



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

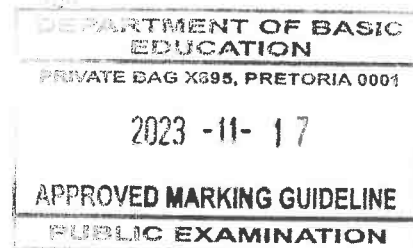
GRADE 12

COMPUTER APPLICATIONS TECHNOLOGY P2

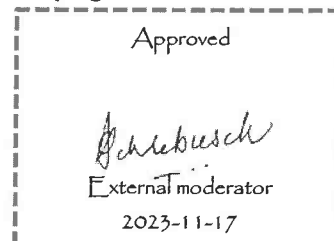
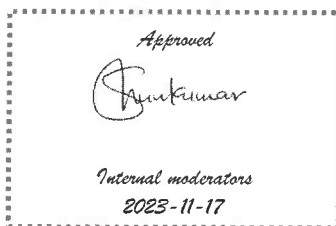
NOVEMBER 2023

MARKING GUIDELINES

MARKS: 150



These marking guidelines consist of 22 pages.



SUGGESTIONS AND RECOMMENDATIONS TO MARKERS

- Revisit the questions and the marking guidelines 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 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 state '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 answers/facts 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**

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

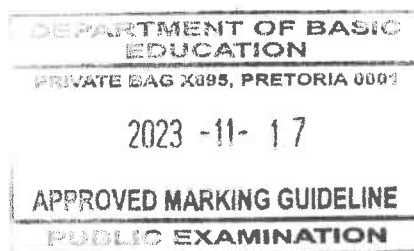
QUESTION 2: MATCHING ITEMS

2.1	C	✓	Broadband	1
2.2	H	✓	Software	1
2.3	A / T	✓	Switch/Hub	1
2.4	N	✓	Copyright	1
2.5	G	✓	VPN	1
2.6	E	✓	AI	1
2.7	S	✓	Cell padding	1
2.8	J	✓	Patch	1
2.9	O	✓	Digital footprint	1
2.10	B	✓	Web page	1
Total: [10]				

QUESTION 3: TRUE/FALSE ITEMS*(Note to marker:*

- In Question 3.1, 3.3 and 3.4, 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 the correct answer)*

3.1	False – Modem/Router/ADSL ✓	1
3.2	True ✓	1
3.3	False – Legend ✓	1
3.4	False – Ergonomics ✓	1
3.5	True ✓	1
		[5]

TOTAL SECTION A: 25

SECTION B**QUESTION 4: SYSTEMS TECHNOLOGIES**

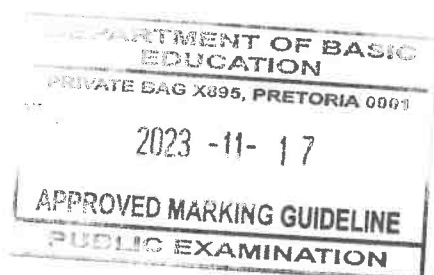
4.1	An example of an input and output device (1) (Multi) touchscreen/Smartphone/Smartwatch/Tablet (2) Force feedback steering wheel/joystick/headset (3) Multi-function scanner/printer (4) Interactive whiteboard ✓ (Any one)		1
4.2	Describe TWO ways in which communication in an information cycle take place (1) Send and receive information between different devices (transfer of files, downloading files, multimedia files) (2) Sharing information between different networks (3) Information can be accessed and updated (4) Sharing of information via channels such as email, instant messaging, video conferencing, etc (5) Transmission of feedback/error messages that requires response from user, etc. (6) Transmission of voice messages from a user to a device/system (7) Allows ICT devices to connect with each other ✓✓ (Any two)		2
4.3.1	Definition of data and an example Data refers to raw facts ✓ which as such does not have any meaning/unprocessed facts/not analysed ✓ Example: a list of numbers or words ✓ (Note to marker: Accept any other valid example)	3	5
4.3.2	How to transform data into information (1) Analyse the data (2) Interpret the data (3) Organise raw data ✓✓ (Any two) (Note to the marker: Accept description of any TWO of the above processes)	2	

