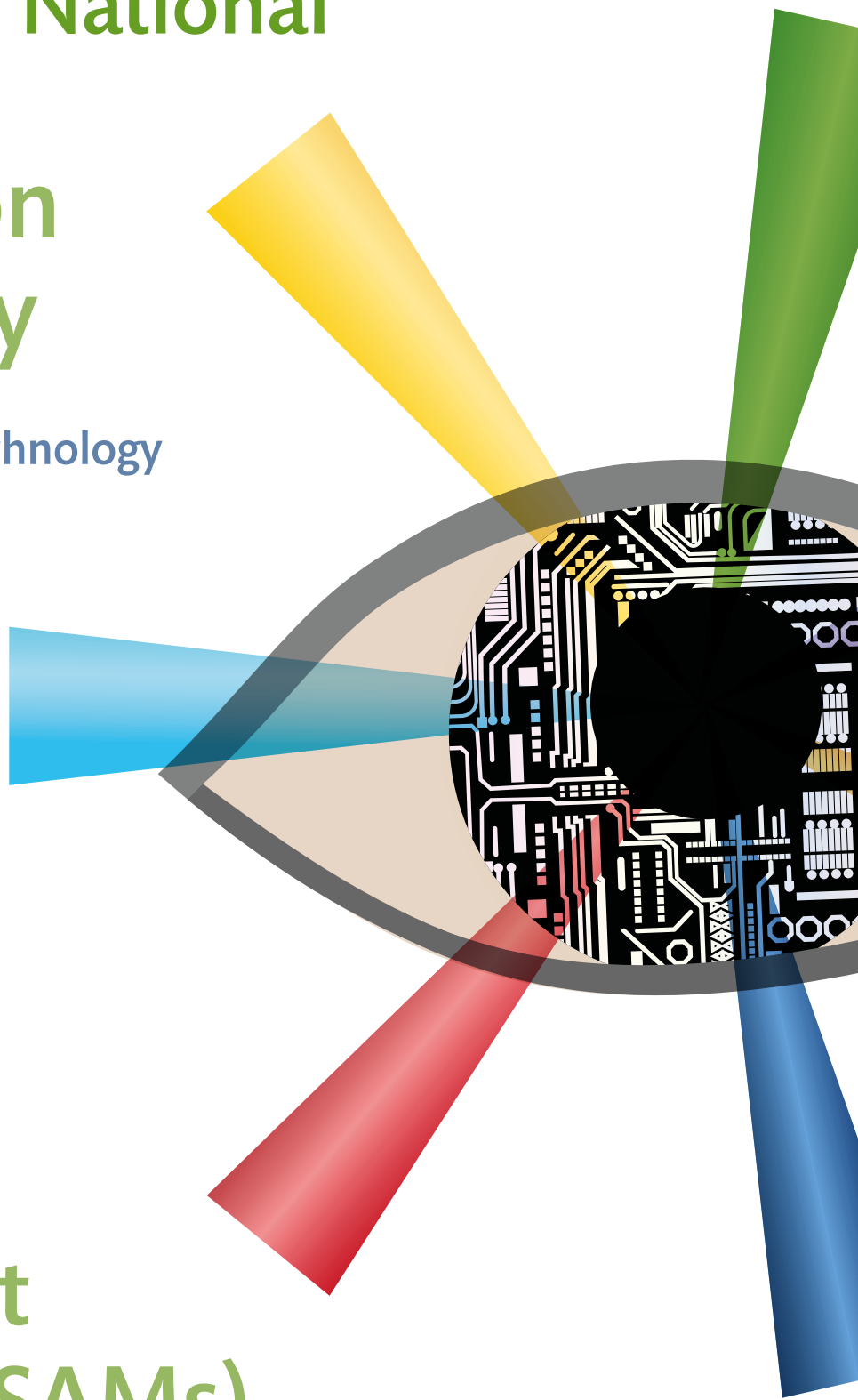


Pearson BTEC Level 3 National in Information Technology

Unit 1: Information Technology
Systems



Sample Assessment Materials (SAMs)

*For use with Extended Certificate, Foundation Diploma,
Diploma and Extended Diploma in Information Technology*

First teaching from September 2016

Issue 3

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Write your name here

Surname

Forename

Learner Registration Number

Centre Number

Level

 3

Information Technology

Unit 1: Information Technology Systems

Extended Certificate, Foundation Diploma, Diploma and Extended Diploma in Information Technology

Sample assessment materials for first teaching September 2016

Time: 2 hours

Total



marks

You do not need any other materials.

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and learner registration number.
- Answer **all** questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*

Information

- The total mark for this paper is 90.
- The marks for **each** question are shown in grey boxes
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Paper reference

31760H

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Turn over ►

PEARSON

Answer ALL questions. Write your answers in the spaces provided.

1 GF Training provides training courses for industry in various locations around the country.

The company has a head office in the Midlands.

The company has a local area network (LAN) in the head office.

The network is used to:

- ☐ carry out day-to-day administration tasks
- ☐ store personal information about delegates and trainers
- ☐ store details of courses
- ☐ produce and store up-to-date training materials
- ☐ communicate internally and externally.

(a) Describe how two features of a local area network (LAN) can be used by GF Training.

4 marks

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- (b) GF Training must comply with the Data Protection Act 1988 when storing information about delegates and trainers.

One principle of the Act states that 'personal data shall be processed fairly and lawfully'.

Explain **two** legal requirements that GF Training needs to comply with to ensure that it processes personal data 'fairly and lawfully'.

