



T Level Technical Qualification in Digital Business Services

Core knowledge and understanding

Paper A

Mark scheme

This Mark Scheme has been written by the assessment writer and refined, alongside the relevant questions, by a panel of subject experts through the external assessment writing process and at standardisation meetings.

The purpose of this Mark Scheme is to give you:

- examples and criteria of the types of response expected from a student
- information on how individual marks is to be awarded
- the allocated assessment objective(s) (AOs) and total mark for each question.

Marking guidelines

General guidelines

You must apply the following marking guidelines to all marking undertaken throughout the marking period. This is to ensure fairness to all students, who must receive the same treatment. You must mark the first student in exactly the same way as you mark the last.

- The Mark Scheme must be referred to throughout the marking period and applied consistently; do not change your approach to marking once you have been standardised.
- Reward students positively giving credit for what they have shown, rather than what they might have omitted.
- Utilise the whole mark range and always award full marks when the response merits them.
- Be prepared to award zero marks if the student's response has no creditworthy material.
- Do not credit irrelevant material that does not answer the question, no matter how impressive the response might be.
- The marks awarded for each response should be clearly and legibly recorded in the grid on the front of the question paper.
- If you are in any doubt about the application of the Mark Scheme, you must consult with your team leader or the chief examiner.

Guidelines for using extended-response marking grids

Extended-response marking grids have been designed to assess students' work holistically. They consist of bands-based descriptors and indicative content.

Bands-based descriptors: each band is made up of several descriptors for across the AO range, AO1 to AO3, which, when combined, provide the quality of response that a student needs to demonstrate. Each band-based descriptor is worth varying marks.

The grids are broken down into bands, with each band having an associated descriptor indicating the performance at that band. You should determine the band before determining the mark.

Indicative content reflects content-related points that a student may make but is not an exhaustive list. Nor is it a model answer. Students may make all, some or none of the points included in the indicative content as its purpose is as a guide for the relevance and expectation of the responses. Students must be credited for any other appropriate response.

Application of extended-response marking grids

When determining a band, you should use a bottom-up approach. If the response meets all the descriptors in the lowest band, you should move to the next one, and so on, until the response matches the band descriptor. Remember to look at the overall quality of the response and reward students positively, rather than focussing on small omissions. If the response covers aspects at different bands, you should use a best-fit approach at this stage and use the available marks within the band to credit the response appropriately.

When determining a mark, your decision should be based on the quality of the response in relation to the descriptors. You must also consider the relative weightings of the AOs, so as not to over / under credit a response. Standardisation materials, marked by the chief examiner, will help you with determining a mark. You will be able to use exemplar student responses to compare to live responses, to decide if it is the same, better or worse.

You are reminded that the indicative content provided under the marking grid is there as a guide and therefore you must credit other suitable responses a student may produce. It is not a requirement either that students must cover all the indicative content to be awarded full marks.

Assessment objectives (AOs)

This assessment requires students to:

AO1: Demonstrate knowledge and understanding of the digital business services sector

AO2: Apply knowledge and understanding of the digital business services sector to different situations and context

AO3: Analyse and evaluate information and issues related to the digital business services sector

The weightings of each AO can be found in the Qualification Specification.

Section A: Business Context and Culture

This section is worth 41 marks, plus 3 marks for the quality of written communication (QWC) and use of specialist terminology.

1 State one key factor that can influence the business environment.

[1 mark]

AO1 = 1 mark

Award **one** mark for:

- economic (1)
- environmental (1)
- legal/regulatory (1)
- political (1)
- social (1)
- technological (1).

Accept any other suitable response.

2 Describe one measurable value to customers using digital services.

[1 mark]

AO1 = 1 mark

Award **one** mark for:

- Customers can save money by providing easy access price comparisons for products and services (1).
- Digital services can provide customers access to support and engagement across multiple platforms (1).
- Customers can resolve their issues quickly and easily without having to wait on hold for a customer service representative (1).
- Digital services integrate social media and other community building tools into their digital services which enable customers to connect with others who share similar interests (1).

Accept any other suitable response.

3 Diamond Farms grow crops and raise animals which they then sell onto other retailers to sell to customers. They are considering opening an online farm shop to sell their products direct to customers but are new to technology and are worried about data theft and hackers.

(a) Identify one type of hacker who could target the farm shop.

[1 mark]

AO1 = 1 mark

Award **one** mark for:

- black hat hacker (1)
- grey hat hacker (1)
- white hat hacker (1).

Accept any other suitable response.

(b) Explain one reason why the identified hacker might want to target the farm's online shop.

[2 marks]

AO2 = 2 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks:

- An ethical hacker may target the farm's online shop as they are being paid by the owners (1) to identify weaknesses with their website so the vulnerabilities can be fixed (1).
- Black hat hackers may target the farm as they do not like that the farm sells meat or raises animals (1) so they may target their digital services to try and steal data / crash the website so the farm cannot sell anything (1).

Accept any other suitable response.

4 Super Sandwich Shop is a small business which sells a range of sandwiches and wraps direct to its customers. It has recently noticed that 95% of its transactions are by digital payment methods. It would like to only accept digital payments.

(a) State one risk that small businesses face by only accepting digital payment methods.

[1 mark]

AO1 = 1 mark

Award **one** mark for:

- audience exclusion/bias (1)

- compromised security (1)
- technical issues (1).

Accept any other suitable response.

(b) Explain one way this risk might affect Super Sandwich Shop.

