

# CAMBRIDGE NATIONALS

*Examiners' report*



# ***INFORMATION TECHNOLOGIES***

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**J808**

**R012 Summer 2019 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. 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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## Paper R012 series overview

Performance in this series was broadly in line with that seen in the January series, but would appear to have been an improvement on that seen in the summer 2018 series.

Candidates generally seem to have been relatively well prepared for the paper, but a significant proportion are still lacking in technical understanding. This was evident in Question 12, for example.

Questions which required a technical understanding of the benefits or use of different software types were generally poorly answered.

Candidates need to take better account of the focus of individual questions. The context given by a question sometimes excludes certain answers, but can also mean that relatively straightforward responses can be well rewarded.

## Section A

### Question 2 (a)

2 You have been given a visualisation diagram to help you plan a project.

(a) Identify **one** advantage of **using** a visualisation diagram as a planning tool.

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

Candidates needed to focus on the use of this tool for planning. Therefore, they could focus on the tool as a means of sharing ideas or as a means of planning.

### Question 2 (b)

(b) Identify **one** disadvantage of **using** a visualisation diagram as a planning tool.

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

Candidates who chose to state that using such tools takes time to produce were not given marks. The response to this question needed to be a specific disadvantage of the use of such tools. Typically, candidates identified possible complications caused by complex projects or a lack of timing included as their issues.

### Question 3

3 You have collected information from a client.

What is meant by the term information?

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

This question split candidates evenly. Many stated that information is data with context and meaning, but others gave descriptive responses about data being names and other such items. Descriptive responses were not given.

### Exemplar 1

Thier personal details

This response is an example of the type of response that was not given here.  
Many candidates gave more complex responses that were, nonetheless, fundamentally the same as this one, and did not give a definition of the term.

### Question 4

4 A project manager needs to take electronic files to a meeting with a client.

What physical storage **device** could the project manager use to take these electronic files to the meeting?

..... [1]

Most candidates appreciated that this question was about the transfer of files and gave responses accordingly.  
However, a minority simply wrote 'USB'. USB on its own is highly unlikely to be a suitable response for any question on this paper.  
Candidates need to learn and be able to differentiate between, a range of different storage devices.

### Question 6

6 A denial of service (DoS) cyber security attack has been carried out on the website of an online shop.

What is meant by the term DoS?

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

This question was answered well by a fair number of candidates. However, others attempted to play it safe by giving generic responses about machines not working.  
To be given a mark, candidates needed to be aware that access to a machine or service was blocked, rather than a system being hacked.  
Answers stating that users were locked out of a system were not accepted.

## Question 7

7 A sports centre has created a website to present information to its target audience.

What **type** of visibility does an external website give to its target audience?

..... [1]

Only the very small minority of candidates achieved this question.
--

## Section B

### Question 8

Read the scenario below. Questions 8–11 relate to this scenario.

A bank operates through high street branches and online services. Most of its customers are small businesses who visit the branches and use the online services.

The bank must protect the security of customer data at all times. This involves securely destroying customer data that is no longer required.

The bank helps customers to keep their business data safe by sharing advice through its website and by providing leaflets in its branches. It also uses *YouTube* as a distribution channel for sharing cyber security advice with customers. These *YouTube* resources are accessible via links on the bank's website.

The bank creates a monthly report on the cyber security attacks that have been identified and prevented. This report includes data on the type of cyber security attack, its seriousness, the date and time of each attack as well as the total number of attacks for that month.

- 8 There has been a recent cyber security attack on the bank.

Discuss the possible **financial** consequences of this attack on the business customers. [8]

Many candidates missed the point of this question and focused on the impact on the bank itself, rather than business customers of the bank.

Others also missed that the focus was on financial impacts and focused on data impacts instead.

Candidates who stated that the bank would have to pay compensation to the customers were not given credit, as this was not a financial impact on business customers.

Given these exclusions, there were some very good responses. Candidates focused on a range of issues, including the theft of data or the inaccessibility of the bank during the cyber security attack. Candidates were then able to develop these points into good explanations of the impact of these on customers.

## Exemplar 2

Firstly due to the bank breaching <sup>the</sup> data protection act by not securely storing the data, the customer would be likely to receive compensation. On the other hand, the attack could mean that the customer's private data is leaked or stolen. This could dramatically affect the business's profits as they may find their money is vulnerable to being stolen. If the money is taken from these businesses then many of them may find it difficult to continue to operate and therefore might be forced to close due to debt. In addition, the attack may result in the bank being out of operation for a while. This means the customers will not be able to use its services like taking out a loan or withdrawing money which yet again may be of an inconvenience to the customers and could affect their ability to manage their finance. This may mean the businesses can't provide for their customers resulting in more damage to profits.

This is a very good example of a candidate who has responded to the question well.

