T Level Technical Qualification in Digital Business Services

Core knowledge and understanding

Paper A

Mark scheme

NCFE

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 are to be awarded
- the allocated assessment objective(s) 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.
- When allocating marks across assessment objectives (AOs) within an individual response, these should logically link and should not be from disparate points of indicative content provided in the mark scheme.
- 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 mark grids have been designed to assess students' work holistically. They consist of band-based descriptors and indicative content.

Band-based descriptors: each band is made up of several descriptors for across the AO range; AO1–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 assessment objectives, 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

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

The weightings of each assessment objective can be found in the qualification specification.

Section A: Culture and context   **Total for this section: 40 marks, plus 3 marks for QWC**

1	**Outline** one **potential psychological impact of unsafe use of digital technology.**
	[1 mark]

AO1 = 1 mark

Award **one** mark for an outline of an impact of unsafe use of digital technology, for example:

• cyberbullying as a result of social media posts (1)
• mental health issues caused by pressure from being constantly reachable (1)
• addiction to digital devices – for example, constantly seeking alerts on mobile phones (1)
• stress caused by constant access to work/communication tools (1).

Accept any other suitable response.

2	**Describe** one **way that increased use of digital technology can lead to dehumanisation of service.**
	[1 mark]

AO1 = 1 mark

Award **one** mark for a description of a way that digital technology can lead to dehumanisation of service, for example:

• loss of jobs when people are replaced by digital technology that can do their work more efficiently (1)
• loss of human empathy in decision making when algorithms make decisions without considering the human impact of decisions (1).

Accept any other suitable response.

3	**A market research company published data showing that 59% of adults had their phones with them at all times. 95% of adults had shared personal information on a social media site. The survey also showed that older adults were often not able to participate in online activity due to their low skills with new technology.**
	Describe two **potential negative impacts of the reliance on digital technology on the adults surveyed.**
	[4 marks]

AO1 = 2 marks
AO2 = 2 marks

Award **one** (AO1) mark for **each** correctly identified negative impact on society of reliance on digital technology, up to a maximum of **two** marks.

Award **one** (AO2) mark for **each** relevant development of an impact of reliance on digital technology, up to a maximum of **two** marks:

- emotional affects for adults (1 AO1), such as becoming stressed when separated from devices they have all the time (1 AO2)
- a loss of privacy (1 AO1) caused by these adults' digital footprint being accessible as a result of sharing personal information online (1 AO2)
- isolation or lack of access to services and communication (1 AO1), for example some older adults may lose access to communication channels that are essential to their work or social life (1 AO2).

Accept any other suitable response.

4	**Describe** two **internal stakeholders within a digital business environment.** [2 marks]

AO1 = 2 marks

Internal stakeholders may include, but are not limited to:

- owners
- board of directors
- employees
- departments.

Award **one** mark for **each** accurate description of an internal stakeholder in a digital business environment, up to a maximum of **two** marks. For example:

- a board of directors manage the business on behalf of the shareholders, ensuring that it is profitable (1)
- employees work for the business and rely on the business for an income (1)
- departments are teams of employees within the business, focused on specific tasks such as financial management or human resources (1).

Accept any other suitable response.

5	Carnivalete UK Ltd is an events management company. The company promotes music festivals and street parties throughout the country. Each event is unique and requires the development of a distinctive brand. This means that staff have to do a large amount of market research to understand customers. The events are promoted online to young people using social media platforms.
	Explain two **ways that digitalisation will have an impact on future profits at Carnivalete UK Ltd.**
	[4 marks]

AO2 = 4 marks

Award up to **two** marks for an explanation of **each** way that digitalisation will have an impact on Carnivalete UK Ltd's future profits, up to a maximum of **four** marks:

- branding
  - electronic tools allow Carnivalete UK Ltd to develop a unique image in events management, for example by creating distinctive logos (1). This contributes to the creation of a unique selling point for the business, attracting more customers and increasing revenues (1)
- market research
  - tools such as online survey sites allow large amounts of data to be gathered and analysed quickly and at relatively low cost (1). This allows Carnivalete UK Ltd to build accurate profiles, which means that promotional activity for events can be targeted to specific demographics to maximise cost effectiveness (1)
- the use of social media
  - social networks allow Carnivalete UK Ltd to share details of events with groups of people and these posts can be promoted to specific demographics (1). This allows the business to promote the business cost effectively, increasing the potential revenues of the business at lower cost than using traditional media for events management such as roadshows or conferences (1).

Accept any other suitable response.

