Feedback on the January 2018 on-screen test (including selected exemplar candidate answers)

Unit 2 – Essentials of cyber security

Version 1
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INTRODUCTION

This resource brings together the questions from the January 2018 examined unit (Unit 2), the marking guidance, the examiners' comments and the exemplar answers into one place for easy reference.

The examiner's comments are taken from the Report to Centre for this question paper, which can be found on the qualification page:


The mark scheme is available from:

https://interchange.ocr.org.uk/Modules/PastPapers/Pages/PastPapers.aspx?menuindex=97&menuid=250

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Link to further information about Surpass:

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GENERAL EXAMINER COMMENTS ON THE PAPER

The overall performance of the candidates, given this is the first cohort through was generally pleasing. A large majority passed the unit but unfortunately there were no distinctions.

There are three things that make up a good response: knowledge, examination technique and application to the scenario. The knowledge is about learning the material and having an understanding of the specification and the terminology within it. Examination technique is about looking at the key word in the question and tailoring the response to meet it – identify, describe, explain and discuss all require a different style of response. The application to the scenario is, generally, good but there are still occasions where the example does not reflect the scenario in the question but is a learnt example.

Resources which might help address the examiner comments:

From the link below, you’ll find ‘The OCR guide to examinations’ (along with many other skills guides)
http://www.ocr.org.uk/i-want-to/skills-guides/

Command verbs definitions
Questions 1(a), (b) and (c)

(a) Identify two reasons why cyber security is important to an individual.

1. To protect personal data/keep data safe (1)
2. To stay safe online (1)
3. To avoid financial loss (1)
4. To avoid identity theft (1)
5. Stops unauthorised access (1)
6. Protect hardware (1)
7. Any other valid suggestion

(b) Data in a sports club database has been deleted without authorisation.

Identify the type of cyber security incident which has occurred.

- Data destruction (1)

(c) Identify two motivations of a cyber criminal.

1. Financial gain (1)
2. Publicity (1)
3. Fraud (1)
4. Espionage (1)
5. Any other valid suggestion
Mark Scheme Guidance

Question 1(a):
Points marking approach.
2 from list:

Question 1(b):
CAO

Question 1(c):
Points marking approach.
2 from list.

Examiner comments

Question 1(a) – This question was knowledge based. Candidates generally did well but duplicate answers were often seen, for example, “to protect data” and “to keep data safe” which could only be credited once.

Question 1(b) – There was only one correct answer for this question which the majority of candidates correctly identified.

Question 1(c) – This question was also knowledge based and candidates with a solid grasp of the specification achieved both marks.
Exemplar candidate work

Question 1(a) – Medium level answer

Commentary

The question required the candidates to provide two reasons why cyber security is important. This candidate has correctly identified that cyber security is important so that private information is kept safe. They have then gone onto provide examples of private information.

To move this to a high level answer, the candidate needed to provide a second correct reason for the importance of cyber security. Acceptable answers could include to avoid identity theft and to protect computer devices or hardware from a cyber security attack.

Question 1(a) – High level answer

Commentary

The question required candidates to identify two reasons why cyber security is important.

This candidate has provided two very good answers to this question. The keyword for the question is identify, this means that a phrase or short sentence is required as the format of the answer. This candidate has provided more than identifications, the answers are descriptive.
Questions 2(a) and (b)

Mark Scheme Guidance

Question 2(a):
The type of incident must be correct to enable marks for the explanation to be awarded.
1st mark for incident, up to 2 for explanation:

Question 2(b):
The type of incident must be correct to enable marks for the explanation to be awarded.
1st mark for incident, up to 2 for explanation.

Examiner comments

Question 2(a) – Candidates were required to identify the cyber security incident and then to go on to describe what incident they had identified. Whilst many did this a considerable number failed to identify to incident. The most common incident was hacking. Some candidates gave accidental or unintentional incidents such as clicking on links or downloading viruses which gained no credit.

Question 2(b) – This question focused on the accidental incidents. It used the same question structure as 2a and required an identification. The question gave downloading files in the stem and it was unfortunate that many candidates did not link this with the question and gave responses based on downloading files – such as viruses.
Exemplar candidate work

Question 2(b) – High level answer

Commentary

The question requires candidates to identify and describe an accidental cyber security incident. One accidental incident has been given in the stem of the question. The answer provided by candidates should relate to a different incident.