[2 marks]

AO2 = 2 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks:

- Super Sandwich shop is at risk of audience bias as not all customers have or want digital payment methods and by only accepting them this could lead to reputational damage (1) as customers without digital payment methods will no longer be able to buy their sandwiches from the business (1).
- Super Sandwich Shop could face fines if its security is not strong enough as hackers may be able to access its systems to steal customer details (1) which would be a breach of data protection laws (1).
- If Super Sandwich Shop only accept digital payment methods, it may not be able to respond to disruptions such as lack of Wi-Fi (1). The payment machine will rely on internet access to take payments and if the internet is down/there is no signal, it will not be able to take payment and will have to turn customers away resulting in a reduction in sales (1).

Accept any other suitable response.

5 Junior Junkyard is a business which specialises in renovating metal objects which it sells online. Recently, the business was sold, and the new owners are concerned about the way the online business is being run. The new owners have decided to introduce customer accounts to its website.

As part of the changes, Junior Junkyard is using a change advisory board (CAB) to provide feedback on its changes.

(a) Describe one form of feedback which a CAB could provide.

[1 mark]

AO1 = 1 mark

Award **one** mark for:

- Feedback could be provided on the technical details of the change to help understand whether the change will impact the performance of other systems (1).
- Feedback could be provided on unexpected issues that arose during change implementation which could help inform process improvement in the future (1).
- Providing feedback to inform about the effectiveness of the change management process by evaluating whether the change achieved intended goals (1).

Accept any other suitable response.

(b) Explain one way a CAB can help Junior Junkyard's new owners to introduce customer accounts to the website.

[2 marks]

AO2 = 2 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks:

- To ensure a smooth customer experience, the CAB should prioritise the order of tasks required to add customer accounts to the website (1); this means that access to new accounts should only be allowed once the accounts are set up and ready ensuring that customers won't be frustrated by seeing accounts they can't access (1).
- The CAB should monitor any changes being made to the website before customers can access it (1); this will help ensure that changes meet their requirements and will prevent having to make changes later because some parts of the website weren't completed according to their expectations (1).
- To ensure the changes made to the website match their expectations, the new owners should have the change advisory board provide feedback throughout the process (1); this will allow the owners to make necessary changes to match their expectations (1).

Accept any other suitable response.

6 Lotls Marine Services is a business which provides electronic equipment such as GPS, satellite phones and electronic devices to businesses which operate at sea. It is developing virtual reality (VR) training products which would enable crews to practise their firefighting and marine emergencies, like sinking in a safe environment on land.

(a) State one stakeholder that a business would need to consider when developing VR training products.

[1 mark]

AO1 = 1 mark

Award **one** mark for:

- customers / clients (1)
- competitors (1).

Accept any other suitable response.

(b) Explain one reason why Lotls Marine Services needs to consider the identified stakeholder's views for the new VR training products.

[2 marks]

AO2 = 2 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks:

- The client's views will need to be considered as they are asking for the product to be developed (1) so Lotls Marine Service would need to develop a training product that will offer all the scenarios and training that the client wants (1).
- They will need to consider what their competitors have done to ensure that they do not copy any of their technology when creating the VR training (1) as the competitors may have patents on the technology which could end up with Lotls Marine services having to pay fines for copying the technology (1).

Accept any other suitable response.

7 Safia is looking to start a small business selling personalised items like t-shirts and hats at events such as concerts, festivals, and fairs. The items will be created by customers on an app on their phones, then printed while they wait.

(a) Identify two end user factors which would need to be considered when designing an app.

[2 marks]

AO1 = 2 marks

Award **one** mark for each identified end user factor, up to a maximum of **two** marks:

- functionality (1)
- accessibility (1)
- adhering to guidelines / policies / legislation (1).

Accept any other suitable response.

(b) Explain how each of these factors identified will support Safia to meet customer needs.

[4 marks]

AO2 = 4 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks per factor:

- Safia will need to consider the functionality of the app as customers will be using their own phones to place the order (1) which means that the app will need to work with a wide range of phones to ensure as many customers as possible are able to use the app (1).
- Safia will need to consider how usable her app is as customers will be making their own orders and the more difficult the app is to use the more help; she will need to give customers (1) and customers may abandon their order if they find it too difficult (1).
- The app will need to collect personal data securely and therefore needs to ensure that the app is meeting all required legislation like GDPR (1) so that she can protect the customer's personal information, and the company from any negative repercussions such as fines or loss of reputation (1).

Accept any other suitable response.

8 Noah owns a driving school which he advertises mainly via social media platforms and his website. Noah is aware multiple competitors have recently had several confidentiality breaches and unprofessional posts on their online platforms, and he would like to introduce a code of conduct for all his employees to ensure that this does not happen in his business.

Assess why Noah needs to have a code of conduct for his business.

[3 marks]

AO3 = 3 marks

Award **one** mark for each assessment point, up to a maximum of **three** marks:

- A code of conduct is important to Noah as it details how he wants his business to be represented online as the reputation of his business will be affected by how customers see his business online (1), so if his business is being represented unprofessionally or his employees are being unprofessional this will impact his business and he will get less customers (1). It could also result in Noah and all his employees being fully aware of the business's standards and expectations to avoid any repercussions of not following clear guidelines given (1).
- Noah needs a code of conduct for his business to ensure that he is not breaking the law or doing anything to damage his reputation (1). The code of conduct will include all the legal guidelines he needs to adhere to so by having a code of conduct he knows what he can and cannot do online and so will his employees (1). A code of conduct will also mean if his employees are being unprofessional online Noah can provide a copy of the code of conduct to refresh their knowledge as it will contain the rules the business has on using social media and then if the employee's behaviour is still unacceptable, he will be able to act against the employee (1).

Accept any other suitable response.

