OCR
Oxford Cambridge and RSA

Cambridge **TECHNICALS LEVEL 3**

Cambridge TECHNICALS

IT

Feedback on the January 2018 exam paper (including selected exemplar candidate answers and commentary)

Unit 1 – Fundamentals of IT

Version 1

CONTENTS

INTRODUCTION

This resource brings together the questions from the January 2018 examined unit (Unit 1), the marking guidance, the examiners comments and the exemplar answers into one place for easy reference.

We have also included exemplar candidate answers with commentary for Questions 16(d), 17(c) and 18.

The marking guidance and the examiner's comments are taken from the Report to Centre for this question paper.

The Question Paper, Mark Scheme and the Report to Centre are available from:

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

GENERAL EXAMINER COMMENTS ON THE PAPER

This was the third sitting of this examination. It was pleasing to again see an increase in knowledge for some candidates. Responses for some candidates though still appeared to be little more than general knowledge, often not demonstrating the depth of understanding required after studying this unit. It is essential that candidates have a sound understanding of the content of Fundamentals of IT, as this knowledge will provide the foundation needed to study the optional units.

When preparing candidates for this unit, centres should use a wide variety of resources. No single resource will contain all the necessary learning to allow candidates to access the highest grades for this unit. Resources endorsed by OCR contain an introduction to some topics included in the specification. Additional materials and research will be needed to fully prepare candidates for this unit's summative assessment.

Examination Technique

For the multiple choice questions, most candidates attempted each question. A small number of candidates still did not provide an answer for each question. Good examination technique would suggest that each question is attempted. Candidates could discount clearly incorrect answers to allow them a more informed choice for the remaining options.

Candidates should be reminded that section B features a brief context. The context should be used in answering the question to allow full marks to be achieved.

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
http://www.ocr.org.uk/Images/273311-command-verbs-definitions.pdf

Questions 1, 2 and 3

SECTION A

Answer **all** the questions.

Put a tick (✓) in the box next to the **one** correct answer for each question.

1   Which of the following **best** describes the purpose of a processor component in a computer?

    (a)   To control user access to the data on the computer.   ☐

    (b)   To manage the main functions and operations of the computer.   ✓

    (c)   To display calculations.   ☐

    (d)   To store data in the computer.   ☐

    [1]

2   How do quantum computer systems differ from traditional computer systems?

    (a)   Quantum computers do not rely on binary logic.   ✓

    (b)   Quantum computers do not require secondary storage.   ☐

    (c)   Quantum computers use Open Source Operating Systems.   ☐

    (d)   Quantum computers utilise anti-static to minimise energy consumption.   ☐

    [1]

3   Which of the following should be considered when setting up a microwave network?

    (a)   All devices on the network must be in line of sight.   ✓

    (b)   Microwaves can only be transmitted using a digital format.   ☐

    (c)   Microwave nodes should not be set up in areas of dense population.   ☐

    (d)   Microwave signals are not effective beyond a range of 1800 metres.   ☐

    [1]

Mark Scheme Guidance

Award one mark for each correct answer.

Questions 4, 5 and 6

4 How many bits are included in a nibble?

(a) 1 ☐

(b) 2 ☐

(c) 4 ✓

(d) 8 ☐

[1]

5 Which of the following may be a disadvantage to a business of using Open Source software?

(a) Competitors may be using the same software. ☐

(b) It may include lots of features. ☐

(c) There may be an increased security risk as the source code can be edited by others. ✓

(d) The business is not tied into one vendor's system. ☐

[1]

6 Which of the following is an advantage of a multiprocessor operating system?

(a) Every task is performed by the same processor. ☐

(b) Multiprocessor systems are easier to design. ☐

(c) Failure in one processor will result in complete system failure. ☐

(d) The throughput of data is usually greater than a single processor system. ✓

[1]

Mark Scheme Guidance

Award one mark for each correct answer.

Questions 7, 8 and 9

7 Which of the following is **not** a feature of a Personal Assistant system?

    (a)   Plays music.   ☐   See Examiner comments below.