6	Texiera Co is planning to launch a new system for booking the use of meeting rooms in their head office. Currently, staff use any rooms that are empty to take calls, eat lunch, or have formal or informal meetings.
	The company has completed a series of planning and preparation activities. They have:
	• held a consultation with workers to get their views on the change • organised a series of training sessions and briefings to show why the new system is needed and how it will work • put up posters in corridors to explain the benefits of the system.
	Describe two **benefits of the preparation activities Texiera Co has completed.**
	Explain two **ways that these activities will increase the chances of the new booking system being successful.**
	[4 marks]

AO2 = 2 marks
AO3 = 2 marks

Award **one** (AO2) mark for **each** accurate description of the benefit of using the preparation activities, up to a maximum of **two** marks.

Award **one** (AO3) mark for **each** explanation of how these activities will make the new booking system successful, up to a maximum of **two** marks:

- reducing Texiera staff's resistance to this change (1 AO2), as gaining the 'buy-in' of workers by holding a consultation with them will make the employees feel like they can influence the change and will increase their willingness to be involved in the plan (1 AO3)
- making Texiera staff more likely to use the new booking system (1 AO2). Communicating the rationale for the change through training and briefings will help staff understand why it is needed and should increase their willingness to engage with the change, meaning that the new booking system is more likely to be used (1 AO3)
- staff may be more enthusiastic about using the new system (1 AO2). Communicating the benefits of the new system through posters is likely to increase the chance that they will continue using the system, even if there are 'teething troubles' when it is introduced – because they are excited about the potential benefits (1 AO3).

Accept any other suitable response.

7	Thorin Solutions is a consultancy company that provides IT support to small and medium-sized businesses.
	The company has recently introduced a new organisational structure, splitting employees into teams. Each team looks after a specific client. This requires staff to work in groups of people they are unfamiliar with. It also means that they will need to use systems they are not familiar with.
	Describe two **possible risks of implementing this change.**
	Assess the potential impact of each **risk.**
	[6 marks]

AO2 = 2 marks
AO3 = 4 marks

Award **one** (AO2) mark for **each** possible risk, up to a maximum of **two** marks.

Award up to **two** (AO3) marks for **each** assessment of the impact of these risks, up to a maximum of **four** marks:

- staff may find the change to something unfamiliar stressful (1 AO2) and so may resist the change (1 AO3) because they want to avoid something which is potentially stressful. As a result, Thorin Solutions staff may seek ways to prevent the change from happening (1 AO3)
- new processes may be misused by Thorin Solutions staff who do not fully understand them (1 AO2), leading to errors that make Thorin Solutions look unprofessional to clients (1 AO3). This impact may result in potential loss of repeat custom from those clients (1 AO3)
- there may be little support provided to workers (1 AO2). The support provided may also be inadequate, leading to a lack of understanding of Thorin Solutions' new working arrangements (1 AO3). This may impact on the quality and timeliness of work completed if work is not completed by Thorin Solutions staff to the correct standard or on time (1 AO3)
- existing workflows may be impeded by the change (1 AO2) due to workers at Thorin Solutions having to take time away from routine tasks to adapt to new arrangements (1 AO3), leading to a loss of productivity at Thorin Solutions in the short term (1 AO3).

Accept any other suitable response.

8	Big City Bank has recently introduced a new online app, which allows customers to access details of special offers on banking services such as credit cards. Customers can type a question into the app and will receive an alert on their phone when the question has been answered. Customers who register for the app will be offered discounts that are not available to the general public. Describe two ways that this app provides value to customers. Assess the impact of each way that the app provides value to customers. [6 marks]

AO2 = 2 marks
AO3 = 4 marks

Award **one** (AO2) mark for **each** description of the way that the app adds value for customers, up to a maximum of **two** marks.

Award up to **two** (AO3) marks for **each** assessment of the impact of these forms of value added, up to a maximum of **four** marks:

- timely responses to customer queries with alerts being given when questions have been answered (1 AO2), leading to greater satisfaction with the standard of the service provided by Big City Bank (1 AO3) resulting in customers having a perception of higher quality service (1 AO3)
- financial savings, which will attract more customers to the app (1 AO2), allowing the business to collect greater amounts of data on current and potential Big City Bank customers (1 AO3) leading to the bank being able to tailor services to better fit customer needs based on that data (1 AO3)
- efficient digital support meaning that customers will be well-informed about the features of the products offered by Big City Bank (1 AO2) leading to a higher chance that they will make a purchase (1 AO3) because they are able to see how the services are relevant to them and how they meet their needs (1 AO3).

Accept any other suitable response.