The keywords for the question are ‘identify and describe’. This means that candidates need to correctly identify an incident before they can be considered for marks for the description.

On first reading the answer provided by this candidate it could be taken as a repeat of the incident provided in the question stem. However, the candidate has identified that a virus could be included in the file which can then attack the phone (storage device) and data destruction could occur. Whilst not an exemplary answer the fact that the candidate has provided further details which relate to a virus enables marks to be awarded.

Candidates should be encouraged to read the stem of the question and to follow the instructions of the question, in this case the word ‘other’ is important and is denoted by the use of emboldened text.
Questions 2(c) and (d)

(i) Explain two reasons why the owners would increase the café’s cyber-security.

- To protect (1) information/data (1)
- To keep information/data (1) confidential
- To maintain (1) the integrity/availability of information/data (1)
- To protect the network/data/computer equipment (1) from cyber attacks/hacking/infection from viruses (1)
- To prevent unauthorised users (1) gaining access (1)
- Any other valid suggestion

(ii) Other than customers, identify two possible targets at the café for a cyber security attack.

- Data/information (1)
- Equipment (1)
- Staff (1)
- Owner (1)

(d) Cyber security can be increased by providing customers with a strong password for access to the Wi-Fi.

Describe one characteristic of a strong password.

- Mixture (1) of upper and lower-case letters (1)
- Includes (1) numbers/special characters (1)
- Cannot be linked to the café (1) e.g. the name (1)
- Not a recognisable word (1) example provided (1)
- Any other valid suggestion
Mark Scheme Guidance

Question 2(c)(i):
Points marking approach.
Max 2 per purpose:

Question 2(c)(ii):
Points marking approach.

Question 2(d):
Points marking approach.
Allow examples of special characters.

Examiner comments

Question 2(c)(i) – This question stuck at the very heart of this unit – the reasons why cyber security is necessary and it was disappointing to see a lack of understanding of depth in the responses of the candidates. An explanation needs to give a reason and it should be a positive reason – why should something be done. Many of the responses seen lacked clarity.

Question 2(c)(ii) – Generally this was very well done with the majority of candidates acquiring both marks.

Question 2(d) – The question asked for one characteristic – many answers listed many different characteristics of a strong password with no description thus only gaining one mark. The question did not ask for the reasons why a strong password was required which was the question that a number of candidates chose to answer instead.
Commentary

The question requires candidates to explain how reasons why cyber security should be increased. The total marks for the question is 4 so each answer can be worth up to 2 marks.

This candidate has correctly explained two reasons so being awarded full marks for the question.

The first answer provides details relating to the fact that increasing cyber security will keep confidential data/information secure. The second answer focusses on the impact that increasing cyber security will bring to the cafe. This answer provides details about increasing the reputation of the cafe and increasing the customer base.
Questions 3(a) and (b)

(a) Owners have reported that they are receiving emails from Progress Vets asking them to download an attachment.

Identify and describe one type of threat which could occur if owners did download the attachment.

- [Receive a] virus (1st) which could infect the system (1) or be passed to contacts (1)
- [Download] spyware (1st) which would be a threat to security (1) by disclosing codes and other information (1)
- [Be a victim of] hacking/hacked (1st) which would allow others to steal information (1) and use it for their own benefit (1)
- Any other valid suggestion

(b) The webpage contains the owners’ names and contact details and their pet’s names.

(i) Identify the Act which covers the holding of these personal details.

- Data Protection Act/DPA (1)

(ii) Explain how having no security on this webpage breaks the Act you have identified in part (i).

- Data must be kept secure (1) by having no security on the web page (1) anyone can see the owner’s details (1)
- Any other valid suggestion
Mark Scheme Guidance

Question 3(a):

The type of threat must be correct to enable marks for the explanation to be awarded.

1st mark for threat, up to 2 for explanation:

Question 3(b)(i):

Correct Answer Only.

Points marking approach.

Question 3(b)(ii):

Points marking approach.

Examiner comments

Question 3(a) – The question was looking at the threats that could manifest themselves after downloading an attachment. Most answers focused on hacking or viruses, both acceptable but failed to describe the threat and so only achieved a single mark.

Question 3(b)(i) – With only a single correct answer it was pleasing to see that the majority of candidates got this correct.

Question 3(b)(ii) – A repetition of the question was a common way to start the response to this question and gained no marks. The focus of the answer was on how the Act was broken and unfortunately this was missed by many candidates. There was good awareness of the Act and its principles but this was not related to the question.
Questions 3(c) and (d)

(c) Owners are to be issued with a unique user name and password to maintain the security of the webpage.

