

CAMBRIDGE NATIONALS

Examiners' report

# INFORMATION TECHNOLOGIES

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**J808**

**R012 Summer 2022 series**

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## Introduction

Our examiners' reports are produced to offer constructive feedback on candidates' performance in the examinations. They provide useful guidance for future candidates.

The reports will include a general commentary on candidates' performance, identify technical aspects examined in the questions and highlight good performance and where performance could be improved. A selection of candidate answers is also provided. The reports will also explain aspects which caused difficulty and why the difficulties arose, whether through a lack of knowledge, poor examination technique, or any other identifiable and explainable reason.

Where overall performance on a question/question part was considered good, with no particular areas to highlight, these questions have not been included in the report.

A full copy of the question paper and the mark scheme can be downloaded from OCR.

### Advance Information for Summer 2022 assessments

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## R012 series overview

It is clear that many candidates had taken full advantage of every item of support with which they had been provided and had put a lot of work into learning the subject content.

<b>Candidates who did well on this paper generally did the following:</b>	<b>Candidates who did less well on this paper generally did the following:</b>
<ul style="list-style-type: none"><li>• answered every question</li><li>• worked with the question structure and showed good awareness of examination technique</li><li>• showed a good understanding of the topics covered.</li></ul>	<ul style="list-style-type: none"><li>• did not attempt every question</li><li>• did not take account of the particular context of the question</li><li>• misread questions, so they sometimes gave responses that were diametrically opposite to those required.</li></ul>

## Section A overview

Section A is made up of 1 and 2 mark questions. Typically, these are not based on context and are drawn from across the range of the specification.

The candidates did very well on this section overall.

### Question 1

- 1 The purpose of a critical path is to show the project activities that must be completed on time.

Is this statement **true** or **false**?

..... [1]

This question was attempted by virtually all candidates, with the majority giving the correct response.

### Question 2

- 2 Identify the data type shown in cell **D4**.

	A	B	C	D	E
1	Test Scores				
2	Student	Test 1 (/20)	Test 2 (/10)	Total Marks	
3	Amit	12	9	21	
4	Mia	15	5	20	
5	Zac	17	8	25	
6					
7					

..... [1]

The mark scheme allowed any reference to number or numerical or equivalent and many candidates achieved a mark for this question.

Where candidates gave the wrong response, this was, sometimes, by claiming that the data type was alphanumerical. However, the majority of candidates who gave the wrong response identified what the information in D4 held.

### Question 3

- 3 Complete the following sentence:

An untrue statement about a person is known as ..... [1]

The initial intended response for this question was “defamation of character”. However, the mark scheme also accepted libel, slander, lie, etc.

Most candidates were given a mark for this question.

### Question 4

- 4 An end-user receives an email requesting access to the IT system in exchange for a service to improve network speed.

Name this type of social engineering attack.

..... [1]

This was the first real challenge for many candidates and only a small minority of candidates achieved a mark here. Of those candidates who gave a wrong response, the usual response was “pharming”.

### Question 5

- 5 Identify **one** logical prevention measure that controls the files allocated to an employee.

..... [1]

This was correctly answered by most candidates. Typically, candidates who gave the wrong response, claimed that encryption was a suitable response.

## Question 6

6 Describe what is meant by an iterative review.

.....

.....

.....

..... [2]

Many candidates focused on the review aspect of the question, rather than the iterative focus. As the focus was on an iterative review, candidates who stated that it was a review of the project overall rather than a phase or a stage, were not given a mark. However, any comment about repeated checking was worth at least a mark.

Most candidates who achieved both marks focused their response on repeated checking of a phase.

## Question 7

7 A managing director wants to hold an online meeting with his managers who are based in different countries.

Identify the distribution channel he could use to hold this meeting.

..... [1]

This question was focused on VOIP or aspects thereof. Most candidates gave VOIP or a commercial example of this distribution channel.

## Question 8

8 Identify **two** system vulnerabilities which could be exploited in a cyber-security attack.

1 .....

2 ..... [2]

Candidates who realised the focus of this question and gave suitable responses, tended to do well overall in the paper. For these candidates, their focus was generally on weak passwords and weak security.

Some candidates identified “passwords” or “security software”, for example. Such responses were not accepted as these are not system vulnerabilities in their own right. Similarly, other responses included “not updating software”. This response was treated as being too vague.



## Section B overview

Section B was the start of the themed section of this paper. While previous questions were based on mini scenarios, these did not really restrict the responses that were accepted.

Progress Talent Show (PTS) is an organisation that organises talent shows. Section B focused on the creation of a website to advertise talent shows and gathering entries for these talent shows.

