

MARKING GUIDELINES

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SOUTH AFRICAN COMPREHENSIVE ASSESSMENT INSTITUTE
SUID-AFRIKAANSE KOMPREENSIEWE ASSESSERINGSINSTITUUT

FINAL APPROVED MARKING GUIDELINES

DATE OF MEETING	
UMALUSI MODERATOR	
CHIEF MARKER	
INTERNAL MODERATOR	

SECTION A: SHORT QUESTIONS

QUESTION 1

1.1	Match column A and column B	
1.1.1	F ✓	
1.1.2	G ✓	
1.1.3	I ✓	
1.1.4	E ✓	
1.1.5	J ✓	
1.1.6	C ✓	
1.1.7	K ✓	
1.1.8	M ✓	
1.1.9	N ✓	
1.1.10	L ✓	(10)
1.2	TRUE or FALSE statements	
1.2.1	True ✓	
1.2.2	False- fingerprint/facial/ear (any biometric example) ✓	
1.2.3	False, Backup ✓	
1.2.4	False- High ✓	
1.2.5	True ✓	(5)
1.3	One word/concept for:	
1.3.1	Algorithm ✓	
1.3.2	Digital Divide ✓	
1.3.3	Driver/utility driver ✓	
1.3.4	Virtual reality ✓	
1.3.5	Streaming ✓	(5)
TOTAL SECTION A: [20]		

SECTION B: SYSTEMS TECHNOLOGIES

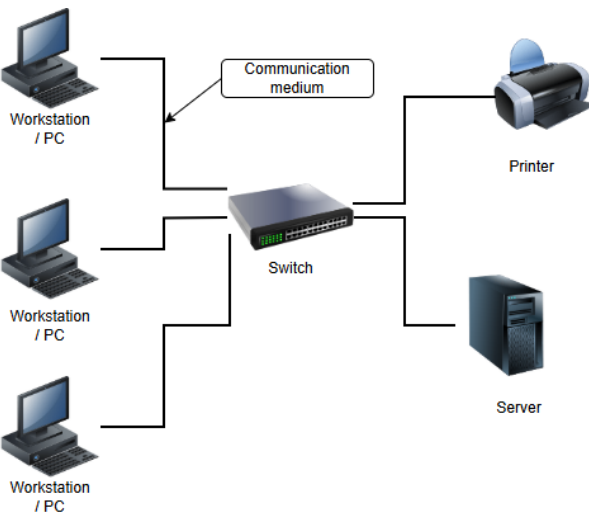
QUESTION 2

2.1	Gamers need high specification computers and are regarded as power users. ✓	(1)
2.2.1	Component performing calculations and executes instructions. ✓	(1)
2.2.2	A processor containing 4 independent/separate processors OR Each of 4 processors (known as cores) allows the processor to handle multiple tasks simultaneously. ✓	(1)
2.2.3	Multiprocessing: when a CPU has multiple cores in a single CPU or multiple CPU's ✓ and each can simultaneously process a different task ✓ This improves performance, especially for complex and resource-intensive applications. Multitasking: This involves the operating system managing and switching between multiple tasks so quickly that it appears ✓ they are running simultaneously. In reality, each task is given a small time slot ✓ to execute before the CPU switches to the next task. This rapid switching creates the illusion of simultaneous processing but does not provide true parallel execution like multiprocessing.	(4)
2.2.4	Special high-speed memory on the CPU ✓ that hold the most probable next instruction to be processed by storing frequently used data and instructions it saves transfer time between CPU and RAM. ✓	(2)
2.3.1	The number of pixels ✓ on the screen, across the width and height. These two numbers are multiplied to get the number of pixels. Pixels are tiny dots making up the display. (NOT quality as it refers to a combination of many other properties as well like refresh rate)	(1)
2.3.2	Gamers use high FPS (frames per second for smooth gameplay) ✓ and the CPU will need the support of the GPU, which is crucial for tasks that require high graphics performance ✓ and Video RAM on the card. ✓ (2 working together to share load)	(3)

