T Level Technical Qualification in Digital Support 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 objectives (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.
- When allocating marks across 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 marking 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 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 support services sector
AO2: Apply knowledge and understanding of the digital support services sector to different situations and contexts
AO3: Analyse and evaluate information and issues related to the digital support services sector

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

Section A: business context and culture

Total for this section: [40 marks]

[plus 3 marks for quality of written communication (QWC) and use of specialist terminology]

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1 **Which** one **of the following is a potential psychological impact of unsafe or inappropriate use of digital technology?**

    A Disturbed sleep patterns
    B Eye strain
    C Gaming addiction
    D Repetitive strain injury (RSI)

[1 mark]

AO1 = 1 mark

Award **one** mark for:

C Gaming addiction

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2 **Describe** one **step involved in setting SMARTER objectives.**

[1 mark]

AO1 = 1 mark

Award **one** mark for **each** step described, up to a maximum of **one** mark:

- An objective should be specific, so everyone knows what needs to be achieved (1).
- An objective needs to have a target that can be measured to see if it has been achieved (1).
- An objective needs to be achievable, which means it is possible to attain the goal (1).
- An objective needs to be something the resources of the business can realistically provide / achieve (1).
- An objective needs to have a timescale so that there is a clear time when the success will be reviewed (1).
- An objective needs evaluation to check that it still remains relevant to the overall goal (1).
- An objective needs to be re-evaluated to ensure that it remains SMART to the overall goal (1).

Accept any other suitable response.

3	Emily has recently started work in the HR department at a nationwide supermarket chain. The supermarket chain embraces technology and has apps for customers as well as using social media. Emily has been asked to prepare a presentation for new staff on how technology is used in the workplace. **Explain** one **impact of increased reliance upon technology on company culture that Emily could include in her presentation.** [2 marks]

AO1 = 1 mark
AO2 = 1 mark

Award **one** (AO1) mark for identifying an impact on company culture, up to a maximum of **one** mark:

- changes in the way employees communicate with each other (1)
- technology can be used to be more productive (1)
- it can increase the reach and scale of the business (1)
- it can be used to monitor staff (1)
- it allows for new ways of working / adaptive working (1).

Accept any other suitable response.

Award **one** (AO2) mark for explaining how this impact could affect the new staff, up to a maximum of **one** mark:

- Technology has changed how staff across different branches of the supermarket communicate; there is no need to visit the other supermarket as they can use video conferencing or email to speak to each other instead (1).
- Using social media or the app to communicate with customers means that they can share each week's deals with customers, and this will increase the number of customers who know about the business (1).
- Technology will mean that some of the staff will be able to work from home, like the marketing team or the finance team, rather than having to be in store (1).

Accept any other suitable response.

4	Jacob works at a large music venue that uses social media as its main marketing tool. The venue's social media channels have a large number of followers who like to engage with the business. Recently, the social media team have highlighted that there has been an increase in inappropriate posts and abuse towards the team from customers. Jacob has been asked by the directors of the music venue to recommend ways that the business can protect their staff from online abuse. **(a) Identify** two **mitigation techniques that could reduce or prevent the online abuse.** [2 marks] **(b) Discuss which mitigation technique would be most effective in protecting the social media team from abuse.** [3 marks]

AO1 = 2 marks
AO3 = 3 marks

(a) Award **one** (AO1) mark for **each** mitigation technique identified, up to a maximum of **two** marks:

- regulate the use of digital technology (1)
- report misuse to the relevant authority (1)
- enable staff to self-exclude themselves (1)
- provide support to staff such as counselling (1)
- use software to minimise the abuse (1).

Accept any other suitable response.

(b) Award **one** (AO3) mark for **each** contextualised discussion point, up to a maximum of **three** marks:

- Providing support to staff, such as counselling, would be most effective because the effect of dealing with abusive posts can be extremely difficult for a person (1). Using professional support would be the most effective way of protecting staff as it can help give them the tools to cope with the effect of abusive messages most effectively (1). As abuse and inappropriate posts are extremely difficult to stop completely, equipping the staff with the knowledge of how to limit the impact of dealing with these posts will be the best option (1).
- Using software to minimise the abuse would be most effective because this can help filter abusive messages before they are posted publicly (1). This will help the staff feel safer, and less affected mentally and emotionally by abusive messages (1). This will help stop the abuse at the source and there is a wide range of software available to do this, so this is the most effective choice for preventing some of the abuse and inappropriate posts (1).

Accept any other suitable response.