**Read the scenario below. Questions 9 to 15 relate to this scenario.**

Progress Talent Show (PTS) has asked a web designer to design a website to advertise its talent shows. The web designer will follow the project life cycle and will use a mind map to plan the website. The mind map will be presented to PTS.

PTS has asked that its email address is clearly shown on the website. People who want to enter the talent shows must email PTS.

PTS will then send an email containing an interactive form. The interactive form must be completed with the entry details and the email returned to PTS.

The entry details from the online form will be downloaded by PTS and imported into its database.

PTS has also asked the web designer to:

- recommend logical prevention methods that could be used to protect the stored entry data
- provide details of IT legislation that PTS needs to comply with.

When the website has been created a final project evaluation will be carried out.

### Question 9

**9** Identify **two** inputs of the planning phase for the PTS website.

1 .....

2 ..... [2]

A question such as this has been asked in most previous iterations of this paper. Candidates are expected to know how the phases of the Project Life Cycle link together, and the inputs and outputs from each.

In this instance, the question focused on the inputs into the planning phase.

Many candidates were able to identify at least one input into the phase, with many able to correctly identify two.

## Question 10

- 10 Explain **one** advantage to the web designer of using a mind map to generate ideas for the PTS website.

.....

.....

.....

..... [2]

This was the first question where candidates had to explain their response.

Most candidates knew what a mind map is and were able to give an advantage of using a mind map as part of their design process. However, few then explained how this was an advantage.

Other candidates claimed that the use of a mind map generated ideas. This was not accepted as a response.

Generally, the most significant point about the responses to the question was that very few candidates attempted to answer by writing “easier” or “quicker”. This represents a significant improvement in candidate performance.

## Exemplar 1

A mind map is easily adjustable for new ideas which is an advantage because it means that the client can get rid of anything they do not want [2]

Where candidates are asked for a specific number of answers, only that number of answers can be considered by the marker.

In this exemplar, the candidate has given a perfect response. The candidate has identified one advantage and then clearly explained why this advantage is an advantage.

## Assessment for learning



Candidates need to be wary of the use of lists in responses where they have been asked for a specific number of answers. This applies to describe or explain questions as much as it does to questions where the candidate is expected to identify or state.

Where candidates have been asked to give a specific number of answers, only that number of answers may be considered by the examiner.

However, where candidates have been asked to identify **one** item (for example) and then justify or explain it, the justify section is **not** limited by a number and so markers consider the whole answer for the justification.

## Question 11 (a)

11 The mind map will be presented to PTS using digital technology.

- (a) Identify **one** piece of **hardware** that could be used to present the mind map to PTS. Justify your response.

Hardware .....

Justification .....

.....

.....

.....

[3]

This was intended to be a relatively accessible question. While some candidates continue to confuse hardware and software, those who knew what hardware is, gave acceptable responses. The range of acceptable responses was quite wide, but the majority of candidates gave projector as their response. Having done so, the justification of the use of projectors was a relatively straight forward task.

## Exemplar 2

Hardware ~~Exemplar 2~~ paper .....

Justification your ideas will be clearly shown and your  
able to write and draw using that hardware.  
.....

.....

[3]

In questions such as these, where candidates are firstly asked to identify a solution and then justify or explain their response, candidates should be aware that if the item they identify is incorrect, they cannot achieve any further marks for that question. This includes responses where the justification or expansion are correct for the item they have initially given in answer to the question.

In this exemplar, "paper" is not an example of hardware and so has not been given a mark. The examiner has not considered the expansion, as this cannot be awarded once that first point is not given. In this instance, had "paper" been correct, the expansion would have been given at least 1 mark.

## Assessment for learning



Where candidates are asked to justify an initial response, this is best interpreted as "say why what you just said is correct". This could be as simple as identifying two points about "the thing you just said".

## Question 11 (b)

- (b) Identify **one** type of **software** that could be used to present the mind map to PTS using digital technology. Justify your response.

Software .....

Justification .....

.....

.....

.....

[3]

This question caused a large number of issues for candidates. Aside from the issue of candidates confusing hardware and software, candidates also misunderstood the focus of the question. Where candidates did understand the focus of the question, the most frequent response was slideshow software (or, a commercial example of slideshow software, to be exact).

## Question 12

- 12** People who want to enter the talent shows must complete an interactive form that is emailed back to PTS. The details from the interactive form are downloaded and imported into the PTS database.

Describe **one** advantage and **one** disadvantage to PTS of using this method to collect the data to import into its database.

Advantage .....

.....

.....

.....

Disadvantage .....

.....

.....

.....

**[4]**

This was the first example of a question where the candidates had to use context in their response and it proved something of a challenge because of that.

