



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

COMPUTER APPLICATIONS TECHNOLOGY P2

NOVEMBER 2022

MARKING GUIDELINES

MARKS: 150

These marking guidelines consist of 21 pages.

SUGGESTIONS AND RECOMMENDATIONS TO MARKERS

- Revisit the questions and the marking guidelines 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 guidelines.
 - Ask yourself or your senior marker if the response could 'fit' into the marking guidelines before allocating the correct marks to the candidate.
 - Accept correct answers that are expressed differently, e.g. the marking guidelines states 'slow' and the learner 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 answers/facts required, e.g. the first TWO facts if the candidate presents a list of FIVE facts when 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**

1.1	C	✓	1
1.2	A	✓	1
1.3	D	✓	1
1.4	C	✓	1
1.5	A	✓	1
1.6	B	✓	1
1.7	A	✓	1
1.8	D	✓	1
1.9	D	✓	1
1.10	B	✓	1
Total: [10]			

QUESTION 2: MATCHING ITEMS

2.1	E	✓	1
2.2	O	✓	1
2.3	A	✓	1
2.4	G	✓	1
2.5	C	✓	1
2.6	P	✓	1
2.7	M	✓	1
2.8	S	✓	1
2.9	K	✓	1
2.10	D	✓	1
Total: [10]			

QUESTION 3: TRUE/FALSE ITEMS

(Note to marker: In Question 3.2, 3.3, and 3.5:

- Candidates need to provide the correct term, e.g. motherboard, 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 a correct answer)

3.1	True ✓	1
3.2	False, E-waste ✓ /Electronic waste	1
3.3	False, Printer ✓	1
3.4	True ✓	1
3.5	False, <hr> ✓ (Ignore the forward or backslash)	1
		[5]

TOTAL SECTION A: 25

SECTION B**QUESTION 4: SYSTEMS TECHNOLOGIES**

4.1	<i>Explanation of an office suite</i> An office suite is a collection of programs ✓ (software applications) that link/integrate ✓ with each other/with a similar user interface			2
4.2.1	<i>Measurement for resolution</i> 1) DPI/dots per inch 2) Pixel/Megapixel/MP ✓ (Any one)			1
4.2.2	<i>Disadvantage of capturing an image with poor resolution</i> 1) Poor resolution causes poor image quality 2) OCR does not work on poor quality images 3) Cannot enlarge image ✓ (Any one)			1
4.3.1	<i>ONE method software developers use to avoid having bugs in their software</i> 1) Internal testing by a dedicated team/Alpha testing 2) Distribute Beta/Test versions: Public test and report errors which are then corrected by the developer 3) Error reporting: Developers use error reporting facilities when a program crashes ✓ (Any one)			1
4.3.2	<i>ONE way a user can get rid of a software bug, other than keeping software updated</i> 1) Install a patch 2) Install a service pack ✓ (Any one)			1
4.4	<i>Utility used to close a non-responsive application</i> Task Manager ✓			1

4.5	<p><i>TWO metadata criteria to search for a file, other than the file name</i></p> <ol style="list-style-type: none"> 1) Last modified 2) Date modified 3) File extension/File type 4) File size 5) Date created 6) Date printed 7) Author 8) Subject 9) GPS information 10) Time, etc. <p style="text-align: right;">✓✓ (Any two)</p>		2
4.6	<p><i>TWO solutions when a smartphone, connected properly via a USB cable, does not communicate with the computer</i></p> <ol style="list-style-type: none"> 1) Restart the smartphone and restart the computer 2) Use manufacturer's cable/Use another USB cable/port 3) Install/Update the driver/firmware on the computer 4) Enable the relevant settings on the smartphone/Connect the smartphone to the computer as File Transfer 5) Turn on USB debugging on your smartphone 6) Adjust security settings of the computer to allow the smartphone to connect <p style="text-align: right;">✓✓ (Any two)</p> <p><i>(Note to marker: Do NOT accept disconnecting and reconnecting the cable)</i></p>		2
4.7	<p><i>TWO ways to check the hard drive size</i></p> <ol style="list-style-type: none"> 1) This PC (in File Explorer) 2) System information / Device specification / (Windows) Properties 3) Disk management 4) Task Manager <p style="text-align: right;">✓✓ (Any two)</p>		2

