Ofqual QAN	**610/6138/4**
Quartz ID	**2335**
Qualification	**Level 2 Diploma in Computing**

Unit ID	**2336**
Assessment	**Computer Systems and Networking**
Assessment Type	**Global Assignment**
Assessment Cycle	**Sample Assignment**

Assignment title: Designing and Securing IT Infrastructure for a Modern Cafe: A Case Study of Tech Haven Café

Marking Scheme

Markers are advised that, unless a task specifies that an answer be provided in a particular form, then an answer that is correct (factually or in practical terms) **must** be given the available marks. If there is doubt as to the correctness of an answer, the relevant NCC Education materials should be the first authority.

This marking scheme has been prepared as a **guide only** to markers and there will frequently be many alternative responses which will provide a valid answer.

Each candidate's script must be fully annotated with the marker's comments (where applicable) and the marks allocated for each part of the tasks.

Throughout the marking, please credit any valid alternative point.

Where markers award half marks in any part of a task, they should ensure that the total mark recorded for the task is rounded up to a whole mark.

Marker's comments:

Moderator's comments:

Mark:	**Moderated mark:**	**Final mark:**

Penalties applied for academic malpractice:

Introduction

You should read through the information given and each task section of the assignment carefully before you begin.

You must work independently and should not share your work with other learners. All work produced must be your own.

Any sources of information, text, images created by others that you include in your work must be clearly identified and referenced. The use of work of others as your own without permission or without proper acknowledgement is considered plagiarism and may result in disqualification from the assessment.

You may ask your teacher for support if you have questions about the requirements of each task, however, they cannot give guidance with solutions for tasks or provide you with feedback about how to improve your work.

Scenario

Tech Haven Café is a new, modern cafe opening in Inverness, Scotland. Alongside serving artisan coffee and locally sourced food, the cafe offers a co-working space for freelancers, students, and remote workers. It features high-speed internet, digital ordering, and printing services. The owner wants to ensure the cafe is equipped with a reliable, secure, and future-ready IT infrastructure that complies with UK data protection laws and supports future growth.

You have been hired as an IT Systems Consultant to design, implement, and secure the café's computer systems and network. Your job is to create a comprehensive proposal that addresses the café's current needs and prepares it for future technological advancements.

Task 1: System Design and Integration (LO1 & LO6) – 30 Marks

- Identify and describe the core hardware and software components needed for the cafe (e.g., POS systems, staff computers, customer Wi-Fi).
- Explain how the operating system will manage memory, processes, files, and devices.
- Describe how these components will work together to ensure smooth operations.

Produce a report with **FIVE HUNDRED (500)** words.

0 - 6 marks	7 - 10 marks	11 - 15 marks	16 - 20 marks	21-30 marks
Very little or no relevant content of identification of components. Major misunderstandi	Limited identification of components, with several missing or incorrect. Weak or unclear	Basic identification of key components with limited detail. General explanation of	Good identification of most hardware and software components. Sound explanation of OS functions	Comprehensive identification and explanation of all core hardware and software components (POS, staff

ngs or missing sections. No clear explanation of OS or system integration. Work lacks structure and technical accuracy.	explanation of OS functions. Poor integration of ideas; lacks coherence. Minimal use of technical language. Multiple errors affecting clarity	OS functions, possibly lacking depth. Some attempt to describe integration, though may be unclear. Limited use of technical terms. Some structural or factual errors present.	with minor gaps. Components are mostly well-integrated and described. Some use of technical terms, mostly correct. Minor errors or omissions that do not affect overall understanding.	systems, Wi-Fi, etc.). Clear and accurate explanation of how the operating system manages memory, processes, files, and devices. Excellent integration of components with logical flow and technical accuracy. Use of technical terminology is accurate and consistent. Work is well-structured, with no major errors.

Task 2: Troubleshooting and Maintenance Plan (LO2) – 15 Marks

- Create a troubleshooting guide for common issues (e.g., printer not working, slow internet, system crashes).
- Include steps for diagnosing and resolving problems related to the operating system and network.

Produce a report with **THREE HUNDRED (300)** words.

0 - 3 marks	4 - 5 marks	6 - 9 marks	10 - 11 marks	12 - 15 marks
Very little or no relevant content. No clear troubleshooting process. Major misunderstandings or missing sections. Work lacks clarity and technical relevance.	Basic troubleshooting guide with limited range of issues. Diagnostic steps are present but may be vague or incomplete. Some solutions provided, though not always practical. Covers either OS or network issues, but not both well. Limited use of technical language.	Identifies relevant patterns in data, demonstrating a good understanding of how patterns can be used to solve the problem. For example, recognises that certain pet types are more likely to be found in specific areas and uses these patterns to inform the algorithm. May miss more subtle patterns or not fully explain their impact.	Good coverage of common issues troubleshooting guide. Diagnostic and resolution steps are mostly logical. Covers both OS and network issues, though may lack some detail. Some use of technical terms, mostly correct. Minor errors or omissions present.	Clear and well-structured troubleshooting guide covering multiple common issues. Accurate and logical diagnostic steps for each issue. Effective and realistic solutions provided. Includes both OS-related and network-related problems Uses technical terminology appropriately and consistently.

