

5220-20-020/520 Level 2 Technical Award in Digital Technologies – Theory Exam

Exam date: March 2019

Q1	State four types of non-volatile storage	State four types of non-volatile storage media.				
Q1	Acceptable answer(s)	Guidance	Max mks	Ref		
Q1	1 mark for each type of storage media: maximum of 4 marks: Optical (1) Magnetic hard disk drive (1) Sold State Drive (SSD)(1) Cloud (1)	The list contains generic types of non-volatile storage media. The candidate may give specific examples of non-volatile storage media that are not included in the unit, such as: ROM CDs DVDs Firmware Memory Stick Where an item is duplicated within the answers given, either by name or meaning, the duplicated item will not be awarded a mark, but it will count towards the number of items assessed for marking. Marks must not be awarded for the use of brand names to represent non-volatile storage media types. For example, OneDrive is not acceptable to represent Cloud. Marks are capped to a maximum of 1 mark for each valid item stated.	4	251 – 1.2,		
LO	251.1 Understand application soft	ware	I			

Q2	 Explain the main function of the following devices. Router. Switch. Network Interface card (NIC). 				
Q2	Acceptable answer(s)	Guidance	Max mks	Ref	
Q2	 2 marks for each explanation: maximum of 6 marks. A Router makes routing decisions based on the information contained in a routing table (1) and is used to connect networks (1). A Switch filters traffic based on the destination MAC address (1) and forwards it to the associated port (1). A Network Interface Card (NIC) provides a physical connection to the media (1) and encodes the digital signal (1) before placing it on to the physical media (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	251 – 2.2,	
LO	251.2 Understand networks		l		

Q3	 Explain the characteristics of each of the following types of networks. Client server. Peer to Peer. Local Area Network (LAN). 				
Q3	Acceptable answer(s)	Guidance	Max mks	Ref	
Q3	 2 marks for each explanation: maximum of 6 marks. A client server network consists of a server that provides centralised administration (1) and services for the clients belonging to the network (1). In a peer to peer network, there is no centralised administration (1) each device on the network acts both as a client and server for its local resources (1). A Local Area Network (LAN) is a network that is confined to a small geographical area (1) commonly used for homes or offices and colleges (1). 	Candidates may give very different explanations from those in the model answers. It is essential that candidates do not confuse network topologies with the types of networks. Where the candidates describe topologies, no marks should be awarded. 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	251 – 2.2,	
LO	251.2 Understand networks	1	<u> </u>		

Q4 2 n	cceptable answer(s)	Guidance	Max	Ref
-			mks	Kei
•	marks for each explanation: aximum of 4 marks: Firewalls inspect incoming/outgoing data against a pre-defined set of rules (1) if they match the rules they are allowed to enter/exit (1) the network. Anti-virus software compares files against a definition (1). If it recognises a file as a threat it will quarantine/delete it (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	251 – 2.4

Q5	State four items of demographic information that can be taken into account when identifying a target audience.			
Q5	Acceptable answer(s)	Guidance	Max mks	Ref
Q5	1 mark for each item: maximum of 4 marks: • Household Profiles (1) • Age (1) • Gender (1) • Economic status (1) • Race (1) • Employment (1)	The list contains generic demographic types. The candidate may give specific examples of demographics that are not included in the unit, such as: • marital status • income • education • occupation 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	252 - 1.2, AO1
LO	252.1 Understand digital communic	ation technologies	•	•

Q6	 Describe each the following. Identity theft. Phishing. Sexting. 					
Q6	Acceptable answer(s)	Guidance	Max mks	Ref		
Q6	 2 marks for each description: maximum of 6 marks: Identity theft is the deliberate stealing of someone else's identity (1), usually as a method to gain a financial advantage or obtain credit and other benefits in the other person's name (1). Phishing is a form of fraud in which an attacker masquerades as a reputable person or company in email or other communication channels (1) to gain access to personal information (1). Sexting is sending, receiving, or forwarding sexually explicit messages, photographs or images(1), which can lead to loss of reputation and embarrassment (1). 	Candidates may give very different descriptions from those in the model answers. For example, the candidate may describe a specific scenario such as spear phishing where targeted emails are sent to individuals within an organisation to gain access to sensitive information. Marks awarded are capped for each separate description at a total of 2 marks. Candidates should be allowed to give any valid description and marks should be awarded for each distinct element in the description. Where a point is duplicated within each description, by meaning, the duplicated item will not be awarded a mark.	6	252 - 1.4,		
LO	252.1 Understand digital communication	ation technologies		1		

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Q7	Explain the following image editing termsResolution.Aspect ratio.	5.		
Q7	Acceptable answer(s)	Guidance	Max mks	Ref
Q7	2 marks for each explanation: maximum of 4 marks: • Resolution refers to the number of pixels that make up an image (1) meaning that the larger the number of pixels the more detail that can be seen (1). • Aspect ratio of an image describes the proportional relationship between its width and height (1) and is commonly expressed as two numbers (1) separated by a colon eg 16:9	Candidates may give very different explanations from those in the model answers. For example, the candidate may discuss the DPI required for printing versus web. 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	252 - 2.2
LO	252.2 Use software to communicate digit	tal content		1

Q8	State four file formats that can be used when working with images.				
Q8	Acceptable answer(s)	Guidance	Max mks	Ref	
Q8	1 mark for each file format: maximum of 4 marks:	The list contains generic types of file formats. The candidate may give specific examples of file formats that are not included in the unit, such as: • GIF - Graphics Interchange File • IMG - Graphical Environment Manager (GEM) Image file • JPE - JPEG/JIFF Image file • JPG - JPEG/JIFF Image file • PBM - Portable BitMap image file • PCD - Photo-CD image file • PCT - PICT image file • PGM - Portable Greymap file • PGM - Portable Pixmap file • PSD - Adobe Photoshop bitmap file • RAS - Raster image file • TGA - Targa bitmap 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	253 - 1.1	
LO	253.1 Understand file formats an	nd their use		•	