    (b)   Personalised to different voices.   ☐

    (c)   Provides news and sports updates.   ☐

    (d)   Creates a to-do list.   ☐

    [1]

8 Which of the following is the **most** likely cause of a slow running application on a computer?

    (a)   Insufficient Active Directory capacity.   ☐

    (b)   Insufficient ports on the motherboard.   ☐

    (c)   Insufficient ROM capacity.   ☐

    (d)   Insufficient RAM capacity.   ✓

    [1]

9 Which of the following services is **not** provided by the User Data Protocol (UDP)?

    (a)   Checksum capability to check on package delivery.   ☐

    (b)   Packet transmission.   ☐

    (c)   Packet retransmission.   ✓

    (d)   Providing port numbers.   ☐

    [1]

Mark Scheme Guidance

Award one mark for each correct answer.

Examiner comments

Question 7 – Due to recent advances in technology there are now personal assistant products on the market that can be personalised to different voices. This means the question in its current form is invalid. A decision was taken to award one mark to every candidate, regardless of their response to this question to ensure no candidate was disadvantaged.

Questions 10, 11 and 12

10 Which of the following is an example of a physical method of improving the security of information?

(a) Defragmenting the main server hard drive. ☐

(b) Installing anti-virus software. ☐

(c) Locking server room doors. ✓

(d) Backing up data. ☐

[1]

11 Which of the following attempts to gain information does **not** use social engineering?

(a) "Hi, I am new and don't understand how to access the portal, Andrea says I need a token code but I don't know what this is." ☐

(b) "Hi, I am not at work at the moment, but have been locked out of my machine. Could you reset my password please so I can complete this report for the boss?" ☐

(c) "The boss has asked for this information. Do you really want to upset her?" ☐

(d) "What is the security code needed to access the Web Server?" ✓

[1]

12 Which of the following is an advantage of using RFID technology rather than a barcode to track packages?

(a) Packages do not need to be in line of sight of the reader to be identified. ✓

(b) RFID tags do not need a source of power. ☐

(c) RFID technology does not need specialist equipment to identify packages. ☐

(d) Metal interferes with the RFID signals. ☐

[1]

Mark Scheme Guidance

Award one mark for each correct answer.

Questions 13, 14 and 15

13 Which of the following **best** describes **one** reason why privacy screens are attached to monitors?

(a) To comply with the Copyright, Design and Patents Act 1988. ☐

(b) To improve the working conditions of staff. ☐

(c) To protect data and information from being seen by unauthorised viewers. ✓

(d) To reduce glare on the screens. ☐

[1]

14 Which of the following **best** describes how overwriting old data protects it from being accessed.

(a) All data held on the hard disc is deleted. ☐

(b) The data held in each bit on the hard disc is replaced with fresh data. ✓

(c) The data is encrypted so that it cannot be accessed. ☐

(d) The file names are changed so that the data cannot be found. ☐

[1]

15 Which of the following is a weakness of using a firewall to protect a website?

(a) Does not prevent an authorised user from using the system maliciously. ✓

(b) The firewall restricts access only to those who have previously been on the website. ☐

(c) The firewall will only allow data to flow from the viewer's machine to the website. ☐

(d) The firewall will only allow data to flow from the website to the viewer's machine. ☐

[1]

Mark Scheme Guidance

Award one mark for each correct answer.

Questions 16(a) and (b)

SECTION B

Answer **all** the questions.

Progress Jewellers is a jewellery company, with stores throughout the UK. Each store is connected to the company's data centres in Manchester and London via a leased line connection. A backup link is available via an ADSL connection.

Each store has Point of Sale (POS) terminals, connected to a wired local area network (LAN), which the staff use to serve customers as well as report sales to the Head Office. A separate wireless network is provided for customers use while they are in the store.

IT support is provided by the company from its data centre in London. Store staff can email or call the dedicated IT support number when needed.

16 POS terminals in each of the stores feature the same computer components.

(a) Describe the purpose of the following components: | Two marks what it does e.g.:

Solid state drive

- Used as (secondary) storage (1) to store work for future use (1)
- Store/save (1) data (1)
- Any other valid suggestion.