2.4	<p>Any TWO properties compared: ✓✓</p> <p>Secondary Storage: Keeps documents/data permanently Not dependent on power for storage Lower cost per GB Much larger capacity than memory</p> <p>Compared with: ✓✓</p> <p>RAM: keeps documents/data while in process Allows for faster access time (close to CPU) Volatile Higher cost per GB- Smaller amount/capacity in PC</p>	(4)
2.5.1	It is a set of system software ✓ that controls all hardware and software activities on the computer. ✓	(2)
2.5.2	<p>Any THREE facts from the following: ✓✓✓</p> <ul style="list-style-type: none"> • Process management • Memory management • Input/output management • Security management • Storage management • Provides a GUI 	(3)
2.5.3	<p>Other software will be Application software and is personal to individual users. ✓</p> <p>OR</p> <p>The computer requires OS to run, that's why it is included.</p>	(1)
2.6	<p>Any THREE facts from the following: ✓✓✓</p> <ul style="list-style-type: none"> • Ergonomics refer to the design of devices • to reduce the strain during repetitive use to prevent injury. • Gamers spend long hours • and need fast interaction with the input device- this mouse also has extra buttons on it for quick response. 	(3)
2.7.1	Ease of movement of devices- no entangling cables (concept of mobility). ✓	(1)
2.7.2	USB ✓	(1)
2.7.3	HDMI ✓ (USB C/display port)	(1)
2.8	SSD has faster access/transfer rate ✓	(1)
TOTAL SECTION B: [30]		

SECTION C: COMMUNICATIONS AND NETWORK TECHNOLOGIES

QUESTION 3

3.1	Multiple computers and devices (nodes) ✓ connected by means of a communication medium in order to communicate. ✓	(2)
3.2.1	Any THREE and explained: ✓✓✓ <ul style="list-style-type: none"> • Attenuation : the loss of signal strength over distance/range • EMI: electromagnetic interference , disrupt the signal quality • Eavesdropping: closeness of cables can ‘copy’ signal • Crosstalk: security risk where access to another signal occurs • Bandwidth: UTP stays the same regardless the number of connection- wireless –share and become slower as more people connect 	(3)
3.2.2	Fibre optical ✓	(1)
3.2.3	Any ONE: ✓ <ul style="list-style-type: none"> • Mobility of connections- group work on own devices (BYOD) • When setup area makes the use of cabling difficult • Employees can use devices they are most comfortable with 	(1)
3.3	<p>Classroom LAN</p>  <p>Mark allocation</p> <ul style="list-style-type: none"> • Layout and components (1 Mark) ✓ • Server (1 Mark) ✓ • Switch (1 Mark) ✓ • Communication medium indicated (1 Mark) ✓ 	(4)

3.4.1	<p>Any TWO: ✓✓</p> <ul style="list-style-type: none"> • Lower IT costs (specs on your PC) • Scalability • Access from anywhere • Utilise backup services • Extra data storage- security- sharing of large folders • Services such as SaaS • Collaboration on the same documents 	(2)
3.4.2	<p>The ability to work from remote locations (home) ✓ due to online connection (Internet). ✓</p>	(2)
3.4.3	<p>(Hire software) software applications are hosted by a service provider and made available to users over the Internet. ✓</p> <p>Any TWO advantages: ✓✓</p> <ul style="list-style-type: none"> • Pay for as long as you need- • Low upfront cost • Reduced maintenance cost • always latest updated software, • scalability of the software based on your needs • remotely accessible from any location. 	(3)
3.4.4	<p>A virtual office is a business setup where employees work remotely and use digital tools to communicate, collaborate, and manage tasks instead of working in a shared physical space. ✓</p> <p>Any good reason/benefit: ✓</p> <ul style="list-style-type: none"> • More people are working from home since Covid and office space is not that important anymore. • Webinars and other meetings reduced the need to meet physically. • Saves cost – e.g. Travelling. 	(2)
TOTAL SECTION C: [20]		

SECTION D: DATA AND INFORMATION MANAGEMENT

QUESTION 4

4.1.1	(X) Shortname ✓ from (Y) tblManufactures ✓ must be added to (Z) tblCPU ✓	(3)
4.1.2	Each value must be unique ✓	(1)
4.1.3	(a) integer ✓ (b) String ✓	(2)
4.1.4	Split it into two different fields ✓ and declare them with real data type.	(1)
4.1.5	With date- many built-in date functions ✓ can be utilised instead of string handling. OR Specific input components can be used to prevent input errors, e.g. Datetime picker.	(1)
4.2	Algorithm(steps) used during design of tables ✓ to split them into multiple tables in a way to avoid redundant data (prevention of anomalies) ✓	(2)
4.3	Any TWO properties explained with each of the following: Desktop DBMS: ✓✓ <ul style="list-style-type: none"> • for single user or small businesses. • often come bundled with office software suites and do not require additional hardware or software investments. • less expensive and smaller data volumes. • easier to setup and use- no extensive IT knowledge required. Server DBMS: ✓✓ <ul style="list-style-type: none"> • multiple simultaneous access/users. • handles large volumes of data. • designed to scale up by adding more resources (like CPU, memory, and storage) to the server or scale out by adding more servers to the network. • can be saved- distributed for faster access and better security • more expensive. 	(4)
4.4.1	Garbage in Garbage out refers to untrustworthy (not verified) data entered ✓ can lead to wrong summaries of results ✓ and to wrong business decisions being made- negatively affecting the user even financially.	(2)

