basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

COMPUTER APPLICATIONS TECHNOLOGY P2

NOVEMBER 2018

MARKING GUIDELINES

MARKS: 150

These marking guidelines consist of 20 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 opposite to the answers in the marking guidelines, e.g. the marking guideline 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, GIVE, NAME or STATE: mark the first number of instances required, e.g. the first TWO facts if the candidate presents a list of say FIVE facts and only two facts were required.

- All other answers must be regarded as a single unit.

SECTION A

QUESTION 1: MULTIPLE-CHOICE			
1.1	B	✔	1
1.2	A	✔	1
1.3	D	✔	1
1.4	C	✔	1
1.5	B	✔	1
1.6	C/D	✔	1
1.7	A	✔	1
1.8	B	✔	1
1.9	C	✔	1
1.10	C	✔	1
		Total: [10]	

QUESTION 2: MATCHING ITEMS			
2.1	T	✔	1
2.2	E	✔	1
2.3	L	✔	1
2.4	P	✔	1
2.5	C	✔	1
2.6	H	✔	1
2.7	D	✔	1
2.8	A	✔	1
2.9	R	✔	1
2.10	N	✔	1
		Total: [10]	

QUESTION 3: TRUE/FALSE ITEMS

(Note to marker: In Question 3.1, 3.3, and 3.4 candidates need to provide both the word 'False' and the correct term, e.g. motherboard, in order to get the mark.)		
3.1	False – System✓/Operating system	1
3.2	True✓	1
3.3	False – Ransomware✓ *(Note to marker: Accept a valid example of a type of ransomware, e.g. Wannacry, etc.)*	1
3.4	False – Crowd funding✓/Crowd sourcing *(Note to marker: Also accept Social fundraising/Peer-to-peer fundraising OR a valid example of a crowd funding platform, e.g. Kickstarter, Indiegogo, etc.)*	1
3.5	True✓	1
		[5]

TOTAL SECTION A: [25]

SECTION B

QUESTION 4: SYSTEMS TECHNOLOGIES

4.1	***Purpose of a driver program*** Allows the operating system to communicate✓ with the device✓		2
4.2	***Motivation for using a numeric keypad*** The (ergonomic) arrangement of the keys✓ results in: ***AND one impact***✓ • Improved accuracy • Increased speed • Improved productivity		2
4.3.1	***MP4 file*** Video✓/Audio/Pictures/Text	1	
4.3.2	***Newer file format*** Books.xlsx✓	1	
4.3.3	***Template file*** A document that has pre-set formatting and layout✓/Blueprint	1	
4.3.4	***ONE reason for creating a compressed file*** ***Storage*** • Possible saving on storage space • For archiving or backup purposes ***E-mail*** • Sending a file/smaller attachment via e-mail • Download time for an e-mail attachment is quicker/uses less data • E-mailing multiple files in a single attachment only possible if zipped ***File transfer*** • Creating one file from multiple files results in faster transfer • Reducing larger file/s for faster transfer • Large files can be split into multiple files ***Security*** • To add encryption/password to the file/Additional security 　　　　　　　　　　　　　　　　　　✓ (Any one)	1	4

4.4	*TWO advantages of sleep mode*		
	• Saves on battery life/electricity • Fast to resume • Users can pick up where they left off with regard to applications that were open • Automatic security measure if user is away from notebook and a password/biometric feature is necessary to activate it • Updates can still be downloaded/installed ✓✓ (Any two)		2
4.5	*Backward compatibility* Newer versions of software/hardware✓ will support older versions✓ of software/hardware		2
4.6.1	*Example of memory* • RAM✓/Cache memory	1	
4.6.2	*TWO reasons for SSD over HDD for mobile devices* • SSDs use less power than HDDs • SSDs have better data transfer rates than HDDs • SSD technology more up-to-date • SSDs are less prone to breakage on impact • Physical size of SSD is smaller/lighter than HDD • Generates less heat ✓✓ (Any two)	2	
4.6.3	*Popularity of Blu-Ray storage* • Size of games require higher storage capacity/Capacity allows for storage of high quality content • Easier to distribute games on Blu-Ray than downloading over the internet ✓ (Any one)	1	
4.6.4	*TWO ways to transfer data from SD card to PC* • Connect camera to the PC via USB cable/Use connector to PC • Use wireless data transfer feature of camera, e.g. Bluetooth, NFC or Wi-Fi • Transfer to cloud and download to PC • Insert SD card into PC/Card reader ✓✓ (Any two)	2	6

