NATIONAL
SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2021

COMPUTER APPLICATIONS TECHNOLOGY P2
MARKING GUIDELINE

MARKS: 150

This marking guideline consists of 16 pages.

SUGGESTIONS AND RECOMMENDATIONS TO MARKERS

- Revisit the questions and the marking guideline frequently during the marking session.

- It is advisable to read the question frequently (and re-read) together with the candidate's response to check that it correlates, so that you are not misled by the candidate's statements/answers.

- Be careful not to focus on keywords or general statements, but rather read the entire answer. If in doubt, read the entire answer and then the question paper and the marking guideline.

  o Ask yourself or your senior marker if the response could 'fit' into the marking guideline before allocating the correct marks to the candidate.

  o Accept correct answers that are expressed differently, e.g. the marking guideline states 'slow' and the candidate responds with 'not fast'.

- Beware of overlapping answers to a specific question. In general, ONE mark is awarded per fact.

- Do not choose answers on the candidate's behalf. Where a question requires a candidate to LIST or NAME/STATE: mark the first number of instances required, e.g. the first TWO facts if the candidate presents a list of FIVE facts and only TWO facts were required, even if presented in paragraph format.

- Questions requiring longer answers must be regarded as a single unit. Marks can be awarded if correct statements are found anywhere in the paragraph.

SECTION A

QUESTION 1: MULTIPLE-CHOICE	QUESTION 2: MATCHING ITEMS
1.1 A	2.1 S
1.2 D	2.2 E
1.3 B	2.3 L
1.4 D	2.4 K
1.5 A	2.5 A
1.6 B	2.6 M
1.7 A	2.7 B
1.8 C	2.8 I
1.9 A	2.9 D
1.10 C	2.10 O
[10]	**[10]**

QUESTION 3: TRUE/FALSE ITEM

3.1   False, Footer   (1)

3.2   False, Radio button   (1)

3.3   True   (1)

3.4   True   (1)

3.5   False, Size/type   (1)
                                                                                              [5]

                                                        TOTAL SECTION A: 25

SECTION B

QUESTION 4: SYSTEM TECHNOLOGIES

4.1	4.1.1	To hold data and programs being processed (i.e. temporarily / while the computer is on) ✓	1	
	4.1.2	**Any ONE difference (besides difference in function)**: ✓ • RAM is electronic; storage is magnetic / optical / electronic • RAM is fast; storage is slower • RAM is more expensive per GB; storage is cheaper ***NOTE TO MARKER***: *Do not accept 'RAM = volatile vs. storage = permanent', or 'much less RAM is required than storage', since these relate directly to function*	1	2
4.2	**Any TWO input devices**: ✓✓ • Accelerometer • Barometer • Microphone • Touch screen • GPS • Wi-Fi • 3G		2	2
4.3	**Any TWO reasons**: ✓✓ • They have been replaced by other (more efficient) portable devices such as flash drives and external hard drives • Software and entertainment (games, music, video, etc.) are now distributed/downloaded via the internet • Saves physical space and weight in portable computers/portable computers can be designed to be thinner and lighter		2	2
4.4	**Any TWO trouble-shooting techniques**: ✓✓ • Disconnect and reconnect the mouse • Try plugging it into a different USB port • Reboot the computer • Check USB Controllers in Device Manager (and re-enable the port if necessary)		2	2
4.5	**Any TWO ways**: ✓✓ • Make regular/automatic backups • Restrict access rights to the file/pdf format • Make files read-only • Use versions option to save different versions • Use passwords (lock) and encryption • Save regularly (with confirmation)		2	2

4.6	**Any ONE reason**: ✓		
	• Compatibility issues removed – PDF readers (e.g. Adobe Reader) are freely available and allow people to read the files without having the software used to create them • File sizes can sometimes be smaller (so faster to send, and less storage space needed) • Files can be set (by using the full Adobe Acrobat package) so that they cannot be edited or changed	1	1
4.7	**Any TWO limitations**: ✓✓		
	• Image quality/clarity not as good as that of high-quality monitors • Normally limited to 4 : 3 aspect ratio (almost square)/not suited to 16 : 9 aspect ratio used for most movies • Lower contrast ratios – result in 'muddier' images with lower colour quality	2	2
4.8	**Any TWO pieces of equipment**: ✓✓		
	• Headphones • Head gear/helmet • Gaming controller • Mobile device/Cell phone • Gloves/Body Suits fitted with sensors/controllers • Room/Simulation environment/A powerful computer	2	2
4.9	**Any ONE example**: ✓		
	• Tourism/Explores places • Convenience/Virtual tours • Conferencing • Flight simulation • Communication • Training of pilots • Marketing • Education • Medical personnel to deal with injuries	1	1
4.10	4.10.1	A drone is a flying robot that can be remotely controlled or fly autonomously through software-controlled flight plans. ✓	1	
	4.10.2	**Any TWO benefits**: ✓✓ • No other complicated machinery is needed for manufacturing • Parts can be computer designed and directly printed • Easy to change design and print again • Parts that fail can easily be printed again • No waiting period for ordered parts • More cost effective for small numbers	2	3