5	Charlie runs a health clinic and as part of this role, he processes and stores patients' personal data. The clinic has recently had an attempted data breach and the clinic would like to test how secure their data is to prevent this happening again. Charlie is considering hiring hackers to test the security of the clinic files.
	Describe two **ways that a white hat hacker could help Charlie to keep the clinic's files safe.**
	[4 marks]

AO2 = 4 marks

Award **one** mark for **each** contextualised description point, up to a maximum of **two** marks per each hacker, up to **four** marks in total:

- Charlie could pay a white hat hacker to audit the clinic's current security systems (1) and produce a report that would identify what steps the clinic can take to better protect the patient data (1).
- Charlie could pay a white hat hacker to try and gain access to the clinic systems to see what data they can and cannot get access to (1). The hacker could then help Charlie to identify how they accessed the system so that they can fix any vulnerabilities that have been identified (1).

Accept any other suitable response.

6	Isaac owns and operates a business that hosts and manages cloud IT infrastructure for a range of clients. Isaac has recently become aware that some staff are accessing data that they should not be and so Isaac has decided to create a new code of conduct for all members of staff on data access in the business.
	Explain how two **of the following aspects of organisational codes of conduct can reduce the likelihood of further data breaches in Isaac's business:**
	• **confidentiality** • **ethical principles** • **use of equipment and facilities** • **standard working practice.**
	[4 marks]

AO2 = 4 marks

Award **one** mark for **each** contextualised explanation point, up to a maximum of **two** marks per each aspect, up to **four** marks in total:

- Clearly outlining confidentiality should make it clear to all staff that client data cannot be shared with others (1). This may help to reduce the possibility of Isaac's staff accessing client data inappropriately (1).

- A code of conduct often includes ethical principles that should guide the behaviour of staff (1). For Isaac's business, this could improve the promotion of a culture where staff are aware of their responsibilities and the importance of the data they work with (1).
- The use of equipment and facilities within a code of conduct will outline what systems and hardware can and cannot be used (1). This sets rules for Isaac's staff that must be followed and will advise staff that disciplinary action can follow if rules are not adhered to (1).
- Standard working practices are often confirmed in a code of conduct (1). These are processes or procedures that should be followed, and they would outline how Isaac's staff can work with client data and the consequences of accessing data they are not authorised to (1).

Accept any other suitable response.

7	A training provider is moving from classroom-based teaching to online teaching. A new online classroom platform is currently being developed by the training provider and the managing director is holding a meeting with the project team to discuss progress.

A training provider is moving from classroom-based teaching to online teaching. A new online classroom platform is currently being developed by the training provider and the managing director is holding a meeting with the project team to discuss progress.

The meeting will focus on the importance of the following operations of technical change management:

- **establishing best practice for use of new or upgraded tools and processes**
- **facilitating processes and business models**
- **applying fixes**
- **integration of new or upgraded tools and processes into the current digital ecosystem.**

(a) Explain one **aspect of technical change management that should be discussed at the meeting.**

[2 marks]

(b) Discuss why the aspect you explained above could impact the launch of the new classroom platform.

[3 marks]

AO2 = 2 marks
AO3 = 3 marks

(a) Award **one** (AO2) mark for **each** contextualised explanation point, up to a maximum of **two** marks:

- The change to an online classroom should be discussed at the meeting (1) as it will be quite different to traditional classroom teaching for the tutors. Providing best practice of how to use the tools and processes provided by the new system will be crucial to it being a success (1).
- It is important to discuss at the meeting how the development team will deliver a system that works seamlessly with other systems already in place as the training

provider needs to make sure the lessons are as good as before (1). Making this a focus of the team will make it more likely that the system delivered works well with existing business processes and models and will not cause the students any delays in their study (1).

- The meeting should include a discussion on how bugs and other issues are reported when found, as the students will not be able to access their lessons if the technology is down (1). It is important that the development team are made aware of issues so they can resolve them quickly to prevent delays in lessons (1).

Accept any other suitable response.

(b) Award **one** (AO3) mark for **each** reasoned discussion point, up to a maximum of **three** marks:

- The better the understanding of the new system and its tools and processes, the more comfortable the teachers will be when using it (1). This will directly impact on the success of the new system and how the students view its effectiveness (1) as the more confident the teachers are in using the online features, the better the students' experience will be in lessons (1).
- Making sure that the online system works with other processes that are already in place is important as it will take away stress from the teachers when using it (1). It will need to link seamlessly with other software, such as cloud-stored files or registers, so that teachers can start their sessions without the need to access several different programmes (1), as this could impact the quality of the start of the sessions or even delay the start of lessons (1).
- If bug fixes are not applied quickly to the online classroom, then those that use it will lose patience and faith with it (1). This could mean students leave lessons or leave the provider due to frustration with the system and they may demand face-to-face sessions again (1). For teachers, this would lead to resentment when using the system due to the missed sessions and this would severely limit the chance of the new system being a success (1).