4 marks

1

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- (c) GF Training has a pool of shared laptops that trainers use to access up-to-date training materials and information about delegates.

Trainers often deliver courses on consecutive days in different locations. They use a virtual private network (VPN) to access the LAN.

Discuss the implications to the trainer of accessing training materials and delegate information using a VPN.

6 marks

Area for writing the answer to question (c).

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(d) Analyse the risks to data that arise from trainers using a pool of shared laptops and suggest measures that can be taken to reduce these risks.

8 marks

Area for writing the answer to Question 1(d). The area contains horizontal dotted lines for writing.

Total for Question 1 = 22 marks

- 2 Josie is a student on a graphics design course at Swindhone College.
As part of her course she has to manipulate and edit high resolution images.
Josie uses a range of devices to complete her assignments.

(a) Josie has completed an assignment containing large files.

She is going to submit the assignment to her tutor by email.

Before submitting the work she compresses the files.

Explain **two** drawbacks for Josie's tutor of receiving compressed files.

4 marks

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- (b) Josie needs to choose between 'lossy' or 'lossless' compression to submit photographs to her tutor.

Explain **two** factors that Josie should consider when choosing a file compression type.

4 marks

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- (c) Tablet devices use solid state drives (SSD) rather than traditional hard disk drives (HDD).

Assess how the features of solid state drives (SSD) make them suitable for use in tablet devices.

6 marks

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- (d) Josie is considering buying a laptop with an HDD to complete her graphics assignments.

Explain why Josie may prefer to buy a laptop with an HDD rather than an SSD.

3 marks

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- (e) Josie's new laptop has a pre-installed operating system.

Describe the role of the operating system in memory management.

3 marks

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- (f) Josie is aware that data stored on her laptop is at risk of loss or corruption. She would like to keep the data secure. She has decided to set up a username and password on her laptop.

The password must:

- ◊ be a minimum of 8 characters long
- ◊ be a mixture of upper/lower case and special characters
- ◊ only be attempted 4 times before access to the laptop is locked, and a text sent to Josie's mobile.

Draw a flow chart of the process to show the password setting procedure.

6 marks

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Total for Question 2 = 26 marks

3

Katalog is a large catalogue retailer with stores around the UK.

Goods can be purchased in store or via the company website.

Goods purchased online are delivered from a central warehouse.

The company uses an automated stock control system throughout its stores and the central warehouse.

- (a) Katalog is considering introducing a 'click and collect' service, where customers can order goods from the website and collect them in a local store.

Katalog has decided to use an online questionnaire to gather opinions about the proposed system from potential customers.

Explain **two** factors that Katalog would need to consider when designing the questions to ensure that the data collected is reliable.

4 marks

- (b) The company uses an automated stock control system in the central warehouse for sales to online customers.

Analyse how the features of an automated stock control system will impact on the company and on online customers.

6 marks

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- (c) Many customers worry about the security of personal data when paying for goods and services online.

HTTPS is a method used to secure data transmitted between a user and a website.

Describe how HTTPS is used to secure transmitted data.

4 marks

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- (d) The Web Content Accessibility Guidelines (WCAG) are designed to help make sure that web content is accessible to people with disabilities.

Explain **two** guidelines provided by WCAG that the designers of the Katalog website should follow to ensure that it is suitable for people with disabilities.

6 marks

1

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Total for Question 3 = 20 marks

- 4 Claersons is a small business with a head office based in the north east of England and offices in other parts of the UK.

It has a network that is used to access all software and data.

Claersons has decided to update its computer systems.

- (a) Claersons is considering moving to using a Software as a Service (SaaS) cloud-based software and storage system, rather than replacing the existing systems with 'like for like' systems.

The company believes that this change will bring benefits for both the company and the staff.

Analyse the benefits to Claersons and its staff of a move to a SaaS cloud-based software and storage system.

10 marks

Area for writing the answer to question 4(a). The area contains horizontal dotted lines for writing.

DO NOT WRITE IN THIS AREA

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Area for writing answers, consisting of a large rectangle with horizontal dotted lines.

- (b) Claersons have decided to invest in mobile technology for staff to use when they are in the office, travelling and when working with clients on architectural projects.

The company intends to invest in a combination of tablet and laptop devices to be used alongside their current network and desktop PCs.

Evaluate the company's decision to invest in mobile technology.

12 marks

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Area for writing answers, consisting of horizontal dotted lines.

Total for Question 4 = 22 marks

END OF EXAM

TOTAL FOR PAPER = 90 MARKS

Unit 1: Information Technology Systems – sample marking grid

General marking guidance

- All learners must receive the same treatment. Examiners must mark the first learner in exactly the same way as they mark the last.
- Marking grids should be applied positively. Learners must be rewarded for what they have shown they can do, rather than be penalised for omissions.
- Examiners should mark according to the marking grid, not according to their perception of where the grade boundaries may lie.
- All marks on the marking grid should be used appropriately.
- All the marks on the marking grid are designed to be awarded. Examiners should always award full marks if deserved. Examiners should also be prepared to award zero marks, if the learner's response is not rewardable according to the marking grid.
- Where judgement is required, a marking grid will provide the principles by which marks will be awarded.
- When examiners are in doubt regarding the application of the marking grid to a learner's response, a senior examiner should be consulted.

Specific marking guidance

The marking grids have been designed to assess learner work holistically. Rows in the grids identify the assessment focus/outcome being targeted. When using a marking grid, the 'best fit' approach should be used.