4.11	4.11.1	Performs all the processing / calculations / comparisons / decisions in the computer. ✓	1	
	4.11.2	**Any ONE method**: ✓ • Connect an external DVD drive to the computer (via USB), and install it from there • Copy the contents of the DVD to another medium (e.g. portable hard drive), and try to install it from there (find and run the Setup.exe installation file)	1	
	4.11.3	**Any ONE requirement (besides processor and memory)**: ✓ • (Available/free) disk space • Graphics requirements (esp. for games, CAD, etc.) ***NOTE TO MARKER***: *Accept specific requirements, e.g. 1 GB available hard disk space, 1024 x 768 minimum resolution, 512 MB dedicated video RAM*	1	3
4.12		**Any THREE advantages**: ✓✓✓ • More faster than normal hard drives • No moving parts and can't be damaged by being dropped or moved whilst in use • Much more energy-efficient • Durable • Run quieter than traditional hard drives • Big storage space • Lighter to carry around	3	3
				[25]

QUESTION 5: INTERNET AND NETWORK TECHNOLOGIES

5.1	5.1.1	**Any ONE reason**: ✓ • Portability and mobility/a user can connect via a laptop or other device/Access to network from a wider range • A device can be added to the network easily • Cost effective by saving on data costs	1	
	5.1.2	**Any ONE reason**: ✓ • Provides a unique address for communication • To prevent conflicts in addresses during communication	1	
	5.1.3	**Any TWO reasons**: ✓✓ • Too far away from the router • Too many users are accessing at the same time/Lack of sufficient bandwidth • Interferences like electromagnetic interferences (EMI) • Interferences by structures like trees/buildings	2	4
5.2	5.2.1	**Any TWO services**: ✓✓ • E-mail • Secure web hosting • Spam filtering • Technical support	2	
	5.2.2	**Any TWO benefits**: ✓✓ • High speed/permanent connection • Allows for internet access and telephone use at the same time • Relatively cheap when using a lot of data • Scalability/different bandwidth packages	2	
	5.2.3	Connects devices to one another ✓ and directs traffic ✓ between devices	2	6
5.3	5.3.1	**Any ONE medium**: ✓ • Glass fibres • Light • Laser	1	
	5.3.2	**Any TWO reasons**: ✓✓ • Less interferences/Less EMI • Secure and difficult to tap/No eavesdropping • Very fast speed • Can cover large distances without regeneration	2	3

5.4	**Any TWO disadvantages**: ✓✓ • Not all organisations have FTP servers • Transfer process may be more complicated than using drag-and-drop methods • FTP connections sometimes get interrupted and transfer has to be restarted • Modern web browsers are dropping support for FTP/In some cases one has to resort to specialised software • Data can be intercepted		
		2	2
			[15]

QUESTION 6: INFORMATION MANAGEMENT

6.1	6.1.1	Describe what needs to be done in your own words, taking into account what the problem is that you need to investigate and what the investigation would be about. ✓	1	
	6.1.2	**Any ONE**: ✓ • It is a list of sources that were quoted in the report • It shows the evidence of where you got the information from • If plagiarism was committed	1	2
6.2		**Any TWO reasons**: ✓✓ • The author is not an authority on the topic/Cannot obtain bibliographical information • The information is too old • The information is biased • The information is very limited and does not adequately cover the topic • Cannot be cross-referenced • Information was plagiarised (Plagiarism must be qualified)	2	2
6.3	6.3.1	**Any ONE limitation**: ✓ • Limited options may lead to skewed data • Respondent may want to give an answer that is not in the list/Limits possible responses that could be given by the respondent • Options may be biased towards a point of view • No indications of whether the respondent understood the questions	1	
	6.3.2	**Any TWO benefits**: ✓✓ • Easier to process/analyse responses in a spreadsheet/database • Can read all responses/Bad handwriting is not an issue/Do not have to retype the responses/Less errors in data • Data capturing can be automated • Easy to share data with others/publish dataset • Data validation of responses can be done • Possible response times are quicker • Higher return rate possible	2	3
6.4		**Any THREE reasons**: ✓✓✓ • Add a Chart title • Use Legends • Use Axes/series labels • Use Gridlines • Add data labels • Add Colours • Use trend lines • Select the correct chart type	3	3
				[10]

