

CAMBRIDGE NATIONALS

Examiners' report

INFORMATION TECHNOLOGIES

J808

R012 January 2022 series

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Copyright

Introduction

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

The reports will include a general commentary on candidates' performance, identify technical aspects examined in the questions and highlight good performance and where performance could be improved. A selection of candidate responses 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

As the first series after the pandemic, this was a pleasing performance by the cohort as a whole. 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.

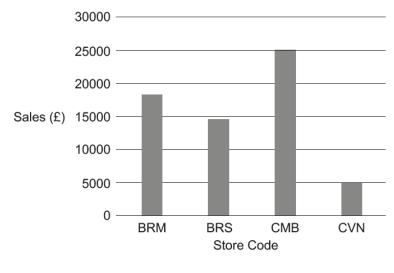
Candidates who did well on this paper generally did the following:	Candidates who did less well on this paper generally did the following:
 Attempted every question Worked with the question structure and showed good awareness of examination technique Showed a good understanding of the topics covered. 	 Did not attempt every question Misread questions, so they sometimes gave responses that were opposite to those required.

Section A overview

As is always the case with this examination, Section A included a number of stand-alone questions intended both to assess candidates' understanding of relatively simple concepts, and to provide a number of questions that were not overly taxing and, thereby, provided candidate with an opportunity to relax into the examination.

Candidates dealt well with this section.

Question 1



¹ Fig. 1 shows daily sales information.

Identify the software application that could be used to create this daily sales information.

......[1]

The vast majority of candidates based their response on spreadsheet software. However, many students gave examples of software brands, rather than the software type. The expectation is to use software types in examination questions.

Some candidates answered that Fig 1 was created by bar chart software. Such responses are not acceptable.

Question 2

2 What does the term 'DTP' stand for?

.....[1]

This question was poorly answered by many candidates. Candidates are expected to know common abbreviations stated in the specification (e.g. DTP, PERT, SMART, SWOT).

Fig. 1

3 Fig. 2 shows a QR code.



Fig. 2

An organisation uses the QR code for customers to scan to access a feedback form.

Identify **one** benefit to the customer of accessing the feedback form in this way.

......[1]

Many candidates stated that the process is "easy". "Easy" or "easily" is highly unlikely to be given a mark on its own. The terms "easy" or "easily" are deemed to be too vague a response. Candidates responded that the use of a QR code made things easy and so marks were not given.

However, successful candidates were able to state that the process was quicker (than typing in a web address), or that the use of a QR code meant that the form could be opened on a Smart Phone (through a QR code reader).

Exemplar 1

3 Fig. 2 shows a QR code.



Fig. 2

An organisation uses the QR code for customers to scan to access a feedback form.

Identify one benefit to the customer of accessing the feedback form in this way.

.Fasy	and	quick	to	access.	 	 	 	
					 	 	 [[*]	1]

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

In the example, the candidate has given two responses. The first response given is "easy". This was incorrect and so no further responses were considered. The use of "and" is taken as a very strong indication of a second response, especially in questions where candidates are asked to state or identify.

In a number of cases, candidates wrote good responses after "easy". Unfortunately, as "easy" had already been marked incorrect, these could not be marked.

\bigcirc	AfL	Candidates must be aware of the number of responses / mark points required in a question.
		Where candidates have been asked to give a specific number of responses, only that number of responses may be considered by the examiner. For example, if a candidate gives 3 responses where only 1 is asked for, then responses 2 and 3 cannot be credited.
		However, where candidates have been asked to identify one item (for example) and then justify it, the justify section is not limited by a number and so markers consider the whole response for the justification.

Question 4

4 Pressure pad sensors are used at a shop entrance. The pressure pad sensors record when customers enter the shop.

Identify one benefit of using pressure pad sensors in this way.

 	 [1]

A wide range of responses were acceptable for this question and included secondary implications of the use of the data collected by the system.

Some candidates missed that the pressure pad recorded when a customer entered the shop and assumed that the pad set off some sort of alarm or bell, so that shop keepers were aware of when a customer entered the shop. This sort of response was not accepted.

5 What is meant by the term 'grey hat hacking'?

Candidates generally did well on this question.

Question 6

6 Which one of the following would be used to develop information? Tick the correct answer. [1]

А	Information = Data + Context + Example	
В	Information = Data + Type + Example	
С	Information = Data + Context + Structure	

The majority of candidates correctly identified C as the correct response.