Graphics card

- Converts signals from terminal (1) so they can be displayed on a monitor (1)
- Enhance the visual display (1) for display on the monitor (1)
- Display (1) output (1)
- Any other valid suggestion.

[4]

(b) All POS terminals are connected to a LAN.

Explain **two** reasons why a LAN is used.

1.

Two marks for each point and suitable expansion e.g.:
- Connects devices together (1) over a small area (1)
- Can share data (1) to increase efficiency (1)
- Can share peripherals (1) to reduce cost (1)
- Increased security (1) as wireless can be easily intercepted (1)
- Increased throughput (1) as wired network has more bandwidth/than wireless (1)
- Increase performance (1) as each device connects using its own cable (1)
- Any other valid suggestion.

2.

[4]

Mark Scheme Guidance

Question 16(a):

Max 1 mark for each component for describing a characteristic of that component.

Must be a description of what it does, NOT a comparison with other technologies.

Question 16(b):

Answer could cover:

- Why use LAN as opposed to stand alone

- Why use LAN as opposed to wireless LAN

- Why use LAN as opposed to WAN.

Do NOT accept answers related to increased speed/quicker.

Examiner comments

Question 16(a) – Candidates were asked to describe the purpose of a solid state drive and a graphics card. Many candidates were able to successfully describe the purpose of a solid state drive, although a number of candidates described characteristics, rather than explaining the purpose. For example, candidates stated that solid state drives were 'faster' than a hard drive. Fewer candidates were able to describe the purpose of a graphics card, with many believing it was removable storage such as a USB flash drive.

Question 16(b) – This question asked candidates to explain two reasons why Progress Jewellers would use a LAN. Many candidates gave generic answers, or answers relating to the use of a LAN in a school. Centres are reminded to ensure candidate use the supplied context to answer questions in this section.

Questions 16(c) and (d)

As well as a username and password, staff must use a biometric method to access the POS terminals.

(c) Identify **one** biometric method to control access to the POS terminals.

> One from e.g.:
> - Fingerprint/Face/Iris/Retina/Voice Recognition (1)
> - Any other valid suggestion.

..[1]

(d) Explain **two** advantages and **one** disadvantage of using biometric methods to control access to the POS terminals.

Advantage 1 ...

> Up to **two** marks for each of **three** explanations e.g.
> **Advantages**
> - If password is compromised (1) someone else still can't access the system (1) (without also having the biometric (1))
> - Increases security (1) as staff can't share each other's password (1) as they still need the biometric to gain access (1)
> - Can verify that the staff member (1) really is who they claim to be (1)
> - Any other valid suggestion.
>
> Advantage 2 ...
>
> **Disadvantages**
> - Biometrics can be unreliable (1) so staff may resent the increased security (1)
> - As technology develops (1) some biometrics become easier to forge (1)
> - Concern if compromised (1) as biometric can't be changed (1)
> - Affected by the environment (1) e.g. wet fingers difficult to scan (1)
> - Disabled people may be excluded (1) may not have the relevant biometric characteristic (1)
> - Individual may not want to give their biometric (1) as they use isn't proportionate (1)
> - Any other valid suggestion.

Disadvantage .

[6]

Mark Scheme Guidance

Question 16(d):

Allow examples, such as technologies seen in mobile telephones and computer systems.

Do NOT accept answers relating to the use of a biometric on its own (e.g. simpler/quicker to log in as no username/password needed).

Do NOT accept answers relating to cost/setup time as the biometric device is already present.

Examiner comments

Question 16(c) – Most candidates were able to correctly identify a biometric method that Progress Jewellers could use to control access to the POS terminals.

Question 16(d) – This question asked candidates to explain two advantages and one disadvantage of using biometric methods to control access to the POS terminals. Poor examination technique meant that many candidates did not read the stem of the question which stated that the biometric method was used alongside a username and password. Many candidates gave answers about improved log-on speeds as the biometric would replace the username and password. This was clearly an incorrect response. Frequently seen correct advantages explained how security was improved as even if the user's username and password was compromised, an attacker would still be unable to gain access due to the biometric being also needed.