4.7	***THREE examples of accessibility software features***		
	• Magnifier • Speech/Voice recognition • On-screen keyboard • Sticky keys/Toggle keys/Filter keys/Mouse keys • Text to speech/Narrator • Audio description • High contrast theme/Sound warning • Enlarged cursor • Closed captions/Subtitles • Notifications • Mono audio, etc.		
	✓✓✓ (Any three)		3
4.8	***TWO ways to access a website without typing a URL/IP address in the browser***		
	• Click on a hyperlink/Click on a hyperlink from a search engine result • Use bookmarks/Favourites/Homepage • Use the History/Most visited • Use a QR code/NFC tag • Speech recognition • Digital assistant		
	✓✓ (Any two)		2
4.9	***TWO functions of the operating system (not user interface)***		
	• Provides basic security✓ • Basic running of the computer✓ ***OR*** • Memory management • Input and output management • Co-ordinating/Managing tasks/programs • Provides basic security • Device management (e.g. Disk management, printers, etc.)		
	✓✓ (Any two)		2
			[25]

QUESTION 5: INTERNET AND NETWORK TECHNOLOGIES

5.1	***TWO considerations for choosing an ISP*** • Bandwidth/speed of connection should be high • Wide network coverage (Point of presence) • Whether there are capped and uncapped offerings • Variety of types of connections offered (e.g. LTE, Fibre, etc.) • Whether services are shaped/throttled/Revolving window • The services that are offered by the ISP (e.g. spam filters) • Reputation/Reliability of the ISP • Whether data is carried over into the next month • Whether the ISP offers an anti-virus facility • Whether the ISP is known for a stable connection • Customer support services ✓✓ (Any two)		2
5.2	***TWO limitations of ADSL*** • Distance to exchange can lower the line quality • Maximum bandwidth lower than with other technologies • Some electronic devices may cause interference • Service interruption due to copper cable theft • Slower connection at peak times • Upload speed is much lower than download speed • Dependent on having a land line/Not a mobile solution ✓✓ (Any two)		2
5.3	***TWO technologies/protocols for secure communication over a WAN*** • https (SSL) • VPN • VOIP ✓✓ (Any two)		2
5.4	***TWO advantages of wireless LAN over wired LAN*** • Connecting in areas where it is difficult to lay a cable/Easier network expansion • Devices do not have to stay in one place/Increased mobility • More types of devices can connect via wireless • Not prone to electromagnetic interference from other machines • Larger number of users can be connected to the network • Less clutter from cables • More secure when professionally set up ✓✓ (Any two)		2

5.5	***Shaping/Contention*** The ISP shapes✓ the connection to give priority to important services✓ such as e-mail traffic by slowing down less important services✓ such as streaming ***OR*** • Bandwidth is limited • Too many people streaming during the day • E-mail is given preference on the network/E-mail uses less data		3
5.6	***TWO reasons for data CAP depletion*** • Automatic updates running in the background • Malware/Applications/Services running in the background, e.g. too many groups, Facebook messenger, Instagram messenger, etc. • Hotspot feature was enabled/Other devices sharing your internet access • Too many images/videos/files are being transferred • ISP could have made a mistake • Bandwidth was hacked • The data daily limit was not set • Too many WhatsApp calls/Voice-notes were made/sent ✓✓ (Any two)		2
5.7	***TWO netiquette rules for a group chat on social media*** Do NOT … • share personal and sensitive information • share information without permission • gossip/engage in cyberbullying • be rude/start an argument/be verbally abusive/swear • type in capital letters • have a private conversation on a group chat/post messages intended for one individual only on the group chat • send large attachments/content that wastes data • post information that is outside the usual content of the group/ make irrelevant comments • post messages at unusual hours of the day unless urgent • use a commonly understood language ✓✓ (Any two)		2
			[15]