Task 3: Network Setup and Protocols (LO3) – 20 Marks

- Design a network layout that includes separate access for staff and customers.
- Explain the types of networks used (LAN, WLAN), protocols (TCP/IP, DHCP, DNS), and how data is transmitted and addressed.
- Recommend basic security measures (e.g., password protection, guest network isolation).

Produce a report with **FOUR HUNDRED (400)** words.

0 - 4 marks	5 - 6 marks	7 - 10 marks	11 -13 marks	14 - 20 marks
Very little or no relevant content network layout. No clear explanation of network setup or protocols types. Very limited or no understanding of data transmission. Work lacks structure and technical relevance.	Limited or unclear network layout. Weak or incorrect explanation of protocols and network types. Poor understanding of data transmission. Security measures are minimal or missing.	Basic network layout with some attempt at access separation. General explanation of network types and protocols, though may lack detail. Some understanding of data transmission. Security measures mentioned but may be vague or incomplete.	Good network layout with mostly correct separation of access. Sound explanation of network types and protocols with minor gaps. Good understanding of data transmission and addressing. Includes basic but effective security measures.	Clear and accurate network layout with separate access for staff and customers. Correct identification and explanation of network types (LAN, WLAN) and protocols (TCP/IP, DHCP, DNS). Excellent explanation of how data is transmitted and addressed. Strong and appropriate security recommendations.

Task 4: Cybersecurity Strategy (LO4) – 25 Marks

- Identify potential cyber threats (e.g., phishing, malware, rogue access points).
- Recommend tools and practices to secure the network (e.g., firewalls, antivirus, regular updates).
- Discuss ethical and legal responsibilities in protecting customer and business data, referencing **UK GDPR** and **Computer Misuse Act 1990**.

Produce a report with **FOUR HUNDRED AND FIFTY (450)** words.

0 - 7 marks	**8 - 9 marks**	**10 - 14 marks**	**15 - 18 marks**	**19 - 25 marks**
Very little or no relevant content of cyber threats. Major misunderstandings or missing security suggestions. No clear explanation of cybersecurity or legal context. Work lacks structure and technical relevance.	Limited or vague mention of cyber threats. Weak or generic security suggestions. Poor or incorrect understanding of legal responsibilities. Minimal use of technical language. Multiple errors affecting clarity.	Basic identification of at least two cyber threats. Some security recommendations, though may lack depth or relevance. Limited explanation of legal and ethical responsibilities. Limited use of technical/legal terms. Some structural or factual errors present.	Good identification of common cyber threats. Sound recommendations for security tools and practices. General understanding of legal and ethical responsibilities, with minor gaps. Mostly correct use of terminology. Minor errors or omissions that do not affect overall understanding.	Comprehensive identification of multiple cyber threats. Strong and appropriate recommendations for tools and practices. Clear and accurate explanation of ethical and legal responsibilities under UK GDPR and the Computer Misuse Act 1990. Excellent use of technical and legal terminology. Well-structured, with no major errors.

Task 5: Emerging Technologies Report (LO5) – 10 Marks

- Research and explain how **ONE (1)** emerging technologies (e.g., IoT for smart ordering, AI for customer analytics, 5G for faster service) could benefit the cafe.
- Discuss how these technologies could be integrated in the future and their potential impact on the local community.

Produce a report with **THREE HUNDRED AND FIFTY (350)** words.

0 - 2 marks	**3 marks**	**4 - 5 marks**	**6 marks**	**7 - 10 marks**
Very little or no relevant content. Major misunderstandings or missing discussion of benefits or integration. No clear explanation of technologies or their relevance	One technology mentioned with weak or unclear explanation. Minimal discussion of benefits or integration. Poor or missing reference to community impact	Basic identification of one technology with limited explanation. General discussion of benefits, possibly lacking depth. Limited or vague mention of integration and community impact.	Good identification of one technology with mostly accurate explanations. Sound analysis of benefits and integration. Good discussion of community impact.	Clear identification and explanation of one relevant emerging technology. Strong analysis of how each technology could benefit the café. Thoughtful discussion on integration and potential impact on the local community.

Learning Outcomes Matrix

Task	Learning Outcomes assessed	Marker can differentiate between varying levels of achievement
1	LO 1 & 6	Yes
2	LO 2	Yes
3	LO 3	Yes
4	LO 4	Yes
5	LO 5	Yes

Grade Descriptors

Learning Outcome	Fail	Pass	Merit	Distinction
Understand the core components and functions of computer systems, including how hardware, software, and networks work together to enable effective performance and communication.	Demonstrates limited or no understanding of the basic components of a computer system. Unable to explain how hardware, software, and networks function or interact.	Demonstrates a basic understanding of the main components of a computer system (e.g., CPU, RAM, storage, operating system, network devices). Can identify how hardware, software, and networks contribute to system performance and communication.	Demonstrates a clear and accurate understanding of the core components and their functions. Can explain how hardware, software, and networks work together to support system performance and communication.	Demonstrates a comprehensive and in-depth understanding of computer system components and their interdependence. Can analyse and evaluate how hardware, software, and networks interact to optimise performance and enable communication.