4.4	<p><i>TWO ways to determine if your computer has been infected by malware</i></p> <p>(1) Drastic decrease in performance/Computer slows down (2) Pop-ups (ransomware message, etc) or error messages or anti-virus notification (3) Changes to your browser settings (4) High amounts of network traffic/Unexplained high data usage (5) Decrease storage space (6) Information/files/folders on the computer goes missing (7) Changes to your Windows settings/programs not working (8) Computer sending messages autonomously, etc.</p> <p>✓✓ (Any two)</p>		2
4.5	<p><i>TWO ways to utilise spooling in a network</i></p> <p>Documents sent to the printer can be:</p> <p>(1) Paused (2) Cancelled/Restarted (3) Given preference/prioritised (4) Placed in queue</p> <p>✓✓ (Any two)</p>		2
4.6	<p><i>TWO disadvantages of frequently defragmenting of a hard drive</i></p> <p>(1) Can increase the wear and tear of the hard drive, which can cause it to fail more quickly/decrease life span of the hard drive (2) Can be a time-consuming process (3) It slows down the overall performance of the computer while it is running (4) Could result in corrupted files</p> <p>✓✓ (Any two)</p>		2
4.7	<p><i>User interface on a computer and popular example</i></p> <p>It is a way to interact with your operating system or programs ✓</p> <p>Example Mouse, touch screen, stylus or keyboard, any other input device</p> <p>✓ (Any one)</p>		2
4.8	<p><i>Adjusting resolution</i></p> <p>(1) Search bar: Type Resolution: System setting: Display (2) Right click on desktop: Display settings (3) Right click on Start: Settings/System: Display (4) Windows Key + i</p> <p>✓ (Any one)</p>		1

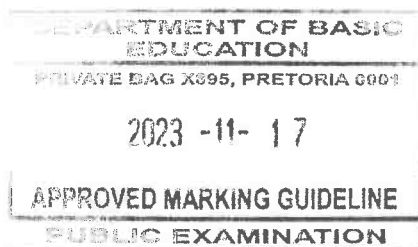
4.9	<i>TWO disadvantages of convergence</i> (1) Functionality of many devices is lost if the device fails (2) Shorter battery life for mobile convergence devices (3) High hardware demand (4) Reduced specialization (5) Security and privacy risks (6) Mastering of additional skills/overload (7) Device is more expensive (because of greater functionality) (8) Difficult to upgrade one component of the device ✓✓ (Any two)	2
4.10	<i>Reasons to use grid computing</i> (1) No need to buy powerful computing devices to perform complex processing (2) Complex calculations can be performed/increased computing power (3) Uninterrupted processing (4) Tasks are performed in parallel thereby improving performance (5) Uses idle resources ✓✓ (Any two)	2
4.11	<i>TWO limitations of a firewall</i> (1) Unable to protect against the transfer of files or software/social engineering (2) It does not prevent misuse of passwords from dialling in to or out of the internal network (3) Firewalls are not able to stop users from accessing data or information from malicious websites (4) Already infected systems cannot be secured by firewalls (5) Change settings to firewall can hamper network traffic ✓✓ (Any two)	2
4.12	<i>TWO possible solutions to resolve bottlenecks in data flow in local storage</i> (1) Make use of a SSD/faster hard disk drive (2) Use drives/peripherals with high cache capacities (3) Optimize/defragment the storage (4) Compressing data (5) Increase capacity ✓✓ (Any two)	2
		[25]

QUESTION 5: INTERNET AND NETWORK TECHNOLOGIES

5.1	<p>TWO reasons for using a wireless network</p> <p>(1) Easy to install (2) Less cables clutter/No wires (3) Easy to connect to (4) Added mobility/flexibility (5) Easy to expand</p> <p style="text-align: right;">✓✓ (Any two)</p>		2
5.2	<p>TWO guidelines/hints of video conferencing</p> <p>(1) Formal etiquette protocols E.g. Dress appropriately, use formal language, no multi-tasking, fair participation, correct posture etc.</p> <p>(2) Equipment E.g. Good speakers, good microphone, good web camera, good internet connection, UPS (continuous power supply)</p> <p>(3) Environment E.g. Quiet environment, suitable lighting, appropriate location</p> <p>(4) Software E.g. Close unused application, record and transcribe</p> <p style="text-align: right;">✓✓ (Any two)</p> <p>(Note to marker: Any TWO appropriate guidelines.)</p>		2
5.3	<p>Function of a NIC</p> <p>The NIC is used to connect a device to a network ✓ cable</p> <p>(Note to marker: Only accept connection not communication)</p>		1