Question 7

7 Use a line to link each cyber-security term to its relevant impact.

[3]

Cyber-security Term

Impact

A customer's personal data is illegally accessed and used without their permission.

Data Theft

Denial of Service

Identity Theft

Fake bank accounts created

Customers may be unable to purchase goods/services via a company's website.

using personal details without the individual's knowledge.

Re-directing a user to a fake website.

A large number of candidates achieved 3 marks for this response.

Denial of Service was the most common correct answer, achieved by nearly all candidates who attempted the question. However, some candidates confused Data and Identity Theft and swapped their descriptions.

Question 8

8 Fig. 3 shows a data destruction method.



Fig. 3

Identify the method being used to destroy data securely from the hard drive.

.....[1]

The vast majority of candidates recognised that this method of destruction included the use of magnets.

Section B overview

Section B introduced Amir. Amir is a mobile developer who is currently working for Progress Performance (PP).

Amir could have been a freelance mobile app developer or an employee of PP and responses allowed for either focus.

Question 9 (a)

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

Amir is a mobile app developer. He is currently working for a company called Progress Performance (PP) which offers a range of exercise classes.

Amir is aware of customers using mobile apps to book and pay for different products and services. He wants to use this idea for PP and will need to plan for this project. Amir is considering design ideas for a mobile app and will create a prototype. He will also consider any legislation when developing the prototype.

PP has asked that its employees test the prototype and provide feedback.

Amir has told PP of the importance of securely backing up the data gathered from the mobile app.

9 (a) Fill in the blanks using an **appropriate** word selected from the list below.

[3]

|--|

Before a detailed project plan can be created in the phase

of a project a report is needed which is conducted during the

..... phase of the project.

The majority of candidates attempted this question. Of these, most correctly identified that the feasibility report was the second response. A fair proportion achieved 3 marks overall.

Question 9 (b)

(b) Identify and explain two benefits to Amir of setting SMART objectives for the mobile app project.

Candidates were able to explain the impact of setting SMART targets or the impact of aspects of SMART objectives. So, for example, candidates could state that SMART objectives meant that targets would be achievable and so the project itself could be confirmed as something that could actually be completed.

Many candidates showed good understanding of SMART targets and gave good responses.

Other candidates gave responses that were considered quite vague and not really addressing the question, such as "Amir will know what to do". These comments linked more towards a work plan.

Exemplar 2

(b) Identify and explain two benefits to Amir of setting SMART objectives for the mobile app project.

In the first benefit identified, the candidate links smart targets to a realistic project. However, the expansion does not explain that point but is rather a description of when a realistic target could be set.

The second response is clearly an explanation and so this response was given 3 marks, with the candidate receiving 3 overall.

Other candidates gave expansions that attempted to explain the benefit, by restating it. Answers such as "it is achievable so it can be achieved" are repeats of the point made and so only 1 mark was given.

Question 10

10 Amir uses a planning tool for the design of the mobile app.

Identify the type of planning tool that could be used when designing the mobile app. Justify your answer.

The syllabus includes a list of acceptable planning tools. The mark scheme was relatively generous, in that this list was expanded on. As a result, many candidates achieved at least the first mark here.

In order to justify the choice of planning tool, candidates had to consider suitability. Therefore, candidates could give one full description, or make two statements that backed up their decision.

Of those candidates who had already been given the first mark and who then went on to attempt a justification, many gave at least one suitable justification, with many gaining all 3 marks overall.

11 Fig. 4 shows a prototype of the mobile app.

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	ect [
•			JNE 2			
S 30	M 31	T	W 2	T 3	F 4	S 5
6	7	8	9	10	11	12
0 13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	1	2	3
4	5	6	7	8	9	10
			lass		 	



The prototype will be used to test the functionality of the mobile app.

Identify the phase of the project life cycle where the test results would be one of the outputs.

......[1]

Questions that ask for a phase of the project life cycle are usually well answered. However, judging by the number of crossed out and replaced responses, many candidates remain confused between the execution and evaluation phases.

12 The prototype shows how data could be entered by PP customers.

Identify the data type that is being used by customers in **Fig. 4** to select classes. Justify why this data type is a **suitable** choice for PP.

a type
lification
[3]

The first response to this question was limited to a restricted choice data type, or equivalent. Where candidates gave an acceptable first response, many then justified this choice of data type by stating that it gave a closed list from which the user could choose, and, thereby, removed the chance for random or misspelt responses.

