5220-21-022/522 Level 2 Technical Certificate in Digital Technologies – Theory Exam

Exam date: March 2019

Q1	State **four** hardware components of a computer system.			
	Acceptable answer(s)	**Guidance**	**Max marks**	**Ref**
	1 mark each for any of the following, to a maximum of 4 marks: • Processor (1) • memory (1) • storage (1) • (Input/Output) device (1)	The list contains components of a computer system. The candidate may give specific examples of components that are not included in the unit, such as: • Mouse • Keyboard • Printer • Monitor • RAM • ROM • Hard disk drive • SSD (Solid State Drive) • Motherboard • Expansion card • Graphic card • Modem • Network card Where an item is duplicated within the answers given, either by name or meaning, the duplicated item will not be awarded a mark. Marks are capped to a maximum of 1 mark for each valid item stated.	**4**	**5220-022 201.01.02**
AO	AO1			
LO	201.1 Hardware requirements			

Q2	Explain how **each** of the following connection types can be used in a computer system.			
	• Universal Serial Bus (USB). • Video Graphics Array (VGA). • Digital Versatile Interface (DVI).			
	Acceptable answer(s)	**Guidance**	**Max marks**	**Ref**
	2 marks each for any of the following, to a maximum of 6 marks: • <u>Universal Serial Bus (USB)</u> can be used to connect peripherals to a system (1) and they are able to supply power to a device if required (1). • <u>Video Graphics Array (VGA) </u>provide an interface between the system's video card for video signals only (1) and an external display device (1) using a 15-pin array. • <u>Digital Versatile Interface (DVI)</u> provides an interface between a system's display controller (1) and a display device and offers the transmission of sound through the connection (1).	Candidates may give very different explanations from those in the model answers, but the answers must be technically accurate. Candidates may vary from the definition from the unit specification for DVI and use the terms 'Video or Visual' for the word that is represented by the letter 'V' in the acronym. In the explanations for VGA and DVI candidates must recognise the different signal facilities of the different video standards in that DVI carries both audio and video signals whereas VGA carries only video. Marks awarded are capped for each separate explanation at a total of 2 marks. Candidates should be allowed to give any valid explanation and marks should be awarded for each distinct element in the explanation. Where a point is duplicated within each explanation, by meaning, the duplicated item will not be awarded a mark.	6	**5220-022 201.1.2**
AO	AO2			
LO	201.1 Hardware requirements			

Q3	Explain **each** of the following functions of an operating system. • Memory management. • Resource management. • User interface.			
	Acceptable answer(s)	**Guidance**	**Max marks**	**Ref**
	2 marks each for any of the following, to a maximum of 6 marks: • <u>memory management</u> The operating system is responsible for the allocation of memory resources (1) used by software to complete processes (1). • <u>resource management</u> The operating system manages the availability of hardware and services used in the execution of programs (1) and must control the flow of information between them (1). • <u>user interface</u> The Operating System is responsible for translating system data (1) into a format that the end user can interact with (1).	Candidates may give very different explanations from those in the model answers, but the answers must be technically accurate. Marks awarded are capped for each separate explanation at a total of 2 marks. Candidates should be allowed to give any valid explanation and marks should be awarded for each distinct element in the explanation. Where a point is duplicated within each explanation, by meaning, the duplicated item will not be awarded a mark.	6	**5220-022 201.2.1**
AO	AO2			
LO	201.2 Types of software			

Q4	Explain **each** of the following terms used in connection with operating systems.		
	• EULA.		
	• Open source.		
	• Licence costs.		

	Acceptable answer(s)	Guidance	Max marks	Ref
	2 marks each for any of the following, to a maximum of 6 marks: • End User License Agreement (EULA) Operating System Software bought or used in a system is usually subject to an End-User Licence Agreement (EULA) (1) defined by the author or vendor. It defines what rights a user has to use the software (1). • Open source OS software allows end-users to have access to the source code used to produce the OS (1) and can look at or modify it for their own purposes without seeking licence from the original creator (1). • Licence costs are charged by the company owning the OS software (1) to allow individuals or groups of users to use the OS (1) for the duration of the licence.	Candidates may give very different explanations from those in the model answers. It is essential that candidates do not confuse Open Source with 'free'. Many Open Source software items are free but it is not a requirement. Some may know that the words Open Source name is owned by OSI. Marks awarded are capped for each separate explanation at a total of 2 marks. Candidates should be allowed to give any valid explanation and marks should be awarded for each distinct element in the explanation. Where a point is duplicated within each explanation, by meaning, the duplicated item will not be awarded a mark.	6	**5220-022 201.2.1**