QUESTION 6: INFORMATION MANAGEMENT

6.1.1	**Open-ended question** Question 3✓ /What impact does Mathematics have on the economy?	1	
6.1.2	**Best suited question for a survey** Question 1✓ /Did you pass Mathematics?	1	2
6.2	**TWO ways to check for plagiarism** • Type a sentence/phrase in a search engine and search for it • Use software designed to detect plagiarism • Check for non-printing characters that may appear • Follow hyperlinks in the learner's work • Check for different writing styles in the document • Interview the learner ✓✓ (Any two)		2
6.3	**TWO tips for checking information quality** **Authority** • Check the credentials of the author • Check reviews of the source/Author **Accuracy** • Compare with other sources for accuracy • Number of citations **Currency** • Check how recently the information was posted/Check the date **Bias** • Check for bias in terms of gender, race, religion, culture, etc. ✓✓ (Any two)		2
6.4	**TWO spreadsheet features for data analysis** • Functions/Formulas/Calculations • Sorting/Grouping/Sub-totalling • Conditional formatting • Graphs/charts • Filtering ✓✓ (Any two) *(Note to marker: Accept any reasonable example of a feature for data analysis, e.g. Pivot tables, What-If analysis, etc.)*		2
6.5	**Citation versus Bibliography** • Citation – Credits/Names/References a single source where the information is used✓ in the report • Bibliography – Gives a full list of all sources indicating information about the publication of those sources✓		2
			[10]

QUESTION 7: SOCIAL IMPLICATIONS

7.1	*ONE risk of providing personal data on social media sites*		
	Expose yourself to: • social engineering attacks • spam • harassment/stalking • cyberbullying • identity theft ✓ (Any one)		1
7.2	*TWO ways to protect a network from hackers* • Implement security policies/passwords/logins/access rights • Set up a firewall • Do not allow users to install software • Make outside users access the network via a VPN • Disable WPS • Update firmware/Use alternate firmware • DNS/Mac filtering • Install/Update security/antivirus • Prevent users from uploading files to the network • Disable form autofill/Disable Remember me • Disable USB ports/CD drives ✓✓ (Any two)		2
7.3	*Benefits of using 'big data' for a research company* • 'Big data' leads to better decision-making which could reduce costs • The volume of data gathered provides more insight/ Companies have more data to analyse and base their findings/advice on • Because data is gathered all the time, 'big data' is more relevant ✓✓ (Any two)		2

7.4	**Reason for private browsing mode** You do not want to store your friend's: • browsing history • web cache • cookies • passwords • temp files Motivation for any of the above • Ensure your friends privacy, etc. ✓✓ (Any two)		2
7.5.1	**Concept of BYOD** Learners are allowed to use their own devices i.e. tablets, smartphones and notebooks to: • connect to a (school's) network • do school related work ✓ (Any one)	1	
7.5.2	**TWO problems associated with using BYOD at school** • Device theft is difficult to control • Difficult to control data usage • Learners will be easily distracted • Potential spread of malware • Not all learners may have their own device • Security cannot be enforced on all devices (due to different operating systems and software/hardware versions) • Compatibility issues due to different hardware/software configurations/Software incompatibility • May cause a bottleneck on the network • Potential for learners to access sensitive data on the network ✓✓ (Any two)	2	3
			[10]

QUESTION 8: SOLUTION DEVELOPMENT

8.1	**ONE reason for spell checker not finding mistakes** • The language is set to English (US)/The language is set incorrectly/Language not set to English (South Africa/UK) • The spell checker is disabled • The US spelling of the words were added to the dictionary ✓ (Any one)		1
8.2	**TWO reasons why mail merge document fails to load data source** • The data source file has been moved/deleted • The linking to the data source was incorrectly done • The data source file/document is corrupt ✓✓ (Any two)		2
8.3	**Database data types**		

	Field Name	Data Type		
E.g.	*Name*	*Text*		
8.3.1	ID Number	Short Text✓/Text	1	
8.3.2	Date of Test	Date/Time✓	1	
8.3.3	Mark	Number✓	1	3

8.4	**Restricting input into a spreadsheet** Lock/Protect the cells✓/Restrict editing		1
8.5	**Fix problem that causes the #Value error** • Replace text in referenced cell(s) with a valid number✓/Ensure that referenced cell(s) do not contain text • Make reference to the correct cell✓		2
8.6	**Correction to first two arguments of Vlookup** =VLOOKUP(**A1**, **$L$1:$M$5**, 2, FALSE) • Remove the inverted commas/quotes from cell A1✓ • Apply absolute referencing/F4 to cell range $L$1:$M$5✓		2
8.7.1	**Function to replace '&'** Concatenate✓/Concat/Textjoin	1	
8.7.2	**Function to replace the formula** Average✓/Avg	1	2
8.8.1	**Bookmark tag** <a name="NAME"> Creates a bookmark✓/anchor/target location on the same page	1	
8.8.2	**Hyperlink tag** <a href="#NAME"> Links to bookmark✓/target location created/Creates a hyperlink	1	2
			[15]