4.4.2	<p>The testing of data to fit the input criteria ✓ in order to protect the program from malfunctioning ✓ (bombing out) Done via: ✓ presence check, data type check, format, range</p> <p>Text book answer for students: Validation is the process of ensuring that data entered meets certain criteria.</p> <p>Why Validation Should Be Applied: Any ONE:</p> <ul style="list-style-type: none"> • Ensures that the data entered is correct and free from errors. • Maintains uniformity in data entry, which is crucial for reliable data analysis and reporting. • Prevents malicious or incorrect data from being entered, which could compromise the system. <p>Example of Applying Validation: Any ONE:</p> <ul style="list-style-type: none"> • Format Check: When a user enters their email address check if the input follows the standard email format (example@domain.com). • Presence Check: Ensuring that a required field, such as a username or email address, is not left blank. • Data Type Check: Verifying that the data entered matches the expected data type, such as numbers, text, or dates. • Range Check: Ensuring that a value falls within a specified range. When entering a birthdate, check if the date falls within a reasonable range (not in the future and within a certain age limit). 	(3)
4.4.3	<p>Any THREE: ✓✓✓</p> <ul style="list-style-type: none"> • Passwords on files; strong unique passwords • Encryption • Biometric access • Frequent saving • UPS/surge protectors • Have regular backups to restore from • Anti-virus as we use external storage • Keep computer in a secure location 	(3)
4.4.4	Statistical analysis of data ✓ in order to find patterns/trends. ✓	(2)

4.4.5	<p>Any ONE: ✓</p> <ul style="list-style-type: none"> • Fields are already structured (no need for stringhandling) • Easier to run queries (databases are built to handle and find lots of data quickly and easily) • Can enforce data integrity to ensure quality data. 	(1)
TOTAL SECTION D: [25]		

SECTION E: SOLUTION DEVELOPMENT

QUESTION 5

5.1.1	a. Constructor ✓ b. Space in RAM is allocated ✓ (object is created) to the attributes and methods of the object and initial values allocated as defined in the constructor. ✓	(1) (2)
5.1.2	Procedure ✓ that changes/sets the values of attributes. ✓	(2)
5.1.3	Function that builds a formatted string ✓ output line of the attributes.	(1)
5.1.4	Any TWO: ✓✓ <ul style="list-style-type: none"> • Can be reused in same and other programs • Lessens the lines of code • Troubleshooting easier • Makes the program more readable 	(2)
5.2	NO, as you only need the ID to get all information. ✓	(1)
5.3	<pre> 1. iDeleted := 0; ✓ 2. sLine := edtInput.text; ✓ 3. for iLoper := 1 to length(sLine) downto 1 ✓ do ✓ 4. if NOT(uppercase(sLine[iLoper]) in ['A'..'Z', '0'..'9']) 5. then Begin 6. delete(sLine, iLoper, 1); 7. inc(iDeleted); 8. END 9. Showmessage(sLine+#10+'Number deleted characters: '+ 10. strtointtostr (iDeleted)); </pre> <p>Alternative if the use a new string:</p> <pre> iDeleted :=0; sNew :=''; ✓ for both sLine := edtInput.text; ✓ for iLoper := 1 to length(sLine) do ✓ if uppercase(sLine[iLoper]) in ['A'..'Z', '0'..'9']) then begin ✓ snew := snew + sLine[iLoper]; ✓ inc(iDeleted); end; Showmessage(sLine+#10+'Number deleted characters: '+ strtointtostr (iDeleted)); </pre> <p>Another alternative Or use a while loop as the string is not a set length. Handling deletions adjusts the loop counter dynamically. while iLoper <= length(sLine) inc(iLoper); // Increment iLoper only if no deletion</p>	(6)

5.4.1	<p>If rSpeed < 2.5 ✓ Then sCat ← 'Slow' If (rSpeed >= 2.5) and (rSpeed <= 3.2) ✓ then sCat ← 'Medium' If (rSpeed > 3.2) and (rSpeed < 4) ✓ then sCat ← 'Fast' If rSpeed >= 4 ✓ then sCat ← 'Very fast'</p> <p>Allow for nested IF structure. If cusp values are incorrect -1 If pure Delphi code is provided -1</p>	(4)
5.4.2	<p>NO, as a CASE statement can only work with ordinal values, which are integers, Booleans and characters. ✓</p>	(1)
<p>TOTAL SECTION E: [20]</p>		