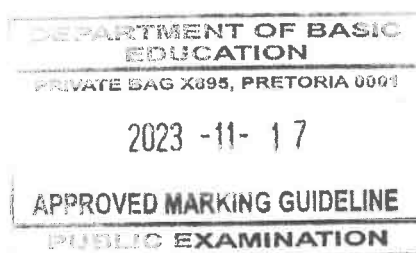


5.4	<p>TWO technologies of 4IR</p> <ul style="list-style-type: none"> (1) Artificial intelligence (AI) (2) Augmented reality (AR) (3) Virtual reality (VR) (4) 3D/4D printing (5) Cloud computing (6) IoT (7) Robotics (8) Quantum computing (9) Block chain (10) Automation, self-driving cars, machine learning (11) Genetic engineering (12) Drone technology <p style="text-align: right;">✓✓ (Any two)</p> <p>(Note to marker: Accept any correct technology)</p>		2
5.5	<p>TWO advantages of cloud computing in terms of storage</p> <ul style="list-style-type: none"> (1) Save storage space on local device (2) Storage can be accessed from anywhere (3) Storage can be accessed on any device (4) Faster access because of more powerful processors (5) It offers back-up and recovery functions (6) Latest updates, scalability and security are catered for <p style="text-align: right;">✓✓ (Any two)</p>		2
5.6	<p>TWO factors to consider for installing wireless access points</p> <ul style="list-style-type: none"> (1) Security it offers e.g. strong passwords (2) Distance/Area it covers (3) Different WiFi standards: Differ in speed, transmission ranges and frequency (4) Number of clients connecting (5) Signal interference <p style="text-align: right;">✓✓ (Any two)</p>		2
5.7	<p>TWO disadvantages of a PAN</p> <ul style="list-style-type: none"> (1) Limited range – only a few meters (2) Data transmission may be slow (3) Prone to interference (4) Limited number of devices can be connected/paired <p style="text-align: right;">✓✓ (Any two)</p>		2



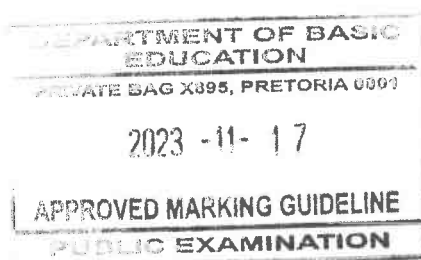
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5.8	<i>Term and description of throttling/policing</i> Throttling/policing ✓ Occurs when the ISP slows down the internet speed due to excessive data downloads/Not adhering to FUP (Fair Use Policy) ✓		2
			[15]

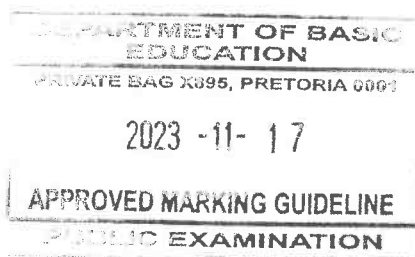


QUESTION 6: INFORMATION MANAGEMENT

6.1	Importance of report writing (1) Reader must have a clear understanding of the content (2) Displays a clear link between the original task/problem, research, discussion and conclusion (3) Share findings with the target audience (4) Gives a summary of your findings ✓ (Any one)		1
6.2	TWO considerations when formulating a task definition (1) Understand the current situation/describe the problem area (2) Identify the information needed to solve the information problem (3) Determine the focus area/question (4) Determine the steps to complete the task (5) Determine the target audience ✓✓ (Any two)		2
6.3	Spreadsheet feature to show increase/decrease over a period of time Trend line/Drop Lines✓		1
6.4	TWO aspects to consider when planning a questionnaire (1) Identify research aims and the goal of the questionnaire (2) Target audience (3) Type of questionnaire – electronic, written etc. (4) Consider the type of questions (open/closed)/information needed (5) Design question sequence and overall layout ✓✓ (Any two)		2
6.5.1	Evaluating a website (1) There are no guidelines for publishing on the web (2) Most information that is published on the web is not filtered and evaluated like books, journals, magazines, or newspapers (3) To ensure/assess quality/credibility/suitability of the website (4) Currency – is the information up to date? ✓✓ (Any two)		2

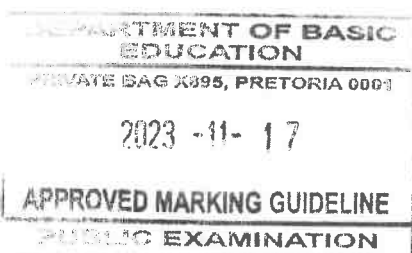


6.5.2	<p><i>TWO criteria to evaluate website</i></p> <p>(1) Affiliation (e.g. who supports the web site?) (2) Audience (e.g. level at which it is written/who is it intended for?) (3) Authority (e.g. who is the author credentials?) (4) Coverage (e.g. organisation of content and working links) (5) Currency (e.g. is the information up-to-date?) (6) Objectivity (e.g. does it reflect any bias?) (7) Accuracy (e.g. does it correlate with other sources?)</p> <p style="text-align: right;">✓✓ (Any two)</p>		2
			[10]

