



**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

SEPTEMBER 2018

**COMPUTER APPLICATIONS TECHNOLOGY P2
MARKING GUIDELINE**

MARKS: 150

This marking guideline consists of 14 pages.

SECTION A: SHORT QUESTIONS**QUESTION 1: MULTIPLE-CHOICE**

- | | | |
|------|-----|-----|
| 1.1 | C ✓ | (1) |
| 1.2 | B ✓ | (1) |
| 1.3 | B ✓ | (1) |
| 1.4 | D ✓ | (1) |
| 1.5 | D ✓ | (1) |
| 1.6 | B ✓ | (1) |
| 1.7 | A ✓ | (1) |
| 1.8 | D ✓ | (1) |
| 1.9 | C ✓ | (1) |
| 1.10 | A ✓ | (1) |

[10]**QUESTION 2: MATCHING ITEMS**

- | | | |
|------|-----|-----|
| 2.1 | H ✓ | (1) |
| 2.2 | A ✓ | (1) |
| 2.3 | K ✓ | (1) |
| 2.4 | M ✓ | (1) |
| 2.5 | I ✓ | (1) |
| 2.6 | N ✓ | (1) |
| 2.7 | B ✓ | (1) |
| 2.8 | F ✓ | (1) |
| 2.9 | C ✓ | (1) |
| 2.10 | L ✓ | (1) |

[10]**QUESTION 3: MODIFIED TRUE OR FALSE**

- | | | |
|-----|-------------------|-----|
| 3.1 | False – Beta | (1) |
| 3.2 | False – Bandwidth | (1) |
| 3.3 | True | (1) |
| 3.4 | True | (1) |
| 3.5 | False – QR | (1) |

[5]**TOTAL SECTION A: 25**

SECTION B

QUESTION 4: SYSTEMS TECHNOLOGIES

4.1	4.1.1	All in one computer ✓	(1)	3
	4.1.2	<ul style="list-style-type: none"> You can repair the computer by replacing a broken or faulty component. ✓ You can upgrade the computer by adding new parts or replacing existing ones with more powerful versions. ✓ 	(2)	
4.2	4.2.1	<ul style="list-style-type: none"> Speed ✓ – A higher speed means more instructions can be processed in the same amount of time. ✓ Cores ✓ – Each core can be working on a separate program but at the same time. ✓ 	(4)	6
	4.2.2	CPU needs cache memory to avoid waiting ✓ for slower components. ✓	2	
4.3	4.3.1	Solid state drive ✓	(1)	3
	4.3.2	(a) There is no physical moving parts when writing or reading on an SSD. ✓	(1)	
		(b) There is no time spent to move to the position where file is saved/can access it immediately. ✓	(1)	
4.4	4.4.1	<ul style="list-style-type: none"> Virtual memory is a portion of hard drive space which acts as memory (RAM). ✓ 	(1)	2
	4.4.2	Any ONE ✓ <ul style="list-style-type: none"> Too many applications open. Programs too large to run from available RAM. 	(1)	
4.5	4.5.1	Any TWO ways of decreasing electricity usage: ✓✓ <ul style="list-style-type: none"> Decrease brightness settings of the screen. Unplug chargers when not in use. Change the balance between power consumption and performance. Set devices on sleep/hibernate mode. Buy energy efficient devices. 	(2)	4
	4.5.2	Any TWO benefits: ✓✓ <ul style="list-style-type: none"> Greater productivity – time is saved by producing electronic documents versus type writers/Electronic communication enhance productivity. Information availability – access to current/accurate data/availability of information on the web. Fewer employees – will save on payroll expenses. Cost saving – do not have to print everything which saves paper. NOTE: Do not award marks for repetition of the same concept or any reference to use of Internet.	(2)	

4.6	4.6.1	<p><i>Any TWO: ✓✓</i></p> <p><i>Effective backup program includes the following:</i></p> <ul style="list-style-type: none"> • Create a schedule to backup files/Remember to make regular (daily, weekly and monthly) backups. • Choosing to only backup files that have changed since last backup. • Use incremental backup. • Compressing files to save space on the backup media. • Do not save the backup on the same computer hard drive. • Keep your backup media saved preferably off-site. • Backup only user data as software may be reinstalled. 	(2)	4
	4.6.2	<ul style="list-style-type: none"> • external drives ✓ 	(1)	
	4.6.3	<ul style="list-style-type: none"> • <i>Disk fragmentation of hard drive occurs when:</i> complete computer files are not saved in consecutive clusters (but scattered) on the hard drive. ✓ 	(1)	
4.7	4.7.1	<p><i>Any THREE of: ✓✓✓</i></p> <ul style="list-style-type: none"> • Controls all resources (hardware and software). • Responsible for the loading of programs and running programs. • Provides user interface. • File handling. • Provide basic security. 	(3)	3
				[25]