9	N-Gage Security provides support to large businesses with the testing of their security systems. The company operates within a number of different codes of conduct. These include the company's own code of conduct, the British Computer Society code of conduct and the UK government's Data Ethics Framework.
	The company complies with all the relevant laws governing data security and computer use. The company carefully documents its plans for testing the clients' systems. It also makes sure it gets consent from clients before taking any actions.
	Discuss the implications of using white hat hackers to test N-Gage Security computer systems while also ensuring compliance with a code of conduct. [12 marks, plus 3 for QWC]

AO1 = 4 marks
AO2 = 4 marks
AO3 = 4 marks

Band	Mark	Descriptor
4	10–12	**AO3** Discussion of the ways that white hat hackers can operate within a code of conduct while still effectively testing the vulnerabilities of computer systems and providing feedback to clients 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. **AO2** Applied all relevant knowledge of white hat hacking and change management to the context of N-Gage Security, showing a **detailed** understanding of the testing of systems. **AO1** A **wide range** of relevant knowledge and understanding of the factors that influence the effectiveness of white hat hackers within the context of codes of conduct, which is **accurate** and **detailed**. A **wide range** of **appropriate** technical terms are used. The answer demonstrates **comprehensive** breadth and/or depth of understanding.
3	7–9	**AO3** Discussion of the ways that white hat hackers can operate within a code of conduct while still effectively testing the vulnerabilities of computer systems and providing feedback to clients is **in most parts effective** and **mostly relevant**, showing **mostly logical and coherent** chains of reasoning. Given conclusions are informed and are supported judgements covering most relevant arguments.

		AO2 Applied mostly relevant knowledge of white hat hacking and change management to the context of N-Gage Security, showing **some** functional understanding of the testing of systems. **AO1** Knowledge and understanding of the factors that influence the effectiveness of white hat hackers within the context of codes of conduct is **in most parts clear** and **mostly accurate**, although on occasion **may lose** focus. The answer demonstrates **reasonable** breadth and/or depth of understanding with **occasional** inaccuracies and/or omissions.
2	4–6	**AO3** Discussion of the ways that white hat hackers can operate within a code of conduct while still effectively testing the vulnerabilities of computer systems and providing feedback to clients, which is in **some parts effective** and of **some relevance**, with some understanding and reasoning taking the form of **generic statements** with some development. Given brief conclusions supported by judgements that consider only the most basic arguments. **AO2** Applied some, but limited, knowledge of white hat hacking and change management to the context of N-Gage Security and may show a lack of functional understanding of the testing of systems. **AO1** Knowledge and understanding of the factors that influence the effectiveness of white hat hackers within the context of codes of conduct show **some** but **limited** accuracy, focus, and relevance. The answer is **basic** and shows **limited** breadth and/or depth of understanding, **with** inaccuracies and omissions.
1	1–3	**AO3** Discussion of the ways that white hat hackers can operate within a code of conduct while still effectively testing the vulnerabilities of computer systems and providing feedback to clients is **minimal** and **very limited** in effectiveness and relevance. Given tenuous conclusions that are unsupported and show little relevance to the question aims. **AO2** Applied general knowledge and/or general assertions about white hat hacking with little relevance to the context (N-Gage Security). **AO1** Knowledge and understanding of the factors that influence the effectiveness of white hat hacking within the constraints of a code of conduct shows very **minimal** accuracy, focus, and relevance.

		The answer has **isolated** points, showing **very minimal** breadth **and/or** depth of understanding, with **significant** inaccuracies and omissions.
	0	No creditworthy material.

Quality of written communication (QWC) = 3 marks

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 is 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 is 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 is 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. The errors in grammar severely hinder the overall meaning.

Indicative content

AO1:
- white hat hackers work on behalf of businesses to test their systems
- the approach used by white hat hackers is ethical and they use appropriate techniques when testing systems
- white hat hackers document the processes that they use
- white hat hackers report to their clients on the methods used and information found.

AO2:
- codes of conduct will state appropriate and inappropriate uses of computer systems and the data contained within them. Hacking goes against the requirements of these codes because it involves the systematic exploitation of vulnerabilities within systems and deliberate attempts to extract data from those systems
- white hat hackers act on behalf of a business and act with the explicit consent of the firm to test its systems
- white hat hackers will be supervised by their employer, and this will provide some assurance that their work will be done within the constraints of the codes of conduct
- it is possible to pretend to be a white hat hacker in order to disguise illegal activities.

AO3:
- some hackers may not be aware of or may deliberately choose not to cooperate with the codes of conduct, and this non-compliance may create difficulties for their clients. This could lead to a range of consequences such as confidential data being leaked
- the BCS code of conduct specifically states that IT personnel should not withhold information about systems and so white hat hackers are obligated by this code to share the information that they gather through their activities
- the contract given to white hat hackers will have constraints on the methods that they can use and the areas of computer systems that they can access, which will leave sensitive data protected
- white hat hacking may lead to the unintended exposure of sensitive client information that the hacker should not be able to access. It may be difficult to prevent this.

Accept any other suitable response.