AO	AO2
LO	201.2 Types of software

Q5	Explain how **each** of the following OS features are used to meet the needs of users with visual/sight impairment. • Magnifier. • Screen reader.			
	Acceptable answer(s)	**Guidance**	**Max marks**	**Ref**
	2 marks each for any of the following, to a maximum of 4 marks: • <u>Magnifier</u> allows users to magnify selected areas of the screen (1) without needing to install specialist software (1). • <u>Screen reader</u> Users who are blind or partially sighted may be supported using screen readers that convert text to sound (1), used by output peripherals to convey the content of the screen to the visually impaired user (1).	Candidates may give very different explanations from those in the model answers. Marks awarded are capped for each separate explanation at a total of 2 marks. Candidates should be allowed to give any valid explanation and marks should be awarded for each distinct element in the explanation. Where a point is duplicated within each explanation, by meaning, the duplicated item will not be awarded a mark.	**4**	**5220-022** **201.2.3**
AO	AO2			
LO	201.2 Types of software			

Q6	A 'database' is a type of application software.			
	State **four** other types of application software. Do **not** use brand names in your answer.			
	Acceptable answer(s)	**Guidance**	**Max marks**	**Ref**
	1 mark each for any of the following, to a maximum of 4: • database (1) • spreadsheet (1) • presentation software (1) • word processor (1) • utility (1) • web browser (1) • audio (1) • visual (1) • graphics (1) • bespoke (1)	The list contains types of application software. The candidate may give specific examples of software that are not included in the unit, such as: • programming environment • games • communications • accounting Marks must not be awarded for the use of brand names to represent applications. For example, Excel is not acceptable to represent spreadsheet and PowerPoint is not acceptable to represent presentation software. Where an item is duplicated within the answers given, either by name or meaning, the duplicated item will not be awarded a mark. Marks are capped to a maximum of 1 mark for each valid item stated.	4	**5220-022 201.2.3**
AO	AO1			
LO	201.2 Application software			

Q7	Explain how **each** of the following Cyber Security breaches can affect an individual. • Identity theft. • Fraud. • Loss of sensitive data.			
	Acceptable answer(s)	**Guidance**	**Max marks**	**Ref**
	2 marks each for any of the following, to a maximum of 6 marks: • <u>Identity theft</u> can lead to the thief committing crime in the name of the victim (1) leading to false accusations being made against the victim, requiring them to demonstrate their innocence (1). • <u>Fraud</u> is where the fraudster tricks the victim into thinking that they are communicating with someone other than who they really are (1) – this can lead to lose of money, affected credit history and also may emotionally impact the victim considerably (1). • <u>Loss of sensitive data</u> Sensitive data is data that the owner would want to keep private and/or unknown (1) because they feel that if they lost it, their reputation, security, or financial position could be adversely affected (1).	Candidates may give very different explanations from those in the model answers. Marks awarded are capped for each separate explanation at a total of 2 marks. Candidates should be allowed to give any valid explanation and marks should be awarded for each distinct element in the explanation. Where a point is duplicated within each explanation, by meaning, the duplicated item will not be awarded a mark.	6	**5220-022 202.1.2**
AO	AO2			
LO	202.1 Cyber security threats and vulnerabilities			

Q8	State **four** vulnerabilities associated with network infrastructure that can compromise security.			
	Acceptable answer(s)	**Guidance**	**Max marks**	**Ref**
	1 mark each for any of the following, to a maximum of 4 marks: • unprotected wireless network (1) • misconfigured hardware (1) • unsecure network architecture (1) • open ports (1) • access rights (1)	The list contains types of vulnerabilities. The candidate may give specific examples of vulnerabilities that are not included in the unit, such as: • Unauthorised Bluetooth access • Legacy devices • Legacy software Where an item is duplicated within the answers given, either by name or meaning, the duplicated item will not be awarded a mark. Marks are capped to a maximum of 1 mark for each valid item stated.	**4**	**5220-022 202.1.3**
AO	AO1			
LO	202.1 Cyber security threats and vulnerabilities			

Q9	State **two** types of software vulnerabilities in a computer system.			
	Acceptable answer(s)	**Guidance**	**Max marks**	**Ref**
	1 mark each for any of the following, to a maximum of 2 marks: • backdoor entry (1) • bugs (1) • path faults (1) • upgrades (1)	The list contains types of software. The candidate may give specific examples of software that are not included in the unit, such as: • unpatched software • Insecure software • Mis-configured access permissions • SQL injection • Cross site scripting Where an item is duplicated within the answers given, either by name or meaning, the duplicated item will not be awarded a mark. Marks are capped to a maximum of 1 mark for each valid item stated.	**2**	**5220-022 202.1.3**
AO	AO1			
LO	202.1 Understand Cyber security threats and vulnerabilities			