4.8.1	<p>ONE input device <u>specifically designed</u> for disabled users</p> <ol style="list-style-type: none"> 1) Sip and Puff 2) Braille keyboard/Large key keyboard 3) Oversized buttons on devices 4) Head operated pointer 5) Foot operated mouse 6) Eye movement tracking device 7) Generous trackball e.g. AbleNet Wave <p style="text-align: right;">✓ (Any one)</p>	1	
4.8.2	<p>ONE output device <u>specifically designed</u> for disabled users</p> <ol style="list-style-type: none"> 1) Braille printer 2) Vibrating pads (that does not emit sounds) 3) LED indicator lights 4) Braille screen/display with feedback that can be felt <p style="text-align: right;">✓ (Any one)</p>	1	2
4.9	<p>Explanation of Creative Commons licence</p> <p>Creative Commons is a <u>copyright agreement</u> ✓ that allows anyone to <u>use and share</u> ✓ the content <u>under certain conditions</u> (e.g. free) from the copyright holder/owner</p>		2
4.10.1	<p>Advantage of an All-in-1 device</p> <ol style="list-style-type: none"> 1) Less physical space/Mobility 2) No cables connecting various components such as monitor 3) Easy to install/No additional devices necessary 4) The intuitive design leads to higher productivity/more efficient <p style="text-align: right;">✓ (Any one)</p>	1	
4.10.2	<p>Reason for the 64 GB SSD being suitable for a restaurant POS</p> <ol style="list-style-type: none"> 1) Data is stored centrally on a server and generally not on POS system 2) Dedicated device/Only uses one program 3) Generate small files that may be stored in temporary storage <p style="text-align: right;">✓ (Any one)</p>	1	
4.10.3	<p>TWO disadvantages of using touch screens</p> <ol style="list-style-type: none"> 1) Input can be inaccurate when wearing gloves/user has wet fingers/screen becomes dirty ✓ 2) Cumbersome to input large amounts of data/to make corrections ✓ 	2	4

4.11	<p><i>TWO reasons for zipping/compressing a file</i></p> <ol style="list-style-type: none"> 1) Possible decrease in storage space for a file/Reduce file size 2) Uses less data when sending files 3) Add a layer of security to files with password 4) Send a folder or group of files as single/smaller e-mail attachment 5) Faster to transfer large, zipped files to removable media <p style="text-align: right;">✓✓ (Any two)</p>		2
4.12.1	<p><i>Optical media for storage</i></p> <p>CD, DVD or Blu-ray ✓</p>	1	
4.12.2	<p><i>Disadvantage of flash drive to store files</i></p> <ol style="list-style-type: none"> 1) Easy to lose 2) Easily stolen 3) Size to cost ratio is high/expensive per GB 4) Limited read or write cycles <p style="text-align: right;">✓ (Any one)</p>	1	2
			[25]

