Province of the
EASTERN CAPE
EDUCATION

NATIONAL
SENIOR CERTIFICATE

GRADE 12

SEPTEMBER 2023

COMPUTER APPLICATIONS TECHNOLOGY P2
MARKING GUIDELINE

MARKS: 150

This marking guideline consists of 19 pages.

SUGGESTIONS AND RECOMMENDATIONS TO MARKERS

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

- It is advisable to read (and re-read) the question frequently 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 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: 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 B	2.1 K
1.2 A	2.2 R
1.3 D	2.3 I
1.4 C	2.4 T
1.5 B	2.5 C
1.6 D	2.6 B
1.7 D	2.7 H
1.8 A	2.8 S
1.9 D	2.9 D
1.10 A	2.10 L
(10 x 1) **[10]**	(10 x 1) **[10]**

QUESTION 3: TRUE/FALSE ITEMS

Note to marker*:*
- In QUESTIONS 3.1, 3.3, and 3.5: Candidates need to provide the correct term, in order to get the mark.
- Award the mark if the correct answer is given without the word FALSE.
- DO NOT award the mark if only the word FALSE is given without the correct answer.

3.1   False – ergonomics   (1)

3.2   True   (1)

3.3   False – bandwidth   (1)

3.4   True   (1)

3.5   False – system software   (1)
                                                                 [5]

                                       TOTAL SECTION A: **25**

SECTION B

QUESTION 4: SYSTEM TECHNOLOGIES

4.1	• ***Describe a SOHO user and give ONE example of such a user***		
	Description		
	• SOHO (Small Office Home Office) users usually use common entry-level computers for common functions such as for example, accounting tasks or sending out bills, planning, electronic documentation, etc. ✓		
	Example		
	Architect, estate agent, legal services, etc. or anyone who works from home ✓		2
4.2	***TWO common tasks/functions performed by utility software***		
	Function:		
	• Programs that maintain the system, ✓ perform system administration ✓ and do hardware and network configuration		
	OR		
	Tasks:		
	• File management ✓		
	• File sorting ✓		
	• File renaming		
	• File conversion		
	• File recovery		
	• Disk scanning and defragmentation		
	• Print tasks		
	• Backup of data		
	• Anti-virus		
	• Compression		
	Note to marker: (Any other acceptable examples)		
	✓✓(any two functions and/or tasks)		2
4.3	4.3.1	***TWO ways data can be lost on a computer***	
		• Hard drive failure ✓	
		• Data is corrupted ✓	
		• Data is accidentally deleted	
		• Computer is stolen	
		• Computer would be damaged or destroyed in fire or earthquake	
		• Virus	
		Note to marker: (Any other acceptable examples)	
		✓✓ (Any two)	2

Please turn over

	4.3.2	**ONE way how backing up data can be done more securely** • Store data on external devices such as flash drives, portable hard drives ✓ • Keep data in a safe place away from the computer. • Online backup services ✓ (Any one)	1	3
4.4	4.4.1	**Negative association associated with the concept of: 'Always On – Always Connected'** • Workers tend to be involved in work-related matters 24/7/No break from the work environment ✓ • Social Media/Internet Addiction Disorder • No relaxation • Health problems • Lack of privacy • No social relationships/poor communication • Impact on sleeping habits **Note to marker: (Any other acceptable examples)** ✓(Any one)	1	
	4.4.2	**ONE reason why note-taking software on mobile devices will benefit traffic officers** • Notes are recorded, stored and organized in one device/place ✓ • Prevent data loss • Notes always at hand – no risk of no paper to write on • Can integrate the notes and photos of the accident scene ✓(Any one)	1	2
4.5	4.5.1	**Technology in smartphones that enables voice recognition** Biometric input ✓	1	
	4.5.2	**Technology to determine geographic location** GPS ✓	1	2
4.6		**Importance of compressing files** • To make files smaller, so they take up less storage space ✓ • Free up disk space ✓ • To make an e-mail attachment smaller and easier to send • Can support effective backup plan • Can ensure that saved files are more secure ✓✓(Any two)		2
4.7		**Hard disk defragmentation will not make extra space available** A disk defragmenter is a utility that reorganizes parts of files ✓and make your computer faster and does not make extra space available.		1