Poor examination technique again meant that some candidates were unable to explain a correct disadvantage. Progress Jewellers already use the technology, so answers relating to the cost of purchasing biometric readers was not considered worthy of credit as it was not correct in the given context.

Exemplar candidate work

Question 16(d) – Low level answer

> **(d)** Explain **two** advantages and **one** disadvantage of using biometric methods to control access to the POS terminals.
>
> Advantage 1 ..... An advantage is that a pin code will make it more secure and make it much more difficult and tough to breach.
>
> Advantage 2 ..... simple to use and quick making the job easier to do.
>
> Disadvantage ..... A disadvantage of using a biometric method is that it can be forgotten or if it the same code for each POS terminal it can be easily breached or hacked, meaning a loss in money or leaked information.
>
> **[6]**

Commentary

The question asks the candidates to explain two advantages and one disadvantage of using biometric methods to control access to the POS terminals. For advantage one, candidate talks about a PIN code, which is not a biometric method and so is not considered. For advantage two, candidate talks about it being simple to use and quick. Superficial answers such as quicker, easier etc. are not worth of credit. Answers should relate to the context given and should provide a specific advantage.

The disadvantage given by the candidate states that the biometric can be forgotten. This shows a lack of subject knowledge by the candidate, as a biometric, by its nature cannot be forgotten.

To improve this answer, the candidate should give at least one advantage of using biometric methods to access the POS terminals. For example, the candidate could explain that by using a biometric, this improves security, as having access to the username and password would still not allow someone to gain access to the terminal without also having the relevant biometric.

Exemplar candidate work

Question 16(d) – Medium level answer

(d) Explain **two** advantages and **one** disadvantage of using biometric methods to control access to the POS terminals.

Advantage 1 .... very specific so noone can access it apart from the fingertips registered

Advantage 2 .... a lot faster and safer as passwords are easily accessible and can be figured out.

Disadvantage .... can have some malfunction issues as it may not read your finger if you just ate, or washed your hands and can be unreliable at times

[6]

Commentary

For advantage one, the candidate gives a basic description, stating that the fingerprints registered [must be used]. This, on its own is not a complete explanation.

For advantage two, the candidate again gives a superficial answer such as faster. The candidate then gives us a third answer, safer, which would not be considered, as the question asks for two advantages. This is important examination technique that should be taught to candidates. It is essential that candidates do not provide more answers than required in an attempt to 'dump' everything they know about the topic. Examiners are required to only mark the correct number of responses in the order given, so even if the third answer was correct, it would not be considered.

For the disadvantage, the candidate has explained that the device may malfunction (and therefore be unreliable) due to issues such as a wet hand. This is a disadvantage of using some kinds of biometric and so was worthy of credit.

To improve this response, the candidate should give a complete explanation for advantage one, and provide only a single answer for advantage two. For example, the candidate could say that it is more secure, as staff can't simply share usernames and passwords, as without the biometric, they would still be unable to gain access.

Exemplar candidate work

Question 16(d) – High level answer

(d) Explain **two** advantages and **one** disadvantage of using biometric methods to control access to the POS terminals.

Advantage 1 ...Only people with prints on the system have access to control the POS terminals, this is good because it stops unauthorised people from accessing control to the POS terminals.

Advantage 2 ...Another advantage is that it increases security and if your store is secure more people will use your store, increasing sales.

Disadvantage ...The finger scanner may go down and then no-one will have access to control the POS terminals which may lose the company money.

[6]

Commentary

For advantage one, the candidate has explained that [security is increased] as only those with prints on the system have access, and so it stops unauthorised people from accessing.

For advantage two, the candidate gives an answer on the same marking point, sating that security is increased. This is considered as a repetition and so is not awarded credit.

For the disadvantage, the candidate explains that the scanner may fail so users would not have access to the POS device. This is a complete explanation worth two marks.

To score full marks, the second advantage should be based on a different marking point. For example, the candidate could explain that the biometric allows the store to verify that the person logged on really is who they say they are, as the biometric is unique to that individual and is very difficult to forge.