Candidates were told that contestants request and then receive an interactive form in order to enter the talent show. Once this email is returned, the information held within the email is then imported into the database.

Similarly, the candidates were asked to comment on the efficacy of this method to collect data. Therefore, the focus of the response had to be on the method of collecting data, rather than on storage. Therefore, candidates who focused on the inability of PTS to store the information, were not awarded.

## Exemplar 3

Advantage ..It..will...be...easier...for...the...company...to...gather...  
..the...data...quicker...insted...of...having...to...collect...  
..each...persons...data...in...person...one...at...a...time...

Disadvantage ..the...company...could...get...hacked...and...peoples...  
..information...could...be...stolen...and...used...for...  
..~~overisious~~ melisious intent.

[4]

This candidate has shown both sides. In the first section – the advantage, the candidate has given a good description of an advantage of the method of collection. This first part is well structured.

However, the second response – the disadvantage – is irrelevant, as it focused on a potential issue that would only apply after the data had been collected.

### Question 13

- 13** The web designer has recommended logical prevention measures that could be used to protect the stored entry details.

Discuss logical prevention measures that could be used.

Your response **must** include how the logical prevention measures will reduce the risk of a cyber-security attack on the stored entry details.

.....

.....

.....

.....

.....

..... [10]

Candidates coped extremely well with this question. Many clearly understood what was meant by logical prevention measures and were able to easily explain how these reduced the risk of a cyber security attack. However, candidates need to include context in their responses. Candidates need to make sure that their responses are clearly focused on the scenario of the question.

### Question 14

- 14** Identify the IT legislation that relates to PTS employees using its IT systems for long periods of time.

..... [1]

A small number of candidates gave Health and Safety legislation. Many gave the Data Protection Act as their response.

## Question 15

**15** Explain **one** reason why it is important that the web designer carries out a final project evaluation.

.....

.....

.....

.....

.....

..... [3]

This question could be answered by focusing on why the web designer as an individual should be asked to carry out the evaluation, or why the evaluation itself had to be carried out. Most candidates chose to focus on why the evaluation itself had to occur.

Candidates need to build an answer in response to questions where they are asked to explain so that they include an aspect of “because” or “therefore”. Successful responses tended to focus on the need to check that the completed project may need to be checked for errors. Extensions of this main point included the impact that an unsuccessful project may have on the reputation of the web designer or the impact of a failure to meet success criteria.



## Section C overview

In this section, the focus is still on PTS. Candidates are now told that the website has been created and the focus of this section is on that website and the process of selling tickets.

**Read the scenario below. Questions 16 to 20 relate to this scenario.**

The website has been created. Progress Talent Show (PTS) is using the website to advertise the talent shows and sell tickets online.

Customers who want to buy tickets to watch the talent shows have to provide their personal details and pay by debit card. They also have to confirm that their personal data can be stored and used by PTS. This personal data is stored in a spreadsheet.

E-tickets are sent by email. The e-tickets need to be printed out as they contain a unique bar code. The tickets are checked on arrival at a talent show.

PTS understands that it has to think about possible cyber-security attacks, including hacking on the personal data that is stored on its IT systems.

When the talent shows have ended PTS will review the data it has gathered about the people who watched the shows. PTS employees will use a task list to plan the activities that will be needed to carry out the review.

### Question 16

**16** Identify a suitable device to read the bar code on the e-tickets.

..... [1]

Most candidates gave a correct response for this question.

Where candidates gave a wrong response, this tended to be "sensors".

## Question 17

**17** PTS needs to think about the hacking of the stored data. Hackers can manipulate or modify data.

Describe the difference between data manipulation and data modification.

.....

.....

.....

..... [2]

Very few candidates were able to describe either of these two concepts, and so, even fewer gave comparisons.

## Question 18

**18** Explain **two** benefits to PTS of using the personal data it has collected from customers who have bought tickets.

1 .....

.....

.....

.....

.....

2 .....

.....

.....

.....

..... [4]

This question required candidates to deal with a number of different concepts and brought out a few issues.

Firstly, candidates were asked to discuss the use of data. A small proportion focused on how the data is gathered, rather than how it is used.

Secondly, the question focused on collection of personal data and, thirdly, stated that this was customers' personal data. A significant proportion of candidates missed these two final foci and so talked about collection of data from performers, or on general data, rather than personal data.

Of those who did correctly answer the question, the majority generally talked about the use of personal data to identify patterns in the customer base in the ability to advertise directly to that customer base.

## Question 19

**19** The personal data of customers is stored in a spreadsheet.

Identify **two different** types of charts that could be used to present the data stored in the spreadsheet.

1 .....

2 ..... [2]

This question had a specific focus, which was the presentation of data stored in a spreadsheet. Due to the lack of specificity of the question, any chart that could be produced in a spreadsheet was acceptable.