Q10	Explain one advantage when using **each** of the following types of backup hardware in an organisation. • Network Attached Storage (NAS). • Tape drive.			
	Acceptable answer(s)	**Guidance**	**Max marks**	**Ref**
	2 marks each for any of the following, to a maximum of 4 marks: • A Network Attached Storage (NAS) device offers a central point of storage for all authorised users of the backup service (1) that can be configured to restrict access to the data (1). • A Tape Drive device offers very high capacity for backup (1) at relatively low cost, making it useful for full system backup processes (1).	Candidates may give very different explanations from those in the model answers. Marks awarded are capped for each separate explanation at a total of 2 marks. Candidates should be allowed to give any valid explanation and marks should be awarded for each distinct element in the explanation. Where a point is duplicated within each explanation, by meaning, the duplicated item will not be awarded a mark.	4	**5220-022 202.3.2**
AO	AO2			
LO	202.1 Understand Cyber security threats and vulnerabilities			

Q11	Explain how **each** of the following IT User vulnerabilities can compromise information security for an organisation.
	• Discussion of sensitive information in public. • Using confidential data off site. • Installing unapproved software.

	Acceptable answer(s)	Guidance	Max marks	Ref
	2 marks each for any of the following, to a maximum of 6 marks: • Discussion of sensitive information in public could lead to someone overhearing the information (1) and using the information to gain unauthorised access to systems and/or the data they hold (1). • Using confidential data off site may mean that unencrypted data may not be able to be protected (1) and some trace of the data may exist when the user leaves the system, leading to potential discovery by others (1). • Installing unapproved software on a network may introduce malware to the system (1) which may lead to damage to information on the system (1).	Candidates may give very different explanations from those in the model answers. Marks awarded are capped for each separate explanation at a total of 2 marks. Candidates should be allowed to give any valid explanation and marks should be awarded for each distinct element in the explanation. Where a point is duplicated within each explanation, by meaning, the duplicated item will not be awarded a mark.	6	**5220-022 202.1.3**

AO	AO2

LO	202.1 Understand Cyber security threats and vulnerabilities

Q12	State **four** methods that can be used to gather support information from end users.			
	Acceptable answer(s)	**Guidance**	**Max marks**	**Ref**

	1 mark each for any of the following, to a maximum of 4 marks:
	• face-to-face (1)
	• telephone (1)
	• fault reporting software (1)
	• email (1)
		The list contains the items from the unit specification, but candidates should be awarded marks where they state a reasonable method.
		
		The candidate may give specific examples of methods that are not included in the unit, such as:
		    • interview
		    • online survey
		    • questionnaire
		    • direct questioning
		    • observation
		    • video conferencing
		
		Where an item is duplicated within the answers given, either by name or meaning, the duplicated item will not be awarded a mark.
		
		Marks are capped to a maximum of 1 mark for each valid item stated.
			4	5220-022
				203.1.3

AO	AO1			
LO	203.1 Understand the support process			

Q13	Explain how **each** of the following types of documentation can be used to support users of an enterprise system.
	• Policies.
	• Guidelines.
	• Frequently Asked Questions (FAQs).

	Acceptable answer(s)	Guidance	Max marks	Ref
	2 marks each for any of the following, to a maximum of 6 marks: • Policies define how the system should be used to ensure its correct operation (1) and may be especially useful where tasks have to be carried out in a particular sequence to be completed successfully (1). • Guidelines define the correct ways to use a system (1) ensuring that users complete activities using known and tested safe procedures (1). • Frequently Asked Questions (FAQs) provide easily updated answers to questions asked by many users (1) and are a convenient way of providing help without direct involvement of the support staff (1) thus reducing costs.	Candidates may give very different explanations from those in the model answers. Marks awarded are capped for each separate explanation at a total of 2 marks. Candidates should be allowed to give any valid explanation and marks should be awarded for each distinct element in the explanation. Where a point is duplicated within each explanation, by meaning, the duplicated item will not be awarded a mark.	6	**5220-022 203.3.1**
AO	AO2			
LO	203.3 Understand end user documentation			

Q14	You are the administrator in a sports club and want the board to approve a computer system to be used by the staff to create marketing material for the club in its advertising. You have been asked to prepare a report for the board outlining what the system should have and how it would be implemented. Discuss what would be included in the report you will submit to the board about the processes to be undertaken in the project.			
	Acceptable answer(s)	**Guidance**	**Max marks**	**Ref**

	Indicative content:
	A candidate's discussion may include consideration of:
	• Planning
	    ○ Life cycle models
	    ○ Sourcing
	        ▪ budget
	        ▪ availability
	    ○ PC Hardware
	        ▪ PC specification
	    ○ Networks
	        ▪ topologies
	        ▪ hardware
	        ▪ connection media
	        ▪ connection devices
	        ▪ cellular access
	    ○ User requirements
	        ▪ target platform
	        ▪ system constraints
	    ○ Legislation and regulations
	    ○ Compliance
	• Design
	    ○ Skill requirements
	        ▪ users
	    ○ Development timescales
	    ○ Data requirements
	    ○ Data storage
		0 marks – No awardable material
		
		Band 1:
		1– 3 marks
		The response demonstrates a limited understanding of the processes and technologies involved and is mostly a statement of facts, which are not developed. The approach to the task is inconsistent. Statements may be occasionally incorrect, and the use of precise technical language is sparse.
		