9 The local library has recently installed an eSports gaming suite which the public can pay to hire. The library staff have noticed that users have poor body posture when using the gaming chairs and move the screens closer to them when playing. The library staff are carrying out a risk assessment and are concerned about the impact of unsafe or inappropriate use of the technology. The library staff plan to implement mitigation techniques.

Discuss the likely impact of two mitigation techniques the library staff can use to reduce the risks faced by the users of the eSports gaming suite.

Your response must include reasoned judgements and conclusions.

[6 marks]

AO3 = 6 marks

Award **one** mark for each discussion point, up to a maximum of **three** marks per technique:

- The library could provide users with education on the expected way to sit on chairs/posture/the correct distance between the screen and user to avoid eye strain which could help users avoid health risks (1). A culture of increased awareness around mitigating risks may help to maintain the health of all users (1). However, education may not be effective if users do not follow the advice or if it is not enforced by library staff (1).
- The library could educate the users about the potential impact of prolonged gaming (for example, effects on sleep patterns/mental health) and encourage users to take regular screen breaks, perhaps by making them mandatory (1). This may feel like generic advice but could be supported with the library providing timers to support their suggestions (1). This is likely to have a positive impact on users' health and wellbeing, but they may not be effective if users do not follow the advice or are not enforced by all the staff (1).
- The library could provide appropriate equipment such as footrests / back supports / screen filters to support users' comfort and safety when using the esports gaming suite which would help physical impacts if used appropriately (1). Workstation assessments may also further improve the use of the equipment which would have an overall positive effect on user health (1). However, it may not address poor posture or the need to move screens closer to users (1).

Accept any other suitable response.

10 Zara is an IT consultant for a new small to medium-sized enterprise (SME) consisting of five veterinarian practices and 30 employees. Zara’s task is to create a website for the business.

The website must showcase all the services offered by the SME and have separate sections for each veterinarian to provide more information about their practice. The website must allow for booking appointments and accept payments for all five veterinarian practices, with a variety of popular online payment options available.

Additionally, the website should provide virtual video consultations with clients. Three of the veterinarian practices have no experience with online booking, and none have ever accepted payment for their services through their website.

Evaluate the external factors which the veterinarian practices will need to consider as they implement the changes to their website and booking systems.

Your response must include reasoned judgements and conclusions.

[12 marks, plus 3 marks for QWC]

AO1 = 4 marks

AO2 = 4 marks

AO3 = 4 marks

QWC = 3 marks

Band	Mark	Descriptor
4	10–12	<p>AO3 – Well reasoned and in-depth evaluation of the importance of external factors is comprehensive, effective, relevant, and shows detailed understanding and logical and coherent chains of reasoning throughout. Given conclusions are informed and are fully supported with rational and balanced.</p> <p>AO2 – Applied all relevant knowledge of considerations of external factors relating to the context and shows a detailed functional understanding of the business.</p> <p>AO1 – A wide range of relevant knowledge and understanding of the importance of external factors which is accurate and detailed. A wide range of appropriate technical terms are used.</p> <p>The answer demonstrates comprehensive breadth and/or depth of understanding.</p>

3	7–9	<p>AO3 – Reasoned and somewhat in-depth evaluation of the importance of external factors is in most parts effective and mostly relevant, showing mostly logical and coherent chains of reasoning. Given conclusions supported by judgements that consider most of the relevant arguments.</p> <p>AO2 – Applied mostly relevant knowledge of the considerations of external factors relating to the context, showing mostly functional understanding of the business.</p> <p>AO1 – Knowledge and understanding of external factors is in most parts clear and mostly accurate, although on occasion may lose focus.</p> <p>The answer demonstrates reasonable breadth and/or depth of understanding with occasional inaccuracies.</p>
2	4–6	<p>AO3 – Some reasoned but superficial evaluation of external factors is in some parts effective and some relevance, with some understanding and reasoning taking the form of generic statements with development. Given brief conclusions supported by judgements that consider only the most basic arguments.</p> <p>AO2 – Applied some, but limited knowledge of, the considerations of external factors relating to the business context and may show a lack of functional understanding.</p> <p>AO1 – Knowledge and understanding of external factors shows some, but limited accuracy, focus and relevance.</p> <p>The answer is basic and shows limited breadth and/or depth of understanding, with inaccuracies and omissions.</p>
1	1–3	<p>AO3 – Limited and superficial evaluation of external factors is minimal and very limited in effectiveness and relevance. Given tenuous conclusions that are unsupported and show little relevance to the question aims.</p> <p>AO2 – Applied very little general knowledge and/or general assertions about external factors with little relevance to the context.</p> <p>AO1 – Applied general knowledge and/or general assertions about external factors with little relevance to the context.</p> <p>The answer is minimal and lacks breadth and/or depth of understanding, with inaccuracies and omissions.</p>
	0	No creditworthy material.

Indicative content

Examiners are reminded that the indicative content reflects content-related points that a student may make but is not an exhaustive list, nor is it a model answer. Students may make all, some or none of the points included in the indicative content, as its purpose is as a guide for the relevance and expectation of the responses. Students must be credited for any other appropriate response.

AO1 and **AO2** will be implicit through the level of evaluation and reasoned judgements and / or conclusions that the student provides.

AO1: The student will evidence knowledge and understanding of the factors, which may include:

External factors may include:

- legal / regulatory: laws on how and why companies are allowed to gather data have changed and a new website is needed to remain legal
- social: the number of individuals owning pets has increased significantly and the online booking system is needed to keep up with the demand for appointments
- technological: the technology available has advanced and the vets are now able to have more features on their website like payments
- competitors: competitors are offering virtual appointments, and they need to adapt to make sure they do not lose customers
- economic: the cost of living is increasing, and people may not be able afford expensive vet bills, so the vets need to keep costs low to keep their prices low.