- Examiners should first make a holistic judgement on which band most closely matches the learner's response and place it within that band. Learners will be placed in the band that best describes their answer.
- The mark awarded within the band will be decided based on the quality of the answer, in response to the assessment focus/outcome and will be modified according to how securely all bullet points are displayed at that band.
- Marks will be awarded towards the top or bottom of that band, depending on how they have evidenced each of the descriptor bullet points.

Question Number	Answer	Mark
1a	<p>Award one mark for identification and one mark for an appropriate expansion point, up to a maximum of two marks each.</p> <ul style="list-style-type: none"> • Sharing of peripherals (1) which saves costs (1) • Can save files in a shared area (1) which will allow all users of the network to access the file/ enable collaborative working /allow users to work on a single shared document (1) • Users can log on to any workstation (1) which allows 'hot desking' (1) • Centralised backup (1) which means that individual users don't have to worry about backing up their data (1) • Centralised installation of software (1) which is more efficient than installing software on several individual computers (1) • Software will be the same version across the network (1) which aids collaborative working (1) • Centralised control of security (1) users do not need to worry about viruses/unauthorised access (1) 	4

Question Number	Answer	Mark
1b	<p>Award one mark for requirement and one mark for explanation up to a maximum of two marks each.</p> <p>The data subject must consent to the data being processed (1) trainers/delegates must sign/indicate that they agree to their data being processed. (1)</p> <p>The processing must be necessary in order to carry out the specified task (1) e.g. paying staff/taking payments for courses/organising courses. (1)</p>	4

Question Number	Answer
1c	<p>Answers will be credited according to the learner's demonstration of knowledge and understanding of the material, using the indicative content and level descriptors below. The indicative content that follows is not prescriptive. Answers may cover some/all of the indicative content but should be rewarded for other relevant answers.</p> <p>Learners discuss the implications of accessing training materials and delegate information using a VPN.</p> <p>Benefits of using VPN</p> <p>The VPN will give trainers secure access to resources on the LAN when they are not in the head office.</p> <p>Will need to have laptops set up so that a VPN client can be launched. This will enable the server and laptop to verify each other as authentic and subsequently all internet communication will be encrypted and secured from eavesdropping.</p> <p>Trainers will use a log in and password to access the VPN.</p> <p>The VPN gives secure access even when delegates are using unsecured public networks.</p> <p>The delegates' information must be kept secure to comply with the DPA, using the VPN will help ensure security.</p> <p>Hotels frequently have unsecured networks. Trainers will be in hotels, etc. overnight if they are delivering meetings on consecutive days, or if they have to travel long distances from home.</p> <p>Trainers may be home based and may have to travel to venues, trains, coffee shops, etc. service areas/stations may provide unsecured WiFi.</p> <p>Types of material that will be accessed</p> <p>The delegates attending courses may change at short notice, trainers will need to have access to up-to-date lists and detail information. Similarly, they will need to provide head office with information about attendance.</p> <p>Trainers will need access to the latest versions of training materials, therefore they must have access to the LAN at all times when they are not in the head office.</p> <p>The trainers may need to provide feedback on courses to allow materials to be updated.</p> <p>The trainers may need to provide attendance information for billing purposes/follow up with delegates.</p> <p>May need to communicate with head office, e.g. via email if any issues/ queries arise.</p>

Mark scheme (award up to 6 marks) refer to the guidance on the cover of this document for how to apply levels-based mark schemes*.

Level	Mark	Descriptor
Level 0	0	No rewardable material.
Level 1	1–2	<p>Technical vocabulary is used but it is not used appropriately to support arguments, in relation to the issues of the question.</p> <p>Issues are identified but chains of reasoning are not made, leading to a superficial understanding of the relative importance of issues to the scenario.</p> <p>Does not link arguments to the given scenario.</p>
Level 2	3–4	<p>Accurate technical vocabulary is used to support arguments but not all arguments are relevant to the issues of the question.</p> <p>There is consideration of relevant issues using logical chains of reasoning, but does not reflect on their relative importance to the given scenario.</p> <p>Considers the various elements of the question and but does not always link arguments to the given scenario.</p>
Level 3	5–6	<p>Fluent and accurate technical vocabulary is used to support arguments that are relevant to the issues of the question.</p> <p>There is a balanced and wide ranging consideration of relevant issues, using coherent and logical chains of reasoning, that shows a full awareness of their relative importance to the given scenario.</p> <p>Carefully considers the various elements of the question and links arguments to the given scenario.</p>

Question number	Indicative content
1d	<p>Answers will be credited according to the learner's demonstration of knowledge and understanding of the material, using the indicative content and level descriptors below. The indicative content that follows is not prescriptive. Answers may cover some/all of the indicative content but should be rewarded for other relevant answers.</p> <p>Learners analyse the additional risks to data that arise from using shared laptops and suggest measures that can be taken to reduce the risks.</p> <p>Learners must analyse how the following threats are an issue due to shared access.</p> <p>The analysis may include reference to:</p> <ul style="list-style-type: none"> • network/network server • laptops • storage devices. <p>Potential threats to stored data</p> <ul style="list-style-type: none"> • Viruses and other malware can corrupt or delete stored data, which would at least inconvenience the company but could potentially be very expensive to correct/re-enter. • Unauthorised access/hackers can have major impact on the company by accessing information, e.g. financial information, and on trainers and delegates, e.g. personal information. • Accidental damage to data, e.g. lost data, can be very expensive to retrieve. • Phishing has the potential to take and use personal information for illegal/improper purposes. <p>Techniques for preventing unauthorised access to the laptops</p> <ul style="list-style-type: none"> • Firewall installed on the laptops in addition to the network to prevent unauthorised access. • Password protection on the laptop, provides access to the trainers but prevents unauthorised access. • Set up user areas on the laptop for individual trainers that are password protected. • Access levels for trainers • File permissions for trainers <p>Techniques for preventing other threats to data stored on the laptops</p> <ul style="list-style-type: none"> • Anti-virus/Malware software installed on laptops <p>Physical methods to protect data stored on laptops and storage devices</p> <ul style="list-style-type: none"> • Laptops, other portable devices and storage devices are at risk of loss/theft. Trainers must take responsibility for 'looking after' the laptops when in their possession, e.g. locked away overnight, never left in a room that is not locked. • Trainers should use external storage devices with caution, applying the same sort of physical access