TOTAL SECTION B: [75]

SECTION C

QUESTION 9: INTEGRATED SCENARIO

9.1.1	*Internet versus WWW* • The internet – A worldwide connection of networks and computers/Network of networks✓ • World Wide Web – An internet service which consists of a collection of linked electronic pages✓	2	
9.1.2	*Multiple tasks done on one device at the same time* Multitasking✓	1	
9.1.3	*ONE reason for a web page not opening on a mobile browser* • The mobile data has been switched off/No internet connection • Web page not designed for/compatible with a mobile device • The mobile phone's Wi-Fi has not been switched on/Router is off/faulty • Data cap has been used • Faulty web page/browser/website • Server down/Website not available • Mobile device's RAM is full • Missing browser plug-ins ✓ (Any one)	1	
9.1.4	*ONE argument against using public Wi-Fi hotspot* • Data transfer speeds may be slow/Number of users at the same time may influence the speed of connectivity • Amount of time/data available to the user could be limited • Security – Hackers may easily intercept your activities • Certain sites are blocked/restricted ✓ (Any one) *(Note to marker: Do not accept any answer referring to data charges/costs.)*	1	5

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9.2.1	**TWO rules for a school social media policy** • Allow only school-related content • Share content only with learners/teachers/people from school • No offensive/inappropriate posts/content allowed • Observe good netiquette • Use during class time only for school related work/Do not use during class time • Do not use social media if under the permitted age • Activities must adhere to the POPI Act (e.g. No photos of young children) • Do not post any school related content without permission • Cyberbullying is not allowed • Do not abuse the school's bandwidth ✓✓ (Any two) *(Note to marker: Accept any valid school-related answer.)*	2	
9.2.2	**Click-jacking** • Click-jacking is when a user is tricked✓ into clicking on a hidden/concealed/disguised link • that performs an action unexpected by the user, e.g. infects the computer with malware or generates an income for others (adverts/bitcoin mining)✓	2	
9.2.3	**TWO features of a smartphone related to storage** • The size of the built-in storage space/memory on the smartphone • The ability to add extra memory cards • The ability to change the resolution/colour settings • The ability to store in different formats ✓✓ (Any two)	2	
9.2.4	**Definition of plug-in** • A plug-in is software✓ • that provides additional functionality✓	2	8

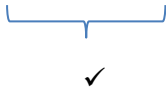| 9.3.1	*TWO ways to prevent eye strain*		
	• Use larger fonts • Adjust the lighting (screen or room)/Use blue light filters/comfort view settings • Take regular breaks • Do eye exercises, e.g. focus on an object in the distance, eye rolls, etc. • Ensure the mobile device is not too close to the eyes • Use software that helps to manage your on-screen time • Wear special/anti-reflective glasses to protect the eyes, etc. ✓✓ (Any two)	2	
9.3.2	*TWO mental health issues related to overuse of ICT*		
	• Anti-social behaviour • Lack of meaningful communication • Addiction to computer games/social media/Obsessive Compulsive Disorder • Lower self-esteem • Depression • Anxiety • Sleeping disorders • Stress from information overload • Narcissism related to selfies, etc. ✓✓ (Any two)	2	

9.3.3	*TWO positive effects of technology on education*		
	Ease of access to education		
	• Accessing of educational resources		
	• A variety of research methods		
	• Collaboration/Sharing of resources		
	• Promotes online/lifelong learning, e.g. MOOCS		
	Enhanced presentation of learning material		
	• Gamification of learning		
	• Educational games/Makes learning fun/Interactive learning		
	• Electronic learning environment (work at own pace/time)/ Focused learning/Stimulates self-learning		
	• Instant feedback to improve learner participation/performance		
	• Provides realistic simulations		
	Administration		
	• Distributing information to many learners/parents at the same time/Ease of communication		
	• Timetable and school management systems, e.g. School accounting system, marks, budget, etc.		
	Assessment		
	• Implement online assessment		
	• Analysis of assessment		
	Environmental impact		
	• Green computing (decrease the amount of paper used by educational institutions)		
	✓✓ (Any two)	2	
9.3.4	*TWO ways to prevent distractions when learners use mobile devices in the classroom*		
	• Limit mobile device usage in class to educational activities		
	• Confiscate/Take away mobile devices when used outside of restrictions		
	• Teachers can use classroom management/interactive software		
	• The school can restrict access to certain websites and services on their devices/network		
	✓✓ (Any two)	2	8

