

CAMBRIDGE TECHNICALS LEVEL 3 (2016)

Examiners' report

IT

05838–05842, 05877

Unit 3 January 2021 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. 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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Unit 3 series overview

This unit is mandatory for the Extended Certificate, Diploma and Extended Diploma and optional for all pathways for the Introductory Diploma and Foundation Diploma.

The unit focuses on:

- An understanding of cyber security and the issues surrounding it
- Measures that can be used to protect against cyber security incidents
- An understanding of how to manage cyber security incidents

The paper is divided into two sections – A and B. Section A is worth 60% (40 marks) and are based around a pre-release scenario. The pre-release contains areas for further research that the candidate is expected to undertake and which form the basis of the questions to be asked. Section B is worth 40% (20 marks) and each question has its own short scenario.

<i>Candidates who did well on this paper generally did the following:</i>	<i>Candidates who did less well on this paper generally did the following:</i>
<ul style="list-style-type: none"> • Used technical terms • Related their answers to the scenario in the question • Used the keywords in the question to give appropriate depth to their response 	<ul style="list-style-type: none"> • Answered the question they thought was being asked, not the one actually being asked • Repeating the same point several times in different ways

Question 1 (a) (ii)

(ii) Identify **two** other types of data that need to be protected at Stevenson Research.

1.....
.....
2.....
.....

[2]

The question was asking about types of data. Candidates who gave examples of data achieved no marks.

Question 1 (b)

(b) Two of the cyber security threats to the data at Stevenson Research are environmental and physical.

Describe, using examples, what is meant by environmental and physical threats.

Environmental.....
.....
.....
.....
.....
.....

Physical.....
.....
.....
.....
.....

[4]

Most candidates gave good answers relating to environmental threats. They were able to describe and give examples and obtained both marks. Physical threats were not done as well with examples being given including logical.

Question 1 (c) (i)

(c) The Director of Cyber Security needs to be aware of the types, characteristics and motivations of attackers who might be a threat to Stevenson Research.

(i) Describe the following types of attacker.

Hactivist.....

.....

.....

.....

Cyber terrorist.....

.....

.....

.....

[4]

Candidates were able to give basic descriptions of the two types of hackers but their knowledge was limited to identifying a few features. They lacked the depth of knowledge required to give a full and complete description to obtain all the marks.

Question 1 (c) (ii)

(ii) Identify **two** characteristics of a script kiddie.

1.....

.....

2.....

.....

[2]

This was done very well with most candidates achieving both marks.

Question 1 (c) (iii)

(iii) Describe **two** motivations of an insider.

1.....
.....
.....
.....
.....

2.....
.....
.....
.....

[4]

Some candidates gave a description of an insider and unfortunately gained no marks. Those that did give motivations of an insider were able to achieve some marks, but very few candidates described why an insider might choose to hack against their own company.

Question 2

2* Discuss the operational impacts of a cyber security incident on Stevenson Research.

[7]

.....

.....

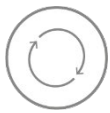
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Operational impacts are those that affect the day to day running of the company. They are immediate and short term. Once again, candidates gave answers based on identity theft and personal data. The better answers were those that used areas from the case study, such as the web site and the door control system and linked these to the operational impacts.

	AfL	Essays are marked using bands and not using points. This means that the candidate needs to be making a few points but each point needs to show the depth of their knowledge and understanding rather than many points which demonstrate a superficial breadth. A discussion requires an explanation, back up with examples relevant to the question.
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Question 3 (a)

- 3 (a)* One of the tasks the Director of Cyber Security has been given is risk management. One of the ways to mitigate risks is to test for potential vulnerabilities.

Justify the use of testing for potential vulnerabilities as a method of mitigating risk.

[10]

.....

.....

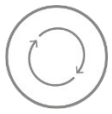
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.....

The focus of the question was on why testing for potential vulnerabilities was a good method of mitigating risk. Many candidates listed other methods that could be used rather than giving positive reasons about the method asked for in the question.

	AfL	A justification is based on providing positive reasons why – any negative reasons that the candidate gives in their response do not add anything to the answer. It is important for candidates to recognise the different keywords and the expectations for each of them.
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Question 3 (b)

- (b) The Director of Cyber Security is investigating the use of Intrusion Detection Systems (IDS) and Intrusion Prevention Systems (IPS).

Describe two differences between IDS and IPS.

1.....

.....

.....

.....

.....

2.....

.....

.....

.....

[4]

Many candidates focused on detect and prevent but did not go much further than this in their response. This was a technical question and it was disappointing that few candidates had the underlying knowledge to be able to give a robust answer.

Section B overview

This section is not based on the pre-release material. Each question is given a short context and candidates are expected to use it, where appropriate within their responses.

Question 4

You do not need the case study to answer these questions.

TechnoBabble are security consultants who can be hired to consult on all areas of cyber security.

4 Three types of security incident are given below with one word missing from each. Complete the sentences below using the most appropriate word.

1 _____ access includes hacking and escalation of privileges.

2 _____ includes using malware and deliberate erasure.

3 Inaccessible _____ includes account lockout and denial of service.

[3]

Few candidates achieved all the marks for this question. Most obtained at least one mark. These three definitions are central to the understanding of cyber security.

Question 5 (a)

5 (a) One of the services offered is vulnerability testing. One type of vulnerability testing is penetration testing.

Describe what is meant by penetration testing.

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

[2]

A substantial number of candidates gave responses that identified different types of penetration testing or gave advantages of using it as a method – neither of which gained marks. This was a question that required a learnt response.

	AfL	It is important that candidates can define the technical terms by rote.
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Question 5 (b)

(b) Identify **two** other types of vulnerability testing that could be offered by TechnoBabble.

1.....

 2.....

[2]

There were many good answers given to this question. Those candidates who did not achieve full marks often gave examples of testing that were not based around vulnerabilities.

Question 6 (a)

6 TechnoBabble has been asked to investigate a cyber security incident on a network and produce a cyber security incident report.

(a) TechnoBabble needs to categorise the incident.

Draw a line to connect each incident category with its description.

Incident Category
Minor
Critical
Negligible
Significant

Description
Little or no impact on the system or users
Can be handled internally by IT support and security staff
Involves a serious breach of network security
Impacts a small number of users and likely to disrupt non-essential services

[4]

This is a new type of question and many candidates were able to understand and apply the mechanics of it. Unfortunately, the majority of candidates were unable to identify the rising sequence of incident categories on the left or the increasing severity of description on the right and match them.

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