AO2: The student will apply knowledge of external factors and apply appropriate solutions, which may include:

- One way the business can respond to the changes is to offer training to their staff. Most of the staff at the vets have never dealt with online payments or having appointments booked this way. This could lead to problems if the staff don't know how to use it as they might double book clients not realising the online booking has already booked that appointment so by offering training to all staff this will help them to understand how to operate the new systems and ensure the new online payment and booking systems are successfully used by the business.
- The vets intend to collect personal information in the form of booking information and payment information and so they will need to update their code of conduct. They will need to provide clear guidance to staff on what is and is not acceptable use of the system and the laws on keeping data confidential. They will need to make sure that they regularly check that the information they are asking for is needed and stored safely to adhere to GDPR and that the payment information they are collecting is stored safely and this will ensure that they meet their legal obligations.
- As part of the development of the website each of the practices should carry out a review of the resources and services offered. This will allow the business to identify where there are duplication of services and for them to streamline them to reduce costs. It will also enable the vets to make sure that the data they are uploading to the website is accurate. staff do not understand the change or the need for it, so effective communication will help to address this problem.

- Having the new booking and payment systems will enable the business to target new customers. At present the business is mainly approached by local customers; however, by having a website and allowing online booking will enable customers to see the services the vets offer, that other vets may not and decide to book an appointment.

A03: The student will discuss the ways that a small or medium-sized enterprise (SME) can prepare and plan to implement new systems that may include:

- If the vets do not offer their staff training, then there will be mistakes in the appointments at the business. If the appointments are not kept up to date, then there is a chance of double bookings for appointments which will lead to delays in being seen by the vet; it will also leave the customer unhappy with the service they have received, and they will go to a competitor instead. If the customers posted about their experience online, it could also earn the vets a bad reputation costing them future business.
- If the vets do not update their policies on the safe handling of customer data, it could result in fines for the business as they will have broken Data Protection legislation. This would have a negative impact on the business as they would not only have to pay the fines, but they could lose the trust of their customers.
- If the business does not ensure that they have implemented upgraded digital systems for their new websites such as fire walls and passwords, they risk the website being hacked. This could result in their customers personal details and payment details being stolen or could result in their website being held to ransom by hackers which would cost the business money and give them a negative reputation.

QWC mark scheme

Mark	Descriptor
3	The answer is clearly expressed and well-structured. The rules of grammar are used with effective control of meaning overall. A wide range of appropriate technical terms are used effectively.
2	The answer is generally clearly expressed and sufficiently structured. The rules of grammar are used with general control of meaning overall. A good range of appropriate technical terms are used effectively.
1	The answer lacks some clarity and is generally poorly structured. The rules of grammar are used with some control of meaning and any errors do not significantly hinder the overall meaning. A limited range of appropriate technical terms are used effectively.
0	There is no answer written or none of the material presented is creditworthy. Or The answer does not reach the threshold performance level. The answer is fragmented and unstructured, with inappropriate use of technical terms. The errors in grammar severely hinder the overall meaning.

Section B: Digital environments, Diversity, and Inclusion

This section is worth 39 marks, plus 3 marks for QWC and use of specialist terminology.

11 Which of the following would be a way to address demographic imbalance in the digital sector?

- A Applying digital inclusion principles**
- B Employ additional workforce**
- C Implement exclusive recruitment practices**
- D Invest in virtual reality headsets**

[1 mark]

AO1 = 1 mark

Award **one** mark for:

A Applying digital inclusion principles (1)

12 State what HTTPS stands for.

[1 mark]

AO1 = 1 mark

Award **one** mark for:

Hypertext transfer protocol secure (1)

13 Quilters is a chain of sewing shops which create and sell its patterns over the internet and in stores. It pays several subscriptions to different businesses for all the software it needs. It has recently become aware that many of their PCs are running out of storage space, and it will be expensive to upgrade. It has heard about Platform as a Service (PaaS) and would like to know more.

(a) Describe what PaaS is.

[1 mark]

AO1 = 1 mark

Award **one** mark for:

- PaaS is a cloud computing tool / service where hardware and software are delivered by another company over the internet (1).

Accept any other suitable response.

(b) Explain two ways in which Quilters could benefit from the use of PaaS.

[4 marks]

AO2 = 4 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks per explanation:

- PaaS would be beneficial for Quilters as they would save time as they would not need to monitor and update all the different software subscription services they currently use (1) as the fee they pay to their PaaS provider means all the updates would be done by the PaaS provider and the Quilters IT team can focus on other tasks the business needs. (1).
- Quilters would benefit by using a cloud computing company to provide their software as they could see cost savings as the PCs at Quilters need more hard drive space and upgrading (1), but if they are using PaaS the data is stored on the cloud computing devices and Quilters can simply pay for more space when they need it rather than having to invest in hardware they will need to keep updating (1).

Accept any other suitable response.

14 Hive Minded is a local business incubation service which offers shared workspace and support to small businesses without their own premises. It recently decided to open a new shared workspace on the first floor of a local office complex, and its services are open to all small business owners.

Hive Minded is writing its policy to ensure it is compliant with the Equality Act 2010.

(a) Describe one type of discrimination that business owners may need to consider when writing a policy.

[1 mark]

AO1 = 1 mark

Award **one** mark for:

- Age discrimination where people are treated unfairly based on their age (1).
- Disability may result in discrimination as certain facilities or areas may not be accessible (1).
- Gender reassignment may mean the person is treated unfairly due to their gender identity / expression (1).
- Racial discrimination occurs when someone is treated unfairly or less favourably because of their race / skin colour / culture (1).

Accept any other suitable response.

(b) Explain two different ways in which Hive Minded can adapt its new workspace to ensure that it does not discriminate against its customers.