		controls to storage devices, e.g. USB drives/external hard drives.
Mark scheme (award up to 8 marks) refer to the guidance on the cover of this document for how to apply levels-based mark schemes*.		
Level	Mark	Descriptor
Level 0	0	No rewardable material.
Level 1	1–2	<p>Technical vocabulary is used but it is not used appropriately to support arguments, in relation to the issues of the question.</p> <p>Issues are identified but chains of reasoning are not made, leading to a superficial understanding of the relative importance of issues to the scenario.</p>
Level 2	3–5	<p>Accurate technical vocabulary is used to support arguments but not all arguments are relevant to the issues of the question.</p> <p>There is consideration of relevant issues using logical chains of reasoning, but does not reflect on their relative importance to the given scenario.</p>
Level 3	6–8	<p>Fluent and accurate technical vocabulary is used to support arguments that are relevant to the issues of the question.</p> <p>There is a balanced and wide ranging consideration of relevant issues, using coherent and logical chains of reasoning, that shows a full awareness of their relative importance to the given scenario.</p>

Question Number	Answer	Mark
2a	<p>Award one mark for identification and one additional mark for appropriate expansion, up to a maximum of two marks each.</p> <p>Tutor's anti-virus/malware software may see a compressed file as a threat (1) which would block access to the file. (1)</p> <p>The college email system may quarantine the file (1) and the tutor may not be aware that the work has been submitted. (1)</p> <p>Compression type might not be compatible with the tutor's system (1) files will not be readable and will have to be resent (by Josie) in a different format. (1)</p> <p>Some of Josie's files may already be in a compressed format and 'compression' might increase the size of the file being sent (1) increasing the time taken to receive the file. (1)</p> <p>Tutor's system will need to use processing time to extract/decompress the file (1) which may be problematic if using a low specification older computer. (1)</p> <p>Decompressing the file adds a memory load on the tutor's system (1) causing the system to lag/slow down. (1)</p>	4

Question Number	Answer	Mark
2b	<p>Award one mark for identification and one additional mark for appropriate expansion, up to a maximum of two marks each.</p> <p>Josie's tutor would need to view photographs in their original quality in order to assess the work (1) lossy format may affect the quality of the image and may therefore affect her mark/lossless format would have no impact on the quality. (1)</p> <p>Josie may need to reduce the photograph/image file size to transfer them to the tutor (by email) (1) and therefore a lossy format would result in a smaller file size than a lossless format. (1)</p>	4