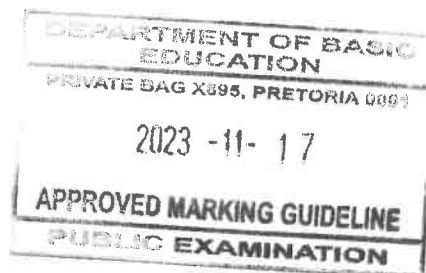


QUESTION 7: SOCIAL IMPLICATIONS

7.1	<p>Positive global impact of ICT</p> <ul style="list-style-type: none"> (1) Ease of global travel (2) Improved global communication (3) Important information or news can be shared (4) New learning opportunities and different ways of learning (5) New ways to do business/health care/etc. (6) Reduced impact on ecosystem – less driving, flying, printing, etc. (7) Telecommuting (8) Virtual communities (9) More economically viable <p style="text-align: right;">✓✓ (Any two)</p>		2
7.2	<p>TWO common internet attacks (excluding malware)</p> <ul style="list-style-type: none"> (1) Denial-of-Service (DoS) attacks (2) Phishing (3) Spoofing (4) Cyberterrorism (5) Sniffer attacks (6) Code (SQL) injection attacks (7) Supply chain attacks (8) Insider threats (9) Zero-day exploit <p style="text-align: right;">✓✓ (Any two)</p>		2
7.3	<p>Description of data protection AND method</p> <p>Description Data protection is about safeguarding your data/information from unauthorised access ✓</p> <p>Method</p> <ul style="list-style-type: none"> (1) Passwords (2) Firewalls (3) VPN (4) Encryption (5) Backup (6) Two factor authentication <p style="text-align: right;">✓ (Any one)</p>		2



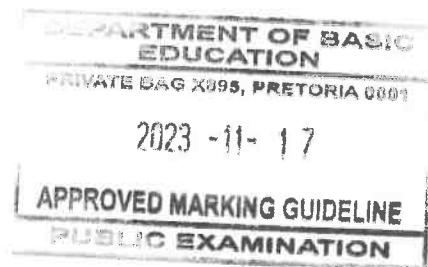
7.4	<i>TWO responsibilities of a network administrator</i> (1) Keep records of software (2) Keeps records of hardware (3) Ensure that only approved software is installed/updated (4) Ensure privacy (5) Manage usernames and passwords (6) Putting security measures in place e.g. access rights/blocking access of external storage device (7) Develop an acceptable user policy (AUP) (8) Backup and recovery ✓✓ (Any two)		2
7.5	<i>Options to prevent data loss in case of unscheduled power failures</i> (1) Use Autosave (2) Install a UPS (3) Install inverter (4) Make use of solar panels, battery bank etc. ✓✓ (Any two)		2
			[10]



QUESTION 8: SOLUTION DEVELOPMENT

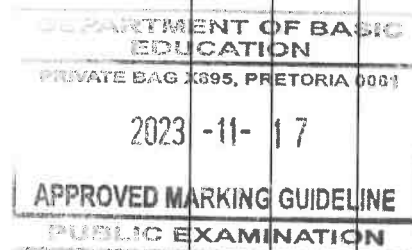
8.1	<p>TWO reasons to use headers and footers with an example</p> <p>(1) To repeat information at the top/bottom of every page (2) Provides a description of the document contents (3) Provide information about different sections of a multi-page document (4) Easy navigation</p> <p style="text-align: right;">✓✓ (Any two)</p> <p>Example Document information, properties, fields, dates, page number, file name, etc.</p> <p style="text-align: right;">✓ (Any one)</p> <p>(Note to marker: Accept any correct example)</p>		3
8.2	<p>TWO reasons why formula returns zero</p> <p>(1) Incorrect cell range: B7:B13 instead of C7:C13 (2) Incorrect function: CountA(B7:B13) (3) Column B is text/Cannot calculate text</p> <p style="text-align: right;">✓✓ (Any two)</p>		2
8.3	<p>TWO field properties to improve accurate data capturing (excluding validation rules)</p> <p>(1) Input masks (2) Field sizes (3) Default values (4) Lookup values like List Box, Combo Box, Check Box (5) Formatting e.g. Medium date</p> <p style="text-align: right;">✓✓ (Any two)</p>		2
8.4	<p>Force certain text to the next column</p> <p>Column Break ✓</p>		1
8.5	<p>Explanation of criteria</p> <p>The number entered is less than 0 (negative numbers) ✓ or numbers 5 and above ✓ / Numbers from 0 to 4 are excluded</p>		2
8.6	<p>Criteria for Username field in database query</p> <p>Returns a Username with:</p> <p>(1) ?? – Compulsory 2 start characters ✓; followed by (2) 'an' – The characters 'an' as the 3rd and 4th characters ✓; followed by; (3) '*' – A string of length 0 or more ✓</p>		3

