

CAMBRIDGE NATIONALS

Examiners' report



INFORMATION TECHNOLOGIES

J808

R012 January 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.

Paper R012 series overview

This is the second series for this qualification. Candidate performance was broadly in line with that shown in summer 2018. Results are likely to suggest that candidates do not have technical understanding of the concepts in this paper. However, as is shown by very positive results on the R013 unit, candidates clearly do have a technical understanding of the concepts involved, but are not translating that into good clear answers on the R012 paper.

Performance in the introductory questions was extremely positive, which supports the assertion that candidates understand the concepts involved. However, the applied sections, which are based on context, are not as well answered. Candidates are either focusing on the wrong context for their answers, as was seen with question 14 in this paper, or are not using the context in their answers.

Candidates need practice in answering questions in context. In doing so, candidates must be able to discriminate between differing contexts, such as advantages to different groups of people.

Section A overview

Section A is not contextual and is intended to assess understanding from across the syllabus. Section A targets all aspects of LO1, LO3, LO4 and LO6.

Question 1

- 1 What is the first phase of the project life cycle?

..... [1]

Most candidates gave the correct answer.

Question 2

- 2 A client needs to have a deliverable product by the end of March.

What type of constraint is this?

..... [1]

Most candidates gave the correct answer.

Question 3

- 3 Fig. 1 shows what happens to data collected from a survey.

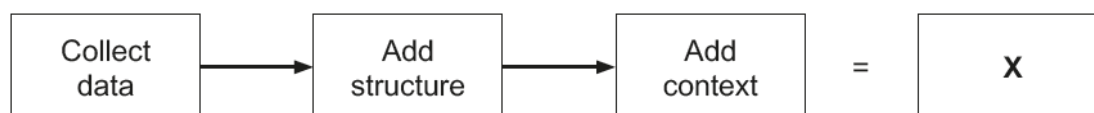


Fig. 1

What is X?

..... [1]

Most candidates gave the correct answer.

Question 4

- 4 Identify and describe **one** use of wearable technology in the healthcare sector.

.....

.....

.....

..... [2]

Wearable technology is a clearly defined area of the syllabus, with a fixed meaning. Many candidates identified suitable technology, and stated how it could be used. However, in some cases, candidates did not differentiate between equipment used within a medical context (usually a hospital) and wearable technology. Some candidates also gave vague uses for technology, such as “checking health”.

Question 5

- 5 A hacker has maliciously stolen data from you.

What type of 'hat' hacking is this?

..... [1]

Most candidates gave the correct answer.

Question 6

- 6 The computer system in a business has been attacked and sales figures have been changed.

What type of cyber security attack is this?

..... [1]

Very few candidates were able to answer this question correctly. Most attempted to give a further type of “hat” hacker.

Question 7

- 7 What is meant by the term 'secure backup of data'?

.....

.....

.....

..... [2]

The mark scheme for this question was quite generous and candidates could, in effect, describe backing up of data to a remote location and still achieve full marks. Despite this, most candidate achieved one mark, with most missing the opportunity to state that data was a copy of the data being backed up.

Question 8

8 A magnetic wipe is one method used to securely destroy data on a hard drive.

Identify **one other** secure destruction method that could be used.

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

Most candidates gave the correct answer.
--

Section B overview

Section B focused on a mini-scenario provided in the paper. This mini-scenario focused on the work of a project team, with questions being based on planning tools and legislation, along with the impact of the project on target groups.

Questions 9 and 13 focused on LO1

Question 10 focused on LO2

Question 11 and 12 focused on LO3

Please note that only questions 9 to 13 were based on this scenario.

Question 9 (a)

- 9 The project team will use different planning tools, including a PERT chart, which shows the critical path.

(a) Describe the purpose of a critical path.

.....

.....

.....

..... [3]

Where candidates knew that a critical path was a way through a plan, good marks were achieved, as candidates knew that the critical path was the shortest route through a project.

However, few candidates fully understood this concept and instead either focused on PERT charts in general, or gave answers based on the word critical. A few candidates made educated guesses and suggested that a critical path was a journey one travelled on, whilst being told how you could do better.

Question 9 (b)

(b) Identify **three** components of a PERT chart.

1

2

3 [3]

Most candidates gave the correct answer.

Question 9 (c)

(c) Explain **one** disadvantage **to the project team** of using a PERT chart.

.....

.....

.....

..... [2]

Some candidates had clearly done some good preparatory work for the examination and knew that PERT charts have various shortcomings. Typically, successful candidates stated that a PERT chart could become complicated to use when dealing with complex plans, but other candidates correctly identified that PERT charts only included timings and not dates and so could be difficult to use in a real-world situation.

Exemplar 1

One disadvantage is that a PERT chart can be difficult to interpret or understand by a non-specialist, which may impact productivity. [2]

This candidate has correctly identified that a PERT chart requires some skill to be interpreted and has then gone on to explain why this is a disadvantage.

This is a good example of how to deal with an explain type question.

Question 10 (a)

10 QR codes will be placed on all sewn-in clothing labels.

(a) Explain **one** disadvantage **to the store** of having QR codes on all clothing labels.