Accept any other suitable response.

8	Mia runs a small local marketing agency. She has recently noticed a decrease in sales as she does not offer packages that include social media, websites and apps. Some clients do not feel they are getting value for money from Mia's marketing services, while many have asked for support with digital marketing.
	Mia wants to digitalise the agency to allow it to better meet client needs and to attract new clients.
	(a) Outline three **impacts of digitalisation.**
	[3 marks]
	(b) Discuss the positive impacts of digitalisation on Mia's business.
	[3 marks]

AO1 = 3 marks
AO3 = 3 marks

(a) Award **one** (AO1) mark for **each** identified impact, up to a maximum of **three** marks:

- offering digital services would widen the customer base (1)
- can offer a wider range of products (1)
- could give the business a unique selling point (USP) (1)
- could enable the brand to differentiate from the competition (1)
- could be used to get better insight into the business (1)
- could be used to update business systems / processes (1).

Accept any other suitable response.

(b) Award **one** (AO3) mark for **each** contextualised discussion point, up to a maximum of **three** marks:

- Mia's business would be able to use digital innovations, such as those that allow for business intelligence and insight. Tools such as Google Analytics could be employed to evaluate the success of marketing activities, such as promotions on webpages for clients (1). This would allow much better insight into the customer base than before (1) and could be effectively used by the agency's client (1).
- The marketing agency would have access to a larger customer base as Mia's company would be able to offer a wider range of services like social media support (1), which could increase sales as they would no longer be limited in their geographical scope (1). It could also help market Mia's products in new ways and places that she currently is not marketing them in, which again would help increase the amount of customers her company gets (1).

Accept any other suitable response.

| 9 | Amelia runs a not-for-profit library that services the local community. Amelia is worried about the prospects of the library. The library has not embraced digitalisation and they still have none of the following:

• **online way to renew books**
• **online e-book lending library**
• **out-of-hours self-return system.**

The library also lags behind other community organisations as they only have three PCs available for the local community to use and these will only allow browsing and emails.

Amelia has become concerned that the library is not doing enough to support the local community's access to digital products and recently carried out a survey on what stakeholders would like to see improved.

The survey found that:

• **many members struggle to commute to the library in winter**
• **younger respondents view services offered by the library as 'old fashioned'.**

Evaluate how digitalisation could be used to offer better access to digital products and **the impact this could have on the survival of the library.**

[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	**AO3:** Evaluation of the impact of digitalisation on the library is **comprehensive**, **effective** and **relevant**, showing **detailed** understanding with **logical** and **coherent** chains of reasoning throughout. The answer demonstrates informed conclusions that are fully supported with rational and balanced judgements. **AO2:** Applied all knowledge of how digitalisation could be used, related to the context (attracting more members), and shows a **detailed** functional understanding of the impact it could have on the library. **AO1:** A **wide range** of relevant knowledge and understanding of how digitalisation could be used is **accurate** and **detailed**. The answer demonstrates **comprehensive** breadth and / or depth of understanding.
3	7−9	**AO3:** Evaluation of the impact of digitalisation on the library is **in most parts effective** and **mostly relevant**, showing **mostly logical** and **coherent** chains of reasoning throughout. Given conclusions are fully supported by judgements that consider most of the relevant arguments. **AO2:** Applied **mostly relevant** knowledge of how digitalisation could be used, related to the context (attracting more members), showing **some** functional understanding of its impact on the library. **AO1:** Knowledge and understanding of how digitalisation could be used is **in most part 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:** Evaluation of the impact of digitalisation on the library 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 are supported by judgements that consider only the most basic arguments. **AO2:** Applied some but **limited** knowledge of how digitalisation could be used, related to the context (attracting more members), and may show a **lack** of functional understanding of its impact on the library.

		AO1: Knowledge and understanding of how digitalisation could be used shows 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:** Evaluation of the impact of digitalisation on the library is **minimal** and **very limited** in effectiveness and relevance. Given tenuous conclusions are unsupported and show little relevance to the question aims. **AO2:** Applied general knowledge of how digitalisation could be used and its impact on the library but with **little relevance** to the context (attracting more members). **AO1:** Knowledge and understanding of how digitalisation could be used 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 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. The errors in grammar severely hinder the overall meaning.

Indicative content

AO1: Knowledge and understanding of how digitalisation could be used may include:

- brand differentiation (for example, brand values)
- virtualisation / cloud solutions (for example, enabling scalable, elastic computing solutions to meet business demand)

- digital innovations (for example, business intelligence and insight, unique selling points)
- processes and business models (for example, digital manufacturing, financial, research)
- wider access to customer base and range of products and services, for example
- contextualising customer behaviour (for example, digital personalisation, platform interoperability)
- open standards (for example, using non-platform specific digital identity).