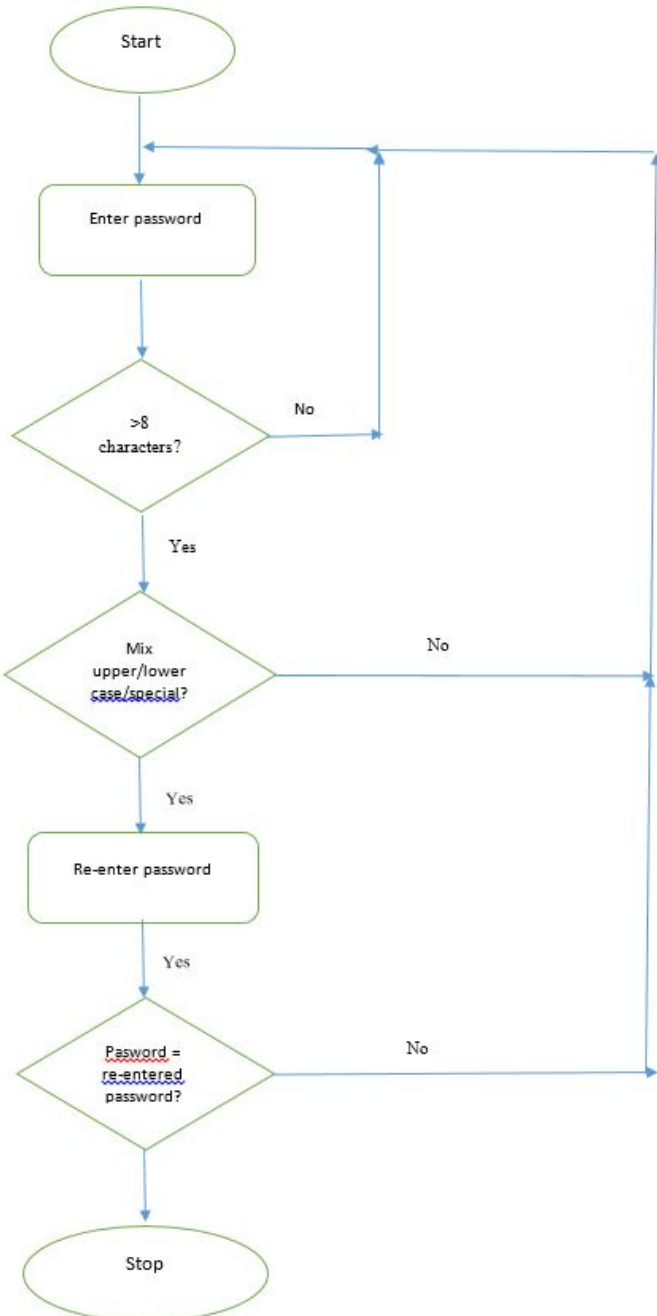
Question Number	Answer	
2c	<p>Answers will be credited according to the learner's demonstration of knowledge and understanding of the material, using the indicative content and level descriptors below. The indicative content that follows is not prescriptive. Answers may cover some/all of the indicative content but should be rewarded for other relevant answers.</p> <p>Learners analyse how the features of SSDs make them suitable for use in tablet devices.</p> <p>Flash storage has no moving parts so suitable for portable devices because they:</p> <ul style="list-style-type: none"> • are more robust • are lighter • are quieter • generate less heat. <p>HDDs rely on spinning platters and read/write heads, etc. limiting how small they can be manufactured.</p> <p>SSDs rely on a system of interconnected flash memory chips that can be built on to the motherboard/main board, which means that:</p> <ul style="list-style-type: none"> • tablets can manufactured in a smaller form • there is more space within a tablet for other components that will improve the ways the device can be used (GPS sensor, camera/image sensor, larger battery). <p>Shock proof</p> <ul style="list-style-type: none"> • Data is written electronically so data can be accessed while the device is being moved without risk of interruption or corruption. • No mechanical parts mean the data on the drive will not be corrupted if the device is dropped (which is more likely in a handheld device than a desktop computer). <p>Cooling</p> <ul style="list-style-type: none"> • Generate very little heat (compared to traditional HDDs) so device does not require additional cooling methods, which allows for smaller and lighter devices. <p>Power consumption</p> <ul style="list-style-type: none"> • Use less power than traditional HDDs as read/write operations do not require the system to run motors to drive HDD spindles, read heads, etc. 	

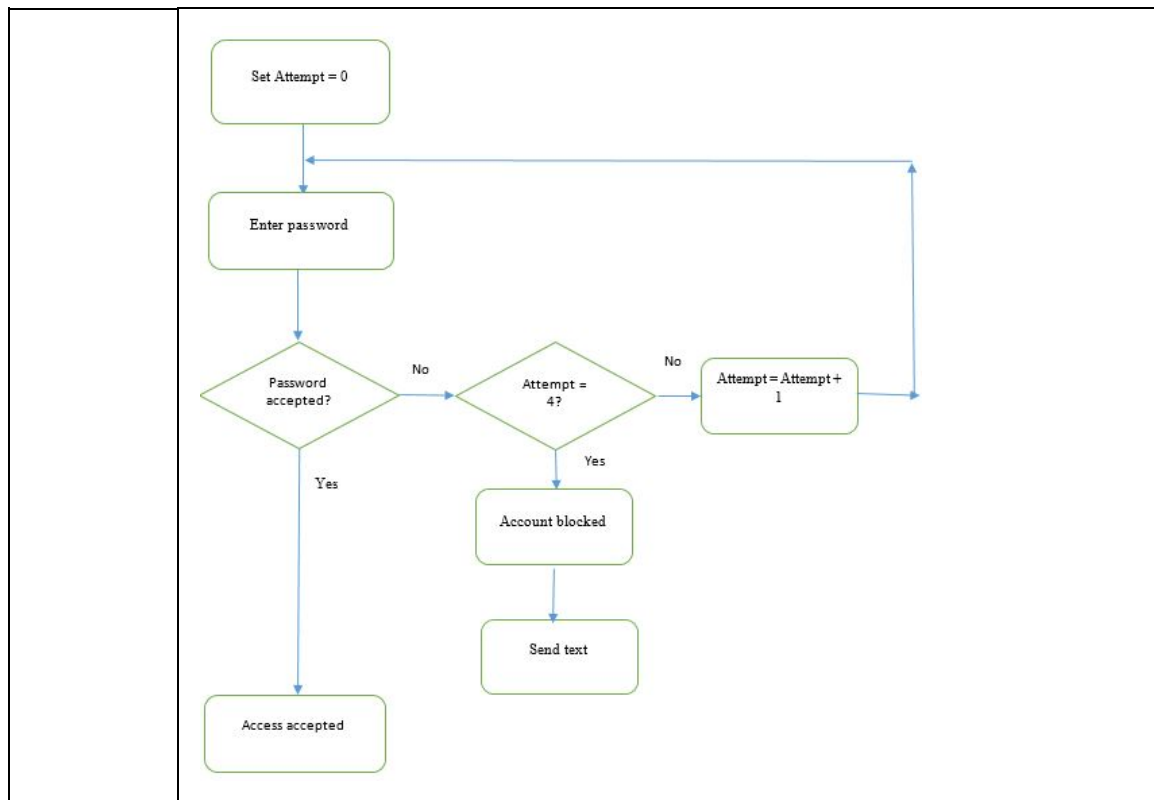
Mark scheme (award up to 6 marks) refer to the guidance on the cover of this document for how to apply levels-based mark schemes*.