The start of the middle section is vague, as it talks about business customers' private information, but overall it is clear that the response is about business customers and their information.

The expansion of the response is a clearly argued, discussing the impact of the loss of access to the bank and how this would affect the business itself. The response is generally well explained and precise.

### Question 9

9 The bank needs to securely destroy customer data that is no longer required.

Identify and describe **one** physical destruction method that could be used to securely destroy customer data.

.....

.....

.....

..... [2]

The syllabus for this qualification includes a range of different types of destruction methods, including physical methods. Answers to this question had to be restricted to the listed physical destruction methods.

Magnetic wipe is not listed as a physical destruction method, and so was not accepted.

Many candidates gave an acceptable destruction method but were then able to describe the process. Instead candidates chose to explain the impact. This was not required and so description marks were not given.

Where candidates gave a description, such as hitting with a hammer (1<sup>st</sup> mark), a simple statement that this broke the device into small parts was sufficient for a second mark to be given.

### Question 10 (a)

10 The bank uses *YouTube* to share cyber security advice with customers.

(a) Explain **two** advantages of using *YouTube* to share cyber security advice with customers.

1 .....

.....

.....

.....

.....

2 .....

.....

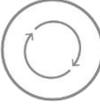
.....

.....

[4]

Questions such as this require candidates to focus on the medium (YouTube) and so responses had to reflect a feature of YouTube, rather than general features to do with video or web-based resources.

YouTube gave many candidates plenty of features to explore, ranging from the fact that YouTube *includes* video, which itself is more engaging, through to YouTube being massively popular, and so more users would see the message.

	<p><b>AfL</b></p>	<p>A common issue with features that use the internet is that candidates claim the resource is always available, or accessible from anywhere.</p> <p>Such responses are not acceptable as this is not always true and requires both an internet connection and that the host server is online.</p> <p>A response that states that a piece of software (or other resource) is easy to use is not accepted. The need for training is a theme within the syllabus and therefore such claims are not accepted.</p>
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**Question 11 (a)**

11 The bank creates a monthly printed report on cyber security attacks.

(a) Identify **one suitable** method for presenting the data on cyber security attacks in the monthly printed report.

..... [1]

The focus of this question was on the creation of a resource to include in a printed monthly report.

A large majority of candidates did not appreciate this and focused on the presentation aspect of the question. Therefore, very few candidates were given marks for this question. As with Question 10(a), candidates needed to make sure that their response matched the context of the Question.

### Question 11 (b)

- (b) Explain **one** advantage and **one** disadvantage of the method you selected in **part (a)** for presenting the data.

Advantage .....

.....

.....

Disadvantage .....

.....

.....

[4]

This response followed on from 11(a) and so could not be given unless 11(a) was itself given marks.

Where candidates had stated that a chart or table was the best method for 11(a), a fair proportion were able to give reasonable responses to this question. However, many candidates gave extremely vague responses, including claims that charts or tables were easy to produce.

Valid points included charts making large quantities of data easy to view, but care must be taken when large quantities of data are being presented, as they could become confusing. Another valid disadvantage would be the audience is not experienced in interpreting the charts.

Candidates could have presented both responses and been given marks.

### Exemplar 3

- (b) Explain **one** advantage and **one** disadvantage of the method you selected in **part (a)** for presenting the data.

Advantage ..... You can add text and write  
 a report of the attack. You can describe  
 it in words.  
 .....

Disadvantage ..... It may be unclear if there  
 is too many words and may be unsure  
 of what is being said. It might become  
 too complex on what is being said.  
 .....

[4]

This candidate has identified one advantage, with no expansion.

However, there is a fair attempt to identify and explain a disadvantage. The addition of 'therefore' between the main point ('it may be unclear if there are too many words') and the follow on ('unsure of what said'), would have improved the overall effectiveness of this second answer, but overall, this was just sufficient for two marks to be given for the explanation of a disadvantage.

## Section C

### Question 12

Read the scenario below. Questions 12–15 relate to this scenario.

Coventry Parking (CP) operates railway station car parks in the West Midlands. CP has set up a project team to provide customers with more payment options when using the car parks.

Currently, all customers buy a car parking ticket from a machine using cash. The new payment system will enable customers to enter and exit a car park using a contactless credit or debit card. Customers will drive in, tap their card on the contactless reader on the entry column which will allow them to enter a car park without a ticket. On leaving the car park customers will tap their card again, the correct fee will be calculated and payment will be taken automatically.

The project team carries out market research with existing CP customers to establish whether they would use this new parking system.

- 12 The project team is planning the design of the new payment system using the planning tool shown in Fig. 2.