QUESTION 5: INTERNET AND NETWORK TECHNOLOGIES

5.1	5.1.1	https://www.vnunet.com/vnunet/news/phishing against banks hits	(1)	3
	5.1.2	Phishing is Internet fraud where a fake email requests you to click on a link to a website that looks official ✓ so that you update account details and pin numbers and these are then used to draw money from your account. ✓	(2)	
5.2	5.2.1	<i>Any TWO: ✓✓</i> <ul style="list-style-type: none">• PAN is a computer network with a range of a few meters.• PAN is organised around an individual.• PAN is used for short exchanges of data.• PAN is used for simple tasks like printing, downloading files.• PAN is used for exchanging files with another device in close proximity.	(2)	5
	5.2.2	VPN is a network implemented via the Internet ✓ to enable the user to log onto a network from a remote location. ✓	(2)	
	5.2.3	<i>Any ONE ✓</i> <ul style="list-style-type: none">• Use encryption e.g. WPA2• Add a strong access password, etc.	(1)	
5.3	5.3.1	<ul style="list-style-type: none">• It improves browsing speed as pages can be loaded from the hard drive instead of being downloaded from the Internet. ✓• Less data is consumed during the browsing process, as cached websites are not downloaded from the Internet. ✓	(2)	6
	5.3.2	<i>Any TWO ✓✓</i> <ul style="list-style-type: none">• More bandwidth – better quality video.• More bandwidth – smooth playback.• Lower bandwidth can make watching videos online impossible.• More bandwidth – one can get 'capped' quicker as higher bandwidth allows users to stream in higher quality, which uses more data, etc.	(2)	
	5.3.3	A protocol is a set of rules for communication between network devices. ✓	(1)	
	5.3.4	FTP ✓	(1)	
5.4	A cellular network ✓		(1)	1
			[15]	

QUESTION 6: INFORMATION MANAGEMENT

6.1	6.1.1	<i>Any ONE closed question: ✓</i> <ul style="list-style-type: none">• (1) Indicate your gender:• (3) Do you take part in sport?	(1)	4
	6.1.2	• There are potentially many different responses (differently worded), that will first need to be <u>grouped</u> in order to be analysed/The question is not a <i>closed question</i> (which can be more easily analysed in a spreadsheet) ✓	(1)	
6.3	6.1.3	It is a 'double question'/What if the respondent enjoys only one, or neither (or does not take one or both of these subjects)? ✓	(1)	
	6.1.4	<i>Any ONE element: ✓</i> <ul style="list-style-type: none">• Setting out the reason(s) for the survey.• Thanking the respondent for their time/honesty/ willingness.• Giving general instructions on how to complete the survey.• Asking if they want feedback.• Giving instructions on what to do with the completed survey.	(1)	
6.2	<i>Any ONE disadvantage: ✓</i> <ul style="list-style-type: none">• Requires Internet access.• Data may be 'skewed' (since people without Internet access are excluded).• Potentially less 'personal', e.g. cannot explain/motivate/clarify etc.		(1)	1
6.3	Additional data stored about a file (that describes a file and its contents). ✓ Any suitable example such as author, comments, bit depth (for images), etc. ✓		(2)	2
6.4	<i>Any THREE ✓✓✓</i> <ul style="list-style-type: none">• Accurate• Up to date/Current• Valid• Correct/verified• Relevant• Complete Also accept: Correct format		(3)	3
				[10]

QUESTION 7: SOCIAL IMPLICATIONS

7.1	7.1.1	<p>Any ONE advantage: ✓</p> <ul style="list-style-type: none">• Exposure to bigger markets• Cheap way to advertise• Lower overhead costs (less manpower etc.)• 24/7/365 availability etc. <p>Any ONE disadvantage: ✓</p> <ul style="list-style-type: none">• Only have exposure to clients who have Internet access• Costs to create and maintain a website/experts needed etc.	(2)	2
7.2	Any TWO ✓✓ <ul style="list-style-type: none">• The data could be used to trace children.• Identity theft.• Stalking. <ul style="list-style-type: none">• NOTE: Assign according to sensible reasoning		(2)	2
7.3	No, ✓ licenses are normally issued 'per computer'. ✓ OR Yes, ✓ if they purchased a site license. ✓		(2)	2
7.4	Any TWO ✓✓ <ul style="list-style-type: none">• Dangerous objects can easily be replicated.• Copyright issues.• Disruption of formal manufacturing sector/loss of jobs.		(2)	2
7.5	7.5.1	The GPS coordinates of where the photograph was taken is added to the photograph's metadata. ✓	(1)	2
	7.5.2	The inclusion of the GPS coordinates may alert poachers of where to find the whales. ✓	(1)	
				[10]