[4 marks]

AO2 = 4 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks per explanation:

- One way Hive Minded can ensure an inclusive workspace is to ensure that it has lift access to the workspace. As the space will be on the first floor this means that some customers with mobility needs might not be able to access it (1) and ensuring that there are lifts / separate downstairs space available is important or it risks failing to meet its legal requirements (1).
- Hive Minded need to make sure that all its IT systems include accessibility software (1) By providing items such as braille keyboards / dictation software will ensure that all customers can use the workspace and the business is meeting its requirements under the Equality Act 2010 (1).
- Hive Minded could make use of smart technology such as voice activated technology to open doors or turn on lights (1). This would allow for a more inclusive work environment as it would ensure that people with visual problems or mobility problems are able to use the workspace independently (1).
- Hive Minded could allow users of the workspace to notify the hub of any support they may need in advance (1) as this would enable Hive Minded ensuring that appropriate support is available to all users for their visit (1).

Accept any other suitable response.

15 FixU is a new company looking to offer first aid courses to the public and private sector customers, with both face-to-face and online components. However, trainers will initially be accessing the company app and website using personal devices, which could pose security risks. FixU is developing its IT infrastructure and is seeking advice on suitable networks for its business.

(a) Describe two differences between local area networks (LAN) and virtual private networks (VPN).

[2 marks]

AO1 = 2 marks

Award **one** mark for each description, to a maximum of **two** marks:

- Local area network (LAN) connects devices within a small geographical area, but a virtual private network (VPN) connects devices over the internet (1).
- VPN is more flexible as it can be used on any device with an internet connection, but LAN is restricted to devices connected to the same physical network (1).
- VPN is a secure network connection between devices while LAN does not have built-in security features (1).

Accept any other suitable response.

(b) Explain how both LAN and VPN networks would allow FixU's trainers to access the app and website more securely.

[4 marks]

AO2 = 4 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks per explanation:

- A virtual private network (VPN) would be a suitable network for FixU's trainers to use as it would allow a secure connection to be formed between the trainer's personal device and FixU's servers (1) preventing hackers gaining access to FixU's servers if they managed to hack the trainers' devices (1).
- A local area network (LAN) would be suitable as the trainers' devices could be securely connected to the network via FixU providing the password (1). It would also prevent trainers from accessing or altering materials they should not, which can help protect the security of the files (1).

Accept any other suitable response.

16 Dylan & Co Marketing is a small marketing agency which creates social media campaigns for clients. Dylan & Co Marketing has expanded its services by hiring a graphic designer, website designer and video editor after increasing its client base. It has audited its IT systems and concluded that updating its hardware is necessary to facilitate video editing and graphic design.

Discuss one hardware component Dylan & Co Marketing will need to ensure its new IT systems are able to offer these new services.

Your response must include reasoned judgements and conclusions.

[3 marks]

AO3 = 3 marks

Award one mark for each discussion point, up to a maximum of **three** marks:

- Ensuring that it includes a top-quality graphics processing unit (GPU) will be important to Dylan & Co Marketing, as it wants to offer video editing and graphics packages which use a lot of processing power and RAM (1). By ensuring it has a top of the range card it will have plenty of processing power and won't lose time waiting for the image or render and it will be able to use a range of graphics features to fit the client's brief (1). Having a top end GPU will also reduce the time needed to complete each video or image render as it will have the processor power to complete it faster which would allow Dylan & Co Marketing to offer cheaper services as they need less time to complete the work (1).

- Dylan & Co Marketing will need to make sure that the system does not overheat as graphics intensive software uses a lot of processing power. This will generate a lot of heat from the CPU and GPU (1) and if the cooling isn't very good it could lead to the system powering down which could result in lost work or even hardware failure (1). By ensuring suitable cooling, such as extra case fans, this will ensure that the employees can produce their work without delays or loss and customers will get their materials on time and on budget (1).

Accept any other suitable response.

17 WeCook2U delivers meals and meal preparation boxes to customers from a wide range of demographics, including age. The company has been receiving complaints about the time it takes to place orders via phone or email.

To address this, the owner has decided to introduce an app for customers to access menu choices and confirm their selections. The company will stop taking email orders immediately and phase out phone call orders within six months.

(a) Assess the potential impact of WeCook2U moving to digital services.

[3 marks]

AO3 = 3 marks

Award **one** mark for each assessment point, up to a maximum of **three** marks:

- It is important that WeCook2U's plans are digitally inclusive as it may lose customers if they are not (1). Meal delivery services are often used by older people who may not have access to the technology or skills needed to enable them to access the new website and therefore they become disadvantaged (1). This could lead to potential financial losses if orders are restricted to an app (1).
- It is important that WeCook2U's plans are digitally inclusive to ensure that it does not suffer reputational damage (1). Not having any form of digital access to its products is currently harming the business as customers are complaining about the poor level of service (1) but it needs to be careful not to become too reliant on its app and to keep other ordering methods, as relying just on the app risks causing reputational damage if the app is not fully tested and has problems with the secure transfer of data (1).

Accept any other suitable response.

(b) Discuss how WeCook2U can improve its plans to make it more inclusive.

Your response must include reasoned judgements and conclusions.