Question 17(a)

17 IT support staff for Progress Jewellers are based at the data centre in London. To get IT support, store staff can use email or a dedicated phone number.

(a) Explain **two** advantages and **one** disadvantage of using email to obtain IT support.

Advantage 1 ..

Advantage 2 ..

Disadvantage .

Up to **two** marks for each of **three** explanations e.g.:

Advantages
- Detail of problem (1) can be expressed clearly (1)
- Will have a written record (1) so can refer to it if issue occurs again (1)
- Will get a reply with a ticket number (1) so simple to chase up issue (1)
- Attachments/screen shots can be sent (1) so problem is better understood/to visually explain the problem (1)
- Emails can be sent to more than one person (1) so more people know about the problem (1)
- Can get on with other tasks (1) so not waiting for response (1)
- Any other valid suggestion.

Disadvantages
- If computer is broken/internet down (1) then you can't send an email (1)
- Issue may be complex (1) so difficult to explain in an email (1)
- Could be sent to the wrong person (1) so you won't get support (1)
- Any other valid suggestion.

[6]

Mark Scheme Guidance

Do not accept answers related to email is free or being quicker.

Examiner comments

This question asked candidates to explain two advantages and one disadvantage of using email to obtain IT support. Many candidates were able to explain suitable advantages, such as the ability to send screen shots to clearly explain the problem. Poor examination technique meant that some candidates did not provide answers in context and were comparing the use of email with sending a letter to the IT team which were not considered worthy of credit.

Questions 17(b) and (c)

(b) Describe **two** steps IT support staff could take when troubleshooting IT issues.

> **Two** marks for each description, max four e.g.:
> - Identify the problem (1) by asking user a series of questions about the issue (1)
> - Establish a theory (1) about the cause of the problem (1)
> - Test the theory (1) to see if the issue is identified (1)
> - Create a plan (1) to follow (1)
> - Check the system is working (1) after implementing the plan (1)
> - Document finding (1) for future reference (1)
> - Any other valid suggestion.

[4]

(c) All IT support staff at Progress Jewellers are required to have industry certifications.

Explain why Progress Jewellers requires its IT support staff to have industry certifications.

> Up to **four** marks for an explanation e.g.:
> - Staff can demonstrate knowledge (1) of a technical area (1) which makes others confident (1) that staff know what they are doing (1)
> - Progress Jewellers can be confident (1) that staff have been trained (1) and have experience (1) at the required level for the certification (1)
> - Any other valid suggestion.

[4]

Mark Scheme Guidance

Question 17(b):

Allow examples of real troubleshooting techniques e.g.:

- Restart the computer (1) by switching it off and on (1)

- Check cables/power (1) to ensure they are connected (1)

- Check the manual (1) for common faults/look up error codes (1)

- Check logs/event viewer (other tools) (1) to see if any error messages are displayed (1)

- Run self-tests (1) to perform diagnosis (1).

Question 17(c):

Max 3 marks without reference to Progress Jewellers.

Examiner comments

Question 17(b) – Few candidates appeared to have studied this part of the specification and provided answers that appeared to be more general knowledge that those based on study of the specification.

Question 17(c) – Many candidates did not appear to know what industry certification was. Some candidates explained why staff would be a member of a trade union or a professional body. Those that did know what industry certifications are were able to score well for this question.

Exemplar candidate work

Question 17(c) – Medium level answer

(c) All IT support staff at Progress Jewellers are required to have industry certifications.

Explain why Progress Jewellers requires its IT support staff to have industry certifications.

The ~~certifications~~ the certifications come with certificates which are physical proof one a persons achievements. These ~~certifica~~ show that a staff member at Progress Jewellers ~~are qualified~~ is qualified to work there ~~heat~~ because they have the key skills required to do their job efficiently. [4]

Commentary

This question asks candidates to explain why Progress Jewellers requires its IT support staff to have industry certification.

When answering this question, it is essential that candidates provide a response from the correct point of view. In this case, it is Progress Jewellers. Explaining benefits to the IT support staff would not gain marks here.