		Band 2:
		4 – 6 marks
		The candidate has produced a discussion that expands on the factual knowledge but lacks detail in some areas. They show an adequate understanding of the processes and technologies involved including some reasons for their selection. They have provided some valid reasons for their choices. The response is structured and presented in a logical order representing the sequences of processes that would be carried out during development.
		
		Band 3:
		7 – 9 marks
		The candidate has shown a thorough understanding of the processes and technologies involved. They have covered these in a logical order, including reasons behind the processes and technologies, the factors that need to be
			9	5220-022
				AO4

	○ Security ▪ Threats ▪ Vulnerabilities ▪ Risks ▪ Data ▪ Countermeasures ▪ backup strategies ○ Hardware ○ Networks • Implementation ○ project planning ○ access to premises ○ security of premises ○ backup procedures • Testing ○ test plan ○ test log ○ user acceptance schedules • Deployment ○ user acceptance tests ○ handover processes • Maintenance ○ Technical documentation ○ Security ○ User support ○ Accounts ○ Fault log	considered and the impact these factors may have on the implementation. They have clearly understood how all of the processes and technologies link to one another in terms of order and importance. They have provided valid reasons for their choices. The response is clear, coherent and all information has been logically presented.		

AO	Integration

LO	201: 1.1, 1.2, 2.1, 2.3, 3.1, 5.1 202: 1.1, 1.2, 1.3, 2.1, 3.1, 3.2, 3.3, 203: 1.1, 1.2, 2.1, 3.1, 3.2

Q15	The sports club board have approved the system you discussed in Question 14 for the club's marketing staff. The board has asked you to create a report detailing what would be required to include the club's finance and membership records in the planned system.
	Discuss what would be included in the document you will submit to the board considering what would be required in the system and how it would be implemented.

	Acceptable answer(s)	Guidance	Max marks	Ref

	Indicative content:
	A candidate's discussion may include consideration of:
	• Planning
	    o Life cycle models
	    o Sourcing
	        ▪ budget
	        ▪ availability
	        ▪ lead time
	    o PC Hardware
	        ▪ minimum specification for software
	        ▪ recommended specification for software
	    o Software
	        ▪ Applications
	        ▪ Operating systems
	        ▪ Security software
	        ▪ Firewalls
	    o Networks
	        ▪ VPN
	        ▪ remote access
	        ▪ protocols
	        ▪ rights and permissions
	        ▪ cellular access access cellular access
	    o User requirements
	        ▪ target platform
	        ▪ system constraints
		0 marks – No awardable material
		
		Band 1:
		1– 3 marks
		The response demonstrates a limited understanding of the processes and technologies involved and is mostly a statement of facts, which are not developed. The approach to the task is inconsistent. Statements may be occasionally incorrect, and the use of precise technical language is sparse.
		
		Band 2:
		4 – 6 marks
		The candidate has produced a discussion that expands on the factual knowledge but lacks detail in some areas. They show an adequate understanding of the processes and technologies involved including some reasons for their selection. They have provided some valid reasons for their choices. The response is structured and presented in a logical order representing the sequences of processes that would be carried out during development.
		
		Band 3:
		7 – 9 marks
		The candidate has shown a thorough understanding of the processes and technologies involved. They have
			9	5220-022 AO4

	- o Legislation and regulations - o Compliance • Design - o Skill requirements ▪ users - o Data requirements - o Data storage - o Security ▪ Threats ▪ Vulnerabilities ▪ Risks ▪ Data ▪ Countermeasures • Implementation - o project planning - o access to PCs for software installation - o security of accounts for users - o security of the network • Testing - o test plan - o test log - o user acceptance schedules • Deployment - o user acceptance tests - o handover processes • Maintenance - o Technical documentation - o Security - o User support - o Accounts - o Fault log	covered these in a logical order, including reasons behind the processes and technologies, the factors that need to be considered and the impact these factors may have on the implementation. They have clearly understood how all of the processes and technologies link to one another in terms of order and importance. They have provided valid reasons for their choices. The response is clear, coherent and all information has been logically presented.
AO	Integration	

LO	201: 1.1, 1.2, 2.1, 2.3, 3.1, 3.3, 4.1, 4.2, 5.1. 202: 1.1, 1.2, 1.3, 2.1, 3.1, 3.2, 3.3, 203: 1.1, 1.2, 1.3, 3.1, 3.2