Explain how using these details will increase the security of the webpage.

- Only authorised (1) owners/staff (1) can have access the appointments page (1)
- Owners can only add (1) their details to an available appointment (1) Progress Vets/staff will be able to edit an appointment (1)
- Access rights can be set (1) so owners can only see the available appointments (1) and not booked appointments/details of (other) owners who have booked the appointment (1)
- Any other valid suggestion

(d) Progress Vets is looking to implement an Acceptable Use Policy for its staff.

Describe, giving an example, what is meant by an Acceptable Use Policy.

- Guidelines and instructions (1) relating to the use of email/Internet (1)
- Describes what staff can use (1) cannot use (1) e.g. the email/internet for whilst at work (1)
- Example (1) e.g. not using Progress Vets email for personal reasons/accessing social media from work
- Any other valid suggestion

Mark Scheme Guidance

Question 3(c):
Points marking approach:

Question 3(d):
Points marking approach.

To be awarded full marks an example must be provided.

Examiner comments

Question 3(c) – This question required a scenario based response – the focus was on the security of the webpage. Many candidates gave generic responses that did not link to the webpage or how its security was increased.

Question 3(d) – This was a polarising question with candidates either aware of an AUP or guessing at a response. It was unfortunate that many were in the latter category. Candidates who were aware and gave specific examples scored highly.
Question 3(e)

(i) Identify one physical security protection measure which could be implemented.

- Locking the server room (1)
- Using a keypad (1)
- RFID staff badges (1)
- Biometric (1)
- Any other valid suggestion

(ii) Explain how this physical security protection measure will protect the server.

- Locking server room
  - Keys to room (1) can be kept secure (1) so only staff who are authorised can access the room (1)
- Using a keypad
  - Keypad number (1) is known only (1) by staff who need to access the room (1)
- RFID badges
  - Badges can be given to authorised staff (1) to allow them to enter the server room (1) provides an audit of who entered room (1)
- Biometric
  - Use of face/fingerprint (1) to allow access (1) to authorised individuals (1)

Mark Scheme Guidance

Question 3(e)(i):
Points marking approach.
The response must be appropriate to Progress Vets:

Question 3(e)(ii):
Points marking approach.
To be awarded marks, part (i) must be correct.
This response must link with the response to (i).
Examiner comments

Question 3(e)(i) – Most candidates gave a physical security method, those that failed to gain marks did so because they gave a logical method.

Question 3(e)(ii) – Responses here needed to ensure that the server could still be used. A description of the method identified in 3ei was common rather than the explanation required by the question.
Commentary

This question leads on from Q3e(i) where candidates had to correctly identify a physical protection measure to protect a server in a given context – for this part of the question paper this was a vets practice.

This candidate has been awarded marks for part (ii) of the question, so it can be assumed that a mark was awarded for part (i) of the question.

It appears from reading the answer that the candidate has initially repeated their answer from part (i) – coded lock.

The description then provided by the candidate describes how if the code wasn’t known, no one could get into the server room. Further description relating to who should know the code needs to be provided to move this to a high level answer.

For example, the code should only be known by the staff who need to access the server room, so limiting the number of people who know the code.
Question 3(f)

Indicative content
- Loss of reputation as owners will see Progress Vets as unreliable
- Lack of trust from owners as they feel their details are not safe
- Loss of business data/information meaning that, unless these are backed up, details may have to be gathered again.
- Possibility of website being used by scammers to defraud owners who are not aware of issues, leading to loss of trust and reputation
- Decrease in revenue as owners move the care of their pets to another vet
- Any other valid suggestion

Mark Scheme Guidance

Question 3(f):

Levels of response marking approach

7–9 marks
Learner has shown a detailed level of understanding by discussing the impacts on Progress Vets. More than one impact is discussed with the consequence(s) clearly detailed.

Relevant and appropriate examples are provided.

Specialist terms will be used correctly and appropriately.

4–6 marks
Learner has shown a good level of understanding by explaining the impacts on Progress Vets. Explanations may focus on the impact(s) or consequence(s) with limited depth in the expansion(s).

Some relevant examples are provided although these may not always be appropriate.

Specialist terms will be used appropriately and for the most part correctly.

1–3 marks
Learner has identified points relevant to the impacts on Progress Vets. This may take the form of a bulleted list.