4.8	4.8.1	***Concept of virtual memory*** The unused disk space of a hard drive, which allows the operating system to operate as if it had access to more RAM, enables the computer to run even more programs at once ✓	1	
	4.8.2	***TWO examples when operating system uses virtual memory*** • When too many programs are open ✓ • When programs are too large to run from available RAM ✓ • When the available memory is full ✓✓(Any two)	2	3
4.9	4.9.1	***Technology to which the image refers*** Drone technology ✓	1	
	4.9.2	***TWO limitations of drone technology*** • The battery life limits the flying time of the drone ✓ • Weather changes in an area affect the use of drones and rain or snow can damage the electronic components and hinder the communication between the drone and the controller ✓ • The use of drones may be restricted by airspace rules/laws • A person requires a special flying license to fly drones ✓✓(Any two)	2	3
4.10	4.10.1	***Explaining how Virtual Reality works*** • Allows users to be surrounded by a virtual world/tricks your brain into believing you are in a 3D world ✓ • This is done with stereoscopic images and works by showing two slightly different angles of the scene to each eye, thereby simulating depth ✓	2	
	4.10.2	***THREE limitations of using virtual reality*** • Incomplete technology (still new) ✓ • Can cause motion sickness ✓ • Technical limitations: movement, poor hardware and low resolution ✓ • Psychological: moral and ethical issues ✓✓✓ (Any three)	3	5
				[25]

     Please turn over

QUESTION 5: INTERNET AND NETWORK TECHNOLOGIES

5.1	***Concept e-commerce***		
	• E-commerce is the general term for any type of business transaction that involves communication over the Internet ✓ • It refers to the buying and selling of goods or services and also to their marketing ✓		2
5.2	***TWO recommendations for better privacy on social media, such as Facebook***		
	• Ensure that only authorized persons can see the posts/content/use privacy settings (hide personal details) ✓ • Turn off cookies ✓ • Disable/restrict access to third-party apps/Disable data sharing with social network service provider, if possible • Block users you do not want to communicate with • Hide/do not share personal details • Turn off the "Share Location" feature ✓✓ (Any two)		2
5.3	***TWO reasons for chosing fiber internet connection over ADSL connection***		
	• Optical fibre is faster ✓ • More reliable ✓ • Better (clearer) in data transfer • Optical cables are not easily stolen (like copper cables) • Less interference from electrical sources • No matter how far from the central point, but still strong data transmission • Does not need a fixed line to access the internet ✓✓(any two)		2
5.4	***TWO advantages of online shopping***		
	• Delivery to your home/You don't have to leave your home/More convenient, 24/7 from the comfort of your own home ✓ • Prices could be cheaper ✓ • The business can reduce its overhead costs (wages, shop rent and trade worldwide). • The business does not need to carry large amounts of inventory. • Safer than going to a store • Can do your shopping from any device connected to the internet • Can easily compare specs/prices/find specific items easier • Can see recommendations/choices from other customers • Much wider variety of articles to choose from/can be purchased from overseas stores • Save on travel costs when shopping, etc. ✓✓(Any two)		2

5.5	**_TWO measures to protect customers when banking online_** • Use of one-time/per-session passwords sent to your smartphone ✓ • 2 step/factor authenticator ✓ • Passwords/PIN numbers per session • SMS notification of transactions • Secure protocols such as SSL • On-screen keyboard to enter PIN numbers and eliminate the risk of keyloggers • An online session will automatically stop if the user shows no activity for a certain time. • Banks post prominent warnings and safety tips on their websites. ✓✓ (Any two)		2
5.6	**_Why not VoIP for emergency calls_** • Internet connection may not be reliable ✓ • Lack of bandwidth • Destination may not have VoIP • It is difficult for emergency services to trace the origin of the call ✓(Any one)		1
5.7	**_Brief explanation of what information overload is._** Information overload is what happens when people cannot handle the amount of information they are exposed to on a daily basis. ✓		1
5.8	**_Difference between router and modem_** You need a modem to connect to the internet ✓while a router distributes the internet access to your devices (computer, smartphone, smart TV, etc.). ✓ **OR** The difference between a modem and a router is that a modem connects to the Internet ✓and a router connects devices to Wi-Fi ✓ **OR** Router creates a network between the computers in your home, ✓ while the modem connects that network (computers, devices) to the internet ✓		2
5.9	**_File format/type to save podcast_** MP3 ✓		1
			[15]

