

CAMBRIDGE NATIONALS

Examiners' report



INFORMATION TECHNOLOGIES

J808

R012 January 2020 series

Version 1

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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 can be downloaded from OCR.

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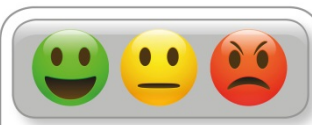
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Paper R012 series overview

This paper is intended to be a synoptic paper and so can assess topics from across the whole of the syllabus. There was some evidence that those candidates who sat this exam, having already completed the R013 coursework, were better prepared than others who had not.

This paper assesses understanding of practical issues, as well as the application of tools to differing scenarios. As a result, context, as given by the scenarios and expanded on in the questions, must be taken into account when answering questions. While most candidates do this, some still miss the focus of questions and so give answers that are unacceptable. Before attempting questions, candidates need to be clear about what they are being asked. If the question has a specific focus or has further developed the main scenario for the section (NB there is no overarching scenario for section A), candidates need to ask them why the examiner has added the particular twist in the question. This twist may result in certain generic answers being excluded.

One issue that came through from this series was that some candidates attempted to answer questions about specific items on the syllabus with generic answers. Examples of questions of this nature include questions 3, 5, 7, 8d, 11 and 19. In each case, the main term has been highlighted, so, for Q19, for example, candidates were asked to explain an advantage of **dynamic charts**. Most candidates gave answers about charts in general and so did not achieve any marks for this question. Conversely, for question 7, for example, all candidates gave answers that were specifically about **social media** (as opposed to 'media'), and so gave relevant (if not always correct) answers. Where a term is highlighted, answers should be about that term. It may be that there will be some generic answers that fit the scenario and are, therefore, acceptable, but this is not guaranteed to always be the case.

Overall, there has been a clear improvement in the factual knowledge of candidates. Section A was really well answered, as were other questions throughout the paper where factual recall was required.

Section A

Question 3

3 Identify **two** advantages of using **consumer panels** as a method for collecting data.

Advantage 1:

.....

Advantage 2:

.....

[2]

Candidates need to be aware that any line headings or prompts on the paper, are there for guidance only. Therefore, when asked to give a number of answers, as they have been here, candidates may give all answers on the same line. Where candidates are asked to identify a number of answers, the first N answers given (where N is the number required by the question) are marked.

A significant number of candidates gave answers in the form 'easy and cheap'. Where these are very different concepts, such answers are treated as having been two attempts.

Candidates need to be aware that an 'and' answer can significantly increase the challenge of a question and should only use 'and' answers where they actually want both answers to be considered as potentially different attempts.

The question itself focused on the advantages of using consumer panels. While many candidates were fully aware of the benefits of using these to gather data, many candidates gave generic answers, such as they may be used to gather data. This is an outcome of any form of data gathering and is, therefore, not an advantage of the use of a consumer panel.

Exemplar 1

Advantage 1: You can see people's facial expressions when they are describing their opinions.

Advantage 2: You can collect data about one specific group of people or a range of types of people depending on what is needed.

[2]

In this example, the candidate has given good first answer, but their second answer is about data collection in general and is not an answer that is specific to consumer panels.

Question 4

4 Identify the legislation that relates to the **misuse of personal data**.

..... [1]

Many candidates saw the word 'misuse' and assumed that the answer was 'The misuse of Personal Data Act' or 'Computer Misuse Act'.

Question 5

5 Identify **two** outputs from the **execution phase** of a project life cycle.

Output 1:

Output 2:

[2]

This question was one of many that showed that there was a good knowledge of terms and concepts across the syllabus. Markers accepted any awareness of testing and were similarly generous about 'deliverable product'. However, answers such as 'the project is finished' were too vague to be given marks here.

Question 7

7 Progress X is an IT company that uses social media to promote its services.

Identify **two** benefits to **Progress X** of using **social media** to promote its services.

Benefit 1:

.....

Benefit 2:

.....