Section B: Diversity and inclusion and digital environments

Total for this section: 39 marks plus 3 marks for QWC

10	Which one **of the following is a temporary, volatile form of storage?**	
	A	**DVD**
	B	**HDD**
	C	**RAM**
	D	**SSD**
		[1 mark]

AO1 = 1 mark

Award **one** mark for:

C **RAM**

11	**State** one **example of a protected characteristic under the Equality Act 2010.**
	[1 mark]

AO1 = 1 mark

Award **one** mark for any one of the following:

- age (1)
- disability (1)
- gender reassignment (1)
- marriage and civil partnership (1)
- pregnancy and maternity (1)
- race (1)
- religion or belief (1)
- sex (1)
- sexual orientation (1).

12	**Give** one **example of direct discrimination.**
	[1 mark]

AO1 = 1 mark

Award **one** mark for any one of the following:

- not offering someone a promotion because of their gender (1)
- not offering someone a job because of their age (1)
- treating someone unfavourably because of their sexuality (1)
- not giving someone access to resources because of their political views (1)

- making someone do extra training because they are from a specific region (1).

Accept any other suitable response.

13	**Places is an online estate agent. The company sells houses online on behalf of clients. All staff must work for at least 2 days a week in the company's head office. Most staff work from home at least 2 days a week.**
	Describe one **appropriate network that Places could use to share confidential data with staff working from home.**
	[1 mark]

AO2 = 1 mark

Award **one** mark for a description of an appropriate network for Places:

- wide area networks connect multiple local area networks. An example of this is the internet, this would allow a connection to be made between computers in private homes and in the head office of Places that could be used to send encrypted data (1)
- a virtual private network allows a secure connection between a device in the employee's home and the Places head office network, allowing the secure transfer of confidential data such as client-sensitive information, for example contact details (1).

Accept any other suitable response.

14	**Complex Tutoring (CT) provides online lessons for students in schools and colleges. The business has a network of teachers who plan and teach lessons to students around the UK. The tutors for CT need to share confidential data about students in a secure way.**
	Name two **web protocols.**
	Explain why one **web protocol could be used by CT to share confidential or sensitive data.**
	[3 marks]

AO1 = 2 marks
AO2 = 1 mark

Award **one** (AO1) mark for **each** web protocol named, up to a maximum of **two** marks. For example:

- HTTPS (1)
- internet message access protocol (IMAP) (1).

Award **one** (AO2) mark for an appropriate explanation linked to the scenario, for example:

- HTTPS protocol uses the transport layer security process, which ensures that data about students, including personal details and data, is encrypted (1)
- IMAP allows email clients to collect messages from a remote server, which can be done using an SSL connection meaning that communication between students and tutors such as results of assessments and advice for improvement is kept confidentially and meets requirements for data protection and sharing (1).

Accept any other suitable response.

15	**Atlantic News is a media company that produces magazines and newspapers. The company often receives data from external sources such as freelance reporters and informants. Sometimes the data that is sent to them contains malware, which is sent to try and compromise their computer systems.**
	Explain one **benefit to Atlantic News of using virtual machines when it receives data from external sources.**
	[2 marks]

AO1 = 1 mark
AO2 = 1 mark

Award **one** (AO1) mark for an accurate description of a benefit of a virtual machine.

Award **one** (AO2) mark for further explanation of this benefit to Atlantic News, for example:

- a sandboxed environment allows files to be opened safely (1 AO1) without malicious software having access to the wider computer systems and networks at Atlantic News (1 AO2).

Accept any other suitable response.

16	**Orrfact is a company that reviews data and provides reports on its accuracy. The company stores a lot of secure data. Staff complete their work using virtual machines. The business uses type 2 hypervisor systems.**
	Give an example of a type 2 hypervisor system and **explain how it could be used by Orrfact.**
	[2 marks]

AO1 = 1 mark
AO2 = 1 mark

Award **one** (AO1) mark for an example of a type 2 hypervisor system.

Example of type 2 hypervisor system may include, but are not limited to:

- virtual PC (1 AO1)

- virtual server (1 AO1)
- VMware workstation (1 AO1).

Accept any other suitable response.

Award **one** (AO2) mark for an explanation of how the system could be used by Orrfact, for example:

- where Orrfact securely store their operating system and abstract their hardware on a host machine to ensure the security of their data (1 AO2).

Accept any other suitable response.

17	**Stop! is a pressure group that campaigns about issues relating to the reliance some people have on digital devices. Stop! is planning to change to a remote working model. This will mean that large numbers of staff will be using productivity software via cloud computing.**
	Define what is meant by 'cloud services'.
	Explain two **forms of cloud computing that could be used by Stop!**
	Evaluate the benefit of each **form of cloud computing to this company.**
	[5 marks]

AO1 = 1 mark
AO2 = 2 marks
AO3 = 2 marks

Award **one** (AO1) mark for an accurate definition of cloud services, for example:

Cloud services are infrastructure, platforms, or software that are hosted by third-party providers and made available to users through the internet (1)

Award **one** (AO2) mark for **each** explanation of a suitable form of cloud computing for Stop!, up to a maximum of **two** marks.