[3 marks]

AO3 = 3 marks

Award **one** mark for each discussion point, up to a maximum of **three** marks:

- WeCook2U should also include a website in its plans to allow more options to order from the business when it stops producing the catalogue (1). This will allow more people to access the business as customers will be able to use a PC or a phone to view the online catalogue and place their orders which will enable more people to access the new service by implementing a secure transfer of data (1). Data will be protected, for example, by encryption, which would prevent information being intercepted by anyone without the relevant permissions, reducing the risk of designs being stolen by hackers (1).
- WeCook2U should create a series of videos for customers to show them how the new app works (1). This would enable all customers to use the videos as they use the new app for the first few times and follow the steps in the video to place their orders (1) which would make customers feel more confident in using the app instead of the phone (1).
- WeCook2U should ensure the app has accessibility tools like read aloud and large print so that most customers are able to see their menus (1). Many of its customers may have additional needs and by making the app more accessible more customers can use the app (1) which will mean that WeCook2U can reduce the number of staff needed to answer calls and emails and provide a better service (1).

Accept any other suitable response.

18	<p>An apprenticeship training provider won a grant to replace its IT system. Approximately 100 on-site students and 500 remote students use its facilities, along with 10 on-site and 100 remote employees.</p> <p>The provider will need to upgrade its IT infrastructure in the next two years and is looking to invest in a system that will enable it to meet growing demand from students both on-site and remotely.</p> <p>The directors recently attended an IT conference and learned about virtual computing systems which they are interested in, but they are worried about the ongoing costs of virtual computing when compared to just upgrading the hardware.</p> <p>Evaluate whether a physical or a virtual system would be better to install for the training provider.</p> <p>Your response must include reasoned judgements and conclusions.</p> <p style="text-align: right;">[12 marks, plus 3 marks for QWC]</p>
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AO1 = 4 marks
AO2 = 4 marks
AO3 = 4 marks
QWC = 3 marks

Band	Mark	Descriptor
4	10–12	<p>AO3 – Well-reasoned and in-depth evaluation of the impact of the apprenticeship provider moving towards using virtual or physical computing systems is comprehensive, effective, relevant, and shows detailed understanding and logical and coherent chains of reasoning throughout. Given conclusions are informed and are fully supported with rational and balanced judgements.</p> <p>AO2 – Applied all relevant knowledge of how virtual or physical computing could impact the apprenticeship provider relating to the context and shows a detailed functional understanding of digital operational integrity.</p> <p>AO1 – A wide range of relevant knowledge and understanding of the ways virtual or physical computing impacts the business which is accurate and detailed. A wide range of appropriate technical terms are used.</p> <p>The answer demonstrates comprehensive breadth and/or depth of understanding.</p>
3	7–9	<p>AO3 – Reasoned and mostly in-depth evaluation of the impact of the apprenticeship provider moving towards using virtual or physical computing systems is in most parts effective and mostly relevant, showing mostly logical and coherent chains of reasoning. Given conclusions are mostly supported by judgements that consider most of the relevant arguments.</p> <p>AO2 – Applied mostly relevant knowledge of ways virtual or physical computers could impact the apprenticeship provider relating to the context, showing mostly functional understanding of digital operational integrity.</p> <p>AO1 – Knowledge and understanding of the factors which virtual or physical computing could impact the business, which is in most parts clear and mostly accurate, although on occasions may lose focus.</p> <p>The answer demonstrates reasonable breadth and/or depth of understanding, with occasional inaccuracies and/or omissions.</p>
2	4–6	<p>AO3 – Somewhat reasoned but superficial evaluation of the impact of the apprenticeship provider moving towards using virtual or physical computing systems is in some parts effective and of some relevance, with some understanding and reasoning taking the form of generic statements. Given brief conclusions supported by judgements that consider only some basic arguments.</p>

		<p>AO2 – Applied some knowledge of ways virtual or physical computing could impact the business context and may show some lack of functional understanding.</p> <p>AO1 – Knowledge and understanding of the factors which virtual or physical computing could impact the business to show some accuracy, focus and relevance.</p> <p>The answer is basic and shows limited breadth and/or depth of understanding with some inaccuracies and omissions.</p>
1	1–3	<p>AO3 – Superficial and minimal evaluation of the ways in which virtual or physical computing systems will impact the business is minimal in effectiveness and relevance. Given tenuous conclusions that are unsupported and show very little relevance to the question aims.</p> <p>AO2 – Applied very little general knowledge and/or general assertions about how virtual or physical computing could impact the business with little relevance to the context.</p> <p>AO1 – Knowledge and understanding of the factors which virtual or physical computing systems could impact the business shows very minimal accuracy, focus and relevance.</p> <p>The answer has isolated points, showing very minimal breadth and/or depth of understanding, with significant inaccuracies and omissions.</p>
	0	No creditworthy material.

Indicative content

Examiners are reminded that the indicative content reflects content-related points that a student may make but is not an exhaustive list, nor is it a model answer. Students may make all, some or none of the points included in the indicative content, as its purpose is as a guide for the relevance and expectation of the responses. Students must be credited for any other appropriate response.

AO1 and **AO2** will be implicit through the level of evaluation and reasoned judgements and / or conclusions that the student provides.

AO1: Demonstration of understanding of the differences between physical and virtual systems, which may include:

- cloud computing is the delivery of computing services, such as storage, servers and software via the internet
- physical computing is the delivery of computing services via networks and hardware-based devices.

Cloud computing features may include:

- virtual machines VMs
- clients
- servers
- hypervisor type 1
- hypervisor type 2.

Physical computing features may include:

- chassis
- optical drive
- motherboard
- central processing unit CPU
- random access memory RAM
- graphics processing unit GPU
- storage SSD, HDD
- fans
- redundant array of independent data RAID card
- peripherals – screen, keyboard, mouse.