.....

.....

.....

..... [2]

Question 10 (b)

(b) Explain **one** disadvantage **to customers** of having QR codes on all clothing labels.

.....

.....

.....

..... [2]

These questions both focused on disadvantages. Each question includes an emboldened set of words drawing the candidates' attention to the focus of the question.

Where candidates are asked to focus on different groups of people, they should aim to provide answers that are clearly differentiated, so that the answers themselves are different and show a clear awareness of different impacts on different groups.

Many candidates understood what QR codes are and appreciated that their introduction would be relatively non-invasive for customers, and therefore the negative impact on customers would be around the need for smart phones with the relevant app installed. The majority of candidates stated that in order to get to the information, a smart phone would be required, and then explained why this was negative. In fact, the simple statement that "and without one, customers could not access the data", was sufficient as an explanation.

When it came to a negative impact for the shop, candidates were less clear. A sizeable proportion identified the cost and inconvenience of QR codes, but some candidates assumed that QR codes would have to be individually sown onto each garment, or that a different QR code was required for each individual item. Such answers were not accepted.

Exemplar 2

10 QR codes will be placed on all sewn-in clothing labels.

- (a) Explain **one** disadvantage **to the store** of having QR codes on all clothing labels.

The QR code scanners may be expensive and take up ~~costs~~ costs for retail. This may take effect after putting a QR code in every shop. [2]

- (b) Explain **one** disadvantage **to customers** of having QR codes on all clothing labels.

The customers, if they lack a smartphone, will have to go to the shop to scan the QR code. [2]

This candidate understands the basic financial issue involved here, but has not provided a suitable explanation.

Exemplar 3

10 QR codes will be placed on all sewn-in clothing labels.

- (a) Explain **one** disadvantage **to the store** of having QR codes on all clothing labels.

This is time consuming as they have to add a QR code to every item and when there is a discount or it has run out they have to keep on changing it. [2]

- (b) Explain **one** disadvantage **to customers** of having QR codes on all clothing labels.

If the customer has no smartphone, and they want to check the QR codes, everytime they need to check something, they have to go to the workstations and this is very time consuming. [2]

This is another example of how to deal with an explain question. The candidate has set up the issue by stating that customers may not have smart phones, and then stated that they have to go to workstations. This is sufficient for two marks. However, the candidate has ensured that full marks will be credited by then stating that this is time consuming.

Question 11 (a)

11 Staff will use the QR workstations to scan and read QR codes.

- (a) Identify and describe **one** piece of legislation that relates to the **software** installed on the QR workstations.

.....

.....

.....

..... [3]

Question 11 (b)

- (b) Identify and describe **one** piece of legislation that relates to the **data** stored on the QR workstations.

.....

.....

.....

..... [3]

For these answers, candidates had to firstly identify the legislation. Answers that did not identify a relevant piece of legislation were not credited marks.

For 11a, many candidates were able to identify and describe copyright legislation, whilst for 11b, data protection legislation was identified.

Some candidates wrongly identified the Freedom of Information Act. This does not apply in this context as the organisation involved is not State run.

Question 12

12 Customers will need to enter personal details to access the mobile app.

Explain **two** ways current IT legislation prevents the moral and ethical misuse of this information.

1

.....

.....

.....

2

.....

.....

.....

[4]

Candidates were not required to identify any legislation for this question (although many did) but did need to focus on ways that moral and ethical misuse of information could be avoided.

Because of this context, retention of data, for example, was not accepted.

Exemplar 4

1 *GDPR: General data protection regulation.*

The data of the client should be protected.

.....

.....

2 *H&S: Health and Safety, anything that is not safe for the*

client should not be done.

.....

This answer exemplifies both the level of this question and the issue with candidates' answers.

Simply stating that data must be protected is an acceptable answer. However, the candidate has then stated that Health and Safety Law applies, which it does not.

Question 13

13 Identify **two** outputs of the execution phase of this project.

1

2

[2]

Most candidates gave the correct answer.
--

Section C overview

This section focused on the use of an app and the data gathered by that app. As with other sections, answers needed to be based on the context of that scenario.

Questions 14 and 16 focused on LO6

Question 15 focused on LO3

The context provided in this scenario only applied to questions 14 to 16.

Question 14

- 14** Customers can use the PP mobile app to view the menu, place their order and receive delivery time updates.

Discuss the advantages **to PP** of using the mobile app to share information with customers. **[8]**

.....

.....

.....

.....

Context is key to this question. The focus was on the advantages to PP.

When candidates are asked to discuss advantages to a specific group of people, candidates must provide answers that show a clear understanding of that context. Unfortunately, many candidates chose to focus on customers of PP, rather than on PP themselves. As a way into identifying advantages to PP, there was room to discuss advantages to customers, as long as the advantages to PP were clearly discussed as a consequence. Few candidates did this successfully, with the majority of candidates making simple comments about an increase on customer satisfaction.

Where candidates focused on PP themselves, there were some really good answers. However, few candidates did focus on PP, with the vast majority focusing on customers.

Question 15

- 15** Describe **one** way that sensors could be used to collect data on the quality of each driver's driving.