Award **one** (AO3) mark for an evaluation of **each** benefit to the company, up to a maximum of **two** marks:

- Stop! could store software and data on remote computers (1 AO2), leading to a decrease in the amount of physical storage needed on their network, resulting in a reduction in costs for setting up their network (1 AO3)
- software and data can be accessed via web browsers, meaning that staff can be issued with machines that have a lesser specification (1 AO2), leading to lower overall costs for the business (1 AO3)

- Stop! could use a platform as a service model where they manage their own applications and data on a network provided by a vendor (1 AO2), which would allow them freedom to control the software used by different staff and the files that they can access, according to the work that each employee will do (1 AO3)
- Stop! could use a software as a service model, which would involve a system managed on their behalf by a vendor (1 AO2), which would mean staff could use their own computers without having to download any programs, giving them fewer issues around hardware comparability (1 AO3)
- Stop! could use an everything as a service model where all software, data and network activity is provided by an outsourcing company (1 AO2), which would mean that the firm would not need to purchase any network infrastructure or install any software or provide staff any storage as all of these roles would be provided online through the internet (1 AO3).

Accept any other suitable response.

18	**GlimGloi is a business that provides specialist waste disposal services to factories and laboratories. Many of its clients use the business because it has an excellent reputation. The business depends on a team of highly skilled staff. The business must meet complicated legal requirements and can only complete contracts when it has enough staff with certain qualifications. The business has slim profit margins and no financial reserves. It is trying to innovate to lower its costs to improve services.**
	Explain two **impacts on GlimGloi of** not **applying digital inclusion principles.**
	[2 marks]

AO2 = 2 marks

Answers may include:

- lack of skilled people for required roles
- lack of innovation
- breach of legalisation and regulations
- restriction in services
- financial loss
- reputational damage
- breach of regulations.

Award **one** (AO2) mark for an explanation of the effect of not applying digital inclusion principles, up to a maximum of **two** marks:

- there may be a lack of suitably qualified staff who can work with specialised waste, leading to GlimGloi being unable to take on contracts (1)
- the business may breach regulations relating to digital inclusion, leading to fines, which it may not be able to pay as it does not have financial reserves (1)

- there may be reputational damage caused if the breaches became public, damaging GlimGloi's excellent reputation, leading to a loss of the customers who use the firm for that reason (1).

Accept any other suitable response.

19	**Vira-Cure is a company which analyses viruses and other forms of malicious software. The company uses virtual machines to carry out this analysis. The company provides services to large corporate clients, giving advice on how to reduce the risks associated with malicious software.**
	Discuss three **benefits to Vira-Cure of using virtual machines.**
	[3 marks]

AO3 = 3 marks

Award **one** (AO3) mark for a discussion of a benefit of virtual machines to Vira-Cure, to a maximum of **three** marks:

- Vira-Cure can have a more resilient computer system which is better able to withstand <mark>cyber</mark> attacks which allows the risky work they complete to be done safely (1)
- the virtual machines can provide a training platform which means staff can be shown how to analyse a virus creating a secure environment that prevents the virus escaping onto the wider office network (1)
- the system provides disaster recovery options which can be used if a virus were to wipe a computer. This means that work will not be interrupted by the unanticipated impact of malicious software (1).

Accept any other suitable response.

20	**Meeni is a business that provides clients with advice on their diet and general health. It employs a large number of staff all over the world. The business has received a number of awards for diversity and inclusion. It has a dedicated team in its human resource management department that focuses on ensuring that the business is fully inclusive.**
	Describe three **benefits of inclusion to Meeni.**
	Explain how each **of these benefits will affect the brand reputation of Meeni.**
	[6 marks]

AO2 = 3 marks
AO3 = 3 marks

Award **one** (AO2) mark for **each** benefit to Meeni of inclusion described, up to a maximum of **three** marks.

Award **one** (AO3) mark for **each** explanation of how the benefits of inclusion will affect the brand reputation of Meeni, for **each** of the **three** benefits described:

- Meeni might be able to develop more innovative products such as new web apps that analyse clients' data (1 AO2). This would give the business a unique selling point, improving brand reputation, helping it to stand out from competitors (1 AO3)
- the business might have greater appeal to employees, leading to better recruitment and retention of staff (1 AO2), meaning that Meeni is able to attract better staff than rival health firms, leading to higher productivity (1 AO3)
- Meeni may be more likely to develop inclusive products, allowing it to appeal to a broader range of health and lifestyle consumers (1 AO2). This could lead to positive publicity for Meeni for serving markets that might otherwise be neglected, improving brand reputation (1 AO3)
- Meeni might be more likely to connect more 'authentically' to the BAME community (1 AO2) leading to a better reputation in communities that have been perceived to be ill-treated by businesses in this sector in the past, improving brand reputation (1 AO3)
- Meeni will have a reduced risk of reputational damage from non-inclusive products, meaning that it will not alienate communities, thus improving brand reputation (1 AO2). This will lead to less need to engage in expensive emergency PR activity when failures of inclusion are exposed (1 AO3).