[2]

This question was well answered by most candidates. The most frequent answer was that social media is widely used or was accessible to a very wide audience.

Unfortunately, this accessibility meant that candidates who claimed that the use of social media meant that the message was better targeted were not given the mark. It would be difficult to argue that one form of social media were more used by one socio-economic or geographical group and so this argument was not awarded.

Candidates also need to be aware that any claim that a certain process or method is 'easy' or 'quicker' without any supporting argument, is unlikely to achieve a mark. At best, these are personal opinions and should be avoided as answers.

Exemplar 2

Identify two benefits to Progress X of using social media to promote its services.

Benefit 1: ~~That~~ The services can be ~~promoted~~ found by many people who use social media so it will be effective.

Benefit 2: They can link to their website ~~so~~ so people can learn more about them and potentially purchase services.

This exemplar is from the same candidate as used for Exemplar 1.

In this instance, the candidate has focused solely on the scenario from the question and has given two good benefits of the use of social media.

Section B overview

This section focused on a specific project and included some assessment of candidates' understanding of target setting, data storage and how data may be combined to produce reports.

Progress Gaming Zone (PGZ) is a business where gamers can purchase time to use specialist computers with high-speed internet connections. Gamers can then play a range of online multiplayer games.

Gamers will be given a unique username and password to access the specialist computers.

PGZ will collect data about the amount of time gamers spend online.

The PGZ Network Manager has been given a project to develop a system that will be used to record and monitor online usage. The new system will automatically create invoices for gamers who use the specialist computers.

Head Office has requested a monthly report on the trends in online usage by gamers and the generated income.

Question 8 (a)

8 The PGZ Network Manager will set SMART targets for the project.

(a) State what the 'S' in SMART stands for.

..... [1]

Question 8 (b)

(b) State what the 'A' in SMART stands for.

..... [1]

Question 8 (c)

(c) Identify **two** SMART targets that could be set for this project.

Target 1:

Target 2:

[2]

Questions 8a, b and c went together as a group. The intention was that candidates would be able to state what two of the letters making up the acronym SMART stood for and then apply their knowledge to the targets they were given at the start of the question.

Despite many candidates answering both 8a and b correctly, relatively few appreciated that their only source of SMART targets for this project was the mini-scenario at the start of the question. Most candidates either gave generic targets, or made targets up, with only a few candidates giving targets from the mini-scenario.

Question 9

9 Identify **one** storage method that PGZ could use to store data about the amount of time gamers spend online.

Justify the storage method you have chosen.

Method:

Justification:

.....

.....

..... [3]

Most candidates identified suitable methods of data storage, although some candidates identified software types. The key point for this first part of the question was that the storage device would need to hold a lot of data.

The justification process is, at its most simple, one of identifying reasons why the identified storage method was suitable. As with all questions where a number is not included in the question (as opposed to questions such as 'give two justifications'), the whole of the answer was taken, and marks were given to the candidates best advantage.

Suitable justifications depended on the method of storage identified, but included storage capacity, as this was one of the initial discriminators between methods. Candidates who focused on this justification usually continued their justification to say that increased capacity was of benefit, as a lot of data would need to be stored. This answer fitted the scenario and was a perfectly adequate extension to the justification.

Exemplar 3

Identify **two** benefits to Progress X of using **social media** to promote its services.

Benefit 1: ~~that~~ The services can be ~~run~~ found by many people who use social media so it will be effective.

Benefit 2: They can link to their website ~~so~~ so people can learn more about them and potentially purchase services.

This answer is simple and efficient. The justification is presented as one developed argument and is clearly relevant to the scenario of the question.

Question 10

10 Gamers will be given a username and password to access the specialist computers.

Describe how usernames and passwords could **reduce** the vulnerability of the specialist computers.

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

As vulnerability is the extent to which the specialist computers could be accessed, candidates were given marks for any answer that stated or described how a password could reduce the risk of unauthorised access. This included both the concept that a password acts as an entry requirement and that a password would only be given to those who should be accessing the computers. Where candidates gave both answers, 2 marks were given.