This candidate states that certifications … prove that the person has achieved certification. They also state that certification demonstrates that the staff member is qualified.

These two points are worthy of credit, but they do not form a coherent explanation as to why Progress Jewellers requires certification for IT support staff.

A full answer to the question would be to state that Progress Jewellers can be confident that staff with relevant industry certification have the necessary training and experience needed to complete the certification which would allow them to have confidence that the staff ability matches the role.

Questions 17(d) and 18

(d) Explain **one** way that the Progress Jewellers IT support staff can demonstrate that they are ready for work.

> **Two** marks for suitable point and expansion e.g.:
> • Staff must be dressed appropriately (1) for the situation they are working in (1)
> • Staff should show a positive attitude (1) so that others will know they are doing their job properly (1)
> • Any other valid suggestion.

....**[2]**

18* Progress Jewellers is considering having separate servers to store files and provide email services.

Explain why Progress Jewellers would use both a file server and a mail server.

[10]

> **Indicative content:**
> Reasons for using both a file server and a mail server. e.g.
> File server
> • Stores files and folders
> • Shares files with other staff members
> • Can provide printing also
> • Access control
>
> Mail server
> • Provides inbound and outbound mail flow
> • Delivered mail to the correct user
> • Can be used for anti spam
> • Holds company address book
> • Connects to other mail servers using common protocols
>
> Both
> • Each have their own role
> • Data should be kept separate
> • Mail server will normally have access to internet
> • File server doesn't need access to internet
> • More secure by splitting up roles

Mark Scheme Guidance

Question 17(d):

Allow the opposite.

Spec points are:

• dress (i.e. appropriate clothing depending on situation)

• presentation (i.e. personal grooming, appearance etc.)

• attitude (i.e. can-do attitude, responsive).

Question 18:

Level 3: 7–10 marks

The learner has **explained** the purpose of a fileserver **and** a mail server. The learner has also provided an explanation of reason(s) why **both** would be used in the **context** provided.

At the bottom of the mark band, the reason(s) why both would be used may be implied.

Subject specific terminology and knowledge will be clearly used to support and inform the explanations.

Level 2: 4–6 marks

The learner has **described** the purpose of a fileserver **and/or** mail server. The learner has also provided a description of why **either** would be used, for the most part linking their answer to the context provided.

At the bottom of the mark band, the learner may describe just the purpose of a fileserver or a mail server.

Some subject specific terminology and knowledge will be used.

Level 1: 1–3 marks

The learner has **identified** points about either type of server.

At the bottom of the mark band, a single point about either server type may be given.

Subject specific terminology may be limited or missing.

0 marks – Nothing worthy of credit.

Examiner comments

Question 17(d) – Lack of subject knowledge meant that many candidates were able to score well on this question. The specification items that candidates are expected to have studied are dress, presentation and attitude.

Question 18 – This question was marked using a banded response mark scheme. Candidates were asked to explain why Progress Jewellers would use both a file server and a mail server. Many candidates could explain why the individual servers would be used that allowed marks in MB2 to be awarded. Few were able to clearly explain why Progress Jewellers would use both server types which was required to move to MB3.

Exemplar candidate work

Question 18 – Medium level answer

18* Progress Jewellers is considering having separate servers to store files and provide email services.

Explain why Progress Jewellers would use both a file server and a mail server.

[10]

Since the their stores are located all over the UK Progress Jewellers should use both a file server and a mail server because they will be able to store data files in one place and having mail server will enable Progress Jewellers to recieve and respond to emails.

~~Allowing members th the public to Allowing member of the public is a great way to interact and talk to~~ Allowing members of the public to email and contact with Progress Jewellers is a great way to interact and connect with ~~bth~~ the public

Another benefit from being able to email is that it ~~impord~~ can improve Progress Jewellers. This is because people who complain are basically helping the Jewellers to see what they have done wrong and how to fix, this will enable them to improve and grow.

Commentary

This question was marked using the banded response mark scheme. The question askes candidates to explain why Progress Jewellers would use both a file server and a mail server.