         Please turn over

QUESTION 6: INFORMATION MANAGEMENT

6.1	*TWO advantages of electronic forms for collecting information* • Improved accuracy/Data validation can be done/No problems with handwriting ✓ • Less time required for data capture/Respondents may be more likely to complete the survey/answer ✓ • Data can be exported directly for analysis (eg. to a spreadsheet) • Easier to 'spread' survey/has a wider variety of respondents, etc. *(Note to marker: Accept responses related to any type of electronic form, such as Google Docs, Microsoft Word forms, etc.)* ✓✓(Any two)		2
6.2	*Two reasons for a conclusion in a formal report* It ... • Provides a summary of the main arguments ✓ • Provides a moral/call to action ✓ • Provides a general answer to the Focus question ✓✓(any two)		2
6.3	6.3.1	*TWO reasons information is not reliable – evaluate sources* It has a source evaluation problem regarding … • Authority (are fabric manufacturers fashion experts?) ✓ • Accuracy (is the information substantiated?) ✓ • Timeliness (is it still relevant, not even a century old yet?) • Objectivity (material manufacturers may pursue their own interests ✓✓ (Any two)	2	
	6.3.2	*ONE way to make a paragraph more suitable for inclusion in a report* • Include a reference to the source, for example by means of a quote, hyperlink, etc. ✓ • Exclude the information that cannot be substantiated • Include information from another source to support the current statement ✓ (Any one)	1	3
6.4	*TWO aspects that must be included in a task definition* • State the problem/current situation / Why it is a problem ✓ • Focus of the investigation ✓ • How to do the research • Where to get information / How information will be used • Target audience • How the information will be presented ✓✓(Any two)		2

6.5	***How to avoid being guilty of plagiarism***		
	• Give acknowledgment to sources, (e.g. bibliography and citation) ✓		
	• Write in your own words / Use a paraphrasing tool		
	• Do not copy and paste text		
	• Use a similarity checker (e.g. Turnitin)		
	✓ (Any one)		1
			[10]

Please turn over

QUESTION 7: SOCIAL IMPLICATIONS

7.1	*Concept of user-centered design (USD)* A method of computer program design that is based on the user's specific needs and requirements focus. ✓		1	
7.2	*Software accessibility option for person with disabilities* • Slow mouse speed ✓ • Filter keys • Voice typing/voice recognition/speech to text/narrator ✓ (Any one)		1	
7.3	**7.3.1**	*Role of bot in DDoS attack* • DDoS attack uses thousands of infiltrated computers (bots) to overwhelm a server computer with mass requests ✓ • The bot (computer) is controlled by an attacker and the attack is successful if the server becomes so overwhelmed that normal users can no longer access the system ✓	2	
	7.3.2	*How DDoS attack is used to wage cyberwarfare* • They can use it to attack/take over an enemy/another country's services such as: ✓ • (military/broadcast) communications ✓ • nuclear sites (launch/disable missiles) • infrastructure (e.g. water, sanitation, power grid) • transportation, etc. ✓✓ (Any two)	2	4
7.4	**7.4.1**	*Technologic used by E-learning application* Augmented Reality ('Augmented Reality') ✓	1	
	7.4.2	*Why AR technology is more useful compared to watching a video* • It fits/is applied to the environment/equipment YOU see (not just a generic example) ✓ **Note to marker: accept any valid explanation that is an advantage of AR, or also accept a suitable comparison.)**	1	2

| 7.5 | *TWO examples of the use of Artificial Intelligence*

 • Voice assistant apps/apps you can ask for help looking up information: Alexa, Siri, Google Assistant, Bixby, etc. ✓
 • Personalised suggestions in (entertainment) applications such as: Spotify, Apple Music, Netflix, YouTube, etc. ✓
 • Application shop social media and the facial recognition feature on our smartphones
 • Financial institutions to identify which transactions are likely to be fraudulent, provide a fast and accurate credit rating, as well as to automate manual intensive data management tasks
 • In the retail sector, AI offers virtual shopping possibilities that offer personalised recommendations
 • Inventory management and site layout technologies can also be improved with the use of AI
 • It can offer personalised medicine and X-ray readings and personal healthcare assistants can act as life coaches and remind you to take your medicine, exercise or eat healthier
 • Self-driven cars were developed using machine learning (which are humans, which mean road signs) and now rely on AI for real-time decision-making to drive, given the available data (to avoid accidents, take the best route etc.)