Develop practical problem-solving skills in managing and troubleshooting computer systems, storage, and networks, with an emphasis on operating systems and network protocols.	Demonstrates little or no ability to identify or resolve basic issues in computer systems, storage, or networks. Shows limited understanding of operating systems or network protocols. Unable to apply troubleshooting steps effectively.	Demonstrates a basic ability to identify and resolve common problems in computer systems, storage, or networks. Shows some understanding of operating systems and network protocols. Can follow simple troubleshooting procedures with guidance.	Demonstrates a clear and consistent ability to troubleshoot and manage a range of system, storage, and network issues. Shows a good understanding of how operating systems and network protocols function. Applies logical problem-solving steps effectively.	Demonstrates a high level of skill and independence in diagnosing and resolving complex issues in systems, storage, and networks. Shows a comprehensive understanding of operating systems and network protocols, including their configuration and interaction. Applies structured, efficient, and well-reasoned approaches to troubleshooting.
Understand the types of networks, protocols, models, data transmission, addressing and recognise basic security measures to protect these systems.	Demonstrates limited or no understanding of network types, protocols, or models. Unable to explain how data is transmitted or how addressing works. Shows little awareness of basic security measures.	Demonstrates a basic understanding of different types of networks (e.g., LAN, WAN) and common protocols (e.g., HTTP, IP). Can identify basic elements of data transmission and addressing (e.g., IP addresses). Shows some awareness of simple security measures (e.g.,	Demonstrates a clear understanding of network types, protocols, and communication models (e.g., OSI, TCP/IP). Can explain how data is transmitted and how addressing supports communication. Recognises and describes common security measures and their purposes.	Demonstrates a comprehensive and detailed understanding of network types, protocols, models, data transmission, and addressing. Can analyse how these components work together to enable secure and efficient communication. Explains security risks and appropriate mitigation

		passwords, firewalls).		strategies with insight.
Demonstrate an understanding of network security by identifying common cyber threats and vulnerabilities, selecting appropriate security tools and practices, and applying ethical and legal principles to safeguard digital systems and data.	Shows little or no understanding of cyber threats or vulnerabilities. Unable to identify or apply appropriate security tools or practices. Demonstrates li mited awareness of ethical or legal responsibilities in protecting data.	Identifies basic cyber threats (e.g., malware, phishing) and common vulnerabilities. Can name and describe simple security tools (e.g., antivirus, firewalls) and practices (e.g., strong passwords). Shows some awareness of ethical and legal principles (e.g., data protection, privacy).	Clearly explains a range of cyber threats and vulnerabilities with relevant examples. Selects and justifies appropr iate security tools and practices for different scenarios. Demonstrates a good understanding of ethical and legal responsibilities in safeguarding systems and data.	Demonstrates a thorough understanding of cyber threats, vulnerabilities, and their impact on systems. Evaluates and applies effective security tools and best practices in context. Shows a strong grasp of ethical and legal principles, including real-world implications (e.g., GDPR, Computer Misuse Act).
Explore how emerging technologies, such as IoT, AI, 5G, and blockchain, are shaping the future of computing and networking, and how they may drive innovation and change in the industry.	Demonstrates little or no understanding of emerging technologies or their relevance to computing and networking. Unable to describe how technologies like IoT, AI, 5G, or blockchain function or impact the industry. Shows minimal awareness of innovation or future trends.	Demonstrates a basic understanding of emerging technologies and their general purpose. Can identify how technologies like IoT, AI, 5G, or blockchain are used in computing or networking. Shows some awareness of how these technologies	Demonstrates a clear understanding of how emerging technologies function and interact with computing and networking systems. Can explain how emerging technologies are driving innovation and change in specific areas (e.g., smart homes, automation,	Demonstrates a comprehensive and insightful understanding of emerging technologies and their transformative role in computing and networking. Can analyse and evaluate the impact of IoT, AI, 5G, and blockchain on industry practices, innovation, and future developments.

		may influence future developments.	faster connectivity). Shows good awareness of industry trends and potential impacts.	Shows strong awareness of current trends, ethical considerations, and potential challenges.
Understand the concept of operating systems, including their purpose, functions, components, and management of processes, memory, files, devices, and security.	Demonstrates limited or no understanding of operating systems. Unable to clearly explain the purpose or functions of operating systems. Key concepts such as memory, process, or file management are missing or incorrect.	Shows a basic understanding of the purpose and functions of operating systems. Can identify some components and describe simple management tasks (e.g., memory or file handling).	Demonstrates a good understanding of operating systems, including their main functions and components. Can explain how operating systems manage processes, memory, files, and devices with mostly accurate terminology.	Provides a thorough and insightful explanation of operating systems. Accurately describes all major functions and components, including detailed understanding of process scheduling, memory allocation, file systems, device drivers, and security mechanisms.