QUESTION 8: SOLUTION DEVELOPMENT

8.1	8.1.1	<p><i>Any TWO design requirements to improve navigation ✓✓</i></p> <ul style="list-style-type: none"> Information that is related should be grouped together e.g. personal information and exhibition stand information separately. The natural reading order is top to bottom and left to right. The text boxes/buttons could therefore be underneath each other rather than scattered across the form/order. Submit button should be at the bottom right hand side of the form as all the information should be completed before it is submitted. Missing labels. Include a title. NOTE: Accept any other sensible suggestion. 	(2)	4
	8.1.2	<p><i>Identify any ONE as well as suggestion: ✓✓</i></p> <ul style="list-style-type: none"> Checkboxes ✓ should be radio/option buttons. ✓ The size of the table's field ✓ could be a combo box/list. ✓ 	(2)	
8.2	8.2.1	FIND ✓	(1)	2
	8.2.2	<p>To be able to separate the name and surname using text functions / To check that a space has been added to distinguish between the name and surname. ✓</p> <p><i>[Look for understanding of the central concept – <u>separating</u> first names and surnames (for some purpose or other)]</i></p>	(1)	
8.3	<p><i>Any TWO of: ✓✓</i></p> <ul style="list-style-type: none"> Incorrect function: Replace COUNTA with COUNTIF Incorrect 'less than' operator: Replace > with < Currency symbol 'R' must not be prefixed to the amount: Replace R100 with 100 [OR 100.00] The criterion must be enclosed in double quote marks: Replace <100 with "<100" [OR "<100.00"] <p><i>[For the first two bullet points, the correct <u>replacement</u> must be specified (e.g. cannot simply say 'incorrect function' or 'incorrect operator'.)]</i></p> <p><i>Mark each bullet point separately. E.g. 'Incorrect operator ... replace >R100 with <R100' is worth 1 mark, even though the presence of the currency symbol is also incorrect.</i></p> <p><i>Also accept correct rewriting of the function, marking each correction separately: =COUNTIF(B3:B10,"<100.00")</i></p>		(2)	2

8.4	8.4.1	A ✓ * ✓ <i>[Also accept a* and Like "A*"]</i>	(2)	4
	8.4.2	Short Text ✓ <i>[Also accept Text (Access 2010)]</i>	(1)	
	8.4.3	Is Null ✓	(1)	
8.5	<u>Mistake</u> : the file was saved with a TXT extension. ✓ <u>How to fix</u> : change the file extension to HTML. ✓		(2)	2
8.6	The closing tag for italic formatting was not inserted after the word 'malware'. ✓ <i>[Also accept correct code < i >malware< / i > , but this is not <u>required</u> for the mark]</i>		(1)	1
				[15]

TOTAL SECTION B: 75

SECTION C

QUESTION 9: INTEGRATED SCENARIO

9.1	9.1.1	Any ONE ✓ <ul style="list-style-type: none"> • Turn down the quality settings to a lower setting. • Adjust the operating systems built-in content distribution network used for streaming large files. 	(1)	1
9.2	9.2.1	Any TWO of: ✓✓ <ul style="list-style-type: none"> • Sharing/transferring files. • Identity verification/authentication purposes. • Location-based profile automation. • Can be used in payment systems. • Switch devices on or off. 	(2)	3
	9.2.2	RFID (Radio Frequency Identification) ✓	(1)	
9.3	9.3.1	Each operating system uses different architectures and has different ways of interfacing with software ✓ so a different 'version' has to be written for each OS platform. ✓	(2)	5
	9.3.2	An example would be if a game was installed using Windows 7 ✓ it must still work if the operating system was updated to Windows 8 or Windows 10. ✓	(2)	
	9.3.3	Control panel, mouse ✓	(1)	
9.4	9.4.1	A plug-in is software that adds a specific feature/functionality to an existing software./Special program that is needed to allow the user to view special effects (usually multi-media effects).✓	(1)	2
	9.4.2	If this device supports plug-ins, a program from the web can be used to play embedded audio and video files without the need for a dedicated media player. ✓	(1)	
9.5	Any TWO ✓✓ <ul style="list-style-type: none"> • Movement • Sound • Light 		(2)	2
9.6	9.6.1	• Global positioning system ✓	(1)	3
	9.6.2	• Due to the fact that the content is not real, it may obscure or narrow a user's interests or tastes. ✓ • The marketing and advertising of AR devices can have a negative effect on society because of cybercrime and malware infection. ✓	(2)	
9.7	Any TWO ✓✓ <ul style="list-style-type: none"> • Voice recognition software. • Small pointer on a helmet to be used as a mouse. • Large roller ball as a mouse. 		(2)	2
9.8	Digital divide ✓		(1)	1