Accept any other suitable response.

AO2 / AO3: Application and evaluation of the impact of digitalisation on the library.

Offering more digital services from the library is a way that Amelia can look to increase the member numbers of the library; there are several ways that this could be done. One such way would be offering access to specialist software to members. Appealing to younger people has already been found to be an issue and one way to improve this situation is to offer the ability to access software to these members. This could include software that is popular within that demographic, like offering access to a free e-book service so they can borrow books at any time. Another example could be offering software that allows members to edit photographs, videos or music. A multi-user license could be purchased by the library and members would be able to access this software without needing to pay for it.

One issue that has been highlighted in the survey is that some members cannot access the library easily during winter. Amelia could introduce an online system that allows members to look at the available books in the library from the comfort of their own home, potentially using VR technology. Members could then request these books to be delivered to them if they cannot access the library.

Amelia could appeal to the local community to offer digital innovations. For example, there may be experts in the local community that could give up their time to help small business owners and entrepreneurs with aspects of digital technologies they find difficult (for example, accountancy or web design). This would really give the library a unique selling point that would likely appeal to many people in the community and encourage them to become members. The library could also team up with other local groups to provide digital skills needed by the community, such as how to use online banking and how to pay bills online; this would increase the digital inclusion in the local area.

Offering digital services would also open the possibility of having access to a wider customer base. The library would not need to limit itself to members within the local areas as some members could be happy with access only to the digital services offered. This could potentially lead to a huge increase in membership to the library, which would help secure its future.

Section B: diversity, inclusion and digital environments

Total for this section: [38 marks]

[plus 3 marks for quality of written communication (QWC) and use of specialist terminology]

10	**Identify** one **effect that digital inclusion could have on an individual.**
	[1 mark]

AO1 = 1 mark

Award **one** mark for identifying **each** effect, up to a maximum of **one** mark:

- lead to more inclusive services for individuals (1)
- increased career opportunities for individuals (1)
- greater access for the individual to technology (1)
- greater social mobility due to more advanced skills (1)
- greater scope of communication as they can speak to others around the world (1).

Accept any other suitable response.

11	**State** one **physical component in a computer system.**
	[1 mark]

AO1 = 1 mark

Award **one** mark for **each** physical component stated, up to a maximum of **one** mark:

- chassis (1)
- optical drive (1)
- mainboard / motherboard (1)
- central processing unit (CPU) (1)
- random access memory (RAM) (1)
- graphics processing unit (GPU) (1)
- hard drive (1)
- fans (1)
- peripherals (for example, screen, keyboard, mouse) (1).

Accept any other suitable response.

12 **George runs a local food bank. To increase reach and accessibility, he has created a new website that allows people to donate money online when they have signed up for an account.**

Explain the appropriate web protocol that should be used by the food bank's new website.

[2 marks]

AO1 = 1 mark
AO2 = 1 mark

Award **one** (AO1) mark for identifying the web protocol that should be used:

- hypertext transfer protocol secure (HTTPS) (1).

Note: do not accept HTTP or any other responses for 1 (AO1) mark

Award **one** (AO2) mark for an explanation of the appropriate protocol:

- George should make sure that the website uses HTTPS as this will ensure that the card details of those donating is kept secure through its use of encryption (1).
- Using HTTPS will be the best web protocol for George to use as it reduces the chance of hackers accessing the details of anyone donating to the food bank online (1).

Accept any other suitable response.

13 **Tanveer has moved into a new flat. He would like to set up a home network that allows him to stream videos through his mobile device via a WiFi connection.**

Explain why a wireless access point is required to allow Tanveer to stream videos on his mobile device.

[2 marks]

AO2 = 2 marks

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

- A wireless access point is required as this will allow Tanveer's mobile device to connect to the home network (1), then he can use the WiFi to stream videos rather than having to rely on mobile data (1).
- A wireless access point is needed for Tanveer to use his mobile device to stream videos as mobile phones and tablets do not have network cards or ports for network cables (1), so they can only access the internet via WiFi (1).

Accept any other suitable response.

