

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

Exam date: May 2018

1a	State two connection interfaces used in computer systems.		
	Acceptable answer(s)	Guidance	Max mks
	<p>1 mark for each connection method stated, maximum of 2 marks.</p> <ul style="list-style-type: none"> • Universal Serial Bus (USB) (1) • Video Graphics Array (VGA) (1) • Digital Versatile Interface (DVI) (1) • High-Definition Multimedia Interface (HDMI) (1) • FireWire (IEEE 1394) (1) • Thunderbolt (1) • Serial Advanced Technologies Attachment (SATA) (1) 	Any of the following or any other reasonable answer	2
1b	Describe the purpose of each connection interface stated in Question 1a).		
	Acceptable answer(s)	Guidance	Max mks
	<p>2 marks for each description, maximum of 4 marks.</p> <ul style="list-style-type: none"> • The <u>Universal Serial Bus (USB)</u> interface is used to provide a standard range of connectors (1) for peripheral devices (1). • The <u>Video Graphics Array (VGA)</u> is used to connect external analog displays to a system (1) using a 9-pin connector (1) (DSUB). • <u>High-Definition Multimedia Interface (HDMI)</u> is used to connect external digital display devices to a system (1) allowing the transmission of RGB and audio data (1). 	Any of the following or any other reasonable answer	4
2a	State two key functions of an operating system.		
	Acceptable answer(s)	Guidance	Max mks

	1 mark for each function stated, maximum of 2 marks. <ul style="list-style-type: none"> • File management (1) • Storage management (1) • Memory management (1) • Resource management (1) • Security (1) • User interface (1) 	Any of the following or any other reasonable answer	2
2b	Describe how each function stated in Question 2a) is used in an operating system.		
	Acceptable answer(s)	Guidance	Max mks
	2 marks for each description, maximum of 4 marks. <ul style="list-style-type: none"> • <u>File Management</u> is used to control access to files (1) and their locations in the memory of the system (1). • <u>Storage management</u> is used to control access to system memory/storage (1) and monitor the storage resources available (1). • <u>Resource management</u> is used to provide access to the hardware and software services (1) controlled by the operating system (1). 	Any of the following or any other reasonable answer	4
3a	State two types of network.		
	Acceptable answer(s)	Guidance	Max mks
	1 mark for each type stated, maximum of 2 marks. <ul style="list-style-type: none"> • Client server (1) • Peer to peer (1) 	Any of the following or any other reasonable answer	2
3b	Describe how each network type stated in Question 3a) operates.		
	Acceptable answer(s)	Guidance	Max mks
	2 marks for each description, maximum of 4 marks. <ul style="list-style-type: none"> • <u>Client server</u> networks split system operations between resource requests (1) made by client systems, and resource provision (1) made by systems known as servers. • <u>Peer to peer</u> networks connect systems directly to each other (1) without the use of centralised authentication (1). 	Any of the following or any other reasonable answer	4

4a	State two types of organisational risk associated with digital engagement.		
	Acceptable answer(s)	Guidance	Max mks
	1 mark for each risk stated, maximum of 2 marks. <ul style="list-style-type: none"> • Loss of sensitive information (1) • Loss of reputation (1) • Financial penalties for non-compliance (1) • Cyber attacks (1) • Loss of service (1) 	Any of the following or any other reasonable answer	2
4b	Describe the potential impact to an organisation of each of the risks stated in Question 4a).		
	Acceptable answer(s)	Guidance	Max mks
	2 marks for each description, maximum of 4 marks. <ul style="list-style-type: none"> • <u>Loss of sensitive information</u> may cause damage to the organisation (1) featured/covered in the information and lead to lack of trust (1) in the organisation. • <u>Loss of reputation</u> may cause loss of business (1) if the organisation's reputation no longer fits with the expectations of its clients/customers (1). • <u>Cyber attacks</u> may reduce the organisations ability to undertake routine functions (1) resulting in customer dissatisfaction and failure to meet deadlines (1). 	Any of the following or any other reasonable answer	4
5	Explain how an organisation complies with the following areas of legislation: <ul style="list-style-type: none"> • Data protection • Computer Misuse • Copyright, design and patents. 		
	Acceptable answer(s)	Guidance	Max mks
	2 marks for each explanation, maximum of 6 marks. <ul style="list-style-type: none"> • Compliance with <u>Data Protection</u> legislation can be maintained by ensuring secure data storage systems (1) and establishing information sharing practices that ensure that only authorised people can access the data (1). • Organisations can protect against <u>Computer Misuse</u> by having clear policies for acceptable use (1) and ensuring that its staff is trained on how to follow the policies correctly (1). • Organisations can observe <u>copyright, design and patents</u> legislation by buying media and designs from external 	Any of the following or any other reasonable answer	6