Level	Mark	Descriptor
Level 0	0	No rewardable material.
Level 1	1–2	<p>Technical vocabulary is used but it is not used appropriately to support arguments, in relation to the issues of the question.</p> <p>Issues are identified but chains of reasoning are not made, leading to a superficial understanding of the relative importance of issues to the scenario.</p>
Level 2	3–4	<p>Accurate technical vocabulary is used to support arguments but not all arguments are relevant to the issues of the question.</p> <p>There is consideration of relevant issues using logical chains of reasoning, but does not reflect on their relative importance to the given scenario.</p>
Level 3	5–6	<p>Fluent and accurate technical vocabulary is used to support arguments that are relevant to the issues of the question.</p> <p>There is a balanced and wide ranging consideration of relevant issues, using coherent and logical chains of reasoning, that shows a full awareness of their relative importance to the given scenario.</p>

Question Number	Answer	Mark
2d	<p>Award one mark for identification and one additional mark for each appropriate expansion.</p> <p>HDDs are less expensive than SSDs for the same amount of storage (1) Josie is likely to need a large amount of storage for graphics files (1) however with an SSD she would need to buy/use external storage. (1)</p>	3

Question Number	Answer	Mark
2e	<p>Award one mark for each of the following, up to a maximum of three marks.</p> <p>The memory manager needs to allocate blocks of memory to applications (and data) (1) the memory manager should allow many applications to occupy memory at the same time (1) the applications need to be protected from one another so that they do not overwrite each other. (1)</p>	3

Question Number	Answer	
2f	<p>A flow chart showing the process to show the password setting procedure.</p> <p>Example response – note this is indicative only. Credit should be given for a flow chart that meets the requirements of the given problem.</p> <p>Flow chart should include logic for:</p> <ul style="list-style-type: none"> • Minimum of 8 characters long • Mixture of upper/lower case and special characters • 4 attempts at times trying to enter password • Need for text Josie’s mobile.  <pre> graph TD Start([Start]) --> Enter[Enter password] Enter --> Len{>8 characters?} Len -- No --> Join1(()) Len -- Yes --> Mix{Mix upper/lower case/special?} Mix -- No --> Join1 Mix -- Yes --> ReEnter[Re-enter password] ReEnter --> Match{Password = re-entered password?} Match -- No --> Join1 Match -- Yes --> Stop([Stop]) Join1 --> Enter </pre> <p>The flowchart illustrates the password setting process. It begins with a 'Start' terminal, leading to an 'Enter password' process. A decision diamond checks if the password is '>8 characters?'. If 'No', the flow goes to a junction point. If 'Yes', it proceeds to another decision diamond: 'Mix upper/lower case/special?'. If 'No', it also goes to the junction point. If 'Yes', it leads to a 'Re-enter password' process. From there, a decision diamond checks 'Password = re-entered password?'. If 'No', it goes to the junction point. If 'Yes', it leads to a 'Stop' terminal. All 'No' paths from the decision diamonds converge at a single junction point, which then loops back to the 'Enter password' process.</p>	



Mark scheme (award up to 6 marks) refer to the guidance on the cover of this document for how to apply levels-based mark schemes*.

Level	Mark	Descriptor
Level 0	0	No rewardable material.
Level 1	1–2	Diagram provides partial coverage of appropriate decisions and shows some logical structure to meet the requirements of the scenario. Diagram includes annotations to show the results of decision making.
Level 2	3–4	Diagram provides coverage of mostly appropriate decisions and logical structure to meet the majority of the requirements of the scenario, but the structure may not be the most efficient. Diagram includes accurate annotations and technical language to show the results of decision making.
Level 3	5–6	Diagram provides thorough coverage of appropriate decisions and logical structure to fully meet the requirements of the scenario. Diagram includes accurate annotations and technical language to accurately represent an efficient system

Question Number	Answer	Mark
3a	<p>Award one mark for each identification point and one additional mark for appropriate expansion.</p> <p>Should use multiple-choice questions where there are a fixed number of options (1) can use simple data analysis tools to produce accurate results. (1)</p> <p>Rating scales can be used to measure customer opinion or attitudes (1) can use simple data analysis tools to produce accurate results. (1)</p> <p>Comment/Essay box/Free response questions can be used where opinions are required (1) responses must then be viewed individually/ require sophisticated text analysis tools/hard to extract precise data. (1)</p> <p>The language used should avoid jargon or overly technical concepts (1) respondents will lose interest and quit the survey/produce random answers. (1)</p> <p>The focus should be on one idea at a time/avoid multiple ideas (1) these will confuse respondents/ make questions hard to answer/make the results unreliable. (1)</p> <p>The language must ensure that there is no bias towards one answer (1) this will violate a survey's objectivity/skew responses. (1)</p> <p>Accept any other relevant phrasing/wording.</p>	4