SECTION F: INTEGRATED SCENARIO

QUESTION 6

6.1.1 a)	Social engineering is a manipulation technique ✓ that exploits human psychology to gain access to confidential information or perform unauthorised actions. It often involves tricking individuals into divulging sensitive information, ✓ such as passwords or personal details, by pretending to be a trustworthy entity.	(2)
6.1.1 b)	<p>The use/theft ✓ of your personal information to commit fraud under your name. ✓</p> <p>Core difference: a) is action of luring you to provide personal detail b) use of personal info for committing fraud</p> <p>Core difference between social engineering and identity theft lies in their methods and objectives:</p> <p>Method: manipulating and deceiving individuals VS stealing someone's personal information.</p> <p>Objective: primary goal is to trick individuals into revealing sensitive information VS main goal is to impersonate the victim to commit fraud or other crimes.</p>	(2)
6.1.2	<p>Any TWO: ✓✓</p> <ul style="list-style-type: none"> • Banks/SARS will never ask you to confirm password or usernames • If it is too good to be true it is because it is not- use common sense • Not to click on unknown links • Report suspicious actions to the bank • Install firewall • Install and keep anti-malware updated • Regularly update your OS, browser and other software • Use HTTPS websites only - rather use bank apps from app store • Avoid using public Wi-Fi for banking purposes • Avoid using the same password on multiple accounts 	(2)
6.1.3	<p>Yes with any TWO reasons: ✓✓</p> <ul style="list-style-type: none"> • The employees will be informed of such simulations. They know; • This educates the employees on how to stay alert • Learn new attack approaches • Limits the risk for the company if employees are vigilant <p>OR</p>	

	Regular simulations can help employees develop critical thinking and quick decision-making skills. Provide proper feedback and support to employees who may struggle with these exercises.	(2)
6.1.4	They will employ an Ethical (White hat) hacker, as they will use their skills to advance the company's security ✓ and find weaknesses ✓ in security.	(2)
6.2.1	It is the way in which we design, use and discard electronic devices ✓ in a way to lessen the carbon footprint. ✓	(2)
6.2.2	Any THREE: ✓✓✓ <ul style="list-style-type: none"> • Take old parts/devices to an e-waste recycling facility. • Use sleep modes to save power. • Print both sides of paper when proof reading- lessen font size. • Donate old workable computers/devices and do not just dump them. • Utilise cloud storage and backups as opposed to extra hard drives. • Opt for refurbished or second-hand devices to reduce demand for new products and minimise waste. • Utilise manufacturer or retailer take-back programs that accept old electronics for recycling or proper disposal. • Fix broken devices instead of replacing them with new ones to extend their lifespan. • Choose companies and products that prioritise sustainability and environmentally friendly practices. 	(3)
6.3.1	It is piracy to download (paying) 1 ✓ copy and install it on multiple devices when the licence allows for 1 download only. ✓	(2)
6.3.2	By referencing it in your bibliography. ✓	(1)
6.3.3	Downloads from Internet. ✓	(1)
6.3.4	Illegal copying/replicating of software/music/movies ✓ and selling/sharing/distributing it for your own benefit. ✓	(2)
6.4.1	Motherboard is an electronic board (pcb: printed circuit board): ✓ Any TWO functions: ✓✓ <ul style="list-style-type: none"> • that acts as holder/connector for computer components. • that allows for communication between components. • that supplies power to components. 	(3)

6.4.2	Need for new motherboard designs: to accommodate advancements in technology, such as new CPU architectures, faster memory standards, improved connectivity options, and enhanced power efficiency. ✓	(1)
6.4.3	<p>Concepts: definition of VM ✓ and effect. ✓✓</p> <p>Smaller RAM will use virtual memory on storage more ✓ frequently and the HD is slower ✓ and time is spent on the paging of files between RAM and HD.</p> <p>With more RAM information is directly available to CPU – ✓ You can open more files simultaneously. ✓</p>	(3)
6.5	<p>Augmented reality is creating a computer generated shell (virtual world) over a real world object. ✓</p> <p>Any well explained example: ✓</p> <ul style="list-style-type: none"> • Simulators for experiments • Virtual tours through museums, other countries etc. • A biology textbook including AR features that show 3D models of the human body • Students can point their devices at objects in the classroom, and the AR app will display the names of those objects in the target language. 	(2)
6.6.1	Secure socket layer ✓	(1)
6.6.2	<p>Data is sent by encrypting it with a public key. ✓</p> <p>The recipient has a private key ✓ that will be used for the decryption.</p>	(2)
6.6.3	Internet is the global network (hardware resources); supports many services ✓ and the WWW is the collection of websites/web pages and resources ✓ that can be accessed (one of these services).	(2)
TOTAL SECTION F: [35]		
GRAND TOTAL: [150]		