Accept any other suitable response.

21	**B.W.S.S. is a company that manufactures clothes and protective equipment for employees working in construction.** **A recent hardware failure in the company's office has led to the loss of a large amount of client data.** **This has led to:** 1. **problems sending accurate bills and in fulfilling orders** 2. **clients being contacted to update the database. This has caused some clients to lose confidence in the company's ability to manage their data securely.** **The hardware failure also meant that ordering and stock control systems went offline for a number of days. This led to several large orders being lost to rival firms, as clients were not willing to wait for systems to be fixed.** **The management of the company are planning to create a more resilient digital environment in their office.** **Analyse the benefits to B.W.S.S. of creating a resilient digital environment.** [12 marks, plus 3 for QWC]

AO1 = 4 marks
AO2 = 4 marks
AO3 = 4 marks

Band	Mark	Descriptor
4	10–12	**AO3** Analysis of the digital resilience at B.W.S.S. is **comprehensive, effective**, and **relevant**, showing **detailed** understanding and **logical** and **coherent** chains of reasoning throughout. Given conclusions are informed and fully supported with rational and balanced judgements. **AO2** Applied all relevant knowledge of digital resilience to the context and shows a **detailed** functional understanding of benefits and drawbacks. **AO1** A **wide range** of relevant knowledge and understanding of the digital resilience issues involved and how they link to one another, which is **accurate** and **detailed**. The answer demonstrates **comprehensive** breadth and/or depth of understanding.
3	7–9	**AO3** Analysis of the organisational benefits of digital resilience to B.W.S.S. 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. **AO2** Applied mostly relevant knowledge of organisational benefits of digital resilience to the context, showing **some** functional understanding of benefits and drawbacks. **AO1** Knowledge and understanding of the organisational benefits of digital resilience **is in most parts clear** and **mostly accurate**, although on occasion **may lose** focus. The answer demonstrates **reasonable** breadth and/or depth of understanding, with **occasional** inaccuracies and/or omissions.
2	4–6	**AO3** Analysis of the organisational benefits of digital resilience to B.W.S.S. is in **some parts effective** and of **some relevance**, with some understanding and reasoning taking the form of **generic statements** with some development. Given brief conclusions supported by judgements that consider only the most basic arguments.

		AO2 Applied some, but limited, knowledge of organisational benefits of digital resilience to the context and may show a lack of functional understanding of benefits and drawbacks.
		AO1 Knowledge and understanding of digital resilience show **some** but **limited** accuracy, focus, and relevance.
		The answer is **basic** and shows **limited** breadth and/or depth of understanding, **with** inaccuracies and omissions.
1	1–3	**AO3** Analysis of the organisational benefits of digital resilience systems for B.W.S.S. is **minimal** and **very limited** in effectiveness and relevance. Given tenuous conclusions that are unsupported and show little relevance to the question aims.
		AO2 Applied general knowledge and/or general assertions about the organisational benefits of digital resilience with little relevance to the context.
		AO1 Knowledge and understanding of the organisational benefits of digital resilience show very **minimal** accuracy, focus and relevance.
		The answer has **isolated** points, showing **very minimal** breadth **and/or** depth of understanding, with **significant** inaccuracies and omissions.
	0	No creditworthy material

Quality of written communication (QWC) = 3 marks

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 is 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 is 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 is 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. The errors in grammar severely hinder the overall meaning.

Indicative content

Award AO1 marks for benefits of a resilient digital environment. As the question does not ask how to create a resilient digital environment, marks are to be awarded for responses that have focused on the benefits of a resilient digital environment.

AO1 – benefits of a resilient digital environment:

- security
- brand image
- lower downtime
- less disruption to work.

AO2 – impact on B.W.S.S.:

- greater client confidence sharing data
- marketing benefits of better brand image
- less downtime boosts productivity
- workers will be more motivated if there is less downtime.

AO3 – analysis:

- recent problems may have undermined the confidence of clients in the security of systems so a more resilient environment may make them less likely to seek other firms
- the business has a number of competitors, so a better brand image will help it to stand out and/or attract new customers
- greater productivity will boost profits, which may help the firm make up some of the money lost when its clients went to alternative vendors
- greater motivation will mean the business will retain staff. This will benefit the business as it will feed into greater security and better client relationships.

   Accept any other suitable response.