14	Muhammed is the project manager on the development of a new mobile banking app. The project aim is to ensure that the app is digitally inclusive. He has been asked to ensure that the app includes text to speech and the ability to alter the font size and background colours.
	Muhammed has highlighted the following two digital inclusion principles as being the priority for the development team when developing the app:
	• ensuring no one is disadvantaged by a digital system
	• ensuing that it conforms to codes of best practice.
	Explain how the two digital inclusion principles will be important in helping the team to achieve the project's aim.
	[4 marks]

AO2 = 4 marks

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

- When designing the banking app, the team must make sure that they make it accessible to any user or possible bank customer by conforming to codes of best practice (1). This will ensure that that the app has accessibility options such as the ability for text to be read out to users, text to be enlarged and a high contrast mode, so more users can access it (1).
- The banking app must be designed for ease of use, considering all customers' technical skills and knowledge and ensuring no customers are disadvantaged (1). This will ensure that users with additional needs or limited digital skills will be able to use the banking application effectively (1).

Accept any other suitable response.

15	Lily runs a large accountancy business. Recently, a successful cyberattack has caused the business to lose a lot of important customer data, including company accounts, contact and payment details. A server that contained the client database was wiped by the attacker and no adequate backup was available to fully restore the database.
	Lily has instructed the IT team to undertake the following activities to improve resilience of the digital environment:
	• device hardening • maintaining effective backup systems.
	Explain how each activity can be implemented by the IT team. [4 marks]

AO2 = 4 marks

Award **one** (AO2) mark for **each** descriptive point, up to a maximum of **two** marks per activity, up to a total of **four** marks:

- Device hardening can be implemented by the IT team by removing aspects of the accounting systems that are not required (1). This could include removing unneeded applications, closing ports that are not in use and removing functionality not needed by users to do their job (1).
- The IT team can maintain effective backup systems of all client data such as the final accounts for each business to ensure this will not happen again (1). This could be done by having cloud backups so data is stored offsite or physical backups that are stored at another location so these can be reinstated if there is an issue (1).

Accept any other suitable response.

16	Noah owns a business that operates across the world. Noah is very keen for his business to be an ethical employer. He has made equality, diversity and inclusion (EDI) an aim in all areas of his business.

Noah has decided that he would like to focus on the EDI of his workforce initially. Noah has asked the HR team to review the backgrounds of all applicants for jobs at the business in the past year. The data has shown that the business does recruit fairly, but in various locations the business' workforce is not reflective of the wider population for that location.

(a) Identify three **of the characteristics protected by the Equality Act 2010.**

[3 marks]

(b) Discuss how having a more diverse and inclusive workforce will impact Noah's business.

[3 marks]

AO1 = 3 marks
AO3 = 3 marks

(a) Award **one** (AO1) mark for identifying a protected characteristic, up to a maximum of **three** marks:

- 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).

Accept any other suitable response but it must relate to these nine characteristics.

(b) Award **one** (AO3) mark for **each** discussion point on how having a more diverse and inclusive workforce will impact Noah's business, up to a maximum of **three** marks:

- Having a more diverse and inclusive workforce could lead to an improved reputation for Noah's business worldwide (1), as individuals and businesses will be aware that the business is ethical, and they will be more inclined to work with the company and buy more from them (1). This will increase sales and the opportunities available to Noah's business (1).
- Having a more diverse and inclusive workforce will mean that Noah will start to appeal to more diverse jobseekers (1). This will mean that Noah will have a wider candidate pool to hire from, which will benefit the business as they will bring a more diverse set of skills and ideas (1) to the business. This will result in the business being more diverse and inclusive in the products they are creating (1).

- Having a more diverse and inclusive workforce may result in Noah's business appealing to customer groups that they currently are not selling products to (1); as these communities start to work for the business more and see their tastes and needs reflected more in the products (1), they may start to buy Noah's products more (1).

Accept any other suitable response.

17	Natalia is getting a bespoke computer built. She is going to be using the system for gaming and graphic design. Natalia also uses her computer for work purposes, where the team uses Microsoft Windows. Natalia has been asked which operating system (OS) she would like installed on her new computer. Natalia has been offered the following OS options: • **proprietary** • **open source.** Evaluate the suitability of the two **OS types for Natalia's new system.** [6 marks]

AO3 = 6 marks

Award **one** mark for **each** comprehensive evaluation point, up to a maximum of **three** marks per operating system (OS) type, up to a total of **six** marks:

- A proprietary OS, such as Windows, would be an excellent choice for this computer. This would provide a familiar environment for Natalia (1) as she uses a computer for work. Microsoft Windows provides excellent compatibility with applications such as word processing programs, email clients and web browsers (1), and it will enable Natalia to manage her day-to-day use of the PC herself (1).
- An open source OS would not provide an ideal solution for this computer. This is because OSs such as Unix or Linux can be difficult for users like Natalia (1) unless they are trained in using them. While compatibility for such OSs is improving, many of the games or programs that Natalia uses might not be able to be used on these types of OS (1). As the OS would be more technical, Natalia may need to use a professional to maintain her PC more frequently than if she used a proprietary system (1).

