GD** of using the data collection methods shown above to collect data about festival-goers. [8]

.....

.....

.....

.....

.....

.....

From a candidate's point of view, this has to be one of the most accessible Levels of Response questions in recent sessions. Candidates did extremely well here, with many dealing with each of the three methods in turn, explaining advantages and disadvantages of each as they did so. Some candidates chose to deal with the three methods as one, which was not the intention of the question, but still gave answers that included relevant explanations, and so were given marks from Mark Band 3.

As with previous Levels of Response questions, some candidates did not include context and so missed out on full marks.

Where candidates went wrong with this question, they typically focused on the data that was collected and made generic comments about data collection and accuracy. These tended to be descriptive answers, although, occasionally, the answers were so generic as to be considered to be not worthy of marks.

Question 23

- 23 GD wants to restrict some of the responses that people can provide when completing the online survey.

Identify the **most suitable** data type that could be used to **restrict choice**. Give an example of how this data type might appear in an online survey.

Data type:

Example: [2]

This question was really well answered. The requirement to give an example of how the data type would appear in an online survey gave candidates a wide scope for suitable answers, including at least one who drew out a drop-down list.

Question 24

- 24 GD's IT system could be vulnerable because the online surveys are completed through accessing its network platform. To mitigate this risk, GD will implement the following logical prevention methods:

- anti-virus software;
- authentication methods for access purposes.

Describe how each of the logical prevention methods listed above would **protect** GD's IT system.

Anti-virus software:

.....

.....

.....

Authentication methods for access purposes:

.....

.....

.....

[4]

This question was deliberately set as a low demand question and simply required candidates to state slightly more than a description of what either method did. That having been said, many candidates did simply describe both methods and gave perfectly good answers. At its most simple, authentication methods for access purposes seeks to make sure that only those who should get to the data, actually get to the data. It was pleasing how many candidates gave this simple answer and precise answer.

Question 25

- 25 Identify a **suitable** application software that GD could use to store and analyse the data collected from festival-goers.

Justify your response.

Application software:

Justification:

.....

.....

.....

[3]

Other than candidates who did not state application software (and focused on online solutions, or missed the point entirely), this question was very well answered. As with other questions requiring a justification, candidates were able to give two uses of their identified software. Typically, for databases, these were queries and holding a lot of data, while for spreadsheets these were calculations and graphs.

Section E overview

The final question asked candidates to consider why GD may sit back and reflect on their project. This question followed questions about testing and sat, fittingly, in its logical place in the examination. This is something of a concession and this single question could be placed anywhere in the paper.

Question 26

Read the scenario below. Question 26 relates to this scenario.

When the project is complete GD will carry out a final evaluation.

26 Explain **two** reasons why it is important that GD carries out a final project evaluation.

Reason 1:

.....

.....

.....

Reason 2:

.....

.....

.....

[4]

By the time the candidate reached this question, they had answered at least two questions about testing. Despite this, some candidates thought this was another question about testing and so answered very much as they had done for Question 11b.

Other candidates realised that the question was a poignant opportunity to discuss reflection and self-review. Candidates explained how a review could help point out what went well and make sure that this informed future projects (NB – where candidates also stated that it was an opportunity to reflect and learn from mistakes, this was treated as a repeat and not given marks), while others showed really good understanding of the project life cycle and explained how the evaluation allowed the project team to check back on the success criteria that were set back at the start of the project.

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