AO2: Application of understanding of the strengths and limitations of both physical and virtual systems:

Cloud computing benefits may include:

- Cloud computing is more cost effective in larger digital environments such as the training provider as the business only needs to pay for the one subscription for the business rather than per user.
- Cloud computing is easier to manage and maintain as the cloud computing provider is responsible for maintenance and upgrading of the systems and this is included in the fee.
- Cloud computing is more resilient as there will be multiple redundancies built into the system so even if one part of the system fails the provider and their students and staff will be able to access the service unless there is a catastrophic failure.
- Cloud computing is better for the environment as there is less need for individual components to be manufactured like servers and routers and so this reduces the electronic waste.
- Cloud computing works by storing the data in multiple locations at once. So, if one cloud farm is destroyed the data is still stored safely elsewhere.
- Cloud computing allows for efficient testing environments as functionality of applications can be tested and bugs fixed prior to customers accessing it.

Physical computing benefits may include:

- Having a physical computer system enables a business to have systems which are bespoke to their needs and so they only need to pay for what they need.

- Physical systems will typically have a one-off purchase cost for each component, and they can be upgraded as needed. There is no ongoing subscription fee to be paid.
- Having a physical computing system will enable the provider to have better control / security of their data as its kept on their own hard drives within the business.
- Physical computing systems can be easier to upkeep as staff can be trained to maintain the technology and will not need highly specialised skills to do this.

A03: Evaluation of the statement against the strengths and limitations of a range of physical and cloud computing sources applicable to the scenario may include (answer makes an evaluation of these strengths and limitations):

Cloud computing reasons may include:

- Cloud computing is the best option for the provider as they have many users who need to access the system and from various locations and cloud computing will make this easier to do than if the provider had a physical system and needed to set up each device on the network.
- Cloud computing will be the most cost effective as they will not need a PC for each student or staff member and all users can access the system at once. If they had a physical system, they would have to have a PC for each student, and this would mean many of the PCs underutilised.
- Cloud computing will be the most efficient for the provider long term as they will not need to spend lots of money upgrading their systems and storage to store all the data they will need for each student as they can increase their storage capacity as needed.

Physical computing reasons may include:

- Physical computer systems would be best as it gives the provider total control over their data especially as they will be sorting extremely sensitive data about their students and staff, and they will then be able to make sure that no one has access to it. Whereas cloud computing requires logging into a portal which could be hacked.
- Having their own system would be best as this will reduce the cost to the business. They will have a high initial cost, but it will be a one-off cost and they can then replace components as needed whereas the cloud computing would require a permanent ongoing subscription fee to be able to access their data.
- The provider would need to buy digital devices for the business anyway so that students can access the cloud computing platform, so it is not going to cost much more to have a physical system which they can design to run in exactly the way they want whereas if they opt for a cloud computing platform they would have to make compromises on how the system functions.

QWC mark scheme

Mark	Descriptor
3	The answer is clearly expressed and well-structured. The rules of grammar are used with effective control of meaning overall. A wide range of appropriate technical terms are used effectively.
2	The answer is generally clearly expressed and sufficiently structured. The rules of grammar are used with general control of meaning overall.

	A good range of appropriate technical terms are used effectively.
1	The answer lacks some clarity and is generally poorly structured. The rules of grammar are used with some control of meaning and any errors do not significantly hinder the overall meaning. A limited range of appropriate technical terms are used effectively.
0	There is no answer written or none of the material presented is creditworthy. Or The answer does not reach the threshold performance level. The answer is fragmented and unstructured, with inappropriate use of technical terms. The errors in grammar severely hinder the overall meaning.

Section C: Learning and planning

This section is worth 20 marks.

19 State one stage of Gibbs' reflective cycle.

[1 mark]

AO1 = 1 mark

Award **one** mark for:

- action plan (1)
- analysis (1)
- conclusion (1)
- description (1)
- evaluation (1)
- feelings (1).

20 State one reason to undertake quality management as part of project planning.

[1 mark]

AO1 = 1 mark

Award **one** mark for:

- ensure standards are met (1)
- higher productivity/efficiency (1)
- helps to control the costs (1)
- less chance of product failure (1)
- less reworking needed (1)
- makes sure project is delivered (1).

Accept any other suitable response

21 The Pink Llama runs restaurants of varying cuisines and prices across the country. It plans to open a new restaurant and is discussing cuisine and pricing.

To help with decision-making, it is carrying out market research to study the industry and community.

(a) State what is meant by the term bias.

[1 mark]

AO1 = 1 mark

Award **one** mark for:

- Bias is when someone favours one thing more than another (1).
- A tendency to show prejudice towards an idea (1).

Accept any other suitable response.

(b) Explain one reason why it is important for The Pink Llama to check for bias when using sources of information to make business decisions.

[2 marks]

AO2 = 2 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks:

- It is important that The Pink Llama check for bias in its sources of information as it should check that the data is accurate and that it is not prejudiced against specific groups or projects (1). This bias could provide data that is not accurate and therefore the decision it makes based on this data when opening the restaurant could cause it to not be successful (1).
- The Pink Llama want to open a new food restaurant, so it needs to check that the data it uses doesn't have any prejudice in it like only asking people on high incomes or only asking people in one area of the town (1). This bias will provide data that is not reflective of most of the local area and so the restaurant opened might not succeed (1).

Accept any other suitable response.

22 Tudor Entertainment rents and sells fancy dress costumes online to retailers. It plans to accept orders from customers directly, requiring a change in payment methods. Currently, payment is made after receiving the goods, but the company will also accept payment at the time of purchase. This change will necessitate modifying its account, which management acknowledges will incur additional expenses.

(a) Describe what a budget is.

[1 mark]

AO1 = 1 mark

Award **one** mark for:

- A budget is the planned revenue and expenditure expected over the course of a project (1).

Accept any other suitable response.