QUESTION 5: INTERNET AND NETWORK TECHNOLOGIES

5.1	Type of network to connect company offices across the country WAN ✓ /GAN/VPN		1
5.2.	TWO reasons why learners are required to login on a network 1) Necessary for secure profiles/Gain access to folder associated with each profile 2) User profiles distinguish users on a network/The access rights for each user 3) Necessary for a classroom management system 4) Necessary to access services provided by the network server, e.g. file sharing, hardware sharing, internet ✓✓ (Any two)		2
5.3	TWO reasons why the 'Page not found' error occurs when opening a bookmarked website 1) Website is down due to maintenance 2) Page was removed/Bookmarked page does not exist anymore 3) (Host) server is offline ✓✓ (Any two)		2
5.4	TWO criteria to consider when you choose an ISP 1) Coverage of the ISP's services 2) Types of services/security offered by the ISP 3) Download and upload speeds offered 4) Support offered by the ISP 5) Reviews from other customers, e.g. reliability 6) Pricing/Terms of the various packages/contracts available ✓✓ (Any two)		2
5.5	TWO netiquette rules for a WhatsApp study group chat 1) Be kind and courteous 2) Do not send large attachments 3) Do not type in capital letters 4) Do not use vulgar language/Use more formal language 5) Keep chats related to the purpose of the group/Do not send spam messages ✓✓ (Any two)		2

5.6.1	Concept of a search engine Software/Application that finds/searches for web pages by using key words/phrases ✓	1	
5.6.2	Concept of a web browser A program that gives access to the www ✓ /Software that allows the user to explore and to view web pages	1	2
5.7	Reason for buffering when streaming videos 1) Insufficient bandwidth/Slow internet connection 2) Streaming in high resolution ✓ (Any one)		1
5.8	TWO uses of IoT in a home environment 1) Devices can be monitored via the internet 2) Devices can be controlled via the internet 3) A variety of sensors can be used to produce data for decision-making 4) Improves reliability of the automated devices 5) Creates opportunities for the integration of various devices ✓✓ (Any two) (Note to marker: • <u>Accept specific examples of IoT device usage or devices with a motivation, e.g. a fire alarm connected to the fire department</u> • <u>Accept two substantiated examples even if both examples are linked to the same bullet number</u>)		2
5.9	System to address the need for more processing power Grid computing ✓		1
			[15]

QUESTION 6: INFORMATION MANAGEMENT

6.1	<p>TWO problems with the focus question</p> <p>There is more than one question ✓ Can be answered without research ✓ /The question is not broad enough</p>		2
6.2	<p>TWO disadvantages of closed questions in a questionnaire</p> <p>1) Forces the respondent to answer in a certain way/Limited choices 2) No way of knowing if the question was properly understood 3) Survey result could be biased 4) Could result in information that is not meaningful/Focus could be too narrow</p> <p>✓✓ (Any two)</p>		2
6.3	<p>Definitions: Citation and Bibliography</p> <p>Citation A single reference to a specific source ✓ (in the bibliography)</p> <p>Bibliography A detailed list of all sources used in a document ✓</p> <p>(Note to marker: Do NOT accept reference to position in the document)</p>		2
6.4	<p>TWO advantages of electronic data over data in hard copy format</p> <p>1) Easier to obtain data via e-mail, SMS, portable storage media 2) No need to retype or scan data 3) Often more likely to be up to date 4) Easier to share data 5) Easier to correlate/analyse/find data 6) Less physical space needed for storage of data 7) High speed transfer of data 8) Easier to make backups 9) Easier to edit/Improve readability</p> <p>✓✓ (Any two)</p>		2
6.5	<p>TWO database query options/features that are used to analyse data</p> <p>1) Criteria/Functions in criteria 2) Total(s)/Group by (NOT Grouping/Group) 3) Sort 4) Show (only relevant fields) 5) Calculated fields/Filter 6) Filter</p> <p>✓✓ (Any two)</p>		2
			[10]