The response starts by explaining that both servers will allow data to be stored in one place. This is not fully correct, as the file server will store file data and the mail server will store (and process) mail data, so not in one place.

The candidate then explains that the mail server will be used to receive and respond to emails. 'Respond' was considered to mean send in this context. In the following paragraphs, the candidate describes more detail of the purpose of a mail server.

Much of the candidate response is descriptive in nature with the start of explanation in the last paragraph.

Due to some of the response being technically incorrect, best fit would suggest mark band two to be most appropriate.

To move to the top mark band, the candidate should explain the purpose of a file server and explain why Progress Jewellers would use both server types.

Exemplar candidate work

Question 18 – High level answer

18* Progress Jewellers is considering having separate servers to store files and provide email services.

Explain why Progress Jewellers would use both a file server and a mail server.

[10]

Progress Jewellers would use both servers for Multiple reasons. It could use the file server to back-up files, this is important for its staff to prevent loss of data, (documents of clients, sales) the file server can also store documents, reports, graphs and all other datatypes which can allow its staff to save their own disk space and share their data with other people that are accessing the application server. An application server can also Manage data which would be very useful for the organisation because they Might have Many different documents coming into the server which need to be Manage. Managing it would Make it More efficient for Progress Jewellers.

A Mail Server can be used by Progress Jewellers to receive and send emails. It would enable Progress Jewellers to receive emails from its clients, or even they could use it as a way of communicating with other staff within the network. A Mail Server could also Make it a Safer way of communicating for staff as it is More secure to send emails from your own Mail server it reduces the chances of receiving viruses from other unknown users

Commentary

The candidate starts by explaining why a file server would be used. Their first point is well explained and provides a relevant technical reason as to why a file server would be used. They then go on to explain the purpose of an application server, which is not required in this question.

In the second paragraph, the candidate explains why a mail server would be used. The first part of the explanation is well written whereas the second part is being vague.

The candidate does not go on to explain explicitly why both a file server and a mail server will be used, although this is implied.

The response meets the requirements of the bottom of the banded response mark band three.

To gain full marks, the candidate should provide an explanation of what each server type does and then explain why Progress Jewellers would use both types.

For example:

A file server allows users to store files and folders in a central location. This data can be shared with multiple users. Access control can be used to ensure that only authorised users can access the data. Having data stored on the file server allows data to be backed up centrally.

A mail server allows Progress Jewellers to send and receive email. The server ensures email is delivered to the correct user. The mail server sends and receives email using standard protocols to ensure the correct communication with other organisations.

Both server types will be used, as each has different roles and needs. The file server does not need access to the internet, so by hosting this on its own server, the security of the files is increased. The mail server does need access to the internet to send and receive email, so this server can have increased security to manage the risk.

Question 19

19 Each store is connected to the company's data centres in Manchester and London via a leased line connection with a backup link using an ADSL connection.

(a) Identify and describe **two** pieces of hardware needed to create this wide area network (WAN) connection.

1 .

One mark for identification of hardware, **one** mark for description e.g.:
- Router (1st) routes packets/traffic/data between networks/provides ports to connect lines to (1)
- Modem (1st) converts analogue signals to digital signals/connects to ADSL line (1)
- CSU/DSU (1st) provides termination of carrier's line (1)
- Firewall (1st) provides filtering of traffic entering/leaving network (1)
- Any other valid suggestion.

2 ....

....

....

....

[4]

(b) Progress Jewellers must consider threats to data when it is transmitted over the WAN.

Other than social engineering, identify and describe **one** threat to Progress Jewellers' data when it is transmitted over the WAN.

One mark (1st) for threat and max **two** for suitable description e.g.:
- Phishing (1st) trying to obtain personal information (1) by faking email from trusted site (1)
- Hacking (1st) attempts to break into computer system (1) by a malicious person (1)
- Virus (1st) malicious software program (1) that replicates itself (1)
- Trojan (1st) software that pretends to do one task (1) but carries out a malicious task in the background (1)
- Interception (1st) data can be taken (1) whilst in transit over the WAN (1)
- Data theft (1st) data can be stolen (1) whilst in transit over the WAN.