QUESTION 7: SOCIAL IMPLICATIONS

7.1	7.1.1	**Any TWO indications**: ✓✓ • E-mail address looks suspicious • Strange domain name • It would ask you to follow a link • It would ask you to give personal information • It seems as if they need the information immediately • E-mail has lots of errors	2	
	7.1.2	It might be a virus. ✓	1	
	7.1.3	**Any TWO types**: ✓✓ • Bandwidth • Identity theft • Processing time and power • Copyrighted material, e.g. piracy • Money	2	5
7.2		Geotagging refers to and including the position/GPS coordinates ✓of where the photo was taken in the metadata/with the file. ✓	2	2
7.3		**Any TWO disadvantages**: ✓✓ • Lack of access to technology/working hardware/Digital Divide • Lack of technology skills to unlock/maximise potential of e-learning • Potential lack of guidance/input/feedback/monitoring from the teacher • Dependent on electricity/battery life • Feelings of being isolated/Lack of human contact/Contributes to lack of socialisation skills • Health-related concerns ('Long hours of sitting'), etc. ***NOTE TO MARKER****: Do NOT accept any answers relating to costs.*	2	2
7.4		**Any ONE indication**: ✓ • It requests to be forwarded to many other people • You receive the same message from many people • It could include a threat • Difficult to verify contents of e-mail • Highly emotional content	1	1
				[10]

QUESTION 8: SOLUTION DEVELOPMENT

8.1	Open Footnotes grouping ✓ Click Convert Note ✓ Click Convert Endnote to Footnote ✓ **OR** Right click ✓ on footnote ✓ Click on Convert to Endnote ✓	3	3
8.2	Cell B6: =UPPER ✓ (LEFT✓ (C6,2) ✓	3	3
8.3	ExaminationDate field validation rule: • Between #04/04/2018# **OR** >=#04/04/2018# **OR** >#03/04/2018# ✓ • AND ✓ #15/04/2018# **OR** <=#15/04/2018# **OR** <#16/04/2018# ✓	3	3
8.4	<hr **color = "red"** ✓**width =50%**> ✓	2	2
8.5	Autofill ✓	1	1
8.6	**Any THREE**: ✓✓✓ • Database table (or query) • Spreadsheet • E-mail contact list • E-mail address list • Text files	3	3
			[15]

TOTAL SECTION B: 75

SECTION C: INTEGRATED SCENARIO

QUESTION 9

9.1	**Any TWO IT/CAT related jobs**: ✓✓ • IT/CAT technician • Network engineer • Network architect • Network administrator • Network analyst **NOTE TO MARKER**: *Do not accept: Programmer or any job related to database/database administrator.*		2	2
9.2	9.2.1	The use of personal characteristics ✓ to authenticate the identity of a person. ✓ **NOTE TO MARKER**: *Also accept: Use parts of the body for access control*	2	
	9.2.2	**Any ONE example**: ✓ • Retina/eye • Fingerprint • Voice recognition • Facial recognition • Palm readers	1	3
9.3	**Any TWO disadvantages**: ✓✓ • RFID cards can be read from a distance, that can trigger the unlocking of the room even when not required • Cards do not validate the identity of the user • Cards can be stolen/lost • Cards can be cloned • Inconvenience of carrying cards around • Cost of manufacturing cards/time consuming **NOTE TO MARKER**: *Any suitable answer.*		2	2
9.4	9.4.1	Hard drive space/storage ✓ reserved by the operating system to be used as RAM/memory. ✓ **NOTE TO MARKER**: *Also accept for 2 marks: Hard drive space to be used when the RAM is full.*	1	
	9.4.2	Operating system ✓	1	
	9.4.3	**Any ONE**: ✓ • Add more RAM • Do not open too many applications/Close applications not in use.	1	3