8.7	Effect of missing height attribute on image The image will resize ✓ proportionally (maintain aspect ratio)		1
8.8	Reason to use button in Access table (1) Show/hide column totals (2) To display a summary of a field by using a total function/aggregate function ✓ (Any one) (Note to marker: Accept a specific example e.g. SUM, AVG, COUNT, MAX, MIN, etc.)		1
			[15]

TOTAL SECTION B: 75

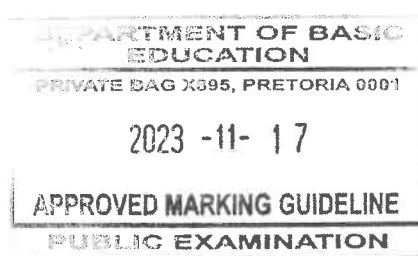
SECTION C**QUESTION 9: INTEGRATED SCENARIO**

9.1.1	Type of computer user Power/Super user/(gamer) ✓	1	
9.1.2	How is the size of monitors measured Monitors are measured diagonally ✓	1	
9.1.3	TWO types of utility software (1) Antivirus (2) Disk Clean-up (3) Disk defragment (4) Backup (5) File compressing (6) Task scheduler (7) File management, etc. ✓✓ (Any two)	2	
9.1.4	TWO additional hardware for this computer (excluding mouse, keyboard, joystick, steering wheel) (1) Blue Ray Rom/DVD Rom (2) VR glasses (3) Printer (4) Scanner (5) Screen/Big Screen (6) Speakers (7) Webcam (8) Video capture card (9) Microphone, etc. ✓✓ (Any two) (Note to marker: Accept gaming hardware not listed in the specifications given on the paper)	2	6
9.2.1	Type of cable media to connect computers and motivation UTP/STP (Twisted pair) CAT 5/6 Ethernet/LAN cable ✓ (Any one) Motivation (1) Most cost-effective solution (2) Easy to set up than fibre optics ✓ (Any one)	2	



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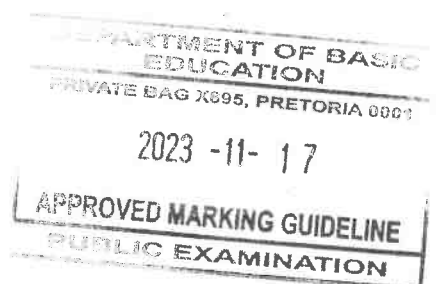
9.2.2	ONE reason why this network does not require a server (1) Each computer is managed on its own (2) No server is required on a gaming network (3) No need for centralised access to files (4) Games are often hosted on a local computer ✓ (Any one)	1	
9.2.3	TWO factors to consider when buying a printer (1) Type of printer (2) Colour (3) Speed (4) Resolution (dpi)/Graphics capability/Photo printing (5) Paper type and size (6) System compatibility (7) Wireless capability (8) Cost per page (9) Budget available (10) Mobility (11) Future needs (12) Affordability (13) Energy saving features (14) Print from storage device ✓✓ (Any two)	2	5
9.3.1	TWO physical safeguards to protect computers (1) Burglar bars (2) Security guard (3) Steel doors (4) Mesh in the roof (5) Locks (6) Alarm system (7) Cameras ✓✓ (Any two)	2	
9.3.2	Technology for tracking equipment (1) RFID (2) Barcode/QR codes/stickers (3) Bluetooth tracking devices ✓ (Any one)	1	3