Examples, if used, may lack relevance.

There will be little, if any, use of specialist terms.

0 marks
Nothing worthy of credit.
Examiner comments

Question 3(f) – As a discussion the response to this question required extended writing. The focus was the impact on Progress Vets – many candidates gave general impacts or impacts on customers rather than the Vet itself. Loss of reputation and customers were the most common answers that were seen but there was a lack of depth following this. The discussion needs to consider how Progress Vets were impacted by the incident – what were the consequences of the impact. Too many responses were single sentences and moved to a different point rather than taking the single point, looking at the impact and then the consequence. A paragraph a point is required to gain the depth required to achieve high marks in this type of question.
Exemplar candidate work

Question 3(f) – Medium level answer

Commentary

The question was marked using a levels of response method. The level awarded related to the level of detail included, the application of the response to Progress Vets – the context for this part of the question paper and the correct, and appropriate, use of specialist terms.

The question relates to the impacts of a cyber security incident on the vets. This candidate has provided details that relate to data theft – as defined in the first paragraph. Whilst some detail relating to data theft has been included in this paragraph, there is no reference to impacts.

There is, however, details relating to an impact detailed in the second paragraph – customer could be lost to a rival company. This could happen because information could be sold – referring back to the initial reference of data theft. In the final paragraph there is a very brief mention of the vets losing money.

The candidate has provided a limited explanation of one impact on Progress Vets, with the reference to losing money being an identification of a further impact. There is little, if any, specialist terms and there is limited evidence of any examples.

To move this to a high level answer, the answer needed to be a clear discussion of more than one impact, with some reference to the consequences of this impact. The answer must also include examples that clearly related to the context of the question and contain specialist terms which have been used correctly and appropriately.
Exemplar candidate work

Question 3(f) – High level answer

(f) A cyber security incident has occurred on Progress Vets website.

Discuss the possible impacts of cyber security incidents on Progress Vets.

An impact this cyber security incident could have on Progress Vets is that it could damage their reputation. The consequence of this would be people will start to build a negative outlook and impression of the company as people may start to see them as unreliable and not being able to control their business, for example, people may leave bad reviews on the company’s website. This could also mean that people will go to companies that are competing instead which means that their competitors will make higher sales Progress Vets.

Another impact is it could harm the relationship the company has with their current customers. This will lead to the customers losing faith and trust in the company which means that they are more likely to not use the company any longer which will be a loss for the company as many customers would start to do this. This could also lead to financial loss for the company as the less amount of customers they have, the least amount of income the have coming into the business which will mean that they will not make as much profit which could lead to a closure of the business.

Another impact could be that this incident affects them legally as it has forced them to go against The Data Protection Act as the data is no longer secure and safe which is disobeying a major principle of the act as it is no longer being used for its purpose and not as highly protected as it should be. The consequence of this could be that the company gets punished lawfully for example closure of the business or having to pay high fines.

This could also impact the business as the security incident that has taken place could be data destruction which means that all of the data has been deleted permanently which means that it can never be gained back. This can be a major consequence as some of the data could have been involving third parties such as customers which means they would have to compensate for this also, for example paying customers high levels of compensation to make up for the damaged being caused.

Another impact this could have on the business financially is that the security incident that has taken place could be data theft which means the attacker could steal personal information such as the companies bank details which could lead to serious consequences such as the attacker impersonating the company in terms of making payments for example they could pass off credit cards in the companies name.

One other impact could be that the security incident that has taken place could be data manipulation which means the attacker could now influence and change the data as they please. This can have serious consequences as they may change data and make it false which is illegal to do and will be badly reflected on the company, for example they could change personal information regarding the customers.

Commentary

This is a high level answer. The candidate has provided several impacts with some consideration of the consequences to Progress Vets of these.

For example, one impact could be that bad reviews are left which could damage the reputation of the Progress Vets as given in the first paragraph. A further example impact is given in paragraph two. This includes damaging the relationship with customers which could lead to customers leaving Progress Vets which could, in turn, lead to a financial loss.

These impacts have been discussed and make this answer a high level answer. However, there are, in the answer as a whole, limited specific examples provided. The use of technical terms is not always appropriate, although some technical terms have been used correctly and appropriately, this does not apply to the whole answer.

To become a full mark high level answer, specific examples need to be provided for each of the impacts discussed with complete and appropriate use of technical terms throughout the answer.
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