Most candidates achieved at least one mark for this question. Those candidates who did not achieve a mark usually repeated the question, but in different words.

Question 11

11 The PGZ Network Manager is preparing the monthly report on online use and income generation for Head Office. He will create an integrated document for this purpose.

Discuss the advantages and disadvantages of using an **integrated document** for this purpose. [10]

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

There are both positive and negative points to make about this question. On the positive side, most candidates attempted the question, which is a huge improvement for this type of question, when compared to previous sessions.

However, the negative side is that most candidates, from across the ability range, did not appear to know what an integrated document was. Generic answers such as 'it can be lost' or 'it must be backed up' were not credited as these were general comments about documents in general. Where candidates did answer the question well, it would appear that these had already completed the coursework element of the course and so could speak with a degree of experience, having used integrated documents in their reports.

This commentary could now go on to discuss the different techniques that may be employed to answer extended answers but seems more relevant for Question 18d which did not pose such a challenge.

The main reflection point for this question is that questions may be asked from across the syllabus. This paper is intended to be a synoptic paper, completed at the end of the course, and it would appear that candidates who had completed their coursework before attempting this paper did better in this question.

Section C overview

This section focused on a wholly new scenario, which was not a continuation of that used in Section B.

The focus here was on the development of an app. Candidates were assessed on their ability to identify success criteria from a scenario, as well as testing and some aspects of cyber security.

Pro-Taxis (PT) is a taxi firm which is used to pick up customers and take them to their destination. Customers will phone PT to make a booking for a taxi. This data is currently recorded on a paper schedule plan.

The IT Manager at PT has started a project to digitally collect, store and sort data about its customers and their bookings.

PT is also looking into using mobile technology by developing a mobile app that customers can use to book a taxi rather than phoning PT direct.

To register to use the mobile app, customers will have to enter their phone number and their name and address.

Question 12 (b)

- (b) Explain **two** reasons why a database software application would be **more** appropriate than a spreadsheet software application for storing customer details.

1:

.....

.....

.....

.....

2:

.....

.....

.....

[4]

This was another question where candidates who had completed the coursework element of the course had an advantage, as they would have been required to consider the relative advantages of spreadsheet and database software when doing so.

The question itself was looking for features that are available with database software but are not for spreadsheet software. Some answers which were not unique to databases, but where an appreciation of the lack of uniqueness was beyond the level of the qualification, were credited. Validation, for example was accepted as despite this being possible in both software types, it is one of the headline features of databases.

Question 12 (c)

(c) Identify and describe **two** drawbacks to PT if inaccurate data is entered into the database software application.

Drawback 1:

Description:

Drawback 2:

Description:

[4]

This question was answered with mixed levels of success. A small minority of candidates focused on drawbacks to customers, whereas others opted for more developed outcomes.

In a question such as this, candidates must consider the initial, direct effect of the scenario outlined in the question, rather than go straight for indirect effects. Some candidates, for example, commented that if there was inaccurate data, this meant that addresses might be incorrect and, therefore, customers may not be picked up. This answer is clearly focussing on a direct effect of inaccurate data. Acceptable descriptions of the drawback included a lack of consumer trust or, eventually, the taxi firm going out of business. A lack of consumer trust of the taxi from going out of business are clearly indirect effects of the inaccurate data, and so could only be accepted as expansions.

Question 13

13 Identify **two** success criteria that **PT** would need to consider when reviewing the **effectiveness** of the mobile app that customers use to book a taxi.

Success Criteria 1:

.....

Success Criteria 2:

.....

[2]

This question was answered extremely well by virtually all candidates. Candidate tended to concentrate on whether the app was easy to use, or whether it did what it was intended to do.

A small number of candidates missed the focus of the question – which was the app’s effectiveness when booking taxis, and so suggested that one success criteria was how quickly a taxi arrived once ordered. As this was affected by many variables, not least the weather or how many other customers were also requesting taxis at the time, this answer was not accepted.