One of the acceptable equivalent responses was a drop-down box. In a few cases, candidates identified that the data type was drop box. This was not an accepted response.

Question 13 (i)

13 (i) Amir has found some images on a website he wants to use for the prototype.

Identify the legislation that covers the use of images from a website.

......[1]

Markers were instructed to accept the word "copyright" as a minimum. Many candidates simply wrote this one word and were duly given the mark. However, it is really pleasing to see so many candidates giving the correct name of this Act.

Question 13 (ii)

(ii) Describe one way that Amir can comply with the legislation you have identified in part (i).

There were many acceptable responses for this question and the vast majority achieved at least 1 mark. Typically, candidates wrote "contact the person who created the image and ask permission to use the image", but other candidates described the use of specific searches for copy right free images or described the benefits of Amir creating the image himself.

Question 14

14 PP has asked that its employees test the prototype and provide feedback to Amir.

Explain one reason why PP employees may not be suitable to provide feedback.

[2]

This question was very well answered. Many candidates realised that this question was about the validity of information and the impact of bias. Candidate responses often included that employees might be overly positive as an impact of bias. Other responses included that employees may not be users of the gym and so their opinion was irrelevant.

15 Data collected from the mobile app will be regularly backed up by PP.

Identify and describe two impacts on PP if the data is not backed up.

This question was about the possible impact of data loss and based on syllabus area 4.3, Section 2, Consequences of a cyber-security attack. Answers could therefore be based on a range of different types of impact, such as operational or financial impacts.

Candidates did not have to use these terms in their response, but their response had to fit within these general parameters.

Many candidates focused on operational or financial impacts of the loss of data.

This question highlighted some issues with candidates' understanding of back up. Many candidates stated that the lack of a backup meant that PP was more likely to suffer a data attack. As such, these candidates seemed to regard backup as a form of front-line defence, rather than the ability to recover from an attack.

Section C overview

Section C further expanded on the prototype introduced in Section B.

Question 16

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

The owner of PP, Leo, was pleased with the prototype and decides to launch the mobile app. Customers are successfully using it to book exercise classes and have the benefit of real-time data (RTD) functionality.

PP downloads the information for the class bookings each day.

As the number of customers using the mobile app has increased, PP is considering different data storage solutions to store and access the data downloaded from the mobile app.

Customers have been advised to use physical security measures when using the app on their mobile devices.

PP is reviewing its policies to ensure it complies with all current legislation.

16 The mobile app includes real-time data (RTD) functionality. State **two** benefits to the customer of the mobile app providing information in this way.



Candidates found this question challenging. Many misinterpreted the question. The question focused on the impact of RTD functionality. Many candidates gave responses about the app in general – which therefore did not gain credit.

A small minority gave responses that focused on advantages to PP or Leo.

Exemplar 3

16 The mobile app includes real-time data (RTD) functionality. State two benefits to the customer of the mobile app providing information in this way.

1 Has live information of whether a slot is fully booked or 🛋 is there
are still places available.
2 Get instant updates on whether a session is cancelled or postponed to a
later date.
[2]

This question shows a candidate who has written 2 potential answers within the first response (1). They have then added another response in (2).

However, in (1) the words "or if there are still places available" has been viewed as clarification of the words "whether a slot is fully booked". Therefore, the examiner has not viewed this a statement of a second benefit. Therefore, this allows the examiner to consider the response written in (2).

Candidates must be careful to only state 1 benefit in each response space.

Question 17

CUST_ID	INSTRUCTOR	DATE	TIME
0051	Alwyn O'Boyle	14/11/2019	10:00
0027	Alwyn O'Boyle	14/11/2019	10:00
0106	Alwyn O'Boyle	14/11/2019	11:00
0056	Ben MacCoughlan	14/11/2019	11:00
0104	Ben MacCoughlan	14/11/2019	11:00
0057	Naira Brogan	14/11/2019	14:30

17 Table 5 shows a section of the downloaded data for class bookings.

Table 5

Identify a suitable data type for CUST_ID.

.....[1]

A majority of candidates answered this question well.