Some candidates appear to have responded to the word chart by incorrectly identifying Gantt and PERT charts.

## Question 20 (a)

**20** PTS staff use a task list to plan the activities needed to carry out the final review.

(a) Identify the software type that could be used to create the task list.

..... [1]

Virtually any software type was acceptable and most candidates gave an acceptable response.

## Question 20 (b)

(b) Explain **one** advantage to PTS of using a task list to plan the activities needed to carry out the final review.

.....

.....

.....

..... [2]

Most candidates knew what a task list was, how it could be used and could therefore identify an advantage of using one.

## Section D overview

As is usually the case, the final sections of the exam focused on a different context. In this case, Ski Progress, an organisation that plans ski trips for schools.

### Question 21

Ski Progress (SP) is an organisation that plans ski trips for schools.

For each ski trip SP uses a PERT chart to plan all activities that are needed.

SP has a webpage on its website for parents to access up to date information and photographs of the ski trip. Parents access the information and photographs through the webpage.

SP is concerned with recent news about cyber-security attacks, especially from pharming. It is considering what advice and guidance to share with parents about how to stay safe online.

SP collects data from schools across the United Kingdom (UK). It will use this big data set to improve its decision-making.

**21** SP uses a PERT chart to plan all the activities for each ski trip.

Discuss the advantages and disadvantages to SP of using a PERT chart to plan each ski trip. **[8]**

A sizeable minority of candidates did not understand what was meant by the term “PERT Chart” and therefore gave incorrect responses. However, of the rest of the cohort, their ability to give well structured responses was quite striking. Many gave good descriptions of aspects of PERT charts. These responses could have been improved by giving more balanced descriptions of both the positive and negative aspects of the use of PERT charts, but overall, the improvement in performance on both Level of Response questions in this paper is a marked improvement.

## Question 22

**22** Parents access the information and photographs through the webpage.

Identify the **type** of visibility this webpage would provide to the parents. Justify your response.

Visibility .....

Justification .....

.....

.....

.....

**[3]**

While it was clear that many candidates understood the concept of visibility, very few gave the correct response.

## Question 23 (a)

**23** A parent has been the victim of a pharming attack.

**(a)** Identify **two** actions that can be taken by SP to advise parents how to reduce pharming attacks.

1 .....

.....

2 .....

.....

**[2]**

Approximately half of candidates interpreted the question as asking how parents could reduce the risk of pharming attacks and gave responses which were correct for that interpretation (albeit wrong overall). Of those who correctly interpreted the question, the majority achieved 2 marks, but some gave responses that involved the same action (such as “tell them X or tell them Y”), and so only achieved 1 mark.

### Question 23 (b)

- (b) Identify **one** IT presentation method that SP could use to share guidance with parents about staying safe online.

..... [1]

Any response that clearly involved the use of IT was accepted. Therefore, most candidates achieved a mark for this question.

### Question 24

- 24 Explain **one** benefit and **one** drawback to SP of using big data to help it make decisions about future ski trips.

Benefit .....

.....

.....

.....

Drawback .....

.....

.....

.....

[4]

Typically, “big data” is an area of the specification with which candidates struggle and this continues to be the case. Candidates gave the impression that they did not understand the distinction between “data” and “big data”. While there is a degree of cross over between these concepts, especially with the drawbacks, many candidates struggled to give advantages and disadvantages, with more candidates giving disadvantages than advantages.

## Section E overview

In this final section, candidates were asked to discuss how feedback could be gathered and used.

### Question 25

Feedback is collected from parents and teachers after each ski trip. Paper-based questionnaires are used to gather the feedback.

SP uses the feedback to create an integrated document. Different presentation methods are used in the integrated document to display the results.

- 25** Other than paper-based questionnaires, identify and describe **two other** methods that could be used to collect feedback from parents and teachers.

1 .....

.....

.....

.....

.....

.....

.....

2 .....

.....

.....

.....

.....

.....

[6]

Candidates did extremely well on this question and the vast majority were able to identify two separate alternative methods and give at least one point of description for each.

## Question 26

**26** Identify **two** presentation methods that could be used in the integrated document to display the results. Justify **each** of your responses.

1 .....

Justification .....

.....

.....

.....

2 .....

Justification .....

.....

.....

.....

[6]

Candidates are expected to produce an integrated document as part of their work for Unit R013 and so it was anticipated that candidates would be able to cope with this question for a far better degree than they did. The specification includes a list of acceptable presentation methods, for use in an integrated document.

Many candidates did not answer the question, and of those who did attempt the question, many focused on the word “presentation” and gave presentation software, or commercial examples thereof.

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