Accept any other suitable response.

18	Suraj is the IT director for a large healthcare provider. The provider has recently introduced a company aim of reducing their carbon footprint to be carbon neutral in 10 years.

As part of the end-of-year budget review, the managing director has raised concerns about the increasing cost of the current IT ecosystem. The provider has a physical system and at present, many of the servers are not being used at full capacity. In addition, the number of technicians needed to maintain the physical system has increased, which has meant an overspend in the IT budget this year. The managing director also expressed their concern about the impact that this physical system is having on their aim to be carbon neutral.

The managing director has asked Suraj to investigate more cost-effective ways to provide the same level of IT services as they do currently. In particular, the managing director is very interested in virtual computing systems.

Evaluate the benefits and **suitability of virtual computing as the IT system for the healthcare provider.**

[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	**AO3:** Evaluation of how virtual computing systems could be suitable for the healthcare provider is **comprehensive**, **effective** and **relevant**, showing detailed understanding with **logical** and **coherent** chains of reasoning throughout. Effectively informed judgements that are fully supported with rational and balanced conclusions. **AO2:** Applied all relevant knowledge of how virtual computing systems could be suitable for the healthcare provider and shows a **detailed** functional understanding of the beneficial impact they may provide. **AO1:** A **wide range** of relevant knowledge and understanding of how virtual computing systems could be suitable for the healthcare provider is **accurate** and **detailed**. The answer demonstrates **comprehensive** breadth and / or depth of understanding.

3	7–9	**AO3:** Evaluation of how virtual computing systems could be suitable for the healthcare provider is **in most parts effective** and **mostly relevant**, showing **mostly logical** and **coherent** chains of reasoning throughout. Given conclusions are fully supported by judgements that consider most of the relevant arguments. **AO2:** Applied **mostly relevant** knowledge of how virtual computing systems could be suitable for the healthcare provider, showing **some** functional understanding of the beneficial impact they may provide. **AO1:** Knowledge and understanding of how virtual computing systems could be suitable for the healthcare provider is **in most part 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:** Evaluation of how virtual computing systems could be suitable for the healthcare provider 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 are supported by judgements that consider only the most basic arguments. **AO2:** Applied some but **limited** knowledge of how virtual computing systems could be suitable for the healthcare provider and may show a lack of functional understanding of the beneficial impact they could provide. **AO1:** Knowledge and understanding of how virtual computing systems could be suitable for the healthcare provider is demonstrated but shows **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:** Evaluation of how virtual computing systems could be suitable for the healthcare provider is **minimal** and **very limited** in effectiveness and relevance. Given tenuous conclusions are unsupported and show little relevance to the question aims. **AO2:** Applied general knowledge of how virtual computing systems could be suitable for the healthcare provider.

		AO1: Knowledge and understanding of how virtual computing systems could be suitable for the healthcare provider 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 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. The errors in grammar severely hinder the overall meaning.

Indicative content

AO1: Knowledge and understanding of the components and benefits of virtual computing systems may include:

- virtual machines (VMs) (for example, clients, servers)
- hypervisor (for example, type 1, type 2).

Benefits:

- more cost-effective in larger digital environments
- easier to manage and maintain in larger environments
- resilient (for example, clustering)
- environments (for example, lower carbon footprint)
- disaster recovery options
- efficient testing environments
- education and training platform.

Accept any other suitable response.

AO2 / AO3: Application and evaluation of how virtual computing systems could be suitable for the healthcare provider.

Virtual computing systems can provide a more cost-effective solution for the healthcare provider. Virtual systems can be deployed and reduce the number of physical systems required; this means less purchase costs of expensive computing equipment, which would reduce costs associated with the digital environment. This would mean that instead of having spare server capacity, they could simply increase their capacity as needed with the cloud computing provider to meet demand.

With the reduced need for physical systems, the overall IT infrastructure would require less power, less cooling systems and less raw materials, all of which would provide less of an impact on the environment, thus reducing the healthcare provider's carbon footprint. This would also bring the department back into budget and will reduce the chance of overspend next year.

Deploying virtual machines would mean that several servers are not required by the organisation. Suraj could redeploy these servers to provide improved service to the organisation. This could be achieved by using clustering to provide a more resilient environment that is well placed to handle spikes in demand for services.

The removal of some of the servers may also mean that some administrators are not required as there would be less physical kit to maintain. These staff may no longer be required by the business, and this could be a source of a huge saving in terms of salary for the business. This would further increase the cost effectiveness of the organisation and its IT department.

Accept any other suitable response.