QUESTION 7: SOCIAL IMPLICATIONS

7.1	<p><i>Difference between a bot and a zombie</i></p> <p>A bot is software/application used to automate certain tasks and actions ✓</p> <p>A zombie is an infected computer that has been taken over/is remotely controlled ✓ (by a hacker)</p>		2
7.2	<p><i>Reason why it is difficult to detect a spoofing attack</i></p> <p>The e-mail address appears to be valid ✓</p>		1
7.3	<p><i>TWO reasons why DDoS attacks are harmful</i></p> <p>1) Legitimate users are not able to use the website/service/internet 2) Website/Company can lose income 3) Reputational damage done to the company</p> <p style="text-align: right;">✓✓ (Any two)</p>		2
7.4	<p><i>Risk of posting videos you created on social media</i></p> <p>1) Others can use and share your content as if it belongs to them/identify theft 2) You may become a victim of stalking/phishing/cyberbullying 3) Agreement may state that you have transferred the ownership of your content to that platform 4) Consequences such as legal liability/harming minors and others 5) Disadvantaging yourself on a social/professional level</p> <p style="text-align: right;">✓ (Any one)</p>		1
7.5	<p><i>TWO ways to reduce the risk of your computer getting infected by a virus, other than installing an anti-virus or keeping software up to date</i></p> <p>1) Do not click on links/attachments in suspicious e-mails or websites 2) Do not use pirated/cracked software 3) Only download files from safe sources 4) Use a browser known for good security e.g. Firefox/Pop-up blocker 5) Minimise use of untrustworthy/external media to transfer data 6) Scan external media before data transfer</p> <p style="text-align: right;">✓✓ (Any two)</p>		2

7.6	<p><i>TWO examples how AI can be useful in a school environment</i></p> <ol style="list-style-type: none">1) Educational apps to personalise learning experience2) Digital classroom assistant can help with internet research3) Facial recognition on CCTV can assist with better management of the school disciplinary system4) Automated management of attendance using data gathered from CCTV and fingerprint scanners5) Analysis of trends based on data gathered by sensors such as facial recognition and fingerprint scanners, regarding attendance of school functions, academic performance, etc. <p style="text-align: right;">✓✓ (Any two)</p> <p><i>(Note to marker: Accept realistic examples of robots, autonomous cars, etc., with reference to the school environment even if both examples are linked to the same bullet number)</i></p>		2
			[10]

QUESTION 8: SOLUTION DEVELOPMENT

8.1.1	Formatting used in row 1, other than font changes Merge and centre ✓ /Merge	1	
8.1.2	Data that does not have consistent formatting Date purchased/Date sold ✓ or specific examples such as C4:D8/Dates	1	
8.1.3	Cell reference using \$ symbol AND its purpose \$ symbol: Absolute cell referencing ✓ Purpose: The cell reference remains the same/constant when the formula is copied down/pasted ✓	2	
8.1.4	Correct the ##### error 1) Make column wider 2) Decrease font size ✓ (Any one)	1	
8.1.5	ONE reason why the SUM function returns an incorrect result 1) The cell range in the function is incorrect 2) Some values in the column are formatted as text ✓ (Any one)	1	6
8.2.1	TWO fields with unsuitable data types 1) CustomerSurname 2) ContactNumber 3) DateOfPurchase ✓✓ (Any two)	2	
8.2.2	Field more appropriate for primary key AND motivation Appropriate field: CustomerID ✓ Motivation: Contents will be unique ✓	2	
8.2.3	ONE reason for input mask on the ContactNumber field 1) Input mask forces a standard/consistent format for data entry 2) The correct data format will be used for accurate input ✓ (Any one)	1	5

8.3.1	<p>THREE changes to the HTML code to improve the design and layout</p> <ol style="list-style-type: none"> 1) Heading sizes/Bold font 2) Ordered list/Unordered list 3) Font type/size/style and font colour 4) Background colour 5) Images/Icons 6) Centre tags 7) Table tags 8) Links to descriptions/images, etc. <p style="text-align: right;">✓✓✓ (Any three)</p> <p><i>(Note to marker: Accept any three examples/HTML tags even if all three examples refer to the same bullet number)</i></p>	3	
8.3.2	<p>ONE advantage of web pages being based on text files</p> <ol style="list-style-type: none"> 1) Various browsers can be used to open the web pages 2) The web pages can be edited with various text editors, word processing programs, etc. 3) Text-only files are small files which load faster <p style="text-align: right;">✓ (Any one)</p>	1	4
			[15]

TOTAL SECTION B: [75]