Question Number	Answer	Mark
3b	<p>Answers will be credited according to the learner's demonstration of knowledge and understanding of the material, using the indicative content and level descriptors below. The indicative content that follows is not prescriptive. Answers may cover some/all of the indicative content but should be rewarded for other relevant answers.</p> <p>Analyse how the features of an automated stock control system will impact on both the company and on online customers.</p> <p><u>Implications for customers</u> Customers must have accurate, up-to-date information, therefore it is essential the system must operate in real time.</p> <p>The system must record how many of each item is currently in stock in the warehouse.</p> <p>Have a record of outstanding orders of a specified product and the expected delivery date, which will then inform customers of their expected delivery dates if they pre-order/reserve.</p> <p><u>Implications for the company</u> The company must ensure that they do not hold too much stock as this will have financial implications such as paying for storage space/financial investment in the stock held. However, understocking can also have implications, e.g. if customers find that they have to wait for goods they are likely to take their business elsewhere.</p> <p>An efficient automated system will allow for 'just in time' (JIT) ordering, items will only be ordered as they are needed.</p> <p>The system will record minimum, maximum and reorder stock levels. If the minimum/maximum stock level is reached the system must automatically alert the company so that action can be taken. When reorder stock levels are reached automatic reordering will be triggered.</p> <p>The system needs to be able to predict the stock levels needed based on previous sales and also take into account that certain items of stock may be seasonal. Some sales are triggered by other factors such as the weather, which can be hard to predict, and this may need workers to be able to override the system.</p>	6

Mark scheme (award up to 6 marks) refer to the guidance on the cover of this document for how to apply levels-based mark schemes*.

Level	Mark	Descriptor
Level 0	0	No rewardable material.
Level 1	1–2	<p>Technical vocabulary is used but it is not used appropriately to support arguments, in relation to the issues of the question.</p> <p>Issues are identified but chains of reasoning are not made, leading to a superficial understanding of the relative importance of issues to the scenario.</p>
Level 2	3–4	<p>Accurate technical vocabulary is used to support arguments but not all arguments are relevant to the issues of the question.</p> <p>There is consideration of relevant issues using logical chains of reasoning, but does not reflect on their relative importance to the given scenario.</p>
Level 3	5–6	<p>Fluent and accurate technical vocabulary is used to support arguments that are relevant to the issues of the question.</p> <p>There is a balanced and wide ranging consideration of relevant issues, using coherent and logical chains of reasoning, that shows a full awareness of their relative importance to the given scenario.</p>

Question Number	Answer	Mark
3c	<p>Award one mark for any four of the following.</p> <p>SSL (secure sockets layer) added to HTTP to add layer of security (to give HTTPS)/security certificate. (1)</p> <p>SSL uses encryption to secure the data (1) only those with the 'key' can read the data. (1)</p> <p>SSL certificate provides private communication channels for data transmission/only the website server and the customer's device. (1)</p> <p>Accept any other relevant phrasing/wording.</p>	4

Question Number	Answer	Mark
3d	<p>Award one mark for identification and one additional mark, up to a maximum of two, for each appropriate expansion.</p> <p>Perceivable (1)</p> <ul style="list-style-type: none"> • Provide text alternatives for non-text content (1) • Provide captions and alternatives for audio and video content (1) • Make it available to assistive technologies (1) • Use sufficient contrast to make things easy to see and hear(1) • Make content adaptable (1) <p>Operable (1)</p> <ul style="list-style-type: none"> • Make all functionality keyboard accessible (1) • Give users enough time to read and use content (1) • Do not use content that causes seizures (1) • Help users navigate and find content (1) <p>Understandable (1)</p> <ul style="list-style-type: none"> • Make text readable and understandable (1) • Make content appear and operate in predictable ways (1) • Help users avoid and correct mistakes (1) <p>Robust (1)</p> <ul style="list-style-type: none"> • Maximise compatibility with current and future technologies (1) <p>Allow marks where candidates provide examples.</p> <p>Accept any other relevant phrasing/wording.</p>	6

Question number	Indicative content
4a	<p>Answers will be credited according to the learner's demonstration of knowledge and understanding of the material, using the indicative content and level descriptors below. The indicative content that follows is not prescriptive. Answers may cover some/all of the indicative content but should be rewarded for other relevant answers.</p> <p>Learners analyse the benefits to <i>Claersons</i> of a move to a cloud-based software and storage system.</p> <p>Using a 'Software as a Service' (SaaS) as an alternative to the current system will bring advantages to <i>Claersons</i>. In the traditional current system <i>Claersons</i> had to build the server, install the application and configure it.</p> <p>Using SaaS <i>Claersons</i> don't physically buy a server but access a part of a much larger server, which is off-site away from the business.</p> <ul style="list-style-type: none"> • Reduction in initial capital expenditure as there are no upfront costs for expensive hardware. • No need to pay for technical staff, either in-house or on a consultancy basis to design, install or configure the system. • No need to pay for technical staff to maintain the system/ deal with user issues, etc. • <i>Claersons</i> will not need to buy the software, instead it can use a subscription-based/pay as you go model. This will give it authorisation to use the software for a period of time and pay only for the software that is used. • Server capacity can be scaled up and down to fit the needs of the business. This has the added benefit of being better for the environment than running a server with excess capacity. • <u>Claersons</u> can become more competitive as it has access to up-to-date technology (without having to make huge investments). • SaaS will give <i>Claersons</i> robust disaster recovery, which would otherwise be unlikely due to lack of finance and expertise. <p>Additional benefits arise because <i>Claersons</i> uses software provided by the suppliers.</p> <ul style="list-style-type: none"> • The suppliers will take care of software updates for <i>Claersons</i>, reducing the need for staff to do it. This in turn can lead to a reduction in staffing costs as highly qualified technicians won't be needed. • Ensures that software is up to date for all users of the system. • Security updates are included in this and this ensures that all security software is as up to date as possible, overcoming new threats to data. • Cloud business applications are offered by suppliers much cheaper than bespoke packages or other commercially