9.9	9.9.1	Internet of Things: Many devices are connected to the Internet ✓ and can be controlled through the Internet/without human to device interaction/ communicate with each other. ✓	(2)	6 [25]
	9.9.2	<i>Any TWO</i> ✓✓ <ul style="list-style-type: none"> IoT allows objects to be sensed and/or controlled remotely across an existing network infrastructure. IoT creates opportunities for more direct integration of the physical world into computer-based systems. IoT improves efficiency, accuracy and economic benefit. 	(2)	
	9.9.3	When searching for information on the Internet, there are many results making it difficult to get to exact information for the request/Too much information. ✓ Effect: <i>Any ONE</i> ✓ <ul style="list-style-type: none"> Time consuming Makes decision making quite difficult Over stimulation Anxiety 	(1)	
			(1)	

QUESTION 10

10.1	<i>Any TWO</i> ✓✓ <ul style="list-style-type: none"> The reader can read tags that are moving past/do not have stop and wait to be scanned. Hidden tags can also be read. Can read more than one tag at a time. Tags can be read from a greater distance than barcodes. Automated checking for tags, codes have to be scanned. Better control/security with tags. 	(2)	2
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10.2	10.2.1	<p><i>Any ONE ✓</i></p> <p>Be able to:</p> <ul style="list-style-type: none"> • Detect objects in all directions • Navigate • Park the vehicle • Start the vehicle <p><i>Accept: any other acceptable task.</i></p>	(1)	4
	10.2.2	<p><i>Any TWO ✓✓</i></p> <ul style="list-style-type: none"> • Sensors • Antennae • Receivers/Microphone • Video cameras • Storage device • Computing device • Robotic device • Biometric scanner <p><i>Accept: any other acceptable option.</i></p>	(2)	
	10.2.3	<p><i>Any ONE ✓</i></p> <ul style="list-style-type: none"> • Malfunctioning of the system • Expensive system • Liability issues • Susceptible to hacking <p><i>Accept: any other valid reason.</i></p>	(1)	

10.3	10.3.1	<p><i>Any ONE ✓ (1 mark for impact) ✓ (1 mark for explanation)</i></p> <ul style="list-style-type: none"> • Loss of working time – while viruses and pop up messages are removed and software is reloaded. • Loss of business services – due to a DOS attack, hardware theft or disruption of a network. • Financial losses/victim will be left with bills, charges and a damaged credit record – phishing/hacking. • Loss of confidence and trust in the business – privacy/negative social media. <p><i>Accept any other negative influence on the business.</i></p>	(2)	4
	10.3.2	<p>A website is made unavailable ✓ by many computers requesting data from the site at the same time. ✓</p> <p style="text-align: center;">OR</p> <p>Servers become overloaded due to many requests.</p>	(2)	
10.4	<p><i>Any TWO ✓✓</i></p> <ul style="list-style-type: none"> • Recycle old computers • Reuse parts/donate • Switch off when not in use • Refill ink cartridges • Do not print unnecessarily/do not waste paper • Get rid of e-waste in a responsible manner • Use energy efficient designs/hardware 		(2)	2
10.5	10.5.1	A public area where Internet access ✓ is available through a wireless/free/not password protected ✓ Internet connection.	(2)	3
	10.5.2	<p><i>Any ONE ✓</i></p> <ul style="list-style-type: none"> • Equitable use of the data • To prevent misuse of the Wi-Fi network • Cost to the school • Making large uploads/downloads <p>Also accept:</p> <p>The number of users could slow down the connection.</p>	(1)	

10.6	10.6.1	<i>Any THREE ✓✓✓</i> <ul style="list-style-type: none">• Phone numbers• Address• School• E-mail address• Financial information e.g. bank details, pin numbers <i>Any other relevant answer.</i>	(3)	5
	10.6.2	<i>Any TWO ✓✓</i> <ul style="list-style-type: none">• Hacker• Cracker• Virus Author• Cybergang• Spammer• Phishers• Scammers	(2)	
10.7	10.7.1	Field size ✓	(1)	5
	10.7.2	Default value ✓	(1)	
	10.7.3	Validation rule ✓	(1)	
	10.7.4	Input mask ✓	(1)	
	10.7.5	Required field ✓	(1)	
			[25]	

TOTAL SECTION C: 50
GRAND TOTAL: 150