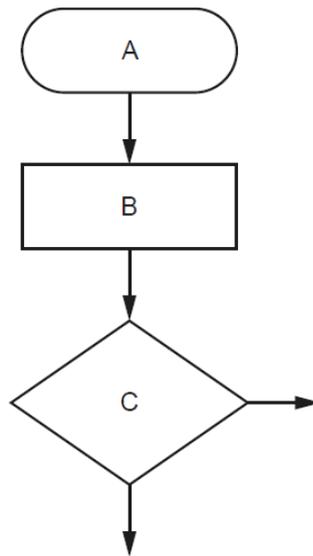


Fig. 2

Identify the **three** components shown in Fig. 2.

A: .....

B: .....

C: .....

[3]

The use of flow charts for planning is a key part of the R013 Unit. Therefore, candidates should be practised at using these tools.

Unfortunately, relatively few candidates were able to identify all three components, with a significant minority stating that they were an oval, a rectangle and a diamond shape.

### Question 13 (a)

13 The project team carries out market research with existing CP customers to identify whether they will use the new payment system.

(a) Describe **one** way that email could be used to support the collection of this information.

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

This question is of the same style as 10(a). The question could have been written as 'email will be used to collect this information. Describe one way that email could be used for this'.  
Where candidates appreciated this focus, they were able to give relatively straight forward responses that fully met the demands of this relatively low demand question.  
For example, candidates could state that an email could be sent with a link to a questionnaire, to which customers responded.  
There is no mark here for stating that an email can be used, but the response identifies a method with which email could be involved, and how information can then be collected.

#### Exemplar 4

The team can send online surveys through email that their customers will answer to find out whether they would use the new system or not. [2]

This is a good example of how a straightforward response to this question can be given two marks. This is an effective description of the use of email to support the gathering of information.

### Question 13 (b)

(b) Explain **one** advantage to **CP** of using email to carry out this market research.

.....

.....

.....

..... [2]

This question was not linked to 13(a) and so could be given if 13(a) was not given.

Most candidates focused on the fact that emails could be sent to many people **at the same time** and were given marks.

This response is, however, different from an email being sent to many people (this is equally true of letters). Once a candidate had identified that an email could be sent to many people at the same time, the expansion was relatively straight forward, such as stating that this would save time.

### Exemplar 5

*..... Cheaper as you do not need to print out physically  
 ..... copies of a market research tool which costs money  
 ..... and time to the data collector.  
 ..... [2]*

This response shows how a vague response can be turned into a good response. The identification of 'cheaper' as an advantage is rarely sufficient. However, the candidate has fully explained why this method is cheaper. Had 'cheaper' been given on its own, no marks would have been given.

### Question 13 (c)

(c) Explain **one** disadvantage to **CP customers** of being asked questions about the new payment system by email.

.....

.....

.....

..... [2]

This question challenged most candidates. The disadvantages of being asked questions by email must focus on the use of the medium itself, leading to the customer's views not being heard.

Where candidates stated that customers may not have an email, or would choose to ignore the email, marks were not given. Customers without an email, would not have been sent an email, while any choice to ignore it was not linked to the medium.

Where candidates focused on emails going into a spam folder, or that emails require bandwidth to access, marks were given.

### Question 14 (a)

14 The new payment system goes live. A week later, a cyber security attack takes place that causes disruption to the **operation** of the new system.

(a) Explain **two** impacts this disruption could have on the customers who use the car parks.

[6]

Previous questions on this paper have focused on attacks on the data held by a system. This question focused on an attack on the **operation** of the system. For example, the barriers were affected, or the payment system was out of operation.

While some candidates missed the focus of the question and gave responses to do with data loss, many candidates gave some really inventive responses that were fully acceptable.

Some explained why customers cars would be locked into the car park, or why customers may be faced with the wrong fee when they came to pay, or even how a customer may have to defend themselves in a court case for non-payment of parking fees.

These, along with those who explained that alternative provision would need to be found in the **short term** (as opposed to customers who chose never to use the car park again, which was unacceptable), were all given marks.

### Question 14 (b) (ii)

(ii) Identify and describe **one** logical security method that could be used to keep the data held in the payment system secure.

.....  
.....  
.....  
.....  
.....  
.....  
..... [3]

While some candidates chose to focus on physical security methods, most attempted to response by describing logical methods.

Use of the cloud as a storage system alone, was not accepted, but where a candidate stated that the use of the cloud would enhance backup, this was acceptable.

## Question 15

15 At which point during a stage of the project life cycle does an iterative review happen?

..... [1]

Very few candidates appreciated that this question was about a point during a stage and, instead, gave responses about stages.

## Section D

### Question 16 (a)

Read the scenario below. Questions 16–18 relate to this scenario.

A project team has been given the task of creating and implementing a loyalty scheme that customers can join for a new supermarket chain. Customers will join this scheme through the supermarket website. They will be given a unique reference number and password to log into their account. The supermarket will store all information about the loyalty scheme on a cloud storage system.