[3]

Mark Scheme Guidance

Question 19(a):

Must identify the hardware (1st) before description can be awarded.

CSU – Channel Service Unit, DSU – Data Service Unit.

Do NOT accept:

- Cables

- Network Card/NIC

- Hub

- Switch.

Question 19(b):

Must identify the threat (1st) before description can be awarded.

Examiner comments

Question 19(a) – This question asked candidates to identify and describe two pieces of hardware needed to create a WAN connection. Lack of subject knowledge meant that many candidates gave hardware that would be used to create a LAN rather than a WAN. Answers such as switch, hub, cable were not considered worthy of credit. Correct answers included a router and a modem. Candidates that could identify these items were frequently able to describe the device.

Question 19(b) – This question asked candidates to identify and describe one threat, other than social engineering, to Progress Jewellers data when transmitting over a WAN. Poor examination technique meant that some candidates gave social engineering as an answer! Many candidates gave a correct answer to this question, often describing the interception of Progress Jewellers data.

Question 20

20* Explain why Progress Jewellers would use bespoke software to manage its business.

[10]

Answers should be reasons WHY bespoke software is used, so should focus on advantages/benefits.

Indicative content
- Off the shelf unlikely to have all necessary features
- Jewellery retail has specific needs
- Bespoke software can be written to support these needs
- Progress Jewellers can adapt the software as and when needed to meet the changing needs of the business
- Competitive advantage.

Mark Scheme Guidance

Level 3: 7–10 marks

The learner has **explained** why Progress Jewellers would use bespoke software to manage its jewellery business.

Explanations will be in context

Subject specific terminology and knowledge will be clearly used to support and inform the explanations.

Level 2: 4–6 marks

The learner has **described** how Progress Jewellers would use bespoke software to manage its jewellery business. May not be in context.

At the bottom of the mark band, the learner may describe a single reason.

Some subject specific terminology and knowledge will be used.

Level 1: 1–3 marks

The learner has **identified** points about how Progress Jewellers would use bespoke software.

At the bottom of the mark band, a single point may be identified.

Subject specific terminology may be limited or missing.

0 marks – Nothing worthy of credit.

Examiner comments

This question was marked using a banded response mark scheme. Candidates were asked to explain why Progress Jewellers would use bespoke software to manage its business. Many candidates were able to answer this question well, frequently scoring in MB2. Some candidates explained why Progress Jewellers would not use open source software, or described advantages of open source software rather than bespoke.

Question 21

21 Progress Jewellers uses a hypervisor to run multiple servers on a single physical server.

(a) (i) Identify the name for this kind of technology.

One mark for:
· Virtualisation (1).   ..**[1]**

(ii) Explain **two** advantages and **one** disadvantage of using this kind of technology.

Advantage 1....

Up to **two** marks for each of **three** explanations e.g.:
Advantages
- Multiple workloads can be ran on one physical box (1) making more efficient use of the hardware (1).
- Can reduce costs (1) as workloads can be consolidated (1).
- Less cabling needed (1) reduces complexity (1)
- Improved disaster recovery/backup (1) as virtual machines are just a collection of files (1).
- Reduced power consumption (1) as less physical hardware needed (1)
- Any other valid suggestion.

Advantage 2....

Disadvantages
- Added complexity (1) means more technical staff needed (1).
- If physical hardware breaks (1) multiple servers can go offline (1).
- Easier to steal machines (1) as they are just a collection of files (1).
- Any other valid suggestion.

Disadvantage..

[6]

Mark Scheme Guidance

Question 21(a)(i):

Correct answer only.

Examiner comments

Question 21(a)(i) – This question asked candidates to identify virtualisation technology. Many were able to do so.

iQuestion 21(a)(ii) – This question asked candidates to explain two advantages and one disadvantage of virtualisation technology. Many candidates had clearly studied this topic well and were able to explain advantages and disadvantages in context. The most frequently seen incorrect answer related to mainframes or thin client technology rather than virtualisation.

The small print

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