(b) Explain one reason why it is important that Tudor Entertainment set a budget. [2 marks]

AO2 = 2 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks:

- Tudor Entertainment need to prepare a budget for the accounting changes and include any margin for planned losses (1) so that it has a contingency for in case any customers do not pay after receiving their order, and it has enough planned budget to account for this (1).
- A budget is important to Tudor Entertainment as it helps it to know how much money the accounting changes will cost it (1) so it knows if it has enough money to undertake the project and it can cover its costs until the customer pays after receiving their orders (1).

Accept any other suitable response.

23 **Concentrated Gamers is an online business which sells console and PC games. It sells a range of physical games where the game is shipped to customers, and it also sells digital downloads so customers can get immediate access to its games.**

The business is considering using emerging technology to benefit the business. As part of its research, it has come across blockchain and would like to use this for the business.

(a) Describe what blockchain is.

[1 mark]

AO1 = 1 mark

Award **one** mark for:

- Technology that allows for secure transactions without the need for a central authority (1).
- A secure chain of blocks of information which cannot be changed once it has been added (1).

Accept any other suitable response.

(b) Explain one way Concentrated Gamers could utilise blockchain for its business.

[2 marks]

AO2 = 2 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks:

- Concentrated Gamers can use blockchain to enable it to accept digital currencies from its customers (1) which will allow customers to have more choice about how they pay for their goods (1).
- Concentrated Gamers could use blockchain to create unique records of each game purchase / download (1) which would make it easier for publishers to track and enforce ownership rights (1).

Accept any other suitable response.

24 **Knit n Go is a craft-based business which currently sells all its products through a single high-street store. Recently the costs of maintaining the store have increased and the owner has decided it is time to change how the business is**

operating. The owner is planning to implement a project to develop an online shop so customers can purchase directly from the business.

(a) Identify one project planning technique.

[1 mark]

AO1 = 1 mark

Award **one** mark for:

- critical path analysis (CPA) (1)
- must have, should have, could have, won't have (MoSCoW) (1)
- programme evaluation review technique (PERT) (1)
- responsible, accountable, consulted, and informed matrix (RACI) (1)
- work breakdown structure (WBS) (1).

Accept any other suitable response.

(b) Explain one way the identified project planning technique could help Knit n Go to implement its new project.

[2 marks]

AO2 = 2 marks

Award **one** mark for each explanation point, up to a maximum of **two** marks:

- WBS will enable Knit n Go to break all the different parts of the new website design into manageable work projects (1) which will help to ensure that it can keep on track and on budget (1).
- PERT will help Knit n Go see what it needs to do and to work out how long it thinks each task will take (1) so that Knit n Go can do tasks simultaneously and speed up the completion of the website (1).

Accept any other suitable response.

25 Floofs is a successful cat café. It plans to expand by opening a guinea pig café and is developing an app for both businesses. The app will provide customers with information, available merchandise, and menu details. Floofs aims to have all bookings made exclusively through the app.

Discuss the impact of project planning on the effectiveness of the app and/or business.

Your response must include reasoned judgements and conclusions.

[3 marks]

AO3 = 3 marks

Award **one** mark for each discussion point, up to a maximum of **three** marks:

- One impact of poor project planning are delays to launching its app which will cost the business money (1). Developing an app takes time, and depending on the complexity of the features that Floofs wants to include in its app, this can add delays into the development of the app (1). Given that Floofs will only be taking bookings via the app, this will mean that it will not be able to open either café unless the app is ready on time (1).
- If the business does not plan effectively before it starts the development of the app, it will have unclear timescales for when it is able to open (1). It will then be difficult to adapt its timescales if there are any delays and adapt its project timelines as required to meet the opening date (1). This will then mean it increases the risk of missing the opening date and therefore will miss out on any income (1).

Accept any other suitable response.

26 Easy Intelligence is an organisation which specialises in providing training to medical professionals in new technologies such as using virtual reality and 3D printing. It has recently been asked by a university to create a brand-new training module for medical students on using these new technologies to provide better medical treatment.

Assess the impact to the medical students of receiving professional development in new technologies.

[3 marks]

AO3 = 3 marks

Award **one** mark for each discussion point, up to a maximum of **three** marks:

- Training students in new technologies will benefit the students as they will have experience of the technology that hospitals are using (1) which will make them more likely to get the job they want as they will already have some skills in using this technology.(1) This also gives them increased employment opportunities as not all medical students are getting this training so they will have skills that will make them more likely to get jobs they apply for (1).

- A benefit of receiving training in technologies means that the students will be more confident in the workplace (1). They can use VR to understand better how the different body systems work and can practice their skills using the VR to be competent (1) so that when they start work, they have already developed the relevant skills needed and can provide better care to their patients (1).

Accept any other suitable response.

Assessment objective grid

Section A Business Context and Culture

Question Number	AO1	AO2	AO3	QWC	Total
1	1*				1
2	1*				1
3	1	2			3
4	1	2			3
5	1	2			3
6	1	2			3
7	2	4			6
8			3		3
9			6		6
10	4	4	4	3	15
Total	12	16	13	3	44
Minimum total	10	15	12	X	X
Kil	2				

Section B Digital environments & Diversity and Inclusion

Question Number	AO1	AO2	AO3	QWC	Total
11	1*				1
12	1*				1
13	1*	4			5
14	1	4			5
15	2	4			6
16			3		3
17			6		6
18	4	4	4	3	15
Total	10	16	13	3	42
Minimum total	10	14	12	X	X
Kil	3				

Section C
Learning and planning

Question Number	AO1	AO2	AO3	QWC	Total
19	1*				1
20	1				1
21	1*	2			3
22	1*	2			3
23	1*	2			3
24	1*	2			3
25			3		3
26			3		3
Total	6	8	6	0	20
Minimum total	6	8	6	X	X
Kil	5				

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