88

9.4	<p>Name of security type and ONE disadvantage</p> <p>Biometric ✓ security</p> <p>Disadvantages of fingerprint biometric security</p> <p>(1) Dirty fingerprint will not scan (2) Changes in fingerprint structure will not allow access (3) Cannot be shared, person must be present (4) If the surface of the biometric device is dirty, it will not scan the finger correctly</p> <p>✓ (Any one)</p> <p>(Note to marker: accept any valid answer)</p>		2
9.5.1	<p>Definition of Virtual Reality</p> <p>The use of technology to create a simulation of a 3D environment ✓ that can be interacted with by a person in a seemingly real or physical way ✓</p>	2	4
9.5.2	<p>TWO disadvantages of Virtual Reality</p> <p>(1) Physical effects: motion sickness, injuries etc. (2) Psychological: moral and ethical concerns, (inability to distinguish between what is real and what is virtual) (3) Limited availability to the special equipment like VR glasses, video cameras</p> <p>✓✓ (Any two)</p>	2	
9.6.1	<p>ONE features why the chairs are considered gaming chairs</p> <p>Any ergonomic related answer (1) Adjustable armrest (2) Adjustable height (3) Movable base (4) Breathable material (5) Gaming related enhancements, etc.</p> <p>✓ (Any one)</p>	1	
9.6.2	<p>TWO ICT examples to advertise tournament</p> <p>(1) Social media (accept any TWO examples for TWO marks) (2) Website (3) e-mail (4) Radio and television broadcast</p> <p>✓✓ (Any two)</p>	2	5

9.6.3	MS Office application to capture and store individual entries Access ✓	1	
9.6.4	Thank participants in individual letters Mail merge ✓	1	
			[25]



QUESTION 10: INTEGRATED SCENARIO

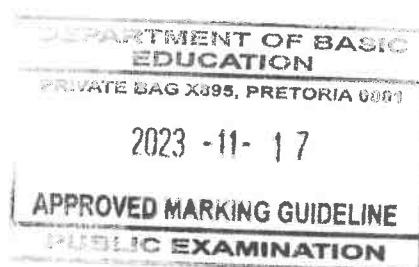
10.1.1	THREE suggestions to improve the form layout for electronic use (1) Use text form fields (2) Make use of checkboxes (3) Make use of dropdown fields/combo box/list box (4) Use a template ✓✓✓ (Any three)	3	5
10.1.2	Suggested closed questions (1) Number of drivers - 10 drivers (2) Car weight - Category >100 or <100 (3) Teams names – Choice of names given in list (Question ✓ and reason ✓)	2	
10.2.1	Example of type of online form applications (1) Google form (2) Microsoft form ✓ (Any one) (Note to marker: Accept any other online form application example)	1	4
10.2.2	TWO advantages of using online forms (1) More accurate/validation/few errors in data input (2) Easy to collect/short turnaround time (3) Easy management and analysis of data (4) Easy to share, etc. (5) Quick to complete/fill in (6) Eco friendly e.g. No use of paper/saves paper (7) Wider audience can be reached (8) Online forms are freely available ✓✓ (Any two)	2	
10.2.3	Formatting in Excel Conditional formatting ✓	1	
10.3	Create a distinguishing feature for each car Number plate/badge/logo/emblem/hood ornament etc. ✓ (Note to marker: Accept any design/accessories feature)	1	1

10.4.1	Explain data streaming Event/video will be watched live ✓ without downloading ✓	2	
10.4.2	TWO ways to transfer information from drones to computer (1) Wi-Fi connection (2) Bluetooth connection (3) Cellular connection (4) Satellite (5) Microwave (6) WiMax (7) SD card (8) Use USB cable ✓✓ (Any two)	2	
10.4.3	Example of fast internet connection (1) LTE/4G/5G (cellular connection) (2) Fibre (3) Satellite ✓ (Any one)	1	5
10.5.1	Numbers represent in the Internet speed 30 Download speed ✓ 5 Upload speed ✓	2	
10.5.2	Unit of measurement Bits per second ✓ (Note to marker: also accept Megabits per second)	1	3
10.6	Standardised document Template ✓		1
10.7.1	Description of the photo Caption ✓	1	
10.7.2	Table does not fit on page (1) Auto fit to contents (2) Auto fit to window (3) Change page orientation to landscape ✓ (Any one)	1	4

10.7.3	Ways to give recognition to contributed photos and articles (1) Citation (2) Bibliography (3) Photo with caption (4) Footnote/Endnote (5) Acknowledgement ✓✓ (Any two)	2	
10.8	Types of information captured in the metadata of photos excluding geographical data (1) Type of camera used (2) Time when photo was taken (3) Author (4) Date (5) ISO, etc. ✓✓ (Any two)	2	
			[25]

TOTAL SECTION C: 50

GRAND TOTAL: 150



88