18 Customers have been advised to use physical security measures when using the app on their mobile device.

Identify one physical security measure that could be used by customers. Justify your answer.

This question focused on Section 4.4 of the syllabus. This section lists prevention measures that may be taken to protect data. These are grouped as physical measures and logical measures.

Valid responses outside of those stated in the syllabus were also accepted.

Many candidates gave good responses, with strong justifications for their identified security measure.

Candidates that did not gain marks commonly identified logical measures such as usernames and passwords.

A small minority of candidates gave responses that did not fit the context of the question, such as "keep your phone in your pocket".

Exemplar 4

۰.

18 Customers have been advised to use physical security measures when using the app on their mobile device.

Identify one physical security measure that could be used by customers. Justify your answer:

Physical security measure UNIQUE. USECNAME.	
Justification if me username is unique men	
it is difficult to guess I hadh.	
······································	•••••
	[3]

In the response above, a unique username is not a physical security measure and so has not been given a mark. The examiner has not considered the expansion, as this cannot be considered if the first point is incorrect.

It is important that candidates are familiar with command words – in this case the term "discuss". When asked to discuss a topic, candidates are expected to consider both positive and negative aspects.

The question asked for a discussion of cloud based, as well as physical storage solutions. To gain full marks candidates must have considered:

- a) Benefits of cloud based and physical storage
- b) Drawbacks of cloud based and physical storage
- c) Link (a) and (b) to the content of the question.

Many candidates did very well on this question and gave full responses that scored highly.

Some candidates wrote generic responses that were not applied to the context. This lack of context limited such responses to Mark Band Two.

Nearly all candidates who did not include context in their responses also did not consider positive and negative aspects of both.

Section D overview

Section D introduced a new scenario, based on a catering company.

Question 21

Read the scenario below. Questions 21–24 relate to this scenario.

Westwood Catering (WCA) provides breakfast and lunch for students in a school.			
It wants to collect feedback from students and installs a mobile touch screen device next to the canteen exit. Feedback will be input and transmitted wirelessly to WCA's information systems.			
Fig. 6 shows an image from the mobile touch screen device.			
Image: Constraint of the second s			
Fig. 6			

21 Explain two reasons why WCA would set success criteria during the initiation phase of this project.

 This question had two potential foci. Candidates could give a response about the reason for success criteria or focus on the fact that these are set during the initiation phase of the project. While it was more likely that candidates would focus on why success criteria are useful, at least some gave responses that relied on both types of response.

Many candidates confused success criteria with SMART targets. To a large degree, these were the same candidates who had achieved well on the earlier question about SMART targets. Typically, these candidates suggested that success criteria were part of the day-to-day tracking of projects, rather than the benchmark by which the completed project could be judged.

Exemplar 5

21 Explain two reasons why WCA would set success criteria during the initiation phase of this project.

1 Ensure the Useability of the device can be accessed by all children, including disabled children by setting ty for those areas 2 TO ensure the device functions as it is to and that the is meant to design is how it

This response has been chosen for two reasons.

Firstly, it exemplifies misconceptions about success criteria, and secondly it shows issues with examination technique.

Success criteria do not guarantee a successful project. They are solely criteria by which success may be measured.

For questions which use the command word "explain" the key word "because" is often useful. For example: (1) because it will give a set of criteria to judge to final product by.

22 WCA wants to use the mobile touch screen device shown in Fig. 6 to gather feedback from students.

Discuss the advantages of using this data collection method.

In your answer you must consider the needs of:

- the School
- WCA.

.....[8]

This question asked about the use of a mobile touch screen device as a method by which feedback could be gathered. The question was not about the benefits of having that data.

The question also only asked about the advantages of such a system.

Despite this, many candidates focused on the efficacy of the data collected, with some also considering negative aspects.

Many candidates did not understand the question's focus. This meant that many candidates wrote a great deal but did not address the core issue of why the method of data collection was a good idea.

A small number of candidates wrote about disadvantages.

Exemplar 6

this dara metho Ges γ MProc OVEner nools

This response does not deal with the method, but with the data that it collects. In effect, this response could have been written about data collected by any data collection method and is, clearly, not answering the question set.

Question 23

23 Identify **one** possible connectivity issue that could occur when downloading the information from the mobile touch screen device.

.....[1]

Overall, this question was answered well. However, a small minority suggested that the computer not working, or buffering, were suitable responses.