9.4	***Formatting objects created using a word processor***		
	• Rotate the 67% object✓AND move the objects to all be visible/move the objects to be in line with each other✓ • Resize the 67% object AND move it so that all objects are visible/send backwards • Send 67% object backward AND bring 28% and 9% objects forward • Send 67% object backward AND move 28% and 9% objects • Move the 9% object to the right AND rotate and reposition the 67% object (Any one combination = 2 marks) *(Note to marker: Accept techniques crop/no fill/wrap text together with another technique)*		2
9.5	***TWO reasons why the image is difficult to interpret***		
	• There are no labels/captions for each percentage • Do not know what each colour represents/No colour grading • There is no description/No legend if it is a chart • Title is incomplete/meaningless/does not give context • No axis titles if it is a chart in a spreadsheet ✓✓ (Any two)		2
			[25]

QUESTION 10: INTEGRATED SCENARIO

10.1.1	**Define minimum system requirements**		
	The lowest/minimum hardware/software specifications required✓ to load specific applications/software✓	2	
10.1.2	**TWO hardware components that enable data analysis (not motherboard)** • CPU/GPU • RAM • HDD/SSD ✓✓ (Any two)	2	
10.1.3	**TWO reasons for computers slowing down** • Not enough disk space • Hard drive becomes fragmented/is failing • Viruses, worms, spyware/Rogue programs using CPU • Registry bloat • Too many start-up programs Too many programs running at **once**/in the background/Updates overloading the PC • Newer apps are larger and require more resources ✓✓ (Any two)	2	
10.2.1	**Component to connect to a network** NIC✓/dongle	1	
10.2.2	**TWO reasons for NOT installing a peer-to-peer network** • Lacks security for unauthorised access • No centralised management of network resources • Virus protection is the responsibility of each individual user ✓✓ (Any two)	2	
10.2.3	**Wired media to connect the library computers** • UTP✓/STP cable/ LAN cable/Ethernet cable/Network cable	1	
10.2.4	**Device to connect LAN to the internet** Router✓/Modem	1	5

10.3.1	**TWO reasons for using cloud storage for backup**		
	• Data is available from anywhere/any device as long as cloud service is available • Saves HDD space on the local workstation • If computers are stolen, data will still be accessible • Some cloud backup services are free • Documents can be shared with others • Backups would be held offsite • Backups are managed by the provider • Storage can be easily upgraded ✓✓ (Any two) *(Note to marker: Accept reference to cost only if it is qualified)*	2	
10.3.2	TWO reasons to restore data from a backup		
	• Computer/Data may be stolen • Data may be corrupted • May be a victim of ransomware • Hard drive may crash/Hardware failure • Accidental deletion/loss of data • Recently installed software has made the system unstable ✓✓ (Any two)	2	4
10.4.1	**Bullet list tag**		
	• Unordered list✓ tag / \<ul\> / list item tag / \<li\>	1	
10.4.2	**Tag to create an open line in paragraph**		
	• Paragraph✓ tag/\<p\> / break tag / \<br\>	1	
10.4.3	**TWO changes to HTML code to correct a table**		
	• There should be \<tr\> and \</tr\> tags around every row of \<td\>\</td\> tags✓ • The \</table\> tag should be moved to the end✓	2	4
10.5.1	**Display cell contents without column adjustment**		
	• Wrap text/Alt+\<Enter\> before 'Earned' • Reduce font size • Change text rotation/direction/alignment ✓ (Any one)	1	
10.5.2	**Cell formatting in spreadsheets**		
	Formatted as text✓/Centred	1	6

10.5.3	***Appropriate option for a calculation*** **Option:** Option 1✓ **Motivation:** • Option 1 considers the entire range automatically which will save time/is more accurate • Option 2 is time consuming to search and select the required cells ✓ (Any one)	2	
10.5.4	***Reasons why IF-statement does not work*** • 'Yes' and 'No' arguments should be swopped for the 2nd IF statement✓ • First IF statement is missing a 'No' as the third argument✓ ***OR*** =IF(D2>30, IF(E2>10000, "Yes","No"), "No"✓) ✓	2	
			[25]

TOTAL SECTION C: **[50]**

GRAND TOTAL: **[150]**