Exemplar 4

Identify **two** benefits to **Progress X** of using **social media** to promote its services.

Benefit 1: ~~That~~ The services can be ~~pay~~ paid by many people who use social media so it will be effective.

Benefit 2: They can link to their website ~~so~~ so people can learn more about them and potentially purchase services.

This candidate’s work was also used for Exemplar 3. Again, the candidate has been efficient in their answer, which is well expressed and leaves no room for doubt about the candidate’s knowledge and understanding of this area.

Question 14

14 The IT Manager needs to test the mobile app.

Identify the **two** phases of the project life cycle which include the **test results**.

Phase:.....

Phase:

[2]

The extent to which candidates achieved at least one mark, with many getting both, was a really pleasing aspect of this paper. While not the most technical of questions, the fact that so many candidates did well here, represents a clear improvement in the overall standard of the candidates assessed.

Question 15 (a)

15 Testing of the mobile app was successful. The mobile app can now be used by customers.

A customer is using the mobile app over a public wireless network when PT's server is hacked.

(a) Identify and describe **one** possible consequence **to the customer** of this cyber-security attack.

Consequence:

.....

Description:

..... [3]

This question was also answered very well. Other than a small minority who focused on the taxi company, most candidates identified and described one possible consequence, with many achieving all full marks.

In order to describe a consequence, candidates could either state what the consequence and then develop one theme or make two individual points which explained why it was a consequence.

Exemplar 5

Identify **two** benefits to Progress X of using **social media** to promote its services.

Benefit 1: *The services can be paid by many people who use social media so it will be effective.*

Benefit 2: *They can link to their website so people can learn more about them and potentially purchase services.*

In a further example of a well-constructed and clear answer, this candidate has identified the consequence and then gone on to present a logical description via a development of the initial consequence. As with other examples included here, the clarity of expression here shows that the candidates fully understands this area of the syllabus.

Question 15 (b)

- (b) Identify **one** action customers could take, other than **not** using a public wireless network, to **reduce** the risk of a cyber-security attack on their mobile device.

Justify your answer.

Action:

.....

Justification:

.....

.....

..... [3]

Candidates were directed that answers about which sort of network to use were to be avoided. Despite this, many suggested answers such as 'use their own data' or 'use a VPN'.

Where candidates worked within the confines of the question, answers were generally very good. Candidates mainly focused on the use of anti-virus software, although some gave very good answers about the avoidance of shoulder surfing and other forms of physical attack.

Section D overview

This section again focused on a project and assessed candidates' understanding of benefits, drawbacks as well as considerations to do with storing data.

Progress Utility (PU) supplies electricity to over two million customers. PU estimates how much electricity it needs. If it underestimates, there will not be enough electricity for its customers.

A decision has been made that PU will launch a project to install SmartMeters (physical display units) in its customers' homes to collect hourly meter readings. The data from the SmartMeters will be automatically sent back to PU. The data will be processed allowing PU to:

- make more accurate estimates as to the amount of electricity it needs;
- provide its customers with accurate utility bills.

PU will follow the project life cycle at all times.

Question 16

16 One input for the planning phase in the project life cycle will be the feasibility report.

Identify and explain **two** benefits to **PU** of using a **feasibility report** for this project.

Benefit 1:

Explanation:

Benefit 2:

Explanation:

[4]

Script evidence would suggest that many candidates did not know what was meant by a feasibility report and so gave generic answers about reports in general.

Where candidates did know what a feasibility report was, only about half of candidates went on to explain correctly the benefits they had identified. Where candidates had done this, there were some very good answers showing real understanding. However, as indicated above, such answers were in the minority.

Question 17

17 Identify **one** software type that PU could use to schedule the work of individual project team members.

Justify the software type you have chosen for this purpose.

Software Type:

Justification:

.....

.....

..... [3]

This question was intended to assess candidates' ability to select suitable software and therefore needed to focus their answer on the list of acceptable software included in 2.3 of the syllabus. This was expanded to include database as the relevant aspects of spreadsheet software are also present in database software.