.....

.....

.....

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

Most candidates gave the correct answer.

Question 16 (a)

16 The Data Manager at Head Office is responsible for combining all of the data received from each branch. This data is then shared with senior managers as a presentation at their monthly meeting.

- (a) Identify **one** piece of hardware that could be used to share the presentation with the senior managers.

..... [1]

Most candidates gave the correct answer.

Question 16 (b)

- (b) Identify **one** suitable type of software that could be used by the Data Manager to combine the monthly data for use in the presentation to the senior managers. Justify your response.

Type of software

Justification

..... [5]

The key phrase here is “combine the monthly data”. Candidates who focused on spreadsheets and databases gave good justifications for their choice, typically focusing on charts (for spreadsheets) or data sorting and queries (for databases).

Some candidates missed the key phrase and focused on the word presentation. As a result, these candidates discussed presentation software. As graphs can be created in presentation software, this was accepted for the first mark, but candidates rarely explained how graphs could be created.

Exemplar 5

Type of software Spreadsheet software

Justification As the ~~senior~~ Senior Managers want to know the number of orders all together, the average cost of orders, average ~~etc~~ delivery time and other statistical information the Data Manager can work all that out by using formulas such as SUM, COUNTIF, ~~and~~ IF and Average.

[5]

This candidate has given a justification that focusses on the manipulation of data as part of the subsequent presentation of that data. Had this candidate simply stated that these results could be presented as a graph, full marks would have been credited.

Section D overview

This section focused on the collection, use and protection of data. As with other sections, answers needed to be based on the context of that scenario.

Questions 17, 18a and 19 focused on LO3

Question 18b, 20a and 20ci focused on LO4

Question 20b focused on LO1

Question 20cii and 21 focused on LO6

The context provided in this scenario only applied to questions 17 to 21.

Question 17

17 PWD is a data collection and storage company.

Define what is meant by the term 'data'.

..... [1]

Most candidates gave the correct answer.

Question 18 (a)

18 PWD collects data for schools using a variety of methods including online surveys.

(a) Identify **one other** data collection method PWD could use when carrying out market research.

..... [1]

Most candidates gave the correct answer.

Question 18 (b)

(b) Explain **one** reason why validity is important when PWD collects data for schools.

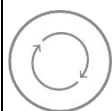
.....

.....

.....

..... [2]

This relatively simple question caused problems for many candidates. Many candidates seemed to have little understanding of the term “validity” and so gave general answers about data being correct, which was not accepted



AfL: Candidates should not repeat the question. As was the case with question 18b, candidates often repeated the question. Stating that “validity is important so that data is valid” shows no ability other than the ability to restate a question.

Question 19

19 The Government Department for Education uses the data sets created by PWD to produce national statistics on school performance outcomes and pupil numbers per region per year group.

Discuss the benefits and drawbacks of using data sets to generate these national statistics.

.....

.....

.....

..... [10]

This question exposed a technical misunderstanding on the part of the candidates. Few candidates gave any real indication that they understood the term “data set”, with most discussing data in general terms.

Where candidates understood the term correctly, the answers given were very strong and well balanced.

Question 20 (a)

20 The IT Manager will use a Gantt chart for planning this project rather than a task list.

(a) Evaluate this decision.

.....

.....

.....

..... **[6]**

As part of an evaluation of this decision, candidates needed to discuss the relative merits of Gantt charts and task lists. Such evaluations are best expressed as comparisons.

Many candidates gave good answers here, with many able to explain that Gantt charts had timings, whereas task lists did not, or that Gantt charts were, in essence, completed once published, whilst task lists could be added to.

Question 20 (b)

PWD uses a variety of logical prevention measures to reduce cyber security risks.

(b) Describe what is meant by a logical prevention measure.

.....

.....

.....

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

As was the case with the previous question critical paths, many candidates took educated guesses at this question. Therefore, some suggested that a logical prevention measure was one that made sense.

However, other candidates were aware that these were prevention measures that were fundamentally software based (though this was sometimes poorly expressed) and were able to give examples thereof. In fact, for this question, most answers were given for examples.

Question 20 (c)

- (c) At the end of the project, the IT Manager produces a word-processed report on how well PWD is following current IT legislation.

The report contains tables showing the results of the research carried out by the project team.

Identify and explain **one** advantage and **one** disadvantage of using tables to present information in this report.

Advantage:

.....

.....

.....

Disadvantage:

.....

.....

..... [6]

Many candidates were fully able to identify the advantage of using tables to present data, but then did not achieve marks on the disadvantages section. In questions such as this, where candidates are told that a method is going to be used for a purpose, candidates should focus on the efficacy of the method for the purpose. Therefore, answers about how difficult it is to create a table were irrelevant, as they were not about presenting information.

Question 21

- 21 PWD wants all of its employees to act in an ethical and moral way when handling data. The IT Manager has been asked to design a poster showing employees how to handle data in an ethical and moral way.

- (i) Suggest **one** instruction that could be placed on this poster.

..... [1]

- (ii) Identify **one** demographic factor that should be considered when designing this poster.

..... [1]

Most candidates gave the correct answer.

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