SECTION C**QUESTION 9: INTEGRATED SCENARIO**

9.1.1	<p><i>TWO changes to ensure accurate input</i></p> <ol style="list-style-type: none"> 1) Use a combo box/drop-down list for the Grade choices 2) Use a date picker for the selection of the Date Joined 3) Help text 4) Validation rule to exclude future dates <p style="text-align: right;">✓✓ (Any two)</p>	2	
9.1.2	<p><i>Application to create an electronic form offline</i></p> <ol style="list-style-type: none"> 1) Word processor, e.g. (Microsoft) Word/Open Office/WordPerfect 2) Database, e.g. (Microsoft) Access 3) Spreadsheet, e.g. (Microsoft) Excel <p style="text-align: right;">✓ (Any one)</p>	1	3
9.2.1	<p><i>TWO reasons why a laptop is NOT suitable as a dedicated digital reader</i></p> <ol style="list-style-type: none"> 1) Physical size: Heavy/Too big to carry around 2) Physical keyboard can be an obstacle/irritation 3) Unnecessary amount of processing power and RAM/Under-utilised 4) Much reduced battery life when compared to a dedicated e-book reader 5) Risk of damage <p style="text-align: right;">✓✓ (Any two)</p>	2	
9.2.2	<p><i>TWO software settings for visually impaired</i></p> <ol style="list-style-type: none"> 1) Activate the Text-to-Speech/Narrator software 2) Use the magnifying utility 3) Increase font size 4) Use high contrast colours 5) Brightness/Set lighting options <p style="text-align: right;">✓✓ (Any two)</p>	2	
9.2.3	<p><i>TWO ways to extend the battery life of a device</i></p> <ol style="list-style-type: none"> 1) Reduce the screen brightness 2) Enable battery saving settings 3) Enable flight/airplane mode 4) Close background apps 5) Disable unused sensors such as an accelerometer <p style="text-align: right;">✓✓ (Any two)</p>	2	

9.2.4	Concept of learners using their own, not school devices, to download books BYOD ✓ /Bring Your Own Device	1	
9.2.5	TWO technologies used to share files without internet or network 1) Bluetooth 2) NFC 3) Wi-Fi direct (Accept examples: SHAREit, Airdrop) 4) OTG (On The Go)/Flash drive/Removable media/USB cable ✓✓ (Any two)	2	9
9.3.1	Word processing feature to show words with the same meaning Synonyms ✓ /Thesaurus	1	
9.3.2	Spreadsheet feature used display number of words for each book SUBTOTAL ✓ (Note to marker: Accept Pivot Table feature)	1	
9.3.3	Function used to determine number of characters in each word LEN ✓	1	
9.3.4	TWO ways to determine if words appear more than once in a spreadsheet 1) Conditional formatting 2) Find feature 3) Sort the data ✓✓ (Any two)	2	5
9.4.1	TWO advantages of a blog over a website 1) Blogs are more suitable for personal opinions ✓ 2) Allows others to comment or give an opinion ✓	2	
9.4.2	TWO fields to reference a book, other than the title 1) Author 2) Year/Date published 3) Publisher 4) City/Where published 5) Edition 6) Page 7) Volume 8) Access dates ✓✓ (Any two)	2	4