	brokers/agencies (1) who manage the payments due to the owners of the intellectual property (1).		
6a	State two emerging threats to cyber security.		
	Acceptable answer(s)	Guidance	Max mks
	1 mark for each threat stated, maximum of 2 marks. <ul style="list-style-type: none"> Newly created malware (1) Ransomware (1) 	Any of the following or any other reasonable answer 'Emerging' must be avoided when marking this question.	2
6b	Describe how an organisation can mitigate against each of the threats stated in Question 6a).		
	Acceptable answer(s)	Guidance	Max mks
	2 marks for each description, maximum of 4 marks. <ul style="list-style-type: none"> An organisation can mitigate against <u>newly created malware</u> by installing up to date protection software (1) and training staff how to avoid bad practices (1) that can result in a breach of security. An organisation can mitigate against <u>Ransomware</u> attacks by installing up-to-date patches for systems and software (1) and by having regular, secure backups of critical data (1) that cannot be reached by the attack. 	Any of the following or any other reasonable answer	4
7	Explain how each of the following can compromise organisational security: <ul style="list-style-type: none"> Inappropriate file sharing Unsecure social network accounts. 		
	Acceptable answer(s)	Guidance	Max mks
	2 marks for each explanation, maximum of 4 marks. <ul style="list-style-type: none"> <u>Inappropriate file sharing</u> can lead to loss of critical data (1) and can reveal information that allows attackers to access systems (1). <u>Unsecure social network accounts</u> can be attacked by competitors (1) who can present misinformation (1) about the company's products or services. 	Any of the following or any other reasonable answer	4
8a	State two methods that can be implemented by a system administrator to mitigate risks to an IT system.		
	Acceptable answer(s)	Guidance	Max mks

	1 mark for each method stated, maximum of 2 marks. <ul style="list-style-type: none"> • Update software (1) • Manage user access rights (1) • Removable media control (1) 	Any of the following or any other reasonable answer	2
8b	Explain how each method stated in Question 8a) can help to protect an IT system.		
	Acceptable answer(s)	Guidance	Max mks
	2 marks for each explanation, maximum of 4 marks. <ul style="list-style-type: none"> • <u>Updated software</u> ensures that up-to-date patches are applied (1) where known risks to security have been identified by the software author (1). • <u>Managing users' access rights</u> ensures that only authenticated users have access to the IT system (1) and that they are only authorised to use defined parts of the IT System (1). • <u>Removable media control</u> disables ports to prevent the use of external devices (1) in order to prevent attacks from infected external devices (1). 	Any of the following or any other reasonable answer	4
9a	State two reasons why an organisation backs up its data.		
	Acceptable answer(s)	Guidance	Max mks
	1 mark for each reason stated, maximum of 2 marks. <ul style="list-style-type: none"> • Ensure data integrity (1) • Maintain business continuity (1) • Comply with legislation (1) 	Any of the following or any other reasonable answer	2
9b	Explain the importance to an organisation of each reason stated in Question 9a).		
	Acceptable answer(s)	Guidance	Max mks
	2 marks for each explanation, maximum of 4 marks. <ul style="list-style-type: none"> • <u>Ensuring data integrity</u> allows the organisation to successfully restore data to the system (1) in the event of a system failure (1). • <u>Maintaining business continuity</u> is important so that a business can maintain trading (1) and generating the income required (1) to sustain the company and its operations. • <u>Compliance with legislation</u> is required where the information stored is subject to control by law (1) or to 	Any of the following or any other reasonable answer	4