Section C: Learning and planning   **Total for this section: 21 marks**

22	Which resource is created by staff training? A **Facilities** B **Hardware** C **Premises** D **Skills** [1 mark]

AO1 = 1 mark

Award **one** mark for:

D **Skills**

23	**Outline** two **advantages of professional development to workers in the digital sector.** [2 marks]

AO1 = 2 marks

Award **one** mark for **each** advantage of professional development outlined, up to a maximum of **two** marks.

- the worker will gain an increased level of sector knowledge, which will make them more effective at their job (1)
- the worker will gain more employment potential, making them more likely to get jobs that they apply for (1)
- the worker may gain accreditation to an industry standard, giving them proof of the level of development that they have completed (1)
- the worker may gain the right to join a professional body, giving them greater standing within the industry (1)
- the worker may have a better understanding of industry standards, making it more likely that they will do their job well (1).

Accept any other suitable response.

24	Joyful Devices manufactures games and puzzles that are sold in gift shops and online. They regularly produce new products and often create prototypes to test new ideas for products. The business uses a 3D printer to create working prototypes in their offices before organising a full production run. Explain why 3D printing is a suitable method for Joyful Devices to use when producing a prototype product.
	[1 mark]

AO2 = 1 mark

Award **one** (AO2) mark for a developed reason for Joyful Devices to use 3D printing to make a prototype product.

- products can be designed using CAD software and this software can output designs directly into a 3D printer (1)
- this means that physical versions of new game or puzzle designs can be produced quickly and at relatively low cost without having to order a whole production run (1)
- 3D printers can be used to produce a working model of a new product idea using equipment that fits on a desktop (1)
- this is a flexible method that allows Joyful Devices to test a game or puzzle idea and make changes before committing resources to make a final version of the product (1).

Accept any other suitable response.

25	Climatico is a business that provides advice to companies on the impact of weather and climate on their operations. They specialise in helping companies adapt to the impact of global warming. The business is planning a continuous professional development (CPD) programme for its staff to help them improve the quality of their pitches to clients. The programme will be based on Kolb's experiential learning cycle. Explain what will happen to Climatico staff in two **stages of Kolb's experiential learning cycle.**
	[4 marks]

AO1 = 2 marks
AO2 = 2 marks

Award **one** (AO1) mark for **each** identified stage in the experiential learning cycle.

Award **one** (AO2) mark for **each** developed explanation linked to the context of Climatico:

- the concrete stage involves having an experience that is relevant to the area of development (1 AO1). This might mean Climatico staff participating in a sales pitch and gaining experience of how to speak to clients (1 AO2)

- the reflective stage involves thinking about the experience that has been gained at the concrete stage (1 AO1), for example the Climatico employee may think about the way in which they spoke to clients and the response that they gained from this (1 AO2)
- the abstract phase involves making general assumptions about specific things that the trainee has experienced (1 AO1). These assumptions are based on the things that were good about the Climatico workers' experience and can be applied to future activities (1 AO2)
- the active stage involves taking the lessons that have been learned in the abstract phase and applying them in a new situation (1 AO1). By doing this, these lessons will be retained in memory by Climatico staff and can inform future activities (1 AO2).

Accept any other suitable response.

26	**Rexian is a company that provides IT support to businesses. Staff visit offices and factories and investigate problems with computer systems, fixing faults and showing staff how to fix problems. The company has 30 staff who travel around the country. They work from home and are issued jobs each week via email. The staff must work with a wide range of different types of computer systems and software. Staff need to train regularly to update their knowledge of different systems and to keep up to date with the equipment used by clients.**
	Describe one **source of knowledge that Rexian staff could use.**
	Explain why the source of knowledge is appropriate to support the training of Rexian staff.
	[3 marks]

AO1 = 1 mark
AO2 = 1 mark
AO3 = 1 mark

Answers may include:

- e-learning
- textbooks
- conferences
- supplier literature.

Award **one** (AO1) mark for identification of an appropriate source of knowledge.

Award **one** (AO2) mark for a description of an appropriate source of knowledge that Rexian staff could use.

Award **one** (AO3) mark for an explanation of how the source of knowledge is appropriate to support the training of Rexian staff.

For example:

- e-learning is when courses are delivered online through a mixture of electronic documents and recordings of lessons (1 AO1). This is appropriate because it allows Rexian's workers to complete modules of learning online at their own pace in between their visits to clients (1 AO2), allowing them to make more efficient use of their time (1 AO3)
- textbooks are published documents that have been written by an expert and contain technical details on specialist subjects (1 AO1). This is an appropriate source of knowledge because it allows Rexian's employees to benefit from facts that have been set out by experts. This means they are likely to get highly reliable information (1 AO2), allowing them to feel more confident that they are learning the right things, helping them feel motivated (1 AO3)
- conferences are where a group of experts and practitioners deliver presentations on a specific subject (1 AO1). This is appropriate because Rexian staff will be able to attend these events on days when they are not visiting clients, so this can be done around their work schedule, (1 AO2) allowing greater flexibility in the planning of training activity and more efficient use of resources (1 AO3)
- supplier literature are documents that are produced by the manufacturers of hardware and software, providing technical details (1 AO1). This allows staff to get specific details relating to the systems they will be working on (1 AO2) allowing for more efficient, focused studying that is likely to have an impact on work routines. (1 AO3).