9.5	9.5.1	• Software where most of the processing is done in the cloud; the processing is done by servers which are accessible via the internet. ✓ • The interface is created on the web servers/on local computers using apps or interface is accessed through a web browser. ✓	2	
	9.5.2	**Any TWO disadvantages**: ✓✓ • Software is not owned and a regular fee needs to be paid • Cost of data used when everything is transferred from the cloud can be high • When Internet is down, software cannot be accessed • Exposure to security issues when documents are stored in cloud • Too many users can slow the service down	2	4
9.6	9.6.1	**Any THREE ways**: ✓✓✓ • Limit time on web/Turn off notifications when doing important work/Switch off mobile device at specific times • Try to remove yourself from FOMO • Refrain from insulting other people/Bullying • Be aware that all posts are public • Be aware that the internet never forgets information/cannot delete information from the internet • Do not share personal information e.g. ID number or bank account numbers • Do not befriend strangers ***NOTE TO MARKER***: *Any suitable answer.*	3	
	9.6.2	**Any TWO reasons**: ✓✓ • Low risk of physical danger to criminal/not physically present when crime is committed • Difficult to detect a crime • Difficult to trace who committed the crime • Increase use of Internet • Increased number of online financial transactions • People's general ignorance and carelessness	2	
	9.6.3	Piggybacking ✓	1	6

9.7	9.7.1	**Any TWO ways**: ✓✓ • Keep your operating system up-to-date to ensure you have fewer vulnerabilities to exploit • Don't install software or give it administrative privileges unless you know exactly what it is and what it does • Install antivirus software, which detects malicious programs like ransomware as they arrive • Install whitelisting software, which prevents unauthorized applications from executing • Back up your files frequently and automatically	2	
	9.7.2	**Any TWO ways**: ✓✓ • Reboot Windows 10 to safe mode • Restore clean backup • Install anti-malware software • Scan the system to find the ransomware program • (System) Restore the computer to a previous state	2	
	9.7.3	Cryptocurrency ✓ (Bitcoins)	1	5
				[25]

QUESTION 10

10.1	10.1.1	Acceptable Use Policy ✓	1	
	10.1.2	To provide the user of a network environment with the rights and responsibilities ✓ when using their ICT resources/ network. ✓	2	3
10.2		Ensure that all devices ✓ contain the most up to date version of the same document. ✓	2	2
10.3	10.3.1	**Any TWO skills**: ✓✓ • Software programming skills • Graphic design skills • Knowledge on HCI (Human-Computer-Interface) principles • Creativity and imagination • Knowledge on advances in technology	2	
	10.3.2	**Any TWO factors**: ✓✓ • Page must automatically resize/provide for smaller screens • Different format and page layout/readability • Reduced size of image files/less data to download • Exclude certain content/functionality/flash players • Work cross platforms • Limitations in terms of processing and storage on smaller devices	2	4
10.4	10.4.1	Additional data/information on the video that is saved with the file. ✓	1	
	10.4.2	**Any ONE format**: ✓ • MPEG-2 • MPEG-4 • .MP4 • .avi • MKV **_NOTE TO MARKER_**: _Also accept any other acceptable compression format_	1	2
10.5	10.5.1	Online seminars ✓	1	
	10.5.2	**Any TWO ways**: ✓✓ • Make use of RSS feeds • Suitable apps • Message alerts/SMS	2	3

10.6	10.6.1	*Encryption* is the process of converting information or data into a code ✓ to prevent unauthorized access. ✓ **NOTE TO MARKER**: *Also accept any other acceptable answer.*	2	
	10.6.2	The URL contains https:// ✓	1	
	10.6.3	**Any TWO**: ✓✓ • The certificate is provided by a third party company like VeriSign • It is linked to a specific web address, confirming its validity • Date of validity	2	5
10.7	10.7.1	Social engineering refers to 'conning' or tricking a person ✓ into willingly giving out personal information. ✓	2	
	10.7.2	**Any TWO**: ✓✓ • Sensitive information such as passwords or other information that can be used to commit identity theft • It can be used to impersonate someone to install malware • Or any other fraudulent purposes	2	4
10.8		**Any TWO**: ✓✓ • Store records electronically – use less paper • Scan research from books rather than copying • Switch computers off when not in use • Set computers to sleep mode	2	2
				[25]

TOTAL SECTION C: 50
GRAND TOTAL: 150