 Note to marker: NOT just the names of apps

 <div align="right">✓✓   (Any two)</div> | | 2 |
| | | | **[10]** |

QUESTION 8: SOLUTION DEVELOPMENT

8.1	8.1.1	***Automatic table of contents, styles used – reason for error message and how to solve it*** **Reason** Proper/suitable heading styles ('heading styles') were not used ✓ **Solution** To correct this, you must change all the headings in the document to a suitable heading style and update the table of contents ✓ **OR** **Reason** The table of contents option is not set to display the selected style ✓ **Solution** Go to the table of contents option box and select the style you have chosen ✓ ✓✓(any reason with acceptable solution)	2	
	8.1.2	***How to prevent font and format from changing*** Use Paste Special ✓ Use Keep source formatting ✓	2	4
8.2		***Write formula/function in column D3*** =IF✓(C3="Female",✓"New",✓"old"✓) **Note to marker: (-1 if quotes were not used** **Other alternatives may also be acceptable, for example a VLOOKUP function)**		4
8.3		***TWO spreadsheet features, other than graphs, that will help with processing*** Functions and formulas ✓ Sorting ✓ Filtering Conditional formatting Pivot tables ✓✓ (Any two)		2

8.4	***Input mask – capital letter E starts, followed by three mandatory digits and one non-mandatory lowercase letter*** >E000<? >E (1 mark) ✓ 000 (1 mark) ✓ <? (1 mark) ✓		3
8.5	***TWO reasons why a query does not produce desired result*** Water field's Criteria (Is Not Null) should be moved to the 'Criteria' row and not in the 'Or' row ✓ Received field must contain the following criteria: Yes/True ✓		2
			[15]
	TOTAL SECTION B		**75**

           Please turn over

SECTION C: INTEGRATED SCENARIO

QUESTION 9

9.1	*TWO advantages of using online platform like ZOOM for learning* • The user interface is very easy to use ✓ • The ability to host very large online conferences ✓ • More cost-effective compared to physical meetings • It enables connection from anywhere in the world • Virtual meetings make it possible to share a wide variety of information in real time with all participants • Increased productivity and efficiency ✓✓ (Any two)			2
9.2	*Would you prefer to receive resources from your educator via a WhatsApp group or via e-mail? Give TWO reasons to motivate your Choice.* The following is only a guideline that can serve as possible answers: WhatsApp • Can communicate quickly ✓ • Can set only the administrator to send messages ✓ • Can send multi-media Email • Can communicate quickly • Can send to many learners at once *Note to marker: (Accept any acceptable reasons for choosing the learner)* ✓✓ (Any two)			2
9.3	9.3.1	*TWO disadvantages for learners to download videos with a high resolution* • Slow download speed ✓ • Higher data costs ✓ • More storage of data required ✓✓ (Any two)	2	
	9.3.2	*ONE software application to edit videos* • Adobe Premiere ✓ • Windows Movie maker • Blender • Lightworks • Open shot ✓ (Any one)	1	3

9.4	**_TWO hardware requirements to hold video conference meetings_** • video camera ✓ • a microphone ✓ • speakers connected to their computer ✓✓ (Any two)	2
9.5	**_Difference between service pack and patch – refer to the function of each_** **Patch –** an update to fix a specific error (bug) in a program ✓ **Service pack –** collection of updates, bug fixes and enhancements delivered as a single package and allowing for an easy single installation ✓	2
9.6	**_TWO aspects of how BYOD policy complies with Covid-19 security protocols_** • Only the owner will use/handle the device ✓ • The device does not stay at the school, so there is no need to disinfect for the following day ✓ **_Note to marker: (Or any other acceptable answer)_**	2
9.7	**_TWO reasons why a laptop is a better option than a tablet computer for online learning_** • Longer battery life ✓ • Bigger screen ✓ • More apps/features • More memory ✓✓ (Any two)	2