Section C: learning and planning   **Total for this section: [22 marks]**

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19   Which one **of the following could lead to increased employment potential** and **job security?**

   A Completing a decomposition diagram
   B Hacking the business
   C Personal and professional development
   D Providing display screen equipment (DSE)

[1 mark]

AO1 = 1 mark

Award **one** mark for:

C Personal and professional development

---

20   State one **principle of project planning used to manage risks and issues.**

[1 mark]

AO1 = 1 mark

Award **one** mark for **each** principle stated, up to a maximum of **one** mark:

- identification (1)
- probability (1)
- impact (1)
- prioritisation (1)
- analysis (1)
- mitigation controls (1)
- contingency planning (1).

Accept any other suitable response.

21	Safia is a project manager. The large team she manages is beginning a new systems development project. The review of their last project shows issues with quality and Safia has been asked to meet with the new project team to make sure everyone is aware of what is expected for this project.
	The project has a tight deadline, and an appropriate but inflexible budget has been set by the managing director.
	As part of her meeting with the team, Safia will be discussing the issues from the previous project and setting out a clear plan for this project.
	Explain two **consequences of ineffective project planning on Safia's project.**
	[4 marks]

AO1 = 2 marks
AO2 = 2 marks

Award **one** (AO1) mark for **each** consequence of ineffective project planning identified, up to a maximum of **two** marks:

- the project might not have all the resources it needs (1)
- costs might escalate (1)
- might not finish the project on time (1)
- may not complete the project (1)
- may have scope creep (1)
- may end up with someone injured or hurt (1)
- may impact on the environment (1).

Accept any other suitable response.

Award **one** (AO2) mark for **each** contextualised explanation of each consequence, up to a maximum of **two** marks:

- One consequence of poor project planning is that the project may run out of money as there is already a tight budget (1), which would mean the project would once again see issues with quality as they must finish the project with no money (1).
- Ineffective project planning could lead to the project not being finished on time (1) as resources will not be available when needed (1).
- Poor project planning could fail to identify what went wrong in the last project (1) and so the same poor-quality issues could arise in this project as well (1).
- If the scope of the project is not clear from the start, then the project could start to slip (1) as items that are not really needed start getting included (1).
- If the project is not planned well, they may not have all the resource they need (1), which could mean that the quality is poor or there are delays as they wait for the resources to become available (1).

Accept any other suitable response.

22	Jessica is a training and development manager at a business that has just introduced a new tablet device for staff to use. She has been asked to create and deliver a training session to all staff on how the new tablet devices work and how they can be used by each team for their specific jobs. The first team that Jessica will be training is the sales team. **Explain** two **sources of knowledge that Jessica could use when planning a training session for the sales team.**
	[4 marks]

AO1 = 2 marks
AO2 = 2 marks

Award **one** (AO1) mark for **each** source of knowledge identified, up to a maximum of **two** marks:

- forums (1)
- textbooks (1)
- academic papers (1)
- white papers (1)
- supplier literature (1)
- search engines (1)
- websites (1)
- blogs (1)
- wikis (1)
- social media (1)
- conferences (1)
- developer kits (1)
- e-learning (1)
- subject matter expert (1).

Accept any other suitable response.

Award **one** (AO2) mark for **each** contextualised explanation of each source of knowledge, up to a maximum of **two** marks:

- Jessica can use the tablet's instruction manual in her presentation (1) to show the sales team all the different features of the tablets and how they work (1).
- Jessica could use the sales software that the team use in her presentation (1) to show them how they can use the tablets to input the data rather than using the PCs they usually use (1).
- Jessica could include videos in her presentation of step-by-step guides of how to use the tablet (1) to access company systems, like how to book holidays, so staff know how to use it and can refer to it (1).

Accept any other suitable response.

23	Marco is the IT manager of a large retail organisation. As part of his role, he must provide onboarding sessions to all new staff on how to access and use the various IT systems in the organisation.
	Marco has just completed the latest series of onboarding sessions and some feedback he was provided with includes:
	• 'the sessions had too much information in them' • 'I didn't get to actually do anything, so I still don't know what to do' • 'I can't remember how to log my timesheets'.
	Marco has been asked to review the onboarding sessions and to create an action plan to address the feedback. Marco has decided to use Gibbs' Reflective Cycle to review the process.
	Gibbs' Reflective Cycle includes the following stages:
	• description • feelings • evaluation • analysis • conclusion • action plan.
	(a) Explain three **stages of the cycle that Marco could use to create his action plan.** [3 marks]
	(b) Discuss how Gibbs' Reflective Cycle will help Marco to improve the onboarding sessions. [3 marks]

AO2 = 3 marks
AO3 = 3 marks

(a) Award **one** (AO2) mark for **each** contextualised explanation point of how each selected stage could be used, up to a maximum of **three** marks:

- Marco could use the description stage to write down the issues highlighted with the onboarding sessions, so he knows what the issues are (1).
- Marco could undertake an evaluation that allows him to think about the positives and negatives of the training (1).
- Marco could look at each part of the onboarding training to identify if there are alternative methods that could be used (1).