	comply with regulated industry standards regarding the safeguarding of data (1).		
10a	State four benefits of providing customer support.		
	Acceptable answer(s)	Guidance	Max mks
	1 mark for each benefit stated, maximum of 4 marks. <ul style="list-style-type: none"> • Customer satisfaction (1) • Identification of trends (1) • Provision of information for troubleshooting (1) • Identification of potential improvements (1) • Maintenance of network availability (1) 	Any of the following or any other reasonable answer	4
10b	Explain why one of the benefits stated in Question 10a) is important to an organisation.		
	Acceptable answer(s)	Guidance	Max mks
	2 marks for an explanation, maximum of 2 marks. <ul style="list-style-type: none"> • Maintaining <u>customer satisfaction</u> ensures that customers will keep trading with the company (1) and can lead to them promoting the company positively (1) and so increasing business. • <u>Identifying trends</u> seen in support requests can allow a company to detect emerging issues quickly (1) and take steps to correct any faults (1) before they cause serious damage to its reputation. • <u>Provision of information for troubleshooting</u> allows companies to resolve issues quickly (1) by reviewing the recorded information (1). 	Any of the following or any other reasonable answer	2
11	Describe how an organisation can use the following types of end user support documentation:		
	<ul style="list-style-type: none"> • Frequently Asked Questions (FAQs) • Forums. 		
	Acceptable answer(s)	Guidance	Max mks
	2 marks for each description, maximum of 4 marks. <ul style="list-style-type: none"> • The use of Frequently Asked Questions, <u>FAQs</u> can provide end user support without the intervention of support staff (1) and make the information available to end users continually if they have access to the site where it is published (1). • The use of <u>Forums</u> can allow a company to create a system of peer support (1) which the company can 	Any of the following or any other reasonable answer	4

	interact with to provide answers to problems and gather information about the use of its products (1).		
12	<p>You have been asked by a company to produce a report about the migration of existing local onsite backup services to a Cloud-based system. The backup system will be used by all the employees to store sensitive data.</p> <p>Discuss what should be included in the report.</p>		
	Acceptable answer(s)	Guidance	Max mks
	<p>Band 1: 1-3 marks The response demonstrates a limited understanding of the 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.</p> <p>Band 2: 4-6 marks The candidate has produced a discussion that expands on the factual knowledge but lacking detail in some areas. They show an adequate understanding of the 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.</p> <p>Band 3: 7-9 marks The candidate has produced a thorough discussion in a logical and professional manner. They show a thorough understanding of the technologies involved and have covered these in the correct logical order, including reasons behind the technologies, the factors that need to be considered and the impact these factors may have on the implementation. They have clearly understood how all the 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 presented in a logical order.</p>	<p>Indicative content</p> <ul style="list-style-type: none"> • Cloud storage systems • Security of data stored • Supporting users with the new system <p><i>For no awardable content, award 0 marks.</i></p>	9
13	<p>A college principal wants to provide guidance to be published on the college website that will help students understand how to behave safely online when using social networks. The principal has asked you for advice on the content.</p> <p>Discuss what should be included in the guidance.</p>		
	Acceptable answer(s)	Guidance	Max mks

	<p>Band 1: 1-3 marks</p> <p>The response demonstrates a limited understanding of the issues 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.</p> <p>Band 2: 4-6 marks</p> <p>The candidate has produced a discussion that expands on the factual knowledge but lacking detail in some areas. They show an adequate understanding of the issues 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.</p> <p>Band 3: 7-9 marks</p> <p>The candidate has produced a thorough discussion in a logical and professional manner. They show a thorough understanding of the issues and technologies involved and have covered these logically, including reasons behind the selection, the factors that need to be considered and the impact these factors may have on the implementation. They have clearly understood how all the elements link to one another. They have provided valid reasons for their choices. The response is clear, coherent and all information has been presented in a logical order.</p>	<p>Indicative content</p> <ul style="list-style-type: none"> • Risks and threats associated with digital engagement • Cyber security threats and protection • Supporting users <p><i>For no awardable content, award 0 marks.</i></p>	9
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