<p>available software.</p> <p>Benefits to staff.</p> <ul style="list-style-type: none"> • Because the system can be used anywhere with an internet connection, staff will be able to access the files/folders/software when they are out of the office. • Many suppliers provide mobile apps that will allow staff to access data on a range of devices. • Some staff, e.g. office staff, may be able to take advantage of the system and work from home. • Because all files are stored centrally everyone sees the latest/same version leading to improved collaboration. Reducing the problems of conflicting file content, formats and titles. <p>Reduces the implications/security risks of lost or stolen laptops and other mobile devices. Data stored on the cloud is automatically backed up and therefore instantly retrievable. Suppliers offer a remote 'wiping' system to remove sensitive data from devices.</p> <p>Improved security arises from the reduction in the need to send files via external methods such as email.</p>		
<p>Mark scheme (award up to 10 marks) refer to the guidance on the cover of this document for how to apply levels-based mark schemes*.</p>		
Level	Mark	Descriptor
Level 0	0	No rewardable material.
Level 1	1–3	<p>Technical vocabulary is used but it is not used appropriately to support arguments, in relation to the issues of the question.</p> <p>Issues are identified but chains of reasoning are not made, leading to a superficial understanding of the relative importance of issues to the scenario.</p>
Level 2	4–7	<p>Accurate technical vocabulary is used to support arguments but not all arguments are relevant to the issues of the question.</p> <p>There is consideration of relevant issues using logical chains of reasoning, but does not reflect on their relative importance to the given scenario.</p>
Level 3	8–10	<p>Fluent and accurate technical vocabulary is used to support arguments that are relevant to the issues of the question.</p> <p>There is a balanced and wide ranging consideration of relevant issues, using coherent and logical chains of reasoning, that shows a full awareness of their relative importance to the given scenario.</p> <p>Various elements of the question are carefully considered and arguments are clearly linked to the given scenario.</p>

Question number	Indicative content
4 b)	<p>Answers will be credited according to the learner's demonstration of knowledge and understanding of the material, using the indicative content and levels descriptors below. The indicative content that follows is not prescriptive. Answers may cover some/all of the indicative content but should be rewarded for other relevant answers.</p> <p>Learners provide an evaluation of the decision, stating if they think the decision is appropriate or not. Their evaluation should be supported by relevant points which may include:</p> <p>Flexibility and productivity</p> <ul style="list-style-type: none"> • Giving staff a choice of device allows flexibility to how and where they work. Staff can work from home, be more productive when meeting clients or traveling to work. • Staff can choose a preferred working style, rather than the traditional 'at desk' approach. • Staff may want to use 'cloud' technologies to share data but this may cause issues with the functionality of the task, and create security issues. • Staff are likely to share work with others, make presentations when working with clients. <p>Their choice of device would be affected by the ability to connect the device to devices for sharing/displaying, e.g. tablet devices may not provide the ability to connect to a projector, device chosen may provide a limited number of connections/ports.</p> <p>Security</p> <ul style="list-style-type: none"> • wifi is considered less secure than an Ethernet network, because the signal can be detected by anybody in range. • Mobile devices containing work/sensitive data may get lost or stolen more easily than desktops. • Exposed to wider threat of viruses, etc. when accessing different networks. • There are ways to secure devices, e.g. encryption of drives on mobile devices, using VPN to ensure a secure connection to the work server and/or implementing policies to ensure workers limit their exposure to open networks. • Increase in policies and security implementations, would increase technical staff workload. <p>Cost</p> <ul style="list-style-type: none"> • Initial purchase/insurance costs. • Cost to add secure wireless functionality to the current network. • Desktop PCs and current systems may still be required, so there will still be ongoing maintenance costs. <p>Maintenance</p> <ul style="list-style-type: none"> • Not being permanently connected to the network, makes rolling out updates difficult. • Mobile form factor is more difficult to upgrade. • Architects may be working in harsher environments, such as building

	sites, which would need more robust equipment.	
	Performance <ul style="list-style-type: none">Tablets will not offer the same level of performance as laptops and desktops.Desktops are more likely to have larger screens and make use of mice/graphic tablets, which makes creating and editing large scale designs easier.Tablets have access to a wider range of applications that could be used in the field than desktops (applications allows them to interact in real time using cameras, imaging). Compatibility <ul style="list-style-type: none">Files and software may not be compatible with both the mobile and desktop/laptop operating systems.	
Mark scheme (award up to 12 marks) refer to the guidance on the cover of this document for how to apply levels-based mark schemes*.		
Level	Mark	Descriptor
Level 0	0	No rewardable material.
Level 1	1–4	Technical vocabulary is used but it is not used appropriately to support arguments, in relation to the issues of the question. Issues are identified but chains of reasoning are not made leading to a superficial understanding of the relative importance of issues to the scenario. No conclusion is presented or is generic.
Level 2	5–8	Accurate technical vocabulary is used to support arguments, but not all are relevant to the issues of the question. There is consideration of relevant issues using logical chains of reasoning but does not reflect upon their relative importance to the given scenario. An attempt at a conclusion is presented that links arguments to the given scenario but is not justified in that it does not reflect the careful consideration of both sides of the argument.
Level 3	9–12	Fluent and accurate technical vocabulary is used to support arguments that are relevant to the issues of the question. There is a balanced and wide ranging consideration of relevant issues using coherent and logical chains of reasoning that shows a full awareness of their relative importance to the given scenario A fully justified conclusion is presented that links arguments to the given scenario and that reflects the careful consideration of both sides of the argument leading to a reasoned decision.

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