Accept any other suitable response.

(b) Award **one** (AO3) mark for **each** reasoned discussion point of how using Gibbs' Reflective Cycle can help improve the onboarding training, up to a maximum of **three** marks:

- Reflecting on the onboarding sessions will allow Marco to consider what is effective and what is missing from the sessions (1), and to then look at what he needs to do to resolve the comments from the trainees (1) to ensure that his action plan addresses these issues and makes future training more interactive and informative for staff (1).
- Gibbs' Reflective Cycle will help Marco to rationally consider the effectiveness of the onboarding sessions (1). By considering what went well and what needs to change, he can look at the purpose of each activity in the session to determine if the trainees' comments are fair and if it needs changing (1), this will then ensure that only elements of the session that need changing are changed and that the sessions still meet the needs of the organisation (1).

Accept any other suitable response.

24	A house builder has just been granted planning permission to build 20 smart homes. As part of their planning permission, the builder has been asked to ensure that they are communicating with the stakeholders of the project to ensure that there are no major issues that arise. The house builder has asked their project manager to use the RACI (responsible, accountable, consulted, informed) matrix to ensure that the views of stakeholders are being addressed. The three main external stakeholders for the project are: • the local community • the new house owners • the local council. **(a) Explain how using the RACI matrix would enable the** three **different stakeholders' views to be considered.** [3 marks] **(b) Discuss why it is important for the project manager to keep stakeholders updated on progress.** [3 marks]

AO2 = 3 marks
AO3 = 3 marks

(a) Award **one** (AO2) mark for **each** explanation point of how the RACI matrix would enable the three stakeholders' views to be considered, up to a maximum of **three** marks:

• The RACI matrix would help the developer to communicate with the local community as they would be consulted on their views of the houses being built and their progress (1).
• The new homeowners' views would be considered as they would be consulted about what they want in their new homes and the builder is accountable to the owners on the final houses (1).
• The local council would be considered as the builders are accountable to the council, because if they do not meet the terms of the planning permission, the houses may have to be removed (1).

Accept any other suitable response.

(b) Award **one** (AO3) mark for **each** discussion point of why it is important that the project manager updates each stakeholder on project progress, up to a maximum of **three** marks:

• It is important that the stakeholders are kept informed on the progress of the build as it is part of the planning permission for the houses (1) and if the builders do not do this, they risk having the planning permission withdrawn, which could result in fines for the builder or even the houses having to be bulldozed (1), which would then affect the reputation of the housebuilder (1).

- It is important that the builder communicates with their stakeholders as the builders will carry out other building projects in the local area (1) and if they do not communicate well with the local community, they could find their next building project gets more complaints (1) and so they will not be able to build in the area again (1).
- The builders need to communicate with their stakeholders to ensure that all the houses they build are sold (1). If they do not work closely with potential buyers, then the buyers will pull out of buying the house (1) and this could mean a surplus of unsold houses or having to sell the houses for less than planned, which would cause a loss for the project (1).

Accept any other suitable response.

Assessment objective (AO) grid

Question	AO1	AO2	AO3	QWC	Total
Section A					
1	1				1
2	1				1
3	1	1			2
4 (a)	2				2
4 (b)			3		3
5		4			4
6		4			4
7 (a)		2			2
7 (b)			3		3
8 (a)	3				3
8 (b)			3		3
9	4	4	4	3	15
Section A totals	**12**	**15**	**13**	**3**	**43**
Section B					
10	1				1
11	1				1
12	1	1			2
13		2			2
14		4			4
15		4			4
16 (a)	3				3
16 (b)			3		3
17			6		6
18	4	4	4	3	15
Section B totals	**10**	**15**	**13**	**3**	**41**

Section C					
19	1				1
20	1				1
21	2	2			4
22	2	2			4
23 (a)		3			3
23 (b)			3		3
24 (a)		3			3
24 (b)			3		3
Section C totals	**6**	**10**	**6**		**22**
Total	**28**	**40**	**32**	**6**	**106**

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Change History Record

Version	Description of change	Approval	Date of Issue
v1.0	Additional sample materials		November 2022
v1.1	Sample added as a watermark	November 2023	21 November 2023
v2.0	Annual review 2024 – wording changes to Q5 p7, Q6 p7, Q7 p8, Q13 p16, Q16 p19 and amend to Q22 p25.	April 2024	29 April 2024