Most candidates gave spreadsheet software as their answer and then went on to give good justifications. These justifications were either single points made in support of their decision to use this software or developed answers than fully explained their choice. Typically, these answers focused on the ability to create Gantt charts and how these could be used to the timings for different tasks.

Question 18 (a)

18 (a) The data from the SmartMeters is sent to PU.

Describe how this **data becomes information**.

.....

.....

.....

..... [2]

Exemplar 6

The data becomes information when it is processed and it has been given meaning, context and structure.

This candidate has given a very clear answer to the question.

Question 18 (b)

(b) The SmartMeters will increase the reliability of the collected data.

Describe what is meant by the term reliability.

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

These two questions 18a, and 18b effectively focused on definitions which candidates should know. Taken as a pair, candidates did really well on these questions, although candidates were stronger on question 18a.

Question 18 (c)

(c) Identify two considerations PU must take into account when holding customer data.

Consideration 1:
.....
Consideration 2:
..... [2]

Candidates were able to use their imagination on this question and still achieve marks. Primarily, the question was about data protection, but candidates also focused on other areas, such as where the data was to be stored, how the data was to be used and which members of staff should have access to the data. These are, arguably, all implications of data protection legislation, but were presented here as answers in their own right.
A reference to needing to be aware of GDPR or DPA was also rewarded.

Question 18 (d)

(d) PU has completed the installation of SmartMeters into the homes of its customers.

Discuss the benefits and drawbacks to PU of introducing the SmartMeters.

You **must** refer to **different types of vulnerability** in your answer.

.....

.....

.....

.....

..... [8]

Alongside the improvement in the level of factual knowledge, there has been a real and continued improvement in the way in which candidates are approaching extended answer questions.

Candidates showed a good level of understanding of the use of SmartMeters and were able to discuss benefits and drawbacks. In many cases, answers were well laid out, with clear arguments matching offsetting benefits and drawbacks. This is a clear example of good practice and makes the process of deciding on the level for each answer so much easier. In the best cases, candidates adopted the point, expand, explain approach to their answers and gave very clear and well-argued answers.

The only downside of this question was that some candidates did not address different types of vulnerability in their answers. However, this only affected the marks for those working at the top end, and then only minimally. Overall, this was a really good question to mark, with some really good answers.

Section E overview

This final section continued the focus on Progress Utility from the previous section and assessed candidates' knowledge of data collection and storage methods.

Read the scenario below. Questions 19-20 relate to this scenario.

The PU Board of Directors has asked for a monthly report comparing the electricity generated by PU with the electricity usage of its customers.

The Board has also asked that online surveys are used to gather feedback from customers on the use of SmartMeters.

Question 19

- 19 The monthly report includes statistical information. The statistical information will be presented using dynamic charts.

Explain **one** advantage **to PU** of using **dynamic charts** to present this statistical information.

.....

.....

.....

.....

.....

.....

..... [3]

Hardly any candidates knew what a dynamic chart was and so very few marks were given for this question. As has previously been stated, questions may be asked from across the syllabus and candidates need to focus on the specific term in bold when answering questions. In this case, many candidates focused on the work 'chart' and gave generic answers about charts, rather than discussing dynamic charts.

Question 20 (a)

20 (a) Identify and explain **two** advantages to **PU** of using **online surveys** to gather feedback from its existing customers.

Advantage 1:

.....

Explanation:

.....

Advantage 2:

.....

Explanation:

.....

[4]

As with other questions on this paper, candidates need to be clear what they are being asked to do before they attempt the question. This question was about the use of online surveys and not about surveys themselves. Unfortunately, many candidates ignored the fact that online surveys was in bold and gave answers about surveys themselves.

The focus here was advantages of using a survey that is online. Where candidates appreciated this, there were some good answers. Candidates, for example, identified that the use of online surveys meant that more people could complete them. They then explained that more data on a particular question meant that the answers as a whole were better representative of customers' thoughts.

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