24 The Headteacher of the School is concerned about the data being collected on students as shown in Fig. 6.

Complete f	the	email	below.
------------	-----	-------	--------

[6]

New message			
То	info@westwoodcatering.org		
Subject	Data Collection Concerns		
Dear Cate	ring Team,		
	for the meeting today. As discussed there are concerns over the you are collecting from the students because:		
From a leg	al perspective you can only:		
A consequ	ence of using the feedback in its current form is:		
	are therefore needed before the School can authorise the use of the diffeedback.		
Many than			
Headteach	ner Send message		

Candidates were able to score more than 2 marks per section. However, to achieve full marks, at least 1 mark had to be given for each section.

This question was unique as candidates could repeat similar points in answer to each question in the email.

The first and second sections of the email were about the data that Westwood Catering is collecting.

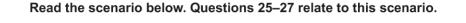
The third section was about the use of the data. Therefore, the third section was relatively general and could be answered with a fair knowledge of Data Protection or even centre practice.

Overall, there were some strong responses to this question. Some of these focused equally on all three sections, while others focused more strongly on one section than another. Typically, where there was an imbalance, more marks came from the first section.

A minority of candidates missed that the question was about excessive data collection and gave responses about students not liking food and the implications this would have for catering staff. In a few cases, these seemed to be based on real life experiences.

Section E overview

The final section of the examination focused on the use of the survey featured in Section D. Questions focused on the way in which the feedback gathered by the survey could be presented and distributed, as well as on its wider use.

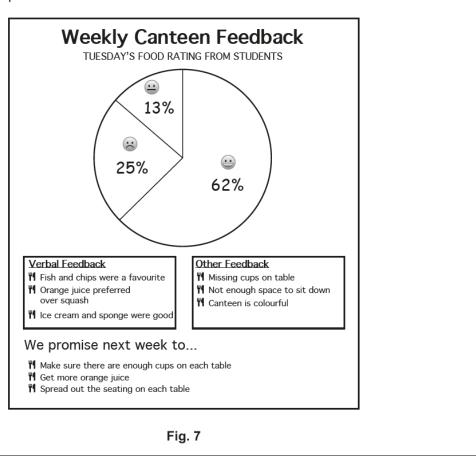


The Headteacher has agreed that the survey can now be used.

The feedback is displayed via a digital screen in the canteen. An example of this feedback is shown in **Fig. 7**.

The School would like to share this information with the parents of the students.

WCA has also been asked to contribute to a national database on canteen performance.



Question 25 (i)

- 25 Age and accessibility are two demographics that WCA had to consider when displaying the feedback.
 - (i) Describe one way that age has been considered by WCA when displaying the feedback.

This question required candidates to identify ways in which the "feedback" was suitable for the users' age. Candidates who identified that WCA had included images, icons or a simple layout gained credit for showing an awareness of how age had been dealt with. For example: younger people would like the information presented in a relatively simple fashion.

Question 25 (ii)

(ii) Describe **one** way that **accessibility** has been considered by WCA when displaying the feedback.

 [2]
 [4]

This question followed a similar structure to Question 25(i) and also allowed for a degree of repetition. The majority of candidates who achieved full marks focused on the fact that the feedback was displayed on a board in the canteen.

In both cases, some candidates missed that the question was about feedback of data and not collection and so gave responses that focused on the collection process.

Question 26

Identify one distribution channel that could be used to share the feedback from the survey with the parents of the students. Justify your answer.
 Distribution channel
 Justification

[3]

Many candidates got this response fully correct. Most candidates gave the use of email to distribute feedback as a response. Candidates were able to justify their choice of distribution channel in many ways, depending on which was chosen. A basic statement that the channel could hold a link to the feedback, or a graph was sufficient for a first mark.

Typically, for email, the suitable justification was that the email could be sent to **many** parents at the **same time**. Please note that in this case, the use of the word "many" makes this more than a repetition of the question – in other words mass distribution.

Question 27

27 WCA has been asked to take part in a programme where the data it collects will be included in national statistics to form a big data set.

Explain **one** benefit and **one** drawback of generating a big data set from the data of individual schools.

nefit	
	•••••
awback	
awdack	•••••
	•••••
	[4]
	1.1

Historically, questions on Big Data have proven to be a challenge to candidates. It was pleasing to see candidates generally scoring well across the ability range.

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