Accept any other suitable response.

27	**McVale Associates is a law firm that specialises in protecting clients from complaints about data breaches.**
	The company has decided to expand into the American market and has produced a project plan based on setting up an office and launching a website for that market.
	The project is not progressing well and so the plan has been reviewed. The deadlines in the plan were found to be unrealistic. The goals in the plan were not well defined and lacked specific details.
	Discuss two **consequences of this poor-quality project planning for the company.**
	[4 marks]

AO2 = 2 marks
AO3 = 2 marks

Award **one** (AO2) mark for **each** consequence of poor-quality project planning, up to a maximum of **two** marks.

Award **one** (AO3) mark for a discussion of **each** consequence of poor-quality project planning on McVale Associates, up to a maximum of **two** marks:

- timeframes are going to be exceeded because the deadlines in the plan were not realistic and so there was no realistic chance of the goals being met (1 AO2). This may reduce the motivation of staff to push to achieve goals, knowing that they are unachievable anyway (1 AO3)
- escalating costs may occur as deadlines are missed and, as a consequence, project managers may choose to allocate additional resources to the project in order to try and get the project back on track (1 AO2), but as goals are not achievable, this may lead to further resources being allocated as the project falls further behind schedule, leading to further cost escalations (1 AO3)
- the firm may be unable to deliver the outcomes of the project because the goals of the project are not well defined (1 AO2) and, as a result, crucial activities may not be carried out, leading to a failure to complete critical activities that prevent the project being finished (1 AO3)
- scope creep may occur as the details of the project are not well defined and as a result, staff involved in delivering the project may add additional activities (1 AO2) based on their personal goals leading to the remit of the project growing over time (1 AO3).

Accept any other suitable response.

28	**Websters is a business that publishes books. Each book requires coordination of a number of employees:**

> - **authors to write content**
> - **illustrators to prepare diagrams**
> - **photographers to take pictures**
> - **proofreaders to check content is accurate**
> - **designers to create page layouts.**
>
> **While the content is being produced, a number of other tasks are completed. Manufacturing processes are arranged and promotional plans are put in place. By completing these tasks at the same time, products can be produced and sold sooner. This gives the business an advantage over competitors.**
>
> **Discuss** three **benefits to Websters of using critical path analysis (CPA) to plan the publishing of books.**
>
> [6 marks]

AO2 = 3 marks
AO3 = 3 marks

Award **one** (AO2) mark for **each** discussion point relating to the use of critical path analysis within Websters, up to a maximum of **three** marks.

Award **one** (AO3) mark for **each** analysis of a benefit of CPA to Websters, up to a maximum of **three** marks. For example:

- CPA allows multiple tasks to be completed simultaneously rather than sequentially, leading to greater efficiency in the process for Websters (1 AO2). The process of identifying activities that can be carried out simultaneously allows for more efficient deployment of resources for the company (1 AO3)
- dependencies in the process can be identified by managers at Websters, allowing resources to be directed appropriately to ensure critical activities that may delay the production of the books to be supported to ensure that they are completed on time (1 AO2). This means that the project timeline will be laid out in diagrammatic form, clearly showing the dependencies within the project, and providing a visual reference to help staff such as editors, illustrators and writers understand when tasks will be completed simultaneously, making it easier to communicate priorities (1 AO3)
- it is possible to identify non-critical tasks that can be delayed without causing a delay to the project overall. This means that Websters can spot specific activities that can be prioritised over others, depending on whether they will have an impact on the completion of the project overall (1 AO2). This process allows the identification of deadlines for writing chapters of the book, for the overall collection of the chapters and for specific parts of the project such as adding illustrations, helping to keep the project on track (1 AO3).

Accept any other suitable response.

Assessment Objective Grid

Question	AO1	AO2	AO3	QWC	Total
Section A					
1	1				1
2	1				1
3	2	2			4
4	2				2
5		4			4
6		2	2		4
7		2	4		6
8		2	4		6
9	4	4	4	3	15
Section B					
10	1				1
11	1				1
12	1				1
13		1			1
14	2	1			3
15	1	1			2
16	1	1			2
17	1	2	2		5
18		2			2
19			3		3
20		3	3		6
21	4	4	4	3	15
Section C					
22	1				1
23	2				2
24		1			1
25	2	2			4
26	1	1	1		3
27		2	2		4
28		3	3		6
Total	**28**	**40**	**32**	**6**	**106**

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Document information