Loyalty scheme members will receive a loyalty scheme card which contains a barcode showing their unique reference number. The loyalty scheme will allow customers to collect points and receive discount vouchers. Customers will need to agree to the supermarket recording data on their purchases. This data includes time and date of purchase, items bought, prices paid and the store location. To earn points, customers must have their loyalty scheme cards scanned at the checkout. For online shopping they will need to type in their unique reference number to earn points.

16 (a) Explain **two** advantages to the project team of following the project life cycle when creating and implementing the loyalty scheme.

1 .....

.....

.....

.....

.....

2 .....

.....

.....

.....

.....

[4]

As with other contextualised questions on the paper, candidates had to identify why the use of a structured planning tool, the project life cycle, would be beneficial to the project team.

The project team itself was taken as widely as possible to help all working on the project, but responses had to be focused on the process of creating and implementing the project. Therefore, candidates who focused on a final product, for example, were not given credit.

However, those who focused on the phases of the cycle, or on the efficiency of the cycle itself, gave some really good responses.

Those candidates who claimed that the use of the project life cycle guaranteed a successful outcome, or an outcome by a specific date were not given marks, as this claim is not correct.

### Exemplar 6

2 Using a project plan in the execution phase to identify issues would help the team as they will be able to spot any possible issues with the loyalty scheme. [4]

This is an example of a candidate who has given a vague response that was not sufficient. The candidate had already given a fairly reasonable response to the first part of the question, but this second response is lacking in clarity. In order to focus on one phase of the cycle, they need to be clear on what is achieved, and then expand to explain how these issues will be identified.

### Question 17

17 State **one** reason why a cloud storage system would be an appropriate method to store the information about the loyalty scheme. Justify your response.

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

Candidates could focus on any information that may be held about the loyalty scheme but did need to work within the parameters of this information being stored on the cloud. Some candidates appreciated that there would be a great deal of information generated by the loyalty scheme and so the ease with which extra storage could be accessed or purchased was a positive feature of the cloud. Others focused on the accessibility of the cloud, although those who stated that the cloud was available anywhere, or easily, were not given marks unless they further qualified their response.

### Question 18

18 Data will be collected when customers use their loyalty scheme card.

Discuss the advantages and disadvantages **to the supermarket** of using the loyalty scheme card to collect data about customers and their spending patterns. [10]

The focus of this question was the collection of data from customers when they use loyalty cards. Therefore, candidates were expected to discuss, as advantages, the relative ease and efficiency with which data could be collected and processed, or, as disadvantages, the impact of Data Protection Legislation.

Relatively few focused on these areas, but instead chose to focus on the impact that having this information had. Therefore, they argued that this data meant that spending patterns can be analysed and future patterns predicted, with a linked impact on sales revenue or profit. As these responses were an outcome of the data being collected, these were accepted.

However, where candidates focused on the impact of the use of loyalty card schemes, with no discussion of data, this was not acceptable and so candidates were restricted to marks from MB1.

Irrespective of the context issue, the structure and quality of candidates' responses continues to improve.

Many candidates gave excellent explanations of the issues involved. The improvement in the quality of responses on these sorts of questions is a real positive of the work seen this session.

## Section E

### Question 19 (a)

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

Following the successful launch of the loyalty scheme, a monthly newsletter is to be created for loyalty scheme members. Two members of the project team have been given four weeks to create the first edition of a 16-page newsletter for the supermarket. Desktop publishing (DTP) software will be used to create the newsletter.

- 19 (a) Identify and explain **one** reason why the project team may **not** use project management software to plan the creation of the monthly newsletter.

.....

.....

.....

.....

.....

..... [3]

Many candidates appreciated that this project was a relatively small one and so the use of project management software was not needed, although not all expressed their responses clearly.

Some candidates misinterpreted the question as asking why project management software, rather than Desk Top Publishing software would be used.

Where these responses **clearly** focused on the dismissal of project management software as a means by which a page or a document could be designed, marks were given. However, where the response was in the nature of 'because project management software does not have the necessary tools', this was treated a response that was too vague.



### Question 20 (b) (i)

- (b) (i) Identify **one** piece of legislation that will protect customers when their stories are published in the monthly newsletter.

..... [1]

This question was not answered well, with a little over half of all candidates giving a suitable answer.

### Question 20 (b) (ii)

- (ii) State how the piece of legislation you have identified in **part (b)(i)** will protect customers.

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

This question could not be given if 20(b)(i) was not given.

The question allowed candidates to link the legislation they identified in 20(b)(i) to a positive outcome.

Where marks had been given for 20(b)(i), candidates were generally able to identify a form of protection.

However, it must be impressed on candidates that they should avoid absolute claims for such responses. Copyright Law does not stop people using materials without the owner's permission, but it does state that permission should be sought.

Similarly, Data Protection Legislation does not stop private data being shared, but it does state that it should not happen, and so, personal data is less likely to be shared.

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