9.8	9.8.1	**_Explain the term wearable technology_** Wearable devices and technologies are electronic mobile devices worn as accessories or as a garment, ✓that constantly generates data from different environments and communicate with other devices/personal computers (PCs)/networks ✓	2	
	9.8.2	**_TWO uses of wearable technology_** • **Smart watches** give a person not only the time, but also notifications of their calls, messages, e-mails, etc. on social media ✓ • **Fitness trackers** and sports watches keep track of the number of steps/amount of time you exercise and monitor the heart rate ✓ • **'Smart glasses'** can in the corner of your eye offer functionality such as GPS navigation, the ability to easily take a photo, take incoming calls etc. • **Smart clothes** were developed to monitor things like heart rate, blood glucose levels and fitness levels when worn • **Implanted portable devices** that is surgically implanted under the skin and is usually used for **medical** reasons such as indicating insulin levels, symptoms of diseases, etc. • The **gaming industry** is adding more wearables such as gloves and headsets for virtual reality ✓✓(Any two)	2	(4)

9.9	***Explain how blockchain works*** • Blockchain is a specific type of database ✓ • Blockchains store data in blocks that are chained together and when new data comes in, it is entered into a new block ✓ • Once the block is filled with data, it is chained to the previous block, so the data is chained in chronological order ✓		3
9.10	***Term for: a single idea funded by several small donations*** Crowd funding ✓		1
9.11	***Define concept 5th industrial revolution*** (5IR) puts the focus back on people and human endeavours, ✓by defining the ethics and the impact of technology developed in the 4IR ✓		2
			[25]

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QUESTION 10

10.1	10.1.1	**_Explained: Two Factor (Two Step) Authentication_** Two-factor (two-step) authentication is a security process ✓ in which users provide two different authentication factors to verify themselves, ✓usually something you know (like a password) plus something you have (like a one-time password – OTP – sent to your phone). **Note to marker**: (Accept any answer where the learner explains how a two-step verification can be done, or if they give examples of two-step verification.)	2	
	10.1.2	**_TWO benefits of authentication as a security measure_** • More secure - helps prevent unauthorised access to your bank account ✓ • Malicious software cannot access your data even if your password is compromised ✓ • This can alert you to a possible fraud attempt on your account if you receive an OTP and have not requested it. ✓✓ (Any two)	2	4
10.2	10.2.1	**_Define the term 'digital currency'_** Digital currency is a form of virtual currency, ✓it can be exchanged for other currencies, products and services ✓	2	
	10.2.2	**_ONE example of a digital currency_** • Bitcoins ✓ • Ethereum • Luno ✓ (Any one)	1	
	10.2.3	**_Efficiency of the use of digital currencies_** • Digital currency has low fees ✓ • Fast transactions and ease of use ✓ • Mostly used for paying criminal activities such as ransom demands. **Note to marker: (Any other acceptable logical explanation)** ✓✓ (Any two)	2	5
10.3	10.3.1	**_Correct HTML code_** src instead of scr ✓ "info.png" ✓ spelling of height ✓	3	
	10.3.2	**_Any other reason why the image will not display_** If the image is not in the same folder as the text document. ✓	1	4

10.4	10.4.1	**_TWO technologies to pay registration fee_** • Internet banking/Banking app ✓ • Mobile banking services ✓ • Snapscan / Zappe ✓✓ (Any two)	2	
	10.4.2	**_How can the organisers confirm that registration fee is paid_** • Receive a confirmation notification by e-mail or SMS ✓ • Electronic receipts ✓ • Check • Online bank statements ✓✓ (Any two)	2	4
10.5	10.5.1	**_Which function: how many participants have already paid_** =✓COUNTIF ✓	2	
	10.5.2	**_How to add a column between column D and E_** Right click on Column E ✓ Click on Insert ✓	2	
	10.5.3	**_How to secure that the amount remains the same_** Use absolute cell reference ✓	1	5
10.6	10.6.1	**_ONE network connector that provides Wi-Fi access_** Broadcom 802.111n ✓	1	
	10.6.2	**_Reason for two processors listed_** Processor has two ✓cores ✓	2	3
				[25]
			TOTAL SECTION C:	50
			GRAND TOTAL:	150