QUESTION 10: INTEGRATED SCENARIO

10.1.1	<p><i>TWO reasons for recommending a wireless network in the administration area</i></p> <ol style="list-style-type: none"> 1) Ease of mobility 2) Lower installation cost 3) Easy to use and install 4) Easier to cover a large area 5) No cable clutter <p style="text-align: right;">✓✓ (Any two)</p> <p><i>(Note to marker: Accept reasons for creating a network)</i></p>	2	
10.1.2	<p><i>Hardware required for desktop PC to connect to a wireless network</i></p> <ol style="list-style-type: none"> 1) Wireless NIC/Wi-Fi adapter/Wireless dongle 2) USB dongle/Router 3) PCI card <p style="text-align: right;">✓ (Any one)</p>	1	
10.1.3	<p><i>TWO disadvantages of using a network</i></p> <ol style="list-style-type: none"> 1) Viruses 2) Security/Hacking 3) Additional hardware cost 4) Specialised installation <p style="text-align: right;">✓✓ (Any two)</p>	2	
10.1.4	<p><i>TWO reasons why a public hotspot should not be set up at a day-care centre</i></p> <ol style="list-style-type: none"> 1) Network security issues e.g. other devices such as printers etc., can be accessed 2) Physical security of learners/boundary may be compromised due to loiterers wanting to access the Wi-Fi 3) Additional data costs due to many outsiders accessing the internet 4) Only office computers require access to the network <p style="text-align: right;">✓✓ (Any two)</p>	2	7

10.2.1	<p>TWO reasons to recommend open source software for teaching computer literacy</p> <p>1) Free to use 2) Variety of applications are available 3) Can be customised for school requirements</p> <p style="text-align: right;">✓✓ (Any two)</p>	2	
10.2.2	<p>Measure to prevent children being exposed to sensitive content on the internet</p> <p>1) Parental guidance software, e.g. Net Nanny, Qustodio, Bark, etc. 2) Parental settings/Set up child profiles/Content filtering 3) Firewall, etc.</p> <p style="text-align: right;">✓ (Any one)</p>	1	3
10.3.1	<p>ONE reason for regular backups</p> <p>Prevent loss of data ✓</p>	1	
10.3.2	<p>TWO benefits of using cloud-based storage rather than offline storage on the same device for data backup</p> <p>1) Cloud storage is scalable when you need more storage space 2) Cloud storage reduces the need for space on local storage 3) Cloud storage cannot be lost/damaged like the local storage media/less chance of losing data 4) Can automatically synchronise files/Can access data from any device 5) Collaboration and sharing of files</p> <p style="text-align: right;">✓✓ (Any two)</p>	2	3

10.4.1	Name of malware in the given example Ransomware ✓	1	
10.4.2	TWO reasons why cryptocurrency is preferred by hackers 1) Cannot trace who the owner of the account is 2) Secure method of payment 3) Payment can be made to anywhere in the world/Does not need to be converted to other currencies ✓✓ (Any two)	2	
10.4.3	Definition of blockchain technology Blockchain technology is a sequence of blocks or groups of transactions ✓ that are chained together and distributed among the users ✓ /constantly updated/verified OR <ul style="list-style-type: none"> • The blockchain is an incorruptible public digital ledger • of economic transactions (that can be programmed to record not just financial transactions, but virtually everything of value) 	2	5
10.5.1	TWO reasons for using a QR code to promote a business 1) A QR code links directly to a website/live stream 2) No spelling errors made in the input of the URL 3) Can contain other information, e.g. contact details, etc. ✓✓ (Any two)	2	
10.5.2	Way to ensure that QR code will automatically appear in a newly created word processing document Use a template ✓	1	3

10.6.1	<p><i>TWO ways a 3D printer can be used for education purposes</i></p> <ol style="list-style-type: none"> 1) Print educational models 2) Print building blocks for children 3) Print educational toys, e.g. for counting 4) Print missing parts of toys 5) Print tracing templates, etc. <p style="text-align: right;">✓✓ (Any two)</p>	2	
10.6.2	<p><i>TWO reasons why a 3D printer should not be used in the presence of (young) children</i></p> <ol style="list-style-type: none"> 1) Gives off strong smells/toxic/harmful fumes 2) Loose pieces could be choking hazards 3) Young children may want to push buttons – may cause the printer to malfunction 4) Children may get hurt if they bump or touch the printer 5) Very hot surfaces on the printer are dangerous <p style="text-align: right;">✓✓ (Any two)</p>	2	4
			[25]

TOTAL SECTION C: 50

GRAND TOTAL: 150