Q9	Explain the following compression methoLossy.Lossless.	ds.		
Q 9	Acceptable answer(s)	Guidance	Max mks	Ref
Q9	2 marks for each explanation: maximum of 4 marks: • Lossy_— an algorithm eliminates unnecessary bits of information (1) this process is irreversible (1). • Lossless - removes unnecessary meta data (1) reducing the size of the file without impacting on the quality (1).	Candidates may give very different explanations from those in the model answers. For example, jagged edges, pixelated areas and JPEG images may be included in the explanations. Candidates should be awarded marks if they explain the removal of pixels in an image when using lossy compression to reduce the size of an image. 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	253 - 1.2,
LO	253.1 Understand file formats and their u	ise		

Q10	 Explain how data is represented in the f Bar charts. Pie charts. Scatter charts. 	following charts.		
Q10	Acceptable answer(s)	Guidance	Max mks	Ref
Q10	 2 marks for each explanation: maximum of 6 marks: Bar charts have an X/Y axis (1) with each group of data displayed as a block (1) used to show the frequency of occurrence. Pie charts are circles which are divided into segments (1) which are used to show proportions of a whole (1). Scatter charts consists of a set of points plotted on a horizontal and vertical axis (1) that can show the extent of correlation, if any, between the values (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	253 - 2.2,
LO	253.2 Communicate information creative	vely	1	'

Q11	 Describe how each of the following are Domain name. HTML. Accessibility features. 	used when developing web pages.			
Q11	Acceptable answer(s)	Guidance	Max mks	Ref	
Q11	 2 marks for each description: maximum of 6 marks: Domain name is used to provide a unique identity for web sites (1) and are used by search engines to locate the site (1). HTML is the code used to develop web pages (1) and it can be used to format content (1). Accessibility features are used to apply specific tags (1) complying with the W3C standards (1) to enable content to be accessible to individuals with disabilities. 	Candidates may give very different descriptions from those in the model answers. For example, when explaining accessibility the candidate may refer to the use of specific tags, colours and transcripts. Marks awarded are capped for each separate explanation at a total of 2 marks. Candidates should be allowed to give any valid description and marks should be awarded for each distinct element in the description. Where a point is duplicated within each description, by meaning, the duplicated item will not be awarded a mark.	6	253 - 3.1,	
LO	253.3 Design, develop and create web p	pages	•	•	

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Q12	State four types of data that can be stored in a database.				
Q12	Acceptable answer(s)	Guidance	Max mks	Ref	
Q12	1 mark for each item: maximum of four marks: • Text (1) • Numeric (1) • Image (1) • Video (1) • Audio (1)	The list contains types of data. The candidate may give specific examples of data that are not included in the unit, such as: • Dates • Times • Currency 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	254 – 2.1	
LO	254.2 Understand data storage and so	oftware		1	

Q13	Explain the following terms.Primary data.Secondary data.			
Q13	Acceptable answer(s)	Guidance	Max mks	Ref
Q13	2 marks for each explanation, maximum of 4 marks: • Primary data is data collected by himself/ herself (1) for a specific purpose (1). • Secondary data is collected by someone else for some other purpose (1) that is being used by another person (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	254 1.2,
LO	254.1 Understand data collection meth	ods	I	

A small compa details of thei	•	velop a website that is linked to a database containing	g image:	s and
Discuss what	you would consider whe	n planning and developing the website.		
Q14 Acceptable ar	nswer(s)	Guidance	Max mks	Ref
consideration • Plann • O	discussion may include of: ing Life cycle models Sourcing Budget Hardware System requirement s Data storage Software Operating System Applications Networks Cloud services User requirements Social media strategy Legislation Regulations Compliance	O 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. 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 processes and technologies involved and have covered these in the correct 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 presented in a logical order.	9	251 1.1 3.1 3.2 252 1.1 1.2 1.3 1.4 2.1 2.2 2.3 3.1 2.1 2.1 2.1

	■ Countermea
	sures
	 Hardware
	 Software
	 Networks
	 Data backup
	 Implementation
	 Content creation
	■ File formats
	 Publishing
	 Accessibility features
	 Testing
	Test plan
	 Maintenance
	 Security
	 User support
	 Accounts
	 Fault log
LO	251: 1.1, 3.1, 3.2
LO	251: 1.1, 5.1, 5.2
	253: 1.1; 2.1, 2.2; 2.3; 3.1
	254: 1.1, 2.1

Q15	Discuss the types of application softwar media content to raise awareness of en	e and skills required to create a website with mul vironmental issues.	timedia aı	nd social
Q15	Acceptable answer(s)	Guidance	Max mks	Ref
Q15	Indicative content: A candidate's discussion may include consideration of: Planning Life cycle models Sourcing Budget Hardware System requirements Data storage Software Operating System Applications Networks Cloud services User requirements Social media strategy Legislation Regulations Compliance Design Skill requirements Editing techniques Development timescales Data requirements Social media channels Data storage Security Threats Vulnerabilities Risks Data Countermeas ures Hardware Software	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. 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 processes and technologies involved and have covered these in the correct 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 presented in a logical order.	9	251: 1.1; 1.2 252: 1.1; 1.2; 2.2 253: 1.1; 1.2; 2.2; 2.3; 3.1
	NetworksData backupImplementation			A04

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